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16. ABSTRACT
 This report evaluates the development of a pooled chassis strategy for the Southern California goods movement sector, focusing on the Ports of Los Angeles and Long Beach, and its implications for urban and regional freight mobility. We use surveys and interviews with a variety of key stakeholders including truckers; terminal operators, the ports, rail companies, and chassis pool operators to better understand the incentives for them to take part in shared equipment management strategies. Our findings indicate that, as developed in the Southern California context, the pooled equipment strategy approach is an interim step, responsive to short term needs. Labor is another major challenge. The issue of who controls the maintenance and repair of chassis leaving the terminals is one that needs to be solved in order to determine the long-term viability of the current model. The findings contribute to our understanding of the Southern California freight sector and the incentives for improved stakeholder coordination to address freight mobility challenges.

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Mitigating Urban Freight Through Effective Management of Truck Chassis

Final Report

METRANS Project CSULB 2-2

February 2016

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Disclosure

The preparation of this report involved no contracts or subcontracts.

Introduction: Chassis and the Supply Chain

The intermodal chassis helps make the global supply chain possible. It allows for the easy transfer of the shipping container between port, rail yard, distribution center and store. Anything that limits the availability of this equipment also limits the efficiency of the supply chain.

This report assesses the development of a pooled chassis strategy for the Southern California goods movement sector - focusing on the Ports of Los Angeles and Long Beach - and its implications for urban and regional freight mobility. In the wake of decisions by ocean carriers to divest themselves of intermodal chassis, and as a result of increasing demand for chassis because of rising trade volumes and larger vessels calling at Southern California ports, the goods movement industry has experimented with alternative strategies for equipment management. One such strategy involves the establishment of a chassis pool involving three third-party equipment managers that operate their own independent pools in and around the San Pedro Bay. Under this model, truckers may obtain equipment from one of the three providers for use at marine terminals at both ports. The strategy has come to be known as the “pool of pools.”

We use surveys and interviews with a variety of key stakeholders including truckers, marine terminal operators, the ports, rail companies, and chassis pool operators to better understand the incentives for these stakeholders to take part in shared equipment management strategies. We also develop process flows to capture port-driven supply chains before and after the development of the pool of pools. This project builds upon METRANS-funded research done on in-terminal chassis management practices at the Southern California ports.

The first part of the report focuses on the timeline of events that led up to the implementation of the pool of pools at the Ports of Long Beach and Los Angeles. This is critical

to understanding the broader supply chain pressures that led ocean carriers to get out of the chassis business and also the unique Southern California context that drove the pool of pools approach. We also outline the various models for pooled chassis that have been used throughout the U.S.

Following this we explain our research methodology including the development of an interview protocol targeting various industry segments. Our analysis of these interviews focuses on the jurisdictional and institutional issues surrounding coordinated equipment management, the short term impact on supply chains and the longer-term implications for moving goods through the ports. We conclude with some comments on the benefit of documenting the Southern California experience for other regions.

The Challenge: Changing Chassis Management Practices

Carrier-owned chassis are a legacy of containerization, which allowed for the development of a true intermodal system in this country. By controlling the chassis, ocean carriers had access to other portions of the U.S. domestic market. As containerization spread into Europe and Asia however, trucking companies or shippers provided the container chassis (Prince, 2006). Thus the practice of shipping lines owning the chassis was unique to the United States (Le, H.D. 2003). This American tradition of the shipping lines owning and managing the chassis fleet was maintained over the years. The containerization model was often used by shipping lines as a sales or marketing technique (Prince, 2006). Some shipping lines had better quality or larger numbers of chassis in their fleet and would claim that, as a result, they could offer more reliable service to shippers (Prince, 2006). Many marine terminals in the US have also had the luxury of space. Large port complexes allowed terminal operators to utilize land for

