

Flows and pauses in the urban logistics landscape: the municipal regulation of shipping
container mobilities

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Abstract: The mobilities turn has demonstrated the importance of the social, cultural, and political implications of travel for a variety of modes, though largely focused on people and vehicles, not freight. The transport of goods by shipping container has become the predominant means of freight transport since the 1960s, shaping places from port cities to rural distribution centers. This paper uses two North American case studies to explore temporary immobilities or pauses in the flows of shipping containers, showing that the problems containers pose to the places they pass through are not a function of the objects themselves, but their state of mobility. Pauses are important as a category of mobility because of the consequences of regulations that attempt to eliminate or redirect them.

Introduction

The "mobilities turn" within sociology, geography, and related fields has demonstrated how important mobility is to modern life. The mobile human-machine hybrids that structure daily practices, landscapes, and institutions around the world have been theorized under automobility (Urry 1999), aeromobility (Adey et al. 2007), and velomobility (Furness 2007), among others. Bodies and objects are in motion everywhere, performing places through their mobility (Jones 2005) or their activities while waiting to move (Bissell 2007), more so than in previous eras.

However, the space of flows which we inhabit (Castells 2000) necessarily includes people, places and objects that remain still while others move around them. Furthermore, flows are not constant; the *pauses* of traveling people and goods might have an impact as significant as their motion (as anyone stranded by Iceland's Eyjafjallajökull volcano in 2010 can attest). If places are constructed by flows of people and vehicles passing

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through and around them (Massey 1994), how do places change when those flows fail to move as freely as they should? Traffic congestion is one example (Hagman 2006), although researchers' and policymakers' concern is usually with individuals and their vehicles, not the spaces they are traveling through. What happens when flows of objects that should be in motion become temporarily fixed, becoming part of the landscape? Are the objects themselves the problem or their state of (im)mobility? Can local units of government redirect flows or reduce pauses to minimize the negative impacts on others' mobilities, or do they simply relocate the problem?

This paper explores the above questions through the example of container shipping and the logistics landscape in the United States. The rapid growth since the mid-twentieth century in international trade and the reorganization of economic activity into global production networks have been largely fueled by containerization (Levinson 2006). The innovation of using a standard-size container to carry freight between land, sea, and air has dramatically changed the shipping industry, port cities, and global production networks (Slack 1990, ULI 2004, Aoyama et al. 2006). At the same time, the container serves multiple purposes, taking on different identities from a secure storage site to building material to a threat to property values, even if its physical form never changes. However, little research has explored the territories through which these metal boxes are flowing and how their flows (and pauses) construct space and place. For example, land near intermodal terminals often serves as storage space, legally or illegally, for containers waiting to travel to their final destination or sitting empty and waiting to be shipped elsewhere. Local residents and communities are concerned about the aesthetic and fiscal implications of having parcels of land dedicated to storing these boxes. That concern is

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translated into land use regulations that could potentially reshape the flows of goods throughout metropolitan areas.

This paper explores the implications for local units of government of the mobilities, immobilities, and pauses of shipping containers, based on interviews with city planners in the Chicago and Los Angeles metropolitan regions. After a brief review of the literatures on mobilities and container shipping, followed by a discussion of the methodology, the paper discusses three significant aspects of the (im)mobility of containers: the different problems containers create by being in motion or still; the ways that local governances attempt to redirect container mobilities and pauses; and how these institutional responses shift mobilities across time-space.

The results show that it is not necessarily the shipping container as a material object that causes a problem for local municipalities. Rather, it is the container's state of being mobile, immobile, or paused that poses one or more problems, especially considering that only some of those states can be regulated at the local level. The paper thus contributes to mobility studies by showing the importance of studying not only people in motion, but objects, and of considering what happens when mobility is temporarily blocked. The paper also contributes to transportation geography by underlining the importance of considering local units of government in the study of freight distribution and logistics (Cidell forthcoming).

