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SEAPORT VULNERABILITY TO CRIMINAL NETWORKS: A MIXED METHOD
APPROACH TO MEASURING CRIMINOLOGICAL VULNERABILITY IN THE TOP 30
U.S. CONTAINER PORTS

by

LEONID LANTSMAN

A dissertation submitted to the Graduate Faculty in Criminal Justice in partial fulfillment of the
requirements for the degree of Doctor of Philosophy, The City University of New York

2017

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Criminological Vulnerability in the Top 30 U.S. Container Ports

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This manuscript has been read and accepted for the Graduate Faculty in
Criminal Justice in satisfaction of the dissertation requirement for the degree of
Doctor of Philosophy.

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ABSTRACT

Seaport Vulnerability to Criminal Networks: A Mixed Method Approach to Measuring Criminological Vulnerability in the Top 30 U.S. Container Ports

by

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Advisor: Michael Maxfield

Seaports form a unique space for criminological examination. As the locus points for the majority of international and domestic trade criminal network access to a port can provide outsized benefits. While ports are physical spaces they are underlined by complex systems incorporating public and private agencies, companies and small entities. Underlying the administrative and logistical activity at the port is a jurisdictional web of public and private security regulatory agencies. The complexity of the environment creates vulnerabilities that criminal networks can use to gain access to ports. This dissertation developed a Seaport Vulnerability Framework (SVF), developed from the rational choice and situational crime prevention literature with a multi-disciplinary focus that allows security stakeholders to identify whether a port is at risk of utilization by criminal networks. The SVF is used to measure and analyze criminological vulnerability in the top 30 U.S. container seaports and in-depth in a case study at the Port of New York and New Jersey. Finally, I examine the implications of the SVF for port and maritime security policy and port security assessments in the U.S. and worldwide.

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Abbreviations

APM Terminal: AP Moller-Maersk, a major shipping and terminal operator
ATS: Automated Targeting System
CBP: U.S. Customs and Border Protection
CRAVED: Concealable, Removable, Available, Valuable, Enjoyable, Disposable
CSI: Container security initiative
C-TPAT: Customs and Trade Partnership against Terrorism
DHS: Department of Homeland Security
DHS/ICE: Department of Homeland Security/Immigration and Customs Enforcement
GAO: U.S. Government Accounting Office
ILWU: International Longshoremen's and Warehousemen's Union
ILA: International Longshoremen's Association
ISPS: International Ship and Port Security Code
ISO: International Standards Organization
MARAD: U.S. Maritime Administration
MTS: Maritime transportation system
MTSA: Maritime Transportation and Security Act of 2002
MSRAM: Maritime Security Risk Assessment Matrix
PNYNJ: Port of New York and New Jersey
PANYNJ: Port Authority of New York and New Jersey
SAFE: World Customs Organization Framework of Standards to Secure and Facilitate Global Trade
SAFE Ports Act: The Security and Accountability For Every Port Act of 2006
SCP: Situational crime prevention
SFI: Safe Freight Initiative
SOP: Standard operating procedure
UNODC: United Nations Office on Drugs and Crime
USCG: U.S. Coast Guard
WCO: World Customs Organizations

Chapter Outline

This dissertation is divided into nine chapters.

- Chapter 1 describes the structure of the maritime transportation system, the shipping process for a container transit, and the limitations of the current approach to port security.
- Chapter 2 explores the theoretical perspectives that inform the Seaport Vulnerability Framework (SVF). These include how seaports are prime locations of CRAVED products and services; how seaports can act as crime places, including crime generators and crime attractors; how the concepts of defensible space can be adapted to seaports; and supply chain security research and best practices. The chapter describes how the multiple theories are combined to form an integrated theoretical approach to developing the SVF.
- Chapter 3 introduces and details the SVF, developed from a two-year pilot study at the Waterfront Commission of New York Harbor, and informed by the literature on seaport administration and criminal networks and publicly available cases of criminal network seaport use.
- Chapter 4 presents the primary research question and research propositions.
- Chapter 5 describes the methodological approach of this project, data sources, and methodology used in developing the Seaport Vulnerability Framework to examine comparative vulnerability in the top 30 U.S. container seaports and in the case study of the Port of New York and New Jersey (PNYNJ). This chapter lays out how the vulnerabilities are operationalized, describes the data sources used to measure them, and the primary data limitations.

- Chapter 6 analyzes the top 30 U.S. container ports using the Seaport Vulnerability Framework.
- Chapter 7 is a case study of the PNYNJ, examining the port through the Seaport Vulnerability Framework using a mixed methods approach through interviews, public sources, and primary source documentation to develop a criminological vulnerability model of the port.
- Chapter 8 examines the policy implications and recommendations of the Seaport Vulnerability Framework for U.S. maritime and port policy and seaport vulnerability assessments.
- Chapter 9 addresses the study limitations, focusing on data sources and measurement issues, and details future directions for research.

Chapter 1- Introduction

1.1 Problem statement

Seaports provide a unique space for criminological examination. As the spatial loci for the majority of international and domestic trade, access to a port can yield significant financial benefits for a criminal network (Interagency Commission on Crime at U.S. Seaports 2000; Organization of American States 2013). While ports are physical spaces, they are also spaces defined by complex systems marked by intersecting stakeholder roles, including administrative agencies, private companies, and regulatory entities. Underlying the administrative and logistical activity that is a seaport's primary function are the jurisdictional responsibilities of numerous public and private security regulatory agencies. The complexity created by a seaport's simultaneous existence as a physical space and as a theoretical space, characterized by contesting legal, administrative, and market claims, results in gaps or vulnerabilities that criminal networks can exploit to gain access to ports.

Criminal networks use the maritime transportation system to move narcotics, stolen vehicles, people, and illicit goods around the world to access new markets, supply existing ones, and generate greater proceeds for their activities. The amount of harm generated by illicit criminal activity and dark markets can be measured in the billions of dollars, as illicit goods, such as small arms and narcotics, proliferate throughout the world (Buchanan and Chavarria 2015). Understanding the vulnerabilities created at the points transited by these illicit goods, such as seaports, and understanding how criminal networks access those points addresses a significant gap in the efforts to curb such illicit flows. Today, seaport security in the U.S. and abroad is determined by port and cargo security assessments performed by federal agencies such as the U.S. Coast Guard and U.S. Customs and Border Protection that do not currently

incorporate a criminological approach, instead focusing on efforts to prevent infrastructure and human losses due to terrorist attacks. Using a criminological lens to identify and understand seaports provides policymakers with an additional assessment methodology to assist in securing seaports against criminal networks.

This dissertation employs a mixed method approach to identify and examine vulnerabilities at seaports through a seaport vulnerability analysis of the top 30 container ports in the U.S. and a case study of the Port of New York and New Jersey (PNYNYJ).

1.2 Definitions

To remain consistent with previous research on crime at U.S. seaports, I use the definitions in the Interagency Commission on Crime and Security at U.S. Seaports (2000).

Seaports refer to “harbors for seagoing vessels with facilities to lade and unlade cargo and/or passengers and with easy access to the sea (from the 24 nautical mile contiguous zone to the terminal).” “Ports” also refers to the port authorities that operate the cargo handling facilities. In this dissertation, the term ports is used to refer to the places where marine cargo handling operations occur and which may have other services located in the area such as warehousing or trucking. Both ports and seaports are used interchangeably in this document.

Criminal networks: Instead of the term “organized crime,” I use the term “criminal networks.” Organized crime implies levels of organization not found in most criminal groups (Van Duyne 2005). In addition, the term “criminal networks” acknowledges that much of the criminal activity that occurs at seaports is a result of criminal actors exploiting market forces that enable them to engage in illicit forms of arbitrage (UNODC 2012). The term “criminal networks” captures the notion that groups engaging in criminal activities either at companies operating a seaport, or using the services at a port, are likely not to be organized in a hierarchical

manner. However, in some seaports, such as the PNYNJ, “organized crime” is the most commonly used term and I use that term when examining activity at the PNYNJ.

1.3 Maritime transportation system

The international transportation supply chain has been described as a system of systems (DHS 2005; Mansouri et al 2009; MARAD 2009). The facets of the maritime transportation system (MTS), rather than operating as a closed system, are interconnected with feedback loops occurring at every point. Seaports are themselves a system within the MTS where vessels, intermodal connections, waterways, users, and ports form the key components of the system. This foundational perspective of the MTS underscores the fact that security initiatives in any sub-system are compromised by vulnerabilities in others. Therefore, while shipping in the U.S. is governed by numerous security protocols (U.S. General Accounting Office 2010) and waterways are governed by numerous public regulatory initiatives, security at seaports is subject to a variety of inputs and pressures from the systems within the MTS.

Policymakers have attempted to address regulatory or security gaps through a variety of international and domestic security programs with a focus on the primary vector of maritime transport, the shipping container (Goulielmos and Anastasakos 2005; Martinosi, Ortiz, and Willis 2006: 219; Kruk and Donner 2008). The transit of a container, when viewed within the context of the system of systems, displays how vulnerabilities exist at all points along the supply chain (Barnes and Oloruntoba 2005; Pate et al. 2008; Grillot et al. 2009).

1.4 Shipping container transit

Container shipping represents the primary method of movement for the vast majority of cargo worldwide and remains the primary method of cargo import and export to and from the U.S. (MARAD 2009; USDOT 2011; UNCTAD 2012). In 2010, one in every 11 containers was

either bound for or originated in the U.S., equating to roughly nine percent of total global trade (USDOT 2011). Typically, a container shipped from an overseas destination to the U.S. is packed on order with goods from a single factory. Goods may also be sent to consolidated freight stations where a container is filled with cargo from multiple consignees. The container is then moved by road or rail to an embarkation seaport. The container may be inspected by both the origin country's customs service and, in some seaports, U.S. Customs and Border Protection (CBP) through U.S. agents stationed at overseas ports through the Container Security Initiative (U.S. CBP 2009)¹. The container is loaded onto an ocean-going vessel, itself subject to a security framework, the International Ship and Port Facility Security (ISPS) code (International Code for the Security of Ships and Port Facilities 2004). Depending on the routes available from the embarkation seaport, some containers may be shipped to a transshipment seaport, such as Gioia Tauro, Sicily or Jebel Ali, United Arab Emirates, where they are loaded onto another vessel for transfer to its final destination seaport (Vis and DeKoster 2003).

After reaching a U.S. destination port, the container is offloaded at a shipping terminal, either port authority-owned or privately owned and operating on port authority-leased land. The various facilities at the port that handle maritime cargo are governed by the Maritime Transport Safety Act of 2002 (MTSA 2002), which states in Sec. 70102 that “the Secretary shall conduct a detailed vulnerability assessment of the facilities and vessels that may be involved in a transportation security incident.” This is the base legislation that enables the U.S. Coast Guard to identify critical facilities and conduct assessments of vulnerability based on the conditions set by the MTSA for what constitutes a critical transportation security incident, defined as “a security incident resulting in a significant loss of life, environmental damage, transportation

¹ See Appendix A for further information on overseas inspections.

system disruption, or economic disruption in a particular area” (MTSA 2002; Sec. 70101). The U.S. Coast Guard conducts these vulnerability assessments using the Maritime Security Risk Analysis Matrix, or MSRAM, and has done so for over 30,000 individual facilities (Keating, Howard, and Arimoto 2014). Therefore the container moves through a U.S. port which has a core underlying assessment framework focused on disruptive incidents. After the container arrives at a U.S. port, not only are the facilities it passes through subject to vulnerability analysis, the container and its contents are as well (Congressional Budget Office 2016). Some containers will at the point of entry be identified for inspection by CBP through the cargo security risk analysis system called the Automated Targeting System (ATS) that incorporates data from multiple systems to develop a risk summary for inbound and outboard cargo (Importer Security Filing and Additional Carrier Requirements). If the cargo is identified for further inspection it may be taken to a Centralized Examination Station, which may be located on or off the terminal site (19 CFR 118.2). Containers not singled out for inspection move to a holding area on the terminal until a drayage (or short haul) truck picks up the container or it is taken to a rail yard for transportation to an inland distribution point. If picked up by a drayage truck, the container is taken to its final destination (Bensman and Bromberg 2009) or to a warehouse for onward distribution, generally no greater than 75 miles from the port.

1.5 Port security initiatives

The transit scenario described above illustrates the interconnected sub-systems involved in shipping. At both the embarkation and debarkation points, the seaport plays an integral role as a space where security can be concentrated to prevent the transit of illicit cargo. Since 2001, with the aim of addressing security at seaports, particularly the use of containers by terrorist groups, policymakers have implemented numerous seaport and shipping security initiatives with

varying degrees of success (Goulielmos and Anastasakos 2005; Martinosi, Ortiz, and Willis 2006; Kruk and Donner 2008). While this dissertation addresses vulnerabilities beyond container security, the container security regime serves as the foundation of U.S. and international seaport security.

The regime is primarily implemented by U.S. Customs and Border Protection, which before September 2001, inspected between two and four percent of the containers that entered American ports (Marine Link 2004; McClure 2007). After the September 2001 terrorist attacks, and following simulations detailing an attack on a U.S. port (Los Angeles/Long Beach) using a container (Meade and Molander 2006), the public and Congress pressured U.S. regulatory agencies to implement more stringent screening regulations (U.S. General Accounting Office 2008; U.S. General Accounting Office 2008a).² Currently, several maritime security initiatives are enforced at U.S. seaports and form the core security framework addressing illicit use of the supply chain.³ The primary focus of these initiatives is to push inspection of containers away from U.S. seaports and back to overseas embarkation points (U.S. Customs and Border Protection 2009; U.S. General Accounting Office 2012).

The other aspect of the port security regime is the role of the U.S. Coast Guard which oversees port security regulations under the federal mandate of the Maritime Transportation Safety Act of 2002 (MTSA 2002) and the SAFE Ports Act of 2006 which provided the U.S. Coast Guard with an increased responsibility to ensure port security in the 36 primary Coast Guard sectors. This includes assessing port vulnerability with a primary focus on risk that

² In fiscal year 2009, 4.9% of containers were scanned through passive non-intrusive inspection systems (GAO 2009).

³ For a detailed examination of the security framework currently in force at U.S. seaports, see Appendix A.

heavily weighs loss of life in attacks on facilities (GAO 2011; Keating, Howard, and Arimoto 2011).

1.6 Limitations of current approach

The regulations that comprise the container and port security framework in the U.S. primarily focus on preventing terrorist use of maritime transportation and addressing threats to maritime infrastructure through a screening of containers and identifying vulnerable targets at U.S. seaports (Carluer et al. 2008; European Commission 2010). The core underlying condition for assessment in the MTSA is that the assessed facility is primarily assessed as to the effect on damage or loss of life as a result of an incident (MTSA 2002; Sec. 70102). This pushes regulatory attention away from the daily use of ports by criminal networks focused on illicit trade, which do not seek to disrupt the flow of maritime cargo or cause loss of life (Naim 2005).

Concurrent with the underlying focus away from criminal networks in the existing port security vulnerability assessment framework, the intensive focus on container screening is often based on a scenario in which terrorists transport and penetrate U.S. borders with nuclear materials (Carafano 2006; GAO 2009; CBO 2016). This has underpinned the congressional demand for 100% screening in ports outside of the U.S. (SCAN Act), but the disproportionate focus on the nuclear terrorism scenario diverts financial and regulatory investments away from threats which may be of greater and more realistic concern such as preventing criminal network intrusion in port labor or ancillary services providers (Carafano 2006). Furthermore, the U.S. focus on screening initiatives has increased concern in Europe for the financial and trade implications due to the significant financial burden – 100% screening would cost the European Union roughly €430 million for screening and detection equipment and infrastructure investment (European Commission 2010; Papa 2013).

The increased focus on intensive container screening based on a perceived threat of nuclear terrorism belies the myriad of illicit activities criminal networks have used ports for in the past: transporting small arms bound for conflict zones or fragile states leading to increased arms capabilities for armed factions in civil war areas (Amnesty International 2006); transporting narcotics and stolen vehicles that provide a source of hard currency used to fuel other activities (Farah 2010; Clarke and Brown 2003; Lantsman 2013); and counterfeit or stolen goods (UNICRI 2007). The continued use of seaports by criminal networks to transport illicit cargo has been addressed at a macro-level, examining illicit flows as an economic issue (Naim 2005; UNODC 2011; Luna 2012). However, except for certain types of criminal activity, such as illegal, unreported and unregulated fishing (Petrosian, Marteache, and Viollaz 2014), a criminological approach has yet to be used to identify the specific contextual and situational factors that make the maritime transportation system in general and, certain seaports in particular, more attractive to criminal networks.

This dissertation lays out the underlying criminological framework for an integrated theoretical approach that builds a Seaport Vulnerability Framework enabling port security stakeholders to begin to understand how and why criminal networks use certain seaports to transport illicit cargo.

Chapter 2- Theoretical framework

The core of this dissertation, the Seaport Vulnerability Framework (SVF), is framed through a set of criminological theories including crime pattern, defensible space, and CRAVED⁴, informed by research into the formation and structure of criminal networks and in the area of supply chain security. Seaports are large complex physical and administrative entities and to make sense of vulnerability, multiple criminological theories are used to identify vulnerabilities in three primary categories: (1) physical; (2) administrative; and (3) logistical. This chapter examines the broad theoretical perspectives that inform the SVF.

The primary assumption underlying the theories that inform the SVF is that certain seaports function as crime places. All other theoretical insights from research on supply chain security and criminal networks fit within the supposition that ports function as crime places, much like certain neighborhoods or micro-locations (Weisburd, Groff, and Yang 2012). However, it is important to note that the standard interpretation of a crime place, as one where repeat victimization occurs and which accounts for a greater portion of crime than in similar places, is not entirely relevant within the context of seaports (Eck and Weisburd 1995). Rather, seaports as crime places can be defined as those ports which are more likely to be utilized by criminal networks, whether they are the site of greater victimization or attract greater amounts of illicit traffic.

2.1 Seaports as crime places

Crime pattern theory, informed by assumptions about routine activities and rational choice, posits that for a crime to occur three factors must be present: (1) a suitable target; (2) a motivated offender; and (3) the absence of persons in a position to intervene, directly or

⁴ Products or services that are Concealable→ Removable→ Available→ Valuable→ Enjoyable→ Disposable.

indirectly, with a criminal event (Cohen and Felson 1979; Clarke and Eck 2005). It provides a theoretical foundation for a layered understanding of how certain seaports and geographical or economic areas within ports may be more likely to be used by criminal networks (Brantingham and Brantingham 2009). Furthermore, in the maritime and port security literature, the multi-stakeholder environment and nodal character of seaports create numerous vulnerabilities that criminal networks can use or exploit (Brooks and Pelot 2008).

Research on place has generally attempted to address crime vis-à-vis the distinctions between the place in question and the surrounding environment (Eck and Weisburd 1995). The focus has been on micro-locations with criminogenic properties (Roncek and Maier 1990). However, the consensus among researchers in the environmental crime paradigm is that crime clusters at many levels of analysis (Sherman 1989; Brantingham and Brantingham 1999; Weisburd et al. 2004). The key finding, one supported by longitudinal studies, is that a small percentage of the units of analysis are responsible for a majority or plurality of criminal activities, generally following some permutation of the 80:20 rule or the Pareto Principle (Sherman et al. 1989; Roncek 2000; Weisburd et al. 2004, Weisburd, Groff, and Yang 2012).⁵ However, it is important to disaggregate crime at different levels of spatial analysis, especially when it is within larger units (Weisburd, Bernasco, and Bruisma 2009; Weisburd, Groff, and Yang 2012).

More recently, Weisburd, Groff, and Yang (2012) examined crime at micro-locations in Seattle to create a theory of the criminology of place, which has implications for this dissertation. The five suppositions of the authors provide a basic framework and guiding principles for the

⁵ That is, some variation on the stipulation that 80% of crime(s) is caused by 20% of offenders. This has also been applied to specific areas or locations, in that some version of 80:20 rule applies to locations where a small percentage of locations are the site of most crime(s) (Weisburd, Groff, and Yang 2012).

understanding of not only the physical conditions that increase vulnerability but also support the importance of disaggregating vulnerability at seaports into discrete categories.

First, the authors propose that crime is tightly concentrated in hot spots, building on research going back decades but which is strongly informed by their longitudinal approach. Second, hot spots are stable over time, again informed by the longitudinal method. Third, crime places should be examined at the lowest and most suitable unit of analysis because aggregating units into higher orders masks significant variability within the unit. This is the approach taken by this dissertation which aims to understand the vulnerability of seaports by disaggregating the concept of “vulnerability” into categories of vulnerability and then individual vulnerabilities, not all of which examine the same unit. Fourth, not only does crime vary within units and the micro-unit, in which the authors focused on the block vice the neighborhood, but also within each unit and micro-unit’s various social and cultural contexts. While this is a difficult concept to unpack without field research, the case study of the Port of New York and New Jersey in Chapter 7 discusses this concept through the examination of the kinds of labor and economic entities with employees who are more likely to participate in criminal ventures. Finally, crime at places is predictable, and therefore, it is possible to create effective crime prevention strategies.

With the seaport as the place of analysis, crime pattern theory offers two ways to understand seaport vulnerability: (1) ports as crime generators; and (2) ports as crime attractors (Brantingham and Brantingham 1999: 2009). Crime generators are places that become hot spots of criminal activity because they have legitimate activities or facilities that criminals seek out. Crime attractors are particular places, areas, neighborhoods, or districts that have a larger than proportional amount of criminal opportunities.

2.2 Seaports as crime generators

While the theory of crime place provides the underlying support for focusing on identifying ports more likely to be targeted by criminal networks, criminological theory provides further support for ports as different types of crime places. For example, many seaports contain an abundance of CRAVED goods, which present attractive targets for cargo thieves (Interagency Commission on Crime at U.S. Seaports 2002; Gooch 2011; Burges 2012; FreightWatch 2013). In China, for example, cargo was most reported stolen from ports or facilities at ports as opposed to other types of cargo storage facilities (FreightWatch 2013). The presence of a large amount of desirable goods may, in and of themselves, create the conditions for specific types of criminal activity much like the presence of targets in a neighborhood or within a spatial environment generates crime (Weisburd, Groff, and Yang 2012). These crime generator ports may also occur where there are particular intersections of transport, offering particular access or utility to criminal networks, for specific types of products or services (Brantingham and Brantingham 1993).

2.3 Seaports as crime attractors

At a macro level, some seaports may develop reputations for criminal network activity and drive out legitimate companies and, in the process, attract more illicit criminal networks. At a meso-level of analysis, certain economic sectors in a seaport, such as freight forwarders, drayage, longshoremen, and facility maintenance, may increase its attractiveness to criminal networks. Exploitation of already vulnerable sectors can make a seaport a crime attractor, as criminal networks are drawn to ports through positive reinforcement. The concept of “port shopping” identified by Shane (2010) in the context of auto theft networks is particularly

relevant here. For instance, export-orientated theft networks are more likely to consider using known porous ports over others (Lantsman 2013).

At a micro-level of analysis, specific companies within sectors may be crime attractors as well. As an example, multiple physical and administrative vulnerabilities may combine to make a specific terminal operator or janitorial services provider a crime attractor, resulting in increased criminal network use. When a single, already-compromised entity (such as a shipping line, terminal operator, or even freight forwarder) commands a large market share of a particular sector at a port, this may be sufficient to drive legitimate entities away and attract more criminal networks by reputation. This concept, therefore, informs the vulnerability focused on identifying the size of a particular sector, since a compromised entity in a sector with few entities can have an outsized impact on the vulnerability of the port.

The administrative and economic factors that can lead ports or sectors to be crime generators or attractors need to be considered within environmental and spatial characteristics as well, which can be further examined through the perspective of defensible space.

2.4 Defensible space at seaports

The concept of defensible space (Newman 1972; 1976; 1983) has been applied to describe the architectural and environmental factors that lead certain types of facilities and areas to experience higher levels of victimization.

Most seaports are large, physically enclosed or fenced in spaces with specific organizational and administrative cultures, set in the physical environment. Defensible space explains how the seaport's physical environment can lead to greater or lesser use by criminal networks. Just victimization differs within a neighborhood – i.e. burglary rates or individual sexual assaults – specific companies or vulnerabilities may be targeted based on the individual

spatial and environmental characteristics of different seaports as well. For example, drug smuggling networks may repeatedly utilize specific companies or agencies to facilitate transfers (Zaitch 2002); this would likely have a repeated environmental dimension as well, depending on the company's primary operational area. For an example of actual victimization, consider the repeated theft of luxury vehicles from the Port of NY/NJ (Lantsman 2013). Offenders were successful in the cases highlighted because the physical environment lacked situational crime prevention techniques (Clarke and Eck 2003; Zahm 2004), such as good lighting and place managers.

Later research in the defensible space field highlighted the concept of offensible space (Atlas 1991; Felson 2006; Edward and Levi 2008), where criminals may utilize the principles of crime prevention through environmental design to create safe spaces for their own activities. Felson (2006: 91) describes a theoretical type offensible space where offenders gain control over an area and law-abiding citizens or companies are discouraged from intervention. In the port environment this concept explains how in certain ports around the world law enforcement agencies have difficulty gaining entry both the administrative structures operating at the port, and in which leads to a lack of de facto physical access. Edward and Levi (2008) conclude that fear of retaliation, weak agency oversight, and links between legitimate interests and criminal networks all can create spaces where networks operate with impunity. Through the complicity of legitimate entities, in other words, physical or administrative spaces may be appropriated by criminal groups. In the field of study which examines the intersection of legitimate and illegitimate business, Tilley and Hopkin's (2008) survey of small business owners in three high crime areas within British cities, found that small businesses were often approached to cooperate with criminal networks. Similarly, a crime attractor seaport may support businesses that are repeatedly approached to cooperate with criminal networks. Cooperation in these cases may

depend, in part, on whether these criminal networks have been able to develop an offensive space at the port.

At the Port of NY/NJ, a protracted history of criminal network associations led to offensive spaces where criminal networks could operate without fear of enforcement (Block 1982; President's Commission on Organized Crime 1986; WCNYH 2010; WCNYH 2011; WCNYH 2012; WCNYH 2013). Criminal network exploitation of a seaport's administrative vulnerabilities can give rise to a culture of secrecy and fear among employees who are less likely to report activity to higher authorities, contributing to the social dimension of offensive space.

Finally, the concept of indefensible space can also illuminate the challenges of physical and administrative security at seaports (Cozens et al. 2002). At the macro level, Paoli (2002) studied the disorganized spaces where criminal networks operate in the heroin trade and found that criminal networks are capable of taking root where there is lax enforcement and may take over entire physical areas. At seaports, this macro concept may be understood conceptually as the physical or administrative space where there is lax defense by place managers or target guardians. In this situation, circumstances may call for the creation of agencies to manage those places, such as the Waterfront Commission of New York Harbor at the Port of NY/NJ.

2.5 Seaports as "Risky Facilities"

Building on research on crime places, the risky facilities framework developed by Eck, Clarke, and Guerette (2007) provides an additional framework for identifying facilities' characteristics that cause some to be more crime-prone than others. The authors focus on facilities or places that share similar characteristics (e.g., taverns, schools, railway stations, parking lots). Comparison of other variables among environmentally similar places may provide insight into why some places have greater concentrations of crime. They define facilities as

large buildings or areas of land with common use characteristics, which encompass even smaller facilities such as convenience stores, betting shops, or even Social Security offices. The central premise of risky facilities is that a small proportion of facilities will account for the majority of criminal activity within a bounded geographic area. The theoretical literature examined by Eck, Clarke, and Guerette (2007) offers five reasons for differing crime levels among facilities, which assist in understanding seaport vulnerability to criminal networks.

First, they examine the proposition that some facilities are riskier than others due to random variation. They note, however, that when studies incorporate temporal variation in measurement, random variation does not stand up to scrutiny (Clarke and Martin 1975).

Second, differential reporting processes could account for significant differences in a facility's riskiness. This is particularly relevant to facilities where physical operations are embedded within opaque administrative, regulatory, or even sub-cultural characteristics; seaports are a prime example here. Seaports' differential reporting processes, or even reporting that is not coordinated across or within agencies, can and does create perceptions of vulnerability or riskiness. This can lead one port to having a higher perception of risk, even while nearby ports with the same underlying characteristics and risk profiles avoid developing a similar reputation. Closer examination of the jurisdictional structure underlying a facility (e.g., is the facility subject to any specific enforcement procedures, regulations, or laws), the administrative structure (how many entities operate at the facility, what are the hiring practices of those entities), and whether any specific sub-cultures exist among employees or individuals who frequent the facility (do the specific characteristics of facility employees engender specific behaviors or activities that others do not participate in, outside of the differences in work) can assist in creating the risk profile of seaports. These specific characteristics do lead seaports to behave differently from other categories of risky facilities.

Third, the authors focus on the number and quality of targets at the facility itself. Discounting the fact that the number of targets present at a facility is a function of the size of the facility, they note that the quality of the targets present at the facility may be an indication of riskiness as well. The Seaport Vulnerability Framework incorporates this insight to account for both the quantity of traffic at the port, the value of cargo (or CRAVED cargo) present at the port, and the spatial concentration of CRAVED cargo to build the port's vulnerability profile.

Fourth, the number of offenders and the proximity to offenders may lead to greater riskiness. Since seaports are conduit points for significant levels of cargo from areas often outside the local vicinity of the port, understanding the seaport's cargo profile may provide a better indication of the types of networks that seek to use the port for illicit trafficking. At some seaports, the majority of cargo is consumed within the surrounding regions. For example, the surrounding communities of the Port of NY/NJ consume the vast majority of cargo that passes through the port (Rodrigue and Guan 2008).

Lastly, the different administrative characteristics of places or "place management" provides a final plausible explanation for differential crime activity. At the micro-level, this can be understood along simple differences, such as closing times at bars and how drinks are dispensed, among other factors. At a conceptual level, these comprise the different administrative rules or procedures that may act as crime enablers (Clarke and Eck 2003). Seaports in the U.S. are subject to a unified overlying set of macro-national level security procedures through the U.S. Coast Guard and through the application of standard security procedures outlined in the 2002 MTSA and the 2006 Safe Port Act. It is at the meso-level, however, that seaports differ. At that level, seaport differences emerge among local law enforcement structures and whether they employ specialized situational crime prevention

techniques. This provides a port-specific examination of differential place management characteristics.

Recently, researchers have used this risky facilities framework to examine the differential characteristics of seaports identified as recipient ports for illegal, unreported, and unregulated (IUU) fishing (Petrossian, Marteache, and Viollaz 2014). The authors grouped ports based on whether they received vessels identified as IUU-participatory and then focused on categories of data built from the risky facility literature to identify the characteristics of ports with more than four visits by IUU-infringing identified vessels. They discovered that the harbor size and the number of overall vessel calls provided the ability to predict where IUU vessels deposited their ill-gotten catch. In addition, vessels were more likely to visit ports with weak security procedures. However, the study does not differentiate ports within countries and overlooks underlying characteristics of the seaports themselves that may lead groups to choose to deposit IUU catches at certain ports in the first place: whether, for example there are criminal network activities occurring at the port or the flag state composition of the vessels calling at the port. Administrative structures of seaports (and of component entities operating at ports), the composition and supervision of labor at seaports, and seaports' relation to nearby ports (*vis-à-vis* fishing traffic) are additional place management characteristics which may bolster the explanatory power for the IUU model developed in their research.

An analogy can be drawn between ports and bus/subway stations, where both are located on arterial pathways. As noted in the research, crime concentrates along arterial roads for the fact that there are greater numbers of targets that move along these pathways (Weisburd, Groff, and Yang 2012) and previous research has demonstrated that crime often concentrates at the locus or terminus passenger points (Pearlstein and Wachs 1982; Loukaitou-Sideris 1999; Block and Block 2000; Loukaitou-Sideris et al. 2002; Newton 2009; Ceccato et al. 2013). If the maritime supply

chain functions as the arterial road and ports are the bus/train stations along that artery, then certain ports are more likely to have greater levels of crime and attract more criminal entities.

This insight provides a useful analogy for several types of seaport vulnerabilities. For example, research has found that theft at transit stops is concentrated during times of greater traffic and crowding (Levine et. al. 1986; Clarke et al. 1996; Burrell 2007), similar to findings about criminal exploitation of ports which focus on ports with higher volume and container throughput (Zaitch 2002; Lantsman 2013). Furthermore research on transit crime supports the contention that offenders will not travel far to commit crime (Smith and Clarke 2000), analogous to focusing on the identifying the presence of illicit import/export markets within port regions.

However, research has also shown that the presence of a transit stop, much like a seaport, will not necessarily attract crime (LaVigne 1996; Bernasco and Block 2011) and that there are a number of spatial and contextual characteristics which lead one transit stop to have greater levels of crime than others (Robinson and Giordano 2011). This dissertation builds on previous research to focus on understanding those spatial and contextual characteristics at seaports which make them more prone to criminal network use, through the Seaport Vulnerability Framework introduced in the following chapter.

2.6. CRAVED products and services

Seaports are important locations of concealable, removable, available, valuable, enjoyable, or disposable (CRAVED) products and services (Clarke 1999), though certain aspects of CRAVED are made less enticing to criminal groups through physical and administrative security procedures (Interagency Commission on Crime at U.S. Seaports 2002; Gooch 2011; Burges 2012; FreightWatch 2013). Clarke and Newman (2002) note that the risk of crime depends on the nature of the product or service that is targeted. This framework primarily

applies to armed theft or burglary and explains, in part, the types of cargo that is targeted for theft at seaports or in port areas. Recent work has expanded the CRAVED framework to focus on identifying the choice structuring properties of transnational trafficking operations (Natarajan 2012) or to focus on specific types of products such as illegally harvested wildlife (Moreto and Lemieux 2015). Choice structuring properties focus attention on the decision making processes of transnational trafficking networks, or those groups most likely to use seaports. Parallel to this insight, this study focuses on identifying the properties among seaports that make certain seaports more attractive for a criminal network. At seaports, for example, concealability and removability are the most salient factors of analysis, as containers have made goods less easy to conceal but easier to remove should the right access be available. Pires and Clarke (2012) adapt the “a” in CRAVED to “accessibility.” This adaptation is relevant to seaports as well where the accessibility of economic and administrative services informs their supposed value to a trafficking network (Vander Beken and Van Daele 2008) or whether there are goods which are CRAVED such as frozen shrimp (Zambito 2006) ⁶.

In a port without CRAVED cargo, the impetus for criminal networks to target those sectors involved in the transit of CRAVED cargo is absent, and the port has a lower level of vulnerability. These kinds of ports are those which primarily are the transit points for bulk cargo, where cargo values are determined by mass and not unit. The CRAVED framework assists in explaining why certain ports would have facilities more likely to be targeted by

⁶ Frozen shrimp are a CRAVED product (Zambito 2006). They are easy to transport, perishable such that evidence after sale is disposed of quickly, and can be easily sold, with a constant demand from restaurants. Ports that receive frozen shrimp might therefore become a target for criminal networks that can learn shipping schedules for delivery of frozen shrimp, target drayage truck drivers who move the refrigerated containers from the port, and the port or local warehouses where frozen shrimp are stored for subsequent distribution. The port functions as the locus point for facilities, administrative access points, and companies involved in the pre-distribution process. This increases their attraction to criminal networks that seek to steal this kind of CRAVED cargo.

criminal networks for theft, thereby increasing the overall vulnerability of the port. To protect against theft and administrative intrusions, in the past two decades, supply chain security procedures have been strengthened around the world through both regulatory frameworks and private sector innovations. Insights from supply chain security research inform the vulnerability focused on identifying the lack of physical and administrative security procedures at U.S. seaports.

2.7 Supply chain security procedures

Since 2001, ports in the U.S. and around the world have been subject to increased scrutiny for supply chain security. In the U.S., seaports have mandated physical and administrative security requirements through the MTSA and the Safe Ports Act, which mandate security procedures such as improved lighting, access control, and perimeter fencing that are reflective of physical techniques identified in the situational crime prevention literature. Ports and cargo are subject to federally mandated security procedures but private companies will often take extra steps to ensure supply chain security through the use of CCTV and formal surveillance systems.

The primary focus of recent supply chain security efforts is on the container as the unit of securitization. At some seaports, security focuses on protecting maritime infrastructure while maximizing the easy flow of cargo (Martonosi, et al. 2006; Pate et al. 2008; Grillot et al. 2009). Cargo screening technologies enable this efficiency/security trade off, and particularly non-intrusive tools aim to mitigate the use of the maritime transportation system by criminal networks and terrorist groups. These measures can generally be incorporated into Clarke SCP prevention framework as increasing the perceived effort and increasing perceived risks (Clarke 1997). However, as Von Lampe (2011) has detailed in his examination of applying SCP to

organized crime, organized offenders or criminal networks are often more resourceful and less easily deterred by general physical or administrative security techniques:

- Container seals: Container seals lock in cargo and increase liability protection for shippers. Seals, however, have been identified as easy to forge and replace (Dahlman et al. 2005). While training of customs officers can mitigate some concerns, criminal networks have developed manufacturing processes to produce false seals of identical shape and quality. Smart seals do exist, but are prohibitively expensive except for high value container shipping. Because of their relationship to cargo value, smart seals can be, in and of themselves, an attraction for theft groups (Lechner 2009).
- Radio frequency identification (RFID): RFID technology can wirelessly track container shipments and monitor container seals for tampering (Michael and McCathie 2005; Tsilingiris et al. 2007).
- Non-intrusive inspection (NII): NII at seaports often takes the form of stationary or mobile gamma radiation scanners, such as SAIC's Vehicle and Cargo Inspection System (VACIS), capable of producing an orthographic image of a container (Orphan et al. 2004).

In connection with currently applied screening technologies, Pate et al. (2008) examined seaport security best practices through case studies of 17 U.S. seaports. Similarly, Grillot et al. (2009) developed a security framework to assess supply chain security and port security preparedness at seaports worldwide by focusing on institutional, administrative, and physical measures identified through case studies at 17 seaports worldwide, including the Port of New York and New Jersey. Both sets of researchers find that institutional measures at large international seaports have created robust physical and logistical security while focusing on the

continued need for inter-agency cooperation and implementation of existing initiatives. Grillot et al. (2009) do further note that while national regulations set the overlying securitization regime, implementation remains the responsibility of port authorities and localities, and in this area, there is space for corruption in public and private seaport economic and labor sectors.

2.8 Complicity with criminal networks

Companies and employees in key seaport economic and labor sectors have been portrayed in some accounts as victims of organized crime and criminal networks (Waterfront Commission 2009; 2010; 2011). However, the same employees or companies that are perceived as having been “victimized,” through thefts of goods or services, may be complicit actors in criminal network activities (Vander Beken et al. 2005).

Some criminal networks prefer to lower their risk of detection by increasing investment into their operations through placement or recruitment of complicit employees or business entities at a seaport (U.S. Customs Service 1997; Interagency Commission on Crime at U.S. Seaports 2000; Presidia Security Consulting Inc. 2011). This allows a network to act under the guise of a bona fide trade or business activity, as opposed to more traditional theft or fraud. The use of legitimate maritime industry channels toward illicit ends necessarily implicates the cooperation of complicit employees in shipping entities, freight forwarding operations, the land-side labor force, or public agencies such as a customs or law enforcement (Gounev and Bezlov 2010). The vulnerability of a particular economic or labor sector can, therefore, be understood in terms of the vulnerability of certain companies, individual employees within those companies, and their susceptibility to compromise or recruitment by criminal networks. Because of the high level of regulatory security at ports in the U.S., access to the maritime transportation system through a complicit company or employee is highly sought (Zaitch 2002; Lantsman 2013).

2.9 Criminal networks and seaport vulnerabilities

At seaports, illicit cargo movements require a flexible order not present in a rigid hierarchical administration (Sparrow 1991; Natarajan 2006; Morselli 2009). Criminal networks have been portrayed as local in nature (Reuter 1985; Hobbs 1998) and are heavily dependent on local environments that allow them to operate unimpeded. A criminal network structure also allows for the quick incorporation of participants with specialized knowledge and subsequent speedy network dissolution after the particular goal has been achieved (Sarrica 2005; Bjelopera and Finklea 2012). Criminal networks are able to exploit opportunities in other locales that more traditional organized crime groups may be unable to exploit due to hierarchical structures informed by the local environment. As a result, criminal networks mirror legitimate businesses that utilize partners in multiple locations to work within the “just in time” strategy that minimizes production and inventory stock and enables the quick identification of market openings and procurement services to meet the identified demand (Schonberger 1984). Criminal networks therefore form multi-nodal structures that are an illicit mirror of legitimate business structures (Bruinsma and Bernasco 2004).

These networks also function as entrepreneurial groups working together for a common remunerative cause (Van Duyne 2005; Walterbach 2007) and thrive in the transnational spaces created by modern supply chain movements (Kleemans and van der Blunt 2008; UNODC 2010; Bjelopera and Finklea 2012). Within the licit flow of commerce, networks that traffic in illicit goods across transnational borders seek out entry points of least resistance to destinations that promise the most reward (Levitsky 2003; Kleemans and van der Blunt 2008; Shane 2010; Bjelopera and Finklea 2012). Those entry points may not be geographical; rather, entry points may often take the form of willing accomplices - companies or individuals in the licit trade sector. Kleemans and van der Blunt’s (2008) examination of Dutch organized crime case files

focuses heavily on the licit occupations that support transit crimes: dockworkers, cargo handlers, and cargo management firms. Seaports employ a significant proportion and diversity of transit workers, among which vulnerability may spread. Through this embedded vulnerability, coupled with the cross-border movement of cargo, a criminal network is also able to practice jurisdictional arbitrage by taking advantage of low levels of local or regional regulation to insert or extract illicit cargo from the maritime transportation system (Williams 2001).

Criminal networks speculate on and benefit from similar supply and demand pressures as legitimate importers and exporters. Identifying vulnerabilities that enable or allow a network to gain access to the maritime transportation system may lead to decreased illicit flows by identifying focusing on the “entry” points for a network. Law enforcement may then take more appropriate action either through increasing regulatory oversight or actual operational changes. Despite previous identification of the institutional and administrative security structures at certain seaports (Barnes and Oloruntoba 2005; Pate et al. 2008; Grillot et al. 2009), vulnerabilities continue to exist that allow criminal networks to (a) insert illicit cargo into the maritime transportation system and (b) transfer cargo safely in spite of significant security and customs enforcement procedures. From an economic development perspective, a significant presence of organized crime, measured at the macro- level, may exert downward pressure on port efficiency, leading to increased transportation costs (Clarke et al. 2004) and have an outsize impact on the regular citizen, not factoring in the harm caused by narcotics (National Drug Intelligence Center 2011f) and counterfeit products (Philips 2005).

Furthermore, recent research focused on strengthening SCP techniques to disrupt organized crime groups notes that it is the preventative approaches that require careful analysis and law enforcement coordination, which may be the most successful in addressing organized crime threats, but which law enforcement organizations are the most averse to (Kirby and Snow

2016). As Von Lampe (2011) demonstrated in his study examining the application of SCP techniques organized offenders are more resourceful and less dependent on any given opportunity structure defined in time and space and more likely to create or modify the exiting opportunity structures, or otherwise “shop” for those structures with greater opportunity for exploitation (Shane 2010). This has direct relevance to the interagency coordination required in the port security environment. At ports where interagency coordination is lacking, there can be significant adverse effects in terms of successful law enforcement approaches to address organized crime and criminal network threats.

Criminal networks conduct port shopping, targeting particular seaports based on the ports’ particular vulnerabilities (Shane 2010; Natarajan 2011), and researchers note that focusing on the business processes of criminal groups can provide a method to understand the types of routes traffickers use (Spapens 2010). As ports are locus points for cargo along a finite number of possible routes, this simplifies the task for law enforcement to focus resources. If a known amount of traffic moves through the maritime transportation system and all of it passes through a finite number of points, understanding what makes one point more vulnerable for criminal network exploitation, or victimization, allows law enforcement groups to target their limited resources to those spaces. Vulnerabilities can be structural in that a port may be situated in a region rife with criminal network activity or with a high demand for illicit products and goods. They can be internal, inhabiting the administrative spaces of the agencies operating at the port. Or they can be physical, taking the form of poor physical and/or facility security. In each of these cases, transnational trafficking networks (as opposed to organized crime groups) may be better positioned to benefit from seaport weaknesses because of the structural flexibility inherent to criminal networks. Recent research has however focused on the “stickiness” of organized crime operations within specific areas and economic spheres. Spapens (2010: 215) terms this

criminal macro networks and notes that these are “relatively stable over time.” As a result, disruptive operations by law enforcement which do not focus on the criminal macro network will be less successful than those that do.

2.10 Integrated theoretical approach to address seaport vulnerability

The underlying theoretical structure of the Seaport Vulnerability Framework consists of an inter-disciplinary approach, weaving together aspects of crime pattern theory, defensible space, CRAVED, research on criminal networks, and supply chain security. Much like Bernard and Snipes’ (1996) idea that an integrated theoretical approach is required to make sense of overlapping, empirically defensible theoretical perspectives, understanding seaport vulnerability requires an integrated theoretical approach. Examples of integrated approaches exist in recent research including the approach to integrate crime place theory with social disorganization to focus on understanding longitudinal persistence of crime in micro places (Weisburd, Groff, and Yang 2012) or the approach focused on integrating functional, economic, and social network theories of criminal network formation to develop an integrated theory of organized crime creating the new concept of a criminal macro networks (Spapens 2010). This last approach has direct relevance to the Port of New York and New Jersey where organized crime has been a longstanding, if latent, presence in some aspects of port operations. The theoretical framework outlined in this chapter is the first step in developing a integrated theoretical approach to understand vulnerability at seaports.

Defensible space, CRAVED, and crime pattern theories inform the set of physical vulnerabilities, while research on the formation and structure of criminal networks inform the set of vulnerabilities categorized under administrative vulnerability, which focus on the conditions of port economic and labor sectors that increase their vulnerability to criminal networks. Finally,

theories of crime place, CRAVED, and criminal network research inform the logistical vulnerabilities. This is because the vulnerability inherent in the logistical movement of cargo is both a function of the spatial location of large amounts of cargo creating physical bottlenecks at a port and the administrative decisions by regulatory and business entities to inspect, load, and offload that cargo at the port.

This confluence of theoretical perspectives provides a more holistic examination of port vulnerability than previous research (Zaitch 2002; Klima 2011; Eski 2011; Petrossian, Marteache, and Viollaz 2014; Eski 2016). As a result the key determination in this chapter is that the confluence of vulnerability leads to increased seaport vulnerability and that it is impossible for one theoretical perspective to provide a holistic view of vulnerability at a port. The theories described in this chapter and how they inform specific vulnerabilities creates the integrated theoretical approach outlined in the following chapter's examination of the Seaport Vulnerability Framework.

Chapter 3 Seaport Vulnerability Framework

3.1 Overview

The Seaport Vulnerability Framework presented in this chapter was developed from a pilot study at the Waterfront Commission of New York Harbor (Waterfront Commission), a literature review of administrative seaport literature, an examination of publicly available accounts of criminal network activity at seaports, and informed by the integrated theoretical approach described in the previous chapter. The Seaport Vulnerability Framework has 21 discrete vulnerabilities organized into port security funding, physical, administrative, and logistical categories.

3.2 Port security funding vulnerability

Seaports in the U.S. have widely disparate levels of security funding. Although the MTSA and the SAFE Ports Act of 2006 created base level security requirements at U.S. ports, investment in port security technologies and equipment varies between ports (Pate et al. 2008). Many different factors affect the amount of port security funding invested in any given port or even port district⁷, from levels of container cargo traffic to U.S. Coast Guard regulated facilities. Ports with high levels container traffic may not necessarily receive commensurately high levels of security funds due to U.S. Coast Guard vulnerability assessments which quantifies risk and targets at U.S. seaports (USCG). U.S. seaports' primary funding mechanism for increased security has, since 2002, been the Port Security Grant Program (PSGP), administered by the Federal Emergency Management Agency (FEMA). PSGP funding for a port district is a better

⁷ U.S. ports of entry are categorized as "ports" which are aggregated under listings of "districts" (U.S. Census). Port districts as categorized under U.S. Census nomenclature refer to a district which may be composed of multiple ports. PSGP funds are disbursed across U.S. Coast Guard sectors of which there are 36. Port districts are the local, or in some cases regional areas which fall under the jurisdiction of the port authority that manages the port.

indicator of how much funding a port has received to invest in port security (AAPA 2006; DHS 2007; DHS 2008; DHS 2009; DHS 2011; DHS 2012; DHS 2013). While the lack of PSGP funding is not alone a significant vulnerability, the amount of security funding received per container, compared across other U.S. ports, provides a baseline with which to understand how much has been invested in port security procedures and technologies. While SCP techniques are often considered to be low cost, in that they rely on disrupting the decision making of criminal actors, some techniques can require significant financial expenditures if they are to be instituted properly. For example, proper mast lighting at ports fulfills a SCP technique of natural surveillance and is supported through PSGP grants in certain ports. A dearth of PSGP funds can lead ports to forego these crucial SCP practices and lead to increased vulnerability at the port.

3.3 Physical vulnerabilities

Seaports are spaces with unique geographic and spatial qualities. The nature of seaports with their “open structures, critical physical locations, ease of accessibility, massive importation and exportation of containerized cargo, and large numbers of personnel on the scene,” emphasizes their vulnerability to criminal threats (Barnes and Oloruntoba 2005; Blumenthal 2005: 3). Physical vulnerabilities are those aspects of the seaport’s physical structure(s) that create opportunities for criminal networks to gain access to the seaport. These include vulnerabilities related to cargo removal, as well as introduction of illicit goods into the legitimate stream of commerce.

3.3A Open structure

The physical environments of seaports are multi-varied and diverse (Tioga Group 2010), yet shipping consolidation has led seaports to trend toward larger, sprawling spaces with multiple access and entry points. For example, the structure of the harbor of New York, with 900 miles of

waterfront between New York and New Jersey (Blumenthal 2005), may create conditions that foster areas of indefensible space (Cozens et al. 2002), as well as areas of offensive space (Felson 2006). Recent changes to the fundamental component of maritime shipping, the container ship, have increased the amounts of cargo transported on a single container vessel.⁸ U.S. ports on the West Coast have not been able to keep up with the pace of these changes, and in late 2014, they experienced severe congestion, with containers stacked high on yard space, and queues to unload cargo extending out to sea and causing delays (Mongelluzzo 2014; 2015). Although such severe congestion is unusual, it is indicative of the rising volumes of cargo, and with more containers held on-site, this increases the number of theft targets and provides cover for networks that seek to extract cargo from the port without detection.

3.3B Spatial concentration of CRAVED products

Most seaports are recipient and holding areas for CRAVED products (See 3.5D CRAVED product imports). In the United States, most large ports also have Customs and Border Patrol (CBP) Central Examination Stations (CES) where cargo from nearby smaller ports is stored and examined. Ports with CES facilities and which are destination points for CRAVED goods may be more likely to attract criminal theft networks (Clarke 1999). For example, networks have targeted CRAVED products such as vehicles, perfume, and perishable high value food goods (such as shrimp or lobster) (Leeds 1997; Waterfront Commission 2006; Zambito 2006; Lantsman 2013). Seaports that receive and hold CRAVED products can also act as crime attractors (Brantingham and Brantingham 2009). The presence of a CES can, in fact, signal to criminal networks that high value cargo will be present at the port. As such, theft of valuable cargo products from a seaport or nearby warehouses may be used as a measure to determine

⁸ The latest class of container vessel, Triple E class, can hold 18,000 Twenty Foot Equivalent Units (TEU), or 50% more than the next largest vessel, New Panamax class, which holds 12,500 TEUs.

whether CRAVED products at seaports attract criminal networks. Furthermore, using CESs as the proxy measure for spatial concentration of CRAVED cargo is especially relevant since CBP has been identified as having lax security procedures at CES facilities (Department of Homeland Security Office of the Inspector General 2012). In fact, Office of the Inspector General at the Department of Homeland Security damningly notes:

CBP does not have effective management controls to ensure that employees do not pose a security risk at bonded facilities. CBP has not issued national requirements for background checks on employees of bonded facilities and does not ensure that port directors have management controls over background checks at bonded facilities. As a result, background checks are inconsistent and often ineffective (pg. 1).

3.3C Peripheral seaport companies

A seaport's footprint extends past the piers, wharves, and buildings that comprise the physical layout. This broader catchment area houses the companies that provide ancillary services, which may not be located directly on the port. It has been noted that ancillary service providers are normally subject to less regulation than primary function providers, such as terminal operators (Trujillo and Nombela 1999; Fritelli and Lake 2006). Because many of these ancillary service providers are located off the waterfront and outside the jurisdiction of waterfront agencies, these companies may also be less likely to implement proper security procedures and regulations (Mayhew 2001), while enjoying privileged access through trade and labor relationships.

Freight forwarders can act as a proxy for peripheral companies at-large in measuring this vulnerability, since they are rarely co-located with the port and have already been identified by outside research as a vulnerable sector (Zaitch 2002). Ports with many freight forwarding companies can function as crime generator ports, as there will be a greater number of targets for exploitation through the theft of goods or the greater opportunity to access valuable services.

Smugglers at the Port of Rotterdam (Zaitch 2002) have noted that seaports with many operating entities are also desirable places through which to smuggle narcotics amid the suffusion of cargo - the multitude of entities present creates layers of administrative complexity that seaport stakeholders often have difficulty disaggregating (Hecker 2002).

3.3D Vehicle traffic

The number of vehicles and visitors to a seaport is a physical vulnerability as networks can use daily traffic to disguise illicit entry or exit. Under some circumstances, vehicles may provide the concealability factor of the CRAVED framework. In one instance of vehicle theft from a terminal at the Port of New York and New Jersey, a stolen vehicle was driven behind a common car transport truck, literally using legitimate port traffic as cover for theft (Lantsman 2013). Large numbers of daily entry vehicles, such as drayage truck traffic, create conditions of indefensible space, especially if authorities do not take appropriate security measures. Furthermore, a large amount of vehicles create conditions of vulnerability to cargo thieves, which radiates out from the port to what can be theoretically defined as the port's immediate hinterland or roughly the commonly understood distance of short haul drayage, 75 miles (Bensman and Bromberg 2009).

3.3E Small vessels in/near seaport harbor

Small vessels can be used to break into containers, extricating cargo, and/or inserting illicit cargo. The physical environment around a port acts a "choice structuring property" as drug trafficking networks assess and select opportunities to bring drugs into the United States (Decker and Chapman 2008: 79). Drugs can be loaded onto larger ships and then offloaded to smaller vessels, such as pleasure boats, when closer to shore. In the United States, pleasure vessels must

report to customs authorities only once they have docked, allowing drugs to enter the country before authorities can inspect the vessel (U.S. Customs and Border Protection 2011).

In recent years, Southern California, the Gulf Coast, and the southern Atlantic coast has seen a surge in small vessel drug smuggling movements (GAO 2013c). Termed “pangas,” these small outboard motor boats can evade detection by CBP and USCG officials and when apprehended, are loaded with significant quantities of illicit cargo, such as marijuana, cocaine, narcotics, and in some cases have been used for human smuggling (DHS 2012b; Welsh 2014).⁹ While CBP and law enforcement officials use risk management metrics to identify which vessels may be carrying illicit cargo, the presence of small vessels in a harbor or in the vicinity of a port make it more difficult to differentiate between licit and illicit vessel behavior. According to the Director of Marine Operations in San Diego, “a smuggler posing as a legitimate recreational or commercial boater is the proverbial needle in a sea of needles in a place like Southern California and Baja Mexico, where boating is a way of life” (U.S. Customs and Border Protection 24 February 2014).

In addition to recreational vessels, fishing boats are also known to smuggle narcotics. The U.N. Office on Drugs and Crime cites numerous examples of this (UNODC 2011). As reported by UNODC, the smell of fish confuses drug sniffing dogs and allows fishing vessels to go directly to port and unload narcotics to waiting distributors (UNODC 2011: 131).

The presence of small vessels in or near the harbor creates indefensible space, whereby small vessels can function not only as disguising tactics to insert illicit cargo onto piers but also may themselves be moving illicit cargo. A recent seizure at the Port of Long Beach from a small vessel shows how port security agencies may be tasked with the dual purpose of not only

⁹ Since 2009, CBP has publicly identified at least 79 incidents of smuggling by small vessels, primarily pangas, though jet skis have been used as well. See Appendix B for a list of panga incidents and the closest nearby ports.

providing port security services but also identifying suspicious small vessels and increased levels of small vessels in or near the port decrease port law enforcement resources devoted to other port security tasks (Riviera 2016).

3.3F Intermodal connections

Over the past several decades, containerization and larger container vessels have reduced the number of active seaports (Levinson 2006; Rodrigue and Guan 2008). Increasing throughput among fewer locations has necessitated the development of strong intermodal connections (Fleming and Hayuth 1994). Intermodal transport is “transport of unitized loads by the coordinated use of more than one transport mode, in such a way that comparative advantages of various modes are maximized and the transport chain is guided as one unity” (Van Klink and Van den Berg 1998: 2). Intermodal connections enable the seaport to access its hinterland, or the regional area that the port services (Notteboom 2008). The presence of numerous intermodal connections can create vulnerabilities attributed to administrative complexity and can therefore increase criminal access to the seaport (Albanese 2003; Harrauld et al. 2004; Barnes and Oloruntoba 2005; Haveman, Shatz, and Vilchis 2005). Therefore, the quantity and the types of intermodal connections at a seaport are an important factor when considering vulnerability. Previous research has also employed “access to transportation” as an indicator to predict whether criminal groups that traffic illegally caught fish will seek to use a particular port to offload the catch (Petrossian, Marteache, and Viollaz 2014). This translates as a method to measure the decision making behavior of criminal groups relative to the existence of enough transportation methods to easily move their illicit products to alternative destinations.

3.3G Physical/Administrative security procedures

The level of security at U.S. ports has since 2002 been greatly affected by federal mandated physical and administrative security. The introduction of the Maritime Transportation Safety Act (MTSA) in 2002 and the SAFE Port Act in 2006, introduced a wide range of obligatory security procedures such as the use of access controls through the Transportation Worker Identification Credential, or TWIC card, U.S Coast Guard inspections of port facilities to check for fencing, lighting, and other physical impediments to access.

While these are considered to be standard supply chain security procedures some of these have also been conceptualized in the criminological literature as situational crime prevention techniques, including the techniques of target hardening, concealing targets, identifying property, removing targets, creating access control, and others. As U.S. ports have to employ the baseline procedures mandated through federal regulations they have a commensurate high level of physical and administrative security. The criminological research on SCP provides us with a method of conceptualizing other techniques that may be useful to enhance physical and administrative security at seaports (Haelterman 2011), though it may not be mandated through federal regulations. This vulnerability therefore measures the level of physical and administrative security by focusing on whether SCP techniques are used at a port.¹⁰

Seaports with an absence of effective, additional SCP techniques are more vulnerable to criminal networks. Mayhew's (2001) best practices to prevent cargo theft form a primer on

¹⁰ Through federal mandates and private sector innovations in supply chain security, U.S. seaports have a baseline level of physical and administrative security. However, for the SVF to function outside of the United States context ports should be examined for security procedures that, though mandated in the United States, may not be standard overseas. While it may be useful to look at the specific mandated security procedures under the MTSA and SAFE Port Act, for the SVF to be more universally applicable, this vulnerability is conceptualized by measuring ports on whether specific SCP techniques, which are theoretically relevant to port security are utilized at the port. For example, well-lit facilities are mandatory under the MTSA (MTSA 2002), but, in practice, some ports have poor quality lighting that does not function (Lantsman 2013).

effective seaport SCP measures at ports as he applied the SCP framework to logistics facilities and port share similar features with the cargo facilities he was examining.¹¹ In addition, Clarke and Eck's (2003) 25 SCP techniques provide an evaluative framework that can be applied to seaports, utilizing the first three categories of techniques (increasing the effort, increasing the risk, and reducing the reward) which are more applicable to organized offenders than reducing provocations or excuses.