wheeled operations, i.e. the storage of containers on chassis. Wheeled operations allow truckers to pick up import loads without requiring longshore labor to unload the container from a stack. This provides operational flexibility to a terminal, particularly in the evening and on weekends when labor is most expensive. For truckers however, the old business model created certain inefficiencies. Because chassis belonged to the carrier and were stored at the terminal, truckers had to reposition the equipment back to the port after dropping off a container. This resulted in many non-revenue generating trips for truckers and limited the number of revenue-generating trips or turns a driver could make in any given day. If a trucker returned a chassis to the “wrong” terminal, it resulted in additional delays for the driver as well as an additional repositioning between terminals. This was a particular problem for a large port complex like the one in Southern California’s San Pedro Bay with thirteen different container terminals spread across an area that is larger than 10,000 acres.

Over time, the advantages of the old business model became less apparent to the ocean carriers. Chassis have become more uniform and the availability of chassis less of a problem due to the creation of lease-on-demand firms. However, harbor trucking companies usually do not have enough capital to purchase or lease a large fleet of chassis, nor do they have enough space to store them. Thus, the model of chassis ownership that works overseas is still not feasible in the U.S.

It was in this uniquely American equipment management context that chassis pools first developed. Historically, a chassis pool was simply a group of chassis that two or more ocean carriers agreed to share when moving their containers. One common method was to have different carriers contribute their own chassis to the pool on slow days for ‘pool credit’ and then use this credit to pay for the times when they needed to borrow extra chassis from the pool on

busy days (Brennan 1997). If carriers did not want to contribute any of their chassis to the fleet, they also had the option of simply paying a fee for using a chassis from the pool. Another option was to use all ‘neutral (or gray) chassis,’ in which a leasing company - considered the ‘neutral’ third party - provides all of the chassis in the chassis pool. This chassis pool model is prevalent at rail ramps.

In the wake of the economic downturn in the mid to late 2000’s, ocean carriers had an increased incentive to eliminate the costs associated with maintaining a now underutilized chassis fleet and those costs tied to the terminal real estate on which the fleets were stored. Ocean carriers had a practice of absorbing the chassis costs rather than charging shippers separately for the chassis usage. This meant not simply reducing the number of chassis on terminal by expanding the use of pools but by divesting themselves of the equipment altogether. Roadability regulations, which increased costs were also a contributing factor in their decision to divest.

In 2009, Maersk, the world’s largest container shipping line, announced a program called ChassisLink, which charged the trucker a daily fee to rent a chassis. In return, the trucker was allowed to use a Maersk chassis for as many trips as (s)he wanted until it was returned to the terminal. The program was an important first step in demonstrating the supply chain benefits of eliminating inefficient truck trips and in freeing up valuable staging space on the docks. In early 2012, Maersk sold its ChassisLink subsidiary altogether. It exists now as an independent company called DCLI. At the same time, the Ports of Los Angeles and Long Beach established a Chassis Operations Group to formulate a response to the changing industry practices.

In the wake of the Maersk decision, other ocean carriers followed suit, implementing changes to their equipment management procedures that involved chassis pools in the short term

and then ultimately chassis divestiture. The implications were great. As of mid 2011 when most carriers began the process that resulted in divestiture, there were approximately 670,000 marine chassis in North America registered with the Intermodal Association of North America's (IANA) Global Intermodal Equipment Registry, 70% of which were ocean carrier provided. By 2014, according to the IANA website, there were 640,000 registered chassis in operation, only 32% of which were owned by the carriers. One-fifth of the total chassis were in service in Southern California.

As ocean carriers were divesting themselves of chassis, they were also investing in larger, more efficient megaships as a cost savings measure. Larger ships discharge and load a greater number of containers per visit. This has created peak period demands for landside infrastructure, including chassis, at ports where the larger vessels are able to call. These include the Ports of Los Angeles and Long Beach.