Mobilities, moorings, and pauses

Mobility is an important and growing area of study precisely because of the banality and everyday-ness that has led to its neglect thus far (Cresswell 2006). The new mobilities paradigm critiques existing *amobile* social science, which privileges sedentarism and has

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traditionally considered spaces as fixed (Adey 2010, Sheller 2007, Sheller and Urry 2006, Urry 1999, 2001, 2003). While mobilities themselves may not be new, recent changes have led to this new interdisciplinary field: travels of objects, people, and information becoming faster and more frequent; virtual travel; and the corresponding number of ways that movement can be out of place (disease, terrorism, etc.). Additionally, some *immobilities* or moorings like roads, airports, and fiber-optic cables are necessary to make mobilities work (Hannam et al. 2006). The new mobilities paradigm means four things for the social sciences: new objects of study, new questions to research, new methodologies, and maybe even new ways of knowing (Sheller and Urry 2006).

Mobility has its limits, whether in the form of accessibility (Gudmundsson 2005, Bartling 2006), security restrictions (Adey 2004), age, or parental concerns (Thomson 2005). In other words, not everyone can achieve the ideal freedom of movement. Even what appears to be mobility may not be: Hagman (2006) argues that automobility is neither fully "auto" (drivers are dependent on oil, the federal government, car manufacturers, etc.) nor "mobile" (when drivers sit unmoving in heavy traffic). Mobility and immobility are intertwined because of the necessity of a barrier in maintaining flows, whether the levees alongside a river (Law 2006) or the legal decisions that co-produce mobility and immobility (Cresswell 2006).

Ironically, part of being mobile is waiting, including various activities that construct space and place, making waiting more than a passive lack of mobility (Bissell 2007).

Furthermore, for many frequent travelers, what appears to be "down time" can actually be productive (Berry and Hamilton 2010). Personal benefits to spending time in transit include transitioning between work and home, enjoying the scenery through the window,

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or other “gifts” to oneself or others (Jain and Lyons 2008). However, the waiting that people do can affect others who are not part of the flow—for example, traffic congestion can lead to higher rates of urban asthma—although this has been largely neglected in the literature (but see Fotel 2006).

I argue here that waiting and *pausing* should be considered as two separate aspects of mobility. Pauses in the flow of movement can be necessary to sustain that movement, such as resting or refueling oneself or one's vehicle (Normark 2006), though these pauses are actively chosen by travelers rather than forced by schedules or delays. At the same time, mobile people and objects are different because objects cannot take advantage of wait time to be productive in other ways; their paused time truly is unused and needs to be minimized. Pauses are unexpected, not taken into account by waiting rooms or parking lots, and their impact on surrounding places is therefore greater than scheduled waiting time in a designated location. Pausing therefore deserves consideration as a separate state of mobility.

Immobilities, moorings, and/or pauses have significant effects in constructing places. For example, the “air-mindedness” created by municipal and national pride in airports and aviation reached individuals who never boarded an aircraft (Adey 2006a). “[I]f we are to take airports and other transportation interchanges seriously as sites where mobilities are produced, we must not fail to explore how immobilities are just as fundamental to the airport process. Yet, this analysis cannot be left to the airport terminal.” (Adey 2007, p. 532). Unfortunately, Adey does so in his own analysis, concentrating on the terminal itself to the exclusion of surrounding places. Similarly, work focusing on a particular piece of infrastructure largely neglects its relationship to the places around it (Dodge and

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Kitchin 2004, Robertson 2007). Exceptions are Bishop (2002), who argues that the proposed rail line from Alice Springs to Darwin, Australia, "gathers" the land along the corridor even though the railway does not yet exist, and Fotel's (2006) exploration of busy road corridors in Copenhagen affecting surrounding neighborhoods.

Similarly, despite most broad descriptions of mobilities as including non-humans as well as people, the majority of studies focus on the latter (with exceptions: Adey 2006b, Fotel 2006, and Law 2006). Others have argued that human/machine hybrids typify modern mobility; for example, bicycles are not objects in motion, but fused with their riders (Spinney 2006, Sheller 2007, Waitt and Lane 2007). There are also studies on the mobility of information and its role in the movement of people and objects (Allen-Robertson and Beer 2010, Budd and Adey 2009, Reading 2009, Sheller 2009). Still, there are significant differences between traveling objects and people, most notably the degree of agency which each retains over its journey and its surroundings.