3.3H Illicit import/export markets

Certain seaports are destination or embarkation points for illicit goods due to several factors such as: proximity to a criminal network's base of operations; proximity to a large available market for illicit goods; and/or proximity to a large available supply of illicit goods. For networks that move large amounts of cargo, the proximity of the port to a market is an important factor in port selection (Blickman 2005; EUROPOL 2011; Presidia Security Services 2011), as it will affect ease of distribution. Crime pattern studies have noted that offenders rarely travel far from local areas (Van Koppen and Jansen 1998; Wiles and Costello 2000; Smith and Clarke 2000). However, recent research has also found that in some instances, the distance traveled by offenders is not as low as previously believed (Morselli and Royer 2008; Van Stijle and Vander Beken 2012). These long-distance offenders tend to be less aware of the situational and contextual space through which opportunities arise and are instead more likely to actively seek out opportunities (Ekblom 2003; Von Lampe 2011).

¹¹ These measures include perimeter fencing, installing heavy doors to prevent ease of entry, tagging loose cargo, vehicle barriers, cargo storing cargo in different areas based on origin and contents, placing expensive cargo in high security indoors facilities, and installing well placed and functional security cameras.

3.4 Administrative vulnerabilities

3.4A Port divergence

Differential hinterland access and markets may affect criminal network decision-making through the dispersion of container traffic across ports, also referred to in the supply chain literature as port divergence (Rodrigue and Guan 2008). For example, divergence of cargo has led maritime traffic to be spread across numerous smaller ports along the U.S. eastern seaboard. This divergence has created a situation where “smaller ports are a risky proposition compared with large established terminals having access to nearby consumption markets” (Rodrigue and Guan 2008: 22).

In studies of organized crime and legitimate business interactions, finances are an important factor in whether companies participate in criminal ventures (Bagelius 2005; Tilley 2008). The transportation industry is furthermore highly prone to corrupt activity (PWC 2014) and indicators of decreased business in a particular node in the sector (i.e. at a port), are an indication that corruption risks are increased. Combining these two insights from the organized crime literature and the supply chain field, port divergence, or a situation where a port loses business at the expense of other nearby ports, create financial pressures which may increase vulnerability to criminal networks through two vectors: (a) greater incentive to decrease security pressure on the remaining throughput or (b) decreased security outlays as throughput decreases. For example, the Port of Portland, Oregon, recently lost its primary shipping line and largest customer, Hanjin, in a move that will decrease container traffic at the port between 65-80% (Conway 2013; Harburger 2015). This traffic will be moving to the Port of Seattle, less than 50 miles from the Port of Portland. Dockworkers, drayage drivers, warehouses, and other

employers operating at the Port of Portland will struggle for employment as a result of this loss of business.

3.4B Automation/cyber security vulnerability

In both the port and maritime sector, automation is an increasing trend with implications for maritime and port vulnerability. While shipping vessels have increasingly been automated such that massive container ships now require only small crews (Stewart 2014), only certain seaports around the world have fully automated terminal technology. Some ports, such as the Port of Rotterdam have fully automated terminals; others, like nearly all the ports in the United States, have either minimal or a small proportion of terminal operations automated (Mongelluzzo 2015b). Automation increases vulnerability of computerized terminal movements to cyber-attacks or hacking (DHS 2016). However, while terminals may not be fully automated ports and vessels do have a large number of systems which have some level of automation including systems terminal operating, automated cargo tracking, shore based systems that directly support vessel operations and navigations, automated cargo handling equipment, and container cranes in some ports (Wallischek 2013).

There are already several benchmark examples of criminal networks hacking to locate containers on yards and of criminals hacking into terminal management systems and exploiting physical vulnerabilities to place technology onto port infrastructure (Magal S3). In 2013 at the port of Antwerp, a drug trafficking network hired Belgian hackers who were able to penetrate the cargo management system of the port, identify containers, and extricate narcotics hidden in banana shipments (Europol 2013). When the port installed a firewall to block the breach, the drug trafficking network broke into the port's physical facilities, installed wireless bridges into computer operating systems, and continued to extract illicit cargo for two years before authorities

identified the breach (Caldwell 2014). While many ports have automated systems for cargo management, increasingly automated port and terminal systems will create greater vulnerability to hacking and increased cyber security vulnerability (Wallischek 2013; DHS 2016). As a result of this increased vulnerability, in any individual case study of a port, the degree of automation and automation trends in the port are integral to understanding new vulnerability vectors (see Section 7.11b for a discussion of automation at the Port of New York and New Jersey).

3.4C Vulnerable labor sectors and sector size

Particular sectors of seaport labor may be classified as vulnerable labor sectors. The first type of vulnerable labor sector is a sector that is predisposed, through historical associations with criminal networks, to employ workers with links to those networks (WCNYH 2010; WCNYH 2011; WCNYH 2013; WCNYH 2014). The second type is a sector that is targeted by criminal networks because it occupies a central and valuable role at the seaport and may not be subject to regulatory authority, creating a jurisdictional vulnerability. Jurisdictional gaps create spaces where corrupt companies or criminal networks can operate without fear of enforcement and allow networks to engage in jurisdictional arbitrage by taking advantage of lax or nonexistent regulation in one area or region (Williams 2001; Shane 2010). The literature on jurisdictional arbitrage points to a diversity of organizations using this tactic as a way to avoid prosecution for criminal activity (Williams 2001b; Kshetri 2010; Leslie 2014). This tactic has been most heavily used by networks seeking to exploit lax intellectual property right laws in order to traffic in fraudulent goods, and in committing cyber-crime (Leslie 2014) where actors can perpetrate cyber fraud in one country knowing that their acts do not constitute a prosecutable offense in their country of residence (Kshetri 2010). At ports, these gaps are most often a function of a

jurisdictional structure that has grown to deal with perceived or real crime threats in the port region.

Gambetta and Reuter (1995) note that traditional labor sectors with a history of organized crime, sectors whose activity is connected to the locality, sectors with a relatively high proportion of small firms, and sectors with a disproportionate public sector presence will have a high level of vulnerability to organized crime. Lavezzi (2011) further supports this contention and adds two characteristics to the profile of a company prone to mafia intrusion: (1) the company is small; and (2) is in a traditional and/or low-tech sector. To this group, Kleemans and van de Bunt (2008) add occupations in the transit industry. At ports in the United States, two primary sectors have these characteristics.

First are short haul (drayage) truck drivers and their working conditions. For example, at the Port of New York and New Jersey, most drayage drivers are non-unionized and have few benefits such as health care (Bensman and Bromberg 2009). These conditions create a working environment which leads them to be more susceptible not only to be exploited by criminal networks operating at ports but also to participate in illicit schemes.

The second sector is freight forwarding (Zaitch 2002; Klima 2011; Lantsman 2013). Forwarders or cargo handlers are small companies that ship goods to destinations around the world (Kleemans and van de Bunt 2008). Previous work on shipping agents identified several factors that make shipping agents a vulnerable labor sector, and given the similarities, these factors also likely to be present in the freight forwarding sector: physical proximity to ports, presence of longstanding relationships with customs, propensity to not inspect consigned cargo, and a lack of regulatory oversight creates disincentives to report illicit shipments (Klima 2011). Access to a forwarder can provide criminal networks with important information on where and how to export or import illicit cargo.

3.4D Interagency cooperation

A lack of interagency communication between waterfront security agencies creates a further administrative vulnerability (Pate et al. 2008; Grillot et al. 2009), even when agencies are not perceived or known to be corrupt such as the Waterfront Commission. The Waterfront Commission's main institutional partner and the landlord of much of the territory at the PNYNJ is the Port Authority of New York and New Jersey (PANYNJ). For up to a decade before 2008, these two agencies had a troubled relationship as the Port Authority would refuse to engage or work with the Waterfront Commission (Executive director, Waterfront Commission, personal communication, November 9, 2011). This lack of cooperation was the result of what was considered to be widespread and entrenched corruption at the Waterfront Commission (Fisch et al. 2009). Much of this corruption occurred between the period of 1990-2008, as research previous to that period on the Commission had not noted any specific level of corruption (Block 1982; Levy 1989). Also contributing to the lack of cooperation was the PANYNJ's perception that Waterfront Commission was incompetent as a result of organizational drift and internal corruption. The lack of interagency cooperation as a result of perceived/actual corruption is a serious hindrance to effective investigation of criminal network use of port facilities, exploitation of maritime/port private sector companies, and a sustainable approach to port security.

This vulnerability has been noted in other areas, particularly in the context of national intelligence failures (National Commission on Terrorist Attacks Upon the United States 2004). When agencies do not cooperate or exchange information effectively, knowledge of criminal network methods adaptation and tactics is not filtered through to the necessary stakeholders (NATO Review 2009; Presidia Security Consulting 2011), creating gaps in information and vulnerability.

3.4E Historical presence of criminal networks

Seaports with companies or agencies with historical associations to criminal networks will continue to have greater vulnerability to continued use by networks (Albanese 2003). At certain East Coast U.S. seaports and some Canadian seaports such as Halifax, Vancouver, and Montreal, the long-standing presence of criminal networks has led to continued illicit use of these ports (WCNYH 2008; 2009; 2010; Presidia Security Consulting 2011). Vulnerabilities at these ports are more deeply entrenched, as seaport cultures develop around the knowledge that criminal networks control certain aspects of trade or labor. This phenomenon may also lead to entrenchment of offensive spaces (Felson 2006; Presidia Security Consulting 2011).

Furthermore, historically, U.S. East Coast waterfront labor unions have been implicated with criminal networks (Block 1982; President's Commission on Organized Crime 1986: 36-43; Abadinsky 1990: 357-63; United States Attorney's Office 2004; United States Department of Justice 2011; Presidia Security Consulting 2011). Even though practices at ports have changed, through new innovations such as container shipping, connections between labor unions and criminal activity remain strong in some ports (Levinson 2006; Jaffee 2010).

In the United States, waterfront unions are regional: the International Longshoremen's and Warehousemen's Union (ILWU) represents most West Coast waterfront laborers and the International Longshoremen Association (ILA) is the primary representative for longshore workers at East Coast and Gulf of Mexico ports. As organized crime groups have retained strong ties to waterfront labor unions (Waterfront Commission 2009; 2010; 2011), laborers' collusion in criminal ventures is likely to continue to occur (U.S. Customs Service 1997).

Unionized and non-unionized workers may have different reasons for abetting criminal networks.¹² Workers in unions with particularly strong associations with criminal networks may be more likely to cooperate in crime due to the threat of job loss or other types of intimidation or retaliation (Edward and Levi 2008).

3.4F Organizational corruption

Organizational corruption refers to systemic wrongdoing by employees who violate societal norms with the support of their organization's internal norms (Segal 2002). Even with controls in place, organizations characterized by an entrenched culture of deviance will continue to have issues with corruption (Sherman 1978; Maynard-Moody, Stull, and Mitchell 1986; Susan Rose-Ackerman 1993; Segal 2002; Friedrichs 2002).

Stakeholder agencies and/or companies at seaports with a history of organizational corruption are considerably more vulnerable to criminal networks. Localized instances of collusion with criminal networks may not last for long periods of time nor provide deep access to a port, but a corrupt agency or company can facilitate the use of the seaport for a longer period of time and a greater amount of cargo transfers. Furthermore, corruption within agencies can lead to weakened oversight, if the corruption occurs in a regulatory or security agency (Albanese 2003). Agency corruption can create an empty space for networks to facilitate the transfer of licit goods illegally, such as in hazardous waste (Bisschop 2012), or illicit goods illegally, such as drugs (Zaitch 2002). Compromised investigations or a lack of investigative drive are

¹² Unionization does not in and of itself create port security vulnerability, as the ILWU on the West Coast displays almost no public evidence of collusion or cooption by criminal networks. The presence of organized crime associates in union locals at East Coast ports is more a function of the historical development of port operations and the locales where ports are situated. This is further detailed in Chapter 7 on the Port of NY/NJ.

important limitations in effectively preventing networks from accessing regulated seaport economic and labor sectors (Fisch et al. 2009).

3.4G Employee corruption

As a sub-type of the vulnerabilities associated with corruption, corrupt employees provide criminal networks privileged access to the seaport, though less access than a corrupt agency or company. Through this vulnerability, internal conspiracies are one of the main methods by which criminal networks access the functions of the port (Interagency Commission on Crime at U.S. Seaports 2000). For example, longshore labor may cooperate with a drug smuggling network (Kleemans and van den Bunk 2008; Dienst and Prokupecz 2011) or a company with compromised employees may acquire a contract to work at the port and gain access to the facilities. Corruption in the hiring process allows for individuals sympathetic to a network's illicit aims into a seaport company or agency in order to facilitate the criminal venture (Zaitch 2002; Kleemans and van den Bunk 2008). As illicit trade is in constant flux and security regimes adjust to different patterns of illicit activity, access to specific types of economic or labor sectors may be of particular importance to certain networks (Brown 2004; Vander Beken et al. 2005; Klima 2011; Lantsman 2013). However, the ease of access to employees in a company is dependent on the activity, the density of the sector where network presence is required, and the level of regulatory oversight of that sector.

In some companies, network members may gain access to seaports through complicit relationships with criminal groups (Van Duyne 2005; Vander Beken et al. 2005). Therefore, instances of internal hiring corruption have to be viewed through the lens of complicity - whether the company or agency hired corrupt employees as the result of a relationship with criminal networks or lax internal hiring procedures. In the United States, some ports have a longstanding

history of internally corrupt employees that allow criminal networks access to the port either for extracting cargo or inserting illicit cargo (Interagency Commission on Crime at U.S. Seaports 2000; Waterfront Commission 2008, 2009, 2010; Presidia Security Consulting 2011).

The utility to criminal networks of corrupt employees is substantial when considered from the criminal network's viewpoint. Access to corrupt labor allows criminals to import substantial quantities of illicit goods without having to establish shipping companies, deal with false bills of lading, or pay concealment costs (U.S. Customs 1997: 4; Zaitch 2002; Presidia Security Consulting 2011). As Zaitch (2002: 253) notes, regarding the utility of corrupt contacts at the Port of Rotterdam: "...corruption at destination points is a scarce precious resource. Entire operations can be organised around a single contact that guarantees access to the port." With regard to export, corrupt employees in the freight forwarding sector may facilitate a similar circumvention of outbound customs controls.

3.5 Logistical transport vulnerabilities

The third vulnerability category encompasses logistical transport vulnerabilities. These are vulnerabilities that result from the flow of trade through a seaport. At seaports, the flow of trade is commonly referred to as "throughput." Throughput is the number of containers which are imported or exported through a port, and includes containers which are referred to as "empties," or those which are shipped without any cargo.

3.5A Container throughput

A recent assessment of organized crime activity at Canadian seaports identified high levels of throughput at three principal Canadian seaports, Halifax, Montreal, and Vancouver, as one of the primary reasons why criminal networks used those ports (Presidia Security Consulting

2011). Zaitch (2002: 243) cites Colombian cocaine smugglers who made the same conclusion about the Port of Rotterdam in Amsterdam.

From a logistical perspective, seaports with a high level of throughput will likely have a large amount of goods passing through a limited physical space allowing networks to take advantage of fluctuating seasonal flows to insert illicit cargo into the transportation stream (Chambers 2012). They may initially exploit physical or administrative vulnerabilities to introduce the cargo into the transportation chain but a high level of throughput may more easily mask the goods as they continue to move through the transportation chain. As such, not only does port size, conceptualized as container throughput, offer smugglers greater concealment of illicit cargo (Zaitch 2002), but it also contributes to more efficient movement of those same goods (a function of port divergence) (Rodrigue and Guan 2008). In essence, criminals co-opt the legitimate economy of scale incentive to move goods through a large seaport for criminal purposes.

3.5B Export cargo vulnerability

At ports in the United States, CBP devotes vastly fewer security resources to export cargo than to import cargo (Department of Homeland Security Office of Inspector General 2007), with the result being that export shipments are often not targeted consistently or inspected by CBP officers for illicit cargo. This is mainly due to established resource allocation policies and is supported by interviews with CBP officers (Lantsman 2012). As a result, for the purposes of this analysis, ports in the United States that export more shipments than import will be more vulnerable to criminal network use because cargo is less likely to be inspected for illicit shipments.

3.5C Vessel traffic

Ports in the United States have differing vessel traffic profiles. Some ports specialize in specific types of traffic such as bulk cargo vessels or ro-ro (vehicle transport) vessels and focus less on container cargo. As such, agencies and port security stakeholders at those ports may develop specialized facilities or expertise to handle those types of vessels. Based on an analysis of U.S. Maritime Administration (2013) vessel compositions at the top 30 container ports in the U.S., container vessel calls made up only 33% of all vessel calls, see Figure 1.¹³ Ports which handle primarily container vessels will likely have developed specialized knowledge of not only the container shipping processes and procedures but also have a better understanding of which companies operate in the container shipping sector, such as the trucking companies moving cargo to and from the port and the forwarding companies which organize pickups of their containers. Ports in the United States that handle an above-average number of container vessels would likely have a more developed understanding of container security procedures and be less

¹³ Vessels over 1000 gross register tons (GRT). See Appendix C for a breakdown of container vessel calls at the top 30 U.S. seaports.

vulnerable to criminal network use of the container shipping system.

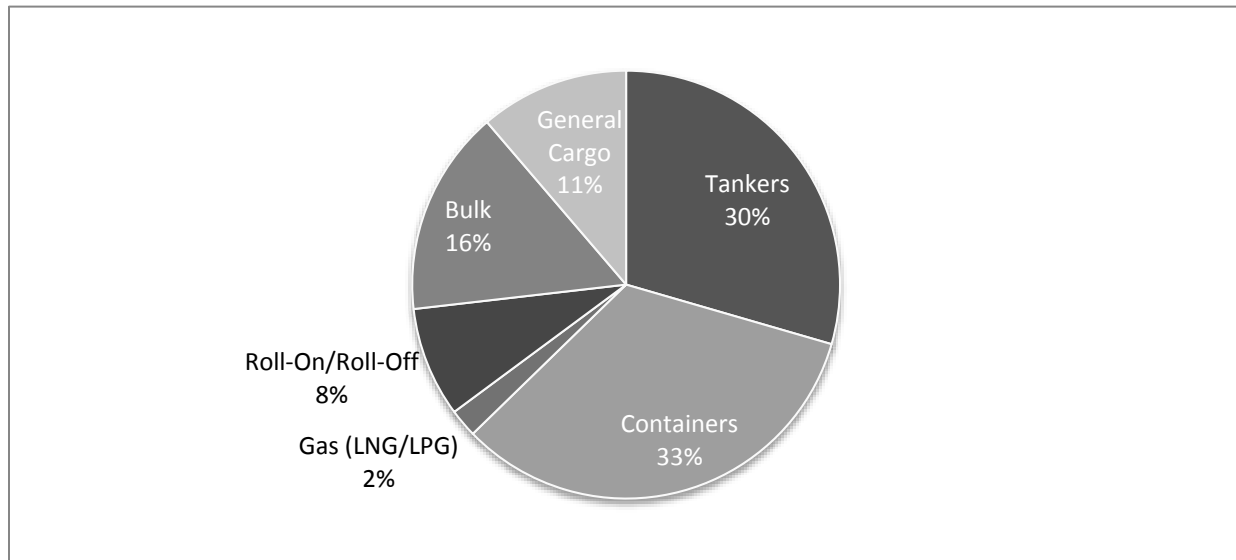


Figure 1: U.S. Maritime Administration statistics on the types of vessels that called at U.S. seaports in 2013.
Source: (MARAD 2013)

3.5D Imports of CRAVED products

This vulnerability is the other facet of understanding the presence of CRAVED cargo at ports. In section 3.3B I detail the vulnerability of whether CRAVED cargo is spatially concentrated at the port. This vulnerability examines whether CRAVED cargo constitutes a majority of the imports at the port. U.S. ports are significant import points for a wide variety of cargo but not all ports specialize or import CRAVED products. The specialization of U.S. seaports in specific types of cargo (Tomer and Kane 2015) assists in understanding which ports will have a greater vulnerability than others. This vulnerability examines the level of trade at U.S. ports to identify if CRAVED cargo constitutes any of the top ten import commodities at the port.

3.6 Theory of seaport vulnerability

Consistent with the approach described in the previous chapter of using multiple theoretical approaches to develop a unified theoretical approach to understand seaport

vulnerability, the Seaport Vulnerability Framework (SVF) described in this chapter constitutes a theory of seaport vulnerability, building in aspects of criminological theory, supply chain security, and observations of port activity at the Port of NY/NJ. By operationalizing vulnerabilities in the framework, the SVF then enables the creation of an assessment tool that can be used by port security stakeholders to develop a model of port vulnerability to identify where their port is most vulnerable to criminal network use. Table 1 below re-caps the theoretical approaches that inform the vulnerabilities in the framework.

Table 1: Seaport vulnerability framework theoretical overview	
Category/Vulnerability	Theoretical Perspective
Port Security Funding	Situational Crime Prevention, Supply Chain Security, Defensible Space
Physical	
Open structure	In/Defensible Space, Offensible Space
Spatial concentration of CRAVED products	CRAVED, Crime Place
Peripheral seaport companies	Defensible space, Crime Place
Vehicle traffic	Defensible space, Crime Place
Small vessels in/near seaport harbor	Defensible space
Intermodal connections	Defensible space
Physical/Administrative security procedures	Situational Crime Prevention
Proximity to illicit import/export market	Situational Crime Prevention, Opportunity theory
Administrative	
Port divergence	In/Defensible Space, Offensible Space, criminal network theories
Automation/cyber security vulnerability	Offensible Space
Interagency cooperation	Organizational cooperation
Vulnerable labor sectors	Criminal network theories
Number of service providers in a sector	Criminal network theories
Historical criminal network presence	Crime Place, Criminal network theories
Organizational corruption	Criminal network theories
Employee corruption	Criminal network theories
Logistical	
Container throughput	In/Defensible Space, Offensible Space, criminal network theories, rational choice
Export cargo vulnerability	In/Defensible Space, Offensible Space, criminal network theories, rational choice
Vessel traffic	Supply chain management

Imports of CRAVED products	CRAVED, Crime Place
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3.6 Conclusion

The SVF and criminal network activities outlined in this chapter provide the foundation for the research propositions outlined in the following chapter. Seaport vulnerabilities identified through the pilot study and subsequent research likely represent a subset of the universe of vulnerabilities among different ports outside of the U.S. Even within the United States, there are significant differences in vulnerabilities at certain seaports. However, by identifying and classifying the broad types of vulnerability that can exist at a seaport, this research seeks to move towards a better understanding of: (1) the typology of vulnerability; and (2) how those vulnerabilities can be used to provide criminal networks with privileged access to the functions of a seaport.

From a criminological theoretical standpoint, this chapter identifies the three primary categories of vulnerability as physical, administrative, and logistical, and disaggregates 21 vulnerabilities within those categories. As a result, this provides a means to move towards creating an analytical framework that when properly applied to seaports with appropriate data should enable the concentration of prevention resources towards the appropriate vulnerability.

Chapter 4- Research propositions

This dissertation is composed of two analyses. The first analysis is an examination of the top 30 U.S. container seaports using the Seaport Vulnerability Framework detailed in the preceding chapter. This analysis uses 15 of 21 vulnerabilities to profile the top 30 seaports in the United States to build a weighted vulnerability profile identifying which ports in the U.S. display the greater vulnerability to criminal network exploitation. The second analysis is an in-depth case study of the Port of New York and New Jersey (PNYNJ) of all 21 vulnerabilities to detail how vulnerability manifests itself in this port. Both parts of the dissertation examine propositions that focus on the assumed consequences of a seaport's vulnerability. The propositions are categorized below, measured in Chapter 6, and examined in further detail in Chapter 7 at the PNYNJ.

4.1 Port security funding

- **Funding levels** - Ports that receive less security funding relative to other ports in the U.S. will be less secure.

4.2 Physical vulnerability

- **Open structure** - Seaports with large open structures are more susceptible to criminal network exploitation than seaports with closed structures. Open structure ports have multiple entry/exit points, open air facilities, and open storage areas.
- **Spatial concentration of CRAVED products** - A seaport that concentrates CRAVED products will be targeted by criminal networks for theft and will have a higher level of overall vulnerability.
- **Peripheral seaport companies** - Seaports with numerous freight forwarders or cargo handlers, relative to the amount of cargo moved on a monthly basis, will be more susceptible to criminal network exploitation.

- **Vehicle traffic** - A large quantity of daily truck traffic to the seaport, relative to average daily container transits, will allow criminal networks greater ease of access to the port.
- **Small vessels in/near port** - Large numbers of fishing or recreational vessels in or near the seaport harbor will allow networks to bypass customs procedures for declaring goods and can support illicit trade.
- **Intermodal connections** - A large number and variety of intermodal connections create more opportunities for networks to insert illicit cargo into the legitimate stream of commerce.
- **Physical/Administrative security procedures** – Ports in the U.S. that have added SCP techniques to existing baseline levels of physical and administrative security procedures will display decreased vulnerability.
- **Proximity to illicit import/export market** - A seaport with a large illicit import/export market within range of the port hinterland or an average drayage truck trip will make the port more vulnerable to criminal network use.

4.3 Administrative vulnerability

- **Port divergence** - Port divergence creates different types of vulnerability at ports that lose traffic and at ports that gain container traffic.
- **Automation/cyber security vulnerability** - Cyber security vulnerability increases with greater automation in port operations.
- **Interagency cooperation** - Ports without adequate procedures for interagency cooperation can have jurisdictional gaps that create offensible and vulnerable administrative space.
- **Vulnerable labor sectors** - Vulnerable licit labor and economic sectors provide networks the opportunity to insert illicit goods into the stream of legitimate maritime commerce.

- A high number of service providers in a seaport's labor and economic sectors increases the opportunities for access.
- **Historical criminal network presence** - Seaports with historical associations with criminal networks will be more vulnerable to contemporary criminal network use.
- **Organizational corruption** - Seaports with companies that engage in corrupt or criminal activity are more vulnerable to criminal networks.
- **Employee corruption** - Employee corruption provides networks with access to the physical and administrative space of a seaport.

4.4 Logistical vulnerability

- **Container throughput** - High levels of throughput at a seaport create greater opportunity for criminal networks to ship illicit cargo.
- **Export cargo vulnerability**- If container exports are a sizeable percentage of a port's annual operations, the port has increased overall vulnerability to criminal network use.
- **Vessel traffic** - Ports with a below-average level of container vessel calls will have a higher level of vulnerability to criminal network use of container shipping.
- **Import of CRAVED products** - A seaport that imports large quantities of CRAVED products will be targeted by criminal networks for theft and will have a higher level of overall vulnerability.

Chapter 5 Methodology

The analysis of seaport vulnerability at U.S. ports employs a comparative port vulnerability analysis using the Seaport Vulnerability Framework and an in-depth case study analysis of the Port of New York and New Jersey.

5.1 Comparative Seaport Analysis

The comparative seaport analysis examines the top 30 U.S. cargo seaport through 15 of the 21 SVF categories. These categories were chosen for three primary reasons:

- They represent a cross-section of the primary vulnerabilities in the SVF and include the highest rated vulnerabilities.
- They can be measured with publicly available data sources or proxy data sources..
- They can be used to measure vulnerability at domestic and international seaports and provide a scalable framework to identify vulnerability across ports both within the U.S. and abroad.

5.1A Multi-port analysis sample

The seaports in the comparative analysis are the top 30 U.S. cargo seaports as determined by the American Association of Port Authorities (AAPA).¹⁴ The AAPA is the primary organization for port authorities in the Western Hemisphere and compiles statistics across its member ports, which include all of the major ports in the United States. This analysis excluded land ports and focuses on the top 30 container maritime ports in the United States, including territories such as Guam and Puerto Rico. These ports account for 99.3% of all container

¹⁴ See Appendix D for a list of the expanded sample.

shipping traffic in the U.S. and capture almost the entire spectrum of container traffic in the United States.

While the sample ports were selected based on container throughput, other selection options include cargo volumes or the number of vessel shipping calls as the primary selection criteria. For this study, container shipping is the ideal selection criterion because containers are the primary transport mode for illicit cargo (UNODC 2010; UNODC 2012).

5.1B Units of analysis

The SVF examines vulnerability at seaports across multiple levels of analysis. The primary unit of analysis is the seaport.¹⁵ Due to the multi-jurisdictional and multi-stakeholder webs which characterize seaports, some vulnerabilities are coded using a divergent spatial or administrative level of analysis. For example, at a higher spatial order of analysis, vulnerability at a seaport is examined at the port district level, which may be defined differently by each local port authority. If the port district level is left undefined by the port authority, the PNYNJ's port district limitations (New York Code: Art. II) definition is adopted by default: a 25 mile radius from the port's main shipping terminal. Within seaports, the economic sector is another unit of analysis. Within economic sectors, the individual company is a unit of analysis. The employee is also used as a unit of analysis when examining employee corruption. Finally, the waterfront labor union is a unit of analysis that cuts across the organizational and individual units listed above.

5.2 Data

Note on coding

¹⁵ Defined as "harbors for seagoing vessels with facilities to lade and unlade cargo and/or passengers and with easy access to the sea (from the 24 nautical mile contiguous zone to the terminal) (Interagency Commission on Crime at U.S. Seaports 2000: 2)."

The comparative analysis framework is divided into three categories of vulnerability based on the theoretical level of utility of the vulnerability to a network: low, moderate, and high order vulnerabilities. The vulnerabilities are coded based on a tri-order scale of measurement with 3, 6 and 9 as the highest code depending on the order of utility for a network.

1. Low order vulnerabilities are coded between zero and three (0-3).
2. Moderate order vulnerabilities are coded between zero and six (0-6).
3. High order vulnerabilities are coded between zero and nine (0-9).

Five of 15 vulnerability categories had a baseline of one (1) as the lowest possible score. As a result, the minimum score is 5 and the maximum is 63, with a range of 5 to 63. This chapter examines the data used for the analyses, explains the coding schema, and discusses limitations of data sources.

Table 2- Vulnerability Coding Chart		
Low order vulnerability	Coding	Creates a low level of access or attraction to a criminal network; alone this is not enough to create access to a port.
Port security funding per 2013 container	0-3	
Open structure	0-3	
Spatial concentration of CRAVED products	0-3	
Import of CRAVED products	0-3	
Peripheral companies	1-3	
Vehicle traffic	1-3	
Intermodal connections	1-3	
Physical/administrative security procedures	1-3	
Throughput	1-3	
Container vessel traffic	0-3	
Interagency cooperation	0-3	
Moderate order vulnerability	Coding	Creates a moderate level of access or serves to attract networks to a specific port.
Illicit import/export market in port district	0-6	
Historical presence of criminal networks	0-6	
High order vulnerability	Coding	Creates a high level of access; alone this may be sufficient for a network to access a seaport.
Organizational corruption	0-9	
Employee corruption	0-9	

5.2A Port security funding per 2013 container (0-3)

Since 2002, port security agencies and private entities have been eligible to apply for Port Security Grant Program (PSGP) funding. From 2002 to 2013, the PSGP provided \$2,431,381,580 in funding or \$56.41 per 2013 container (AAPA 2006; DHS 2007; DHS 2008; DHS 2009; DHS 2011; DHS 2012; DHS 2013; DHS 2014; FEMA 2014). While a significant portion of PSGP funding is not focused directly on container traffic, funding for port security nonetheless affects container security and the overall movement of illicit cargo. PSGP funding records which note the port, the amount, the project description, and, in some cases, the direct beneficiary, were used to build a proxy dataset to measure how much funding has been disbursed for a particular port's security for the seaport sample in this study. Measuring the amount per container across a longitudinal period provides a way to quantify how much security funding was invested at one particular seaport relative to other seaports.

- A port with no or less than 25% of the average PSGP investment per container is coded 3.
- A port with a PSGP investment between 25% - 50% of the average PSGP investment is coded 2.
- A port with a PSGP investment less than the average PSGP investment but more than 50% of the average is coded 1.
- A port with a PSGP investment at or above the average PSGP investment is coded 0.

Data quality/limitations

This category relies on U.S. government issued data, either identified directly through the Federal Emergency Management Agency (FEMA), which determines PSGP levels, or the

American Association of Port Authorities (AAPA), which collates FEMA PSGP data.¹⁶ This provides for a strong level of reliability as the same data sources is used across all ports. The primary limitation with this data source is that for certain ports, FEMA and AAPA listings only displayed the organization that received the funding as the Port Authority, without disaggregating which specific agencies or organizations received funding.

5.2B Open structure (0-3)

Open structure was analyzed using Google Earth and internal port documents. In some cases, it was possible to identify the seaport boundaries without the use of internal port maps, such as with the ports of San Diego, Oakland, and Freeport (Texas). A number of seaports structures were unusually complex, with multiple terminals across a wider area. For these ports, such as the Ports of New York and New Jersey, Savannah, and Houston, both internal port maps and Google Earth were used to identify port facilities. Where a port had more than one terminal with separate entry/exit points, it was scored as if it had multiple entry/exit points, since access to one terminal would provide access to others, particularly if cargo were to be moved once in the port.

- Open structure is coded for ports that display the following features: (a) more than one entry/exit point; (b) port facilities near public access roads; or (c) containers in large open access yards. Open structure ports are coded between 1 and 3. If a port displayed all three features it was coded as 3; ports with two of the three features are coded as 2; and those with one feature are coded as 1.
- Ports without these features are coded as closed structure ports and are coded 0.

¹⁶ U.S. Department of Homeland Security (2007; 2008; 2009; 2010; 2011; 2012; 2013; 2014); AAPA 2006.

Data quality/limitations

Google Earth has previously been used as a tool and data source for criminological research (Duwe, Donnay, Tewksbury 2008; Irvin-Erickson 2014) as an accessible cross-comparative data source. While researchers (Cayo and Talbot 2003; Zandbergen 2008) have identified that using Google Earth for geocoding presents significant data limitations, for the purposes of identifying access roads, entry/exit points, and open container yards, Google Earth data triangulated with available port maps provided a reliable data source.

5.2C Spatial Concentration of CRAVED products (0-3)

Among its containerized cargo, a port may have a high concentration of CRAVED products. Not all seaports will have high concentrations if they are primary entry points for bulk cargo such as paper, timber, and petroleum. To code for CRAVED products spatial concentration at the port, this analysis uses the proxy measure of whether the port had a centralized examination station (CES) where CBP examines cargo for illicit inclusions or fraudulent declarations. According to the Code of Federal Regulations (19 CFR 118.2), the CBP Port Director determines whether there is a need for a CES at the port, and this will depend on a multitude of measures including whether high value cargo transits the port and there is a need for specialized inspection facilities (CBP January 2012). Since more expensive commodities, often with higher duty rates (Mason 2013), are more likely to be incorrectly declared, purposefully or accidentally (Hintsa et al. 2011), the presence of a CES (where those goods will be inspected) at the port, or within a short distance from the port (five miles or less) is used as a proxy measure of whether CRAVED products are spatially concentrated at the port because CRAVED products are likely to be concentrated in the same location, increasing vulnerability to criminal networks.

Where available, private warehouse data was used to identify high value storage at a port; this

was as an additional data source to confirm the presence of CRAVED products. This vulnerability is coded either a 0 or 3 with no intermediary score.

- A seaport with CRAVED products was coded as 3 if: (a) it contained CES locations; or (b) if it contained facilities that house high value items within seaport boundaries.
- A seaport was coded as 0 if it did not have either a CES or other identifiable locations with high value cargo.

Data quality/limitations

The greatest data limitation was identifying the presence of a CES. Because there are no standardized listings of these stations, internet searches were used to identify (1) whether the port had a CES and (2) where the CES was located. The CES location was then identified on Google Earth to determine the proximity to the port.

5.2D Imports of CRAVED products (0-3)

In addition to the spatial concentration of CRAVED cargo at a port, this vulnerability measures the presence and amount of CRAVED product imports. To identify the level of imports of CRAVED products, I use a trade data aggregator WorldCity Trade Numbers (www.ustradenumbers.com), which aggregates U.S. CBP import/export data by commodity for each port area in the U.S. by both tonnage and value of the commodities. I use the tonnage aggregator to measure the quantity of CRAVED cargo imported into the port, in the latest available period of data June 2015 to May 2016. This enables this analysis to examine the top ten import commodities by tonnage in each of the 30 ports in the sample.¹⁷ Commodity categories are aggregated using titles from *The Statistical Classification of Domestic and*

¹⁷ The only port that utilizes non-U.S. CBP commodity data is Apra, Guam, which is provided through the Guam Bureau of Statistics and Plans (2014b). Port of Boston data is aggregated by value as tonnage data is not available.

Foreign Commodities, or Schedule B, which lists 9,000 export codes used to identify commodities (U.S. Census Bureau 2016). To determine whether the top ten commodities are CRAVED cargo, I used the 2014 FreightWatch International Global Cargo Theft Report (FreightWatch International 2014) to identify the top stolen commodities, see Figure 2 (Jaillet 2015). I aggregated the entire set of import commodities into a unified list and then cross-referenced with the top ten stolen commodities to identify which import commodity is a CRAVED product.¹⁸ Vulnerability is then coded based on the number of import CRAVED commodities.

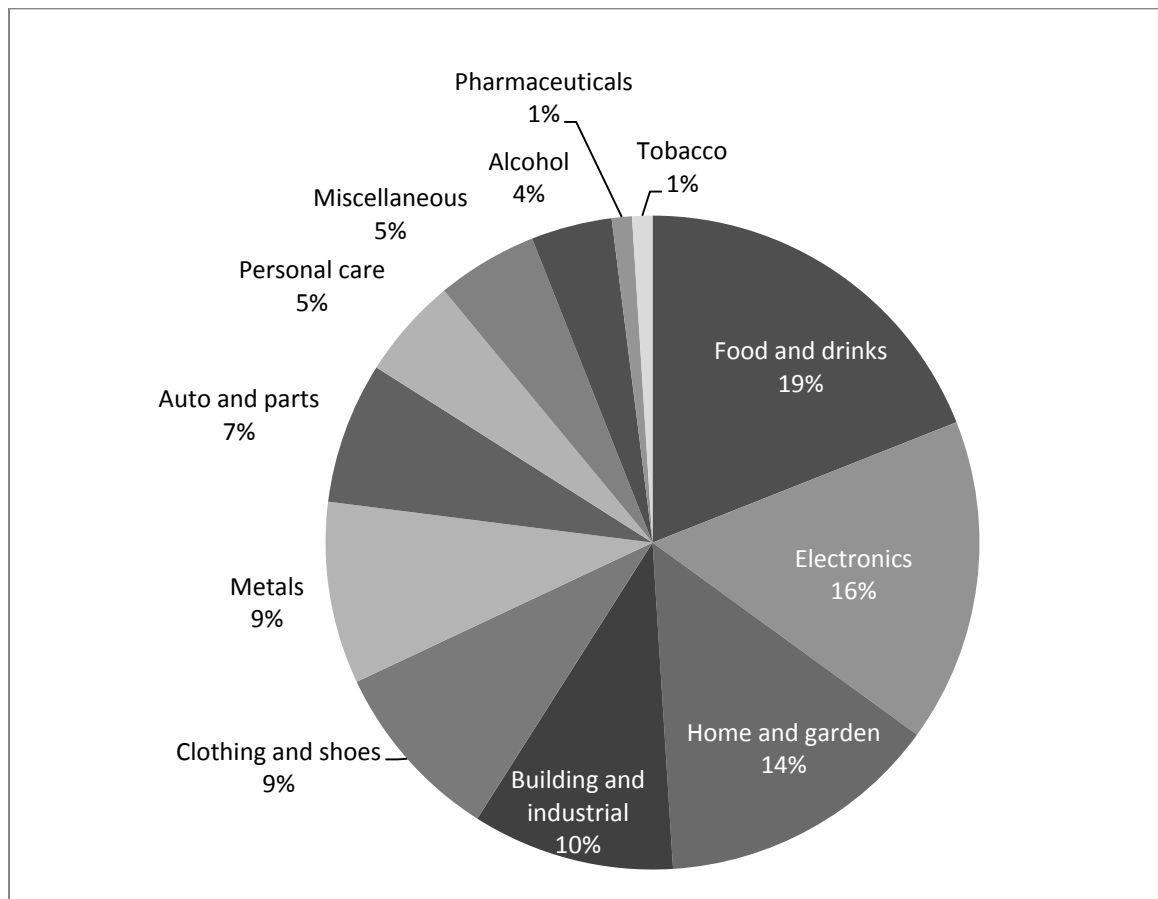


Figure 2: U.S. cargo theft by type of product (2014): Source (Jaillet 2015)

¹⁸ Appendix K lists all of the commodities identified under this analysis and whether they met the CRAVED criteria.

This vulnerability is coded between 0 and 3.

- A port where more than five of the top ten commodities are CRAVED is coded 3.
- A port where three to five of the top ten commodities are CRAVED is coded 2.
- A port where one to two of the top ten commodities are CRAVED is coded 1.
- A port with no CRAVED imports in the top ten commodities is coded 0.

Data quality/limitations

U.S. Census Bureau aggregation of U.S. CBP data is used by companies around the United States and throughout the world as a reliable source of financial data to identify import/exports by commodity (Tomer and Kane 2015). The WorldTrade aggregator is a respected site that provides financial and commodity data to clients. The primary limitation with using census data is that it aggregates the category of the commodity. For example, the Schedule B commodity title “Computers” does not provide further detail as to the type of computers, size, or other physical characteristics that would enable greater dis-aggregation under CRAVED criteria.

5.2E Peripheral companies (1-3)

Peripheral companies are entities that provide services that require them to be present at the port on a semi-regular basis, freight forwarders being the most common peripheral company at ports. The size of the freight forwarder sector is the proxy measure to identify the level of peripheral companies operating at the port. The number of freight forwarders at the port relative to the monthly container throughput provides a measure of the proportion of the freight forwarder presence at the port. I used a widely used freight forwarder directory to compile the

list of freight forwarders capable of operating at the port.¹⁹ The cut off measure for freight forwarder area of operations is 75 miles from the port, which is the outer length of what is considered a drayage truck distance (Bensman and Bromberg 2009). Based on the fact that in certain parts of the U.S. ports are located within 75 miles of each other, overlaps of freight forwarders operating at multiple ports were often identified. However, under the determination of this vulnerability, a freight forwarder could be identified as operating at more than one port and was considered an individual forwarder for each port, and at ports which are contiguous, there are very closely similar, if not identical, determinations of vulnerability in this category. These ports include the port pairs of Ft. Lauderdale and Miami, Long Beach and Los Angeles, and Seattle and Tacoma – all clustered within 40 miles of each other. Similarly, at island ports such as Honolulu, Kahului, Apra, or San Juan, freight forwarders would likely work throughout the whole island, not those just near the port; as such, island-wide listings are used.

To determine the level of peripheral company presence at a seaport, the following formula was used: [Service providers in a sector/Average Monthly Container throughput in last full year of data] X 10⁴ (weight).

- Ports that scored over 21 were coded as 3 for a high proportion of freight forwarders to the amount of monthly container cargo.
- Ports that scored 11 to 20 were coded as 2 for a medium proportion of freight forwarders to the amount of monthly container cargo.
- Ports that scored 0 to 10 were coded as 1 for a low proportion of freight forwarders to the amount of monthly container cargo.

¹⁹ www.forwarders.com.

Data quality/limitations

The measurement for this vulnerability relies almost exclusively on one data source, www.forwarders.com. While this is the largest resource online for identifying freight forwarders, it is self-selected since freight forwarders have to request to be listed on the site. In areas with many small entities, such as Miami, NY/NJ, Houston, and LA/Long Beach regions, the website likely undercounts the number of forwarders providing services to that port because small providers may be more likely to operate for local diaspora communities and for specific local clients without a need or desire for widespread advertising.

5.2F Vehicle traffic (1-3)

To identify the number of trucks using a port daily, data was obtained primarily through a variety of public sources, such as media accounts, industry publications, and environmental impact studies. Truck traffic at seaports is a significant concern for city and state environmental agencies mainly because many ports are often legacy structures located within built-up urban areas, and environmental concerns of the impact of ports on local communities have led to environmental impact studies which identify truck traffic. For example, a number of West Coast ports, including Seattle, Tacoma, Oakland, Los Angeles, and Long Beach instituted “green” port trucking requirements due to the environmental and health impacts of diesel fumes (Ross and Associates Environmental Consulting 2007; Board of Port Commissioners City of Oakland 2009; Port of Seattle 2014; Unified Port of San Diego).

The absolute number of daily truck visits to a port alone does not provide a reasonable measure of the volume of truck traffic since it does not take into account the amount of cargo passing through the port on a daily basis. As a result, the scoring for this measure is based on a ratio of daily container traffic to daily average truck visits. This method paints a fuller picture of

a port's vehicle traffic. For instance, some ports may have significant throughput without a significant level of truck traffic due to heightened intermodal transfers through rail or barge traffic. In contrast, other ports have significant truck traffic without a significant number of container throughput because the port lacks intermodal transfer options and a high level of bulk transfers must be transported by truck. To determine the level of vehicular traffic at a seaport, this formula is used: $[\text{Average daily truck traffic} / \text{Average Daily Container throughput in last full year of data}] \times 100$ (weight).

- Ports that scored over 51 are coded as 3 for a high proportion of daily truck traffic to the daily amount of container cargo.
- Ports that scored over 21 to 50 are coded as 2 for a medium proportion of daily truck traffic to the daily amount of container cargo.
- Ports that scored 0 to 20 are coded as 1 for a low proportion of proportion of daily truck traffic to the daily amount of container cargo.

Data quality/limitations

There is no single data source that identifies daily truck traffic to a port. Each individual port analysis required specific internet searches to identify the daily number of truck visits to the port. In some cases, media articles identified the number of truck visits per day through interviews with port officials often in relation to security (Swedberg 2007) or environmental impact surveys (Environmental Defense Fund 2009). The major limitation was that truck traffic was not always available for the same year as the container traffic, which used 2013 data, and therefore vulnerability coding in this category has to be examined per port to identify how off set the actual vulnerability is by the year of traffic. For example, in a port with an estimate of truck

traffic in 2011 coded against 2013 container traffic, the actual vulnerability may fluctuate higher or lower depending on whether truck traffic increased or decreased in 2013.

5.2G Intermodal connections (1-3)

The more intermodal port connections a port has, the greater the transport opportunities not only for legitimate entities but also for illicit entities (Petrossian, Marteache, and Viollaz 2014). Intermodal connections are identified by the presence of an international airport, large number of railway transfers and multiple rail lines, and a heavy level of vehicle traffic as determined the vehicle traffic category. The primary sources consulted were internal port documents and listings of railways, media accounts of railway transfers at the port, and economic studies. In addition, standard internet searches were used to determine the presence of an international airport in the port district.

Ports were coded based on the variety and extent of intermodal transfers.

- Ports are coded as 3 if: they have more than one rail connection to the port hinterland and surrounding regions; they have a large number of railway TEU transfers, determined by yearly TEU throughput / yearly TEU railway lifts, and where the percentage of railway lifts is over 10% of all loaded import/export TEUs; or they have at least one international airport within the port district or a large presence of short haul trucking operators.
- Ports with two of the three coding criteria are coded as 2.
- Ports with one of the three coding criteria are coded as 1.

Data quality/limitations

The primary data limitation encountered in determining vulnerability in this category relates to railway transfers. Some ports have highly detailed monthly and annual statistics regarding container throughput which includes railway traffic statistics (Port of New York and New Jersey), while other ports do not post monthly container statistics (Port of Mobile, Alabama). To identify the level of rail traffic at ports alternate sources of data were required such as railway traffic surveys, regional transportation plans (Cambridge Systematics 2016), and other documents.

5.2H Physical/Administrative security procedures (1-3)

This vulnerability measures whether key physical or administrative security procedures are employed at the port and is coded through the presence of situational crime prevention (SCP) techniques which have specific relevance to seaport security (Clarke 1997). The 11 SCP techniques include, with orange highlighted techniques now standard practice at U.S. ports either through U.S. CBP recommendations for container seals (U.S. CBP B) or federal regulations through the 2002 MTSA and SAFE Port Act.

Table 3: Physical/Administrative Technique Relevant to Port Security	
SCP Technique	Port specific application
Target Hardening	Containers are locked with tamper proof seals; Tamper detection for containers
Access control	Access is restricted to only entrants holding port specific documentation
Screen exits	Vehicles are searched upon exit from the port facility
Extend guardianship	Employees are encouraged to report signs of criminal activity in their employer or in their workplace
Natural surveillance	Adequate lighting is available for all sections of the seaport
Reduce anonymity	Seaport employees carry clearly visible identification
Use of place managers	Maritime security training is prominently highlighted by the port authority and companies operating at the port
Formal surveillance	Port facilities are fully covered by working CCTV cameras
Conceal targets	Knowledge of container manifests is restricted to select employees

Remove targets	High value cargo is kept in enclosed secure facilities with high security than for open access cargo
Identify property	Cargo is identified by unique seal identification numbers

To identify the baseline security techniques in 17 of the 30 ports for the comparative port sample, I relied on a previous port security study by Pate et al. (2008), which identified baseline security through site visits. In addition, primary source data from the Port Security Grant Program project descriptions was used to triangulate data to determine whether a particular SCP technique was present. Several SCP techniques are now standard practice at U.S. ports due to the requirements of the Maritime Transportation Safety Act of 2002 (MTSA) and the Security and Accountability for Every Port Act of 2006 (SAFE Port Act). These techniques are highlighted in Table 3 and confirmed through site visits to four seaports: Port of Miami, Port of San Diego, Port of Long Beach, and Port of New York and New Jersey.

- Ports are coded as 3 where 7 or more of these SCP techniques were not applied.
- Ports are coded as 2 where between 4 and 6 techniques were not applied.
- Ports are coded as 1 where 3 or fewer techniques were not applied.

Data quality/limitations

While six of the eleven SCP techniques are standardized practice at U.S. seaports, the remaining techniques remain at the discretion of security agencies at ports. Remaining techniques were determined by public sources. In some cases it is likely that specific techniques would not be identified or highlighted in port documentation, either through PSGP grant funding announcement or in port documentation highlighting security procedures. For example, it was difficult to determine whether port employees are encouraged to report signs of suspicious

behavior. Some ports, such as PNYNJ, specifically highlight that in public documentation, while others do not.

5.2I Throughput (1-3)

Container throughput at the top 30 ports was assessed using the American Association of Port Authorities (AAPA) annual survey of seaports in North America and Mexico. The survey information was collected via the 2013 NAFTA Regional Container Traffic Survey and comprises the latest and most complete data set for container throughput for all available seaports. Ports with a higher level of container throughput are coded for a higher level of vulnerability.

- Ports with over two million TEUs annually are coded as 3.
- Ports with one to two million TEUs annually are coded as 2.
- Ports with less than one million TEUs annually are coded as 1.

Data quality/limitations

The AAPA, the primary port industry group, develops the NAFTA Regional Container Traffic Survey as the primary comparative data source for cargo traffic across North American and Mexican seaports. This provides a strong level of reliability for comparative port analysis. While there may be questions raised as to the incentive for ports to report higher levels of container traffic, these levels are often provided to federal and state agencies for regulatory reasons and there is no reason to expect that ports will provide falsified figures to the AAPA.

5.2J Container Vessel traffic (0-3)

The U.S. Maritime Administration (MARAD) compiles vessel call data at U.S. maritime ports of entry to produce a report detailing the number of vessel calls for privately-owned ocean-

going merchant vessels of all flags of registries for over 1,000 gross registered tons calling at ports and selected ports/terminals within the contiguous U.S., Hawaii, Alaska, Guam, and Puerto Rico. In 2013, container vessels comprised, on average, 33% of all vessels calling at ports in this comparative sample ports. The 2013 average (Maritime Administration 2013) was used as the baseline to determine whether a port had advanced experience handling containerized import/export traffic. Ports with low levels of container vessel calls would be scored for higher vulnerability, using the average vessel calls in 2013 as a baseline.

- Ports are coded as 3 where less than 20% of vessels were container ships.
- Ports are coded as 2 where between 20-32% of vessels were container ships.
- Ports are coded as 1 where between 33-50% of vessels were container ships.
- Ports are coded as 0 where over 50% of all vessels were container ships.

Data quality/limitations

MARAD data (2013) provides a strong level of reliability for comparative port analysis, as this is the primary and only comparative data source for vessel calls across U.S. seaports.

5.2K Interagency Cooperation (0-3)

At Coast Guard district sectors (See text box on page 36), the MTSA mandated the institution of Area Maritime Security Committees (AMSC), which were developed to resolve issues identified in the Interagency Commission on Crime at U.S. Seaports (2000). AMSCs are chaired by the U.S. Coast Guard and include all port security stakeholders with a port security interest or mandate in the port region, which may be more expansive than the port district. Each of the 36 Coast Guard sectors has a stand-alone AMSC and the composition of the group varies across each sector. At U.S. ports the presence of an AMSC provides for a minimum level of

interagency cooperation and communication, in addition to coordinating annual security exercises and trainings. Participation in an AMSC provides four components of cooperation (1) a mechanism for joint training among agencies; (2) consistent information exchanges; (3) an appropriate venue to share information; and (4) an oversight mechanism to limit territoriality. Data sources to identify AMSC composition vary but normally include local port region Coast Guard documentation or public press releases and in some cases public media articles noting the port's participation in the AMSC.

- Ports with one or zero components are coded as a 3.
- Ports with two components are coded as a 2.
- Ports with three components are coded as a 1.
- Ports with all components are coded as a 0.

Data quality/limitations

Despite the federal mandate, the composition of AMSCs is at the discretion of maritime and port stakeholders in the region. In some port regions, the Coast Guard has to release regular circulars in the Federal Register soliciting applicants to participate in AMSCs (Federal Register A; Federal Register B). In certain port districts, the local Coast Guard sector did not publish or cite the composition of the AMSC, and publicly available documentation did not provide evidence that the port was a member. As a result, it was not always possible to identify whether the port participated in the AMSC.

5.2L Illicit import/export market (0-6)

Three standardized data sources were used to determine whether an illicit import/export market existed in the port district. First, U.S. Department of Justice High Intensity Drug

Trafficking Area (HIDTA) data was used to identify whether the port is located in a county with a high level of drug trafficking and to identify which transport methods of trafficking are most prevalent in the port district area.²⁰ Second, to determine the level of cargo thefts in the port district, FreightWatch International's Route Analysis Tool was used to map cargo theft incidents within a 75 mile radius of each port. A high level of cargo thefts in the port district is a supporting factor to identify whether the port region is located in an area with organized criminal network operations, as many types of cargo thefts are conducted by organized theft rings (FreightWatch International 2013; 2014; 2016). Finally, to determine the rate of suspect auto theft transfers, data from the 2003-2008 National Insurance Crime Bureau (NICB) database of suspect unique VINs and the 2003-2008 National Criminal Information Center (NCIC) on identified stolen vehicles yielded a data set from which to identify above-average levels of such vehicle transfers.

Ports in close proximity to a large import/export market for illicit goods will be coded on the following criteria, and the sum of scores for the three composing variables comprise the total code for this vulnerability:

- 1) If the port district is in an HIDTA county where maritime transportation is a known method for drug trafficking, the port will be scored as 2. If the port is in an HIDTA county where maritime transportation is not a known transportation method for drug trafficking, the port will be scored as 1;
- 2) If the port or port hinterland experienced more than 10 cargo theft incidents within the past two years, as reported by FreightWatch International, it is scored 2;
- 3) If the port has an above-average rate of NICB and NCIC hits (1 point each).

²⁰ See Appendix F for a map of HIDTA counties designated in 2015.

Data quality/limitations

HIDTA surveys provide the best method of identifying narcotics trafficking areas. However, while ports may be located in an HIDTA identified county, the vector of narcotics trafficking into that region may primarily be through road or air. To alleviate this limitation, HIDTA analyses which cite maritime trafficking as a known method in the area support a higher code in this segment of the category.

A common problem with using self-reported maritime statistics is that data is likely skewed conservatively as companies and individuals do not want to highlight thefts or incidents in their commercial environments (Europol 2009; Lombardo 2014). FreightWatch theft data is self-reported and likely under counts actual numbers of thefts in specific areas. As a result while thefts are likely under reported, this cross comparative data source provides a reasonable measure to identify the level of cargo theft in port regions, if the assumption that it is underreported in the sector applies to all geographical representatives in the sector. In consideration of alternate data sources, such as Uniform Crime Report, cargo theft statistics do not allow for a method to determine whether thefts took place in the port region of the state. Moreover, since agency participation in the Uniform Crime Report is voluntary, there are significant gaps in participation which occlude comparative analysis in port regions (FBI 2014 B).

The NICB and NCIC database entries for vehicle transfers at U.S. ports have their own set of limitations. It is likely that a proportion of the vehicles identified through NICB data do not include all stolen vehicles. Furthermore, this data could contain false positives where cars were not yet registered under new VINs or were broken down in “chop shops” for resale overseas, but which were not stolen. NCIC data is of a greater level of reliability and as a result

the number of vehicles identified is significantly smaller. Furthermore, the available data was from the period of 2003 to 2008 and vehicle transfers and movement trends will likely have fluctuated since that time period.

Note on next three vulnerabilities

The following three vulnerabilities rely on the use of public data sources, such as media accounts, to identify cases of organizational and employee corruption and historical presence of organized crime or criminal network involvement in the port economic sectors. Organizational and employee corruption data was supplemented with data from CBP and ICE media release notes. Both data sources provide a rich library of media releases detailing illicit activity throughout the U.S. including data on arrests, indictments, prosecutions, and sentences for individuals processed through the federal justice system (with primary jurisdiction over trafficking cases) for illicit trafficking.

CBP data primarily identifies incidents of seizures. However, in some cases, CBP also identifies which organizations were involved in the incident and whether internal conspiracies were suspected or confirmed in the seizure incident. ICE news releases focused on arrests, investigations, prosecutions, and sentencing data for networks involved in smuggling, and, as such, the ICE news releases provided a wider source of data. To measure the extent of official corruption, I used a secondary database of CBP officers who have been indicted or arrested for corrupt activity.

5.2M Historical presence of criminal networks (0-6)

To determine whether a port had a history of organized crime in any of the labor or economic sectors, data was gathered from open source searches of media on illicit or organized activity in the port sector. The primary database used was Lexis-Nexis, and the searches were

structured to cast a wide net to identify instances of organized crime presence. The primary search terms were “name of the port” AND “organized crime,” or “criminal network,” “corruption,” “internal conspiracy.”

This vulnerability was coded based on the duration of criminal network(s)’ financial interests in some aspect of seaport administration, maintenance, or maritime function.

- Seaports with sectors with over 20 years of criminal influence are coded as 6.
- Seaports with sectors with between 5 and 20 years of criminal influence are coded as 4.
- Seaports with sectors with fewer than 5 years of criminal influence are coded as 2.
- If there is no evidence in the public record of criminal network influence in some aspect of seaport administration, maintenance, or maritime function, the seaports are coded as 0.

5.2N Organizational corruption (0-9)

In addition to Lexis Nexis media searches, CBP and ICE media releases enabled identification of indictments and pending cases of port employees involved in illicit activity at ports. CBP media releases are publicly available from 2010 through the present and can be searched through a key word search term.²¹ Media releases covering incidents of seizures were used to identify the types of organizations involved in the smuggling incident and whether there was involvement by freight forwarding companies, terminal employees, or management. ICE media releases were searchable through 2008 and yielded a wider data set from which to identify ports with employee or organizational corruption, but also included data on immigration and an array of other criminal activity under ICE’s jurisdiction.²² ICE media releases could be searched with a keyword but could also be grouped based on the topic of the release and the country or

²¹ <http://www.cbp.gov/newsroom/media-releases/all>.