In order to tackle the chassis issue head on, a Container Chassis Operations Group was created in August 2012. This group included the Ports of Long Beach and Los Angeles, primary stakeholders, and the city attorney's office (to ensure compliance with FMC requirements). They were tasked with looking at various models for chassis management. On behalf of both ports and the entire Operations Group, the Port of Long Beach issued an RFP in April 2013 to examine best practices and various chassis models for this group.

In 2013, a chain of winter storms hit North America causing a freeze out that resulted in systematic problems for the country's port drayage infrastructure. As a result, during the first quarter of 2014, many of the ports in North America, especially the Ports of Los Angeles and Long Beach, experienced a large influx of containers as the global trading system recovered. The problem was exacerbated by a lack of chassis, at least at some terminals, as the transition to

third-party providers was still underway. This required drivers to pick up a chassis from one terminal and move it to another terminal to effectuate a container pick-up, with a negative impact on the number of turns per day.

In response, the Port of Long Beach created a Chassis Relief Team in September 2014 immediately following the chassis crisis. The team's first goal was to provide a steady stream of updates on chassis positioning. The team's second goal was to hold regular meetings to find solutions for the short term, medium term and long term. The first meeting included DCLI (the Maersk subsidiary), terminal operators, truckers, and beneficial cargo owners (BCO). The short-term solution to provide a measure of relief was to track chassis equipment and report. The medium term solution was for DCLI along with the other major leasing companies, Flexi-Van, and TRAC Intermodal, to develop an asset-sharing system of their chassis equipment. The long-term goal was to implement a neutral or gray chassis "pool of pools" which would allow for an interoperable chassis environment eliminating split chassis moves and permitting truckers to use the equipment for multiple trips without repositioning first.

By October 2014, the Chassis Relief Team moved into the medium-term phase with two chassis leasing companies, DCLI and TRAC adding over 3,000 chassis to their local fleets. The Chassis Relief Team also announced plans to buy chassis to help aid in congestion relief during periods of peak demand. At the end of October, the three gray pool providers as well as SSA Marine, which together own approximately 95 percent of the chassis in the region, agreed to develop a neutral, gray chassis pool to be implemented on February 1, 2015. SSA Marine, which operates three container terminals and has its own chassis pool largely dedicated to domestic service, agreed to hold four town hall meetings to develop and implement the program that will provide chassis interoperability among the equipment providers. In November 2014, the Port of

Long Beach, in an effort to alleviate congestion, proposed the establishment of an off-dock lot so truckers could return empty chassis there instead of inside the port.

In March 2015, the “pool of pools” was launched. Under the operating model, DCLI, Flexi-Van, and TRAC Intermodal remain independent and compete with each other in 11 of the 13 container terminals as well as at off-dock rail yards (later 12 of the container terminals participate). In May 2015, the Harbor Trucking Association announced that it would also own and operate its own pool of chassis for member trucking companies. By forming a separate chassis pool, the association can ensure that its member companies will have access to the equipment they need regardless of the availability of chassis in the public pool of pools. The chassis can be used at any marine terminal and truckers are billed by the day. The equipment is inspected for “roadability” and verified before being turned over to the trucker for use at the ports. A summary of these critical events leading up to the development of the pool of pools can be found in Appendix A.

Research Objectives and Implications for Statewide Transportation Planning

The objectives of this research project are to (1) review the development of pooled equipment in the port sector for lessons to be learned about the Southern California experience, (2) document the evolution of chassis management practices in the San Pedro Bay in the wake of ocean carrier divestiture, (3) assess the institutional formation, membership and outcomes of the ‘pool of pools’ focusing on regional chassis supply models, (4) evaluate the potential impact of changes in equipment management practices as a result of the ‘pool of pools’ on regional supply chains, including the need for multi-sectorial, multi-jurisdictional, and public-private

coordination, and (5) comment on the implications of the pool of pools concept for chassis management in other ports.