Ironically, the most complete treatment of how objects change themselves and the places through which they travel comes not from the mobilities literature, but De Laet's (2000) work on patents, arguing that patents do different work in different places. Specifically, in Geneva or New York, they protect people and companies, while in Harare, they introduce knowledge. Furthermore, "the patent is tenuous as well. For it works only if experts are disciplined, justices rule, and students know to invoke the rulings—that is, if all conventions and conditions of the order are in place" (p. 160). The patent itself—words on a piece of paper or an electronic document—does not change its content through its cross-continental travels, but local conditions such as reliable electricity or user knowledge make the work the patent is meant to do more or less possible.

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Similarly, a shipping container that begins its journey playing one role—storing commodities for secure and efficient transport—can end up serving other roles, such as threatening homeland security (Thibault et al. 2006, Grillot et al 2010), becoming building material (Vijayalaxmi 2010), contributing to traffic congestion, costing shippers money, or becoming a nuisance for local governments. As I argue below, one of the main characteristics differentiating these roles and their effects is the container's state of mobility: in motion, temporarily stopped, or (perceived to be) immobile. The following section explains how the shipping container came to be the main enabler of long-distance goods transport and some of the corresponding geographic implications.

The shipping container

While not high-tech by any means, Malcolm McLean's 1956 innovation of the shipping container revolutionized shipping as well the entire global production system (Slack 1990). By shipping goods in a standardized metal container, the physical unloading of ships decreased from hundreds of longshoremen taking many days to a handful of workers taking a few hours (Levinson 2006). The resulting reduction in labor costs and "slippage" lowered transport costs dramatically, allowing companies to change production locations to minimize other costs such as labor or environmental regulations. The twenty-foot equivalent unit or TEU has become the standard unit of measurement for ports (although most containers within North America are forty feet long). In 2008, there were nearly half a trillion movements of containers worldwide, or about 50 million individual boxes (World Bank 2010).

The spatial implications of shipping containers have been apparent for many decades (Notteboom and Rodrigue 2009). As ships have gotten larger, most ports have faced a

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three-part decision: investing in larger cranes and/or dredging equipment to stay open for the largest ships, becoming specialized facilities for commodities like automobiles or oil and natural gas, or ending their port functions entirely (Slack 1999, Olivier and Slack 2006). At a regional scale, inland ports have grown as sites for unloading and processing the goods carried inside containers as dockside facilities became overwhelmed by the volume of incoming freight (Hayut 1981, Slack 1990). The resulting shift to more inland ports has happened simultaneously with deconcentration within metropolitan areas as logistics activities move to the suburban fringe (Hesse 2006, Cidell 2010).

Container ownership has changed significantly over time; although the concept originated in North America, by 2000, the list of the top twenty container firms did not include any from that region (Slack and Fremont 2009). Thirteen of the top twenty firms are in East Asia, and the European firms that have been able to retain their dominance have done so through mergers and because they are family firms, able to react more quickly to a volatile market (Table 1). Shipping container firms are also unusual in the transportation industry in that nearly all of the successful ones are privately owned, which means that despite the high capital costs of entry, a significant number of new firms have entered the market and become successful through innovation (*ibid.*).

Due to significant economies of scale, containers themselves are growing rapidly in number, leading to problems for the private and public sectors alike (Fowler 2006).

Because of the significant worldwide imbalance in terms of where goods are produced and consumed, shipping companies must move containers to where they are needed, even if they are empty (McCalla et al. 2004, Theofanis and Boile 2009). The distance that containers travel inland depends largely on local infrastructure; McCalla et al. term China

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a "logistical nightmare" (2004; p. 484) due to the lack of interior rail and road infrastructure (although this is changing rapidly), while the limits in Europe are more in terms of restrictions on inland waterway usage. Congested roads and railways in the U.S. further restrict the flow of containers inland, leading to demands for new infrastructure.