²² <https://www.ice.gov/news/all>.

countries mentioned in the release. In addition, to press release data, to identify official corruption in CBP, I used a database developed by the Center for Investigative Reporting that collated cases of CBP officers who were reprimanded, arrested, and/or sentenced for violations.²³ In some instances, CBP officers were identified in port districts that had land and air ports of entry. Because CBP officers are rotated across different postings within a district (GAO 2013b), if the officers identified were within the port district and had operated at a land or air crossing, the port would be coded for vulnerability.

While organizational and employee corruption were measured, organizational corruption focused on any type of corrupt activity and not necessarily those that led solely to illicit maritime transportation. Corrupt incidents could include taking bribes for construction payouts, and price fixing in local maritime services, among others. Seaports marked by organizational corruption experienced multiple incidents of corruption involving either public or private employees within single entities. Corruption involving public employees was coded higher due to the privileged access conferred.

- A port with a high level of organizational corruption has three different entities with more than two publicly documented instances of corrupt public or private employees in the past five years and is coded as 9;
- A port with a medium level of organizational corruption has two different entities with more than two publicly documented instances of corrupt public or private employees, or one entity with more than two documented instances of public employee corruption in the past five years and is coded as 6;

²³ <http://bordercorruption.apps.cironline.org/>.

- A port with a low level of corruption has no documented instances of public employee corruption and one entity with more than two instances of private employee corruption in the past five years and is coded as 3.
- A port without any incidents of private or public corruption is coded as 0.

5.2O Employee corruption (0-9)

Employee corruption focuses on corrupt activity that led to a maritime transfer or facilitated a maritime transfer, and this vulnerability was identified and coded to operationalize the commonly used term “internal conspiracy.” An employee working in a public or private seaport sector is corrupt if he/she exploits his/her position to: (1) take an offered or solicited bribe to improperly influence an action or decision on behalf of a criminal network; (b) engage in theft of employers’ resources; (3) engage in fraud, involving the use of false or misleading information to induce the owner of property to part with it voluntarily; (4) embezzle property that has been entrusted to them; (5) extort goods or services on behalf of a criminal network; or (6) hire or fire individuals on behalf of a criminal network. This definition is based on the United Nations (2004) definition of corruption.

A port with documented incidents of employee corruption that lead to illicit maritime transfers is coded as 9.

- A port with documented incidents of employee corruption which do not lead to illicit maritime transfer or a port with suspected or alleged employee corruption leading to illicit transfers is coded as 6.
- A port with suspected incidents of corruption which do not lead to illicit transfers is coded as 3.
- A port with no evidence of employee corruption is coded as 0.

Data quality/limitations

As the highest rated vulnerabilities, evidence of organizational or employee corruption are also the most difficult to measure comparatively. Because ports in the U.S. are subject to many different security agencies and in any given port, the only similar agencies will be CBP, Immigration and Customs Enforcement (ICE), and other federal agencies, it is difficult to identify a comparative data source for evidence of corruption at ports. Public media accounts and federal and local agency press releases provide the primary data sources for all three vulnerabilities but have a set of limitations:

- 1) CBP and ICE press releases provide a data source, which is comparative and chronological but incidents of corruption at specific companies operating at specific ports are not easy to extrapolate within the press release information which often provides minimal detail.
- 2) One of the key issues with secondary data is the need to identify the original purpose of the source material and the source itself (Earl et al. 2004). Organizations put out press releases to show their particular strengths in their area of operations. Both CBP and ICE follow this pattern, in addition to Waterfront Commission press releases of longshore worker corruption at the Port of New York and New Jersey, a key source of data in the case study analysis. As a result, incidents identified by CBP, ICE, and the Waterfront Commission will reflect opaque decision making processes, which likely aim to reflect the organization in a positive light. Cases involving corruption where the agency misidentified individuals or mishandled the case would not likely be sent out for public consumption, though this would be valuable data to understand the efficacy of these organizations.
- 3) To further identify information, public media accounts are used to identify the number of individuals involved, timeline of the incidents, and other key details. Relying on media

sources means that in certain news markets, stories on the port or port operations may not be deemed valuable enough to the reading public and therefore creating a void of public information on that port (McCarthy et al. 1996; Oliver and Maney 2000; Bevan et al. 2013). This may be the reason why relatively few ports received scores for employee or organizational corruption as this would be the primary method to identify cases of corruption.

- 4) For those articles that do discuss corruption at ports or the influence of organized crime at ports, they will likely be biased by what has been published before and may be less attune to new forms of criminal activity at the port. Even organizations, which themselves are supposed to identify new forms of crime, may focus on older groups where they have greater resources such as informants and a better historical understanding²⁴.
- 5) The Center for Investigative Reporting database is built from publicly available data sources including law enforcement press releases. As such, the attendant issues discussed above apply to the use of this source.

5.3 Port of New York and New Jersey (PNYNJ) specific vulnerabilities

The comparative seaport analysis examines 15 of 21 vulnerabilities while the PNYNJ case study employs the entire SVF due to greater access to data. Operationalized definitions for the remaining six vulnerabilities enable the case study method to examine the entire SVF at the PNYNJ. These additional operationalized definitions are below along with discussion regarding data quality and limitations.

²⁴ This was my experience at the Waterfront Commission, where operations focused on traditional organized crime groups at the expense of new diaspora groups. Greater resources and a better law enforcement understanding of more established organized crime groups drove some of that focus, in addition to the actual operations of newer groups which have not made inroads into physical control of companies that operate within the Waterfront Commission jurisdiction.

5.3A Small vessels in/near the seaport harbor (0-3)

Some port regions are co-located with a large presence of recreational or fishing vessels. While the U.S fishing fleet rarely shares space with commercial ports,²⁵ small vessels do make up part of the environment of the harbor and port. The larger the number of small vessels present in the harbor the more complex it is for officials to identify legitimate vessels and their intentions (U.S. DHS 2008). In addition, certain ports in the U.S. are in close proximity to areas of small vessel smuggling, primarily in Southern California and South Florida. To identify cases of small vessel smuggling and proximity to port operations, a database of CBP press releases and nearest proximity ports was developed²⁶ and is used to identify small vessel smuggling incidents and nearest proximity ports. This provides a method to determine whether small vessels in the area are used for illicit trafficking, heightening the vulnerability of the port for criminal network use:

- If the port is located within twenty miles of more than five incidents of small vessel smuggling in the past two years, it is coded 3.
- If the port is located within twenty miles of less than five, but more than one, incidents of small vessel smuggling in the past two years it is coded 2.
- If the port is located within twenty miles of one incident of small vessel smuggling in the past two year it is coded 1.
- If the port is not located within 20 miles of smuggling incidents it is coded 0.

Data quality/limitations

²⁵ The Port of Seattle is the main exception and houses the Pacific Northwest fishing fleet at its own marine terminal.

²⁶ See Appendix B.

The same limitations apply as those discussed in the previous set of vulnerabilities when using press release data.

5.3B Port divergence

Port divergence is coded as a decreasing volume of trade, relative to ports in the region. Port divergence is measured using the AAPA NAFTA Regional Container Traffic Survey throughput statistics for North American seaports in 2013. Divergence is measured by examining the percent change in seaport throughput over a twelve year period, relative to major comparable throughput ports in the region (e.g., divergence at the Port of New York and New Jersey is measured by comparing container throughput at the Port of Baltimore and Port of Philadelphia). If the port has decreasing cargo traffic - measured as an overall reduction in container throughput by 2014 - while neighboring ports see an increase in cargo throughput, the port will be coded for this vulnerability.

- If the annual percent change between the port and the average of the nearest two ports is greater than 10% (ex. Port X has an average yearly difference of -7% between 2000-2014, while the port's nearest neighbor ports have an average yearly difference of 5%, a difference between the two of 12%), the port is coded as 3.
- If the annual percent change between the port and the average of the nearest two ports is between 5-10%, the port is coded as a 2.
- If the annual percent change between the port and the average of the nearest two ports is between 0-5%, the port is coded as 1.
- If the port has a greater increasing throughput relative to the two nearest ports, the port is coded as 0.

Data quality/limitations

The AAPA, the primary port industry group, provides the NAFTA Regional Container Traffic Survey as the primary comparative data source for cargo traffic across North American and Mexican seaports. This provides a strong level of reliability for comparative port analysis.

5.3C Automation/Cyber security vulnerability

A port's level of cyber security vulnerability will increase with the greater use of automated terminal operations. All ports have a baseline of automation with inherent cyber security vulnerability. More dependence on automation (i.e., more port functions are automated than at the average port) generates greater terminal operations vulnerabilities to hacking and cyber penetration. For example, where a port has one automated terminal for 35% of all container traffic at the port, the port would be coded as 4 for a medium level of cyber security vulnerability. To identify port terminal automation, port documentation and information listed on terminal websites provide detail of the level of automation at the port.

- A port with more than 50% automated port terminal operations is coded as 6.
- A port with between 50% and 25% automated port terminal operations is coded as 4.
- A port with less than 25% automated port terminal operations is coded as 2.

Data quality/limitations

The primary limitation is that all terminals will be automated to some degree, and it is not possible, with the current data, to accurately identify the level of automation above the baseline. For example, container cranes may be handled manually, but they are operated through computerized systems, even in a terminal where other activities are not automated. This vulnerability relies on identifying data that can provide an approximation of how much container

traffic is handled by fully automated terminals, and thereby provide a rough estimate of the level of automation.

5.3D Vulnerable sectors and sector size

The Port of NY/NJ case study examines four primary vulnerable sectors: longshore workers; drayage truck drivers; freight forwarders; and the ancillary services. These sectors are examined through examination of all available data sources, including interviews with port officials, case file documents, public source documents, and press release documentation from the Waterfront Commission, ICE, and CBP. Each sector has to be examined in the context of a specific port, which is why this vulnerability is only examined at the Port of NY/NJ where I had greater access to data. As a result, this vulnerability does not have a score but nonetheless constitutes an important vulnerability which should be grouped with all high order vulnerabilities such as organization and employee corruption. A port with vulnerable economic sectors will have economic sectors that:

- are integral to maritime smuggling networks;
- provide opportunities for criminal network access; and
- have weak or nonexistent regulatory oversight.

The sizes of the vulnerable economic sectors will impact port vulnerability differently.

- Sectors consisting of many entities will have wide and shallow access to port operations.
- Sectors consisting of few entities will have deep and narrow access to port operations, often developed through long-standing presence at the port.

Data quality/limitations

The limitations of press releases have already been discussed, but this vulnerability also uses interview and primary sources such as agency documents to support the analysis. Case file data on port specific trafficking was difficult to identify, though those files which I was able to obtain did provide a strong level of granularity for the participation of employees in specific labor sectors in trafficking operations. In addition, through participant observation, I was able to sit in on testimony of longshore workers at Waterfront Commission administrative proceedings. This produced a skewed picture of the type of illicit activity occurring at the Port of NY/NJ since all of the administrative hearings were focused on labor exploitation issues and not trafficking. Fourth, I utilized public case file and testimonials from law enforcement officials to supplement information on the kind of activity occurring at the port. As Natarajan et al. (2015) note, one of the primary difficulties of studying illicit trafficking organizations is that law enforcement is attracted to particular groups, and this skews what is available for researchers and, as a result, the perception of the most prevalent types of illicit activity.

5.3E Export cargo vulnerability

A port with a high percentage of export containers will be more vulnerable to illicit exports, such as stolen cargo, cash outflows, unlicensed defense tools/equipment, and other illegally exported goods. Port of NY/NJ official monthly statistics are used to identify the levels of import/export traffic.

- A port where exports constitute over 50% of all container cargo is coded as 3.
- A port where exports constitute 25-50% of all container cargo is coded as 2.
- A port where exports constitute less than 25% of all container cargo is coded as 1.

Data quality/limitations

Some ports provide official container throughout statistics highlighting the levels of imports and exports. The Port of NY/NJ publishes official trade statistics that provide up to date information on the levels of import/export traffic (Port Authority 2014D; 2015), both in raw volume of tonnage and in containers, the unit of measurement for this study. As official statistics, these are reliable and provide the best measure of import/export traffic available.

5.4 Case Study Method

The second analysis in this dissertation examines in detail the PNY/NJ using a case study design (Yin 2009: 59). Yin (2009: 18) defines a case study as “an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.” Furthermore, the case study inquiry “copes with technically distinctive situations in which there will be many more variables than data points, and as one result; relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result; benefits from the prior development of theoretical propositions to guide data collection and analysis.” A case study design offers the distinct advantage of supporting a set of defined theoretical propositions (the SVF outlined in Chapter 3).

The methodological approach herein builds upon previous research in which a case study was used to examine seaport administration and economic sector vulnerability to criminal networks (Cirtwell, Crowley and Frost 2001; Hall 2004; UNESCAP 2005; Zauner 2008).²⁷ The case study method allows for the examination of multiple units within the overall case, to focus on the primary research question and propositions (Easton 1998). The unique multi-

²⁷ Diamond industry (Van der Beken et al. 2004); the European transport sector (Bucquoye et al., 2005; Klima 2011); the European pharmaceutical sector (Calovi and Pomposo, 2007); the European waste management industry (Van Daele et al. , 2007); the trade in electronic waste (Bisschop 2012); and the timber trade in Europe (Bisschop 2012b).

administrative and multi-jurisdictional complexity of most modern seaports means the case study method is well-suited for application to seaport analysis.

5.4A Case selection

The case study examines the Port of New York and New Jersey (PNYNJ) as an example of a theoretically high vulnerability port (Patton 1990; Coyne 1997) making it an ideal test case to apply the vulnerability framework.

5.5 Data Sources

The six most commonly used sources of data for case studies are: documentation, archival records, interviews, direct observations, participant-observation, and physical artifacts (Yin 2009: 101). Interviews, documentation, archival records, and direct observation constitute the primary sources of data for this case study. Agency documents contained information which I developed into data sets for application in the SVF. In addition, primary source data from interviews, archival documents, and site visits was used to triangulate observations derived from the analysis of secondary data sources.

Interviews

For the interviews, I used a selective sampling strategy and focused on individuals with pre-identified knowledge of seaport functions (Patton 1990). Due to the compartmentalization of port functions, no specific individual has knowledge of overall vulnerability at any given seaport. Rather, interviews revealed vulnerabilities in specific seaport sectors or procedures, such as import/export patterns and trends, knowledge of the organizational culture in companies or port authorities, and other port functions. For the PNYNJ case study, 19 interviews were conducted with Waterfront Commission, Port Authority, U.S. Customs and Border Protection officials, and freight forwarders to supplement documentation and public sources.

Document Analysis

Internal documents reveal organizational and agency standards, and illicit activity and unethical behavior can be determined by examining an organization or agency's standard of operations and administrative penalties for unethical behavior. For example, the Waterfront Commission requires compliance with numerous standards prohibiting association with organized crime and with ethical standards for licensed longshore workers at the PNYNJ. These standards are examined and then overlaid with information from instances of criminal or unethical behavior to illuminate vulnerabilities at the port. In addition, at the PNYNJ, publicly available case file data is also used to identify criminal network exploitation (Natarajan and Belanger 1995; Natarajan 2006; Shelley 2011; Natarajan et al. 2015).

5.6 Conclusion

To provide a dual process of understanding port vulnerability, the comparative analysis of the top 30 seaports scores each port on 15 of 21 SVF vulnerability categories and the PNYNJ is examined on each of the 21 SVF vulnerability categories. Table 4 below details six types of information.

- Vulnerability categories.
- Primary data sources.
- Whether the vulnerability is examined in the comparative port analysis and the PNYNJ case study, graded as red or green.
- Consequentiality of the vulnerability to criminal network access, graded as low, medium, or high where:
 - o low consequentiality means that the vulnerability alone cannot produce access to the port for a criminal network,

- medium consequentiality creates a moderate level of access or serves to attract networks to a specific port,
- high consequentiality creates a high level of access; alone this may be sufficient for a network to access a seaport.
- The conceptual level of policy or regulatory manipulability of the vulnerability, graded as low, medium or high policy manipulability where:
 - low means that authorities have few options to decrease the level of vulnerability,
 - medium means that authorities have options to decrease the level of vulnerability, but options may be cost prohibitive, not a priority in light of other security requirements, or may not be easily applicable across the and
 - high means that authorities have a wide range of inexpensive and proven interventions which can lead to decreased vulnerability.
- The generalizability of the vulnerability to non- U.S. seaports using the conceptualized data sources and coding schema where:
 - low means that the vulnerability cannot be generalized without major revisions to the coding structure,
 - medium means that with minor modifications to the coding structure the vulnerability can be generalized to non U.S. seaports, and
 - high means that the current coding structure of the vulnerability can be applied to non U.S. seaports.

Table 4: Seaport Vulnerability Framework Summary

Vulnerability category	Data	Comparative	NY/NJ	Consequentiality	Manipulability	Generalizability
Index		Examined		Low		
		Not Examined		Medium		
				High		
Port Security Funding						
Port Security Funding	PSGP funding announcements compiled by the AAPA					
Physical						
Open structure	Google Maps; Port maps					
Spatial concentration of CRAVED products	Public data on CES locations					
Peripheral seaport companies	Forwarder.com listings					
Vehicle traffic	Port traffic studies, environmental impact studies, media accounts					
Small vessels in/near port	CBP press release small vessel interceptions, state or municipal data on recreational boating community					
Intermodal connections	Port literature, container traffic studies					
Physical/Administrative security procedures	MTSA 2002, SAFE Port Act 2006, port literature, public media accounts, PSGP funding announcements					
Proximity to illicit import/export market	NCIC/NICB vehicle export data, HIDTA listings, Freight Watch International Route Analysis Tool					
Administrative						
Port divergence	AAPA 2000-2013 NAFTA Container Traffic Survey					
Automation/cyber security vulnerability	Port terminal listings, public data analysis					

Interagency cooperation	U.S. Coast Guard documents, port literature, media accounts of AMSC participation or security exercises					
Vulnerable labor sectors	CBP Corrupt Office Database (Center for Investigative Reporting), individual media accounts, press releases (ICE, Waterfront Commission, CBP)					
Number of service providers in a sector	Forwarders.com, FMC forwarder listings, port documents					
Historical criminal network presence	Individual media accounts, press releases (ICE, Waterfront Commission, CBP), CBP Corrupt Office Database (Center for Investigative Reporting)					
Organizational corruption	IBID					
Employee corruption	IBID					
Logistical						
Container throughput	AAPA 2013 Container Traffic Survey					
Imports of CRAVED products	FreightWatch International 2014 Commodity Theft data; U.S. Census Import data					
Export cargo vulnerability	IBID					
Vessel traffic	U.S. Maritime Administration container vessel statistics					

Chapter 6 - Vulnerability of the Top 30 U.S. Container Seaports

6.1 Port results

This chapter examines the vulnerability scores of the top 30 U.S. container seaports. Individual seaport analyses for the top nine most vulnerable ports are included in this section (with Chapter Seven focusing in depth on the Port of NY/NJ), and, for the remaining 20 seaports, in Appendix G. Each individual port analysis details vulnerability in the three primary categories. Ports are coded between 5 and 63. The average code is 26.5, while the average of the top ten ports is 39.7.

6.2 Vulnerability scores

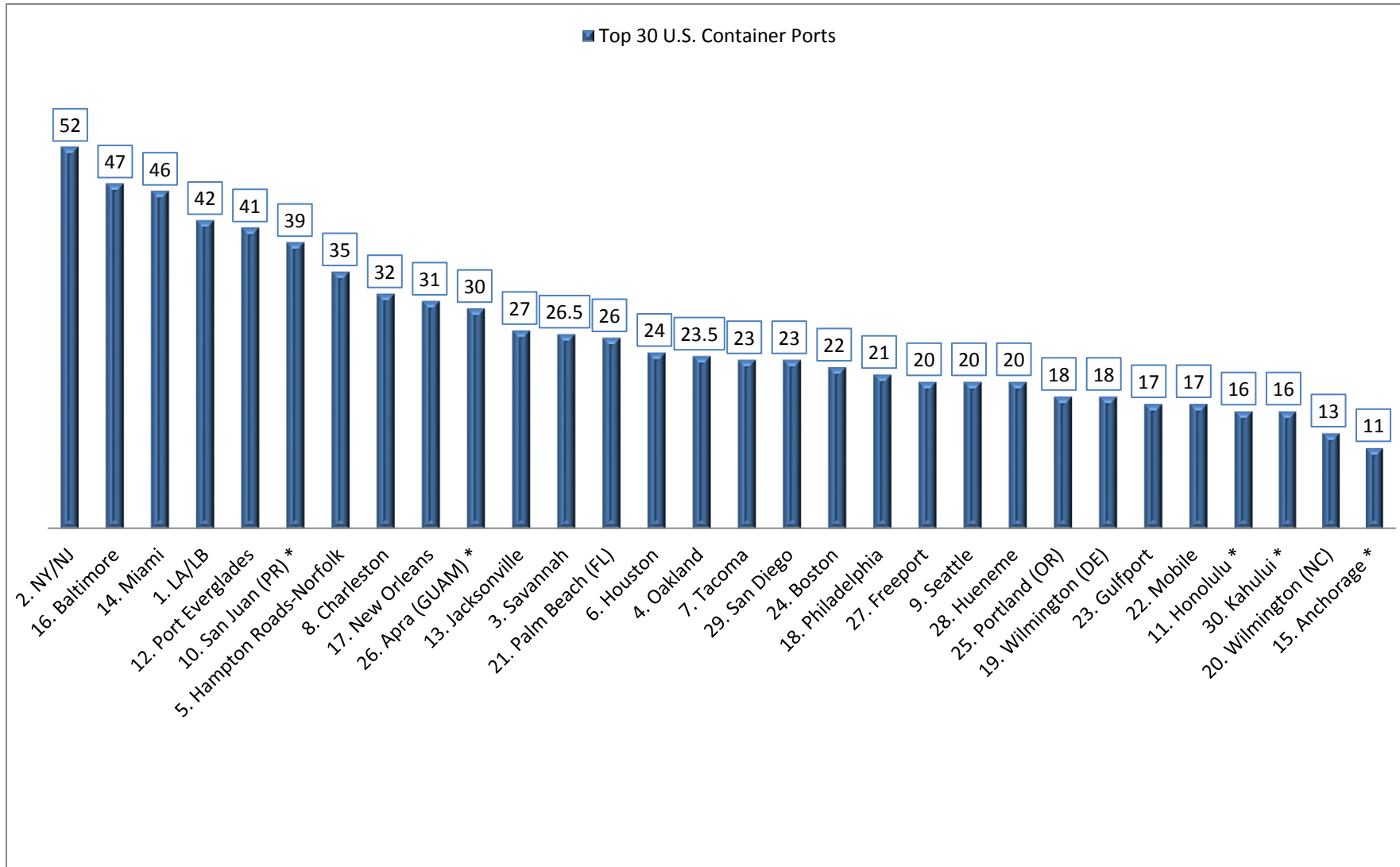


Figure 3: Vulnerability Scores of Top 30 U.S. Container Ports

6.3 Vulnerability analysis

The top ten ports in the comparative SVF analysis display several key characteristics, which manifest themselves most clearly along geographic lines but also along the examined vulnerabilities, see Figure 4.²⁸

6.3A Location



Figure 4: Top ten scoring ports.

Of the top ten most vulnerable ports, six are on the East Coast, with the Ports of Los Angeles/Long Beach, Port of New Orleans, Apra (Guam), and San Juan (Puerto Rico) as the outliers representing the other U.S. maritime region on the West Coast, Gulf Coast, Caribbean, and Pacific regions. The location of the most vulnerable ports is a function of the confluence of vulnerability but is heavily affected by the highest order vulnerabilities measuring corruption at ports and the historical presence of organized crime. The geographic delineation of vulnerability

²⁸ The data set for the top ten ports, with base data for the Port of NY/NJ can be found in Appendix E.

is clearly visible in Figure 9. However, this is not purely a function of the geography and historical development of ports but also of the labor organizations at ports. East Coast port vulnerability is, in part, a function of longshoreman participation in illicit trafficking (see Hampton Roads, Miami, Everglades, Baltimore, and NY/NJ) but also the historical involvement of organized crime groups in aspects of port operations, whether through ownership of companies (Miami and NY/NJ) or in aspects of labor control (NY/NJ).

6.3B Port size

The average code of the top ten ports for container throughput is 1.7, slightly above the average across the SVF sample (1.6). However, six of the top ten vulnerable ports are coded as low-throughput ports with less than one million annual TEUs. Only three ports are coded as high-throughput ports and include two of the largest ports in the country: NY and LA/LB. The phenomenon of smaller ports scoring high on vulnerability may be due to several factors: Smaller ports are less likely to have standalone police forces and more likely to rely on divisions of local law enforcement for security services. While this alone does not increase vulnerability, port police divisions in law enforcement organizations may be under-resourced and attract older officers, in some cases retired from municipal or state agencies (Messing 2014).²⁹

For example, airport police divisions share similar characteristics to port police divisions. At Jacksonville International Airport, a debate over whether to contract airport police services to a local department or to keep the services in-house outlined several key concerns which are applicable for seaport agencies (McCormack 2011).

²⁹ This is based on observations and informal discussion with officers at the Waterfront Commission of New York Harbor and PortMiami.

1. **Expense:** It is more expensive to contract with local law enforcement to provide services than to keep an in house force.
2. **Continuity:** Continuity of personnel is a concern as officers trained on port specific issues can be rotated out due to department issues not related to port security.
3. **Training:** Training can be expensive and due to rotation officers may not be ready to conduct duties while training.

Four of the top ten ports used a division of a local law enforcement agency as their primary port law enforcement force, including the Ports of Long Beach, Miami, Everglades, and San Juan. Separate port law enforcement and port authority entities require greater coordination and without increased resources and built in interagency communication procedures; this may lead to increased vulnerability. For example, low-level incidents which may indicate larger issues may not be communicated across all port security stakeholder agencies if the security organizations are separate from port management.

Smaller ports are also generally under-resourced, unless they are located in large metropolitan areas and have other maritime assets which necessitate

security funding. Of the top ten most vulnerable ports, only the Port of New Orleans received an above average level of PSGP funding, while all of the remaining most vulnerable ports received

Table 5: PSGP Funding per 2013 container		
PSGP Funds		2013 container
Kahului		\$0.27
Anchorage		\$7.73
Savannah		\$12.02
Wilmington DE		\$13
LA/LB		\$19.54
San Juan		\$20.45
Norfolk		\$23.59
Palm Beach		\$25.89
Tacoma		\$26.52
Port Everglades		\$28.11
Gulfport		\$31.96
Honolulu		\$33.45
Charleston		\$34.86
Oakland		\$43.49
Jacksonville		\$44.79
Miami		\$46.64
Apra (Guam)		\$48.82
Portland OR		\$49.15
NY/NJ		\$52.87
Hueneme		\$65.70
Baltimore		\$69.53
Mobile		\$75.44
Seattle		\$80.60
Wilmington NC		\$101.01
Houston		\$115.08
Boston		\$163.97
Freeport TX		\$196.23
Philadelphia		\$259.56
San Diego		\$288.37
New Orleans		\$300.28
Container Traffic		
High	Medium	Low

less than average PSGP funding, see Table 5.³⁰ One of the smallest ports in the U.S. with a high level of federal funding for port security is the Port of San Diego. There, every container receives the equivalent of \$288 in port security investments due to the proximity to the United States' border with Mexico, the presence of the naval fleet, and multi-use maritime facilities. In contrast, the Port of Anchorage receives \$7.73 per container, lacks multi-use facilities, and is not likely to be targeted by terrorist attacks on infrastructure – a key factor in port security allocations in the PSGP. The fact that the ports rated least vulnerable under the SVF also received some of the highest levels of port security funding may be an indication that PSGP funds do contribute to decreased overall port vulnerability, however that would require a greater level of disaggregation at the individual agency and project level – data which is not readily available for analysis across this comparative sample.

6.3C Non-mainland ports

Of four ports in the comparative analysis which are not located in the contiguous U.S., two – San Juan and Apra – display heightened vulnerability. Unlike the other two non-contiguous ports, Honolulu and Kahului in Hawaii, San Juan and Apra are located along maritime transshipment routes in busy sea lanes with significant levels of illicit traffic (National Drug Intelligence Center 2011e; Bureau of Statistics and Planning 2014). Cargo which is transshipped through Guam *en route* to the U.S. does not need to be inspected by U.S. CBP after it leaves Guam, but while in Guam, it is subject to Guam Customs and Quarantine Agency (GCQA) authority. This increases jurisdictional vulnerability considering the smaller resources and size of the GCQA (CQA 2014). The Port of San Juan, on the other hand, is subject to a significant U.S. CBP presence at the port itself and through offshore assets in concert with the

³⁰ Figure 17 shows PSGP funding per 2013 container at the top thirty U.S. ports (Sources: AAPA 2006; U.S. Department of Homeland Security 2007; 2008; 2009; 2010; 2011; 2012; 2013; 2014).

U.S. Coast Guard, but Latin American criminal networks continue to target the Port of San Juan as an entry point into the continental United States (Gootenberg 2012; DEA 2015). This is due to criminal network expectations that security will be less sophisticated than at other ports in the United States, that co-conspirators operating at the port will be easier to identify, and that once illicit cargo enters Puerto Rico onward movements are not subject to further U.S. CBP inspection (Ewing 2005; Campo-Flores 2013). The vulnerability of these two ports highlights the need to examine ports located on the fringe of regulatory and security apparatuses, whether located in geographical location with a cultural or environmental draw to diaspora criminal networks (San Juan) or a combination of both territorial distance and jurisdictional separation (Apra). The two island ports which do not display either of these conditions, Honolulu and Kahului, without either jurisdictional separation or a cultural or geographical draw for criminal networks, both score 16 and are among the least vulnerable ports in the sample, respectively fourth and third least vulnerable of the sample.

6.3D CRAVED products- import and spatial concentration

All but one of the top ten ports have a spatial concentration of CRAVED cargo. The average code for the top ten is 2.88 (out of a maximum 3), while for the remaining twenty ports, the average is 1. In fact, seven out of top ten ports are coded the maximum amount for this vulnerability. While the limitations of data in this category make it difficult to identify exactly which type of cargo is present in high quantities at the port, the presence of a CES means that high value cargo is concentrated in or near the port, and therefore increases the attraction of the port to criminal networks. However, ports that did not rate in the top ten for vulnerability, such as Anchorage, may still have significant vulnerability in this area since they are heavy destinations for CRAVED products such as seafood. Not only do the top ten ports rate high for

the concentration of CRAVED products, they also have a high level of CRAVED imports. The top ten ports have an average score of 2.4 while the remaining ports score on average 1.95. No ports received a score of zero, reflecting consumption patterns in the United States.

6.3E Illicit import/export market

The top ten ports also scored high for their location in illicit import/export markets. The average code of the top ten ports is 4.4 (out of a maximum 6), while the remaining sample average is 2.85. Theoretically, the presence of an illicit market would drive the need for transportation of illicit materials into the port region, however the coding also accounts for ports that were used as transit points for stolen vehicles, one of the few types of quantifiable illicit cargo exported from the United States to other countries (Clarke and Brown 2003; Dauvergne 2007; Morselli and Roy 2008; Clarke and Brown 2010). While the type of illicit cargo imported into the United States differs significantly from that which is exported, the mechanisms for moving that cargo through a port are similar including, among others, relying on cargo volume to mask illicit shipments, identifying corrupt individuals in a port organization to facilitate transfer, and creating shell companies to mask illicit shipments. Of all the top ten ports, one was not located in a High Intensity Drug Trafficking County (ONDCP 2015), Charleston, with Guam not included in HIDTA assessments.

6.3F Employee corruption

The top ten ports, particularly those along the East and Gulf Coasts, have experienced significant employee corruption that resulted in illicit maritime transfers. These scores increased those ports' levels of vulnerability, and only the top ten ports scored at the highest levels for employee corruption. The average code for the top ten ports is 8.4 (out of a maximum 9).

The origins and vectors of corruption varied across these ports. In some ports, such as LA/LB, a high score was the result of corruption by customs officials facilitating illicit transfers to avoid import taxes (DHS ICE 2012) and from the recent arrest and sentencing of the Port of Los Angeles Police Chief for corruption (FBI 2015; Hamilton 2016). In other ports, activity by corrupt workers with privileged access to port facilities was the primary reason for increased vulnerability. The port of Hampton Roads in Virginia exemplifies these dynamics. There, longshore workers facilitated the movement of illicit narcotics through the port with the assistance of a drayage truck driver (McGlone 2007). At other ports, U.S. Customs officers who participated in corrupt activity increased the vulnerability level (Port of Los Angeles- DHS ICE 2012; Port of New Orleans- U.S. District Court, Eastern District of Louisiana). As, federal investigations of such cases have improved, consequently, this has also increased the likelihood that federal employees will be apprehended for participating in illicit schemes than for private organization employees with privileged access (Homeland Security Advisory Council 2015). In any case, there are still gaps in the number of investigators focused on corruption in the Department of Homeland Security and CBP specifically (del Bosque and Michaels 2015). As a result, criminal networks are more likely to target port workers with privileged access, and these incidents constitute the primary reason that ports scored higher on employee corruption vulnerability.

6.3G Official corruption

As discussed above, only a small set of ports had heightened vulnerability due to corruption by officials in law enforcement agencies at the port or operating directly in the port authority itself to include the ports of NY/NJ, LA/LB, New Orleans, Apra, Jacksonville, Miami, and Everglades. Five of these ports had incidents of corruption by CBP officers working at the port or in the district,

while four (Apra, Jacksonville, NY/NJ, LA/LB) had evidence of corruption in the port authority or other law enforcement agencies operating at the port.

Corruption in official organizations at ports is multi-faceted and represents the range of human behavior and motivations. At the Port of Los Angeles, the port police chief was indicted and sentenced for corruption related to tax evasion and improper use of office. At the Port of New Orleans, CBP officers transported and smuggled narcotics, and at least one used her office to claim benefits for housing, while at the Port of LA/LB, a CBP officer assisted in moving cargo to avoid customs duties. However, in most identified cases, at seaports and port districts, officials did not actively assist criminal networks with illicit maritime trafficking, either for import or export. However, along the land border with Mexico, CBP officers have actively assisted networks with illicit trafficking (Center for Investigative Reporting; del Bosque and Michaels 2015).

While diverse factors led to corruption, there are a number of factors at seaports that can be identified as precipitating factors, including:

1. **Opportunities for abuse:** The volume of cargo traffic at U.S. seaports is significant. Of the five ports identified with official customs corruption, two (NY/NJ and LA/LB) are the largest in the country with thousands of containers imported/exported daily, thousands of companies using the port for legitimate transfers, and complex operating environments. For enterprising customs officers, financial opportunities are rife, and some officers are tempted to take advantage of their position (DHS ICE 2014).
2. **Lack of oversight:** Regulatory agencies such as CBP, either through lack of funding or a full understanding of their operations, lack significant oversight through internal inspection or auditing authorities. For example, CBP was until recently overseen by 200 investigators from the DHS Office of the Inspector General (which was responsible for

all 220,000 DHS employees, or one investigator for every 1,000 workers) (del Bosque and Michaels 2015). At the PNYNJ, the Waterfront Commission had no oversight mechanism until the State of New York decided to conduct an inspection of the agency for corruption, an unprecedented oversight action on the Waterfront Commission (Fisch et al. 2009).

3. **Opaque environment:** Ports are complex operating environments that develop internal sub-cultures with security actors who have specialized knowledge over arcane regulations and day to day operations (Brewer 2014; Eski 2016). This contributes to an opaque environment not readily accessible or intelligible to most outsiders and makes regulating the port environment a challenging prospect.

6.3H Organizational corruption

All but one of the top ten ports (New Orleans) received a score in this vulnerability. However, only the top three ports, the ports of New York, Baltimore, and Miami received the maximum score. These scores resulted from multiple incidents of employee corruption in individual companies and within economic or labor sectors. At the PNY/NJ, company owners have participated in illicit trade, and top level management at companies or labor organizations have used the organizations they work for to assist criminal networks in multiple separate incidents. At the Port of Baltimore, warehouse company owners organized thefts of high-cost raw materials, such as high value metals, in multiple separate incidents, increasing the port vulnerability score (DHS ICE 5/23/2012). While at the Port of Miami, longshore workers (DHS ICE 2010) and privately hired security guards assisted Latin American criminal networks (U.S. Attorney's Office Southern District of Florida 2013), affecting the vulnerability determination.

The primary characteristic shared among these three ports is that they are in port regions with a long standing history criminal network involvement in the labor sector; all three score either high or medium in that vulnerability category. Another characteristic is that there are large numbers of immigrant groups in all three areas which may constitute a contributing variable in whether a port has increased vulnerability for illicit import/export schemes. In the New York and New Jersey metropolitan statistical area (MSA),³¹ 28.5% of the population is foreign born. The Baltimore MSA is 9.4%, and the Miami-Ft. Lauderdale MSA is 38.7%, the most of any MSA in the United States (Migration Policy Institute). However other port regions around the country also have large levels of immigration and do not display similar heightened vulnerability. These include the Seattle-Tacoma metropolitan area where the foreign born population in 2013 was 17.1% of the total population, San Diego at 23.4%, and Houston at 22.5% (Migration Policy Institute). This disparity indicates that diaspora participation in the illicit import/export trade is tempered by other vulnerability characteristics, and the relationship requires further research to determine if there is an actual linkage.

6.3I Historical criminal network presence

Of the top ten ports, six scored for a historical criminal network presence in port operations. This was a difficult vulnerability to code for, but the ports that received a score for this included the PNYNJ (the port with longest historical record of criminal network involvement in port operations), Port of Miami, Port Everglades, and Port of San Juan. The three East Coast ports of New York, Miami, and Port Everglades share a common history of criminal network involvement with narcotics traffic and with corrupt longshore workers. Evidence of this

³¹ Metropolitan statistical areas are geographic entities delineated by the Office of Management and Budget (OMB) for use by federal statistical agencies in collecting, tabulating, and publishing federal statistics. A metro area contains a core urban area of 50,000 or more population (U.S. Census).

history reaches back into the 1980s for the Port of Miami and Port Everglades (U.S. Customs Service 1997; Zimmerman 2006) and considerably further back for the PNYNJ, as detailed in the port specific vulnerability analyses. However, it can be inferred that the length of a criminal network presence at a port contributes to the depth of the influence, such that the greater the history of criminal network involvement then the deeper the criminal network influence reaches into some aspect of port operations. For example, at the PNYNJ, the port with the longest history of criminal network involvement, certain port sectors particularly in the area of labor operations have mid- or upper level management with significant ties to organized crime (WCNYH 2012b; Rooney 2013).

Therefore, the identification of a long standing presence of criminal networks in port operations is an indication of the depth of that influence in port operations. This is due to the fact that if networks look to develop commercial ties within a port and law enforcement is unsuccessful in dislodging those groups from commercial entities, then those ties will grow deeper over time, as has occurred at the PNYNJ.

The converse of this is that in ports such as Miami where narcotics continue to be imported (DEA 2015), and criminal networks are heavily targeted by federal law enforcement agencies (Zimmerman 2006; Gootenberg 2012), new entities may constantly have to emerge to handle illicit traffic. The extraordinary number of freight forwarders operating in South Florida, relative to the container traffic, may be indicative of the many smaller commercial entities involved in the cargo trade in the region, of which some proportion are involved in illicit import/export schemes (Weaver 2014; DEA 2016).³² This supports a vulnerability model where time + enforcement pressure →

³² South Florida has by far the largest number of freight forwarders for the level of cargo traffic across the entire sample of container ports. There are almost the exact same number of forwarders listed for south Florida (697) as there are in southern California (694), where the amount of cargo is nearly seven times greater (forwarders.com).

breadth, where time itself is a function of the suitability of the port and the region for the importation of illicit goods. In Miami, the Latin American diaspora community underlies some of the suitability of the region to the long standing presence of criminal network operations (Garzón 2013).

Therefore, historical criminal network presence at ports displays two diverging implications. In one model, criminal groups will develop deeper ties with specific commercial entities; this is more evident at ports where the activities of those criminal groups are not heavily scrutinized by law enforcement. In the other model where the activity of the group is considered by law enforcement to be highly damaging, enforcement pressures will lead to a diffusion of small entities into the illicit import/export system.

6.4 Port analyses

The top nine of the top ten most vulnerable ports (excluding the Port of NY/NJ, examined in the following chapter) are detailed below³³. Table 6 below outlines the vulnerability categories and scores across the four vulnerability categories for all thirty ports, while Table 7 provides detailed scores in each category for the top ten ports, followed by detailed case studies for the top nine ports which delve into the specific vulnerability categories.

Table 6: Categorical vulnerability scores					
Port	Port Funding	Physical	Administrative	Logistical	Overall Score
2. NY/NJ	1	15	29	7	52
16. Baltimore	0	15	26	6	47
14. Miami	1	12	29	4	46
1. LA/LB	2	14	20	6	42
12. Port Everglades	1	13	23	4	41
10. San Juan (PR)	2	8	24	5	39

³³ The Remaining 20 port analyses are in Appendix G.

5. Hampton Roads-Norfolk	2	12	16	5	35
8. Charleston	1	14	13	4	32
17. New Orleans	0	14	12	5	31
26. Apra (GUAM)	1	7	17	5	30
13. Jacksonville	1	11	10	5	27
3. Savannah	2	13.5	6	5	26.5
21. Palm Beach (FL)	1	15	4	6	26
6. Houston	0	9	7	8	24
4. Oakland	1	14.5	2	6	23.5
7. Tacoma	1	14	4	4	23
29. San Diego	0	10	6	7	23
24. Boston	0	11	5	6	22
18. Philadelphia	0	11	3	7	21
27. Freeport	0	9	6	5	20
9. Seattle	0	12	4	4	20
28. Hueneme	0	10	3	7	20
25. Portland (OR)	1	12	0	5	18
19. Wilmington (DE)	0	8	5	5	18
23. Gulfport	0	10	1	6	17
22. Mobile	0	10	1	6	17
11. Honolulu	1	8	3	4	16
30. Kahului	3	6	0	7	16
20. Wilmington (NC)	0	10	0	3	13
15. Anchorage	3	5	0	3	11

Table 7: Detailed Top Ten Port Scores						
Port	Port Security Container Funding (3)	Open structure (3)	Concentration of CRAVED Products (3)	Imports of CRAVED products (3)	Peripheral companies (3)	
2. NY/NJ	1	3	3	3	2	
16. Baltimore	0	3	3	2	3	
14. Miami	1	0	3	3	3	
1. LA/LB	2	3	3	3	1	
12. Port Everglades	1	2	3	3	3	
10. San Juan (PR) *	2	3	*	2	1	
5. Hampton Roads-Norfolk	2	3	3	2	1	
8. Charleston	1	3	3	1	1	
17. New Orleans	0	3	3	2	1	
26. Apra (GUAM) *	1	0	2	3	2	
Port	Vehicle traffic (3)	Intermodal connections (3)	Physical/Administrative security (3)	Throughput (3)	Container Vessel Calls (3)	
2. NY/NJ	3	3	1	3	1	
16. Baltimore	3	3	0	1	0	
14. Miami	3	1	2	1	0	
1. LA/LB	3	3	1	3	0	
12. Port Everglades	3	1	1	1	0	
10. San Juan (PR) *	3	0	1	2	1	
5. Hampton Roads-Norfolk	3	3	1	3	0	
8. Charleston	3	3	1	2	0	
17. New Orleans	3	3	1	1	0	
26. Apra (GUAM) *	*	1	2	1	1	
Port	Interagency Cooperation (3)	Illicit import/export market (6)	Historical Criminal Network Presence(6)	Organizational corruption (9)	Employee corruption (9)	Total Score
2. NY/NJ	0	5	6	9	9	52
16. Baltimore	3	4	4	9	9	47
14. Miami	0	5	6	9	9	46
1. LA/LB	0	5	0	6	9	42
12. Port Everglades	0	5	6	3	9	41
10. San Juan (PR) *	0	6	6	3	9	39
5. Hampton Roads-Norfolk	0	4	0	3	9	37
8. Charleston	0	1	0	6	6	32
17. New Orleans	3	3	0	0	9	31
26. Apra (GUAM) *	0	3	2	6	6	30

6.4A Port of Baltimore – 47

The Maryland Ports Authority (MPA) manages the Port of Baltimore as a landlord port (Maryland Port Administration), and is one of the larger ports on the East Coast, ranked 16th in overall U.S. container traffic (AAPA 2013). It has the highest level of vehicle import/exports in the United States with 753,265 imports and exports in 2015 (Maryland Port Administration 2016). The MPA security division contracts out access control to a private company, Securitas Inc., while law enforcement functions at the port are provided through a contract with the Maryland Transportation Authority Police (Maryland Port Administration).

Physical

Baltimore primary displays significant vulnerability in the open structure layout of the terminals and close proximity to I-95, the eastern seaboard's primary overland travel corridor. The port also scores high/medium for vulnerability on both CRAVED categories with a concentration of cargo in a CES, within 3 miles of the primary container terminal (Belts Logistics), and three primary CRAVED commodities amongst the port's imports, including two types of metal commodities, which is a targeted theft commodity at the port (DHS ICE May 2012).³⁴

Administrative

The primary vulnerabilities at the Port of Baltimore are administrative. The port has a strong illicit import/export market, as a port in an HIDTA county with maritime transportation as recognized method of illicit importation (National Drug Intelligence Center 2009b; ONDCP 2015), and 20 cargo thefts within a 75-mile radius over the past two years FreightWatch

³⁴ www.usatradenumbers.com.

International Route Analysis Tool). The Port of Baltimore's connectivity along the eastern seaboard has fostered a high level of intermodal connectivity. In addition to this intermodal connectivity, a large truck fleet services the Port of Baltimore, with estimates varying between 3,000-10,000 trucks a day at the port, with the low end estimate reflecting a high level of truck traffic relative to the amount of container traffic. Economic sectors in the Port of Baltimore have a record of criminal network exploitation and organization corruption. For example, with the warehousing sector, there have been multiple incidents of warehouse owners abetting theft of or actively stealing CRAVED and expensive metals warehoused on their premises (DHS ICE May 2012), increasing the port's vulnerability for organization corruption. The port scores higher for employee corruption through numerous incidents among cruise ship employees who assisted in narcotics trafficking (U.S. CBP December 2012). In the longshore sector, federal agencies have targeted longshoreman and time keepers for no-show jobs, including indicting and sentencing individuals with strong ties to the narcotics trade in the Baltimore region (U.S. Department of Justice 2010; FBI 2010; FBI 2011a). This wide variety of illicit activity across multiple sectors increases the vulnerability at this port.

Logistical

While the Port of Baltimore does not have a significant level of container traffic, it does have the largest level of automobile import/exports and has been identified as a port which is used for exports of stolen vehicles (Lantsman 2013).

6.4B Port of Miami (PortMiami) – 46

PortMiami is one of the two largest container ports in South Florida. It has the highest level of passenger traffic in the United States with 15 cruise lines calling at the port and is 14th in the nation for container traffic (AAPA 2013). Security duties at the port are divided between the

PortMiami Safety and Security division responsible for access control and the Miami-Dade County Police Seaport Operations Bureau stationed at the port (Pate et al. 2008). This sub-unit, in turn, works with the PortMiami Safety and Security Division.

Physical

PortMiami is the only major port in the United States wholly located on an island with significant restricted access control.³⁵ Accordingly, the port scores low on open structure vulnerability, though the port scores high for peripheral access based on the high level of freight forwarders relative to cargo traffic. This large freight forwarding sector in South Florida services many small shipping lines that call at PortMiami, PortEverglades, Port of Palm Beach, and small terminals along the Miami River. Only recently the port re-furbished a disused railway line to add a rail link to its intermodal options (PortMiami B), but the port still has a high volume of truck traffic to service the cargo and cruise industries with nearly 4,500 trucks per day in 2009 (Port of Miami Tunnel).

Administrative

Historically, South Florida has had a significant illicit import market for narcotics and export market for illicitly trafficked firearms (ONDCP 2011b). PortMiami, and the Miami River terminals, had been at the heart of the cocaine trade in the 1980s and early 1990s, though narcotics traffic dropped off in the 1990s and early 2000s (Zimmerman 2006; Gootenberg 2012). The resuscitation of Caribbean drug trafficking routes in the 2000s has led to increased narcotics smuggling through South Florida (DEA 2015), some of which now transits through small vessels. Accordingly, South Florida ports are the only ports on the East Coast which have an increased vulnerability due to the illicit small vessel trafficking of people and narcotics. Of the

³⁵ In the past year, the PortMiami Tunnel was built to provide greater access to the port, but the tunnel is highly monitored via CCTV, license plate-reading equipment, and a heavy police presence (Observation 6/21/2015).

101 incidents detailed through CBP press releases identifying interceptions of small vessels, 18% were in the Miami, Ft. Lauderdale, and West Palm Beach region, primarily identified as migrant smuggling vessels.³⁶ In addition to illicit imports, South Florida ports are also an export point for illicit firearms bound for Central and South America and the Caribbean, where the firearms can sell for over 10 times their U.S. value (Ramsey 2012; Cayman Compass 2013; U.S. State Department 2014). Traffickers normally export firearms in “drips and drabs” as part of piecemeal shipments, often hiding firearms in legitimate exports of used vehicles (Small Arms Survey 2015).³⁷ In the Small Arms Survey (2016) study of illicit firearms trafficking, South Florida figures prominently as a region where maritime exports of illicit firearms are conducted by legitimate freight forwarders and illicit networks, taking advantage of the maritime shipping afforded by PortMiami, Port Everglades, and the Port of Palm Beach. South Florida also experiences significant problems with cargo theft, with 93 thefts reported between March 2013 to 2015 (Freightwatch International), including thefts of CRAVED cargo,³⁸ such as food products (including yogurt, bone-in hams, and frozen seafood), home and garden products (including small appliances, A/C units, and other electronics). Furthermore, cargo theft at the port is organized and increased likely as a result of the dissolution of the Miami Dade County Cargo Theft task force (Burges 2012; American Institute of Marine Underwriters 2013). In addition, PortMiami has an above average NCIC hit rate of export vehicles identified as stolen, though the NICB hit rate is lower than average.

PortMiami scores high on organizational and employee corruption indicators, in addition to a historical criminal network presence in port and maritime operations (Gootenberg 2012).

³⁶ See Appendix B

³⁷ In the Small Arms Survey (2016) study of 159 criminal cases of illicit firearms trafficking of 52 cases where the mode of smuggling was identified, 25% involved hiding firearms in an export vehicle.

³⁸ Identified through FreightWatch Route Analysis tool

Port security employees were arrested for theft as recently as 2012 (Munzenreider 2013), and eight incidents of corruption, involving Miami-area CBP officers were involved in drug trafficking offenses occurring between 2005 to 2012 (BorderCorruption.Org). Furthermore, the longshore labor sector has significant issues with corruption linked to illicit maritime transport of narcotics (DHS ICE 2010).

Logistical

PortMiami's average annual container throughput hovers between 900,000 and one million containers and scores low for container throughput (AAPA 2013).

6.4C Ports of Los Angeles/Long Beach (POLALB) - 42

The largest port complex in the country, the POLALB is ranked third with a significant vulnerability profile. The complex is composed of two separate landlord port authorities, but because they are co-terminus and share a similar geographic and customs enforcement profile, they are considered as one unit in terms of this vulnerability assessment, or a port complex. The ports, however, have divergent security structures. The Port of Long Beach utilizes the Long Beach Police Department (Port of Long Beach B) as their primary law enforcement agency while the Port of Los Angeles has a stand-alone police department (Pate et al. 2008).

Physical

The POLALB is an open structure port with cargo and containers stored in open yards (GoogleMaps). However, the location of the ports abutting the cities of Los Angeles and Long Beach means that storage space is at a premium and port management and terminal operators endeavor to move cargo off the port as quickly as possible. On the west coast, the union organization for waterfront labor, the International Longshore Workers Union has participated in work stoppages and slowdowns that have created significant issues for cargo bottlenecks

(Journal of Commerce 2014). While both ports have primary trucking gates, they have other multiple entry/exits, and the port complex has a CES location located within three miles of the port (PriceTransfer Inc). Notably, despite the large amount of cargo that passes through, the port complex does not have a relatively large presence of freight forwarders. Even accounting for the cargo traffic separately between both ports, they still register a low presence of forwarders relative to the cargo throughput. Conversely, for vehicle traffic, the port complex registers a high volume of truck trips, though the complex has a high level of inter-modal connectivity, with nearly half of cargo moving by rail (Port of Long Beach; Port of Los Angeles).

Administrative

The port complex is a key example of how a confluence of vulnerability creates heightened vulnerability, not through a strong level of criminal network presence in port operations, but through heightened vulnerability across three of four highest vulnerability categories. As would be expected from a port complex, located in the heaviest import/export environment in the United States, the ports score high for the presence of an illicit import/export market with 158 incidents of cargo theft within 75 miles of the ports (FreightWatch International Route Analysis Tool),³⁹ numerous instances of illicit import traffic seizures, especially of IPR infringement seizures,⁴⁰ primarily due to its function as the largest import gateway for Chinese made goods (LA Times 2011), and an above average rate of NCIC and NCIB hits. Though the port complex is located in a HIDTA county, maritime methods are not the primary method of transportation in the area (ONDCP 2011c). While the port complex does not display the maximum score for organizational corruption, there is evidence of companies using the port complex for the transportation of stolen CRAVED cargo, specifically for high value metals such

³⁹ See Section 5.2L for a justification of measuring cargo theft regionally in addition to those thefts directly at the port.

⁴⁰ Roughly 40% of all IPR in the United States seizures occur at the port complex.

as copper (DHS ICE 2013). The port complex rates high for employee corruption with numerous instances of CBP officers who colluded to smuggle cargo, including supervisory officers (DHS ICE 2012). Finally, the Port of Los Angeles specifically has undergone a tumultuous period when the Port Police Chief was indicted and sentenced for corruption (United States v. Ronald Jerome Boyd 2015). While a culture of corruption that is present in some organizational sectors in other ports is not widespread at the port complex, the above examples show that even individual cases of corruption can rise to the highest levels of port security management.

Logistical

The port complex scores high for container throughput vulnerability with quadruple the throughput of the next largest container port in the United States, the PNYNJ (AAPA 2013).

6.4D Port Everglades – 41

Port Everglades is operated as a department of Broward County as a limited operating port, which means that the port authority operates certain facilities and leases others. The port hosts a significant amount of cruise ship traffic, with ten cruise lines calling at the port (Port Everglades 2015), in addition to 35 cargo shipping lines making it the 12th busiest port in terms of container traffic. The Broward Sheriff's Office provides law enforcement services at the port to include access control (Broward County Sheriff's Department).

Physical

The port maintains three primary terminals, with the main terminal – Port Everglades Terminal – with one entrance, while the two smaller terminals, including Holt breakbulk terminal have multiple entry and exit points directly into the city of Ft. Lauderdale. The primary terminal has large open access yards, but with the single access point, the port receives a medium

vulnerability score. As the port undergoes a transformation to increase intermodal options for shippers, it continues to have a high level of vehicle traffic for drayage (Port Everglades 2015). In addition, the port scored high for both the spatial concentration of CRAVED cargo (International Warehouse Services), and CRAVED cargo imports, with six of the top ten commodities as CRAVED cargo (WorldCity Trade Numbers).

Administrative

As with other South Florida ports, the primary vulnerabilities is the location of the port in a significant illicit import/export market, situated in a HIDTA county (ONDCP 2015). Similar to the Ports of Miami and Palm Beach, maritime transportation is the primary method of illicit trafficking (DEA 2015). The port is located in an area known for cargo theft, like Port of Miami, with over 90 high value thefts recorded between March 2013 and March 2015 (FreightWatch International). The port has also been the site of significant organizational corruption with an entire ocean forwarder company heavily infiltrated by Colombian drug trafficking network (U.S. Attorney's Office for Southern District of Florida 2013; DEA 2014). This increased the organizational corruption score for the port and significantly increased the employee corruption score as well. The operation of Kings Ocean Services was part of a long standing pattern of criminal network operations at the port from as far back as the 1980s (Gootenberg 2012) through 1990s (Lebowitz 1998). In 1998, for example, nearly 50% of the longshore workers at the port had criminal records, and the port had no access control at all (Lebowitz 1998). In the early 2000s, the president and two employees of Port Services International (PSI), the contractor responsible for vetting and hiring port security officers, were arrested and convicted of fraud for facilitating the hiring of guards who were unqualified and were improperly vetted, leading to the take-over of security functions by federal agents (Bernard 2004). While these vulnerabilities

have decreased with the introduction of TWIC cards and the relative equal security standards of the MTSA, Port Everglades still has registered high levels of administrative vulnerability.

Logistical

With just under one million TEUs in 2013, the port scores low for throughput vulnerability (AAPA 2013).

6.4E Port of San Juan (Puerto Rico) - 39

The *Autoridad de los Puertos de Puerto Rico* (the Port Authority of Puerto Rico), governs the Port of San Juan, one of the largest ports in the Caribbean and the 10th largest port in the United States (AAPA 2013). A division of the Puerto Rico Police, equivalent of a U.S. state police agency, the *Policia de los Puertos* (Port Police) provides law enforcement security at the port. While the port is heavily secured with CCTV and a centralized command center with integrated security systems (Honeywell International), the port continues to be heavily targeted by criminal networks for illicit import/export schemes (Ewing 2005; National Drug Intelligence Center 2011e; Campo-Flores 2013).

Physical

Despite the port's island location, San Juan is a large metropolis, and the port is one of the larger ports in the United States, ranking tenth in overall container traffic. The layout of the port is spread out over several neighborhoods with eight cargo terminals located in the Puerto Nuevo district and three located in the Guaynabo municipality. To reach the five primary cargo terminals at the Puerto Nuevo district, there are multiple entry points, with a main entrance and at least two other side entrances (GoogleMaps). Furthermore, a major thoroughfare, JFK 2, is directly adjacent to the port to enable cargo transportation. There is no publicly available information on the presence of a CES, and the port registers a medium score for imports of

CRAVED cargo with three CRAVED commodities in the top ten imported and exported goods (WorldTrade Numbers). Moreover, the port does not have a large freight forwarder presence. There was no data available to measure truck traffic but a proxy measure for the amount of truck traffic notes that there is a large presence of daily vehicular traffic in that area (Puerto Rico Public Private Partnerships Authority 2010).⁴¹

Administrative

The Port of San Juan scores high for numerous administrative vulnerabilities. The port is located in region with increased illicit narcotics smuggling and has a high level of seizures of narcotics and illicit firearms (National Drug Intelligence Center 2011e; DEA 2015). For example, in 2013, federal agencies conducted an unprecedented number of seizures, including 21,831 pounds of narcotics and 37,958 illegal weapons and ammunition (US CBP January 2014). This represented a two percent increase in narcotics seizures and a 118 percent increase in illegal weapons and ammunition seizures compared to the previous year (US CBP December 27 2012; February 13 2013). These significant increases are related to the increasing use of Caribbean trade routes for narcotics trafficking following pressure along the Southwest border region in the United States (Gootenberg 2012; DEA 2015). The port also displays a historical presence of a criminal network influence in the longshore sector, with a drug trafficking group operating through longshore workers and through a freight forwarding company for over ten years until the group was disbanded through federal action in 2013 (U.S. Department of Justice 2013). This incident increased both the organizational and employee corruption scores of the port, due to the

⁴¹ In 2008-09, 85,950,000 vehicles travelled along the PR 22 road that services the cargo terminals of the Port of San Juan. According to the Port of San Juan, roughly 18% of all yearly traffic is attributable to the port. Average daily traffic along PR 22 is 235,000 vehicles. A rough estimate places 44,358 trucks per days for the port. This is likely an overestimate considering that the port carries roughly 3479 containers a day on average. However, figuring in bulk traffic and that 90% of Puerto Rico's cargo arrive by maritime methods there is likely a heavy flow of truck traffic into and out of the port (Puerto Rico Public Private Partnerships Authority 2010).

fact that the criminal network was in full control of freight forwarding company and facilitated illicit maritime transfers through the port.