Our findings underscore the unique nature of operations in North America's largest port complex. While East Coast ports have a history of pooled chassis, they arrived later to the West Coast and, for Los Angeles and Long Beach, required a more terminal-specific approach to pooling. That experience is outlined below. As a result, the challenges brought about by divestiture, larger vessels and vessel alliances, not to mention increasing trade volumes, also demanded a more unique response in the Southern California context.

The results of our 18-month analysis of the development of the pool of pools, informed by interviews with key stakeholders, suggest that the new chassis management model is more efficient than earlier models but that repositioning has not been eliminated. Furthermore, additional equipment hand-offs are created when off-site equipment storage takes place (which is the case when truckers provide their own equipment). The findings also suggest that the pool of pools model may in fact be a short- and mid-term solution, leading to what many expect will be an equipment management environment dependent upon long-term leases of equipment or movement toward a European-style model in which truckers and beneficial cargo owners provide their own chassis.

While the analysis has a deliberate Southern California focus, there are lessons to be learned for both goods movement stakeholders as well as transportation planners. The research contributes to our understanding of chassis management practices in general. More important, the role played by the ports as a convener of private sector stakeholders is significant. This development is part of a broader port-led effort in supply chain optimization and an

organizational and institutional model of potential interest to ports around the world, even those without similar equipment management challenges.

For planners, particularly those in California, the outcome of the pool of pools effort is also of interest. The shift to management by third party providers may create a need for chassis storage facilities near the ports and rail yards and at inland locations near distribution centers and warehouses. This has the potential to change intra-metropolitan freight flows, creating demand for infrastructure, including new access roads, particularly in the vicinity of ports. As the result of reduced repositioning, fewer truck movements have the potential to reduce vehicle miles travelled and emissions.

Research Methodology and Findings

This section outlines our research methodology, including outreach to stakeholders with an interest in chassis management. We begin with a review of the chassis management literature, which is important to understanding the development of the pool of pool concept. We then present our analysis of interviews and sample process flows for regional supply chains to demonstrate the impact of changing chassis management models.

Chassis Pool Models

The development of the pool of pools did not occur in a vacuum. As discussed earlier, in the US context, chassis—like containers—have been historically owned by ocean carriers or shipping lines. This model allows the drayage companies and “owner-operator” drayage service providers to avoid having to invest in chassis. Thus the ocean carriers absorb the initial costs and pay for these costs by passing along the charges to the shipper in the shipping rate as part of the

service delivery. This gave rise to a number of chassis pool models that provided background to the approach taken by Southern California stakeholders (summarized in Table 1 below).

Maher Terminals created the first common-user chassis pool in the U.S. in 1995 (Brennan, 1999). The chassis pool involved shipping lines calling at Port Elizabeth in New Jersey and the Port of New York. It was a voluntary, cooperative pool in which each of the participating ocean carriers had a seat on the directing board.

The Virginia Port Authority's chassis pool was created in two phases. It started initially as a smaller, voluntary pool in 1997 and included only about one-fifth of the chassis used at the Ports of Norfolk, Portsmouth, and Newport News (Leach, 2005). The second phase began in October 2004. In contrast to the Maher Terminal chassis pool - and the first phase of this chassis pool - the second phase *required* participation of all the carriers (Keever, 2005). The Virginia Port Authority was able to mandate participation since it operates all of the terminals. Virginia Intermodal Management, LLC operates this chassis pool, which is overseen by a board of directors composed of executives from the carriers, equipment companies, and an alternate member from the Virginia Port Authority's operating company, Virginia International Terminals, Inc. (Keever 2005). There is some indication that pooled operations had a positive impact on cost. The average number of revenue trips per year was 32 per chassis prior to the development of the pool and 45 per chassis after (Mongelluzzo, 2006). The more revenue trips performed, the less the overall cost of the chassis.