Containers continue to shape places after they pass through the terminal gate. A survey of neighborhoods around eight Canadian intermodal freight terminals found that transport-related land uses tend to dominate, while residential land use occurs in higher amounts than expected and industrial land uses are not necessarily related to the terminals themselves (McCalla et al. 2001). However, the distinct differences among those eight locations suggest that despite the international integration and standardization of transportation and logistics systems, local conditions still strongly influence the characteristics of terminal areas, requiring careful study of each location.

Easterling (1999) writes that "[containers] have profoundly affected patterns of settlement in this century and are, in fact, the primary means of making space in America and around the world" (p. 113). The intermodal nature of containers, switching between road, rail and water, leads to an intermeshing of infrastructure networks that Easterling argues is the hallmark of our era. At a larger scale, container availability shapes the global trade networks that define international relations. "In these cities, generic box buildings warehouse goods according to temporal and physical dimensions or house the 'containerized' tasks that have been out-sourced among companies both here and abroad" (p. 120). In other words, in the same way the assembly line defined Fordist spaces for both production and consumption, the container defines the turn of the millennium in its standardized form, inherent flexibility, and the spaces and places it helps to construct.

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Exploring this issue from a different perspective—local municipalities with significant concentrations of logistics-related activities—can therefore give us insight into how places are constructed through global flows of goods not only at the port itself, but other places where shipping containers travel.

Studying suburban logistics

Recent trends within the shipping industry have shifted freight activity within North America from the coasts to the center (although major coastal ports have retained their dominance) while decentralizing to the suburbs within metropolitan areas (Cidell 2010). Two regions were chosen to examine the effects of this shift at the local level: the Inland Empire in southern California and the southwestern edge of the Chicago metropolitan area. Both regions have experienced a dramatic increase over the past decade in the number of containers passing through, the Inland Empire as a staging area for goods imported through the Ports of Los Angeles and Long Beach, and Chicago as a major continental distribution center thanks to its status as a hub for rail, road, and air.

The inland counties of Riverside and San Bernardino together comprise the Inland Empire. Although they are among the physically largest counties in the country, the vast majority of their population and economic activity are on their western edges, next to Los Angeles and Orange Counties. With a history of fruit orchards, military bases, and now freight distribution, this area has generally lower levels of economic activity, educational attainment, and housing prices within Southern California. The Inland Empire is also a gateway for three-quarters of the goods entering the U.S. through the Ports of Los Angeles and Long Beach, together representing a third of waterborne U.S. imports (Wilbur Smith Associates 2008). Served by cross-country Interstates 15 and 10 and the

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mainline Union Pacific and Burlington Northern Santa Fe railroads, the region has significant container traffic not only in terms of boxes passing through, but going to and from local processing centers where value is added by customizing products before reaching their final customers. While containers in this region are well-positioned for being sent back to Asia, the largely unidirectional nature of international trade means that there is little with which to fill them.

The Chicago case study is based on Will County, about forty miles southwest of downtown Chicago. From 2000 to 2006, this county's population was the tenth fastest growing in the country (out of roughly three thousand) in terms of numerical increase (U.S. Census Bureau 2007), given its relatively close proximity to both downtown Chicago and the job centers of the western and northwestern suburbs. At the same time, the county enjoys excellent transportation access via the Illinois River, multiple interstate highways, and six of seven Class I major railroads (a distinction shared only with Kansas City). Chicago as a whole ranks as the third largest "port" in the world in terms of the number of containers moving through on a yearly basis (Testa 2004). Will County ranked eleventh nationwide in terms of the increase in the number of freight firms between 1986 and 2005. Much of this increase is due to CenterPoint, a large intermodal yard owned and operated by the BNSF railroad, surrounded by a series of Midwest regional distribution centers including Dunkin' Donuts, Sears, Georgia Pacific, and Wal-Mart. A small but growing trend towards filling shipping containers with Midwestern grain for Asian markets is enabling shippers to send some full containers back to their origins (Vachal and Berwick 2008).