Logistical

The Port of San Juan is the tenth largest container port in the U.S. and carries a significant amount of throughput, putting it in the mid-level of vulnerability (AAPA 2013).

6.4F Hampton Roads-Norfolk – 35

Virginia Port Authority (VPA) operates Hampton Roads facilities through a separate private operating company, Virginia International Terminals, Inc. (Old Dominion University 2010). The VPA owns Norfolk International Terminal, Newport News, Marine Terminal, and Portsmouth Marine Terminal, all in the Hampton Roads area, and is the fifth largest container port in the United States (Pate et al. 2008). The VPA Police Department provides all law enforcement services, and unlike many other ports, no private security is allowed on the premises (Virginia Port Authority).

Physical

The ports primary container terminals have multiple entry and exit points at both Norfolk International Terminals and Newport News Marine Terminal. However, CRAVED cargo is not spatially concentrated as the CES is located nearly 20 miles from the port in Chesapeake, Virginia (Hampton Roads Examination Warehouse). The port has a medium level of CRAVED cargo imports, with commodities such as foodstuffs, motor vehicle parts, and furniture among the CRAVED imports (WorldTrade Numbers). While the port has a high score for vehicle traffic (Bronzini 2008) and significant intermodal capabilities with 33% of all cargo transiting through rail (Port of Virginia 2015), it does not have a significant presence of peripheral companies such as freight forwarders. This may be due to several factors including the lack of a

large immigrant diaspora population and that a significant portion of container traffic at the port is military traffic.

Administrative

Hamptons Roads scores high in three administrative categories. First, it is a mid-level vulnerability illicit import/export market region, showing both above average scores of NICB and NCIC hits for exported vehicles from the port, and the presence of an illicit import market for narcotics, evidenced by several seizures of narcotics in container traffic at the port (DHS ICE 2012; Daugherty 2014).⁴² In 2014, Hampton Roads and the six surrounding counties were designated as HIDTAs (Federal Register 2014), and in drug market assessments, the port is identified as a vector for illicit narcotics transportation (National Drug Intelligence Center 2003b; 2009b). The port also scores high for employee corruption through incidents in which at least two longshore workers belonging to the ILA, and a port trucker, were indicted for offloading narcotics from Panama for distribution in the area and for onward transit to New York State (McGlone 2007).

Logistical

Hampton Roads, as the fifth largest container port in the in the United States, has a high score for vulnerability with over two millions TEUs annually (AAPA 2013).

6.4H Port of Charleston - 32

The Port of Charleston is operated by the South Carolina State Ports Authority (SCSPA) and ranks eighth in container traffic (AAPA 2013). The SCSPA owns the five primary terminals

⁴² Led by U.S. Immigration and Customs Enforcement (ICE), the BEST teams incorporate personnel from ICE, CBP, and the U.S. Coast Guard within DHS; the DEA, FBI, Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), and U.S. Attorney's Offices within the Department of Justice; as well as other key federal, state, local and foreign law enforcement agencies to leverage federal, state, local, tribal, and foreign law enforcement resources to combat transnational crime and collaborate on intelligence led seizures of narcotics and other illicit cargo (ONDCP 2013).

and operates them with its own staff, with some exceptions for licensed operators at the port (Pate et al. 2008). Law enforcement is provided by the SCSPA Police Department though terminal lease holders may hire private security (Pate et al. 2008).

Physical

The Port of Charleston scores high for: (1) the open structure of the port with five terminals (Wando Welch, North Charleston, Columbus Street, Union Pier, and Veterans) all within one mile of large public access highways; (2) the container serving terminals with open yards; (3) the presence of CRAVED products (Port of Charleston); and (4) through an onsite CES, and for a high presence of vehicular traffic. In addition, the port has a high level of intermodal connectivity through the presence of two rail lines, CSX and Norfolk Southern (SCSPA), with an estimated 25% of cargo moving by rail (Wilbur Smith Associates 2002).

Administrative

The port scores a low level of vulnerability for an illicit import/export market though it registers a significantly above average score for NCIC registered exported vehicles but below average for NICB hits. In recent years, however, the port's seizures of illicit cargo has been trending significantly lower. For example, in 2006, CBP reported that they had seized over 2,000 pounds of narcotics, while by 2007 CBP reported seizing only 11 pounds (U.S. CBP). In addition, in 2015, the ONDCP did not identify Charleston County, the location of the Port of Charleston as an HIDTA county (ONDCP 2015). Despite this, the port has been used by illicit smuggling groups including the same group that operated at the Port of Hampton Roads (McGlone 2007). The port has also had incidents of CBP officers abusing their authority,

slightly increasing its vulnerability score under organization corruption

(BorderCorruption.Org).⁴³

Logistical

The port scores a mid-level of vulnerability with 1.6 million TEUs in 2013 (AAPA 2013).

6.4G Port of New Orleans (PONO) – 31

PONO owns or controls 22 miles of wharves and terminals spread along the Mississippi River, the Industrial Canal and the Mississippi River Gulf Outlet as a landlord port and ranks 17th in the United States (Port of New Orleans). The port is an important export port for bulk cargo such as grain and petroleum products. It has a specialized Harbor Police Department, which is responsible for law enforcement in the port but private security provides gate services and security for tenant spaces (Harbor Police Department 2005).

Physical

PONO scores high for open structure, the presence of CRAVED products with an on-site CES location (U.S. CBP), and a high level of vehicle traffic (Port of New Orleans B). Furthermore, the port has a significant intermodal presence as the only port in the United States to be serviced by all six major U.S. railways (Port of New Orleans C). However, rail is not a primary mode of intermodal transport with only 3% of containerized traffic shipped by rail (Ports of Louisiana).

Administrative

The port does not display evidence of a historical presence of criminal networks nor is there evidence of criminal network involvement in port operations. However, the port is located

⁴³ In 2010, two CBP officers at the Port of Charleston were sanctioned for the use of government computer systems to illicitly check on coworkers, neighbors, and other unauthorized usage.

in an HIDTA identified trafficking county (ONDCP 2015) and also displays an above hit rate of NCIC hits increasing the illicit export market vulnerability. There is no evidence of organizational corruption, though two U.S. CBP officers were arrested for corruption in previous years including one who assisted in drug trafficking, increasing the employee corruption vulnerability (U.S. District Court, Eastern District of Louisiana; Center for Investigative Reporting).

Logistical

PONO has a low level of container cargo throughput, with 476,000 TEUs in 2013 (AAPA 2013).

6.4I Apra (Guam) – 30⁴⁴

The Port Authority of Guam (PAG) manages the Port of Apra which handles more than 90 percent of the island's total imports, the majority imported from the United States (Port Authority of Guam). In addition, the Port of Guam also serves as the transshipment hub for the United States, Hawaii, and Far East to the western Pacific region making it the 26th largest container port in the U.S. (Parsons Brinckerhoff 2013). As a U.S. territory, Guam is subject to U.S. law but has a separate customs agency, Guam Customs and Quarantine, which enforces all U.S. customs regulations on cargo at Guam's port of entries (Port Authority of Guam). Port security is provided for by the PAG Port Police (Parsons Brinckerhoff 2013).

Physical

PAG does not have an open structure, though containers are kept in an open yard, and the port has only one entrance restricting access. The port does have increased vulnerability for both concentration of CRAVED products (EA Engineering, Science and Technology 2012) and a high

⁴⁴ Score does not include vehicle traffic input due to a lack of data identifying the daily truck transits.

level of CRAVED product imports with seven of ten of the top import/export commodities being CRAVED (University of Guam 2014).

Administrative

Despite the lack of physical vulnerabilities at the port, the Port of Apra displays significant administrative vulnerability. Due to a lack of funding, the port has identified several physical security measures that are lacking. For example, both natural guardianship through adequate lighting and formal surveillance procedures are lacking as “the Port has video cameras installed throughout the terminal facilities, (but) they are not maintained. Additionally, the existing camera system does not provide complete coverage of the terminal (Parson Brinckerhoff 2013).” The lack of this standard SCP technique raises the vulnerability score, an uncommon heightened score at a U.S. seaport.⁴⁵ PAG also registers a higher score for an illicit import/export market primarily because once cargo enters into Guam, it is not subject to further inspection once it is transshipped to the mainland United States (Parsons Brinckerhoff 2013). Furthermore, maritime transportation in a known method of illicit trafficking into and through Guam, underscoring that transshipment ports with heightened vulnerability can attract networks through the jurisdictional arbitrage (Bureau of Statistics and Planning 2014). The Port of Apra also registers for jurisdictional vulnerability as there is shortage of PAG police officers to handle the necessary security duties, in addition to difficulty in retaining personnel once hired (Parson Brinckerhoff 2013). The port also scores highly for organizational and employee corruption due to corruption within the PAG and more recent incidents with corruption accusations in the Guam Customs and Quarantine service (Aguon 2012; Toves 2015).

Logistical

⁴⁵ Of the entire 30 port sample, only five ports registered above a low level of vulnerability in this category, including: Miami, Philadelphia, Hueneme, Honolulu, and Apra.

The Port of Apra is a low throughput port, with 169,000 TEUs yearly (AAPA 2013).

6.6 Conclusion

The preceding data collection, analysis, and coding provides a useful method to determine a baseline level of seaport vulnerability. It is important to mention that the highest possible score under the SVF is 63 with the tenth most vulnerable port in the United States, Apra, receiving a score of 30, and the most vulnerable, the Port of NY/NJ, 52. This implies that port security in the United States is, at a baseline, reasonably secure and that most ports do not display the vulnerabilities that would attract criminal networks to exploit their operations for illicit purposes. The average score for a port is 26.5, or less than half of the maximum under the SVF.

The SVF, therefore, is best used as a baseline framework to move towards further in depth case analysis of a specific port of interest. By examining the SVF across other available port security frameworks such as the USCG International Port Security Program vulnerability analyses, World Customs Organization SAFE Framework assessments standards, and the International Standards Organization 28000 Port Security standards, the SVF provides a novel and discretized set of criteria to identify vulnerability at seaports in concert with criteria used by other organizations. However, to identify the nuances of port vulnerability, any individual analysis assessment should be followed with in-depth case study analysis.

Chapter 7 - Port of New York and New Jersey Case Study

7.1 Introduction

The Port of New York and New Jersey (PNYNJ) is the largest port complex on the East Coast and demonstrates the importance of maritime trade to the development of New York. The relationships between security stakeholders, the private sector, and historical criminal influence in port operations have created a complex vulnerability environment.

The PNYNJ is the oldest, continuously functioning seaport in the United States, and like many other ports, it is spread across multiple shipping terminals, which are spread across a large geographical area. The Port is in New York harbor, an area of more than 1,200 square miles that covers more than 430 square miles of water, including the 122 square mile expanse of the Lower Bay and the protected waters of the Upper Bay where port facilities are primarily located (WPA Writers Project 2004).⁴⁶

In the harbor's early years, the Port was neither the largest nor the most significant port in Colonial and Federal period America (Albion 1970). PNYNJ lagged behind Boston and Charleston in the early eighteenth century and behind Boston and Philadelphia in the late Colonial period - Boston had a stronger maritime tradition and Philadelphia had a more developed hinterland (Glaeser 2005). But, by the mid-nineteenth century, New York had overtaken all other ports on the eastern seaboard to become the premier port for imports (Rodrigue 2004).

⁴⁶ Note on terminology: In the 19th C. most terminal and cargo operations were concentrated in the city of New York, particularly the piers and wharves of Brooklyn and Manhattan, which is referred to as the Port of New York. Towards the early 20th c. Hoboken, Jersey City and Bayonne began to have greater prominence in terminal and wharf operations, while by the mid-20th C. Elizabeth and Newark began to develop terminal operations as well. By 1921 when the Port Authority of New York and New Jersey was established, the Port of New York would encompass operations on the New Jersey side of the harbor.

The advantages of New York harbor became apparent after the opening of the Erie Canal. As a closed harbor with an open ocean entrance, the short distance from the harbor entrance to the port itself became a strong incentive for shipping lines to call at the port (WPA Writers Project 2004).⁴⁷ The Port of New York also offered lower transportation costs, as manufacturing grew within and near the city. Shipping volumes rose as immigrants entered the New York region, which, in turn, lowered transportation costs through economies of scale. As more vessels called at the port, competition to house and discharge vessels decreased transportation costs (Glaeser 2005). This pattern of dominance in port operations continued through the twentieth century. However, as transportation costs fell alongside the rise in technological innovation, the dominance of New York decreased relative to other ports on the eastern seaboard and across the United States (Rodrigue 2004). Today, the port, however, retains a strong market share on the eastern seaboard as the largest container port and overall tonnage port, even surpassing the Ports Los Angeles and Long Beach (AAPA 2013).

7.2 Port management

The Port is managed by the Port Authority of New York and New Jersey, or the Port Authority (Port Authority). The Port Authority was formed in 1921 as a bi-state agency to manage maritime operations in New York Harbor and to settle increasingly frequent arguments between the states of New York and New Jersey over the movement of cargo to and from New York City (New York-New Jersey Port Authority Compact of 1921; Rodrigue 2004).⁴⁸ For maritime

⁴⁷ Los Angeles and Long Beach have perhaps the easiest entrance to the open ocean and are the largest ports in the U.S. While access to the ocean is not always the key determinant in port dominance, today it is a factor that shipping lines consider in their vessel and terminal operations decision making, though with the growth of container vessels and the ease of rail and road transport this may not be as determinative as in decades past.

⁴⁸ “The port authority shall constitute a body, both corporate and politic, with full power and authority to purchase, construct, lease and/or operate any terminal or transportation facility within said district; and to make charges for the use thereof; and for any of such purposes to own, hold, lease and/or operate real or personal property, to borrow money and secure the same by bonds or by mortgages upon any property held or to be held by it.” (New York-New Jersey Port Authority Compact of 1921)

operations, the Port Authority functions as a landlord port, leasing terminals to private companies that operate and manage maritime operations on-site. However, port operations only account for a small percentage of Port Authority operating revenue, totaling just six percent in 2013 (PANYNJ 2014).

7.3 Terminal management and layout⁴⁹

The port has six primary terminals; four in New Jersey that handle the vast majority of container cargo and two in New York City. The New Jersey terminals move the majority of cargo, around 80% of all tonnage (Rodrigue 2004).

The five primary terminals have different management and labor structures, though all are serviced by the International Longshoreman's Association, or ILA, through different union locals. Management ranges from global corporate ownership of APM Terminals (APM; Notteboom and Rodrigue 2012) in Elizabeth, New Jersey to North American terminal operator PortsAmerica management of Port Newark Container Terminal (PortsAmerica). Howland Hook in Staten Island and Global Container Terminals in Bayonne are both owned and operated by Global Container Terminals, a Canadian based terminal operator with a small footprint in the United States (Global Container Terminals; Port Authority B). The last remaining operating marine terminal in Brooklyn, Red Hook Container Terminal is operated by Red Hook Container Terminal LLC, a sole operator that does not operate any other terminals in the U.S. or worldwide (Red Hook Terminals).

⁴⁹ *Note:* The Port Authority has specific terminology for the marine terminals it leases out, for example Howland Hook Marine Terminal, but when the lease holders for these terminals change, the common name for the terminals changes as well. For example, Howland Hook Marine Terminal was operating as New York Container Terminal prior to acquisition by Global Container Terminals Inc, and now operates as Global Container Terminals NY LLP.

7.4 Labor at the PNYNJ

The ILA is the primary labor provider for longshore labor at PNYNJ terminals. The union represents all unionized longshore workers along the East and Gulf coasts and negotiates a master contract with the United States Maritime Alliance (USMX). The master contract governs broad ILA-management relations including workdays, traditional benefits, jurisdiction, technology, and other benefits (USMX 2013). Unlike other ports in the United States, the ILA master contract for the PNYNJ reflects the special position of the PNYNJ by including PNYNJ specific provisions on health care and drug testing (USMX 2013).⁵⁰ In addition to the master contract, the New York Shipping Association (NYSA) negotiates with the ILA on PNYNJ specific issues such as work hours, pensions, local work rules, holidays, vacations, and other issues not covered by the master contract (Waterfront Commission 2012).

In the mid-twentieth century at the height of the port's reputation as a "mob controlled" port, the port labor system was governed by the "shape up" (Johnson 2005; Stewart 2012). The shape up was a daily occurrence where laborers would present themselves at the hiring hall hoping to be given a position on work gang. As a result, the hiring agent yielded considerable power and criminal groups sought to install members of their organizations into these positions (Johnson 2005; Stewart 2012). The Waterfront Commission was formed in response to this problem, with the express purpose of carefully regulating and modulating the port's labor supply (Block 1982; Demeri 2012).

⁵⁰ Article VII, Section 7.

The work structure at the port is idiosyncratic to the PNYNJ. The port operates under a gang system,⁵¹ which requires a full gang to finish unloading or loading a vessel (Waterfront Commission 2012). At the PNYNJ, the gang system actively employs three teams that work an eight hour shift each and are paid even when they are not working their shift (Waterfront Commission 2012). The NYSA has admitted that this relatively inefficient and cost intensive labor structure is a vestigial custom and practice at the port resulting in a variety of abuses by unscrupulous workers (Waterfront Commission 2012: 4).

In recent years, the introduction of larger container vessels has increased the need for automated terminals and further reduced the need for longshore labor. Automated terminals can move 30 containers an hour indefinitely while a skilled longshore laborer can only keep up 30 moves an hour during their peak performance for a few hours a day (Mongelluzzo 2015b). The PNYNJ has yet to fully automate, with only Global Container Terminals in Bayonne with partial automation (Strunsky 2014). As automation increases at PNYNJ, its vulnerability profile will subsequently change, but for the time being, longshore labor remains an important factor to consider at the PNYNJ. The sprawling terminal layout, multiple ownership structures and labor idiosyncrasies at the PNYNJ are overlaid with a similarly byzantine set of security agencies.

7.5 Port security structure

The security agency umbrella at the PNYNJ is similar to other ports in the United States but with a greater number of agencies. These agencies can be categorized as federal, state, local, and specialized agencies.

Federal agencies

⁵¹ West Coast ports operate under a shift system where workers are paid for only the shift they work (Waterfront Commission 2012).

The primary federal oversight agency in the United States is the U.S. Coast Guard (USCG) which leads the New York section Area Maritime Security Committee (AMSC). The New York AMSC has oversight responsibility for transportation channels and approaches into New York harbor (Code of Federal Regulations 33 22) and reviewing facility security plans (USCG 2013).⁵²

While USCG provides oversight of facility security, the Transportation Safety Agency, (TSA) manages the MTSA-mandated Transportation Worker Identification Card (TWIC) required for all longshore workers to gain access to port facilities (Emsellem 2009; TSA). TWIC is the primary form of identification at ports around the country and is a biometric based ID card that creates a baseline level of identification requirements at U.S. ports (TSA). In recent years, the TWIC program has been criticized for being ineffective in preventing unauthorized entry into secure port working environments, and also for loopholes which allow temporary IDs to be granted to new employees for the first thirty days of their employment (U.S. GAO 2013; Ford). Container security and inspections are conducted by U.S. Customs and Border Protection, as the sole customs agency in the United States, while investigations of any smuggled cargo once identified by CBP are handled by Immigration and Customs Enforcement (ICE) and, in some cases, the Drug Enforcement Agency (DEA).

State agencies

The primary state agency with a security role at the PNYNJ is the New Jersey State Police Marine Services Bureau (NJSPMSB), which has jurisdiction over New Jersey's waterways. As Port Newark and Port Elizabeth are located on the west side of Newark Bay, the NJSPMSB has jurisdiction over the waterways leading into Port Newark and Port Elizabeth and

⁵² See Chapter 8- Implications for Policy and Praxis for an examination of the USCG assessment tool.

can participate in investigations and provide additional waterside security in that area (New Jersey State Police).

Municipal agencies

The New York Police Department Harbor Unit patrols the waterways of New York Harbor and provides security support to Coast Guard assets when specific vessels require extra protection, such as cruise ships that dock at the Manhattan Cruise Terminal (South 2008; Baker 2011). In addition, municipal police agencies in Bayonne, Jersey City, Elizabeth, and Newark all have responsibility for basic law enforcement services in the areas around terminals located in those cities.

Specialized agencies

The Port Authority Police Department (PAPD) provides overall law enforcement services at Port Authority facilities. The PAPD is one of the largest port police units in the United States (Reaves 2011). As marine terminal operations are a fraction of Port Authority revenues, the number of officers devoted to the marine terminals is a small portion of the total officers in the department (Citizen Budget Commission 2012). The PAPD also has an investigative division that investigates transportation-related criminal activity within Port Authority jurisdiction, such as cargo theft on Port Authority properties (Pate et al. 2008).

The primary specialized agency at the PNYNJ is the Waterfront Commission of New York Harbor (Waterfront Commission). Arguably the most controversial agency at the port, the Waterfront Commission was introduced in 1953 by an act of the U.S. Congress and was formed through a compact between the states of New York and New Jersey (Levy 1989) with the primary purpose investigating and combatting criminal activity and influence in the Port of New York and New Jersey to ensure fair hiring and employment practices. This entails the regulation and licensing stevedoring companies operating in the harbor and on the piers in addition to

individuals who handle waterborne freight.⁵³ The Waterfront Commission also regulates the list of registered workers to ensure that full-time work is available to registrants and to limit competition for slots (Fisch et al. 2009). Unlike other port security agencies, the Waterfront Commission's jurisdictional authority has long been questioned by the ILA, NYSA, and legislators in New Jersey who view the agency as a regulatory burden on port operations and which therefore affects how other entities at the port cooperate with the Commission on investigations (Levy 1989; NJ State Bill 2277 2015; Aron 2015; NJ State Bill 2277 2015).

The multiplicity of agencies with differing jurisdictions and with historically volatile relationships (Fisch et al. 2009) is a factor leading to increased vulnerability, and one which may be unavoidable due to the development of the PNYNJ across two states in one of the largest commercial regions in the United States. The mitigation factors to address jurisdictional and interagency vulnerability are especially important at the PNYNJ and are examined in the section that details interagency cooperation at the PNYNJ.

7.6 Data sources⁵⁴

Public sources

The case study relied on data sources used in the comparative port analysis using identical or similar sources where applicable, to develop a baseline level of vulnerability, in addition to additional data sources not available for other ports.

⁵³ The Commission's jurisdiction has been a source of contention. According to the Compact, the Commission has jurisdiction over licensing any companies operating within 1,000 yards of a "pier" that perform activities inherent to the transportation of waterborne freight. In a 2013 suit, the Commission contended that a pier includes the area where waterborne containerized freight is loaded, unloaded and stored, and that the 1,000 yard measurement should be taken from the property line of the pier nearest the company under question for licensing. In *Continental Terminals Inc. V. Waterfront Commission of New York Harbor* 2013, the Southern District of New York agreed with the Commission's interpretation of that jurisdiction and effectively allowed the commission to continue with licensing warehouses and other companies operating within 1,000 yards from the nearest point of the nearest pier, provided they meet the requirements and do not function as a regular warehouse (*Continental Terminals Inc. V. Waterfront Commission of New York Harbor* 2013).

⁵⁴ See Appendix H for IRB approval documentation.

Observations

Between June 2011 and December 2012, as a research analyst at the Waterfront Commission I completed background checks on companies and individuals, observed Waterfront Commission public hearings,⁵⁵ and conducted site visits to Howland Hook Marine Terminal, Port Newark Container Terminal, and Global Container Terminals on routine visits with Waterfront Commission police.

Interviews

In addition to sitting in on public hearings, conducting site visits, and participant observation during the period of June 2011 to December 2012, I conducted interviews with 19 port security stakeholders at the port.⁵⁶ All interviews were de-identified and interviewees agreed verbally to participate in the study. Using ATLAS.TI software, interviews were transcribed and coded based on vulnerability categories. In addition to these formal interviews, I had multiple informal conversations and discussions with port security stakeholders at the Ports of Miami, Baltimore, Los Angeles, Long Beach, U.S. Customs and Border Protection, Immigration and Customs Enforcement, and the World Customs Organization.

Documents

In addition, I examined primary documents such as: proceedings of public Waterfront Commission decisions to revoke longshore registration; New Jersey Superior Court of Appeal or New York State Court appeals (Waterfront Commission 2013; Waterfront Commission 2013b; Application of Margaret Dilin v. Waterfront Commission of New York Harbor 2013; Superior Court of New Jersey Appellate Division 2015); Waterfront Commission Annual Reports 2000-2012; Port Authority of New York and New Jersey annual reports; indictments of individuals

⁵⁵ Hearings were held January 19, 2011, May 19, 2011, September 20, 2011, October 27, 2011, December 15, 2011, February 8, 2012, and March 7, 2012.

⁵⁶ See Appendix I for the list of interview subjects.

with waterfront connections (United States V. Stephen DePiro et al. 2010); New Jersey State legislature hearing transcripts (New Jersey State Legislature Waterfront Commission Hearing 2010); Union contracts including the master USMX-ILA (USMX 2013) and the NYSA-ILA CBA (NYSA 2013); New York State Inspector General's Report (Fisch et al. 2009); affidavits of federal agent testimony at trial (Southern District of New York 2010); and CBP, ICE, and Waterfront Commission press releases documenting arrests, indictments, and sentencing of longshore workers.

7.7 Vulnerability analysis

The PNYNJ displays the highest level of vulnerability across the top 30 U.S. container ports. To create a baseline for comparison, I scored the PNYNJ on the SVF categories applied in the previous chapter to the other 29 seaports. The PNYNJ receives a score of 52 out of 63. The case study provides further detail on the individual vulnerabilities at the PNYNJ and shows that vulnerability at the PNYNJ is the result of a confluence of individual vulnerability, which combines to create the most vulnerable port to criminal network exploitation.

7.8 Port security funding

Between 2002 and 2013, in absolute terms, the PNYNJ received the second largest amount of PSGP funds, or \$292 million (AAPA 2006; DHS 2007; DHS 2008; DHS 2009; DHS 2011; DHS 2012; DHS 2013; DHS 2014; FEMA 2014). Relative to the amount of container throughput, the port scores a low level of vulnerability in this category, with \$52.87 for every 2013 container transiting the port. However, as shown in the previous chapter, port security funding is not always a function of container or cargo traffic. Regression analysis of PSGP outlays and container throughput shows no statistical relationship between container throughput

and port security grant program funding at the PNYNJ.⁵⁷ In fact, cargo volumes grew by 45% from 2002 to 2013 and did not result in a commensurate growth in funding (PANYNJ 2014d).

The lack of increased PSGP funds for the port may be attributed to several factors: including the DHS formula which heavily weighs terrorism over criminal network exploitation (US GAO 2011); the total available amount of PSGP funding, which decreased from \$388 million to \$93 million in 2013 (AAPA); and that some ports are able to secure funds despite having low cargo throughput as a function of having a higher terrorist threat profile. Lack of security funding alone does not create vulnerability, but PSGP funding is a key source of additional security funds to invest in basic physical security infrastructure such as lighting, fencing, and CCTV. Without PSGP funds, physical security measures may not be implemented and increase the level of physical vulnerability.

7.9 Physical vulnerabilities

7.9A Open structure

The PNYNJ is an open structure port with multiple access points within terminals, proximity to interstate transportation and road such as Interstate 95, and open container storage (Google Maps). At a basic level, the five shipping terminals each have primary gate entrances, but facilities are directly adjacent to public access roadways that allow easy access to intruders (GoogleMaps). This is a function of the port's development in a highly dynamic and populated region.

⁵⁷ The value of R is -0.0441. The value of Pearson's R², the coefficient of determination, is 0.0019 and shows that container throughput is able to predict less than 1% of variability in port security grant funding.

Because there is no critical infrastructure at the port outside of the USCG defined secure zones (33 U.S.C. 1231), these roads are accessible to anyone. Security stakeholders recognize the vulnerability:

Within the last month there was an emotionally disturbed individual, with a warrant out for his arrest, who hopped a fence into the port and was found in the Masters office...When you look at that incident; you can't physically monitor hundreds of miles of fence line in a port...Could we have prevented that? Some would argue yes and some would argue no. There are always going to be areas of vulnerability...The public berth is essentially an open parking that is just a thoroughfare to the vessel...There's not a thing you can do there. (Director of Security Port Authority of New York and New Jersey, 10/10/2012).

Despite the subject's determination that this type of vulnerability is not preventable, it nonetheless contributes to the criminological vulnerability profile of the port (Albanese 2003). Other observers note that the level of public access through adjacent roads provides significant access:

The problem with the port of New York is that it's...an open port...In most other ports there's one facility. There's only one access point. You enter the port, and you leave the port. The closest thing we have here is the north and south entrance to Port Elizabeth and Port Newark, but even all those roads in there are public roads. (Director of Legal and Licensing WCNYH, 10/12/2012).

The open structure of the port increases the access points for criminal networks that may seek to participate in theft from the port or adjacent areas. However, based on the classic routine activities framework, open structure vulnerability functions is a contributing factor to the lack of a suitable guardian, while the presence of targets in the form of CRAVED cargo creates a set of suitable targets for criminal networks.

7.9B Imports of CRAVED goods

The New York and New Jersey region is a heavy consumer market and has a high level of CRAVED cargo (FreightWatch International 2016). In 2014, two of the top three import commodities by tonnage were CRAVED, including beverages and preserved foods, while all of

the five top containerized cargo imports were CRAVED including furniture, beverages, machinery, appliances, and apparel (Port Authority 2014d). In this category the PNYNJ, like other ports in the United States scores high as the consumer market in the region creates a trade profile where ports in large urban areas generally have higher levels of CRAVED imports to satisfy consumer demand. This then leads to the continual presence of suitable targets for theft networks at ports like the PNYNJ.

7.9C Spatial concentration of CRAVED goods

As the largest port on the East Coast, the port is a primary import location for every imaginable type of product sold in the United States. To create centralized inspection sites for the volume of cargo, CBP has five Centralized Examination Stations (CES) in the region (PANYNJ E).⁵⁸ Four of the five are either located directly or adjacent to the port, leading to a concentration of CRAVED goods.

In addition to these stations, the Port Authority also leases port property to numerous warehouses (Port Authority F). However, the spatial concentration of cargo at the port has shifted away from the port especially in the past twenty years. Not only has the Port Authority sought to reduce warehouse space on port property to increase space for container housing (Director of Legal and Licensing WCNYH, 10/12/2012), the Waterfront Commission's increased licensing of warehouses has had a displacement affect (Executive Director, WCNYH 9/28/2012). As warehouse space decreases, warehousing within 15 miles of the port, a standard industry measurement for seaport real estate accessibility, has increased, with vacancy rates declining steadily since the end of the recession which began in 2007 (Jones Lang and LaSalle 2014). However, cargo held in warehouses away from the port is subject to less oversight authority, as

⁵⁸ Anti-Terrorism Contraband Enforcement Team (ATCET), Non-Intrusive Inspection (NII), Agricultural Inspection, and Trade Compliance Inspection.

the Waterfront Commission's jurisdiction does not extend past the PNYNJ. This means that not only is CRAVED cargo spatially concentrated at the port, but that as cargo moves off the port, it is subject to decreased regulatory control increasing the attractiveness of the PNYNJ for theft groups, indicated by the high level of cargo thefts in the port region (FreightWatch International Route Analysis Tool).⁵⁹

7.9D Peripheral companies

The large amount of cargo that transits the PNYNJ necessitates support and peripheral services such as freight forwarders. In the New York and New Jersey region, there are a total of 622 listed freight forwarders: 487 in New York and 135 in New Jersey (www.forwarders.com). The greater concentration of forwarders in New York reflects the larger and denser population center and the distribution of immigrant diasporas. Immigrant diasporas often provide small scale forwarding services to their countries of origin through quickly formed and dissolved companies (Eckstein 2009). Study informants confirm the quick start-up and dissolution of companies operating in this sector:

There [are] many more smaller forwarders than NVOs (non-vessel operating common carrier). A lot of freight forwarders are 'fly by nights,' a lot of Asian [forwarders]. (Former Customs Broker, 10/1/2012).

While the large number of forwarders that operate in the port region is an indicator of the absolute size of the forwarding sector in the area, the sector is at a medium level of vulnerability based on the monthly cargo throughput⁶⁰. This contrasts with a port like Port Miami or Port Everglades, where there are 10% more forwarders for a cargo throughput amount that is only 25% of PNYNJ's throughput amount. Nonetheless, even with a medium level of vulnerability in

⁵⁹ There were 166 thefts between July 2013 and July 2015.

⁶⁰ The port receives a score of 13.49 and is coded for a medium level of vulnerability.

this category, access to even an individual forwarder can assist a network with illicit transport (Zaitch 2002; Lantsman 2013).

7.9E Vehicle traffic

Due to the level of cargo traffic, there is a constant need for drayage service at the port. While the number of drayage companies, 142, is a strong indication of the size of the sector, the estimate of daily truck trips, 16,000 (PANYNJ 2012; PANYNJ 2014 B; PANYNJ 2014 C), is an indication of the drayage sector labor structure. This reflects the preponderance of owner-operators (Bensman and Bromberg 2008; Belzer and Swan 2011). As a result of the high level of daily truck trips, the port is coded for a high level of vulnerability relative to the amount of daily cargo throughput.

To mitigate security risks from the level of vehicle traffic, the Port Authority has security systems to determine whether trucks are supposed to be at the port on any given day. For example, trucks must be registered internally in the Port Truck Pass (PTP) where they are issued and managed Radio Frequency Identification (RFID) tags for drayage trucks. A series of readers installed at each container terminal gate then read the RFID tags and allow the terminal operator to determine if the truck meets the requirements for entry (PANYNJ 2014 C). While physical mitigation procedures are strong asset to the PNYNJ, the number of daily truck trips means that there are many more opportunities for illicit networks to not only smuggle cargo in and out of the port but also for organized crime groups to exploit drayage workers.

7.9F Small vessels in/near the port

A large small vessel community in a port area can create higher levels of security vulnerability by deflecting resources away from port security to focus on mundane marine calls for service. To determine the extent of this vulnerability, the size of the boating community in

the port area is used as a proxy measure. The New York and New Jersey region has a large boating community, but this analysis focuses primarily on the boating community in New York counties because the port takes up the majority of area in industrial north New Jersey, and the marine community is concentrated further south (Marine Trades Association of New Jersey 2008; NY State Parks, Recreation, and Historic Preservation 2014). New York counties in the port district have a combined total of 21,308 registered small vessels (NY State Parks, Recreation, and Historic Preservation 2014). This does not factor in the vessels registered in Nassau County, with nearly 29,000 registered alone. In New York State, the ratio of small vessels to inhabitants is 1:43, while in the PNYNJ port district counties, it is 1:394. As a result, there are significantly fewer recreational vessels in the harbor in comparison to a port like Miami where law enforcement officials note that small vessels are their greatest security concern (Personal Communication June 23, 2015).

As an additional measure of small vessel vulnerability, an analysis of small vessel smuggling shows that the PNYNJ is not a proximity port for smuggling traffic, which is mainly concentrated in South Florida and Southern California.⁶¹

For port security, the small vessel threat is different from that currently conceptualized by federal security agencies where the concern is focused on terrorism (DHS 2008). The vector of the threat is mainly through a more complex harbor environment that requires scarce law enforcement resources to focus on small vessels at the expense of other port security concerns. The PNYNJ registers in a low range for this vulnerability with a small boating community in relation to other areas around the country and few marinas for small vessels (Marine Trades Association of New Jersey 2008; NY State Parks, Recreation, and Historic Preservation 2014).

⁶¹ See Appendix B for the panga interception data set.

7.9G Intermodal connections

The PNY/NJ has a high level of intermodal connectivity with rail, air, and road networks linking the port to its hinterland and the rest of the country and use this level of intermodal connectivity as a selling point for business (PANYNJ 2014 G). While this is a net positive for the port in terms of economic benefits, this creates a higher level of vulnerability.⁶² For rail, the primary intermodal connector at the port is the ExpressRail, which in 2014, moved roughly 10% of all containers at the port, meeting the minimum criteria for rail intermodal use (PANYNJ 2014 D; PANYNJ 2014 C). Furthermore, with three international airports in the port district and 3,500 domestic and international movements, illicit cargo can transit by air quickly and easily anywhere in the United States and worldwide (PANYNJg). Finally, the high level of trucks using the port, 16,000 daily, shows that by road, the port has a high level of connectivity (PANYNJ 2012).

Intermodal connectivity creates port security vulnerability only in as much as greater connectivity allows licit traffic to flow from a larger number of inbound and outbound points (VECTOR 2009; Moser 2013). As the number of intermodal vectors increase, the security of each of those vectors becomes interconnected with the security of the port, since inserting cargo at a rail distribution point may be easier than doing it at the port (Kolbenstvedt and Amundsen 2012).

7.9H Physical/Administrative security procedures

As with other ports in the United States, the PNYNJ has a baseline level of physical and administrative security as part of the mandated security under the MTSA. Seven of the eleven

⁶² In a demonstration of the importance of intermodal connections to illicit networks, a recent study examined at why Chicago an inland city far from the southwest border has become a distribution point for the Sinaloa cartel (Moser 2013). In fact, it is the historical development of the city as a geographic hub of transportation for rail, road, air and maritime shipping along the Great Lakes that served the city so well in the 20th century and today creates the ideal hub to ship illicit drugs to points across the U.S. (McGahan 2013).

SCP techniques below have been incorporated in port procedures, whether as a standard practice as a result of the MTSA, through Coast Guard enforcement or another agency.⁶³ The PNYNJ primarily experiences lapses in three areas: screen exits, natural surveillance, and formal surveillance through evidence of faulty lighting and poor functioning CCTV cameras, as detailed in Table 8.

Table 8: SCP techniques at the PNYNJ	
SCP Technique	PNYNJ Practice
<i>Target Hardening</i>	Containers are locked using de-identified container seals under CBP mandate that allow a consignee, customs, or other entity to check whether a container has been opened or tampered (U.S. CBP April 2014).
<i>Access Control</i>	TWIC cards function as baseline access control at U.S. ports and the PNYNJ (Director of Security, PANYNJ 10/10/2012). Port Authority also uses the Secure Worker Access Consortium (SWAC), to screen employees who require access to secure areas or confidential information (Director of Security, Port Authority 10/10/2012; Secure Worker Access Consortium).
<i>Screen exits</i>	It is not possible to inspect all vehicles on exit. On any given day the PAPD has four officers at Port Newark (Chief of WCNYH Police, 11/11/2012). To mitigate this, the Port Authority institutes random vehicle inspections (Losak).
<i>Extend guardianship</i>	The Waterfront Commission has an established tip line and works through a consortium site that provides anonymity to informants (Chief of WCNYH Police, 11/11/2012; MYPD).
<i>Natural Surveillance</i>	The Port features high mast lighting at all five terminals (Observation, November 18, 2014). However lighting does not always function and in a number of vehicles thefts at the port, poor lighting enabled criminals to slip into the high value lot to steal vehicles (Lantsman 2013).
<i>Reduce anonymity</i>	All employees must carry TWIC cards, have a Port Authority issued ID, and longshore workers must also carry a Waterfront Commission ID card.
<i>Place managers</i>	The Port Authority has an Operational Security Program that provides training for employees and tenants (PANYNJ 2014 B). In addition, the Waterfront Commission incorporates security trainings for security guards that work at port facilities (Chief of WCNYH Police, 11/11/2012).
<i>Formal surveillance</i>	The Port Authority has CCTV cameras throughout its facilities including all marine terminals (Amsec). However, in several instances of vehicle theft from lots at the port, Waterfront Commission investigators identified that due

⁶³ See section 5.2H for a discussion of how SCP techniques comport with physical and administrative procedures required at U.S. ports.

	to non-functioning CCTV cameras thieves were able to get past the security perimeter to steal vehicles from holding lots at the port (Lantsman 2013).
<i>Conceal targets</i>	High value cargo is kept in a high value yard at Port Elizabeth. It is a standardized practice, due to the anonymity of shipping and consignee data that few employees have access to container manifests, consignee information, and yard information.
<i>Remove targets</i>	There is a high value container yard for higher value cargo (Maritime lawyer, 10/17/2012).
<i>Identify property</i>	Container seals are de-identified based on a set of numbers and letters, but allow property to be retrieved based on matching consignee and consigner information to seal number (U.S. CBP April 2014).

U.S. ports have a strong framework of port security mandates, which create physical and administrative security mitigation procedures. As a result, it is more useful to look for lapses in security mitigation procedures, theorized through the SCP framework. However, it is important to consider that SCP techniques and mitigation procedures are most effective when applied at the facility level, or even lower units of analysis. While the port may have mandatory mitigation procedures, lapses at individual facilities create increased vulnerability. This analysis does not focus at the individual facility level, which is instead accomplished through USCG vulnerability assessments of facility security procedures (USCG 2015).

7.9I Illicit import/export market

To determine whether the port is in a large illicit import/export market, three primary measures are analyzed based on ONDCP and HIDTA accounts of maritime transportation as a known method for illicit imports, cargo thefts in the port hinterland region (75 miles), and suspect vehicle exports and customs recovered stolen vehicles at the port. These focus on three primary types of supply chain illicit activity- illicit imports, cargo theft, and illicit exports.

Narcotics imports

The New York and New Jersey High Intensity Drug Trafficking Area (HIDTA) identifies multiple drug trafficking networks operating in the region, primarily in the southern tier of New

York and in northern New Jersey. These include the strongest concentration of Colombian and Dominican networks in the United States, in addition to Mexican networks that traffic in a wider range of narcotics than the Colombian or Dominican groups, which focus on cocaine (ONDCP 2011). Furthermore, the HIDTA drug market analysis (NDIC 2009; ONDCP 2011), the Drug Enforcement Agency (Southern District of New York 2010), and the Waterfront Commission note that maritime transportation is a known method of importing narcotics into the region. Dominican networks primarily smuggle cocaine from South America and Caribbean and Jamaican networks transport marijuana from Jamaica aboard shipping vessels and in containers, while there is evidence that Afghani and Pakistani drug trafficking organizations smuggle limited quantities of southwest Asian heroin into the New York and New Jersey region in maritime cargo as well (NDIC 2009).

Cargo thefts

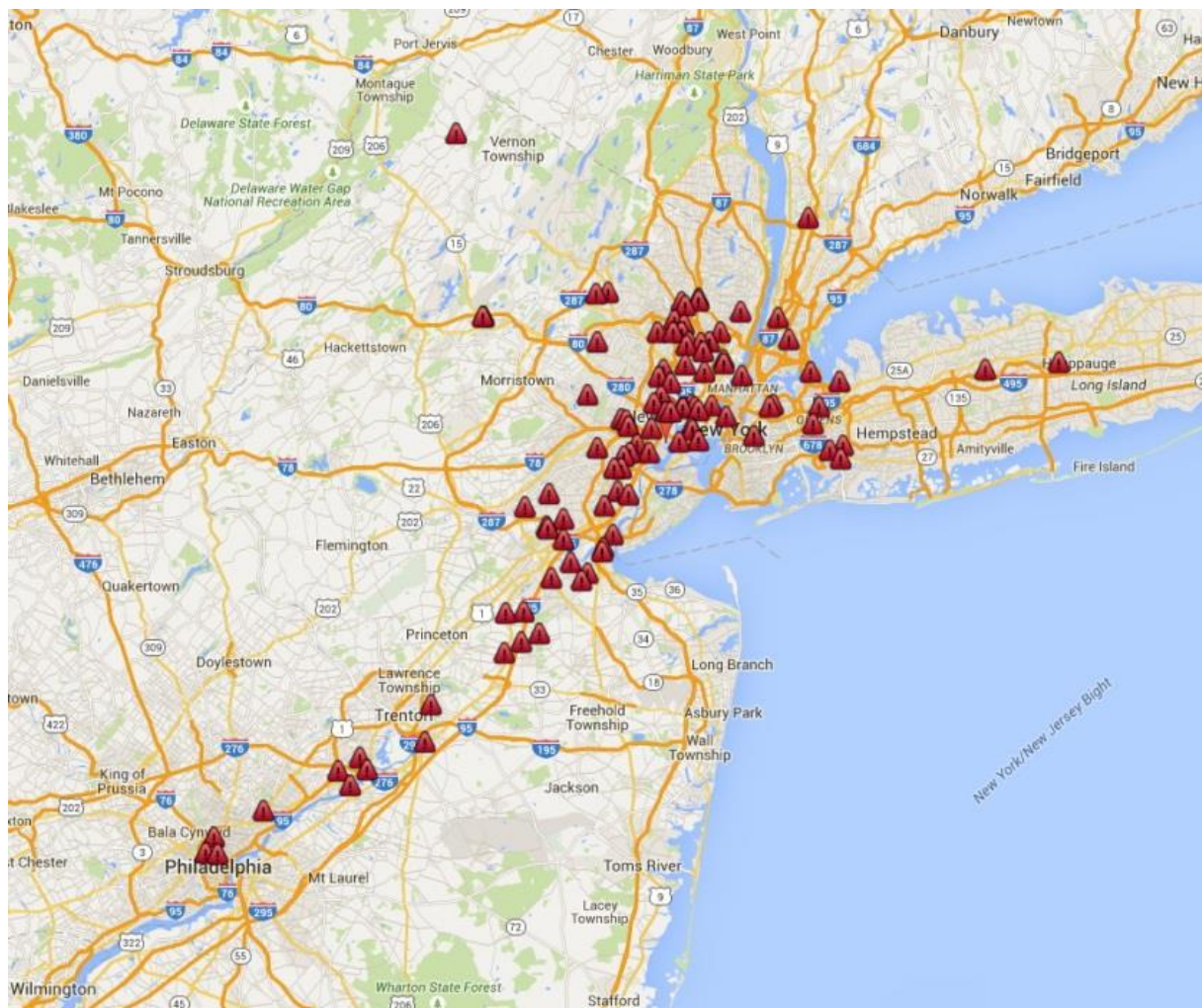


Figure 5: Cargo theft incidents in the Port of New York/New Jersey region, July 2013-July 2015 (FreightWatch International Route Analysis Tool)

Cargo theft in the port region is significant with 166 reported incidents, of various level of intensity from thefts of entire containers to pilferage of CRAVED cargo, reported to FreightWatch International in the period of July 2013 to July 2015 (FreightWatch International Route Analysis Tool). See Figure 5. In the comparative analysis, it was highly uncommon to identify cargo thefts that occurred on actual port property, but at the PNYNJ, a number of thefts were reported in Port Authority jurisdiction. This casts doubt on the effectiveness of counter-theft physical and administrative mitigation techniques. Furthermore, this measure is based on self-reported insurance data and likely undercounts the actual level of cargo theft in the region.

By focusing on the port region, the cargo threat profile provides a method to determine if CRAVED cargo is actually targeted by theft networks and is a key indicator of the of illicit activity that the port may be generating through CRAVED cargo import/exports. At PNYNJ, as warehousing space on the port decreases, cargo thefts related to import/exports are more likely to be found in thefts from warehouses in the port region as opposed to the port itself.

Suspect vehicle shipments

In 2014, the PNYNJ was the largest port for vehicle import/exports in the United States with shipments of 640,820 new and used vehicles

Table 9: CBP recovered stolen vehicles (Sherman 2014)			
	FY 2011	FY 2012	FY 2013
PNYNJ	270	130	312
National	1329	1177	1554

(PANYNJ C). In 2013, CBP reported 312 recovered stolen vehicles, more than double the amount reported by CBP in 2012 with 20% of all recovered vehicles from the PNYNJ (Sherman 2014). See Table 9. This provides a baseline measure of the level of recoveries at the PNYNJ but not a proxy for the number of illicit shipments. Available NICB and NCIC data for vehicle exports shows that the port has a slightly above average rate of NICB suspect vehicles in the period of 2003 to 2008 with 35.27% of all exported vehicles, and a near average rate of NCIC suspect vehicles with .88% of all exported vehicles. While actual numbers of stolen vehicles shipped through the PNYNJ are unavailable, NICB and NCIC data, along with the picture filled in through recovery data, provides a further method to identify that the port is a preferred export point for criminal networks.

As one of the largest consumer markets for consumer goods in the United States, the New York and New Jersey region illicit import/export profile is similar in scope as well (Caulkins and Reuter 2004; ONDCP 2015). Across illicit imports, exports, and cargo theft, the PNYNJ has a high vulnerability to illicit networks. The size of the illicit import/export markets is in part a factor of all the vulnerabilities in this analysis, and others latent vulnerabilities waiting to be

identified. At a minimum, the physical vulnerabilities highlighted in this section combine to create the market that use the port for illicit transfers. In confluence with the administrative vulnerabilities highlighted in the following section, the PNYNJ is the epicenter of port security criminal network vulnerability.

7.10 Administrative vulnerabilities

7.10A Port divergence

Divergence of cargo traffic is theorized as an economic structural change that can lead to vulnerability by decreasing the security scrutiny of existing port tenants and new companies that are considering doing business at the port. The PNYNJ is not at risk of this vulnerability as cargo traffic at the port has grown consistently in the period of 2005 to 2013, consistent with ports across the eastern seaboard, including Hampton Roads, Baltimore, Philadelphia, and Boston (AAPA 2013; PANYNJ 2014d)⁶⁴.

7.10B Automation/cyber-security vulnerability

All ports in the United States have a baseline level of automation through (1) container management systems that electronically track container movement throughout the port from the vessel to where on the yard the container is kept or in a vessel itself (Verizon 2016) or (2) automated security systems such as CCTV (Cloudview; Russon 2015). The PANYNJ is leading the way in automation with partial automation at Global Container Terminal (GCT) in Bayonne which has semi-automated, rail-mounted cranes for stacking containers in the yard (Kulisch 2014). Through GCT's expanded operations, it can handle roughly 36% of all container traffic capacity at the port (Strunsky 2014). This increased automation does create heightened cyber

⁶⁴ In 2009, ports around the country experienced a strong drop in cargo throughput as a result of the economic recession (Notteboom and Rodrigue 2009b). See Appendix J for cargo throughput data.

security vulnerability at the PNYNJ. However, there have been no recognized incidents of cyber penetrations at the PNYNJ, with the primary cyber incident a result of a different terminal, Maher, switching computer systems leading to a slowdown in operations (Mann 2013; Bloomberg News 2013). In addition, cyber vulnerability is micro-located in individual computers, systems, or through human-created vulnerability, such as workers responding to spear phishing which requires further micro-assessments outside the scope of this document (USCG 2015).

7.10C Interagency cooperation

The PNYNJ has one of the most complex port security jurisdictional environments in the United States, with a large set of port security stakeholders in federal, state, municipal, and specialized agencies (Smythe 2013). This is a function of the development of the port across two states but also labor conditions, which led to the creation of a port specific agency. The primary oversight mechanism at the PNYNJ that fosters interagency coordination is the MTSA-mandated Area Maritime Security Committees (GAO 2012). At the PNYNJ, more than 350 different agencies and stakeholders are members of the New York AMSC with six different committees (O'Brien Jr. 2007). While a committee is often the starting point for strong interagency cooperation, the PNYNJ requires an added level of interagency cooperation through a joint operations center (JOC).

Instead of a physical JOC, the PNYNJ has a virtual JOC through the implementation of a USCG-developed communications system, WatchKeeper, mandated through the 2006 SAFE Ports Act (GAO 2012b). However, the lack of a physical joint harbor operations command center that provides a unified working environment is a key vulnerability at the port and not an

issue at other large ports around the country such as the Ports of Los Angeles and Long Beach (POLB C).

Due to the physical layout of the PNYNJ, large number of security agencies, the large private sector, and the population distribution in spatial proximity to port operations, a virtual operations center may not create the level of interagency communication required for effective port security information sharing. Information sharing and cooperation is a key requirement to support physical security but is more important when managing the security challenges created by vulnerable economic or labor sectors.

7.10D Vulnerable economic sectors and sector size

This section describes the four primary economic sectors, the profile of the workers in the sector, the vulnerability conditions, and the size of the sector that lead employees to be targeted by criminal networks as victims or participants in criminal ventures. Sector size is a key consideration in any vulnerability assessment and constitutes one of the primary vulnerability categories when examined in concert with a vulnerable sector. Similar to how members of criminal networks note that the more cargo throughput there is in any given port, the easier it is to transport illicit cargo through that port (Zaitch 2002), vulnerability is heightened when there is a large number of entities operating in a sector.

Complicating the assessment is that the shipping industry is undergoing a process of massification and atomization, terms which have been developed to describe the underlying structural conditions for increased numbers (atomization) of operating entities at ports as a result of fewer but larger (massification) container vessels (Notteboom and Rodrigue 2009).

Massification is the process where increasingly large vessels carry greater quantities of cargo (whether containers or bulk) leading to increased strain on shipping terminals to load and offload

cargo. In response to massification, atomization is the process more drayage drivers and forwarders are required to handle the larger quantity of offloaded cargo. These processes have led to increases in the quantity of operating entities in both of the sectors that participate in destination or origin distribution, freight forwarders and drayage truckers.

At the PNYNJ, this has created a nuanced vulnerability profile such that sectors even with few operating entities, such as ancillary services, can display significant criminal network vulnerability due to structurally fixed conditions. The primary sectors with low composition but high vulnerability is the longshore sector and ancillary services.

Longshore labor

The waterfront labor sector in the port has a significant vulnerability profile. While the nature of the work itself does not lend the sector vulnerability, privileged access to the port, coupled with the historical presence of criminal networks in waterfront operations, produces a profile that creates vulnerability to criminal networks.

Labor profile

Labor at the port is a patchwork. The Waterfront Commission register lists 6000 to 7000 employees specializing in different types of work such as driving straddle carriers, office clerical work, maintenance technicians, and others (WCNYH 2012; WCNYH 2013c; NYSA 2015).

Longshore labor, specifically loading and offloading vessels, requires special skills training, and today's longshore workers are not only more educated than previous generations, they are also well compensated for their skilled labor (Mongelluzo 2015c). The key question in this sector is what are the conditions that create vulnerability to criminal network exploitation?

Access and time sensitive work

Longshore workers have privileged access to secure parts of the seaport. This is the key aspect of the sector and which separates it from other historically vulnerable labor sectors in the

New York region (Raab 1998). Despite being subject to multiple levels of access control and security through the TWIC, the Waterfront Commission ID and registration process, Port Authority SWAC card there are still numerous instances of longshore workers assisting criminal networks with illicit trafficking at the port (Southern District of NY 2010). Similar to other economic sectors where criminal networks operate, the time sensitive nature of the shipping industry creates a vulnerable space for criminal networks to exploit the labor force (Albanese 2003; Shelley 2003; WCNYH 2010). Longshore labor has the ability to impede cargo, and ILA management has used that power to enforce work stoppages at the PNYNJ, most recently in January 2016 (Mongelluzzo Bonney 2016). The confluence of privileged access in a time sensitive industry creates the underlying condition of vulnerability in this labor sector.

Longshore worker as victim

The twin conditions described in the previous section also create a condition where longshore workers are a key access point for criminal networks to ports. At the PNYNJ, dockworkers are also victims of organized crime. Historically workers are subject to extortion by ILA union leaders through a long standing practice of demanding payment of Christmas time bonuses, averaging \$15,500 a year (Obel 2012; USMX 2013; Department of Justice 2014).

Sector size

As a sector that is affected directly by the amount of cargo that passes through the port, the labor sector displays the tensions between atomization and massification on a local scale. The Waterfront Commission regulates the longshore register and determines how many longshore workers can vie for work on a given day (Johnson 2005) to decrease labor oversupply. Coupled with employment scarcity, this can lead to organized crime exploitation (Obel 2012; Department of Justice 2014).

Vulnerability analysis

The size of the sector is not a contributing factor to vulnerability to criminal networks, since the sector displays a relatively fixed labor pool regulated at the federal (through the TWIC) and state level (through the Waterfront Commission). In fact, the overarching conditions of access and time sensitive work creates such overwhelming utility for criminal networks that criminal networks continue to try to infiltrate the sector (Southern District of New York 2010). As the labor force at the PNYNJ diversifies, the sector's vulnerability will likely change as new workers come into the industry. Furthermore, as automation decreases the number of longshore labor required for essential operations, vulnerability may shift from the longshore labor operating the cranes to the technically skilled employees who will operate the automated machinery.

Drayage Drivers

Vulnerability conditions

Like longshore workers, drayage drivers are subject to security oversight, through TWIC and Sea Link, the PANYNJ's trucker ID (PANYNJ 2014 H). However, despite formal oversight mechanisms, working conditions in this sector increase the vulnerability of the sector to criminal network use. The primary labor vulnerability conditions are that workers lack certainty of continuous employment and have increasingly poor working conditions. Prior to the 1980s, regulatory frameworks created conditions of stable employment and rising wages for many workers in the trucking industry (Belzer 2000; Belzer and Swan 2011). Following the passage of the 1980 Motor Carrier Act, the drayage sector fragmented and become increasingly competitive (Jaffee 2010b). The deregulation of the trucking industry then led to increased numbers of owner-operators or independent contractors, who are now the dominant type of drayage worker at U.S. ports. This change freed trucking companies from financial and legal obligations inherent in a formal employment of a trucker (Jaffee 2010b). This places owner operators at the bottom of the truck labor hierarchy with few legal protections or benefits, and salaries as low as

\$6 an hour (Prince 2005). At the PNYNJ, drayage drivers may average \$35,000 a year with 58 hours a week of work, including significant waiting time while containers are loaded and inspected by ILA checkers (Bensman and Bromberg 2008). As one study participant notes:

With the advent of the owner operator, there's no loyalty. They cut each other's throat in terms of pricing...By going to that end of the labor market you don't have this career driver, instead you have this poor guy scraping together...He's got to make five moves a day to break even...They're absolutely a vulnerability.
(Former Police Chief WCNYH, 10/1/2012)

At the PNYNJ, one of the unique conditions which increases the vulnerability and possible targeting of drayage drivers is a specific contractual section in the master ILA contract, called the Trailer Interchange Report (TIR). TIR allows ILA workers to inspect containers for damage before they exit the port, and if damage is found, the containers must be repaired in that port by maintenance workers. The identification of damage and repair is conducted by ILA local 1804-1, one with a long history of organized crime influence over both leadership and rank and file (U.S. Attorney's Office 2004; Jacobs 2007; Director of Legal and Licensing WCNYH 10/12/2012; Strunsky 2013). This uniquely PNYNJ vulnerability is at its core a confluence where a labor conflict of interest in a time sensitive field of work takes advantage of the poor working conditions of another labor group. As the amount of time trucker wait at the port to pick up a container have been very high (Bonney 2015b), the checking process creates conditions where ILA checkers can exploit their position to hold up traffic at the port and target drayage drivers to extricate or insert cargo (Law Fellow, Waterfront Commission of New York Harbor 10/24/2012).

Sector size

The atomization of shipping traffic and the increase in truck owner operators creates a large sector of drivers who operate at the PNYNJ. At the port, 169 drayage firms are listed as operating entities and contract out to independent truck owner operators, with an estimated

16,000 truckers (PANYNJ 2012; PANYNJ 2014b; PANYNJc) using the port on a daily basis. The size of the sector increases the opportunity for criminal networks to seek access to the port. Moreover, increased work uncertainty may make some more inclined to participate in illicit schemes.

While the formal security structure for drayage drivers is strong, the working conditions and contractual vulnerability through the TIR scheme creates increased vulnerability in the sector.