In the Southeast region of the U.S., a common chassis pool began with an initial request filed by the Georgia Ports Authority, the South Carolina Ports Authority, and the 18 carriers of the Ocean Carrier Equipment Management Association (OCEMA) (*Shipping Digest*, 2006). The OCEMA structure provides some insurance. The pool is in operation and owned by the South

Atlantic Consolidated Chassis Pool, LLC, a subsidiary of Consolidated Chassis Management, LLC (CCMLLC), and was managed then by Flexi-Van Leasing Inc. (Leach, 2007). The initial agreement included the Ports of Savannah and Charleston, as well as the inland intermodal hubs of Atlanta and Charlotte. It has since been expanded to include the North Carolina State Port Authority's Port of Wilmington, Florida's Port of Jacksonville, and additional inland intermodal facilities in North Carolina, South Carolina, Georgia, and Florida (Leach, 2007).

In addition to the carrier-owned model and these terminal and regional pools, leasing companies have established gray or neutral pools in order to quickly assist ocean carriers in handling demand surges. These pools are similar to the rental car business model. The pools aid in the supply chain flexibility by permitting multiple on-hire and drop-off points to eliminate physically repositioning the chassis.

In the gray chassis model, the chassis are provided, operated and maintained by a third party, independent of ocean and motor carriers. Users can either rent out chassis on a day-to-day basis for a fee (including maintenance and insurance) or choose a longer-term "triple-net lease" in which they are responsible for their own maintenance, insurance and taxes. Independent pools are usually located near a terminal, which allows motor carriers to use the equipment at any container terminal. The trucker-leased chassis have to agree to a mandatory inspection before the driver can exit the marine terminal although the leasing companies are not party to the agreement between the longshore union and the Pacific Maritime Association, which includes the ocean carrier and which gives the union jurisdictional authority over chassis inspection.

Finally, as a result of divestiture, some trucking companies are purchasing their own chassis for use by company drivers and/or independent contractors. A third party usually runs and operates the company pool and has to buy land in order to store the chassis off-site. These

trucker-owned chassis are exempt from the inspections that the trucker-leased chassis are required to undergo before leaving the marine terminal.

The pool of pools is in many ways a hybrid approach unique to Southern California. The three major chassis companies (Direct Chassis Link, Flexi-Van Leasing and TRAC Intermodal) provide approximately 81,500 chassis of the total 100,000 used in the port complex and the nearby rail yards creating an interoperable chassis environment. This eliminates split chassis moves, and permits truckers to use the equipment for multiple trips throughout the two ports, theoretically without first repositioning any equipment. TRAC provides the largest number of equipment, some 37,000 units according to the pool of pools website (pop-lalb.com).

These three leasing companies operate independently and set their own leasing rates to compete for customers. Another third-party company, International Asset Systems, operates the pool of pools and will audit the cross-pool usage so the process is transparent for users. A Repositioning Operating Group was established to handle chassis repositioning between marine terminals to ensure adequate balance across the twelve container terminals and four rail facilities taking part in the initiative. Each pool operator is responsible for the maintenance and repair of its own fleet.

While the West Coast's Ports of Long Beach and Los Angeles have implemented the "pool of pools" model, the Ports of New York and New Jersey (PONYNJ) have opted for a cooperative "market pool." A market pool is one where various chassis providers contribute their chassis to a large fleet, hiring a pool manager to run the pool according to specific guidelines set by the industry groups. The market pool differs from the pool of pools in three principal ways. First, the market pool chassis are marked uniformly and are managed by a third party under contract to a Pool Board that is made up of representatives from various chassis contributors and

stakeholders. In the pool of pools, each separate leasing company clearly marks each piece of equipment as its own, and there is no single manager for the pool. Instead there is a representative from each of the leasing companies that together manage the pool. Second, the market pool is a completely separate venture of the leasing companies involved. The pool of pools consists of three separate and competing chassis leasing companies. Third, the market pool is a simpler venture, once established, than the pool of pools since the accounting is simplified and doesn't require each leasing company to maintain its own operating structure.