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During the fall of 2007, I conducted interviews with city planners and economic development officials in both regions for a project investigating the impacts of logistics-related development at the municipal level. There were four phone interviews in the Inland Empire and eleven in the Chicago area¹, mostly in person, of half an hour to an hour each. Both phone and in-person interviews were transcribed. The interviews focused on the implications for land use and planning of increased logistics-related development. Without being prompted, many interviewees brought up containers as one of those impacts, including the changing role of containers based on their state of mobility. The following section explains these roles in more detail.

The (im)mobilities, spaces, and places of shipping containers

Problematic mobilities and problematic pauses

The nature of the globally distributed shipping network means these large metal boxes need to be in motion as much as possible. At the same time, they can be temporarily fixed in place as "moving warehouses" (Notteboom and Rodrigue 2009) that can pause until their final destination is ready for them. For the owners of the containers, keeping them in motion is key to earning value from them. For local municipalities where containers pass through and pause, these same objects create different problems whether they are moving or sitting still. Therefore, it is not the shipping container itself, but its state of mobility and its interactions with other mobile and immobile objects, that cause problems for local residents and city governments.

Containers in motion cause problems because of the vehicles on which they ride. Trucks take up road space, produce noise and air pollution, and create more wear and tear on local roads, especially those connecting distribution centers and freight terminals to major

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highways. Within Will County, over thirty jurisdictions have some responsibility for funding roadways, leading to a patchwork of road conditions based on the routes of the heaviest vehicles and which jurisdictions have the funds to improve the roadways.

Increased rail traffic leads to more frequent, longer delays at grade crossings, arousing local residents' and workers' ire at having their own mobilities disrupted. These delays have motivated private-public partnerships such as the Alameda Corridor and Alameda Corridor East projects in the Los Angeles area (Callahan et al. 2010) and CREATE in Chicago (Rahim 2010), both of which are meant to reduce the number of at-grade crossings, thus improving the flow of individual vehicles.

On the other hand, if containers do *not* stay in motion, they can create other problems. Much has been written about the ever-expanding nature of container traffic and the need for more port and terminal space. However, this discussion largely neglects the space beyond the terminals, which is not officially designated as a distribution-related land use but may become so by default. In the case of Will County, the railroad controlling the main intermodal terminal allows free container parking at the terminal for only three days, after which a daily fee is charged. Local entrepreneurial landowners have begun to offer vacant or agricultural land for container parking for a lower fee. As a result, containers spill over from the terminal into the surrounding areas, creating a landscape of stacks of large metal boxes that local governments feel is not the highest and best use. Beyond aesthetics, these container parking lots represent a loss of tax revenue based on what else *could* be done with the land in this rapidly suburbanizing area.

The irony of these informal container storage areas is that they are places of simultaneous fixity and motion, making them difficult to regulate. Individual boxes do not stay put for

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more than a few days; after all, they serve a valuable economic purpose. As one interviewee said, "Containers today have about \$10,000 worth of steel in them, so it doesn't make sense...to just dump these things." However, once a parcel of land becomes designated as storage space, from an outsider's perspective, that site is a container parking lot. Individual containers may move in and out, but if there are always containers there, they might as well be the same boxes. As the following section explains, municipalities have to be creative in regulating this specific land use because of this simultaneous fixity and motion.

Regulating mobilities at the local level

Shipping containers are interesting from a mobility perspective because of the contradiction they represent between flows of goods and the demarcated territories they travel through. Attempts to regulate the movement and pauses of containers depend on the authority of various jurisdictions to regulate their internal land uses, particularly through zoning. Because the logistics industry is new, few planning practices exist to regulate it, and communities therefore have to be creative (Cidell forthcoming).

Fixed territories such as counties and municipalities can use zoning to restrict the types of activities taking place on a specific parcel. While American land-use planning authority is limited in terms of telling a landowner what land uses are allowable on their property, authorities can implement general restrictions that apply to all instances of a specific land use within their territory (e.g., all commercial development has to provide sufficient parking). Standard land uses include residential development of various densities, commercial development, open space, mixed-use, and transportation. Local units of government can only regulate the spaces within which flows of containers pause. They

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have no control over the flows themselves or pauses outside their boundaries, but they can control the location and duration of pauses to accomplish one of three things:

eliminate the pauses, hide them, or keep them from interfering with others' mobilities.