Freight Forwarders

Forwarders are a key sector with privileged access to the port but lack significant regulatory oversight. There are no special qualifications for someone to be a freight forwarder, and the primary level of oversight is the Federal Maritime Commission (FMC) license, which is required if a forwarder will issue their own house bill of lading, file their own manifest with U.S. Customs and issue their own delivery order to the consignee. FMC oversight entails an initial application and does not include a more intensive background check (WCNYH Director of Licensing, 10/1/2012). In addition, FMC oversight over licensed forwarders has been lax, as FMC audit rates from 2011 show that the FMC Bureau of Investigation, responsible for auditing registered freight forwarders, audited five out of 1048 licensed freight forwarders (Office of Inspector General 2012). Considering that many more forwarders handle maritime cargo than are registered with the FMC, forwarders lack the level of oversight that should be commensurate with their key role in the transportation supply chain.

Sector size

In section 7.10d, the analysis focused on the size of the freight forwarding sector as a ratio of monthly traffic to identify whether there many peripheral companies accessing the port on a periodic basis. This section focuses on examining the absolute number of forwarders in the

sector and the effect of shipping atomization at the PNYNJ.⁶⁵ While there are differing estimates of the number of freight forwarders operating in the port region, based on FMC records, there are between 442 and 568 forwarders either within 25 or 75 miles of the Statue of Liberty⁶⁶, respectively (standard radius measurements for port region or hinterland radius). The full FMC count of 568 is comparable to the standard industry-wide listing of 692 forwarders in the overall New York and New Jersey region⁶⁷ and indicates a large number of freight forwarders that can be used to move cargo in the port region. At the Waterfront Commission which conducts many of the primary investigations of illicit activity at the PNYNJ, the complexity of the shipping industry, especially when cargo movement shift hands across multiple forwarders creates conditions that make investigations difficult.

With all the freight forwarders and stuff it's hard to keep track of where things go and where they come from. Our police have trouble figuring out where a container goes. They have to figure out where a container came from, where it was broken apart and so on, it definitely does hinder. I've seen our police do the tracking but sometimes without success. (Associate Counsel, WCNYH 11/27/2012).

There are many more smaller forwarders than the NVOs. A lot of these are 'fly by nights.' A lot of Asian (companies). The motivation for them is just money. Always money, money laundering. They would collect money or get illegal money and just funnel it through (by shipping cargo or assisting in the importation of illicit cargo). (Director of Auditing, WCNYH, 10/1/2012).

Vulnerability analysis

⁶⁵ While it is true that some of the largest ports in the country also have a large forwarder presence, reflecting the atomization principle, some ports that have large throughput such as Hampton Roads and Savannah, do not have a commensurately large forwarding presence which decreased their vulnerability score. The conditions that lead to a larger forwarding sector are not solely the amount of cargo shipped through a port, but also include such characteristics as the diversity of diaspora and emigrant groups in the port region, including but not limited to Asian diaspora groups and Latin American groups. These tend to participate in import/export businesses and require the services of forwarders to ship products and cargo to/from destinations in those areas. This in part, explains why south Florida ports score so high in this vulnerability but do not have commensurately high levels of cargo throughput.

⁶⁶ The Statue of Liberty is used as the primary geographic reference point in the Port Authority of New York and New Jersey compact and is used here as the primary geographic reference point to determine port region and hinterland extent to measure the number of forwarders operating in the region and hinterland.

⁶⁷ www.forwarders.com.

Similar to the longshore sector, access to shipping is the key component of this sector's vulnerability; however freight forwarders have a different type of access than longshore workers. While longshore workers have physical access to the port, freight forwarders have a better understanding of trade patterns and vessel movements, how cargo is dispersed across multiple layers in the supply chain, and, consequently, where and how to ship cargo (Former Customs Broker, 10/1/2012; Lantsman 2013). While longshore workers and drayage drivers handle the manual labor of either extricating or inserting illicit cargo, a forwarder colluding with a criminal network provides the administrative knowledge that can assist a network to evade notice by authorities (Trace 2009).

For freight forwarders, the lack of oversight and the size of the sector in the New York and New Jersey port region create the conditions of vulnerability.

Ancillary Services

Ancillary services refer to the services necessary to run terminal operations and assist in the day to day operations at a port, such as sanitation, cleaning services, and maintenance and repair. Ancillary services such as container repair and maintenance are, from the perspective of the Waterfront Commission, operated by associates of local organized crime groups. For example, internal investigations note that the container repairs, mechanical repair, landscaping, paving, and garbage removal are often controlled by associates of local organized crime groups (WCNYH Executive Director, 9/28/2012).

The primary vulnerability conditions of this sector is the longstanding presence of organized crime operatives in entities operating in this sector and the privileged access afforded to employees working in one of these companies. The example of American Maritime Services at Red Hook Container Terminal which had been using workers that had not been registered with Commission and had circumvented the Commission's background check and hired organized

crime associates workers highlights how organized crime figures control or pursue control of companies in the ancillary services sector (WCNYH 2012b; Rooney 2013).

The vulnerability of this sector is also a result of the financial benefit control of this sector is deemed to have to organized crime groups. The quote below is from a wiretapped investigation where in discussion with a Genovese family associate, two members of an ILA longshore union highlight how they control the sector and extract money from companies operating in the sector (Demeri 2012).

CAFARO: I told our friend... '[W]e got to do the repair, container repair, chassis repair, store them and charge a rent and the trucking.'

D'URSO: And what did he say?

CAFARO: 'You're right.'

DURSO: What happens if legitimate guys come in and do it? Then what?

CAFARO: They give them a hard time with the union. You know what I mean?

DURSO: They'll sick them on them

CAFARO: Yeah, they'll give them a hard time with the union.

Sector size

The problematic companies in this sector are those in container maintenance and repair (Director of Licensing, WCNYH, 10/12/2012; Executive Director, WCNYH 9/28/2012). Since these companies are staffed by employees who are regulated by the Waterfront Commission, the latest worker registration data suggests that the number of workers who operate in this sector is roughly 25% of all Waterfront Commission licensed workers at the port or roughly 1000 out of 4500 registered longshore workers in the register (Bonney 2015). The number of companies operating at the port in this sector is difficult to determine exactly, but based on the Port Authority directory (PANYNJ I), there are three. The larger number of workers is likely reflective of terminal operations with in house container repair and maintenance yards. While the number of entities operating in this sector is significantly lower than in other sectors, it displays characteristics of vulnerability because the low level of entities and coupled with the

TIR scheme allows companies that have an organized crime connection to make money off of repair of containers through collusion with corrupt checkers working the TIR shifts.

The real issue now is container repair. That's where there's money to be made. That's the maintenance local, D....s local, you know D.... is part of this civil RICO. The federal scheme that requires TIR reports, it's a federal scheme for highway safety, but if you look at it, it puts an awful lot of power into the hands of the individuals who are doing these reports, it allows for anything from bribery right there at the point of doing the report, it allows basically the people who are doing the repairs, the same locals who do the repairs, are doing the TIR reports which send containers for repairs. (Director of Licensing, WCNYH, 10/12/2012).

Sector analysis

In these four primary sectors, vulnerability is dependent on sector size and working conditions. Sectors that are bound by spatial reasons to work within the area of the port have a fixed or low level of workers or entities, and their vulnerability less affected by the size of the workforce or number of entities. These sectors are valuable targets for criminal networks because of the access they can afford a group. Moreover, because of few entities in a sector, port operations have no recourse but to work with the available companies regardless of suspected or known affiliation with criminal networks. Sectors that can operate anywhere and are not spatially bound to the confines of port have a larger number of entities and therefore create a greater number of targets for criminal networks groups to exploit, including freight forwarder and drayage sectors. See Table 10 below.

Table 10: Structural conditions of labor sectors and vulnerability		
Sector	Structural conditions	Conditions of vulnerability
Longshore labor	Regulated supply Decreasing sector	Port access Control over time sensitive operations Specialized port knowledge
Drayage truckers	Free market supply Large sector size	Port access Low wages Uncertainty of work

		Sector size
Freight forwarders	Free market supply Large sector size	Port access Specialized transportation knowledge Sector size
Ancillary services	Fixed supply Stationary sector size	Historical organized crime involvement Port access Control over time sensitive operations

7.10E Historical presence of criminal networks

At the PNYNJ, corruption in the unions, port labor force, or other economic sectors is often ascribed to the custom and practice that has developed at the port (WCNYH 2012; NYSA 2012). This encompasses the wide range of labor inefficiencies built into the labor structure, the known historical associations with organized crime families in different port operations, and the interconnectivity between labor, management, and organized crime. Typical media accounts note the presence of organized crime at the port in the following terms:

Local 1588 was historically so corrupt that mob enforcers were unnecessary, according to one veteran investigator. Kickbacks, extortion and fraud became as routine as a Labor Day picnic at the local, long a lucrative outpost for the Genovese crime family. (McShane 2004)

The primary question this section attempts to answer is how the historical presence of organized crime manifests itself in operations at the port and does that provide access to criminal networks for illicit transportation of cargo.

“Traditional” organized crime

At the PNYNJ, traditional, Italian-American organized crime groups continue to exercise various degrees of control over labor in certain aspects of port operations (Herszenhorn 1998; Demeri 2012). The history of organized crime at the PNYNJ can be traced to the Prohibition era. Rum running groups used the shipping industry to ship illicit liquor into New York and sold to bootleg establishments in the city (Stewart 2012). After prohibition, longshore workers whose

life was an “unending parade of drudgery and the closest thing to being a peon in America at the time,” began to be exploited by organized crime groups that Malcolm Johnson detailed in his series of articles for the New York Sun in the late 1940s (Johnson 2005):

Once they got into labor racketeering in the trucking and the shipping industries, any industry that had time sensitive constraints was vulnerable. You have this culture, where the old guys were all originally from the bootlegging and they passed that on to what they were doing in labor racketeering, and that culture was passed on to the younger generation. By the 1970s all of those Irishmen passed on or were quietly replaced by mafia people, and some who wouldn't move over got killed. And to some degree that dynamic has persisted today.
(Former Deputy Director Local 1588 12/8/2012)

Historically, the New Jersey and Manhattan docks are the area of operations for the Genovese crime family (Herszenhorn 1998; Demeri 2012; NJ Attorney General 2014) and the Brooklyn and Staten Island docks, considerably less important than they once were, are covered by the Gambino crime family (McShane 2004; Demeri 2012). To a certain extent, the DeCavalcante family also has some smaller loan sharking operations as well, operating through the ILA locals in New Jersey (Executive Director, WCNYH 9/28/2012). As discussed in previous sections, organized crime groups do not take hold of entire sectors, instead they plant operatives in companies in the ancillary services sector, or as longshore workers. This activity continues to the present day as RICO investigations (Blakey and Goldstock 1980) by federal and state authorities over the past twenty years make clear that there is a continued presence of corrupt activity by both the Genovese and Gambino families at the Port of New York and New Jersey (WCNYH 2011b; WCNYH 2012c; WCNYH 2014; New Jersey Attorney General 2014; WCNYH 2015).

Almost all of the investigations, arrests, and sentences against traditional organized crime groups at the PNYNJ are focused on some aspect of racketeering, whether through collusion to exploit longshore workers (WCNYH 2011b; WCNYH 2012c; WCNYH 2014; New Jersey

Attorney General 2014; WCNYH 2015), running gambling operations (WCNYH 2009), or extortion of port employees (Rashbaum 2005). In addition, two unions were placed under federal consent decrees after investigations by the Waterfront Commission and federal authorities found that they were rife with organized crime associates forcing rank and file to unfair hiring practices and extortion (McShane 2004; Union Democracy Review 2005; New Jersey Attorney General 2011; Former Deputy Director Local 1588 12/8/2012; Demeri 2012).

However, there is almost no evidence of a relationship between traditional organized crime operations at the port and the import or export of illicit cargo. Two primary illicit import/export products, drugs and stolen vehicles, rarely involve traditional New York region organized crime (New York State Division of Criminal Justice Services 2015), and primarily are conducted by loose networks of local New York region gangs and overseas facilitators (National Drug Intelligence Center 2009c; ONDCP 2015b). For example, vehicles stolen for export are often ordered by overseas associates and, in the most high profile cases in the New York region, West African diaspora network members work with local gangs to facilitate thefts, chop up vehicles to mask their stolen origins, and then ship them overseas through a variety of masking methods (New Jersey Attorney General 2007; NYPD 2012; Lantsman 2013; DHS ICE 2015). In some cases, these groups will set up legitimate companies to assist in illicit import/export schemes but those are likely to be in the freight forwarding sector and not in actual port operations. However, smuggling groups do attempt to gain access to individual longshore workers to use them to facilitate illicit transport (Southern District of New York 2010).

As a result, while the PNYNJ does have a higher level of vulnerability as a result of the long term presence of organized crime groups, their activities are not related to the import/export of illicit cargo. Instead, their focus on exploiting port workers contributes to poor working conditions for drayage drivers and rank and file longshore workers, which can make workers in

those sectors more susceptible to criminal network overtures to participate in illicit schemes. In some cases, traditional organized crime groups do have direct linkages to overseas organized crime groups such as the N'Drangheta (U.S. Attorney's Office Eastern District of New York 2015), which transport drugs into the NY region. But generally traditional organized crime at the PNYNJ straddles an intermediary position where they are not directly involved in smuggling operations but can force union members into participation or insert associates into positions with specialized access to container operations. Instead, the historical presence of organized crime at the PNYNJ is most visible in manifestations of organizational corruption, where entire companies or union locals are controlled by individuals that use them for illicit trafficking or to exploit employees.

7.10F Organizational corruption

The analysis focuses on whether there are companies or entities that knowingly support and assist criminal networks in illicit activities and have some level of ownership or management by criminal groups. At the port, longshore union locals display the greatest level of vulnerability due to the historical presence of organized crime, as discussed in the previous section, but in varying degrees, there are corrupt practices in other types of organizations at the port. The analysis in this section also focuses not only on corrupt entities that facilitate illicit movements but on other types of corruption. To measure the vulnerability level, I use the operational definition in Chapter 5.⁶⁸

⁶⁸ A port with a high level of organizational corruption has three different entities with more than two publicly documented instances of corrupt public or private employees in the past five years and is coded as 9. A port with a medium level of organizational corruption has two different entities with more than two publicly documented instances of corrupt public or private employees, or one entity with more than two documented instances of public employee corruption in the past five years and is coded as 6. A port with a low level of corruption has no documented instances of public employee corruption and one entity with more than two instances of private employee corruption in the past five years and is coded as 3. A port without any incidents of private or public corruption is coded as 0.

By that standard of measurement, the PNYNJ has a high level of vulnerability for organizational corruption as evidenced across multiple levels of analysis from the port district down to individual companies operating within their economic sectors, including the Port Authority (Gibson, Dunn & Crutcher LLP 2014; Dwyer 2015); freight forwarding entities (State of New Jersey Commission of Investigation 2004; Lantsman 2013); customs brokers (US DOJ 2007; Courthouse News 2009); drayage entities (US DOJ 2007; Milosheff 2014); and throughout the labor sector. In all of these sectors, management employees or company owners participated in corrupt practices and in several instances, assisted criminal networks with shipping illicit cargo.

Port Authority of New York and New Jersey

U.S. ports rarely display the style of corruption where public seaport agencies are used for political purposes with most recent investigations uncovering port authority corruption in Mozambique (Sequeria), Liberia (Butty 2015), Nigeria (MACN 2014), and Kuwait (Fattahova 2015). The only port agency in the U.S. that has displayed that style of corruption is the Port Authority which has been embroiled in a political corruption scandal involving the closure of roadways into a city with a political opponent of the New Jersey Governor (Strunsky 2013b; Gibson, Dunn, and Crutcher LLP 2014). The PANYNJ's portfolio (Moss and O'Neill 2014), with marine cargo composing 5% of revenue, means that operations are more insulated from the lane closing scandal, which was focused on using the transit control authority for political gain or retribution. However, evidence of corruption in the Port Authority management would be especially impactful on the decisions on port tenants. And in that aspect of port operations, the Port Authority has shown that it is willing to resort to questionable practices to rid itself of unwanted tenants (Robbins 2007; American Stevedoring against Defendants 2013).

Terminal operators

Of the five terminals at the PNYNJ, two have operations across multiple countries.

While the transport and shipping sector is recognized as a sector highly susceptible to corruption (PWC 2014), multi-nationals such as APM Terminals, which has 62 operating port and terminal facilities in 38 countries, have robust anti-corruption policy that enforce and develops anti-corruption risk models in all of the countries where it operates (APM 2014). Nonetheless, at the PNYNJ there have been incidents of corruption at terminal operators where a local manager at Maher Terminals solicited bribes to provide favorable contractual terms (FBI 2011b).

Freight forwarders

Criminal network control or ownership of a freight forwarder allows for a “no questions asked” policy when shipping cargo. Federal and local authorities note that criminal networks specifically establish companies in the New York and New Jersey region to import illicit cargo. First, they begin their business by shipping licit cargo with no regulatory or legal concerns. After a period of time, once the business practice has been established, they facilitate the shipment of illicit cargo (State of New Jersey Commission of Investigation 2004; Former Customs Broker, 10/1/2012). At least one freight forwarding firm has assisted illicit narcotics imports as part of a Panamanian drug trafficking organization’s shipments (Southern District of New York 2010). In addition to drug smuggling, freight forwarders at the PNYNJ participate in illicit export of stolen vehicles. In these large export operations, freight forwarders knowingly arranged for the vehicles to be loaded into containers and then completed false bills of lading mislabeling the container contents (DHS ICE 2014c; DHS ICE 2015).

Drayage companies

There is little evidence that the 149 drayage companies operating at the port have displayed corrupt activity. However, owner-operators have been known to participate in the transport of illicit cargo at the port, specifically related to counterfeit goods and to thefts of

containers (US DOJ 2007; Milosheff 2014). It is more likely, though, that drayage drivers are not witting participants in illicit transport or smuggling schemes, and their vulnerability to exploitation is theoretical without a strong pattern of evidence to support active participation.

Union locals

There is significant evidence that unions at the port have been, in the past, under the control of members or associates of local organized crime groups. Public sources (WCNYH 2009; WCNYH 2010; WCNYH 2011; WCNYH 2012; New Jersey Attorney General 2011; New Jersey Attorney General 2014) note that associates of organized crime have been in positions of power at local unions at the port. Focusing on the primary unions operating at the port, there are numerous examples of significant administrative influence by members of organized crime in most of the unions that provide labor to the terminals.

At the PNYNJ, nine different locals provide different labor services with specializations in different type of work and at different terminals. Certain locals have historically had less control by organized crime members, such as Local 920 in Staten Island or Local 824 covering the docks in Manhattan. However, others, such as Local 1233, which provides labor for Port Newark and Port Elizabeth, has had top leadership associated with members of organized crime and with actual direct membership in the Genovese family (U.S. v. Stephen Depiro 2010; WCNYH 2014b; FBI 2015). Other locals, such as 1804-1, responsible for maintenance and TIR duties, also has had significant organizational corruption (U.S. Attorney's Office 2004; Jacobs 2007; Strunsky 2013) exacerbating the contractual vulnerability that provides it significant power over drayage drivers and by extension port operations.

However, there has been no evidence that traditional organized crime associates at the port are associated with the illicit transport of cargo either into or out of the port. In almost all instances where leadership has been charged, convicted, or sentenced, the charges have been

related to extortion and embezzlement of workers in the unions where they had positions of power (U.S. Attorney's Office 2004; Jacobs 2007; U.S. v. Stephen Depiro 2010; Strunsky 2013; WCNYH 2014b; FBI 2015 .

Vulnerability analysis

Across the five sectors examined in this section, organizational corruption manifests itself in two primary areas for differing reasons. In the freight forwarding sector, organizational corruption is present as a result of the underlying structural conditions of the sector, which include specialized knowledge and the large size of the sector in the PNYNJ region. In addition, they lack of oversight, other than FMC licensing for some forwarders, and it is not difficult to set up a forwarding firm, establish a pattern of legitimate shipments, and then assist the illicit transport of cargo (State of New Jersey Commission of Investigation 2004). Conversely, organizational corruption at PNYNJ union locals is much more a factor of the historical presence of organized crime despite long standing efforts to prosecute and convict union leadership associated with organized crime groups (U.S. V. Stephen Depiro 2010; WCNYH 2014b; FBI 2015). No other port in the United States has this level of corrupt activity at management levels, and this significantly increases the overall vulnerability of the PNYNJ. Even without entirely corrupt entities or management level corruption, criminal networks can transport cargo through individual corrupt employees in legitimate companies.

7.10G Employee corruption

The port displays numerous instances of employee corruption, creating an environment of deep vulnerability in the primary economic sectors facilitating the movement of cargo through the port. At the PNYNJ, longshore workers have been identified as collaborators with criminal networks to facilitate transport of illicit cargo, almost exclusively narcotics, and primarily

cocaine (WCNYH 2010c; Southern District of New York 2010; Southern District of New York 2011; WCNYH 2012d). This section focuses on detailing a specific incident of longshore worker collusion to display how access interacts with other categories to create increased multi sectoral vulnerability.

Longshore worker access

In 2010, eight PNYNJ longshore workers were indicted and convicted for narcotics trafficking (Southern District of New York 2010). The investigation identified how and where access to the port provides a criminal network with strong benefits if they can identify a willing port employee as a conspirator. The employee's knowledge of where and how to ship the illicit cargo, where to place cargo in the yard, and ultimately how to extricate cargo from the yard is the incredibly valuable to those importing or exporting illicit goods (Southern District of New York 2010). One of the longshore workers, and a confidential witness, were the main recipients of cocaine hidden in duffels bags placed in containers. The primary conspirator identified associates of his who he would pay \$50,000 to \$100,000 to take a duffel bag out of a specific container.⁶⁹ One of the co-conspirators, a pier superintendent with supervisory authority over 100 longshore workers, had specific access to a computer system that would allow him to identify where the containers were on the yard. However, signaling the level of training that he had received in the use of the system, during the wiretapped investigation he disclosed:

*I gotta figure but how I'm going to get the shit, this information out the computer....figure out where that m***r is at, where that container, is at...I got a computer in my office, I just don't know [how to] work the f****g program. I got the m***g program. (Southern District of New York 2010)*

⁶⁹ Considering that each bag could have up to 50-100 kilograms of product and each kilo was estimated at a conservative value of \$25,000, the total value of the cocaine in each bag would be between \$1.25- 2.5 million.

In a later incident, once that individual had identified which container had a hidden duffel bag, he asked his brother, another longshore worker, to move the container to a different part of the yard where there would be less law enforcement visibility:

*'Yo Greek (brother of the conspirator, or BC), listen, on the computer, after they take it off, it gives the location where it's put.' (BC) responded, 'Yeah, I know that. You place that number and it'll tell you where it be.' (conspirator) stated, 'Not even with that just point, right-click it on the crane. That work in that bay...the container. It gives you the location right, there. I was f***g with the computer. But...f***g get to it down below.'* (BC) responded, *'No. You watch it around the pier. Are you watching? They're not getting to it 'cause they're slow fucking s**t stains.'* (conspirator) then stated, *'Yeah, they're just f***g slow. You're f***d up.'* (BC) then asked, *'You see anything around? You see any cops, Port Authority, do you see any Customs?'* (conspirator) then answered, *'No. I'm gonna take a ride down now. I took a ride before.'* BC then stated, *'We're clear. We're pretty clear on it. Just that when it comes off, punch it in the computer.'* (Southern District of New York 2010)

The knowledge and access of the longshore workers allowed them to identify containers, move containers to specific locations on the port, and inform criminal network operatives as to when and how to ship the drugs. However, what the case demonstrates is a successful trafficking operation, networks need to have access to either a group of individuals with privileged positions in multiple stages of cargo shipments or have a trusted insider who is willing to support illicit movements through the entire life cycle of the movement through the port. Ultimately, vulnerability at a port may be dependent on one individual who has privileged access. But while this may be enough in certain ports, there are other vulnerabilities which augment the effect of having a privileged informant. These include physical vulnerabilities created through poor lighting, allowing individuals on or off a port facility, to the increased vulnerability created through logistical movements where vessels offload of a large number of containers in a short period of time, placing pressure on the customs officers conducting inspections.

The last category of vulnerabilities at the PNYNJ, highlight the overall logistical vulnerability created by the shipment of large numbers of containers at the port, and how that assists networks with inserting illicit cargo into the maritime transportation system.

7.11 Logistical vulnerabilities

7.11A Cargo throughput

The PNYNJ is the largest container port on the East and Gulf Coasts with significant growth over the past fifteen years, from 3,050,006 TEUs in 2000 to 5,772,303 in 2014 (PANYNJ 2014d). This nearly doubling in cargo reflects in part growing global trade but also the strength and attraction of the port as for import and export cargo. While the absolute amount of cargo that moves through port increases vulnerability of the port by creating the impression that authorities cannot screen that amount of cargo (Zaitch 2002), the multi-terminal nature of any port, and in particular the PNYNJ, masks a more interesting observation.

In the case described in the previous section, at least one longshore worker complained that container had been searched in a ship with only “a hundred moves” (Southern District of New York 2010). He was referring to the 100 containers which were to be offloaded in Port Newark/Elizabeth and that, therefore, according to the conspirator, were more likely to be searched by CBP. As vessels are built to house a greater capacity of containers (massification) unloading the vessels and having containers offloaded in a timely manner increases the pressure on customs officials to inspect the cargo. Because companies stock goods based on just in time principles, and as the cargo capacity of a vessel grows, companies do not adjust their schedules to account for greater wait times due to customs inspections when a higher volume of cargo has to pass through in the same, short period of time. Therefore, the vulnerability that the conspirator highlights supports using cargo throughput as a measure of vulnerability.

7.11B Export cargo vulnerability

Cargo volumes at the PNYNJ have increased significantly over the past several years, however the percentage of export cargo has remained relatively stable at around 30% of all cargo volumes (Port Authority 2014D). In 2015 (Port Authority 2015), there were 3,214,338 import TEUs and 1,391,625 exported containers, not counting containers marked as empty which constitute a greater portion than filled export containers. Exports at the PNYNJ place the port in a medium level of vulnerability. Though the level of exports as a percentage is in the medium/low range, the absolute number of export containers, and the high number of empty exported containers (1.7 million) create a large level of export container shipping which can serve to mask illicit shipments.

7.11C Vessel traffic

At the PNYNJ, container vessels constitute 41% of all vessels, which is above the average of 33% for the top 30 U.S. seaports (MARAD 2013). The port scores low for the vulnerability combined with an above average presence of container vessels and the high level of cargo at the port.

7.12 Discussion

When coded using the SVF categories in the comparative port analysis, the PNYNJ codes a 52 out of 63 with the highest level of vulnerability of the top 30 U.S. seaports. The analysis in this chapter provides further detail of vulnerability across all 21 vulnerability categories to show how a confluence of vulnerability has led the PNYNJ to have such a heightened level of vulnerability to criminal networks.

The basis of this dissertation is that any individual vulnerability, whether an individual employee assisting a network or heightened vulnerability through a disproportionate amount of

cargo traffic does not alone create higher vulnerability at a port. Instead, through a confluence of vulnerability, a port will have heightened vulnerability due to a combination of physical, administrative, and logistical vulnerabilities. The PNYNJ presents a worst case scenario with organized crime influence in port operations and labor, a large amount of cargo throughput, a large peripheral sector with little regulation, and numerous incidents of employees in companies operating at the port and providing port labor participating in illicit trafficking. What the preceding analysis shows is that anecdotal evidence when put to the test in combination with primary data sources, public sources, and through qualitative analysis of interviews with stakeholders produces a picture turning the anecdotal into the empirical.

7.12A PNYNJ seaport vulnerability model

The SVF analysis provides a method to identify how the physical, administrative, and logistical structural conditions at the PNYNJ increase vulnerability. This can be visualized through a model that displays the level of vulnerability at the PNYNJ according to the vulnerability categories and their relative weight. See Figure 6. The model indicates that:

1. The highest weighted categories at the PNYNJ display maximum vulnerability.
2. Only five categories display a low level of vulnerability, and only one displays a medium level of vulnerability.
3. Categories which have federal or international standards for security procedures such as interagency cooperation, through AMSCs, and physical/administrative procedures, through MTSA and SAFE Act standards, display a low level of vulnerability.
4. Categories have to be considered from the broad level of vulnerability created, such as container throughput, to those which cause acute levels of vulnerability, such as employee or organization corruption. Specific port vulnerability assessments will have to

qualitatively identify which categories cause the greatest vulnerability to prioritize security resources accordingly.

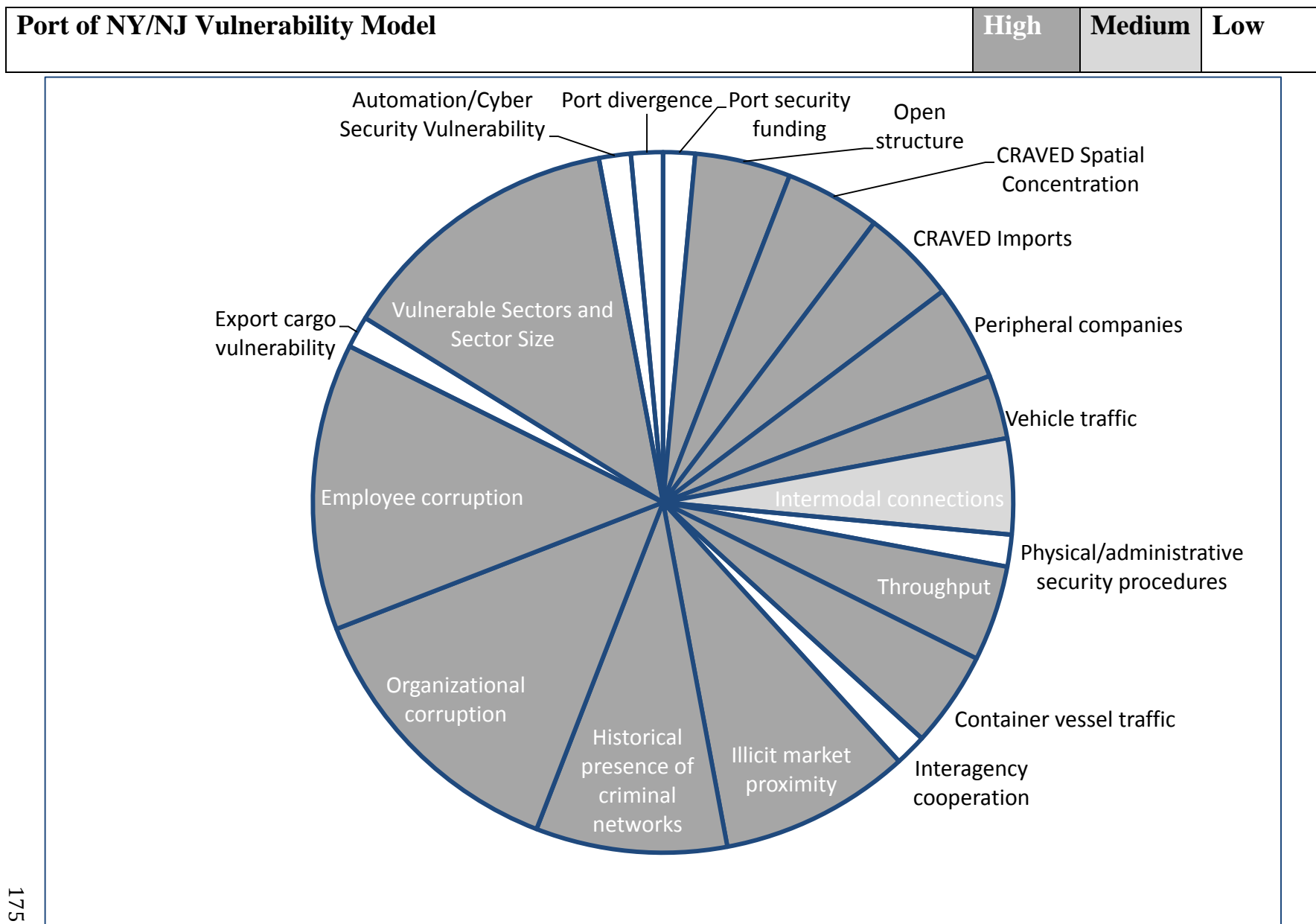


Figure 1: Port of NY/NJ Vulnerability Model

7.13B Confluence of vulnerability

The key determination that can be made from this analysis of the port is that any activity that requires the use of a port will take advantage of multiple sets of vulnerabilities. The case described in *7.10G Employee Corruption* (Southern District of New York 2010) showed clearly how physical, administrative, and logistical vulnerability all contribute to a determination of whether a network chooses to use a port. However, what that case also clearly demonstrates is that privileged access through personal connections can also be a heavy determinant of whether a port is used for illicit transfers. The different types of vulnerability serve to make that initial decision to use the port a less risky venture for a network and contribute to the “port shopping” phenomena described by Shane (2010). Vulnerabilities in that sense are clearly situated within the SCP literature which notes that an individual or group that wants to commit a crime will seek opportunities with the least risk and the greatest reward. Ports at the high end of the vulnerability spectrum come closest to the platonic ideal of opportunity for network - low risk and a way point in acquiring high rewards.

At the PNYNJ, a confluence of physical, administrative, and logistical vulnerabilities create the conditions that make the port a lower risk and higher reward port for exploitation by criminal networks. Physical vulnerabilities such as the large open access yards and the multiple entry and exit points are exploited by networks to insert vehicles or extricate cargo (Southern District of New York 2010). The size of the port itself across two states, multiple municipalities and jurisdictions, and the generally low presence of police at the port at any given time allow networks to exploit opportunities for physical movement (Former Police Chief WCNYH, 10/1/2012). The significant presence of vehicle traffic also contributes as an exacerbating vulnerability that criminal elements can and have used (Lantsman 2013). Administrative vulnerability at the port is more nuanced since ports in the United States are subject to

requirements under the MTSA for interagency cooperation. There is an increasing record of multi-stakeholder operations (Demeri 2012; Waterfront Commission 2012d; Waterfront Commission 2013e; Waterfront Commission 2015). Relationships which once were poor and under-utilized are now stronger and more institutionalized through cooperative mechanisms such as the mandatory establishment of AMSCs.

While official channels for cooperation are undergirded by local and national frameworks, other types of vulnerability, particularly through the influence of traditional organized crime groups in unions covering waterfront labor, continue to persist despite repeated attempts by law enforcement to enforce changes in the labor force (Waterfront Commission 2014b). Furthermore, key economic sectors that perform the actual labor for maritime cargo shipments display evidence of organized crime and criminal network use for illicit purposes. In some cases, employees are victims with an increased potential for blackmail, and in other cases, entities are controlled or co-opted by networks to assist with illicit cargo movements. Finally, the amount of throughput creates the conditions of logistical vulnerability that has been cited by networks themselves whether it is in the PNYNJ (Southern District of New York 2010) or other high volume ports (Zaitch 2002).

This analysis examines past evidence of vulnerability, but ports are constantly changing in response to economic push and pull factors, complicating factors in the distribution of labor and hardware to move cargo, and a host of other factors not least of which is a changing workforce. Those changing conditions will affect the vulnerability of the port and bear a closer examination at how the vulnerability of the port may change in coming years.

7.12C Vulnerability interactivity

This analysis focuses on detailed examinations of how the PNYNJ rates on 21 categories of vulnerability, but one of the key determinations is that vulnerability at a port is not a function of a confluence of individual vulnerabilities but also the interaction between them which heightens or lowers the vulnerability of the port.

At the PNYNJ, the epicenter of vulnerability is the historical presence of criminal networks functioning in various areas of port operations. From this epicenter, incidents of employee corruption and companies with ownership associated with criminal networks are more likely to be present at the port. In fact, it is possible to make a hypothetical argument that a port with a historical presence of criminal networks in port operations will display increased administrative vulnerability because this creates the environment in which criminal activity or low level corruption becomes associated with certain port sectors. Actors in those sectors act then according to certain prescribed customs and practices, most of which are benign but some of which may support illicit activity at the port.

The confluence of vulnerability is further heightened by the presence of a large peripheral company sector, as measured by the size of the freight forwarding sector. In a shallow freight forwarding sector with few companies, the historical presence of criminal networks will likely have less effect than a port with both heightened vulnerability and a large forwarder sector. A large freight forwarder sector creates more opportunities for criminal groups to gain organizational control, either through cooptation of a legitimate company or by creating their own wholly controlled entity. A large forwarder sector also decreases the chance that regulatory agencies will identify the leadership and organizational associations with criminal networks. For example, the regulatory oversight authority of the Waterfront Commission at the PNYNJ is

geographically limited, and at the federal level, the Federal Maritime Commission is limited by a lack of resources for oversight (Office of Inspector General 2012).

Conversely, the lack of vulnerability in certain sectors will likely decrease the likelihood of vulnerability in others. Using the same central vulnerability of historical criminal network presence, the lack of that vulnerability will likely reduce the severity of incidents of corruption both at the organizational level and at the employee level. This can be seen at the Port of Los Angeles and Long Beach where a lack of historical criminal network involvement in port operations likely contributed to the lack of port corruption incidents at the organization and employee level (see Section 6.4C Port of LA/LB Vulnerability Assessment). While the port does score high on the SVF, what this demonstrates is that a comparative analysis must be followed by a detailed case study to determine the exact level and scope of vulnerability.

7.12D Changing environment at the PNYNJ

In recent years, the Waterfront Commission has tried to diversify the longshore workforce at the port by recruiting outside of the main channels of hiring (WCNYH 2014c). There are practical positive implications for a more diverse workforce, not least of which will be that local communities which bear the brunt of the industrial and environmental impact of port operations will share in the financial benefits from longshore work. However, there is also an implicit understanding that by disrupting the traditional source of labor at the port, diversifying the labor force to include those with no background of influence from traditional organized crime groups will assist in breaking the still evident influence that traditional organized crime groups in New York have on certain aspects of the unionized labor force (Executive Director, WCNYH 9/28/2012). Labor force diversification will likely have strong implications for the determination

of vulnerability in the employee and organizational corruption areas and requires close observation in the coming years.

While labor force diversification has strong implications in the area of administrative vulnerability, broad changes in the shipping industry will have implications for vulnerability across all areas of the port. The processes of atomization and massification means that larger vessels will be waiting at port for longer periods of time and disgorging larger quantities of containers (Notteboom and Rodrigue 2012). Both of these processes are already evident in the greater size of vessels and the large peripheral company sector such as freight forwarders at the PNYNJ. It is possible that those vulnerabilities that are affected by atomization will likely increase as greater amounts of cargo flow through the port in short time clusters. Delays are already more evident at U.S. ports (Campo-Flores and McWhirter 2015), and enforcement agencies may not be able to adapt to regulate a larger amount of traffic with the expectation that it will make it to consignees in a reasonable period of time.

7.13 Conclusion

Seaport vulnerability is complex and multifaceted, and the PNYNJ is a key example of how even U.S. ports are subject to a confluence of vulnerability. While some vulnerabilities are useful for the import of illicit cargo, particularly those in the labor sector, others in the freight forwarding sector create opportunities for criminal networks to export illicit cargo. Conducting a case study analysis following a shorter analysis using the 15 categories analyzed in Chapter 6 is crucial to truly understand which vulnerabilities create the greatest opportunities for networks.

At the PNYNJ, administrative vulnerability in specific labor and economic sectors creates those opportunities and which are exacerbated by physical vulnerabilities created by open structures and large numbers of trucks and peripheral companies. As the labor landscape shifts,

this may change in coming years, and the port will require an updated vulnerability profile. This approach mirrors that taken by federal law enforcement agencies. This dissertation provides a parallel method of examining vulnerability but does not discount the vulnerability of the port to infrastructure disruption. In fact, some of the issues that are identified in U.S. Coast Guard and CBP vulnerability assessments overlap with those identified in this assessment. These vulnerability assessments are discussed in the following chapter and show how the SVF provides a complementary method of assessing port vulnerability in the U.S. and abroad.

Chapter 8 – Policy implications

In the United States, port security is primarily the mandate of the U.S. Coast Guard with support from other federal agencies such as U.S. Customs and Border Protection, state and local agencies. With a disparate set of port security agencies, the methods to assess vulnerability at U.S. seaports focus on a wide variety of threats. The primary port security assessment methodology in the United States was developed by the U.S. Coast Guard and focuses on infrastructure destruction and terrorism risks at U.S. ports. To supplement this assessment framework, I demonstrate how an applied integrated theoretical Seaport Vulnerability Framework can be used to a theoretical model of criminological vulnerability at a port. The policy implications of an additional tool to determine vulnerability allow stakeholders to focus attention on the everyday vulnerability of ports to criminal networks.

This chapter examines primary assessment frameworks including the U.S. Coast Guard Maritime Security Risk Analysis Model (MSRAM) framework and CBP's container targeting, the limitations of those frameworks, and the policy implications of the SVF for domestic and international port security assessment.

8.1 Port security assessments

As the previous analysis showed, port security is an interconnected inter-agency process with responsibilities spread across numerous organizations with different types of jurisdiction. Risk analysis and assessment responsibilities are appropriated similarly to various agencies operating in the port security sector. Assessment is conducted based on multiple levels of oversight depending on the country where the port is located.

At the international level, those countries which are party to the International Ship and Port Security Code (ISPS Code), are mandated to conduct port security facility assessments,

based on the concept of risk=threat X vulnerability X consequences (ISPS Code). While ports and facilities are subject to port security assessment through the ISPS Code, most countries in customs agencies use various forms of risk analysis to target suspect containers in transit (WCO 2011; WCO 2012).

8.1A Maritime security policy

At the highest level of maritime security policy in the United States, federal mandates for port security are determined by the U.S. Congress, with input from relevant maritime security agencies (GAO 2008; 2009; 2010; 2012; 2012b; 2015). Agencies then develop port security rules through internal determinations which are subject to input from the public. These internal rules can have a significant impact on what entails risk and vulnerability in the maritime transportation system (GAO 2012c). As a result the focus of assessments and the primary risks focus have a significant impact on national level policy directives and strategic guidance which has in past years focused on addressing threats primarily to counter attacks on infrastructure which can lead to loss of life, such as the U.S. Department of Homeland Security Small Vessel Security Strategy (DHS 2008) and the National Strategy for Global Supply Chain Security (White House 2012).

Strategic guidance in the area of crime at U.S. ports is a vestige of the pre-9/11 environment when law enforcement concerns at ports were broadly addressed in the President's Commission on Crime at U.S. Seaports (Interagency Commission on Crime and Security at U.S. Seaports 2000). That document broadly outlined the type of criminal activity at U.S. ports and provided recommendations, which were quickly overshadowed by the 9/11 attacks. The attacks directed attention away from the daily criminal activity at U.S. ports and towards the terrorist black swan events which have yet to occur at any U.S. port.

8.1B Funding for port security

The implications of current Coast Guard and CBP assessment structures for security funding cannot be overstated. Simply put, assessments determine which port districts receive funding to use towards port security (U.S. DHS 2008b). The U.S. Coast Guard's Office of Port and Facility compliance in concert with the DHS mandated Maritime Security Risk Analysis Model (MSRAM) tool determine the risk and vulnerability of facilities at Coast Guard districts and sectors. This is one of the primary tools used to determine which ports are included in the Port Security Grant Program (PSGP) guidelines. In the latest iteration of the PSGP for fiscal year 2015⁷⁰, the MSRAM tool is used to determine the highest risk ports, and those ports are the only ones eligible to receive PSGP funding (FEMA 2014). Ports that MSRAM determines to not be vulnerable to terrorist attacks receive less funding, even though they may actually have a higher level of vulnerability to criminal networks.

8.2 U.S. Assessment structures

The two port security assessment structures in the U.S. take a micro-perspective with a focus on identifying risk, whether risk of a facility being targeted for attack or a container used for illicit smuggling. While this micro-focus allows both entities that utilize the risk analyses, U.S. Coast Guard and Customs and Border Protection, to make operational decisions it de-focuses attention from the structural underlying conditions at seaports that make them more likely to be used by criminal networks.

⁷⁰ Fiscal years refer to the time period October 1- September 31. FY2015 therefore refers to October 1, 2014 through September 31, 2015.

8.2A U.S. Coast Guard port security assessment

At U.S. seaports, the Coast Guard uses the Maritime Security Risk Analysis Model (MSRAM) to assess the vulnerability of U.S. seaports. MSRAM was developed in 2006 from an earlier iteration of the Port Security Risk Assessment Tool (PSRAT), which primarily focused on developing a risk analysis model to identify ports vulnerable to terrorist attacks (GAO 2011). Like PSRAT, MSRAM is a tool to understand and identify the vulnerability of U.S. seaports to terrorist attacks. The components of MSRAM vulnerability focus on different attack modes on regulated port facilities. As an example of the scale of MSRAM vulnerability analysis across the United States, there are more than 30,000 different facilities (Keating, Howard, and Arimoto 2014), which are defined as targets under the MSRAM, and each targets receives a vulnerability analysis to determine vulnerability to an attack (GAO 2011).

As MSRAM is the primary tool used to determine risk weights for ports, which then are classified on a high to low scale in the Port Security Grant Program, the assessment has significant financial impacts on the level of port security funding ports receive (GAO 2011). Since the MSRAM measures risk as a function of Threat x Vulnerability x Consequence, the most risky facilities are those which have the highest vulnerability and on which an attack will have the highest level of consequence (USCG). Consequences are therefore weighed in favor of physical and infrastructure destruction. This produces a “risk index number” assessment profile of port and their regulated facilities that favor mitigation and financial outlays to reduce the supposed impact of terrorist attacks or attacks against physical infrastructure (Cooper 2009). As a result, this form of assessment does not fully capture the vulnerability of the port to criminal networks as their activities aim to exploit the system, not to cause damage or loss of life.

8.2B CBP cargo risk analysis

Since 9/11, CBP has instituted numerous safeguards to identify suspect cargo entering and exiting the United States. CBP conducts container security through a multi-layered approach, which focuses on targeting containers before they reach the United States through trusted company initiatives such as the Customs Trade Partnership against Terrorism program (O’Connell 2009; U.S. General Accounting Office 2012) or stationing CBP officers at large U.S. export ports overseas through the Container Security Initiative (Department of Homeland Security Office of Inspector General 2010). Therefore, the primary method of vulnerability assessment is through individual risk targeting of container shipments through U.S. ports of entry. To conduct these risk analysis, CBP uses the Automated Targeting System (ATS) that incorporates data from multiple systems to develop a risk summary for inbound and outboard cargo. To assist in targeting, CBP instituted the Importer Security Filing and Additional Carrier Requirements (known as the 10+2 rule), which is a summary of specific information that must be included on a shipping manifest and entered into the ATS (Importer Security Filing and Additional Carrier Requirements). In addition to data requirements, CBP mandates the 24 hour rule, which states that maritime shipment data must be entered more than 24 hours before cargo is scheduled to arrive in the United States (Congressional Budget Office 2016).

However, while the risk targeting system creates sorting conditions to identify high risk shipments, an analysis conducted in 2015 by the Government Accountability Office found that less than one percent of all shipments between 2009 and 2013 were identified as high risk and of those, CBP could not even provide disposition data on the outcomes of the inspection of high risk cargo (GAO 2015). In addition, CBP’s targeting units apply waiver criteria inconsistently and in other cases, incorrectly document the reasons for waivers (GAO 2015).

The ATS is considered a premier risk analysis methodology and is used as the basis for CBP assessments (Grover 2016). The issues highlighted above underscore that even risk methodologies at the individual container level are not fool-proof if the agencies carrying them out do not have procedures in place to disseminate data and track outcomes (Grover 2016).

8.2C Limitations of current structures

Despite the significant policy focus on port security in the United States, the current assessment structures that provide the framework for determining vulnerability have two primary limitations, a lack of interagency coordination and an over focus on physical threats to infrastructure.

8.3A Lack of interagency coordination

Interagency coordination is a key component of port security and has repeatedly been highlighted in policy documents from the Interagency Commission on Crime at U.S. Seaports (2000) to the SAFE Port Act through the National Strategy on Global Supply Chain Security (White House 2012). However, the determination of risk at U.S. ports, through the primary security funding opportunity (PSGP) does not take into consideration CBP's perspective on container cargo security and targeting strategy (FEMA 2015). When ports submit projects for review and approval the process provides space for interagency coordination to identify projects for funding but the agencies involved in that process are noted only as the U.S. Maritime Administration, Transportation Security Agency (which administers the TWIC program), and FEMA. CBP which has a clearer understanding of which ports in the U.S. are destinations for illicit cargo is not part of the overall federal review structure (FEMA 2015). This is further indication that the assessment methodology for the PSGP is not focused on cargo security and specifically identifying how U.S. ports are utilized by networks for illicit trafficking. However,

as the smuggling networks that use the PNYNJ make clear, considerations of vessel size, the number of cargo shipments, and the physical security at the port itself are considerations that a group will take into account when determining how to use the port for illicit movement.

In addition, Department of Homeland Security and Homeland Security Investigations (HSI), which undertakes investigations of illicit trafficking networks is likewise not included in the review process. While CBP can provide perspective on trafficking methodologies, HSI's focus on network structures is a key addition to identify which networks how use ports, informing mitigation procedures for the physical and administrative security.

By excluding these two key agencies in the determination of port security funding in the PSGP process, key insights and considerations are left out of the determination process. Ports with physical threats skew greater in the receipt of security funding, while ports with greater administrative vulnerability may not receive increased funds required to address those vulnerabilities.

8.3B Focus on physical threats

The majority of threat scenarios examined under the MSRAM assessment structure are heavily skewed towards threats to physical infrastructure where the consequences, vulnerabilities and mitigation strategies are better understood and more easily quantifiable (Keating, Howard, and Arimoto 2014). Likewise, in the ISPS Code assessment structure because of the emphasis placed on immediate consequences, loss of human life, and the national and symbolic value of a threat scenario, the more commonplace occurrence of criminal network use of port facilities does not rate as high. However, this is most unfortunate in consideration that the types of scenarios that receive high scores and high vulnerability of facilities to impacts are black swan events that rarely occur and have not occurred in the U.S. in recent memory.

8.4 Policy recommendations

Under the MSRAM assessment structure, the SVF provides a framework for what would likely constitute only a handful of threat scenarios in the overall MSRAM structure, which has an estimated 100,000 attack scenarios (Keating, Howard, and Arimoto 2014). This is purposeful considering the impact of the movement of illicit trade worldwide, most recently was estimated at between 8% and 15% of global gross domestic product (Buchanan and Chavarria 2015) with narcotics trafficking at roughly \$750 billion to \$1 trillion, counterfeit goods at \$650 billion, and environmental crime at \$20-40 billion. If this figure is to include money laundering, then it rises to an astonishing \$3 trillion compared with a legitimate global trade figure of about \$10-12 trillion (Organization of American States 2012).

The SVF is designed to provide an alternative set of vulnerability categories to examine seaports and to augment the current assessment structures that view port security through the lens of counterterrorism. By developing a seaport vulnerability model, port security stakeholders can identify additional areas of vulnerability in their port and target security resources accordingly. This will hopefully refocus the attention to the daily vulnerabilities at ports that make them attractive not as targets for infrastructure destruction, but rather as conduits for illicit trade. While not all of the vulnerability categories in the SVF may be applicable to current assessment structures, performing an SVF vulnerability assessment may provide an alternative picture of port vulnerability. When used in concert with MSRAM assessments, the SVF provides a more holistic view of seaport vulnerability. For example, ports which score high in the SVF may not be those with significant physical assets or targets but which may function as significant conduits of illicit cargo. The Port of Apra in Guam, a port that has received almost no PSGP funding in previous years, has a heightened level of SVF vulnerability. Even small increased investment in port security at Apra may have significant positive impacts. On the other hand, one of the most

vulnerable ports based on MSRAM assessments and the SVF, the PNYNJ, has had high levels of investment through PSGP funding and yet continues to display the multi-faceted confluence of vulnerability described in detail in Chapter 7. This is in part due to the complexity of the port structure, the ingrained use of port and maritime entities by criminal networks, and the exploitation of some of those entities by organized crime, which exposes the somewhat narrow focus of current port security policy.

The SVF can assist not only port security stakeholders in understanding the comparative vulnerability of their own relative to other ports in the U.S., and around the world, but also assist U.S. government agencies in determining which seaports to work with on port security foreign assistance projects. The State Department, Bureau of International Narcotics and Law Enforcement Affairs (INL) has a wide ranging partnership program which works with domestic U.S. criminal justice agencies and port security agencies to assist U.S. foreign partner agencies (U.S. Department of State/Bureau of International Narcotics and Law Enforcement Affairs 2015). The State Department currently partners with the PortMiami (U.S. Department of State 2013), Port of San Diego (U.S. Department of State 2015) and the Port of Long Beach (U.S. Department of State 2015a). Port security agencies at these ports, including their law enforcement organizations, such as the Port of San Diego Harbor Police Department, PortMiami security division and Miami-Dade County Seaport Operations Bureau, and the City of Long Beach Police Department port security division have provided trainings for U.S. partners from countries as varied as Jamaica, Pakistan, the Bahamas, and Trinidad and Tobago.

While the foreign assistance requirements of the State Department are varied, by developing partnerships with domestic U.S. ports, the Department can project best practices at U.S. seaports to countries overseas. The SVF can assist the State Department to determine which seaports to work with, and the disaggregation of the SVF provides a method to identify

which port security agencies may have greater experience dealing with issues of concern. For example, if the U.S. receives a request to support an overseas port that has a cargo theft problem, the SVF can be used to identify which seaports in the U.S. have the same problem to engage with law enforcement agencies at the port to identify how they address the problem. Likewise, the Department can proactively use the SVF to conduct vetting of seaports before deciding which ports to develop partnerships with.

8.4A International comparative assessment

Though the SVF provides an additional method to assess vulnerability at U.S. ports it is also relevant for international comparative port security analysis. It is designed to be able to provide a baseline measurement of vulnerability using public sources, either through media accounts or through data from aggregator institutions at the national or international level, such as the UN Comtrade database which compiles international trade data. The SVF can be used to build a comparative measure of port vulnerability across ports from multiple countries on a regional or international basis. This has already been conducted for ports of convenience for IUU (Petrossian, Marteache, and Viollaz 2014), but by using the SVF, researchers can create baseline vulnerability assessments to inform detailed studies of crimes which occur at or use port facilities.

8.6 Conclusion

The current port security assessment structures, the USCG MSRAM and CBP's ATS, do not pay sufficient attention to the use of seaports by criminal networks. The Seaport Vulnerability Framework developed in this dissertation and applied to the top 30 container ports in the United States and in a case study at the PNYNJ provides an additional assessment structure that when used in concert with other assessment tools, contributes to a holistic view of

seaport vulnerability. In addition, the SVF can be used to assist the Department of State Bureau of International Narcotics and Law Enforcement in identifying which U.S. seaports to work with to provide international foreign assistance to. overseas port security partner agencies.

Chapter 9 Limitations and future directions for research

There are several primary limitations in this dissertation which affect the conclusions gained from the comparative port analysis and case study analysis of the Port of New York and New Jersey (PNYNJ). Detailed discussion of data quality and limitations for each vulnerability category are in Chapter 3, while this final section focuses on the broader limitations of the study.

9.1 Sample size

The sample size of the comparative port analysis, while attempting to capture the primary set of container shipping ports in the United States, does not factor in other characteristics which may be important for understanding seaport vulnerability. For example, a different sample set could focus on the largest cruise ship ports in the United States and would have to factor into the analysis other vulnerability measures such as the quantity of passengers passing through the port, the average level of passengers per vessel, and others which would have to be developed from a pilot study at a large cruise ship port.

9.2 Data reliability

The number of data sources used in the Seaport Vulnerability Framework is a significant limitation. Where possible, I used the same data source to measure baseline levels of vulnerabilities to provide a level of reliability. However, a number of vulnerabilities use disparate data for measurement. A key example of this is the vehicle traffic vulnerability, using daily truck traffic as a proxy. There is no single repository for this type of data and widely disparate data sources were used to identify that statistic. In some cases, it was impossible to identify that information required, and ports do not publish this type of data as it can be used in economic determinations of port productivity or efficiency by competitors. Also, in some ports, truck traffic may not be an adequate full proxy for vehicle traffic to the port, particularly those

which are embarkation ports for cruise ships which often have a large amount of private vehicle traffic not captured in the truck traffic daily measure, such as Port of Miami.

9.3 Port crime data

As with certain ports where it was not possible to identify daily truck traffic, the dark figure of crime at ports, a general concern in criminological research, must be considered a general limitation of the study. The only figures which I was able to obtain to provide a measure of illicit activity across ports were CBP narcotics seizures at U.S. maritime ports of entry; however this is highly sensitive data not released for publication and cannot be referenced in this study. Even with this data, seizures do not provide a true picture of the criminal network use of the maritime transportation system (Werb et al. 2011; Willis et al. 2011; Wern et al. 2013), since differing levels of interagency resources at seaports and informant networks have a great impact on the level seizures. Ports without that may be significant conduit points of illicit cargo yet have no official seizures.

In other cases, research identified other tantalizing leads which could not be fully examined due to a lack of data. For example, during research at the PNYNJ, an interesting relationship between daily container shipping and criminal network choice structuring was highlighted by a criminal conspirator in wiretap transcripts. Clusters of container offloads on a yearly, monthly, daily, terminal and vessel basis all become valid measures of determining vulnerability from the broad (annual) to the granular (vessel) level. Unfortunately shipping terminals consider TEU data proprietary information since it can be used in negotiations with port authorities for subsidies and other economic incentives, and data at the vessel level, such as average number of offloads per vessel, is not available.

9.4 Data quality

Both the comparative vulnerability analysis and the PNYNJ case study uses data that is not recent. This was most often the case with the vehicle traffic vulnerability. But in some cases, this was also present in the measurement for illicit import/export market where part of the factor for that vulnerability included suspect vehicle data from 2003 to 2008. Vulnerability measurements in this study relied on public data sources to identify evidence of vulnerability, triangulated across multiple sources where possible. However, in some ports data was dated, and this necessitates updating of the SVF on a periodic basis. This is consistent with other vulnerability assessment frameworks such as MSRAM, which require re-assessment every few years. In addition, even in ports with current public sources, as described in detail in Chapter 3, the limitations of using public sources are manifold and have to be weighed carefully in the determination of vulnerability in a port.

9.5 Considerations for further research

Despite the limitations highlighted above following the comparative analysis, a number of propositions of heightened vulnerability bear further discussion for refinement in future comparative analyses.

Container vessel calls: Not only did the top ten most vulnerable ports not receive a high score on this vulnerability, they displayed an average score that was lower than the remaining 20 ports, with an average of .9 for the top ten ports and 1.9 for the remaining 20. The proposition states that ports which do not have a have a high level of container ship traffic will be more vulnerable due to less experience in managing container vessel security. Instead, it appears that ports with high levels of container ship traffic are more vulnerable when measured across the other vulnerability categories. It may be that the ports in the top ten as some of the highest container

shipping ports in the country are more vulnerable because they have so much container shipping, the experience of their law enforcement agencies be damned, something implied by drug traffickers interviewed by Zaitch (2002). However this does not explain why other high container shipping ports such as Houston or Savannah do not score in the top ten. One of the factors, which may explain this is that ports which have high levels of container shipping, as opposed to bulk or other vessels, are serving larger consumer regions, which has implications on the size of the illicit market in the region as well. Further research should examine in further detail the relationship between the types of vessels that call at ports and their vulnerability to criminal networks.

Interagency cooperation: While this is a key vulnerability to measure in port regions, U.S. ports do not register heightened vulnerability in this area due to the mandated federal law for AMSCs. In other ports around the world, this is likely of greater concern, but for the measurement schema under the SVF, it registered no score for any port in the sample. From experience working in federal agencies, interagency cooperation is a strong area of concern, but to develop comparative measures across specific units of analysis such as seaports, is beyond the scope of this study. Case study analysis at a specific seaport should be conducted to identify more granular levels of vulnerability in this category.