Table 1: Types of Chassis Management Models

Management Structure	Equipment Owner	Equipment Manager	How Facilitated?
Carrier Provided (Traditional model)	Ocean carrier	Ocean carrier	Master agreement between ocean carrier and marine terminal operator allows for storage, maintenance and repair
Terminal Pool	Combination of ocean carrier and marine terminal. May include chassis contributed by third party operators.	Terminal operator	Through terminal operator management of terminal facilities.
Regional Pool	Ocean carrier with some chassis contributed by third party operators	Usually performed through third party management company (see South Atlantic model above)	Multi-party agreement or LLC required
Gray Chassis Pool	Chassis leasing company	Chassis leasing company	Agreement between pool operator and marine terminal
Trucker or BCO provided	Licensed motor carrier or beneficial cargo owner (BCO)	Motor carrier or BCO	No agreement required unless trucker enters into agreement for off-site storage

The Southern California Experience with Chassis Pools

The Ports of LA and Long Beach handle mostly imports destined for regional and national markets. For import-based operations, the capacities and performance of container yards, the circulation of vehicles and equipment within a terminal, and the transfer to landside transportation systems are particularly important factors contributing to terminal productivity (Le-Griffin and Murphy, 2006). Increased container trade volumes mean that a larger number of chassis are needed for container handling operations at terminals and inland intermodal facilities. Given an existing imbalance in trade with Asia, there are increased empty movements of chassis back and forth at the ports that further complicate the operations of the container terminals.

Prior to the development of the pool of pools, there was no single port-wide chassis pool in place (i.e. where a chassis could be used by all shipping lines and their customers). The large majority of port-wide and regional chassis pools, both carrier-operated and neutral (or gray) chassis pools, were located on the East Coast of the U.S. where drays between marine and rail terminals are relatively short.

Earlier versions of chassis pools in the Southern California context were generally categorized as one of two common types: a terminal-wide Pool—the kind owned and operated by a terminal operator; and a Contributed Pool or Alliance-only Pool—in which members of a shipping alliance contribute their own chassis to the pool according to their cargo volume (See list of these pools in Table 2). The latter is often managed by a terminal operator or its subsidiary and provides service across different terminals that are called at by alliance members in the same port. This approach suited the Ports of Los Angeles and Long Beach where alliance vessels call regularly and where customers may be spread out across the relatively large number of terminals in operation at the complex. Both approaches (terminal-wide and alliance-only pool) resulted in

large amounts of acreage being devoted to chassis storage prior to divestiture. In an earlier study by this research team (Le-Griffin and O’Brien, 2013) we reported that 10% of terminal acreage was dedicated to chassis prior to the pool of pools. Following the financial crisis of 2008-2009, ocean carriers sold off approximately 100,000 chassis in Southern California to equipment leasing companies as part of the divestiture process.

Table 2: Chassis Pools Existing at the Ports of Los Angeles and Long Beach Prior to the Pool of Pools

TERMINAL POOLS	CONTRIBUTED/ALLIANCE POOLS
ITS: CSV, K-Line, CSAV, Hamburg Sud and Polynesia	New World Alliance: APL Terminals, MOL, and Hyundai Merchant Marine
APM/Maersk: Maersk and Horizon	Grand Alliance: Hapag Lloyd, OOCL, and NYK Lines
LA Basin (Pier J): China Shipping, COSCO, Hanjin, Yangming, CMA-CGM Neutral Users: Wan Hai, Pacific International, Zim	West Coast: SSA, MSC, CMA, Hapag, Zim
SSA Pier C: Matson	
West Basin: China Shipping, Yang Ming, COSCO and Hanjin	

Stakeholder Outreach and the Interview Process

Over the course of a twelve-month period, from October 2014 through October 2015, we monitored developments surrounding chassis management through local press and trade publications. This included the pool of pools website. We also attended meetings of local stakeholder groups where chassis management was discussed.