One goal of local regulation is to keep containers from pausing within city boundaries altogether. Ordinances may restrict the number of days a truck may be parked on city streets or forbid the unhitching of containers from truck chasses. Some communities are also considering taxing containers in storage to compensate for property tax that is not being generated through development of the land, but also as incentive to eliminate container storage.

While it is difficult to eliminate the pausing of shipping containers entirely, those pauses *can* be hidden from public view. Since many of the objections to stored containers are aesthetic, based on the unattractive sight of large, battered metal boxes stacked atop each other, simply hiding them from view may suffice. Many municipalities in both California and Illinois have aesthetic requirements in their zoning regulations, including earthen berms to keep parked containers hidden. Others restrict the location of land parcels where containers can be stored, for example by requiring rail or river access to a parcel in addition to road access. One planner from a municipality with such a regulation admitted they do not expect any containers to arrive at the storage site by rail, but the regulation conveniently eliminated most of its territory from eligibility, keeping container storage tucked off in an industrial corner.

Not all objections to the presence of containers have to do with their pauses, of course; there is also their mobility on the backs of semi-trucks along the same roads that residents, workers, and shoppers use. Municipalities may therefore try to regulate

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container traffic to keep it from interfering with other mobilities. For example, rerouting a federal highway to a parallel street away from the city center reduces traffic congestion and wear and tear on Main Street. Designating truck routes and providing infrastructure such as new traffic lights also helps keep everything moving. Working with other jurisdictions to add freeway interchanges closer to distribution centers is another strategy to keep container traffic out of the way of residents' and workers' daily mobilities.

Because logistics-related land uses like distribution centers and container storage areas are relatively new, communities have to be creative in crafting regulatory responses. The Will County Economic Development Organization drafted a model ordinance a few years ago, recognizing the importance of giving local municipalities the ability to reduce the negative effects of the growing logistics industry while continuing to encourage logistics-related development. Other municipalities have adapted existing restrictions based on commercial land uses to keep the flows and pauses of container traffic out of sight and out of the way.

New and shifted mobilities

Of course, attempts by local units of government to restrict the flows of containers, trucks, and cars are likely to have other effects. In particular, these restrictions may create new mobilities or redirect existing ones, affecting more places and times as well as the general pattern of logistics-related development.

First, when parcels are eliminated from specific kinds of development, activity is not likely to cease entirely, but move to a different location. If a suburb elects to enact an ordinance greatly restricting the sites where containers can pause, the sites of the pauses will shift: back to the intermodal yard despite the costs or to neighboring municipalities

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without such restrictions in place. For example, an economic development official in the Chicago suburbs said his municipality's aesthetic requirements were pushing logistics companies to move even farther west to find municipalities without such restrictions.

Shifts in the flows of container traffic can also cause new immobilities. Rerouting truck traffic exposes new corridors and intersections to heavy vehicles and increased congestion. Shifting modes, such as moving containers inland from the Los Angeles and Long Beach by rail instead of truck, creates delays at railroad crossings for residents trying to move across town. While the Alameda Corridor project overcame this problem by putting rail lines below-grade, funds are only slowly becoming available to install overpasses at the fifty-some grade crossings in the Inland Empire, thus lengthening southern Californians' daily journeys in order to move international freight more swiftly. Opposition to Canadian National's purchase of a beltline railroad around Chicago was driven in part by fear of emergency personnel being stuck at railroad crossings while long freight trains pass, with more serious consequences than an aggravating wait for the crossing gates to lift (Cidell forthcoming).

Some mobility shifts can take place across time as well as space. The Ports of Los Angeles and Long Beach are experimenting with keeping later hours and using congestion pricing to encourage containers to leave the port when adjacent freeways are less congested. These policies have spread out truck traffic over more hours over the day: over 40 percent of cargo now leaves the ports during off-peak hours, up from around 20 percent before the program started (BST Associates 2008). However, of the 60 percent of containers leaving the port off-peak with a local destination, only 25 percent had destinations that could accept off-peak traffic, which suggests that these containers

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had to pause somewhere outside of the port overnight (*ibid.*), perhaps on local streets or parking lots.