Vehicle traffic: While the level of vehicle traffic is an important consideration of vulnerability, most ports in the United States registered for a high level of vulnerability. Further research could identify where heightened levels of vehicle traffic are a vulnerability because of interaction with other vulnerabilities, such as decreased levels of physical or administrative security procedures.

Appendix A: Port security initiatives

Customs Trade Partnership against Terrorism (C-TPAT)

One of the primary container security programs, C-TPAT creates expedited relationships between private companies and CBP. Containers from companies and agents in the C-TPAT program are generally exempt from in-depth screening and are expedited through the supply chain. This program is designed to create institutional cultures that incorporate security concerns directly into their business operations⁷¹. However, critics have noted that its success has been measured by the number of companies in the program and not by its security effectiveness (O'Connell 2009; U.S. General Accounting Office 2012).

Container Security Initiative (CSI)

Another key program, the CSI operates in up to 53 seaports worldwide (U.S. CBP 2009), and was implemented to inspect containers for suspicious material before they reach U.S. ports (Department of Homeland Security Office of Inspector General 2010). Despite its broad geographic reach, standard operating procedures differ widely across participating seaports and contribute to decreased security effectiveness (Department of Homeland Security Office of Inspector General 2010).

Safe Freight Initiative (SFI)

SFI is a CBP program which was designed following recommendations from the 9-11 Commission. The SFI attempts to screen 100% of outbound cargo from a few select international ports for radiological and nuclear material (U.S. General Accounting Office 2012). As of 2009, these included two phases of deployment. One set of ports deployed scanning equipment to capture data on all containers bound to the United States⁷². Three other ports have an initial deployment to learn how to integrate the new technology with port operations and commerce flow⁷³: Port Salalah in Oman, Port of Singapore, and Port Busan in Korea (Gamman Terminal).

However, following a CBP review which noted that at Singapore and Busan, South Korea a maximum of only 5% U.S.-bound containers were screened, the 100% screening requirement has been pushed back to July 2014 (U.S. General Accounting Office 2012). SAFE Framework⁷⁴

Concurrent with the U.S. led container security initiatives discussed above, worldwide container and port security initiatives have also been developed post 9-11. One of the largest and most comprehensive efforts was led by the WCO beginning in 2007 and is known as the SAFE Framework (WCO 2012). It consists of four primary directives (WCO 2011; 2012): (1) harmonizing advance electronic cargo information requirements; (2) employing risk management approaches to security; (3) at the request of one nation the sending nation's Customs administration will perform an outbound inspection of high-risk containers and cargo; (4) and the SAFE Framework defines benefits that Customs agencies will provide to businesses that meet minimal supply chain security standards and best practices. However physical security at ports is not fully addressed under this framework.

International Ship and Port Facilities Security Code (ISPS Code)

⁷¹However, the program is open to mainly U.S. and Mexican companies and does not fully incorporate overseas entities that may be the origin of greater amounts of suspicious goods (Thibault et al. 2006).

⁷² Port Qasim, Pakistan; Puerto Cortes, Honduras; and Southampton, United Kingdom

⁷³ Port Salalah, Oman; Port of Singapore; and Port Busan (Gamman Terminal), South Korea

⁷⁴ See Appendix A for participating countries

To address security at seaports, in 2004 the member states of the Safety of Law at Sea convention (SOLAS) adopted the ISPS code (Goulielmos&Anastasakos 2005). The code set mandatory security requirements (Part A) for port authorities, governments and shipping companies⁷⁵, in addition to providing non-mandatory best practices recommendations (Part B). As a result of this double faceted implementation approach there are varied levels of compliance at seaports worldwide (Goulielmos and Anastasakos 2005). In some developed economies such as Sweden, implementation of Part A of the code has been sporadic and difficult due to weak links in the transportation system and the complexity of even those seaports (Wengelin 2006). In the developing world, efforts have been made by countries in Africa, the Black Sea area and Latin America to invest resources to achieve ISPS compliant seaports, and benefits have been realized from these investments, including reduced theft and pilferage and increased customs revenues (Kruk and Donner 2008).

In addition, the U.S. Coast Guard (USCG) operates the International Port Security Program, where USCG officers visit foreign ports to determine whether their security practices meet ISPS standards and provide advice and assistance on security best practices (GAO 2010).

⁷⁵ These recommendations including creating port security plans; training staff to carry out drills and exercises; identifying security related technology; creating effective measures to monitor and control access to facilities; and implementing security communication systems.

Appendix B: Small vessel (*panga*) interceptions

Table 11: Panga interceptions						
Date	# of Vessels	Type of Cargo	Quantity (pounds, bales, individuals)	Location	Nearest port	Reference
1/16/2014	1	Migrants	18	Manalapan	Fort Lauderdale	http://www.cbp.gov/newsroom/local-media-release/2014-01-16-000000/smuggler-lands-migrants-then-flees-bahamas
3/12/2014	1	Migrants	7		fort Lauderdale	http://www.cbp.gov/newsroom/local-media-release/2014-03-12-000000/us-border-patrol-arrests-human-smugglers-florida-1
3/26/2014	1	Migrants	10	Dania Beach Station	Fort Lauderdale	http://www.cbp.gov/newsroom/local-media-release/2014-03-26-000000/smuggling-event-under-investigation-fort-lauderdale
12/26/2014	1	drugs	n/a	Hutchinson Island	Fort Lauderdale	http://www.cbp.gov/newsroom/local-media-release/2014-12-15-000000/border-patrol-agents-encounter-maritime-smuggling
1/15/2014	1	Migrants	11	Palm Beach	Fort Lauderdale, Miami	http://www.cbp.gov/newsroom/local-media-release/2014-01-15-000000/border-patrol-arrests-bahamian-smuggler-11-migrants
11/21/2010	1	Marijuana	4500	Gulfport, MS	Gulfport, New Orleans	http://www.cbp.gov/newsroom/local-media-release/2010-11-24-050000/gulf-coast-taskforce-seizes-sailboat-4500-pounds

1/4/2012	1	Marijuana	2,500 pounds	Deer Creek road beach	Hueneme, Los Angeles, Long Beach	http://www.cbp.gov/newsroom/local-media-release/2012-01-04-050000/cbp-us-border-patrol-agents-arrest-ten-following
3/9/2010	1	Marijuana	2448 pounds	Santa Rosa Island	Los Angeles, Long Beach, Hueneme	http://www.cbp.gov/newsroom/local-media-release/2010-03-09-050000/cbp-marine-agents-seize-more-1-ton-marijuana-santa
1/31/2012	1	Marijuana	2,575 pounds	Point Dume State Beach	Los Angeles, Long Beach, Hueneme	http://www.cbp.gov/newsroom/local-media-release/2012-01-31-050000/three-mexican-nationals-arrested-following
7/27/2012	1	Marijuana	6600	Las Flores Beach	Los Angeles, Long Beach, Hueneme	http://www.cbp.gov/newsroom/local-media-release/2012-07-27-040000/us-border-patrol-agents-interdict-drug-smuggling-boat
7/12/2012	1	Migrants	19	Boot key	Miami	http://www.cbp.gov/newsroom/local-media-release/2012-07-12-040000/border-patrol-agents-apprehend-19-cuban-migrants
2/26/2015	1	Migrants	10	west of Bahamas	Miami	http://www.cbp.gov/newsroom/local-media-release/2015-02-26-000000/cbp-air-and-marine-apprehend-migrants-near-miami
2/23/2010	1	Migrants	5	west Palm Beach, FL	Palm Beach, Fort Lauderdale, Miami	http://www.cbp.gov/newsroom/local-media-release/2010-02-23-050000/miami-sector-border-patrol-agents-intercept-migrants
2/16/2012	1	Migrants	12	west Palm Beach, FL	Palm Beach, Fort Lauderdale, Miami	http://www.cbp.gov/newsroom/local-media-release/2012-08-30-040000/cuban-smuggler-us-citizen-boat-operator-sentenced
3/30/2012	1	Migrants	2	west Palm Beach, FL	Palm Beach, Fort Lauderdale, Miami	http://www.cbp.gov/newsroom/local-media-release/2012-09-11-040000/us-border-patrol-nabs-bahamian-smuggler-sentenced-36

3/30/2012	1	Migrants	N/a	west Palm Beach, FL	Palm Beach, Fort Lauderdale, Miami	http://www.cbp.gov/newsroom/local-media-release/2010-03-30-040000/cbp-jacksonville-air-branch-foils-maritime-human
4/11/2012	1	Marijuana	423 pounds	west Palm Beach, FL	Palm Beach, Fort Lauderdale, Miami	http://www.cbp.gov/newsroom/local-media-release/2012-08-28-040000/bahamian-sentenced-18-months-incarceration
5/6/2012	1	Migrants	14	west Palm Beach, FL	Palm Beach, Fort Lauderdale, Miami	http://www.cbp.gov/newsroom/local-media-release/2012-11-14-050000/bahamian-national-sentenced-7-years-alien-smuggling
6/30/2012	1	Migrants	2	west Palm Beach, FL	Palm Beach, Fort Lauderdale, Miami	http://www.cbp.gov/newsroom/local-media-release/2012-11-07-050000/bahamian-sentenced-three-years-after-smuggling-two
6/12/2013	1	Migrants	11	west Palm Beach, FL	Palm Beach, Fort Lauderdale, Miami	http://www.cbp.gov/newsroom/local-media-release/2013-06-12-040000/haitian-aggravated-felon-sentenced-6-months-prison
1/14/2014	1	Migrants	11	west Palm Beach, FL	Palm Beach, Fort Lauderdale, Miami	http://www.cbp.gov/newsroom/local-media-release/2014-01-15-000000/border-patrol-arrests-bahamian-smuggler-11-migrants
1/16/2014	1	Migrants	17	west Palm Beach, FL	Palm Beach, Fort Lauderdale, Miami	http://www.cbp.gov/newsroom/local-media-release/2014-01-16-000000/smuggler-lands-migrants-then-flees-bahamas
3/12/2014	1	Migrants	7	west Palm Beach, FL	Palm Beach, Fort Lauderdale, Miami	http://www.cbp.gov/newsroom/local-media-release/2014-03-12-000000/us-border-patrol-arrests-human-smugglers-florida-1
12/15/2014	1	Migrants	N/a	West Palm Beach, FL	Palm Beach, Fort Lauderdale, Miami	http://www.cbp.gov/newsroom/local-media-release/2014-12-15-000000/border-patrol-agents-encounter-maritime-smuggling

10/11/2012	1	cocaine	1452	south coast PR	ponce	http://www.cbp.gov/newsroom/local-media-release/2012-10-11-040000/cbp-and-coast-guard-intercept-go-fast-vessel-1452
12/3/2013	1	Marijuana	723	south coast PR	ponce	http://www.cbp.gov/newsroom/local-media-release/2013-12-03-000000/cbp-seizes-10-bales-cocaine-reaching-southern-puerto
3/5/2014	1	Marijuana	2432	south coast PR	Ponce	http://www.cbp.gov/newsroom/local-media-release/2014-03-05-000000/cbp-intercepts-go-fast-vessel-38-bales-cocaine
5/26/2009	1	Migrants	24	Encinitas	San Diego	http://www.cbp.gov/newsroom/local-media-release/2009-05-26-040000/24-arrested-early-morning-maritime-smuggling-attempt
6/9/2009	1	Migrants	22	Del Mar	San Diego	http://www.cbp.gov/newsroom/local-media-release/2009-06-09-040000/border-patrol-nabs-22-illegal-immigrants-california
7/18/2009	1	Migrants	11	Torrey Pines State Park	San Diego	http://www.cbp.gov/newsroom/local-media-release/2009-06-18-040000/border-patrol-thwarts-3-smuggling-schemes-arrest-44
7/19/2009	1	Migrants	20	south Ponto Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2009-07-17-040000/20-mexican-nationals-arriving-smuggling-boat-nabbed
8/21/2009	1	Migrants	23	Carlsbad State Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2009-08-21-040000/border-patrol-agents-intercept-23-illegal-aliens
10/2/2009	1	Migrants	21	Carlsbad State Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2009-10-02-040000/border-patrol-arrests-21-carlsbad-state-beach

10/13/2009	1	Migrants	6	La Jolla	San Diego	http://www.cbp.gov/newsroom/local-media-release/2009-10-13-040000/2-suspected-smugglers-nabbed-sea-la-jolla-coast
11/10/2009	1	Migrants	24	Cardiff By the Sea	San Diego	http://www.cbp.gov/newsroom/local-media-release/2009-11-10-050000/border-patrol-air-and-marine-coordinated-effort
12/2/2009	1	Migrants	22	Leucadia	San Diego	http://www.cbp.gov/newsroom/local-media-release/2009-12-02-050000/cbp-stops-boat-calif-coast-22-illegal-immigrants
1/19/2010	1	Migrants	15	Torrey Pines State Park	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-01-19-050000/cbp-halts-deadly-illegal-immigration-attempt-torrey
3/3/2010	1	Marijuana	997 pounds	Mission Bay	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-03-03-050000/cbp-stops-2-smuggling-sea-attempts
3/3/2010	1	Migrants	17	Leucadia	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-03-03-050000/cbp-stops-2-smuggling-sea-attempts
4/11/2010	1	Migrants	8	Ocean Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-04-15-040000/san-diego-cbp-agents-thwart-fifth-maritime-smuggling
4/12/2010	1	Migrants	5	Mission Bay	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-04-15-040000/san-diego-cbp-agents-thwart-fifth-maritime-smuggling
4/13/2010	1	Migrants	11	San Onofre Nuclear Generating Station	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-04-15-040000/san-diego-cbp-agents-thwart-fifth-maritime-smuggling

4/14/2010	1	Migrants	23	Marine Beach, Camp Pendleton	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-04-15-040000/san-diego-cbp-agents-thwart-fifth-maritime-smuggling
4/15/2010	1	Migrants	8	Swami Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-04-15-040000/san-diego-cbp-agents-thwart-fifth-maritime-smuggling
4/19/2010	1	Migrants	20	Ponto Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-04-19-040000/joint-maritime-enforcement-efforts-stops-smuggling
6/2/2010	1	Migrants	12	Dog Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-06-02-040000/boat-14-million-marijuana-nabbed-us-border-patrol
7/5/2010	1	Marijuana	1398 pounds	San Diego	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-07-06-040000/three-failed-smuggling-attempts-sea-yield-34-illegal
7/6/2010	1	Migrants	15	Oceanside Harbor	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-07-06-040000/three-failed-smuggling-attempts-sea-yield-34-illegal
7/6/2010	1	Migrants	13	Pendleton Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-07-06-040000/three-failed-smuggling-attempts-sea-yield-34-illegal
7/19/2010	1	Migrants	22	Oceanside Harbor	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-07-19-040000/smuggling-attempt-thwarted-calif-coast
7/31/2010	1	Migrants	23	La Jolla	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-08-04-040000/cbp-marine-interdiction-agents-stop-2-illegal

9/1/2010	1	Migrants	20	Carlsbad State Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-09-01-040000/cbp-arrests-20-maritime-smuggling-attempt-carlsbad
9/1/2010	1	Migrants	4	Point Loma	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-08-04-040000/cbp-marine-interdiction-agents-stop-2-illegal
10/5/2010	1	Migrants	21	San Luis Obispo Place	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-10-05-040000/cbp-us-border-patrol-agents-spoil-maritime-smuggling
10/15/2010	1	Migrants	21	Carlsbad State Beach	San Diego	http://www.cbp.gov/newsroom/media-releases/all?field_date_release_value[min][date]=&field_date_release_value[max][date]=&field_newsroom_type_tid_1=All&body_value=panga&page=1
10/18/2010	1	Migrants	7	n/a	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-10-18-040000/us-customs-and-border-protection-cbp-agents-disrupt
10/18/2010	2	Migrants	4	Imperial Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-10-18-040000/us-customs-and-border-protection-cbp-agents-disrupt
10/18/2010	1	Migrants	13	Torrey Pines State Park	San Diego	http://www.cbp.gov/newsroom/local-media-release/2010-10-18-040000/us-customs-and-border-protection-cbp-agents-disrupt
2/8/2011	1	Migrants	17	Camp Pendleton	San diego	http://www.cbp.gov/newsroom/local-media-release/2011-02-08-050000/border-patrol-disrupts-maritime-smuggling-attempts
2/14/2011	1	Migrants	18	San Onofre State Park	San Diego	http://www.cbp.gov/newsroom/local-media-release/2011-02-14-050000/cbp-us-border-patrol-stops-north-county-maritime

2/23/2011	1	Migrants	11	Pendleton Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2011-02-23-050000/cbp-us-border-patrol-stops-maritime-smuggling-attempt
3/1/2011	1	Marijuana	399	Del Mar beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2011-03-01-050000/border-patrol-nets-boatload-drugs-north-county
4/1/2011	1	Migrants	6	Black's Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2011-04-07-040000/san-diego-maritime-unified-command-foils-several
4/4/2011	1	Migrants	15	Solana Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2011-04-07-040000/san-diego-maritime-unified-command-foils-several
4/4/2011	1	Marijuana	740	Dana Point	San Diego	http://www.cbp.gov/newsroom/local-media-release/2011-04-07-040000/san-diego-maritime-unified-command-foils-several
4/4/2011	1	Migrants	4	Shelter Island	San Diego	http://www.cbp.gov/newsroom/local-media-release/2011-04-07-040000/san-diego-maritime-unified-command-foils-several
4/5/2011	1	Migrants	16	La Jolla, 20 miles west	San Diego	http://www.cbp.gov/newsroom/local-media-release/2011-04-07-040000/san-diego-maritime-unified-command-foils-several
6/13/2011	1	Marijuana	1543.04	Near Camp Pendleton	San Diego	http://www.cbp.gov/newsroom/local-media-release/2011-06-13-040000/agents-stop-925k-marijuana-calif-maritime-smuggling
8/12/2011	1	Marijuana	741	Near Camp Pendleton	San Diego	http://www.cbp.gov/newsroom/local-media-release/2011-08-12-040000/maritime-law-enforcement-partners-foil-drug-smuggling

11/15/2011	1	Marijuana	1460	Carlsbad State Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2011-11-15-050000/us-border-patrol-agents-thwart-maritime-drug
6/13/2012	1	Marijuana	4087 pounds	Deer Creek Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2012-06-13-040000/us-border-patrol-agents-seize-24m-narcotics-land-and
7/12/2012	1	Migrants	6	Point Loma	San Diego	http://www.cbp.gov/newsroom/local-media-release/2012-07-17-040000/multiple-dhs-agencies-san-diego-collaborate-intercept
7/15/2012	1	Migrants	21	Torrey Pines State Park	San Diego	http://www.cbp.gov/newsroom/local-media-release/2012-07-17-040000/multiple-dhs-agencies-san-diego-collaborate-intercept
7/16/2012		migrants	1	Imperial Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2012-07-16-040000/us-border-patrol-agents-intercept-maritime-smuggling
8/14/2012	1	Migrants	15	Ocean Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2012-08-14-040000/us-border-patrol-agents-arrest-15-failed-maritime
9/4/2012	1	Migrants	12	Oceanside Harbor	San Diego	http://www.cbp.gov/newsroom/local-media-release/2012-09-04-040000/us-border-patrol-agents-arrest-12-mexican-nationals
2/5/2013	1	Marijuana	1196.8 pounds	Crystal Cove State Park	San Diego	http://www.cbp.gov/newsroom/local-media-release/2013-02-05-050000/us-border-patrol-prevents-two-drug-smuggling-attempts
2/12/2013	1	Marijuana	2938 pounds	Ponto State Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2013-02-12-050000/us-border-patrol-agents-seize-more-4-million-worth

6/13/2013	1	Migrants	20	Newport Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2013-06-13-040000/us-border-patrol-agents-thwart-smuggling-attempts
8/7/2013	1	Marijuana	38 bales	La Jolla	San Diego	http://www.cbp.gov/newsroom/local-media-release/2013-08-07-040000/cbp-stops-panga-more-4-million-marijuana-california
11/14/2013	1	Marijuana	878	Del Mar	San Diego	http://www.cbp.gov/newsroom/local-media-release/2013-11-14-000000/cbp-san-diego-stop-maritime-drug-smuggling-event
11/22/2013	4	Marijuana	297	Imperial Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2013-11-22-000000/cbp-stops-several-kayaks-california-coast-loaded
12/20/2013	1	Marijuana	1500 pounds	95 miles SW of SD	San Diego	http://www.cbp.gov/newsroom/local-media-release/2013-12-20-000000/cbp-and-coast-guard-stop-1500-pound-marijuana
2/24/2014	1	Methamphetamine-	540.5 pounds	Oceanside Harbor	San Diego	http://www.cbp.gov/newsroom/local-media-release/2014-02-24-000000/cbp-marine-interdiction-agents-stop-boat-oceanside
5/2/2014	1	Migrants	2	Imperial Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2014-05-02-000000/illegal-aliens-rescued-open-water-after-abandoned-jet
6/13/2014	2	Marijuana	130 bales	International waters- 160 miles SW of SD	San Diego	http://www.cbp.gov/newsroom/local-media-release/2014-06-13-000000/cbp-and-uscg-net-more-ton-marijuana-southern
8/27/2014	1	Migrants	20	Del Mar	San Diego	http://www.cbp.gov/newsroom/local-media-release/2014-08-27-000000/cbp-office-air-and-marine-nets-20-illegal-aliens

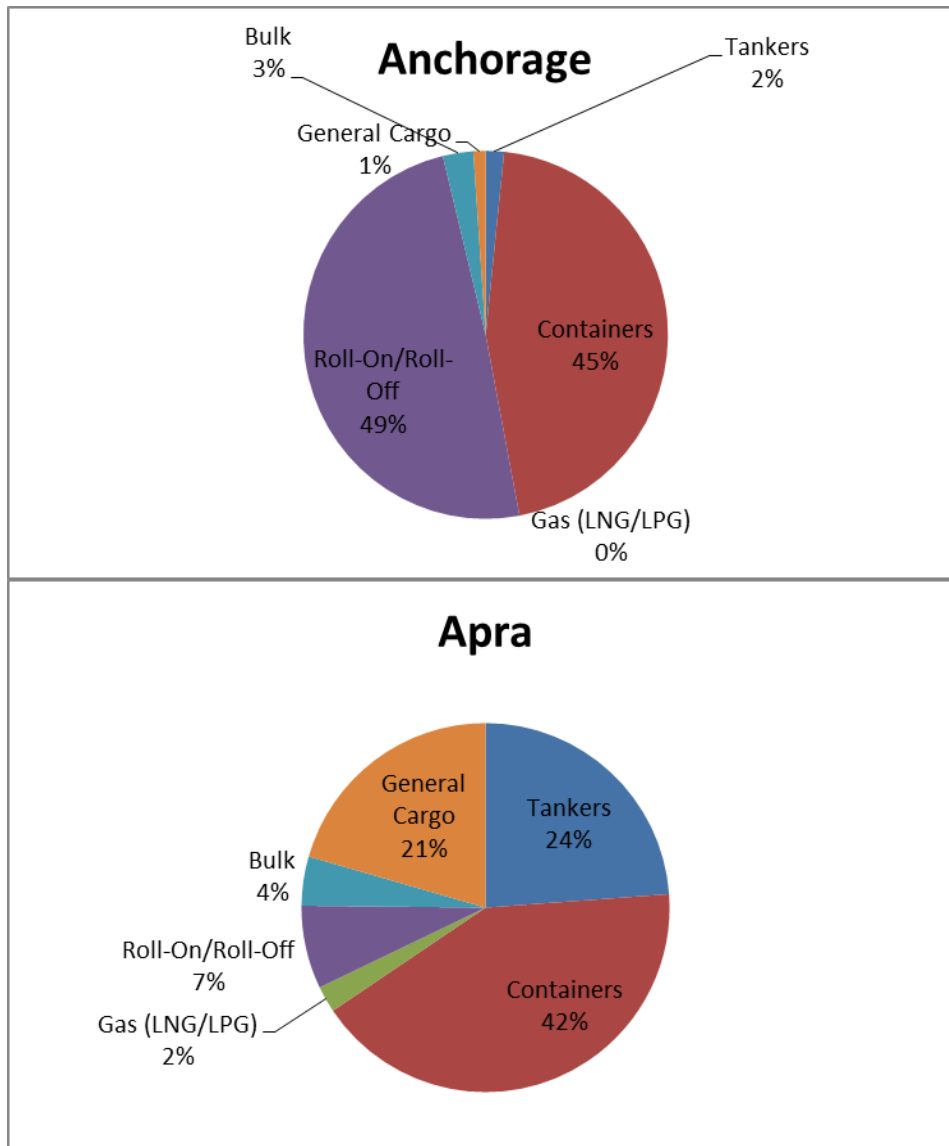
9/24/2014	1	Migrants	15	Mission Beach, CA	San Diego	http://www.cbp.gov/newsroom/local-media-release/2014-09-26-000000/cbp-san-diego-nets-15-illegal-aliens-southern
2/9/2015	2	Migrants	4	Coronado Silver Strand State Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2015-02-09-000000/four-illegal-aliens-jet-skis-intercepted
6/2/2010	1	Marijuana	N/a	Windandsea beach	San diego	http://www.cbp.gov/newsroom/local-media-release/2010-06-02-040000/boat-14-million-marijuana-nabbed-us-border-patrol
2/8/2011	1	Migrants	14	Tijuana River	San Diego	http://www.cbp.gov/newsroom/local-media-release/2011-02-08-050000/border-patrol-disrupts-maritime-smuggling-attempts
5/2/2011	1	Migrants	n/a	Ponto Beach	San Diego	http://www.cbp.gov/newsroom/local-media-release/2011-05-02-040000/federal-agents-thwart-maritime-alien-smuggling
8/24/2012	1	Marijuana	2357 pounds	Catalina Island	San Diego, Long Beach, Los Angeles	http://www.cbp.gov/newsroom/local-media-release/2012-08-24-040000/seven-charged-after-cbp-stops-attempt-smuggle-more
5/20/2014	1	Migrants	17	Santa Catalina Island	San Diego, Long Beach, Los Angeles	http://www.cbp.gov/newsroom/local-media-release/2014-05-20-000000/agents-foil-human-smuggling-event-near-catalina
1/19/2015	1	Marijuana	n/a	Santa Catalina Island	San Diego, Long Beach, Los Angeles	http://www.cbp.gov/newsroom/local-media-release/2015-01-19-000000/cbp-helicopter-deploys-warning-shots-stop-panga-boat
2/1/2011	1	Migrants	8	Calafia State Beach	San Diego, Los Angeles, Long Beach	http://www.cbp.gov/newsroom/local-media-release/2011-02-01-050000/us-border-patrol-foils-maritime-smuggling-attempt

8/10/2009	1	Migrants	22	Torrey Pines State Park	San Digo	http://www.cbp.gov/newsroom/local-media-release/2009-08-10-040000/22-mexican-nationals-boat-nabbed-san-diego-coast
5/7/2012	1	cocaine	339.5	dorado pr	San Juan	http://www.cbp.gov/newsroom/local-media-release/2012-05-07-040000/cbig-ccsf-law-enforcement-authorities-seize-154-kilos
4/2/2014	1	Marijuana	3912	n/a	San Juan	http://www.cbp.gov/newsroom/local-media-release/2014-04-02-000000/cbp-hsi-seize-3912-pounds-cocaine-north-coast-puerto
4/14/2014	1	Marijuana	3373	n/a	San Juan	http://www.cbp.gov/newsroom/local-media-release/2014-04-04-000000/cbp-hsi-seize-428-million-cocaine-shipment-southern
8/22/2009	1	Marijuana	132	Bellingham WA	seattle, Tacoma	http://www.cbp.gov/newsroom/local-media-release/2009-08-22-040000/cbp-marine-unit-halts-smuggling-attempt-canadians

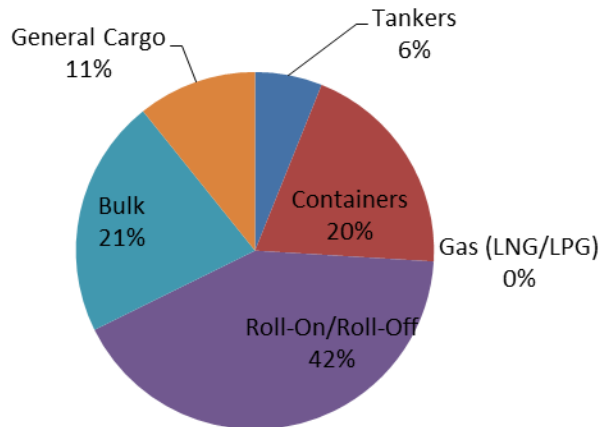
Appendix C- Vessel calls

Developed from U.S. Maritime Administration statistics on vessel calls at U.S. seaports (MARAD 2013)

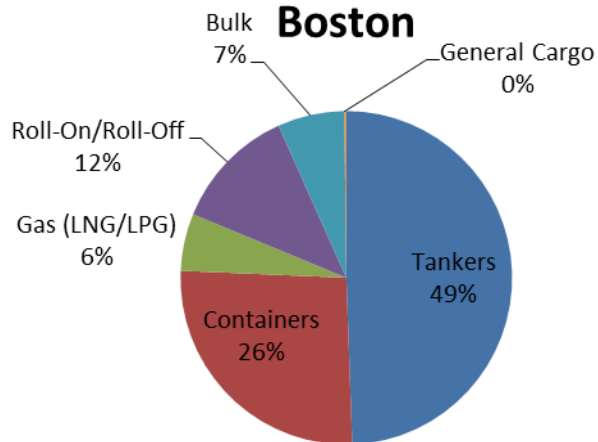
Figure 7: Vessel calls by port and type of vessel



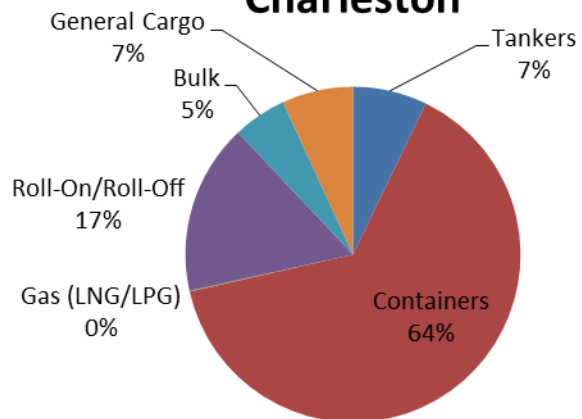
Baltimore

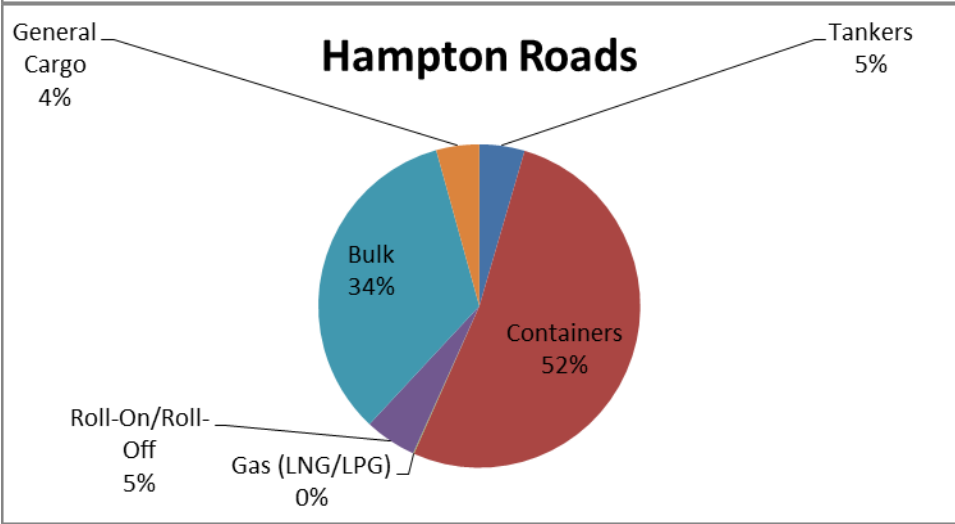
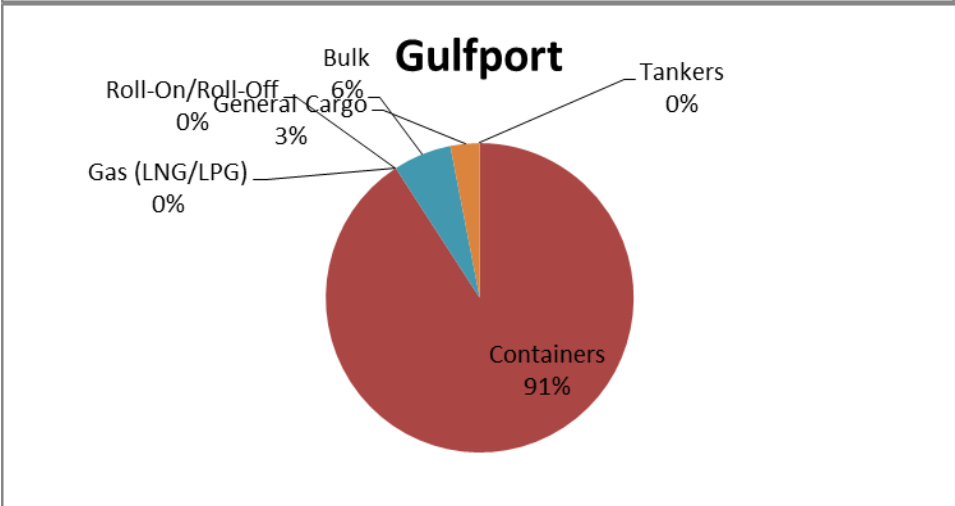
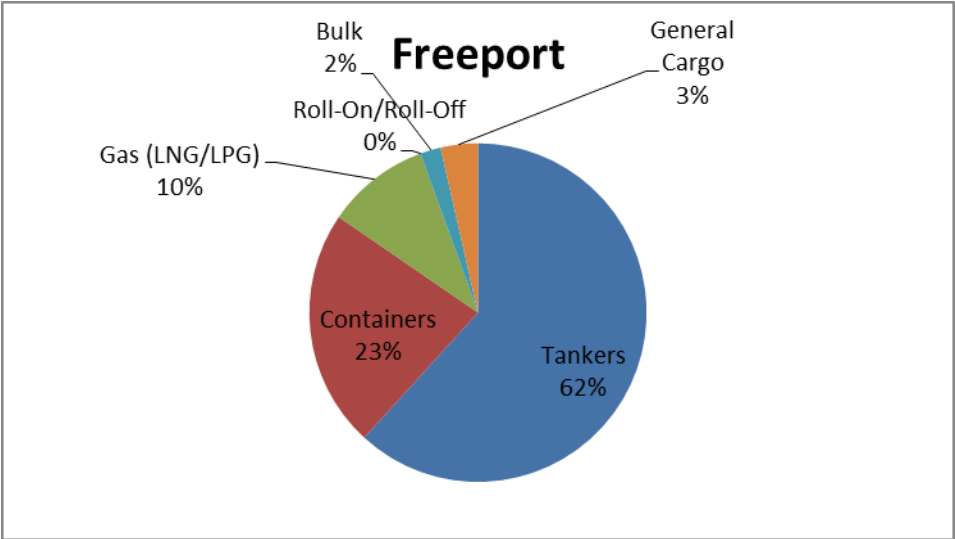


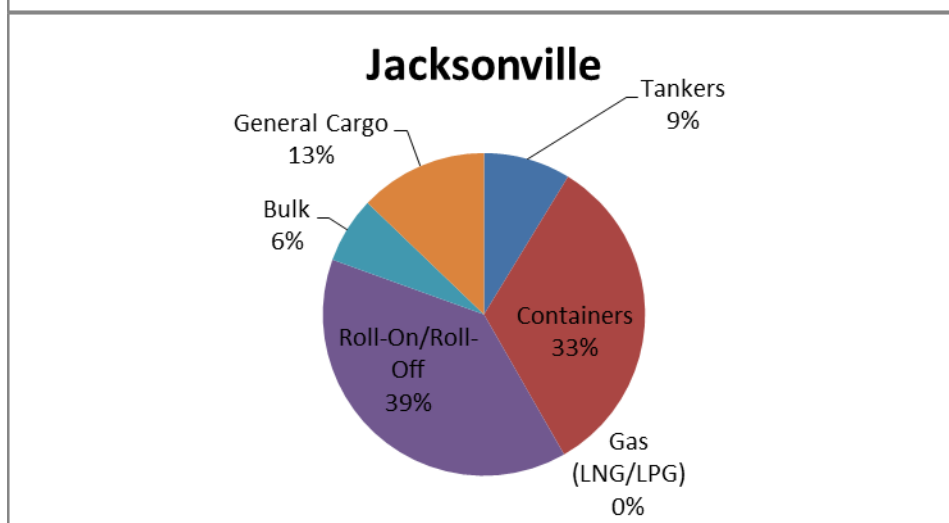
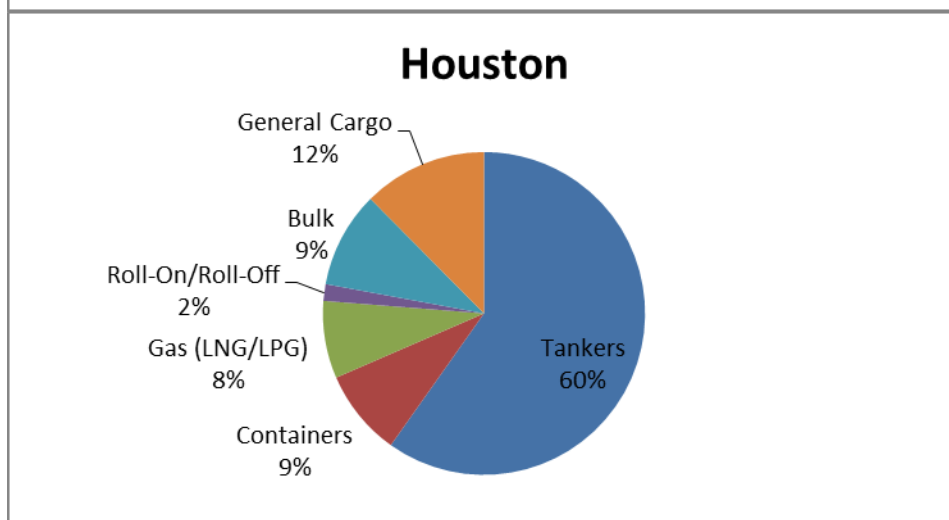
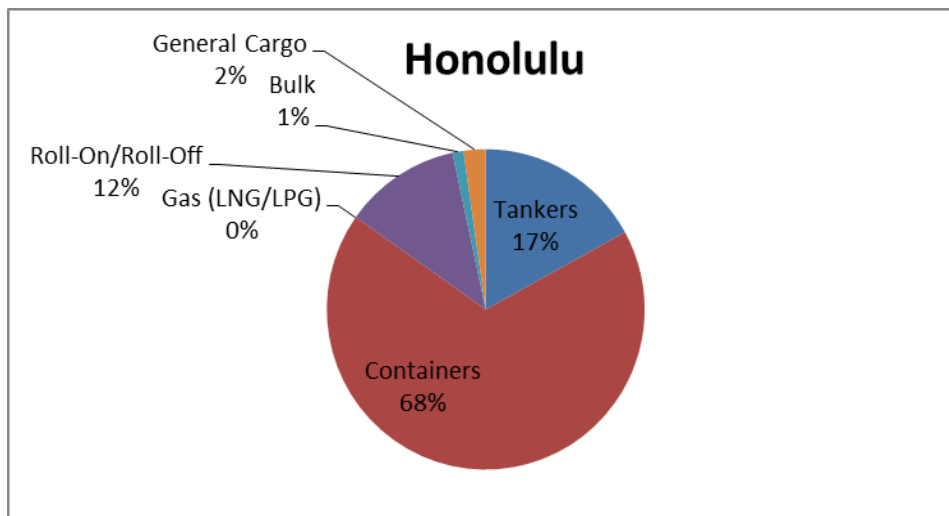
Boston

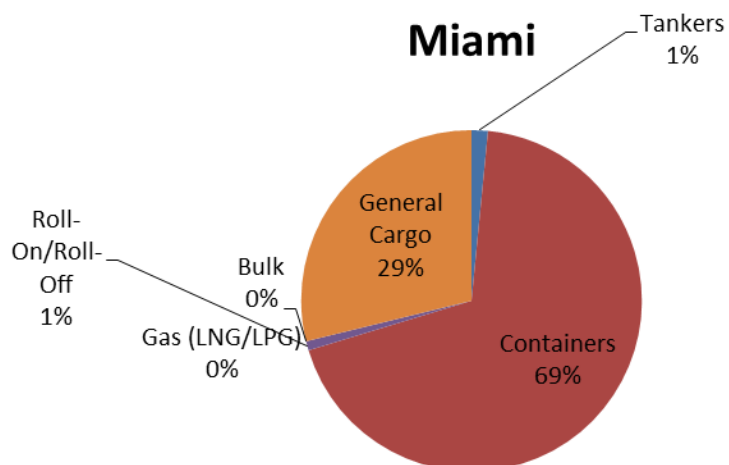
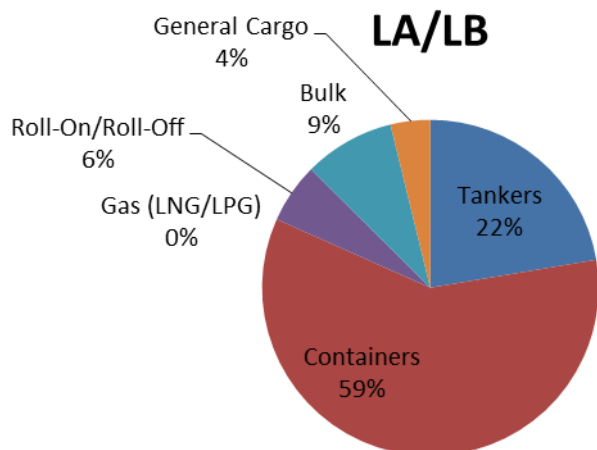
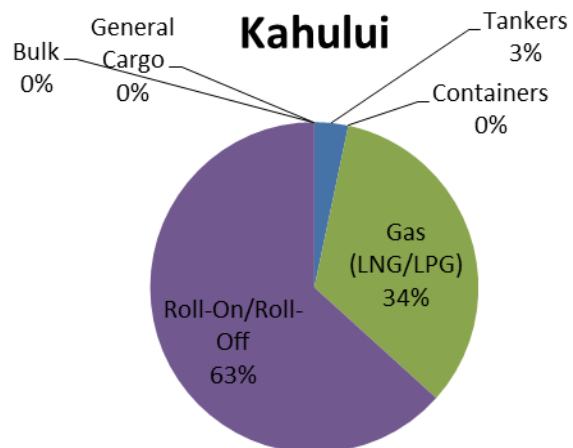


Charleston

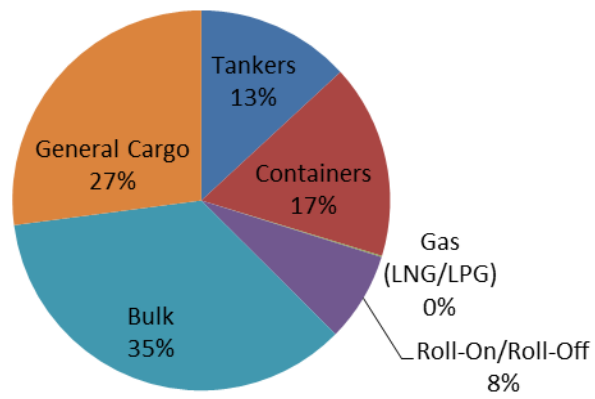




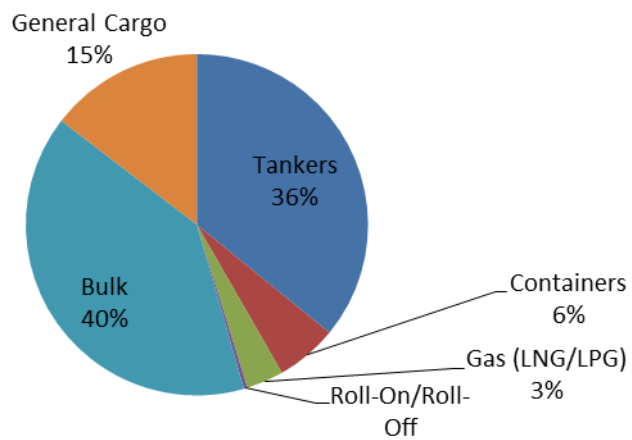


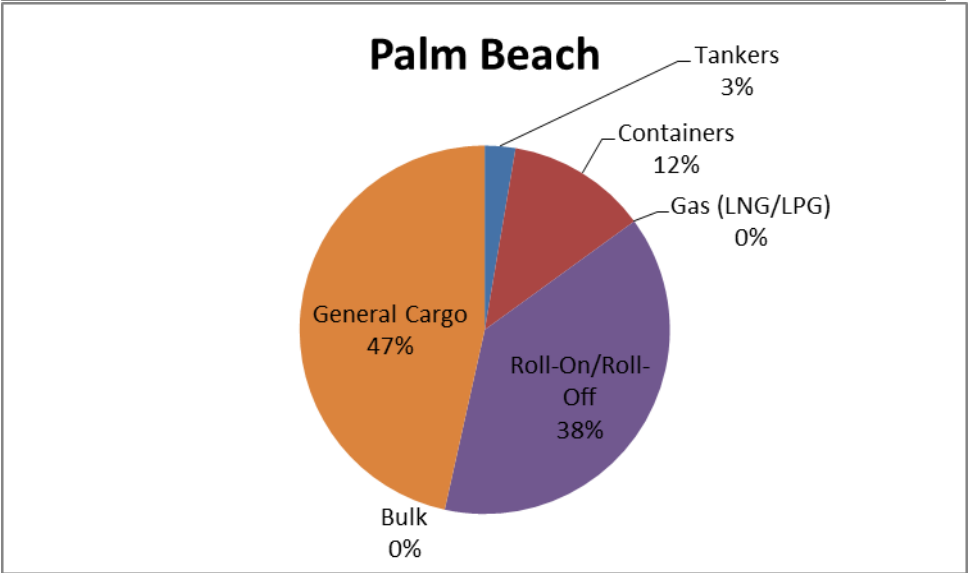
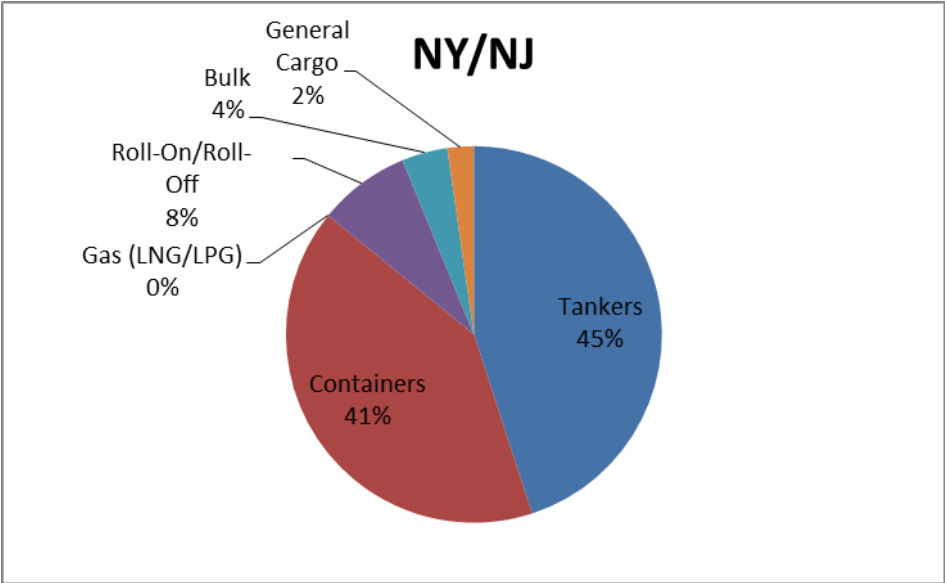


Mobile



New Orleans





Appendix D: Seaport study sample

Developed from 2013 NAFTA Regional Container Traffic Survey

Table 12: Seaport study sample (AAPA 2013)	
Port (State/Province)	Container Traffic 2013
Los Angeles/Long Beach	14,599,145
New York/New Jersey	5,467,345
Savannah	3,034,010
Oakland	2,346,460
Hampton Roads	2,223,532
Houston	1,950,071
Tacoma	1,886,678
Charleston	1,601,366
Seattle	1,574,994
San Juan (Fiscal Year)	1,269,902
Honolulu (Fiscal Year)	1,078,341
Port Everglades (Fiscal Year)	927,544
Jacksonville (Fiscal Year)	926,810
Miami (Fiscal Year)	901,454
Anchorage	705,230
Baltimore	705,230
New Orleans	451,058
Philadelphia	367,499
Wilmington (DE)	329,200
Wilmington (NC)	260,363
Palm Beach (Fiscal Year)	254,664
Mobile	224,614
Gulfport	209,665
Boston	195,303
Portland (OR)	178,451
Apra (Guam)	169,816
Freeport	107,394
Hueneme	99,334
San Diego	98,651
Kahului (Fiscal Year)	82,785
Top 30 ports capture 99.3% of total U.S. container traffic	44,226,909

2013 Total U.S. Container traffic	44,532,000
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Appendix E: Seaport Vulnerability Framework Dataset (10 most vulnerable ports)

Table 13: Seaport Vulnerability Framework Dataset (10 most vulnerable ports)				
SVF Data Matrix	Port Security Container Dollars	Open structure (Google Maps)	Spatial Concentration of CRAVED goods	Peripheral companies (forwarders.com)
LA/LB	285327103/14599155 = \$19.54 per 2013 container	Both ports features multiple access points for multiple terminals, and port warehouse areas (GoogleMaps)	CES location is within 5 minutes of the Port of LA/Long Beach within 3 miles (http://www.pricetransfer.com/centralized-examination-station.html)	694 forwarders in LA/Long Beach area= 7,868,582 (LA 2013) + 6,730,573 (Long Beach 2013)= 14599155 694/14599155 X 10000= .47
NY/NJ	292384478/5,529,908 = \$52.87 per 2013 container	a) multiple entrances. Some terminals are essentially open access, such as PNCT GoogleMaps) b) major roads are near almost every terminal- i.e. the I-95 borders the three major terminals in Elizabeth and Jersey City c) every terminal has an open container yards -physical observation of the Port of NY/NJ, 4 separate trips as part of WCNYH work	a) Four CES centralized CES locations at the port that handle high value cargo. B) Several CES locations are within the port C) numerous warehouse companies in the port region house high value goods http://www.panynj.gov/port/centralized-examination-stations.html within 3 miles	Forwarders 487 forwarders listed in NY 135 in NJ. 622 total 460,825 Avg. TEUs per month NYNJ score for freight forwarders= 13.49 149 drayage companies servicing NYNJ NYNJ score for drayage companies= 3.23
Hampton Roads-Norfolk	52466462/2223532 = \$23.59 per 2013 container	Multiple entry/exit points in both Norfolk International Terminals and Newport News Marine Terminal (GoogleMaps)	The Newport News Marine Terminal facility is a U.S. Customs-designated port of entry, and the full range of customs functions is available to customers, including bonded storage areas. (http://www.portofvirginia.com/facilities/newport-news-marine-terminal-nnmt/)	(16/185294) X 10000= .8
Charleston	55829741/1601366 = \$34.86	Port of Charleston is composed of 5 terminals (Wando Welch, North Charleston, Columbus Street, Union Pier, and Veterans) , within one mile of large public access highways, and with the container serving terminals with open	CES location is not on the port. High value goods may be stored at warehouses on the port (http://www.port-of-charleston.com/Cargo/Logistics/WarehouseData basePDF.pdf)	87/133447 X 10000= 6.5

		yards. (http://www.port-of-charleston.com/Cargo/Facilities/charleston/terminals/terminals.asp)	ATS Logistics. is the CES located 14 miles from the port http://scbiznews.com/news/automotive/48702	
San Juan	25971259/1269902= \$20.45 per 2013 container	Five of the Port of San Juan's eight cargo terminals are located in the Puerto Nuevo district, and three are located in the Guaynabo municipality. (GoogleMaps) To reach the five terminals at Puerto Nuevo there are multiple entry points, with a main entrance and at least two other side entrance. A major expressway JFK 2 is directly adjacent to the port.	N/A	46/105285 X 10000=4.36
Port Everglades	26073293/927544= \$28.11 per 2013 container	The main terminal Port Everglades Terminal has one entrance. The two smaller terminals including Holt breakbulk terminal have multiple entry /exit points directly into Ft. Lauderdale (GoogleMaps) http://www.hostterminals.com/port/port-everglades-dry-bulk-yachts-project-containerized-cargo-shipping-fort-lauderdale-fl/ http://www.fitpev.com/aboutus.php	CES station is located with IWS 3400 Macintosh street directly near the port within 3 miles	697/ 77295 X 10000= 90
Miami	42410430/909217= \$46.64 per 2013 container	PortMiami is located on an island, with one primary overland entrance. Recently a tunnel was built but is heavily monitored with CCTV. (GoogleMaps) http://www.shiplilly.com/white-papers/PortMiami-Tunnel-The-New-Standard-in-Transportation-Infrastructure.pdf)	CES Location at the port within 3 miles http://www.cipsmiami.com 1500 Port Blvd Miami, FL 33132	697 forwarders/75768 avg. monthly teu X 10,000=91
Baltimore	47131517/677856= \$69.53 per 2013 container	1a) Multiple entry/exit points due to multi-terminal set up throughout the Baltimore harbor 1b) ports are near multiple public access roads including I-95 c) containers at Dundalk and SeaGirt terminals 1c) containers out in the open (GoogleMaps)	The Port of Baltimore has a CES location operated by a private warehousing firms, Banks, within 3 miles of the main container terminal http://beltslogistics.com/warehouse%20locations.htm	92/56488 X 10000=39

New Orleans	135445306/451, 058 = \$300.28	1) Primary section has numerous entry exist points along the Clarence Henry Truckway, with numerous unguarded entry points along the railway entrances along the wharfs. Port of NOLA is OPEN STRUCTURE (GoogleMaps)	There is one CES facility directly located on the seaport facility at Napoleon Avenue	54 forwarders/ 299869 X 10 ³ = 1.8
Apra	8292047/169816 = \$48.82 per 2013 container	Only container terminal has one access road in. Containers are kept in open access yard. (GoogleMaps)	No public record of a CES. In the 2012 Annual Plan a Customs Inspection Station is noted as something that would be ideal for future construction. However as Apra is the only container port in the territory it likely does contain a variety of valuable CRAVED products due to lack of space elsewhere on the island for storage.	19/14151 X 10000=13 http://www.cargoyellowpages.com/guam_freight_forwarders_cargo_agents.html

SVF Data Matrix	Truck traffic	Intermodal connections	SCP techniques	Throughput
LA/LB	22,466 daily truck trips/ 39997= 56.7 http://www.polb.com/economics/stats/yearly_teus.asp ; http://www.portoflosangeles.org/maritime/stats.asp ; http://www.polb.com/civica/filebank/blobdload.asp?BlobID=3371	a) Multiple railway connections, through on-dock rail, and the Intermodal Container Transfer Facility (ICTF) (Near-dock) b) Half of TEUs are moved by rail, due to heavy hinterland movement of cargo c) Burbank Airport, LAX d) and a heavy short haul trucking presence (56.7) http://www.portoflosangeles.org/facilities/rail_intermodal_yards.asp http://www.polb100.com/publications/railguide/index.html	Target Hardening: yes Access Control: yes TWIC Screen exits: no Extend guardianship: no Natural Surveillance: yes Reduce anonymity: yes Use of place managers: no Formal surveillance: yes Conceal targets: yes Remove targets: yes Port of LA-Implements the security infrastructure plan to guide the development and integration of security systems throughout the port, including waterside surveillance, closed-circuit television and camera systems, radar and sonar sensors, geographic information systems, access-control card readers, and coordinates the	14599155 AAPA 2013 NAFTA Regional Container Survey

			<p>vehicle radio-frequency identification program.</p> <p>http://2013.nationaluasi.com/files/pdf/Automatic%20License%20Plate%20Reader%206.6.13.pdf</p> <p>https://www.portoflosangeles.org/DOC/DR AFT%20POLA%20E-MAP_July%202014.pdf</p> <p>https://www.portoflosangeles.org/Board/2007/October/101807_item1.pdf</p> <p>(Pate et al. 2008)</p>	
NY/NJ	<p>Drayage sector</p> <p>16000 estimated truck drivers enter the PNYNJ</p> <p>Avg. Daily TEU (2012)= 15,150</p> <p>NYNJ score for drayage drivers= 105</p> <p>(PANYNJ 2012; PANYNJ 2014 B; PANYNJ 2014 C)</p> <p>http://www.panynj.gov/press-room/press-item.cfm?headLine_id=1640</p>	<p>a)3 railroads service PNYNJ</p> <p>b)2012 railway lifts= 433,481 (7.8% of all import/export TEUs); excising empty containers the total railway lifts is 10.09%</p> <p>c) Three major international airports (LaGuardia, JFK, Newark)</p> <p>d) Large trucking industry confirmed</p> <p>http://www.panynj.gov/port/intermodal-rail.cfm</p>	<p>Absence of:</p> <p>(1) Natural Surveillance: (a) adequate lighting is available for all sections of the seaport (b) employees who come forward with information are protected from retaliation by management and other parties.</p> <p>(2) Use of place managers: reward programs for employees</p> <p>(3) Formal surveillance: CCTV</p> <p>1) Observation at the port, and case file evidence of car thefts from the port support the lack of adequate lighting in all areas of the port</p> <p>2) rewards program is through the WCNYH which is not viewed as a neutral arbiter by the majority of the labor work force</p> <p>3) In several instances of vehicle theft from off of the port, the CCTV was inoperable and not monitored by the security workforce (Lantsman 2013)</p>	<p>5,529,908</p> <p>AAPA 2013</p> <p>NAFTA Regional</p> <p>Container Survey</p>
Hampton Roads-Norfolk	<p>4000/6091 X 100= 65</p> <p>http://onlinepubs.trb.org/onlinepubs/sr/sr298bronzini.pdf</p> <p>SPECIAL REPORT 298:</p>	<p>a) 2 railway connections, Norfolk Southern and CSX</p> <p>b) 28 percent of the cargo leaving the port does so by rail, 68 percent by truck and 4 percent by barge</p>	<p>Target Hardening: yes (seals)</p> <p>Access Control: yes TWIC</p> <p>Screen exits: no</p> <p>Extend guardianship: yes (police tipline)</p> <p>Natural Surveillance: yes</p> <p>Reduce anonymity: yes (TWIC)</p>	<p>2223532</p> <p>AAPA 2013</p> <p>NAFTA Regional</p> <p>Container Survey</p>