We created a series of questionnaires for stakeholders engaged in chassis operations in one form or another. We conducted 17 different interviews (See Table 3). The stakeholders

included port operators, drayage trucking companies, marine terminal operators, rail companies, and independent chassis pool operators. All of the sets of questions asked about the impact of the pool of pools on operations, including observable changes to process flows. Our target list of interviews numbered 30. Some potential interviewees declined the request for an interview, indicating that the pool of pools was too new an experiment to be able to assess effectively.

We also asked questions targeted at specific groups. For example, for truckers who own their own chassis, we asked a specific set of questions about their maintenance and repair procedures, and how or where they stored their equipment. We also asked about changes to roadability procedures and equipment reliability, and the impact of the pool of pools on turn times. Truckers also played a key role in explaining the impact of the pool of pools on process flows. They were asked to explain the process of picking up a bare chassis before and after the implementation of the new procedures.

For ports and terminal operators, we identified a series of questions that focused on the impact of divestiture on terminal land use, on terminal turn time goals and productivity, and on container management changes. We also asked about the elimination of terminal pools and the role played by longshore labor in inspecting chassis at the terminal out-gate. In observing the development of the pool of pools, it became apparent that one of the benefits of a pooled chassis approach, improved turn times, was in fact made more difficult by a longshore union challenge to the transfer of roadability inspections to the chassis leasing companies.

Table 3: List of Interviews

Director, Corporate Compliance	Trucking Company
Senior Executive Lead, Supply Chain Optimization	Port Authority
President*	Trucking Company
Business Development Manager	Port Authority
Director of Operations, West Coast	Chassis Leasing Company
Principal	Maritime/Trade Consulting Firm
Director, Public Affairs	Rail company
Director of Business Development	Port Authority
Director of Policy	Trucking Trade Association
Owner & Partner	Trucking Government Relations Consulting Firm
Chief Operating Officer	Transportation/Trucking/Rail
Founding Partner	Public Affairs and Digital Strategies Firm
Director of Operations	Trucking Company
President and Chief Executive Officer	Chassis Leasing Company

*4 different Presidents were interviewed

Rail operators were asked how and if the new pool of pools model has affected chassis management, in particular the land dedicated to chassis storage. Finally, chassis leasing companies were asked to explain their role in the development of the pool of pools and whether they view it as a long-term solution to the challenges facing the region.

Summary of Stakeholder Analysis

After conducting interviews with a range of representative stakeholders, the responses are generally consistent. Many stakeholders believe that the ‘pool of pools’ model is an interim solution that continues to evolve. Many note that maintenance and repair conflicts need to be resolved, in particular the question of longshore jurisdiction over roadability at the terminal out-

gate. Others believe that the whole repair system is archaic. Many parties suggest that chassis should be repaired before drivers go into the pile and pick out a chassis. They contend that introducing such efficiencies would prevent truckers from having to reposition and/or wait in long repair lines. Responses by stakeholder group follow.

Trucking Stakeholders

The representatives of trucking companies interviewed believed that the new ‘pool of pools’ model was a temporary or interim solution. This was a theme reflected in trucking association presentations that we attended during the life of the project. Instead, they see a movement toward long-term leases with individual pool operators or, for the larger companies, a movement toward the purchase of their own chassis fleet.

The challenge for truckers is land on which to store chassis. For the truckers who have invested in their own chassis, they have hired a third party company to handle the maintenance and repairs. The chassis are typically stored at a yard somewhere near the ports. Most truckers who own their own chassis also draw from the pool of pools. They noted that it is important to have just enough chassis to cover their needs during slow times. Having too many chassis would create a cost burden. Their model is to use their own chassis and either lease chassis or use the pool of pool chassis during times of peak demand.

Responses to questions about turn times also revealed frustration with the roadability inspection process. Truckers were in general agreement that the biggest impediment to an increased number of turns following the pool-of-pools is the long wait-time at the maintenance and repair area. Respondents claim that longshore labor inspections have increased turn times. Some question whether this is an attempt to assert jurisdictional authority over chassis owned

and operated by leasing companies outside of the gates. This is a particular concern for trucking companies who own their own chassis and are responsible for ensuring their roadability. There was general agreement that the question of inspections needs to be resolved before the impact of the pool-of-pools can be accurately assessed.