In sum, the presence of shipping containers can cause problems for local jurisdictions whether they are mobile, immobile, or paused. Depending on the state of mobility of a container, jurisdictions are more or less able to regulate its (im)mobilities and pauses. In turn, regulations might create new (im)mobilities, enhance existing ones, or shift them across time and space.

Conclusions

The shipping container itself, as a large metal box, does not pollute the air or cause traffic congestion. Whether a secure means of transporting manufactured goods overseas, a creative type of building material, or a "moving warehouse", the container takes on many different roles in its journeys around the world. Because these roles are defined in large part by whether the container is in motion, stopped, or paused, I have argued here that it is the state of mobility of a shipping container that determines what kind and how much of a problem it causes to the places it passes through.

On the back of a truck, a mobile shipping container can congest roadways, restricting others' movement through congestion in the short term, or reduce road quality in the longer term through the impact of its weight on asphalt and concrete. On a train, a container blocks local road crossings while passing through, temporarily sundering local flows of people and goods. On the other hand, shipping containers pose different problems when they become immobile, such as the long-term problem of what to do with damaged containers that can no longer serve their primary function because of damage or neglect.

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Pauses provide a different set of problems and need to be considered separately. Paused containers are still moving towards their final destination, but due to congestion or lack of space at some point in transit they are waiting for a few days before resuming their travels. When land becomes designated as temporary storage space, whether explicitly through municipal zoning or in an ad hoc fashion by landowners, it appears to passersby that the containers are always there, even when individual boxes move in and out. Unlike passengers in waiting rooms, there is no alternative use to make of the time; a pause is truly dead time for these objects.

While local municipalities cannot regulate where the flows of trucks, trains, and containers go, they *can* regulate where and how these flows pause. Localities in similar situations are sharing model ordinances that either restrict the land on which containers can pause or compensate the municipality for the lost tax revenue from such a lowly land use. In turn, these regulations further shape logistics activity at the metropolitan scale. Temporary container storage spills over into neighboring jurisdictions that lack sufficiently restrictive regulations or into municipalities even farther away with sufficient undeveloped land.

Future work on the (im)mobilities of objects should incorporate land use regulation and other attempts by local governments to regulate the flows of goods as well as people.

Pauses also need to be considered separately from either mobilities or immobilities.

While individuals' waiting has been shown to be useful or important time, the effect of such waiting on nearby people and places has hereto unexplored effects. This is even more true for objects, which do not themselves have agency with regards to whether or not they are in motion and cannot make use of their waiting time, but nevertheless affect

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the areas around them. The mobilities, immobilities, and pauses of objects all have effects on surrounding land uses and other travelers that need to be considered to fully understand the relationships between people, objects, and places.

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Table 1. The leading owners of shipping containers as of 2007. Source: Slack and Fremont 2009.

Company	Country	% World capacity
Maersk	Denmark	14.61
MSC	Switzerland	9.02
CMA-CGM	France	5.20
Hapag-Lloyd	Germany	4.02
COSCON	China	3.45
CSCL	China	3.42
Evergreen	Taiwan	4.03
APL	Singapore	3.03
Hanjin	Korea	2.98
nyk	Japan	2.50
MOL	Japan	2.49
OOCL	Hong Kong	2.54
K-Line	Japan	2.37
Yang Ming	Taiwan	2.13
ZIM	Israel	1.80
Hamburg-Sud	Germany	1.39

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HMM	Korea	1.39
PIL	Singapore	1.09
CSAV	Chile	1.04
Wan Hai	Taiwan	1.00

¹ The difference in number of interviews has to do with the responsiveness of potential interviewees; when initially e-mailing from my University of Illinois address, I received responses from all but two of the Chicago-area planners but none from the Inland Empire. A second mailing from my former e-mail address at California State University, San Bernardino, resulted in a more positive response, but still less than fifty percent.