	<p>DRIVING AND THE BUILT ENVIRONMENT: THE EFFECTS OF COMPACT DEVELOPMENT ON MOTORIZED TRAVEL, ENERGY USE, AND CO2 EMISSIONS Relationships Between Land Use and Freight and Commercial Truck Traffic in Metropolitan Areas Michael S. Bronzini George Mason University</p>	<p>c) Norfolk International Airport http://www.vtrans.org/resources/On-Dock_Rail.pdf http://operations.usace.army.mil/nav/11OctWEDA/12_Oct_2011_Greg_Edwards.pdf</p>	<p>Use of place managers: yes (Police have a tip line) Formal surveillance: yes Conceal targets: yes Remove targets: yes (bonded warehouses) http://www.securityinfowatch.com/news/10554251/va-port-authority-to-improve-cctv-access-control http://www.portofvirginia.com/stewardship/community/virginia-port-authority-police-force/ (Pate et al. 2008)</p>	
Charleston	<p>10920/ 4387 X 100=248 South Carolina DHEC Draft Environmental Impact Statement (EIS) for the Proposed Marine Container Terminal at the Charleston Naval Complex Appendix J Existing Roadway Traffic Study for North Charleston Study Area, Section. 2005;5:42. [10920 daily trips, 63%trucks(6879)] http://www.porteis.com/information/articles/2005_10_16.htm. Svendson et al. (2014) Assessment of Particulate Matter Levels in Vulnerable Communities in North Charleston, South Carolina prior to Port Expansion. Environ Health Insights. 2014; 8: 5–14.</p>	<p>a) CSX and Norfolk Southern both have service to the Port of Charleston; b) About 25 percent of Charleston's port containers arrive/depart by rail. c Large presence of trucks at the port as evidenced by quantity of visiting vehicles http://sccommerce.com/sites/default/files/document_directory/Port_of_Charleston_-_Container_Movements_and_Traffic_Mitigation_Measures_Wilbur_Smith_Associates_2002.pdf</p>	<p>Target Hardening: yes Access Control: yes TWIC Screen exits: yes, random searches (Pate et al. 2008) Extend guardianship: yes Natural Surveillance: yes Reduce anonymity: yes TWIC Use of place managers: yes (see Port security training course on SCPS website) Formal surveillance: yes Conceal targets: yes Remove targets: yes Identify property: yes YMS provides real-time data on the location of each piece of equipment—where a chassis is, which box goes on the chassis, which boxes are booked to each ship scheduled, where each box is, and all the data associated with the movement of that equipment Vehicles are randomly inspected to determine if they have dangerous materials</p>	<p>1601366 AAPA 2013 NAFTA Regional Container Survey</p>

			<p>or unqualified persons. Also, longshoremen are expected to park in a lot away from the dock and take buses to their work area (see more detailed discussion of shuttle buses).</p> <p>SCPA was awarded over 25 million dollars for physical security enhancements on the 7 grant rounds. The enhancements include: Access Control, Fencing, and Lighting, CCTV, a Central Monitoring Center and a Marine Patrol Boat</p> <p>http://www.ncsl.org/documents/nlssa/portpolice.pdf</p> <p>(Pate et al. 2008)</p> <p>http://www.port-of-charleston.com/Port_Police_Training/Port_Police_Training_English/009_background_cont.htm</p>	
San Juan	<p>3479 http://www.app.gobierno.pr/wp-content/uploads/2010/05/Puerto_Rico_Highway_Transportation_Authority_Upcoming_P3_Projects.pdf</p> <p>http://www.marad.dot.gov/documents/Marine_Highway_Corridors13_Sep_10.pdf</p>	No railway connections to the port. There is an international airport in San Juan.	<p>Target Hardening: Yes Access Control: yes- TWIC Screen exits: no Extend guardianship: N/A Natural Surveillance: yes Bright Light Systems' recent projects included a retrofit of 140 x 1,000W high-pressure sodium fixtures with its BLP1000 LEP high mast fixture for Horizon Lines at the Port of San Juan, Puerto Rico. Horizon Lines has reduced its lighting costs by 50% while providing a superior quality light for increased safety and security, says Mr Chalmers.</p> <p>http://www.portstrategy.com/news101/port-operations/planning-and-design/no-lightbulb-moments</p> <p>Reduce anonymity: yes- standard practice</p>	<p>1269902</p> <p>AAPA 2013 NAFTA Regional Container Survey</p>

			<p>Use of place managers: yes- standard practice Formal surveillance: yes Conceal targets:yes- standard practice Remove targets:yes- standard practice Identify property: yes</p> <p>https://hbsmicrosites.honeywell.com/NR/rdonlyres/011C8397-1F08-4C1F-8344-0415339ECA17/49809/PortofSanJuan.pdf;</p> <p>http://caribbeanbusinesspr.com/prnt_ed/san-juan-ports-100-percent-cargo-inspections-expensive-with-few-results-7577.html;</p> <p>FEMA Environmental Assessment Environmental Assessment Horizon Monitoring and Surveillance Facility Puerto Nuevo Port Complex, San Juan, Puerto Rico</p> <p>(Pate et al. 2008)</p>	
Port Everglades	2000/2541=78 http://www.dot.state.fl.us/planning/economicstimulus/ellerdrive/ellerdrive-application.pdf	<p>a) The intermodal center connecting Florida east Coast Railway was only completed July 2014 and has yet to take a significant portion of containers b) n/a c) Ft. Lauderdale International Airport is in the port district d) high presence of trucking at the port</p> <p>http://www.porteverglades.net/expansion/ship-to-rail/</p>	<p>Target Hardening: yes- standard practice Access Control: yes TWIC Screen exits: yes http://www.porteverglades.net/about-us/security/ Extend guardianship: no Natural Surveillance: yes.http://www.porteverglades.net/about-us/security/ Reduce anonymity: yes TWIC Use of place managers: NO Formal surveillance: yes- http://www.porteverglades.net/about-us/security/ Conceal targets: yes- standard practice Remove targets: yes- standard practice Identify property: yes- standard practice</p>	927544 AAPA 2013 NAFTA Regional Container Survey

			FEMA Environmental Assessment	
Miami	<p>4,480 trucks daily/2491=179 http://www.portofmiamitunnel.com/project-overview/project-overview-1/ High level of truck traffic because PortMiami does not have a fully functioning rail connection yet.</p>	<p>PM is currently in the process of developing a railway access to the mainland. It will be one line, the Florida East Coast railway. http://www.miamidade.gov/portmiami/images/aerial-intermodal-rail-map.pdf http://www.miamidade.gov/portmiami/rail-restoration.asp</p>	<p>Target Hardening: yes Access Control: yes http://www.miamidade.gov/portmiami/id-cards.asp Screen exits: no- because of heavy cruise ship use of the port there are many more daily private vehicle entries and no exit searches Extend guardianship: yes through Americas Waterways Watch program Natural Surveillance: yes http://www.aimu.org/Port/miami2013.pdf Reduce anonymity: no- many private vehicles enter and exit port for cruise ship boarding despite PORT SECURITY STANDARDS - COMPLIANCE PLAN F.S. 311.12 (2001) Use of place managers: no Formal surveillance:yes http://www.miamidade.gov/portmiami/security-enhancements.asp Conceal targets: yes Remove targets: n/a. no warehousing on port Identify property: yes</p> <p>At the Port of Miami, officials reported on a very useful awareness-raising program called America's Waterway Watch (AWW). AWW is a combined effort of the Coast Guard and its Reserve and Auxiliary components, enlisting the active participation of those who live, work or play around America's waterfront areas. Coast Guard Reserve personnel concentrate on connecting with businesses and government agencies, while Auxiliarists</p>	<p>909,217</p> <p>AAPA 2013 NAFTA Regional Container Survey</p>

			<p>focus on building AWW awareness among the recreational boating public. AWW is a nationwide initiative similar to the well-known and successful Neighborhood Watch program that asks community members to report suspicious activities to local law enforcement agencies. AWW is a public outreach program, encouraging participants to simply report suspicious activity to the Coast Guard (Pate et al 2008)</p> <p>In Miami, fencing has been added to separate cruise terminals from cargo areas(Pate et al 2008)</p> <p>In Miami, upon the arrival or departure of a cruise ship, Metro-Dade Police officers conduct a thorough search of the cruise terminal and turn it over to private security during the boarding process. In accordance with Florida law, sworn officers maintain perimeter security.</p> <p>All provisions are scanned for explosives. Also, Metro-Dade officers have intensified their random patrols throughout the port, have added more check points, and have also intensified their attention to the entry gates and beneath the bridge leading to the port</p> <p>(Pate et al. 2008)</p>	
Baltimore	<p>2000/1857= 107</p> <p>3,000 average daily/ 1857=161</p> <p>10,000 truck vehicles average daily/1857 (avg, daily containers)= 538</p>	<p>Multiple (2) Railway connections (CSV and Norfolk Southern connections), and between 10 and 25% of cargo is moved by rail, BWI airport is within the region</p> <p>http://www.cbre.us/o/baltimore/teams/industrial-specialty-</p>	<p>Target Hardening: yes</p> <p>Access Control: yes</p> <p>Screen exits: yes</p> <p>Extend guardianship: yes</p> <p>Natural Surveillance: yes</p> <p>Reduce anonymity: yes</p> <p>Use of place managers: yes</p> <p>Formal surveillance: yes</p> <p>Conceal targets: yes</p>	<p>677856</p> <p>AAPA 2013</p> <p>NAFTA Regional Container Survey</p>

	http://www.cbre.us/o/baltimore/teams/industrial-specialty-commercial-real-estate/Pages/transportation.aspx ; http://articles.baltimoresun.com/2011-07-17/news/bs-md-dirty-trucks-20110717_1_dirty-trucks-new-trucks-air-quality	commercial-real-estate/Pages/transportation.aspx	Remove targets: yes Identify property: yes http://www.gohs.maryland.gov/trans_security_accomplishments.html (Pate et al. 2008)	
New Orleans	2132/ 821 TEUs per day (2012)= 259 . Overvalued due to weight of vast amount of bulk cargo that comes in which requires substantial truck movements for the size of the port. http://portno.com/trucks	a) http://portsoflouisiana.org/documents/port_profiles/NewOrleans.pdf b) 10,000 TEUs yearly (2007 estimate)/ 258,000 TEUs (2007)= 3.8% of containers are transported via rail	Access Control: yes Screen exits: no evidence Extend guardianship: no evidence Natural Surveillance: yes Reduce anonymity: yes Use of place managers: yes (HPD Training includes annual certifications: http://0192200.netsolhost.com/HPD/Acaddiv.htm) Formal surveillance: yes (http://portno.com/construction-projects) Conceal targets: yes Remove targets: yes Identify property: yes http://portno.com/construction-projects http://0192200.netsolhost.com/HPD/Acaddiv.htm (Pate et al. 2008)	451,058 AAPA 2013 NAFTA Regional Container Survey
Apra	N/A	No railway connection, but there is an international airport in Guam	Target Hardening: yes- standard practice Access Control: yes- security access gates Screen exits: no Extend guardianship: no evidence of this in the public record Natural Surveillance: no - See Annual 2013 Port report "The entire facility must have lighting, to serve as a deterrent, improve visibility of cameras, and aid security officers. Lighting should be installed around the exterior perimeter, interior perimeters, and within the facility	169816 AAPA 2013 NAFTA Regional Container Survey

			<p>Reduce anonymity: yes TWIC</p> <p>Use of place managers: - no evidence in public record</p> <p>Formal surveillance: - no Port Annual Report 2013 "The Port has video cameras installed throughout the terminal facilities, and they are not maintained. Additionally, the existing camera system does not provide complete coverage of the terminal.</p> <p>Conceal targets: yes- standard practice</p> <p>Remove targets: yes- standard practice</p> <p>Identify property: yes- standard practice</p> <p>http://www.portguam.com/docs/news-releases/2013/master-plan-update-2013.pdf</p>	
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SVF Data Matrix	Container Vessel Calls	Interagency Cooperation	Illicit import/export market	Sectors with history of criminal involvement
LA/LB	<p>59% of all vessels called are container vessels</p> <p>(MARAD)</p> <p>2013 Vessel Calls in U.S. Ports</p>	<p>In Long Beach, the police department has established a Harbor Unit that works closely with non-commissioned security personnel from the port. In Los Angeles, the Port Dive Operations Group (PDOG), made up of certified divers from the Coast Guard, the FBI, the Los Angeles Port Police, the Los Angeles Fire Department, the Los Angeles Sheriff's Office, and the Long Beach Fire Department, is available to respond to critical incidents. In addition, the group meets quarterly to discuss training and operational issues. And the Sea Marshals Unit at the Port of Los Angeles (comprised of divers from the Coast Guard and the Los Angeles Port Police)</p>	<p>2003-2008 NICB Average 35.27%. Seaports are already above the overall average of 33.76%</p> <p>Port NICB Average 2003-2008=37.41%</p> <p>2003-2008 NCIC Average .87%</p> <p>Seaports are above overall average .65%</p> <p>Port NCIC Average 2003-2008=.092%</p> <p>Between March 2013 - March 2015 there have been 158 incidents of cargo theft in the LA/LB hinterland area defined as a 75 mile radius from the ports.</p>	<p>No documented records in Lexis-Nexis</p> <p>No cases in CBP media release</p> <p>No cases in ICE news release</p>

		<p>conducts joint dive operations to protect ships in transit and inspect critical infrastructure.</p> <p>Area Maritime Security Committee: Broad Representation of Public & Private Port Partners</p> <ul style="list-style-type: none"> <input type="checkbox"/> Develop Area Maritime Security Plan <input type="checkbox"/> Conduct Security Exercises <input type="checkbox"/> Implement Port Risk Management & Mitigation Plan <input type="checkbox"/> Vet Annual Port Security Grant Applications <p>(Pate et al. 2008); http://2013.nationaluasi.com/files/pdf/Securing%20the%20Largest%20Port%20Complex%20in%20the%20Nation%206.4.13.pdf; http://polb.granicus.com/DocumentViewer.php?file=polb_1af5da4d3d37131270ec31cb4f7c620f.pdf;</p>	<p>Freight Watch International Route Analysis March 2013-2015</p> <p>Both ports are in an HIDTA county https://www.justice.gov/archive/ndic/dmas/Los_Angeles_DMA-2011(U).pdf</p> <p>Office of National Drug Control Policy (ONDCP). (2015) <i>High Intensity Drug Trafficking Area Program Counties 2015</i></p> <p>In fiscal year 2011, CBP at Los Angeles/Long Beach Seaport seized 61 vehicles and 49 engines heading overseas. Of that total: 24 were stolen, 73 were undeclared, seven were undervalued and six had fraudulent documents. Total value of fiscal year 2011 seizures is \$1.8 million.</p> <p>http://articles.latimes.com/2011/apr/08/business/la-fi-port-smuggling-20110408;</p> <p>http://www.cbp.gov/newsroom/local-media-release/2012-11-13-050000/cbp-intercepts-144-tons-stolen-copper-headed-asia;</p> <p>https://www.ice.gov/news/releases/federal-jury-convicts-los-angeles-businessman-and-his-firm-role-major-customs-fraud;</p> <p>http://www.cbp.gov/newsroom/local-media-release/2012-04-03-040000/cbp-officers-recover-20-stolen-high-end-vehicles</p>	
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NY/NJ	<p>41% of all vessels called are container vessels</p> <p>(MARAD) 2013 Vessel Calls in U.S. Ports</p>	<p>New York / New Jersey Area Maritime Security Committee;</p> <p>Among many initiatives, the port authority leads the area maritime security committee effort in the development and implementation of a port-wide risk management plan. This plan focused on heightened collaboration, particularly in interagency communications, maritime domain awareness, waterborne risks, resiliency and intelligence sharing.</p> <p>The Port Authority also increased information sharing on an international level through an initiative to exchange ideas and enrich relationships with foreign ports on security and emergency management issues; some of these relationships have matured into formal sister port agreements.</p> <p>http://coastguard.dodlive.mil/2014/10/securing-the-global-supply-chain/</p> <p>https://www.uscg.mil/hq/cg5/cg544/docs/AMSC%20Report%2020DEC13.pdf</p> <p>http://www.marinelink.com/news/homeland-security309891</p> <p>Cooperation is significantly higher between the Waterfront Commission and other relevant port security agencies at the PNYNJ, following 2009 WCNYH Executive Director, 9/28/2012</p>	<p>a1)According to the National Drug Threat Survey in 2013 45% of law enforcement agencies in New York and New Jersey report a high availability of heroine; 27% report cocaine availability; 0% report methamphetamine availability; 72% controlled prescription drugs</p> <p>Furthermore DEA STRIDE statistics for NY show 1122 seizures of cocaine in 2007 with an average weight of 1.985 kilograms</p> <p>2003-2008 NICB Average 35.27%. Seaports are already above the overall average of 33.76% Port NICB Average 2003-2008=34.03%</p> <p>2003-2008 NCIC Average .87% Seaports are above overall average .65% Port NCIC Average 2003-2008=. 88%</p> <p>166 incidents Freight Watch International Route Analysis March 2013-2015</p> <p>Office of National Drug Control Policy (ONDCP). (2015) <i>High Intensity Drug Trafficking Area Program Counties 2015</i></p>	<p>a) A variety organized criminal groups operate in the NY/NJ area, including Italian American groups, West Africa DTOs, Caribbean DTOs, Russian organized crime and Balkan organized crime groups. The longshore labor force traditionally has been the purview of Italian American organized crime groups from the five families. While the labor force has declined in recent years the longitudinal control of the labor force particularly for hiring longshoreman for certain shifts has continued.</p> <p>(3) This level of influence has been present for decades up until the present.</p> <p>See Port of NY/NJ for case study and documented evidence</p>
Hampton Roads-Norfolk	<p>52% of all vessels called</p>	<p>The MIRT is the first organization of its kind in the United States, and unique to any port. The concept of a coordinated maritime</p>	<p>Late Sunday night, special agents and officers with U.S. Immigration and</p>	<p>No documented records in Lexis-Nexis No cases in CBP media release</p>

	<p>are container vessels</p> <p>(MARAD) 2013 Vessel Calls in U.S. Ports</p>	<p>response team originated in 1984 when Bill Burket, now MIRT Director, attended a Coast Guard hosted Train-the-Trainer course for marine fire fighting. Up to this point, Hampton Roads had never seen a collaborative response team capable of responding to a fire or hazardous materials release in a port environment. Combining efforts with the Virginia Maritime Association, Coast Guard Sector Hampton Roads (then MSO Hampton Roads), and the Navy Fire Fighting School, the Maritime Incident Response Team was established.</p> <p>Virginia, the Joint Harbor Operations Center involves representatives of the Coast Guard and the Navy co-locating in one Coast Guard facility, sharing intelligence information and coordinating operations. Focus is on Naval personnel but officers keep watch over ports, roads, and rail in the port district. Law enforcement services are provided by the Virginia Port Authority Police Department. U.S. Immigration and Customs Enforcement's (ICE) Homeland Security Investigations (HSI), U.S. Customs and Border Protection (CBP), the U.S. Coast Guard (USCG), Virginia Port Authority, and other federal, state, and local law enforcement agencies today announced the launch of the Hampton Roads Border Enforcement Security Task Force (BEST), which is dedicated to security at the Port of Virginia.</p> <p>The Hampton Roads BEST is comprised of officers and agents from 10 federal, state and local agencies — responsible for identifying, interdicting and investigating a wide variety of maritime-related crime including trade fraud, cargo theft, and the illegal smuggling of</p>	<p>Customs Enforcement's (ICE) Homeland Security Investigations (HSI), U.S. Customs and Border Protection (CBP), the U.S. Coast Guard's Investigative Service, Chesapeake Region – all members of the Hampton Roads BEST, boarded the vessel, which originated from Asia.</p> <p>During the search, special agents and officers discovered approximately the two kilograms of cocaine and two kilograms of heroin concealed within the ceiling of a common lavatory.</p> <p>The narcotics were seized by CBP. No arrests have been made and no crew members are suspected of being involved. The investigation, which is being conducted by BEST, is ongoing.</p> <p>In the two weeks prior, BEST seized approximately 35 kilograms of cocaine at the Port of Norfolk in separate drug smuggling ventures. On July 27, the task force seized 32 kilograms of cocaine off of a vessel arriving into the Port of Norfolk. On Aug. 4, the task force seized three kilograms of cocaine from a container vessel that was due into Hampton Roads.</p> <p>April 2011 The first early success of the BEST came in April 2011 with the seizure of 55 kilograms of cocaine found in a vessel that transited the Panama Canal and docked at the Port of Virginia.</p>	<p>No cases in ICE news release</p>
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		<p>drugs, persons, currency and weapons smuggling.</p> <p>In 2010 the Virginia Port Authority police cut it's workforce to move from sworn law enforcement police officers towards a majority of contract non-sworn officers.</p> <p>The port region also has a highly collaborative AMSC.</p> <p>http://samehr.com/images/downloads/Presentations/coast_guard_hampton_roads.pdf http://www.portofvirginia.com/stewardship/maritime-incident-response/; http://www.securitymagazine.com/articles/82466-virginia-port-authority-doing-away-with-most-of-police-force http://dls.virginia.gov/GROUPS/ports/MEETINGS/092408/USCG.pdf</p>	<p>Office of National Drug Control Policy (ONDCP). (2015) <i>High Intensity Drug Trafficking Area Program Counties 2015</i></p> <p>2 incidents of cargo theft March 2013-2015</p> <p>Freight Watch International Route Analysis March 2013-2015</p> <p>2003-2008 NICB Average 35.27%. Seaports are already above the overall average of 33.76% Port NICB Average 2003-2008=43.13%</p> <p>2003-2008 NCIC Average .87% Seaports are above overall average .65% Port NCIC Average 2003-2008= 1.1%</p>	
Charleston	<p>64% of all vessels called are container vessels</p> <p>(MARAD) 2013 Vessel Calls in U.S. Ports</p>	<p>The Port of Charleston has the Charleston Harbor Operation Center (CHOC), commonly known as Project SeaHawk. SeaHawk is a multi-million-dollar, multi-agency, coordinated pilot effort, under the auspices of the U.S. Attorney. The purpose of SeaHawk is to create a unified law enforcement and intelligence operation to deter and prevent acts of terrorism. This includes managing a joint operations center to track maritime and other transportation operations in the Port of Charleston, establishing an interoperable system for data sharing and intelligence gathering, and providing a test bed for innovative concepts, initiatives, and equipment related to port security. All SeaHawk members meet daily to allocate resources to the most appropriate assignments. An intelligence unit combines intermodal transportation and harbor security data—</p>	<p>Office of National Drug Control Policy (ONDCP). (2015) <i>High Intensity Drug Trafficking Area Program Counties 2015</i></p> <p>In 2005 border agents seized 2,038 pounds of illegal drugs at the Port of Charleston. In 2006, the figure dropped to 629 pounds. In 2007, it was down to 1 pound, according to the S.C. office of U.S. Customs and Border Protection. (2007).</p> <p>Mexican criminal groups smuggle marijuana into South Carolina from Mexico through the Southwest Border area, using the interstate highway system, mostly in private vehicles. Interstate 40 is a major transit route for Mexico-produced marijuana destined</p>	<p>No documented records in Lexis-Nexis</p> <p>No cases in CBP media release</p> <p>No cases in ICE news release</p>

		<p>including video camera feeds, radar, and thermal imaging—along with information about crews and cargo, to assess potential threats. A marine unit is involved with escorting vessels, providing security training, reaching out to community members, and boarding suspicious vessels.</p> <p>The Port of Charleston has developed its Port Emergency Information Center for collecting and distributing information to port stakeholders concerning status of emergencies and what is required to reopen the shipping channel. The Port of Charleston has a Port Operations Emergency Center for working with affected agencies to coordinate responses to emergencies. The Port has also developed a Marine Fire Fighting Protocol to train local fire fighters on how to fight fires on the waterfront.</p> <p>Charleston AMSC. This AMSC was created by building up the Maritime Association of the Port of Charleston, a trade association created to promote the interests of the Port of Charleston in 1926. The Captain of the Port turned to this group to serve as the core of the AMSC. Officials of the Coast Guard and other federal and local agencies have joined the association and use the regular meetings as one way of sharing information with stakeholders.</p> <p>An important aspect of this particular AMSC is that it has a separate intelligence subcommittee made up of members who have security clearances.</p> <p>Charleston has Project Seahawk, which has an intelligence unit that builds awareness of threats to the port. All SeaHawk members</p>	<p>for South Carolina. Local distributors also transport Mexico-produced and Caribbean-produced marijuana into South Carolina from Atlanta via Interstates 85 and 20, and from Florida via the I-95 corridor.</p> <p>4 incidents of cargo theft Freight Watch International Route Analysis March 2013-2015</p> <p>2003-2008 NICB Average 35.27%. Seaports are already above the overall average of 33.76% Port NICB Average 2003-2008=29.24%</p> <p>2003-2008 NCIC Average .87% Seaports are above overall average .65% Port NCIC Average 2003-2008=1.28%</p> <p>http://www.cbp.gov/newsroom/local-media-release/2010-06-12-040000/cbp-and-uscg-intercept-stowaways-charleston;</p> <p>http://www.thestate.com/2007/04/15/36265/drug-trafficking-scs-mexican-connection.html#storylink=cpy</p>	
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		<p>meet daily to allocate resources to the most appropriate assignments. An intelligence unit combines intermodal transportation and harbor security data—including video camera feeds, radar, and thermal imaging—along with information about crews and cargo, to assess potential threats. A marine unit is involved with escorting vessels, providing security training, reaching out to community members, and boarding suspicious vessels.</p> <p>Law enforcement is provided by the South Carolina Ports Authority Police Department. Terminal leasees can hire their own private security guards. The Port of Charleston is also the location for Operation Seahawk, a partnership of 47 federal, state, and local agencies under the leadership of the U.S. Attorney, which has received significant funding to conduct joint anti-terrorism efforts.</p> <p>(Pate et al. 2008) http://www.gao.gov/new.items/d06933t.pdf http://proceedings.ndia.org/7490/Beeson.pdf http://ocean.floridamarine.org/acp/chacp/Documents/ACP/Charleston_ACP_Jan_2011_Revision.pdf</p>		
San Juan	<p>40% of all vessels called are container vessels</p> <p>(MARAD) 2013 Vessel Calls in U.S. Ports</p>	<p>The Coast Guard recognizes that providing maritime security in the Caribbean region requires the close coordination of area responders. The scenario involved in this full-scale exercise will challenge participants to make difficult decisions, carry out essential functions and maintain a common operating picture during a port security incident. Interagency coordination and communication will play key roles in the exercise's success,</p>	<p>Law enforcement reporting, seizure data, and price information all indicate high levels of cocaine availability in the region.¹⁹ The DEA San Juan District Office reports that problems attendant to high levels of cocaine availability and trafficking include violence, crime, and murder.</p> <p>The PR/USVI HIDTA region is located along established drug</p>	<p>October 2013 ten longshoremen and the co-owner of a freight forwarding company were indicted for drug trafficking through the Port of San Juan over the course of several years.</p> <p>https://www.justice.gov/archive/ndic/pubs27/27510/finance.htm</p>

		<p>as well as enhance readiness for future incidents.</p> <p>Participating agencies and industry organizations will include Department of Homeland Security, Coast Guard Sector San Juan, Coast Guard Atlantic Strike Team, Federal Bureau of Investigations, Federal Emergency Management Agency, Customs and Border Protection, Puerto Rico National Guard 22nd Civil Support Team, Puerto Rico Center for Disease Control San Juan Station, Transportation Security Administration, Puerto Rico and U.S. Virgin Islands Area Maritime Security Committee, US Virgin Islands Territorial Emergency Management Agency Fusion Center, North and South Coast Harbor Safety and Security Committees, Salvation Army, Puerto Rico Ports Authority, Municipality of Ponce, Ponce Police Department, Puerto Rico Fire Department, Puerto Rico State Emergency and Disaster Management Agency, Ponce Office of Emergency Management, Luis Ayala Colon Inc., Total Petroleum, Puma Energy, Sea Star, Horizon Lines, Inc. and BT Asphalt.</p> <p>There are significant law enforcement effort ongoing in PR to deal with smuggling and trafficking. These include:</p> <p>The Caribbean Air and Marine Branch (CAMB) — A combination of six aviation assets and 10 midnight express interceptors (law enforcement fast boats) used to combat drug smuggling in the field. In Fiscal Year 2011, CAMB seized 10,250 pounds of narcotics and \$2.1 million in currency.</p>	<p>trafficking routes in the eastern Caribbean between South America and the CONUS. Most of the cocaine smuggled into the HIDTA continues to be transported from South America via cargo in maritime vessels or by courier aboard commercial aircraft into the Dominican Republic.⁷² Dominican DTOs, under the ultimate operational control of Colombian DTOs, coordinate drug shipments from the Dominican Republic to Puerto Rico using privately owned boats, such as yolas, yachts, and other vessels longer than 30 feet equipped with hidden compartments, and noncommercial aircraft.</p> <p>Working jointly with the U.S. Coast Guard and U.S. Customs and Border Protection, HSI closed the fiscal year with an unprecedented number of seizures, including 21,831 pounds of narcotics and 37,958 illegal weapons and ammunition. This represents a two percent increase in narcotics seizures and a 118 percent increase in illegal weapons and ammunition seizures compared to the previous fiscal year. The federal agencies seized 13,992 pounds of cocaine, 7,747 pounds of marijuana and 86 pounds of heroin.</p> <p>HSI seized 167,771 pieces of counterfeit and pirated goods during fiscal year, a 144 percent increase compared to the 68,482 items seized by HSI in fiscal year 2012. The total manufacturer's suggested retail price</p>	<p>http://www.ice.gov/news/releases/operation-waterfront-nets-10-arrests-drug-trafficking</p> <p>http://scholarship.law.nd.edu/cgi/viewcontent.cgi?article=2456&context=ndlr</p>
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		<p>Caribbean Border Interagency Group (CBIG) —</p> <p>A union of U.S. Customs and Border Protection's (CBP) Caribbean Air and Marine Branch, U.S. Coast Guard (USCG), Immigration and Customs Enforcement (ICE), Homeland Security Investigations (HSI), the U.S. Attorney's Office for the District of Puerto Rico, and the Puerto Rico Police Joint Forces of Rapid Action (FURA) to disrupt the flow of illegal aliens and contraband into the Caribbean.</p> <p>This effort effectively cut illegal immigration in Puerto Rico by 80 percent</p> <p>Operation Sea Wall—</p> <p>A joint USCG, CBP, Drug Enforcement Administration (DEA) and the Dominican Republic Navy counter drug operation targeting primary flow into South Hispaniola arrival zones and secondary flow from Dominican Republic to Puerto Rico. Together, these agencies provide air surveillance, offshore patrol, interdiction forces and coastal surface interdiction. Since May 2012, Operation Sea Wall has resulted in the interdiction of more than 7000 kilograms of cocaine and the arrest of 29 suspected smugglers; a 300% increase over the previous 12-month period.</p> <p>In September 2012, the DHS Operation Caribbean Guard (OCG) was implemented to intercept illegal weapons, drugs and money, flowing to and from Puerto Rico. There are six separate efforts underway to support OCG, which focus on the inspection of cargo, mail, vessels and persons both traveling to and from Puerto Rico.</p> <p>CBP is currently reviewing flight operations, including unmanned aircraft systems</p>	<p>of goods seized in fiscal year 2013 is estimated to be more than \$18 million.</p> <p>FY2013 During this time, CBP officers seized 20,339 pounds of narcotics in PR and USVI area</p> <p>FY2012 During this time, CBP officers seized 18,083 pounds of narcotics and arrested 21 people wanted for crimes, including murder, rape, assault, and robbery and denied entry to more than 1,477 people attempting to illegally enter the U.S. through an air or sea port of entry in our area;</p> <p>FY 2011 8750 lbs of cocaine PR and USVI ports</p> <p>10/23/2013</p> <p>During the inspection of containers arriving on board the maritime vessel M/V Hansa Regensburg from Caucedo, Dominican Republic, CBP officers selected a container for secondary scrutiny. Inside CBP officers found two bags, containing brick shaped size objects that later tested positive for cocaine and heroin, respectively. The estimated value of the seized cocaine is \$1,240,800 and the heroin is \$192,500.</p> <p>2/23/2015 Customs and Border Protection (CBP) field operations officers seized Sunday 222 pounds (100.5 Kilos) of cocaine inside a duffle bag concealed inside a container arriving from Caucedo, Dominican Republic.</p>	
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		<p>deployments from stations in Florida to the Puerto Rico region, to determine the most effective use of flight hours to support OCG efforts.</p> <p>Operation Unified Resolve—U.S. Coast Guard's District 7 is allocating additional resources and capabilities needed to deter, detect and disrupt illicit maritime trafficking in the region, targeting the flow of drugs, weapons, money, and migrants.</p> <p>High-Intensity Drug Trafficking Area (HIDTA) — This Office of National Drug Control classification is a union of DHS components (CBP, ICE, USCG, and USSS) that focuses on disrupting drug trafficking on and around Puerto Rico. When combined with the Organized Crime Drug Enforcement Security Taskforce (OCDETF), this makes the Caribbean Corridor Strike force, an initiative aimed at stopping South American based drug trafficking organizations that move multi-kilogram loads in the Caribbean.</p> <p>Operation Community Shield —An ICE HSI initiative that counters organized violent street gangs, which are responsible for most violent crime in Puerto Rico.</p> <p>Border Enforcement Security Taskforce (BEST) — Collaboration between CBP, USCG, ATF, Puerto Rico Police Department, San Juan Police Department, Colombian national police, Puerto Rico Ports Authority, and Puerto Rican treasury focused on securing the Puerto Rican border.</p>	<p>9/27/2013 U.S. Customs and Border Protection (CBP) officers seized Thursday 54 pounds (24.35 kilos) of cocaine inside a container at the San Juan seaport.</p> <p>5/23/2013 Last Friday, during inbound inspections of passenger vehicles arriving from the Dominican Republic onboard the M/V "Caribbean Fantasy" ferry, a CBP canine alerted to the potential presence of narcotics in a van with Puerto Rico cargo license plates. An x-ray of the vehicle confirmed the alert to CBP officers.</p> <p>After a thorough search, CBP officers found 199 pellets of cocaine with a weight of approximately 2.8 kilos (6.2 pounds) inside the vehicle.</p> <p>12/13/2012 U.S. Customs and Border Protection officers discovered a duffel bag containing 9 bricks of cocaine inside a container in the Port of San Juan late Tuesday afternoon. The bricks weighed 22.9 pounds with an estimated street value of \$249, 120.</p> <p>8/31/2012 - U.S. Customs and Border Protection officers seized last night three duffel bags filled with 70 cocaine bricks found inside a container arriving to the Port of San Juan from the Dominican Republic.</p> <p>6/29/2012 U.S. Customs and Border Protection (CBP) seized Thursday 73 kilograms (161 pounds) of cocaine and six kilograms (13.23 pounds) of heroin</p>	
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			<p>arriving from a foreign destination last night at the San Juan Port of entry.</p> <p>During inbound inspection of incoming containers on board the M/V MAERSK RAVENA, arriving from Caucedo, Dominican Republic, CBP officers selected a container for thorough inspection.</p> <p>8/30/2011 In four different incidents this weekend, U.S. Customs and Border Protection seized 190.476 kilos (419.93 pounds) of cocaine and 4.54 kilos of heroin (10.14 pounds).</p> <p>In San Juan, during the inspection of the vessel M/V Sydney Express arriving from Caucedo, Dominican Republic, CBP officers referred a ship's container for secondary inspection after noticing a discrepancy in the arrival manifest and a container seal.</p> <p>10/15/2010 On Oct. 15, while performing inspectional duties on a vessel arriving from Caucedo, Dominican Republic, U.S. Customs and Border Protection (CBP) officers with the use of non-intrusive inspection equipment discovered 55 kilos of cocaine in a cargo container.</p> <p>No cargo theft incidents found Freight Watch International Route Analysis March 2013-2015</p> <p>2003-2008 NICB Average 35.27%.</p>	
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			<p>Seaports are already above the overall average of 33.76%</p> <p>Port NICB Average 2003-2008= N/A</p> <p>2003-2008 NCIC Average .87%</p> <p>Seaports are above overall average .65%</p> <p>Port NCIC Average 2003-2008= N/A</p> <p>http://www.cbp.gov/newsroom/local-media-release/2014-01-14-000000/cbp-seizes-78-pounds-cocaine-inside-container;</p> <p>http://www.cbp.gov/newsroom/local-media-release/2014-01-17-000000/cbp-intercepts-cocaine-san-juan-seaport;</p> <p>http://www.cbp.gov/newsroom/local-media-release/2014-01-28-000000/cbp-puerto-rico-and-us-virgin-islands-fy2013-review;</p> <p>http://www.cbp.gov/newsroom/local-media-release/2013-10-23-040000/cbp-seize-cocaine-and-heroin-san-juan-and-mayaguez;</p> <p>http://www.cbp.gov/newsroom/local-media-release/2015-02-24-000000/san-juan-cbp-seizes-222-pounds-cocaine-inside;</p> <p>http://www.cbp.gov/newsroom/local-media-release/2015-01-30-000000/cbp-san-juan-field-operations-seize-325480-hidden;</p>	
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			http://www.cbp.gov/newsroom/local-media-release/2012-02-23-050000/cbp-puerto-rico-seizes-240-pounds-cocaine-inside; http://www.cbp.gov/newsroom/local-media-release/2011-12-27-050000/cbp-integrated-puerto-rico-and-us-virgin-islands-2011; http://www.cbp.gov/newsroom/local-media-release/2011-08-30-040000/cbp-seizes-cocaine-heroin-and-currency-mayaguez-and; http://www.cbp.gov/newsroom/local-media-release/2010-10-15-040000/san-juan-seaport-cbp-officers-seize-55-kilos-cocaine	
Port Everglades	<p>59% of all vessels called are container vessels</p> <p>(MARAD) 2013 Vessel Calls in U.S. Ports</p>	<p>Port Everglades--Daily security meeting. A daily meeting is convened involving representatives of the Broward County Sheriff's Office, the port authority management, the Coast Guard, the Florida Department of Law Enforcement, and others concerned about port security to discuss potential security threats and to coordinate responses.</p> <p>In Port Everglades the Broward County Sheriff's Office created a Harbor Unit to focus on the port, and the number of officers assigned to this unit has been greatly increased. The Sheriff's Office has also created a Domestic Preparedness Unit and a Terrorism Unit, both of which are available to the port. Also available to Port Everglades is a "Trident Team" of divers from the Coast Guard, the Broward County Sheriff's Office, the Broward County Fire</p>	<p>Miami has high levels of seizures of narcotics due to its role as a heavy importation port for narcotics. In 2010 the Miami Border Enforcement Security Taskforce has led or taken part in investigations resulting in over 140 other arrests and the seizure of more than 11,000 pounds of cocaine, more than 8,000 pounds of marijuana, more than 3,000 ecstasy pills, more than \$175,000 in cash, 19 vehicles, 16 weapons, and more than 1,400 rounds of ammunition.</p> <p>Office of National Drug Control Policy (ONDCP). (2015) <i>High Intensity Drug Trafficking Area Program Counties 2015</i></p>	<p>" To date, the investigation has resulted in the indictment and conviction of nearly a dozen former King Ocean Services employees who worked at Port Everglades and numerous drug traffickers who received the narcotics from the port that were being smuggled aboard cargo ships owned or operated by King Ocean Services"</p> <p>In 1997 longshoreman at Port Everglades many had criminal records</p> <p>1999 14 port workers indicted for drug smuggling</p> <p>In 2000, a former longshoreman union local</p>

		<p>Department, the Fish and Wildlife Commission, and the Department of Homeland Security. The Trident Team has been created to inspect risk-prone ships and facilities.</p> <p>The Broward County Sheriff's Office (BCSO) has a contract to provide law enforcement services on the port premises. In addition, the BCSO has recently contracted to provide broader security services, including access control, taking the place of a private security firm. Tenants contract with their own private security firms to provide security within their designated areas.</p> <p>In Port Everglades the Broward County Sheriff's Office created a Harbor Unit to focus K8 on the port, and the number of officers assigned to this unit has been greatly increased. The Sheriff's Office has also created a Domestic Preparedness Unit and a Terrorism Unit, both of which are available to the port. Also available to Port Everglades is a "Trident Team" of divers from the Coast Guard, the Broward County Sheriff's Office, the Broward County Fire Department, the Fish and Wildlife Commission, and the Department of Homeland Security. The Trident Team has been created to inspect risk-prone ships and facilities.</p> <p>(Pate et al. 2008) https://www.uscg.mil/d7/SectMiami/planning.asp</p>	<p>For stolen vehicles, between 2003-2008 the NICB registered an average of 30.9% of vehicles per year as non confirming with their registry. The NCIC registered just over 1% on average per year (the general rate across most seaports).</p> <p>93 incidents of cargo theft March 2013-2015 Freight Watch International Route Analysis March 2013-2015</p> <p>2003-2008 NICB Average 35.27%. Seaports are already above the overall average of 33.76% Port NICB Average 2003-2008= 40.77%</p> <p>2003-2008 NCIC Average .87% Seaports are above overall average .65% Port NCIC Average 2003-2008= 0.83%</p> <p>Port Everglades experiences multiple seizures evidencing its role as an importation port for illicit narcotics:</p> <p>https://www.cbp.gov/newsroom/local-media-release/cbp-officers-port-everglades-seize-154-pounds-cocaine</p>	<p>leader was sentenced for a drug importation scheme running since 1985.</p> <p>http://articles.chicagotribune.com/2000-11-07/news/0011070095_1_drug-smuggling-teamsters-million-in-drug-proceeds</p> <p>http://www.nytimes.com/1997/08/26/us/at-us-ports-drug-smuggling-is-fast-becoming-an-inside-job.html</p> <p>http://articles.sun-sentinel.com/1998-03-07/news/9803060569_1_commissioners-and-port-port-s-problems-port-everglades</p> <p>http://www.justice.gov/usao/fls/PressReleases/140124-01.html</p>
Miami	69% of all vessels called are container vessels	Interagency operational center for port security in Miami. Joint Harbor Operations Center (JHOC) involves representatives of the U.S. Coast Guard and the U.S. Navy co-	Miami has high levels of seizures of narcotics due to its role as a heavy importation port for narcotics. In 2010 the Miami Border Enforcement	No evidence of criminal network presence in port operations, however cargo theft at the port is considered

	<p>(MARAD) 2013 Vessel Calls in U.S. Ports</p>	<p>locating in one Coast Guard facility, sharing intelligence information, and coordinating operations.</p> <p>Port of Miami/Port of Everglades (Project Hawkeye).</p> <p>Ex. of interagency cooperation:</p> <p>The Miami Division of the FBI has been actively participating in the Area Maritime Security Committee and holds a seat on the Executive Steering Committee. This committee is a United States Coast Guard initiative, which brings together members of the law enforcement community with executives of the various maritime industries. One of the pilot projects being worked on by the Miami Joint Terrorism Task Force is the "Manning Agency Screening Initiative" which provides limited database checks on the agencies providing the staff members to cruise lines operating globally. At present the "manning agencies" providing the staff for the various cruise lines are not screened by any United States law enforcement agency and are merely licensed to do business in their respective countries</p> <p>Miami has a Maritime Safety and Security Team Each MSST has about 75 active-duty personnel. Each MSST unit has six trailerable boats, making them capable of deploying by ground, air and sea. They also have three Physical Security Teams along with two canine handling teams. The MSSTs are able to augment local Sea Marshal operations with their unique training and capabilities. Each unit consists of two teams which can be</p>	<p>Security Taskforce has led or taken part in investigations resulting in over 140 other arrests and the seizure of more than 11,000 pounds of cocaine, more than 8,000 pounds of marijuana, more than 3,000 ecstasy pills, more than \$175,000 in cash, 19 vehicles, 16 weapons, and more than 1,400 rounds of ammunition.</p> <p>Officers discovered more than 178 pounds of cocaine during an enforcement boarding on Nov. 1. 2014 The street value of the narcotics is approximately \$2,424,000.</p> <p>A total of 40 sacks of marijuana were found. The drugs have a street value of approximately \$4 million, making it the largest find for the Miami seaport. CBP officers have intercepted shipments of about 3,800 pounds during previous seizures.</p> <p>On May 29 2013 , Customs and Border Protection officers at the Miami Seaport discovered approximately 459 pounds of cocaine hidden in a container at the Port of Miami. While inspecting containers at the Miami seaport CBP officers identified suspect suspicious boxes in a container which a CBP canine subsequently alerted to for the presence of narcotics</p> <p>May 2010, During routine examinations, U.S. Customs and Border Protection officers at the Miami Seaport discovered and seized</p>	<p>organized. The Longshore sector displays evidence of historical criminal network influence.</p> <p>http://www.aimu.org/Port/miami2013.pdf</p> <p>http://www.ft.com/cms/s/0/182e70f0-271d-11e0-80d7-00144feab49a.html#axzz4JCzWWM0</p> <p>http://articles.sun-sentinel.com/1986-06-26/news/8602070510_1_port-commissioner-port-everglades-criminal-activity</p> <p>https://www.justice.gov/archive/usao/nye/pr/2005/2005jul6.htm 1</p>
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Baltimore	20% of all vessels	Baltimore's Maritime Tactical Operations Group	According to the HIDTA 2009 report for the Baltimore/Washington region, seizures of MDMA, Crack Cocaine	At least two cases of warehouse owners scheming to steal imported expensive metals.

	<p>container vessels.</p> <p>(MARAD) 2013 Vessel Calls in U.S. Ports</p>	<p>(MTOG)- The continued engagement and activity of AMSC Baltimore's MTOG has fostered significant improvements in local law enforcement agency cooperation. Efforts to improve joint tactics, training, equipment and communications have paid off in planning and executing maritime security operations for the frequent NSSE occurring in the National Capital Region.</p> <p>Completed the Maryland Maritime Strategic Security Plan (MMSSP) to coordinate protective efforts of Maryland's maritime environments. This plan is the result of an unprecedented collaboration between federal, State, local maritime law enforcement agencies and private sector partners. In August 2010, the State, Coast Guard, and Charles County produced the MMSSP to coordinate and improve responses to natural and man-made disasters and terrorist attacks. Partners are continuing to build out and implement shared security goals. The model for the plan may be applied to other environments with similar over- and under-lapping jurisdictional issues (e.g. rail, highways, etc.). Since 2007, the Maritime Tactical Operations Group (MTOG) has secured at least \$2.6 million in federal Port Security grants to purchase five response/patrol vessels, nighttime infrared detection, gamma ray page radiation detection and additional maritime tactical equipment for state and local patrol agencies. The MTOG was created in 2005 to coordinate state and local first responders in maritime incidents, develop common training protocols, and standardize equipment across departments. Seventeen agencies currently</p>	<p>and Heroin are increasing and the Port of Baltimore is a known entry point.</p> <p>https://www.justice.gov/archive/ndic/pubs27/27486/transprt.htm#Figure2</p> <p>Office of National Drug Control Policy (ONDCP). (2015) <i>High Intensity Drug Trafficking Area Program Counties 2015</i></p> <p>20 cargo thefts March 2013-2015 Freight Watch International Route Analysis March 2013-2015</p> <p>According to CBP officers in the Port of Baltimore seized less than one pound of cocaine in fiscal year 2012, and nearly 22 pounds in 2011 (1 seizure only). During 2007, CBP officers seized a combined 526 pounds of cocaine in three incidents, the last year of significant CBP cocaine seizures in Baltimore.</p> <p>2013 seized 386 lbs cocaine</p> <p>Counterfeit goods investigations target Baltimore area and port for importation. According to their guilty pleas, from 2008 to 2010 the defendants conspired to smuggle counterfeit Coach handbags manufactured in China and elsewhere into the United States for sale. Part of the sales proceeds were returned to manufacturers and middlemen in China to pay for additional counterfeit goods.</p>	<p>According to their plea agreements, Purbaugh and Trainum opened Bear Creek Warehouse Company in 2006. Their primary customer was an international mining company that shipped cargo containers of nickel to the Port of Baltimore from its mines outside the United States, then stored the nickel in the Bear Creek Warehouse. Beginning in 2006, Purbaugh and Trainum began removing the mining company's nickel from the warehouse, setting it aside to sell later. In June 2006, Purbaugh approached a co-conspirator to sell the nickel in Pittsburgh, Pa. The co-conspirator contacted the owner of a Pittsburgh scrap metal company who agreed to purchase the nickel from the co-conspirator.</p> <p>From 2006 through 2011, Purbaugh sold the co-conspirator a total of 80,000 pounds of nickel worth approximately \$1 million. Purbaugh arranged the delivery of the nickel with the co-conspirator and the scrap metal dealer. Purbaugh then arranged for his driver, who lives near Pittsburgh, to drive a truck to the warehouse, which Trainum then loaded with the stolen</p>
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			<p>2003-2008 NCIC Average .87% Seaports are above overall average .65% Port NCIC Average 2003-2008= 0.74%</p>	
New Orleans	<p>6% of all vessels called are container vessels</p> <p>(MARAD) 2013 Vessel Calls in U.S. Ports</p>	<p>Sector NOLA COTP used HSIN as the primary method of communicating with port partners and stakeholders during the War of 1812 Celebration, Hurricane Isaac, Super Bowl XLVII as well as multiple Type II and III oil spill responses. Because port partners have HSIN accounts and special permissions to access protected event sites, security information is well protected. HSIN allows each event participant to post their individual plans and documents. Sharing information in this manner helps promote a common operating picture. HSIN also provides interactive video conferencing and streaming, facilitating maritime domain awareness for port partners.</p> <p>Port of NOLA Harbor Police. Port police force of 56 officers, Access control is the responsibility of private security hired by the port. Tenants hire their own private security firms to maintain security in their leased spaces (Pate et al 2007) Labor is not regulated by any specific entities. There is lack of communication purely based on lack of interoperability of communication systems between CBP and other entities (Pate et al. 2008)</p> <p>https://www.uscg.mil/hq/cg5/cg544/docs/AMSC%20Report%2020DEC13.pdf</p>	<p>a1) Cocaine seized through Gulf Coast HIDTA initiatives in 2010 totaled 1,339 kilograms—a 58 percent increase from the more than 846 kilograms seized in 2009 For example, in July 2009, U.S. Customs and Border Protection officers seized 994 pounds of powder cocaine commingled with bags of Colombian coffee aboard a cargo vessel in the Port of New Orleans. The vessel was laded in Panama.</p> <p>Vessels traveling from source countries on a weekly basis with cargo to the Port of New Orleans are another major threat. In the past, these vessels have had parasitic containers attached to the exterior hull, where narcotics are harbored. The advantage of smuggling narcotics in containerized shipments lies within the volume of cargo arriving at the port every day and the current capacity of CBP inspectors to inspect only a small percentage.</p> <p>Gulf Coast HIDTA 2014 Threat Assessment- http://arc-associates.net/yahoo_site_admin/assets/docs/2014_Threat_Assessment_Final.35124838.pdf</p>	<p>Lexis-Nexis searches of organized crime, maritime, and port relationships in the NOLA does not have a history of OC involvement in port labor sectors, nor is it a significant longitudinal market for illicit goods. Narcotics are primarily supplied through land based routes (Gulf Coast HIDTA 2011)</p>

		https://www.federalregister.gov/documents/2007/09/25/E7-18886/area-maritime-security-committee-new-orleans-vacancies http://infragardlouisiana.com/officers-directors/ http://www.gao.gov/products/GAO-12-494R	<p>Office of National Drug Control Policy (ONDCP). (2015) <i>High Intensity Drug Trafficking Area Program Counties 2015</i></p> <p>a2) NICB hits at the Port of NOLA are a significant portion of all inputted entries, 39.8% however in 2008 only 211 vehicles were entered through the NICB check system, as NOLA is an insignificant vehicle throughput port. Furthermore Louisiana and NOLA have a theft rate near the national average.</p> <p>http://www.justice.gov/archive/ndic/pubs40/40386/product.htm#Transportation</p> <p>3 cargo thefts March 2013-2015 Freight Watch International Route Analysis March 2013-2015</p> <p>2003-2008 NICB Average 35.27%. Seaports are already above the overall average of 33.76% Port NICB Average 2003-2008= 24.92%</p> <p>2003-2008 NCIC Average .87% Seaports are above overall average .65% Port NCIC Average 2003-2008= 0.92%</p> <p>https://www.justice.gov/archive/ndic/dmas/Gulf_Coast_DMA-2011(U).pdf</p>	
Apra	42% of all vessels are	Does have Area Maritime Security Committee Present and Guam was designated a Strategic Port in 2009:	According to the Guam FY 2009 – 2012 Drug Control, Violent Crime and	No evidence of this in the public record

	<p>container vessels.</p> <p>(MARAD) 2013 Vessel Calls in U.S. Ports</p>	<p>The designation of strategic port brings with it many challenges not only for the Coast Guard, but also for all those with a stake in port operations. For this reason each strategic port is mandated to form a Port Readiness Committee which brings together representatives of the 10 federal agencies and local port stakeholders. The PRC was established formally this past January when stakeholders met for the first time to begin dialogue on strategic concerns associated with facilitate both defense and commercial supplies through the same port. The committee is chaired by the captain of the port and includes more than 40 local, federal, and Department of Defense agencies.</p> <p>in 2013 After thorough multi agency planning, a \$1.5M Port Security Grant was awarded to AMSC Guam to purchase mobile X-ray screening vehicles. This equipment will increase the capacity to screen in-bound containers in the commercial port of Guam by 90%</p> <p>The Port of Apra 2013 Annual Report notes "The PAG security staff lacks enough officers and asks security staff to work additional hours to meet the security needs of the Port. Finally, retention of security staff is difficult. The PAG offers a good package of training programs; however, often the trained officers move to other security/law enforcement positions (outside of the Port). " Retaining officers is a key vulnerability is a self described need for more officers.</p> <p>http://www.uscgnews.com/go/doc/4007/1444903/Sector-Guam-establishes-Port-Readiness-</p>	<p>Criminal Justice Systems Improvement Strategy</p> <p>"Drugs are smuggled and transported into Guam through the airport, mail, and seaports. The majority of the drugs being seized continue to be transported through the Guam International Air Terminal (GIAT) and seized from passengers, air freight cargo and baggage. Of all drugs seized, crystal methamphetamine is the most prevalent intercepted drug. Guam is a destination for illicit products such as drugs, but most appear to be transported via Air not by maritime methods. Guam is not a significant entry point for other types of narcotics.</p> <p>http://www.guamlegislature.com/Mess_Comms_30th/Doc.%2030GL-09-0670%20From%20Bureau%20of%20Statistics%20&%20Plans%20submitting%20the%20FY%202009%20Edward%20Byrne%20Mem.%20Justice%20Assistance%20Grant%20Program..pdf</p> <p>NO cargo theft incidents identified</p> <p>2003-2008 NICB Average 35.27%. Seaports are already above the overall average of 33.76% Port NICB Average 2003-2008= N/A</p> <p>2003-2008 NCIC Average .87% Seaports are above overall average .65% Port NCIC Average 2003-2008= N/A</p>	<p>However "Guam enforces its own Customs, Excise and Quarantine laws and coordinates with the US Customs, Immigration and Border Enforcement authorities. There is a jurisdictional coordination issue here, as no export license is required for exports to the USA, but these are required for exports to or imports from other destinations. This permits possible staging via Guam or the CNMI of goods to be moved to Asia, with reduced risk of detection prior to export. This is the 'low risk port of origin' gambit. Guam is not recognized as a high risk destination for exports from the USA. Neither is it recognized as a high risk origin for goods imported into Asian jurisdictions."</p> <p>http://www.asiapacificdefence.com/articles/159/Border-security-Transnational-Crime-in-Micronesia-Part-1</p>
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SVF Data Matrix	Organizational Corruption	Employee Corruption
LA/LB	<p>San Diego Customs Brokers Association and his corporation have been sentenced for their role in a multimillion dollar commercial fraud scheme to evade paying import duties on goods they imported into the United States.</p> <p>The sentencing is the result of a four-month wiretap investigation led by special agents with U.S. Immigration and Customs Enforcement's (ICE) Homeland Security Investigations (HSI); the U.S. Food and Drug Administration's (FDA) Office of Criminal Investigations (OCI); and U.S. Customs and Border Protection (CPB).</p> <p>According to the court records, Chavez and other co-conspirators procured foreign goods, such as Chinese-made apparel and cigarettes manufactured in India, that were transported via ship to the Port of Long Beach. Before the goods entered the U.S., Chavez directed other members of the conspiracy to prepare fraudulent paperwork and make erroneous entries into a government database so it appeared the goods were being transshipped to Mexico and not subject to customs duties. However, instead of transshipping the goods to Mexico, the merchandise was delivered to warehouses in Southern California and eventually sold in the U.S. for less than similar items offered by their law-abiding competitors.</p>	<p>3 U.S. Customs and Border Protection (CBP) for corruption, including a supervisory officer arrested in 2012 on charges of accepting bribes to allow others, including his ex-wife, to smuggle goods into the United States so they could avoid paying duties and taxes.</p> <p>Port of LA Port Police Chief, Ronald Boyd, was arrested and indicted for corruption in April 2015</p> <p>http://www.ice.gov/news/releases/1210/121025losangeles.htm;</p> <p>https://www.documentcloud.org/documents/254967-arellano-letter-regarding-sentencing.html;</p> <p>https://www.fbi.gov/losangeles/press-releases/2015/chief-of-los-angeles-port-police-named-in-federal-corruption-case</p>

	<p>3 CBP officers were convicted of corruption</p> <p>https://www.ice.gov/news/releases/ex-head-san-diego-customs-brokers-association-sentenced-evading-duties-millions-worth https://www.ice.gov/news/releases/head-san-diego-customs-brokers-association-pleads-guilty-running-100-million-customs</p>	
NY/NJ	<p>a) From July 2011- July 2012 according to the WCNYH reports there were 34 instances of documented corruption and illicit activities on the part of PNYNJ employees, and related individuals (i.e. drayage industry and other tangential industries)</p> <p>b) July 2010-July 2011= 33 instances of documented corruption and illicit activities on the part of PNYNJ employees, and related individuals (i.e. drayage industry and other tangential industries)</p> <p>1) http://www.waterfrontcommission.org/docs/WCNYH_2012_Annual_Report.pdf; http://www.waterfrontcommission.org/docs/WCNYH_2011_Annual_Report.pdf See case study for more in depth analysis</p>	<p>a) In 2012 at least 8 individuals were indicted in a case relating to racketeering and theft of intra state commerce originating at the PNYNJ. In 2011 8 individuals, longshoremen, were arrested for conspiring and moving narcotics through the PNYNJ.</p> <p>3 CBP officers arrested or reprimanded for corruption at the Port of NY/NJ, airport included. One aided a freight forwarding company to circumvent procedures to import cargo</p> <p>1) http://www.waterfrontcommission.org/docs/WCNYH_2012_Annual_Report.pdf; http://www.waterfrontcommission.org/docs/WCNYH_2011_Annual_Report.pdf;</p> <p>http://bordercorruption.apps.cironline.org/person/location/state/ny/#all See case study for more in depth analysis</p>
Hampton Roads-Norfolk	<p>In 2007 a 54-count indictment identified longshoremen Vernon Brooks, 34, and David Jones, 51, both of Chesapeake. They are accused of assisting in the off loading of drugs - both cocaine and heroin - at local port terminals.</p> <p>Also named in the indictment is truck driver Ronald Evans, 40, of Elizabeth City, who had access to the port. He is accused of driving other suspects in and out of the port as they retrieved the drugs.</p> <p>http://hamptonroads.com/node/213521</p> <p>http://pilotonline.com/news/local/crime/drug-ring-called-biggest-ever-at-local-terminals/article_ce5ecade-175e-5285-b119-bf785973a358.html</p>	<p>In 2007 a 54-count indictment identified longshoremen Vernon Brooks, 34, and David Jones, 51, both of Chesapeake. They are accused of assisting in the off loading of drugs - both cocaine and heroin - at local port terminals.</p> <p>Also named in the indictment is truck driver Ronald Evans, 40, of Elizabeth City, who had access to the port. He is accused of driving other suspects in and out of the port as they retrieved the drugs.</p> <p>http://hamptonroads.com/node/213521</p>

Charleston	<p>In 2010 2 CBP officers at the Port of Charleston were sanctioned for the use of government computer systems to illicitly check on coworkers, neighbors and other unauthorized usage.</p> <p>http://bordercorruption.apps.cironline.org/person/location/station/port</p>	<p>In 2010 2 CBP officers at the Port of Charleston were sanctioned for the use of government computer systems to illicitly check on coworkers, neighbors and other unauthorized usage.</p> <p>In 2007 a 54-count indictment identified longshoremen Vernon Brooks, 34, and David Jones, 51, both of Chesapeake. They are accused of assisting in the off loading of drugs - both cocaine and heroin - at local port terminals in Hampton Roads Virginia. The same drug conspiracy was also charged with moving narcotics through the Port of Charleston.</p> <p>Oscar “Dread” Baptiste of East Hartford, Conn., is charged with importing more than 500 grams of cocaine, according to a news release from the U.S. Attorney’s Office. Baptiste, a Panamanian emigrant, faces a maximum prison sentence of 40 years and fine of \$5 million.</p> <p>Baptiste was arrested July 28 in Connecticut, according to court documents.</p> <p>In 2010, an informant told authorities that Baptiste asked him about smuggling drugs through the Port of Charleston, according to a criminal complaint filed in the case. Baptiste told the informant he needed help “ripping” cocaine from containers coming from Panama.</p> <p>From August 2010 until February 2011, the informant and Baptiste arranged the details through an email account created by law enforcement, according to the complaint.</p> <p>Scored 6 because narcotics were moved through Charleston but no evidence of longshoreman involvement at Port of Charleston. Except for attempted longshore collusion which was disrupted by law enforcement in the Baptiste case.</p> <p>http://scbiznews.com/news/government/37526/. http://www.ca4.uscourts.gov/Opinions/Unpublished/134223.U.pdf</p>
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		http://www.postandcourier.com/archives/port-drug-smuggler-gets-years-in-prison/article_66ef6b44-9e06-57f3-ad90-97d2ff21d204.html http://bordercorruption.apps.cironline.org/person/location/station/port-charleston/#all
San Juan	<p>October 2013 ten longshoremen and the co-owner of a freight forwarding company were indicted for drug trafficking through the Port of San Juan over the course of several years.</p> <p>http://www.ice.gov/news/releases/operation-waterfront-nets-10-arrests-drug-trafficking</p> <p>http://www.justice.gov/usao/pr/news/2013/10252013.html</p> <p>https://www.justice.gov/usao-pr/pr/drug-trafficking-organization-operating-san-juan-seaport-indicted-conspiracy-import</p>	<p>October 2013 ten longshoremen and the co-owner of a freight forwarding company were indicted for drug trafficking through the Port of San Juan.</p> <p>The individuals charged conspired and coordinated the purchase of kilogram quantities of cocaine and heroin from sources in Colombia and Dominican Republic. The drugs were placed inside containerized cargo vessels that were scheduled to arrive in the seaport in San Juan, Puerto Rico. Once in Puerto Rico, longshoremen and other individuals working for private companies, providing services at the San Juan port, would use their employment credentials and privileges to gain access inside the containerized cargo vessels and secure areas inside the seaport to retrieve the controlled substances and deliver them to others waiting outside the seaport. Some of the drugs smuggled were distributed in Puerto Rico and some were further transported to the continental United States for eventual resale.</p> <p>http://www.ice.gov/news/releases/operation-waterfront-nets-10-arrests-drug-trafficking</p> <p>http://www.justice.gov/usao/pr/news/2013/10252013.html Juan over the course of several years.</p> <p>https://www.justice.gov/usao-pr/pr/drug-trafficking-organization-operating-san-juan-seaport-indicted-conspiracy-import</p>
Port Everglades	<p>To date up to 2011, the investigation has resulted in the indictment and conviction of nearly a dozen former King Ocean Services employees who worked at Port Everglades and numerous drug traffickers who received the narcotics from the port that were being smuggled aboard cargo ships owned or operated by King Ocean Services"</p> <p>http://www.dea.gov/divisions/mia/2014/mia012414a.shtml</p>	<p>Port Everglades employees are named in an indictment of Colombian drug smugglers who utilized Port Everglades to offload cocaine loaded on to vessels that offloaded at the port</p> <p>" To date, the investigation has resulted in the indictment and conviction of nearly a dozen former King Ocean Services employees who worked at Port Everglades and numerous drug traffickers who received the narcotics from the port that were</p>

	<p>In an earlier incident in 2003, a company falsified documentation to hire security guards for Port Everglades.</p> <p>http://articles.orlandosentinel.com/2003-03-25/news/0303250185_1_port-everglades-victor-lauderdale</p>	<p>being smuggled aboard cargo ships owned or operated by King Ocean Services"</p> <p>In 2015 a port worker conspired in a federal sting operation to assist in extricating narcotics from a container.</p> <p>http://www.sun-sentinel.com/news/crime/fl-port-everglades-drug-arrests-20150501-story.html</p> <p>http://www.sun-sentinel.com/local/broward/fl-port-everglades-cocaine-santeria-20151130-story.html</p> <p>http://www.justice.gov/usao/fls/PressReleases/140124-01.html</p>
Miami	<p>2 port security officers arrested for theft (2013) 7 longshoreman arrested for facilitating drug transfers (2010) Between 2005-2012 8 CBP officers in Miami, were arrested for various charges, primarily drug trafficking</p> <p>http://www.nbcmiami.com/news/PortMiami-Security-Officers-Stole-Passengers-iPads-Sold-Them-on-Craigslist-Police-223627831.html https://ijis.get-traction.com/traction#/single&proj=Public&rec=4444&brief=n http://bordercorruption.apps.cironline.org/</p>	<p>In 2010 ICE agents arrested 10 individuals in a 3 year long operation in which ILA Longshoreman assisted in the important of cocaine from Panama, Colombia and Jamaica. 7 longshoreman were involved.</p> <p>http://www.ice.gov/news/releases/1012/101201miami.htm</p> <p>7 longshoreman arrested for facilitating drug transfers (2010)</p>
Baltimore	<p>Milton Tillman, Jr. and Milton "Moe" Tillman, III were arrested by the FBI for no show jobs at the Port of Baltimore, 2010</p> <p>two different warehousing firms had corrupt practices including organizing thefts of metals and other material from customers</p> <p>http://www.fbi.gov/baltimore/press-releases/2010/ba031710.htm</p> <p>https://www.ice.gov/news/releases/final-co-conspirator-sentenced-prison-stealing-26-million-metal-imported-port</p> <p>https://www.ice.gov/news/releases/indictment-charges-2-baltimore-men-theft-metal-worth-over-26-million</p>	<p>CBP officers in the Port of Baltimore seized less than one pound of cocaine in fiscal year 2012, and nearly 22 pounds in 2011. During 2007, CBP officers seized a combined 526 pounds of cocaine in three incidents, the last year of significant CBP cocaine seizures in Baltimore. 2005 was 155 kgs</p> <p>On Dec. 18, 2010, CBP was involved in the arrest of three crewmen from the Royal Caribbean ship Enchantment of the Seas, who attempted to smuggle more than 2.2 pounds of heroin and more than one pound of cocaine into the United States.</p> <p>On Jan. 8, 2011, a CBP narcotics detector dog sniffed out 1 pound, 8 ounces of cocaine and 14 ounces of heroin hidden in an</p>

	https://www.ice.gov/news/releases/baltimore-warehouse-owners-plead-guilty-scheme-steal-1-million-nickel-imported-port	<p>equipment locker on board the Royal Caribbean ship Enchantment of the Seas. No arrests were made in the case.</p> <p>http://www.cbp.gov/xp/cgov/newsroom/news_releases/local/2012_news_releases/december_2012/12032012_2.xml; http://www.wtop.com/index.php?sid=174021&nid=25</p>
New Orleans	<p>No documented records in Lexis-Nexis No cases in CBP media release No cases in ICE news release</p>	<p>No documented records in Lexis-Nexis No cases in CBP media release No cases in ICE news release</p> <p>2 cases of CBP corruption Wanda Hopkins, 47, was sentenced in February 2006 to nearly eight years in prison for selling cocaine and using a gun while trafficking drugs. She and her husband were arrested for selling cocaine and using a gun while trafficking drugs. They were caught transporting more than 250 grams of cocaine to Louisiana from Texas. She flashed her badge to arresting officers, who found a marijuana cigarette and tracts of cocaine in her credentials. Former Customs and Border Protection Officer Marian Riley pleaded guilty to criminal information related to fraud against the Department of Housing and Urban Development. At sentencing, she was ordered to pay \$30,676.72 in restitution. Riley participated in the department's Good Neighbor Next Door program, which allows law enforcement officers to purchase eligible homes in revitalization areas for a 50 percent discount on the list price. Program participants were required to occupy the property as their sole residence for three years. Riley purchased a home through the program, but during a three-year period, she falsely certified that she occupied the home as her sole residence.</p>
Apra	<p>Six Port Authority of Guam employees were fired in 2012 for abuse of office and corruption.</p> <p>http://www.pacificnewscenter.com/index.php?option=com_content&view=article&id=40595:video-1-year-later-still-no-findings-in-alleged-port-scam&catid=45:guam-news&Itemid=156;</p> <p>http://www.kuam.com/story/20376084/2012/12/18/six-port-authority-of-guam-employees-terminated;</p>	<p>Six Port Authority of Guam employees were fired in 2012 for abuse of office and corruption.</p> <p>http://www.pacificnewscenter.com/index.php?option=com_content&view=article&id=40595:video-1-year-later-still-no-findings-in-alleged-port-scam&catid=45:guam-news&Itemid=156;</p> <p>http://www.kuam.com/story/20376084/2012/12/18/six-port-authority-of-guam-employees-terminated;</p>

	http://archives.pireport.org/archive/2012/may/05-17-14.htm	http://archives.pireport.org/archive/2012/may/05-17-14.htm No cases in CBP media release No cases in ICE news release No incidents of CBP corruption identified
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Appendix F: 2015 High Intensity Drug Trafficking Area Counties

Red circles highlight ports which are in HIDTA counties. Charleston is not located in an HIDTA county and is green.

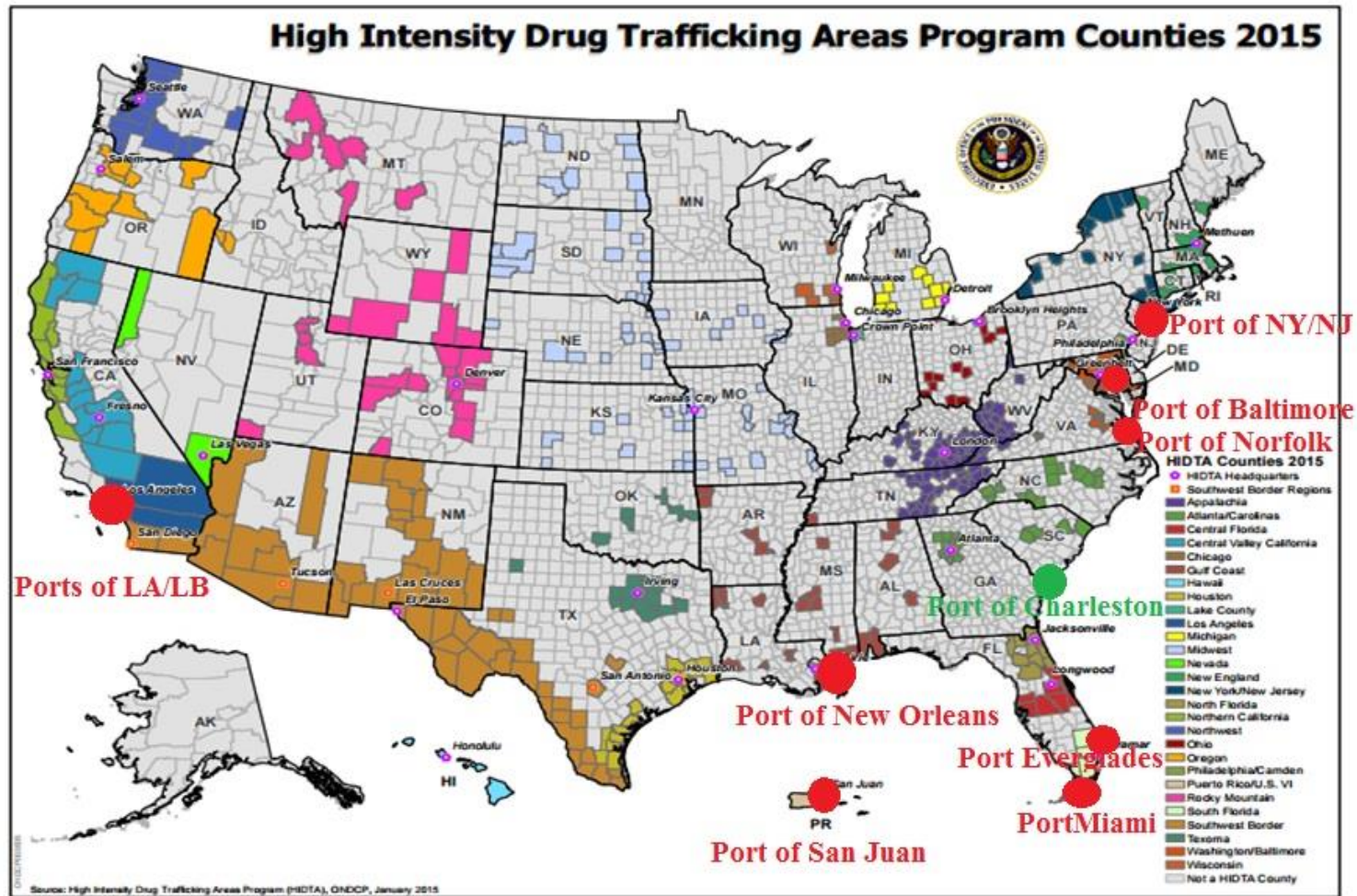


Figure 8: 2015 High Intensity Drug Trafficking Area Counties

Appendix G: Analyses of low vulnerability seaports (bottom 67th percentile)

Port of Jacksonville (JAXPORT) – 27

The Jacksonville Port Authority (JAXPORT) is an independent state government agency (Pate et al. 2008). The port has three primary terminals (the Blount Island Marine Terminal, the Talleyrand Marine Terminal, and the Dames Point Marine Terminal) and the JAXPORT Cruise Terminal and rates 13th in the U.S. for container throughput. JAXPORT is a landlord port and rents its facilities to private tenants. The port has a contract with the Jacksonville Sheriff's Office for law enforcement but has its own security department that provides access control and non-law enforcement security services (Port of Jacksonville). As with other landlord ports, tenants hire their own security services to provide services for leased properties.

Physical

JAXPORT scores at mid-level for the open structure of the port with two terminals with island access, and one of those terminals with nearby public road access and multiple entry/exit points. At JAXPORT terminals employees must park outside and take a bus to the port itself as no personal vehicles are allowed on the pier in the JAXPORT, reducing vulnerability. The port does not have an on-site CES nor is there evidence of warehousing on-site holding CRAVED cargo. The port does display a significant amount of vehicular traffic and scores high in this vulnerability and despite a low presence of rail traffic with one railway utilizing the port, the port scores high for intermodal connectivity because of the high level of truck use at the port.

Administrative

The port registers a score for an illicit import/export market and for jurisdictional gaps. The port region displays 31 cargo thefts in the period of March 2013-2015, and is identified by the ONDCP as being located in a HIDTA county (2015). In addition, the port is responsible for 70% of Puerto Rico's import and export traffic, which is not subject to the same inspection procedures as non-domestic cargo, however Puerto Rico is a significant transshipment point for illicit narcotics including cocaine and heroin. However, paradoxically despite being an identified export vehicle port used by criminal networks (Lantsman 2013), the port does not register an above average NICB or NCIC hit rate. The port does register on employee corruption, with the former director of the port arrested and sentenced for corruption charges in 2011 (Federal Bureau of Investigation 2013).

Logistical

The port has scores low for vulnerability due to cargo throughput of 926,000 TEUs in 2013.

Port of Savannah - 26.5

The Georgia Ports Authority (GPA), a quasi-state agency, operates the Port of Savannah as an operating port. The POS has the largest single-terminal container facility in the U.S. and has capitalized on this to become the third largest container port in the U.S. and a major port for

imports from South and Central America and the Caribbean and exports to Asian countries (Georgia Ports Authority). Law enforcement is provided by a standalone GPA Port Police. Previously to 1988 the GPA did not have sworn law enforcement component but the extra security costs were passed along to the users of the port through surcharges on cargo throughput. Port Police Officers are certified through the Georgia Peace Officers Standards & Training (POST) Council as Certified Law Enforcement Professionals and are empowered with the same authority and arrest powers as any other police officer in the State of Georgia (Pate et al. 2008).

Physical

The Port of Savannah primarily displays physical vulnerabilities of open structure, CRAVED goods presence, and a large vehicular daily presence, though a low presence of freight forwarders in the local area. As one of the largest ports in the United States, and the second largest on the East Coast, ports of this size are often spread out over a large number of facilities and display the open structure that increases vulnerability in this area. The port also has an on-site CES at the primary container terminal, Garden City Container Terminal. However this significant container throughput does not manifest itself in an overly large presence of freight forwarders, but there is a heavy intermodal presence, again presented as a benefit for efficient cargo movements.

Administrative

The port's primary administrative vulnerability is the presence of a large illicit import/export market. Atlanta is a major hub for transshipment of a variety of narcotics to the northeast coast markets, and for onward shipment to Europe. The Port of Savannah (in addition to Charleston and Wilmington NC) are identified as a possible transshipment point for cocaine from Colombia by the DEA and recent significant CBP seizures indicate that this is still likely the case (DEA 2005; US CBP 2014 May 8), though the port is not located in an HIDTA (ONDCP 2015). The port displays an above average level of both NICB and NCIC hits reflecting in part the significant vehicle exports through the port for onward travel to Africa and the Middle East. In addition, the port has a low but significant enough level of cargo thefts to score for this vulnerability (10 incidents identified since March 2013).

Logistical

As the fourth largest port in the U.S. the Port of Savannah scores high for logistical vulnerability due to the heavy throughput, with 3.3 million TEUs in 2013.

Port of Palm Beach (FL) – 26

The Port of Palm Beach is landlord port governed by a Board of Commissioners composed of five members elected at large by the voters within the Port of Palm Beach District for overlapping four-year terms of office (Port of Palm Beach A; Port of Palm Beach B). The port has a non-unionized labor force and is a significant distribution point for commodities to the Caribbean for containerized, dry bulk, liquid bulk, breakbulk, roll on/roll off and heavy-lift/project cargoes and ranks 21st in container throughput. The Port relies on contract security for gate and access control and contracts with the Riviera Beach Police Department for law enforcement services (Port of Palm Beach District 2015).

Physical

The port displays an open structure with two access roads, from the north and south side of the port while containers held in open access yards. The port has CRAVED cargo with a warehouse on-site functioning as the CES and a heavy presence of daily vehicular traffic (U.S.CBP 2012 October 3). The location of the port in South Florida places it in the midst of a heavy freight forwarder community and leads to a high vulnerability score for peripheral companies, especially for the level of container throughput at the port.

Administrative

The two primary administrative vulnerabilities for the port are the presence of an illicit import/export market as evidenced through the ports location in an HIDTA county (ONDCP 2015) and a high level of cargo theft in the port hinterland region, with 99 thefts since March 2013 (FreightWatch International). The port also rates higher than average for jurisdictional vulnerability as the port does not have a sworn police force and must rely on local law enforcement for port security enforcement, the Riviera Beach Police Department which provides two uniformed officers (Corcoran 2013).

Logistical

The port is rated low with a relatively low throughput, however the port does provide 60% of all cargo for The Bahamas, and significant issues with illicit exported firearms indicate a heightened vulnerability for the port to be an export point for illicitly trafficked firearms (Port of Palm Beach; U.S. State Department 2014).

Port of Houston – 24

The Port of Houston is the sixth largest container port in the U.S. and carries significant bulk cargo such as grain, steel, petroleum products, and finished goods. The port is a limited operating port with terminal operations operated by the Port of Houston Authority which manages the port's public facilities, and through partnerships with private companies that operate along the Houston Ship Channel which is 26 miles in length from Houston to Galveston Bay. This is one of the most significant areas in the U.S. for petroleum production and chemical processing and considered a significant safety hazard. As a result of the number of security targets in this area, the port receives significant funding to secure these areas reflected in the PSGP outlays for the port district. The primary container terminals are Barbours Cut and Bayport with six general cargo terminals for bulk materials.

The port has its own police department though access control is performed by a private security contractor, while tenants also have to hire their own private security firms (Pate et al. 2008). All the Port Police Officers are certified Peace Officers in the State of Texas, requiring ongoing training and certifications (Port of Houston). Furthermore, the port has the Houston Ship Channel Security District (HSCSD), a public/private partnership of the major facilities that make up the port terminals and industry in the area of the Houston Ship Channel. It undertakes assessments of the public and private facilities along Houston Ship Channel facilities and supports funding of security initiatives on behalf of its constituent stakeholders (Deepening Port of Houston).

Physical

The port's primary vulnerabilities are physical with a large open structure considering the spread out structure of the port along the Houston River channel, however the CES is not located on the terminal or the port (World Trade Distribution Inc.). The port does have a heightened level of peripheral companies for the level of traffic, but not in the highest category of vulnerability, though there is a high level of daily vehicular traffic at the port (Port of Houston Authority).

Administrative

The port scores in two administrative vulnerability categories. The port displays the presence of an illicit import/export market. The Houston area HIDTA identifies the Port of Houston as a possible transit point for illicit cargo, primarily narcotics, and poses a viable threat to the HIDTA region--a threat that has increased since the development of the Bayport Container Terminal which increased the ports container handling operations. Like many large ports, the Port of Houston links the city and region with 1,053 ports in 203 countries; these links make the port vulnerable to drug smuggling (NDIC 2009; The Guardian 2009). However, as with most ports, the scope of maritime smuggling is a significant intelligence gap. In the Port of Houston region this is in part, because of the numerous remote locations along the Houston HIDTA coastline in which drug smugglers can conduct their activities with little risk of detection. The port is considered to be a possible point of smuggling but there is little public evidence of the port being utilized more than other more easily and less visible areas in the region, such as along the Inter-coastal Waterway and the coastline. Paradoxically the proximity of the port to the land border with Mexico, means that the port is less likely to be utilized for illicit inbound shipments, though it has been used an export port for illicit narcotics bound for Europe and Asia (The Guardian 2009). In addition, to its recognition as an HIDTA county (ONDCP 2015), the port region also has significant cargo thefts with 36 reported thefts March 2013-2015 (FreightWatch International).

The port does not display significant organization or employee corruption, with one incident of corruption in a Houston stationed CBP officer, slightly raising its vulnerability in this area (United States of America v. Rizman Saeed 2008).

Logistical

The Port of Houston is one of the largest ports in the U.S. and in this category is rated with the highest level of vulnerability.

Port of Oakland - 23.5

The Port of Oakland is the 4th largest container terminal in the U.S. and the 3rd largest in California and is the primary import/export port for northern California with 99 percent of the containerized goods destined for the region. The port has eight container terminals with two intermodal rail facilities. Union Pacific and BNSF railroad facilities are located adjacent to the center of the marine terminal area to provide an efficient movement of cargo between the marine terminals or transfer facilities (Cannon 2006). The Port of Oakland does not have a standalone police force and contracts with Alameda County Sheriff's Office for port security services (Alameda County Sheriff's Office).

Physical

The Port of Oakland's primary vulnerabilities are due to its physical layout, with an open structure, multiple entrance/exit points, and open container yards. The port also has a CES within a quarter mile of the port leading it to have a heightened vulnerability for CRAVED goods. Truck traffic estimates at the port range widely but at the low end of the estimate with 2,000 trucks a day (Swedberg 2007), the port scores at a medium level of vulnerability while the high estimate of 10,000 trucks provides a significantly higher score (Prakash 2013). The port was scored in between mid and high for this vulnerability.

Administrative

The port does not score highly for administrative vulnerabilities. Primarily it is located in a significant illicit import/export market, with an above average NICB score, though with few reported cargo thefts in the area. The port is located in an HIDTA county (ONDCP 2015), but according to the NDIC (2011) a "lack of actionable intelligence makes it difficult for CBP to determine the level and extent of drug trafficking at Ports of Oakland and San Francisco. Though of what is known there is not a significant quantity of illicit narcotics moving through the port." Instead narcotics are primarily moved across the southern border and to the extensive narcotics markets of the Bay Area. Furthermore, the port does not have a dedicated police force, and is not staffed on a 24 hour basis like most other ports in the U.S. and has not built a centralized center for surveillance over the port (Kane 2014) leading to jurisdictional vulnerability as its law enforcement needs must be contracted out to local law enforcement agencies. However, there is no evidence of vulnerabilities such as organizational or employee corruption, nor is there any evidence of a historical presence of criminal networks in port operations.

Logistical

The Port of Oakland is one of the largest ports in the U.S. with throughput of 2.3 million TEUs yearly.

Port of Tacoma – 23

The Port of Tacoma is an independent municipal organization governed by the Port of Tacoma Commission as a limited operating port (Pate et al. 2008). The port handles more than 70 percent of cargo destined for or from the central and eastern regions of North America and more than 70 percent of the marine cargo moving between the lower 48 states and Alaska and ranks 7th in container traffic with no passenger traffic. Most facilities are leased to tenants that provide their own private security but the port also operates some facilities. The port has an armed non-sworn patrol force, Port Security Department and relies on the Tacoma Police Department for law enforcement (Pate et al. 2008). The Port Security Department consists of approximately 61 employees, including one Chief and one Director (Port of Tacoma). Port Security Department employees receive training from the Tacoma Police Department academy. Tenants that own or lease property provide their own access and control measures, and Port Security personnel cannot access these areas without permission of the individual tenants (Pate et al. 2008). As in all ports, according to the MTSA tenants are required to draft facility security plans and provide those to the USCG however there are no formal arrangements to share plans with Port Security personnel (MTSA 2002; Pate et al. 2008).

Physical

Similar to other low-mid vulnerability ports, the Port of Tacoma primarily scores for vulnerability in the physical layout with an open structure, presence of CRAVED goods, a large vehicular presence at the port, and strong intermodal connections. The port has six terminals with at least two entrances due to the location of the terminals across two port peninsulas with containers housed in open yards on the terminals. The port does not have a CES on-site but multiple warehousing firms at the port house high value CRAVED cargo (Port of Tacoma). The port has two railway connections, BNSF and Union Pacific Railroad, with 20 percent of import containers trans-loaded to 53-foot domestic boxes for rail shipment to points inland (Port of Tacoma B).

Administrative

The primary vulnerability at the Port of Tacoma is that it is in an illicit import/export market. Tacoma and Seattle are identified as HIDTA counties (ONDCP 2015) and are also in a significant narcotics producing region, marijuana, in addition Tacoma is one of the top five destination cities for heroin (National Drug Intelligence Center 2010). The port likewise displays an above average hit rate for both NCIC and NICB hits. The port also displays jurisdictional vulnerability. While the port has an armed, non-sworn patrol force, it must rely on the Tacoma Police Department for law enforcement. In instances where a tenant or a port employee notices suspicious activities, Port Security is called as the first response. However, in a situation where a crime has been committed, tenants and port personnel call the Tacoma Police Department for official police assistance. The port received a score in this vulnerability due to the lack of a sworn police force on the port and reliance on the Tacoma PD for any official police assistance. Furthermore, the Port Security Service is unionized within the same union as the longshore labor force, potentially creating conflicts of interest (Gillie 2013).

Logistical

The port is a mid-level vulnerability port with nearly two million TEUs in 2013.

Port of San Diego – 23

The San Diego Unified Port District is a special government entity formed in 1962 by an act of the California legislature in order to manage San Diego Harbor. The Port of San Diego is one of 17 commercial ports designated a “controlled port,” with special access controls due to security reasons (Bondareff and Contreras 2012). It is an operating port, with a dedicated police department, the San Diego Harbor Police Department, responsible for the San Diego Bay, the San Diego International Airport, and all Tidelands around the bay, throughout all five member cities of the Port District (Port of San Diego).

Physical

The port’s primary vulnerabilities are physical with an open structure, high volume of daily truck traffic at the port, and a high level of peripheral companies in the region relative to the size of the cargo throughput. However the port does not have CRAVED goods as there is no evidence of a CES nor does the trade profile of San Diego include high value cargo with principal inbound cargoes such as perishables and refrigerated commodities, fertilizer, cement, breakbulk commodities, and forest products (including newsprint, cut paper and cut sheet stock) and primary export cargoes include refrigerated cargo, breakbulk and bulk commodities. Dole

Fresh Fruit Company is a tenant of the terminal, importing about 2 billion bananas a year, but this is not a CRAVED commodity (Port of San Diego).

Administrative

The primary administrative vulnerability is that the port is located in a heavy illicit import/export market. San Diego is a heavy import narcotics district but primarily through the land border reflected through its listing as an HIDTA county (ONDCP 2015), and through the use of small vessels which make drug drops along the coast between San Diego and Los Angeles⁷⁶. The Port of San Diego itself is not noted for narcotics seizures as there are multiple other means available to import narcotics in the region. However, the heavy presence of Latin American and Eurasian transnational organized crime groups in the region makes the port a vulnerable component in the transportation chain in the San Diego region. In addition, cargo thefts are present in elevated numbers in the region, with 13 reported from March 2013-2015 (FreightWatch International).

Logistical

The Port of San Diego is a low throughput container port with under 100,000 TEUs yearly.

Port of Boston – 22

A small port with the 24th largest container volume in the U.S., the Port of Boston is the main maritime port managed by the Massachusetts Port Authority (Pate et al. 2008). MASSPORT is not a state agency though law enforcement at the port is provided through Troop F of the Massachusetts State Police and MASSPORT Police which are stationed at the port. The port's primary terminal, Conley Terminal, is operated by MASSPORT and handles all containerized traffic at the port (MASSPORT B), while the port also has an automobile terminal capable of handling 70,000 vehicles a year, privately owned petroleum and liquefied natural gas terminals, which supply more than 90% of Massachusetts' heating and fossil fuel needs, and a private operated cruise terminal (MASSPORT C). Troop F is a distinct component of the Massachusetts State Police and includes numerous specialized assets such as a dedicated Detective Unit, Bomb Squad, Community Services Unit, and Marine Unit. In addition, the troop also maintains State Police K-9 Teams are maintained on site at Logan Airport (MASSPORT).

Physical

The ports primary vulnerabilities in this category are the large number of peripheral companies, the level of daily truck traffic (Boston Globe 2013), and the level of intermodal connectivity but the port does not have a CES on-site.

Administrative

The Port of Boston primarily rates highly in two areas. It has a heightened score as an illicit import/export market but rates only for having a significant local narcotics market (ONDCP 2015) and not a large cargo theft environment. While, Boston is a consumer drug

⁷⁶ See Appendix B for a list of all small vessel, or *panga*, interceptions and seizures. The Port of San Diego is the nearest port for 68% of identified *panga* interceptions from 2009-present.

market it is primarily supplied by distributors from Lowell, MA, Lawrence, MA and New York City. The Port of Boston is identified as vulnerable due to the volume of commerce, but that is low compared to other ports along the eastern seaboard. According to the HIDTA most narcotics are known to be supplied through the southeastern seaboard inbound ports such as Miami, NYC, and Savannah (NDIC 2011 B). In addition, for employee corruption, there is evidence of employment fraud within the longshore community but no evidence related to the facilitation of illicit maritime transportation (Zezima 2006).

Logistical

A low throughput port, Boston rates at the low end of logistical vulnerability, with near 200,000 TEUs yearly.

Port of Philadelphia – 21

The Port of Philadelphia is operated by the Philadelphia Regional Port Authority (PRPA). The PRPA is a Pennsylvania state and owns six terminals on the Delaware River in the Philadelphia area. These terminals are leased to private operators while PRPA provides maintenance, marketing, and other services. The port is primarily a break bulk port, with just 38% of all cargo in 2006 containerized, leading it to have a low throughput. The primary container port, Packer Avenue Marine Terminal handles the vast majority of containerized traffic at the port with seven lift cranes and utilizing an automated gate system (PRPA 2007). The port does not have a dedicated law enforcement agency but does have a Security Division which handles non-sworn officer security functions and fulfills the primary security role.

Physical

The port's primary container terminal, Packer Avenue Marine Terminal, has one primary entry/exit point, through an automated gateway system, however the terminal is located directly adjacent to residential areas and near large public access roadways such as I-95, increasing the port's vulnerability. The CES is not located near the primary terminals, and is roughly 17 miles from the primary container terminal leading to a low CRAVED score, considering that the majority of cargo transiting through the port is bulk cargo (U.S. CBP May 13 2013). However the port has a significant freight forwarder presence, partially a result of the proximity to the import/export area of NY/NJ. Truck traffic at the port creates a moderate level of vulnerability relative to container traffic, and rail connectivity is significant with three rail lines leading to a high level of intermodal vulnerability.

Administrative

The primary vulnerability in this category is that the port scores moderately for illicit import/export market. The port is in an HIDTA county (ONDPC 2015) though maritime methods are not identified as a primary method of drug imports for the region, while the port is located in a significant region for cargo theft with 69 incidents between March 2013-2015 (FreightWatch). In addition, the lack of a dedicated police force for the port increases the jurisdictional vulnerability of the port, despite the presence of a Division of Security which itself is the result of the requirements under the MTSA.

Logistical

The port scores low in this vulnerability with 367,000 TEUs in 2013.

Port of Freeport (Texas) – 20

The Port of Freeport is an operating port and an autonomous governmental entity authorized by an act of the Texas Legislature in 1925. The port is governed by a Port Commission, with commissioners serving six-year staggered terms and who are elected by local residents. The port ranks 27th in container traffic and is primarily a bulk cargo port. The port has a separate security division and also works with the Freeport Police Department, Brazoria County Sheriff's Department, and Texas Department of Public Safety officers who enforce local, state and some federal laws within the Port and have arrest authority (Port Freeport).

Physical

Primary vulnerabilities at the Port of Freeport are peripheral company access with the Houston area freight forwarding community having ready access to Port of Freeport, and considering the level of cargo, this heightens the level of vulnerability. The port also has a heightened level of vehicle traffic and an intermodal landscape that increases vulnerability, with 50,000 railway car transits yearly and with a heightened level of daily vehicular truck traffic (Port Freeport B), though there is only one connecting railway, Union Pacific (Texas Department of Transportation 2005).

Administrative

The primary administrative vulnerability at Freeport is the location of a significant illicit import/export market. As Freeport is just 30 miles from Houston, it has a similar illicit import and export market conditions. In addition, the port has a heightened level of jurisdictional vulnerability as security services are outsourced to a private company, Sunstate Security, without a dedicated port police (Port Freeport B).

Logistical

Freeport has a low level of container throughput indicating a low level of vulnerability due to throughput.

Port of Seattle – 20

The Port of Seattle is a municipal corporation of the City of Seattle and operates as a limited operating port, leasing some facilities to private tenants and operating others (Port of Seattle; World Port Source B). The port is one of the largest container and breakbulk ports in the U.S. ranking 9th in container throughput. The port has a dedicated police department, Port of Seattle Police Department which is the primary law enforcement agency within the jurisdiction of the Port of Seattle. The Port of Seattle Police is a certified law enforcement agency with sworn officers and is accredited with the Commission on Accreditation for Law Enforcement Agencies (CALEA), one of the only port police agencies with CALEA accreditation. The Port Police has multiple units to address the wider set of responsibilities that it must manage including the airport and resident communities within the Port of Seattle. These units include a dive team, boat team, bomb disposal unit, crisis negotiation team, criminal investigations unit, K-9 unit, and a special response/tactical team (Port of Seattle B). In addition to the Port Police, the

Port of Seattle also has a security department with responsibility for port security and tenants hire their own private security guards (Pate et al. 2008).

Physical

The primary vulnerabilities at the Port of Seattle are the open structure, a heavy daily presence of vehicular traffic, and a high level of intermodal connectivity with two terminals with on-dock rail access and 20% of all cargo moved by rail transit. CRAVED cargo is primarily not kept at the port, but in the warehousing areas in the industrial section south of the port, while the CES is located in Fife, Washington nearly 40 miles from the port (Mercer Logistics).

Administrative

The port does not display significant administrative vulnerabilities with no evidence for administrative vulnerabilities except for the presence of an illicit import/export market with Seattle located in an HIDTA county (ONDCP 2015) and with an above average rate of NICB and NCIC hits.

Logistical

The port has a mid-level of vulnerability with cargo throughput of 1.2 million TEUs yearly.

Port of Hueneme – 20

The Port of Hueneme is primarily an agricultural export port in central California and services the central valley region as well as being the only deep-draft port between Los Angeles and San Francisco along the California coast. The port is a landlord port owned and operated by the Oxnard Harbor District, created in 1937, as an independent special district and political subdivision of the State of California (Port of Hueneme). In addition to the port's agricultural import/export operations, the Port specializes in handling automobiles, bulk cargo, and provides significant support and supplies for the offshore oil industry and is 28th in overall container traffic (CalTrans Office of System and Freight Planning 2012). Security at the port is multifaceted. The District has several specialized Memoranda of Understanding with local public safety agencies, including the Ventura County Fire Protection District for fire services, the Cities of Port Hueneme and Oxnard for police service at District. The Port Hueneme Police Department performs regular patrols of District properties under a municipal services contract. In addition, District "wharfingers" oversee the activities of the wharf and are utilized as internal port security officers in addition a contract service company that provides access control at the main gate (Ventura County Grand Jury 2008).

Physical

The port has two primary physical vulnerabilities with a large presence of peripheral companies due to its proximity to the Los Angeles region and a heightened level of vehicular traffic for the size of the container cargo at the port. Hueneme is primarily an agricultural port of export for the California central valley and handles a low throughput of container cargo.

Administrative

The primary vulnerability for the Port of Hueneme is its location in an illicit import/export market in the greater Los Angeles region though the port is not located in an HIDTA county (ONDCP 2015). Therefore, measures for cargo theft increase the cargo theft scoring for the port. The port also rates a slightly elevated vulnerability with a lack of a dedicated port police though the presence of Naval Base Ventura County and the Coastal Trident Program established by the Port of Hueneme and the Naval Postgraduate School's Center for Asymmetric Warfare as a comprehensive training and exercise program for the Port of Hueneme alleviates jurisdictional vulnerability. This program has developed into a regional maritime security and response program, enabling operational evaluation of leading-edge technology systems, with participation by approximately 90 organizations and departments (Port of Hueneme 2014).

Logistical

The port handles less than 100,000 TEUs yearly and rates low in logistical vulnerability.

Port of Portland – 18

The Port of Portland is a limited operating port with four main marine terminals along the Columbia River and is governed by the nine-member Port of Portland Commission which sets port policy (Port of Portland). The port is located along the Columbia-Snake River and extensive barge operations services the grain and agricultural producers along the eastern banks of the Snake River and Willamette Valley in central Oregon. The port has one significant container terminal, Terminal 6, which is operated under a 25 year lease by ICTCI, a Philippines based terminal operating company. The port is 25th largest for container traffic but is in danger of losing significant traffic through a combination of labor disputes between the ILWU and ICTCI and the withdrawal of Hanjin, the largest container service, constituting the bulk of container traffic to Asia and Hapag-Lloyd, the only direct connection to Europe (The Oregonian 2015; The Oregonian 2015 B). To provide law enforcement for these facilities, the Port of Portland has a dedicated police department, Port of Portland Port Police which historically had jurisdiction only over the airport but in 2009 the Oregon Legislature expanded authorities to cover all of the Port of Portland facilities including the marine terminals (Oregon Legislative Assembly 2009).

Physical

The port's primary vulnerabilities are in this category with a heightened vulnerability for open structure, with four terminals, with multiple access points and the port near public access roads but no major highways are near the port. While containers are kept in open access yards most of the cargo at Portland is bulk and ro-ro, thereby decreasing the level of vulnerability for open structure. The port has a high level of peripheral companies and daily vehicle traffic increasing levels of vulnerability in those areas.

Administrative

The Port of Portland Police Department is primarily the department for the international airport and not for the marine terminals, only recently granted jurisdiction over the marine terminals. However, the primary component of vulnerability in this area is that the port has lost significant container traffic with the loss of major shippers, Hanjin and Hapag-Lloyd, which may lead to a lack of employment opportunities for previously employed longshore workers, truck

drivers, and warehousemen with significant knowledge of the port and operations. There is no evidence of organization or employee corruption nor a historical criminal presence in port operations.

Logistical

The port does not have a high level of cargo throughput, with primarily bulk grain shipments, and has a low level of logistical vulnerability.

Port of Wilmington (Delaware) – 18

The Port of Wilmington is owned and operated by the Diamond State Port Corporation (DSPC), a corporate entity of the State of Delaware (Port of Wilmington). The port is a significant import port for bananas, the largest import port for perishable refrigerated need cargo and the primary export port on the East Coast for livestock, and is 19th in overall container traffic. The port operates seven deepwater general cargo berths, a tanker berth, and a berth for RoRo vessels on the Christina River, as well as an automobile and roro berth on the Delaware River (Delaware World Trade Center). The port has a standalone police department, the Port of Wilmington Harbor Police (Port of Wilmington B).

Physical

Primary vulnerabilities at the port include a heightened level of freight forwarders. The northeast corridor region, due to the level of cargo transited not only through maritime means but also through air and land transportation has high levels of freight forwarders which is reflected for high scores in that category for ports in this region. In addition, the port has a heightened level of daily truck traffic vulnerability, though the data is based on truck traffic before rail operations re-started at the port and intermodal traffic likely increased (Wilmapco 2009).

Administrative

The primary vulnerability identified at Wilmington (DE) is that it located in a significant illicit import export market. The port is located in a region with significant cargo thefts, 26 reported between March 2013-2015, and an above average level of NICB identified stolen vehicles. Wilmington is considered part of the consolidated Port of Philadelphia, which consists of the waterfront areas of Philadelphia, Camden, and Wilmington (DE) and is a busy multi-port complex. Wilmington's level of cargo traffic is considered sufficient enough for traffickers to inset illicit cargo through the port to smuggle illicit drugs into the region (NDIC 2011c) but compared to other ports on the eastern seaboard it has a relatively low throughput.

Logistical

The port has 330,000 TEUs yearly which places it in the low range of logistical vulnerability.

Port of Gulfport – 17

The Port of Gulfport is managed by the Mississippi State Port Authority which is an independent agency of the state of Mississippi and does not receive funding from the state. Security functions are maintained at the port through contract with an independent security guard

protection service. The service provides continuous surveillance of all Port facilities, protects against unlawful entry and pilferage, enforces fire detection control regulations and performs other assigned security duties. The security functions of the service are coordinated with municipal, county, state and federal law enforcement authorities (Mississippi State Port Authority at Gulfport 2012). The Port of Gulfport is a landlord port and rents facilities and terminal operations to private companies and in 2013 was the 23rd largest container port in the U.S.

Physical

Gulfport is one of the smaller ports in the U.S. serving a regional market and having suffered significant devastation during Hurricane Katrina has had difficulty re-establishing market share. The port itself is not large but does have an open structure, with a significant presence of freight forwarders, though no CRAVED cargo is housed at the port which primarily is an import port for refrigerated cargo (Port of Gulfport). The port displays a heightened level of truck traffic with 47 companies operating in the port, but due to a lack of definitive information on daily truck movements the port does not score at the highest level in this vulnerability.

Administrative

Hurricane Katrina exposed several interagency coordination issues at the port, nor is there any evidence that the port participates in an Area Maritime Security Committee. Following Hurricane Katrina, Port of Gulfport and Harrison County Emergency Management officials in Mississippi said they had limited contact and coordination regarding emergency recovery. Emergency management officials noted that there are difficulties in communicating with the port due to the fact that they are required through the Mississippi Emergency Management Agency to request or provide assistance to the port. While not a specific port security related concern, the lack of interoperability and interagency communication is a significant concern that can lead to vulnerability for broader port security issues (U.S. GAO 2007). The port rate for medium vulnerability for an illicit import/export market, as part of an HIDTA county (NDIC 2011; ONDCP 2015) does register above average NCIC and NICB hit rates for vehicle exports. The primary administrative vulnerability at the port is that Gulfport contracts its security to a private contractor which is not a licensed law enforcement entity (Port of Gulfport). Without a fully licensed security agency managing security at the port, there is a lack of jurisdiction in terms of arrest authority. Significantly for a port with its primary business as refrigerated cargo, recently one of the primary tenants, Chiquita Brands, pulled out of the port as of late 2014 (Bonney 2014). The loss of a tenant means that there will be a fewer employment opportunities for previously employed longshore workers, truck drivers, and warehousemen with significant knowledge of the port and operations, and which can lead to a heightened level of vulnerability to criminal networks that may decide to move cargo through the port.

Logistical

Gulfport is a low throughput port, with just over 200,000 TEUs yearly in 2013, though this is now likely to be significantly decreased with the departure of Chiquita Brands.

Port of Mobile – 17

The Port of Mobile is the primary port managed by the Alabama State Port Authority (ASPA) and is an operating port. The Port of Mobile is a significant bulk port, the largest for forest products and coal in the United States while 22nd in overall container traffic. The port has 41 berths that can provide full services to shippers from intermodal transfer and handling, to storage and on dock security, through the ASPA Port Police (Alabama State Port Authority). The ASPA also manages 10 terminals further inland along the rivers along the state waterway system (Mobile Metropolitan Planning Organization).

Physical

The primary vulnerabilities identified at the port are its open set-up, similar to most ports in the U.S. with multiple entry/exit points for Mobile terminal along the Mobile River providing easy access, port facilities near the I-10 and I-65 interstate highways, and containers stored in open yards on-site at the port. This leads the port to score high on the open structure vulnerability components. The port displays a medium level of vulnerability with medium-level of freight forwarders for the amount of container traffic at the port. The port was scored at a medium level for intermodal traffic, because while data to identify truck trips was not available, the high level of rail intermodal at the port likely pushes its vehicular presence lower since 25% of cargo is transported by rail by five railroad operators (J.R. Wilburn and Associates Inc. 2013).

Administrative

No significant administrative vulnerabilities were identified for the port, with no evidence in the public record of a historical presence of criminal networks operating in port economic sectors, or evidence of organizational or employee corruption. The port scores low for an illicit import/export market with low levels of cargo thefts, negligible export automobile traffic, or evidence that Mobile has many seizures of illicit narcotics or other illegal cargo, though Mobile is an HIDTA county in the Gulf Coast HIDTA group (NICB 2010b; ONDCP 2015).

Logistical

The port does have not a significant throughput load of 224,614 TEUs yearly but carries significant levels of coal and forest products.

Port of Honolulu – 16

The Port of Honolulu is the 19th largest container port in the United States and is managed and operated by the Hawaii Department of Transportation Harbors Division. The port handles all international cargo into or out of Hawaii and the majority of traffic from the mainland United States. The port has one primary facility for international cargo, at Fort Armstrong, with a total of 38 piers handling many smaller vessels and barges for inter-island traffic (Hawaii Department of Transportation B). As an operating port the Hawaii Department of Transportation Harbor Police is the primary law enforcement agency for the port and all others on the islands (Hawaii Department of Transportation).

Physical

Honolulu Harbor is the largest port in the Hawaiian islands and provides the main entry point for imported cargo which is then transferred to other islands primarily through barges. The Port of Honolulu has heightened open structure vulnerability, with multiple piers with entry and

exits points throughout. However, the main container terminal at Sand Island that handles the bulk of cargo throughput has one only one road linking it to the large island of Hawaii reducing access. While containers are housed in open spaces many are transported by barge immediately after arriving and therefore do not stay on site of extended periods of time. The port does have an on-site CES located at Pier 42 increasing its CRAVED goods vulnerability (Islandmovers).

Administrative

The Port of Hawaii is in an HIDTA identified county (ONDCP 2015) and has been identified as transshipment point for illicit narcotics bound for the western Pacific, primarily Guam (NDIC 2011). While air cargo, through Honolulu International Airport is identified as a methamphetamine shipment method, traffickers also use Hawaii as a transshipment point for Mexican methamphetamine bound for the Pacific Basin, primarily Guam. However, the maritime transportation of illicit narcotics in transit to and from the continental U.S. is an intelligence gap. The HIDTA identifies both limited information and resources make both detecting and interdicting illicit cargo challenging for law enforcement officials (NDIC 2011). Furthermore, the Port of Honolulu has a challenging jurisdictional environment with a number of inter-operability and interagency communication difficulties highlighted by a Maritime Intelligence Sharing Taskforce (Salem et al. 2010). Participants in the taskforce identified several areas where the policies or processes of different agencies were not well coordinated. These gaps included a lack of consistency and poor inclusion in emergency operations processes, and focused on the lack of coordination with the port and terminal industry that operate port sites, an inconsistent approaches to the delivery of sensitive information, a lack of unified security plans, inconsistent training programs and a complex regulatory landscape that does not adapt well to individual ports. In addition in recent years, the Hawaii DOT Harbor Police, which has jurisdiction over port security at ports in Hawaii, were stripped of their right to use firearms in response to a lack of developed regulations and training, though this was reinstated following introduction of SOPs for firearms use (Baehr 2011).

Logistical

As the primary cargo port for the Hawaiian Islands, the Port of Honolulu has heightened vulnerability in terms of throughput with over one million TEUs yearly.

Port of Kahului – 16

The Port of Kahului is a small port on the island of Maui which is owned and operated by the Hawaii Department of Transportation. It is unique in this analysis because it does not accept any foreign container traffic, all of which transits to/from the port through Honolulu. The Hawaii Department of Transportation (HDOT) has a separate police force which provides security for all HDOT facilities including Kahului (Hawaii Department of Transportation). The port received a heightened vulnerability score for the level of financial inlays through the PSGP due to the level of container throughput at the port. Kahului had the lowest level of PSGP investment of any port in the U.S. at \$.27 per 2013 container where average is \$56.41 per 2013 container.

Physical

As the smallest port in the MVF sample, Kahului has few identified vulnerabilities. The primary vulnerability is the open structure of the port, with the port composed of three piers with multiple entry/exit points.

Administrative

The port does not have any identified heightened levels of administrative vulnerability.

Logistical

The port has a low level of throughput with just over 80,000 TEUs yearly, the vast majority which is for local consumption on the island.

Port of Wilmington (North Carolina) – 13

The Port of Wilmington NC is operated by the North Carolina State Ports Authority (NCSPA), governed by an 11 member Board of Directors, partially appointed by the Governor, the General Assembly and the North Carolina Department of Transportation (North Carolina State Port Authority). The NCSPA has jurisdiction over two ports, Wilmington and Morehead City, with Wilmington rated as the 20th largest in container volume. The NCSPA has a dedicated port police; the North Carolina State Port Police Department includes sworn police officers and security officers at both the Port of Morehead City and the Port of Wilmington.

Physical

Primary vulnerability at Wilmington (NC) is for a heightened level of open structure vulnerability. Terminal facilities have more than one entry/exit point, containers are housed in open yards, but port facilities are not near large public access roads such as interstate highways. Wilmington also has a high level of freight forwarders for the level of throughput at the port, in addition to proportionally large numbers of truck access.

Administrative

Wilmington does not score for any administrative vulnerability except for a heightened level of illicit import/export market vulnerability. The port has been identified in previous years as an importation point (National Drug Intelligence Center 2003; DEA 2005), and seizures pre-2005 indicate that narcotics have transited the port, however most recent data show that the port does seem to be utilized at the same levels as in previous years (ONDCP 2015).

Logistical

A low throughput port, Wilmington scores low in this area, with 260,000 TEUs yearly.

Port of Anchorage – 11

The Port of Anchorage is an enterprise department under the Municipality of Anchorage and a landlord port. Similar to other municipal enterprise ports, the port generates revenue and receives no taxpayer funds, in addition to providing funds to the municipality. The port has 4 bulk carrier berths and two petroleum berths (Port of Anchorage). The port does not have a standalone police department and instead contracts with Doyon Security Services which provides 20 armed officers that man CCTV cameras and perform the access control (Port of Anchorage

B). In addition the City of Anchorage Police Department responds to any incidents on the port (Alaska Dispatch New 2015). Due to the oil, gas and fishing industry and that it is Alaska's main port of entry for import/export cargo, Anchorage is a significant throughput port, ranked 15th in container traffic. The port received a heightened vulnerability score for the level of financial inlays through the PSGP due to the level of container throughput at the port. Anchorage had the second lowest level of PSGP investment of any port in the U.S. at \$7.73 per 2013 container where average is \$56.41 per 2013 container.

Physical

The port does not have significant physical vulnerabilities. The port is open structure, as the port has three terminals, a staging area south of the port where containers are offloaded for intermodal transport. The port has at least four entrances that can be identified in addition to multiple places without fencing. It is likely that truck traffic is significant at the port, but there is a lack of data to identify the number of daily visits.

Administrative

The primary administrative vulnerability identified for Anchorage is the lack of a dedicated port police as security services are contracted out to a private company, Doyen Services which is not a law enforcement organization and does not have arrest authority at the port. Instead Anchorage PD has to be called to respond to any incidents and does not maintain a full time presence at the port. There is no evidence of organizational or employee corruption at the port nor a history of criminal network use of port facilities or companies.

Logistical

The Port of Anchorage is low-level throughput port with just over 700,000 TEUs.

Appendix H: IRB Approval



Human Research Protections Program
John Jay College of Criminal Justice (CUNY) HRPP Office

DATE: October 17, 2012

TO: Leonid Lantsman
FROM: John Jay College of Criminal Justice (CUNY) HRPP Office

PROJECT TITLE: [362079-2] Vulnerable seaports and criminal networks- a multi-site embedded case study examining how criminal networks use seaport vulnerabilities

SUBMISSION TYPE: Continuing Review/Progress Report

ACTION: APPROVED
APPROVAL DATE: September 20, 2012
EXPIRATION DATE: September 19, 2013
RISK LEVEL: Minimal Risk

REVIEW TYPE: Expedited Review
REVIEW CATEGORY: Expedited review category # 7

Thank you for your submission of Continuing Review/Progress Report materials for this project. The University Integrated IRB has APPROVED your research. This approval is based on an appropriate risk/benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

Please remember that informed consent is a process beginning with a description of the project and assurance of the participant's understanding, followed by a signed consent form(s). Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require that each participant receives a copy of the consent document.

The University Integrated IRB has determined that a waiver of documentation of consent has been approved for this research, under 45 CFR 46.117(b)(1).

Please note that any modifications/changes to the approved materials must be **approved by this IRB prior to implementation**. Please use the appropriate modification submission form for this request.

All **UNANTICIPATED PROBLEMS (UPS)** involving risks to subjects or others, **NON-COMPLIANCE** issues, and **SUBJECT COMPLAINTS** must be reported promptly to this office. All sponsor reporting requirements must also be followed. Please use the appropriate submission form for this report.

This research **must receive continuing review and final IRB approval** before the expiration date of September 19, 2013. Your documentation for continuing review must be received with sufficient time for the IRB to conduct its review and obtain final IRB approval by that expiration date. Please use the appropriate continuation submission forms for this procedure. PLEASE NOTE: The regulations do **not** allow for any grace period or extension of approvals.

If you have any questions, please contact Carina Quintian at 646-557-4801 or jj-irb@jjay.cuny.edu. Please include your project title and reference number in all correspondence with this committee.

Appendix I: Port of New York and New Jersey Case Study Interview Subjects

- Waterfront Commission employees (10)
 - Police chief (2011-2014)
 - Executive director
 - General Counsel
 - Director of Administration and Auditing
 - Director of Intelligence
 - Director of Law, Licensing and EIC
 - Managing director of Licensing
 - Assistant counsel (2)
 - Law fellow
- New Jersey State Police (1)
- Port Authority of New York and New Jersey (1)
- Customs broker (1)
- U.S. Customs and Border Protection PNYNJ officer (1)
- American Association of Port Authorities, Director of Government Relations (1)
- Former court appointed monitor for a waterfront union at the PNYNJ (1)
- Port of Baltimore Director of Security (1)
- Maritime lawyer in the PNYNJ region (1)
- Former Program Manager, Regional Port Programs, Port Commerce Department, Port Authority of New York & New Jersey (1)

Appendix J: Cargo throughput- mid-Atlantic and Northeast port

Table 14: Cargo throughput- mid-Atlantic and Northeast port (AAPA 2013)									
	2013	2012	2011	2010	2009	2008	2007	2006	2005
Hampton Roads	2,223,532	2,105,886	1,918,029	1,895,017	1,745,228	2,083,278	2,128,366	2,046,285	1,981,955
New York/ New Jersey	5,467,345	5,529,913	5,503,485	5,292,025	4,561,528	5,265,058	5,299,105	5,092,806	4,785,318
Philadelphia	367,499	273,190	291,091	272,824	222,900	255,128	253,492	247,211	204,912
Boston	195,303	187,747	192,705	168,285	187,094	208,626	220,139	200,113	188,869
Baltimore	705,230	678,262	631,804	610,922	525,296	612,877	610,466	627,947	602,475

Appendix K: CRAVED Commodity list

Adapted from U.S. Census Bureau statistics of commodities (U.S. Trade Numbers) found in the U.S. comparative port sample, aggregated in alphabetical order and marked per FreightWatch International top ten stolen cargo in 2014 (FreightWatch International 2014)

Table 15: CRAVED commodity list Source	
Commodity	CRAVED- Food/Drink, Electronics, Home & Garden, Building & Industrial, Clothing & Shoes, Metals, Autos & Parts, Personal Care, Miscellaneous, Alcohol, Pharmaceuticals, Tobacco
Acyclic alcohols	
Aluminum ores and concentrates	
Ammonia	
Ash & Slag	
Bananas	
Beer	
Binders for found molds; chemical products	
Biodiesel fuels	
Bitumen	
Cane, beet sugar	
Cassava	
Chemical woodpulp	
Chromium ores	
Coal, briquettes	
Cocoa Beans	
Coffee	
Commercial vehicles	
Corn	
Cyclic hydrocarbons	
Dates, figs, pineapples	
Dolomite	
Ferroalloys 7202	
Fish fillets, chilled or frozen	
Flat-rolled iron	
Fork-lifts, other	
Fresh apples	
Fruit and vegetables	
Fruit, nuts, preserved	
Furniture, parts	
Gasoline, other fuels	

Glass containers	
Glazed ceramics	
Granulated Slag	
Grapes, fresh	
Gypsum	
Halogenated derivatives of hydrocarbons	
Hardware for fixtures	
Imports of returned	
Iron and steel	
Lime	
Live crustaceans	
Machinery for rubber, plastic industry, parts	
Melons and papayas	
Men's or boys' suits, knit or crocheted	
Men's or boys suits, not knit	
Men's or boys' underwea	
Misc. aluminumin	
Misc. dead animals	
Misc. flat rolled steel	
Misc. fresh vegetables	
Misc. mineral or chemical fertilizers	
Misc. minerals	
Misc. vegetables frozen	
Miscellaneous medical chemical re-agents	
Molasses	
Motor vehicle parts	
Motor vehicles for transporting people	
Mussels, scallops, other mollusks	
Natural Barium	
Natural waters	
Nitrites, nitrates	
Nitrogenous fertilizers	
Oil	
Palm oil	
Paper and paper products	
Paper cartons	
Paper, uncoated	
Peat	
Pebbles, gravel	
Petroleum Gas	
Petroleum products	
Photo-sensitive semi-conductors, parts	

Pig iron	
Plastic boxes	
Portland, aluminum	
Preparations for animal feeding	
Railway Etc Tracks	
Rice	
Rubber	
Rubber tires	
Rum, gin, vodka, other liquors	
Sands	
Misc. mineral or chemical fertilizers	
Scrap iron, steel	
Screws, nuts	
Seamless iron tubes and pipes	
Seats, excluding dentist and barber chairs	
Self-propelled heavy construction machinery	
Semifinished products of Iron, nonalloy steel	
Spongy ferrous iron	
Steel ingots	
Stone monument	
Sweaters, pullovers	
Sweetened waters	
Titanium Ores	
Tractors	
T-shirts, tank t	
Various forms of salt	
Washing machinces	
Wheat	
Wine	
Women's or girls slips	
Wood, sawed	
Yachts and other	

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