Truckers also commented on broader supply chain trends that are impacting the efficient use of chassis, independent of equipment management. As an example, increases in the number of ocean carrier alliances and their expanded memberships have created difficulties for truckers. There is some concern that alliance vessels, which carry the containers of a number of different liner companies, make less use of block stowage plans than vessels transporting the containers of a single liner company. These plans arrange containers on the vessel at the port of origin based on final destination. They help eliminate unnecessary unloading and container repositioning at intermediate ports. Container repositioning also means in-terminal chassis repositioning. Alliance vessels discharging their cargo at a single terminal within a port complex may also require repositioning of cargo between terminals. This can add additional chassis trips to the movement of goods. Many trucker stakeholders do see technology as a way to manage chassis more efficiently including intra-port trips.

Port Authority Stakeholders

To understand the perspective of the port authority stakeholders in Southern California, it is important to remember that, like other West Coast ports, Los Angeles and Long Beach are landlord ports and therefore do not actually operate or own any chassis. Therefore they do not have any staff dedicated to chassis management. However, the ports' interest in competitiveness gives them a stake in effective equipment management as evidenced by their development of

chassis-related working groups to prepare for the impact of chassis divestiture by the ocean carriers.

The port authority representatives interviewed were able to identify the benefits of the new chassis management model when looking at intra terminal chassis movements, repositioning and transactions involving yard equipment. The port authority stakeholders expressed confidence that the chassis management model is still evolving and there is more change to come. They do not think that terminal pools are necessary with the ‘pool of pools,’ but cautioned that, over the long term, some terminals may not like to rely upon equipment on other terminals for their own productivity. The port authority stakeholders do think that chassis storage does need to move off-dock but recognize that there is an issue with regard to land availability when it comes to finding space for chassis storage.

Rail Stakeholders

Rail companies manage chassis at their rail locations. Chassis owners are required to register their equipment in IANA’s Global Intermodal Equipment Registry (GIER). The rail company uses this information to match container with chassis. Our research suggests that the pool of pools has had an impact on equipment availability at rail ramps. Pool shortages on the marine terminals have made it more difficult for rail carriers to move containers off their facilities. Perhaps more important, since the new ‘pool of pools’ model, rail operators report more difficulties in identifying chassis owners and have expressed an interest in using technology to track equipment.

Pool of Pools Operators

The ‘pool of pools’ leasing companies manage many other facilities throughout the United States. They operate chassis yards in various other seaside and landside ports. The Southern California pool is seen as a unique model that is not likely to be replicated elsewhere. It requires three sets of operating guidelines and there is no reason to believe that further integration of operations is either necessary or of interest to the parties involved. Long-term sustainability of operations in Southern California depends upon developing customer relations independent of the pool of pools. In this way, the leasing companies also see a trend toward longer-term leases between themselves and trucking companies.

They also expressed concern about the availability of land near the ports for chassis storage. Should a move toward long-term lease arrangements develop with a shift away from on-terminal chassis storage, there will be increased demand for facilities to serve both leasing companies as well as trucking companies themselves. The lack of available land will act as a constraint on goods movement in and around the port complex.

Impact on Supply Chain Process Flows

Although there are concerns about the long-term viability of the ‘pool of pools,’ many stakeholders note the benefits this new model has brought to the port complex. Key benefits include the reduced total trip time and improved turn time on-dock. As part of our analysis and based upon our interviews with trucking companies, we developed scenarios to capture the post pool-of-pool truck movements in and out of the ports and compared them to the process prior to the development of the strategy.

Before the pool of pools, drivers were required to negotiate a series of steps involving repositioning of the chassis to the terminal/ocean carrier to whom it belonged:

1. First a driver is dispatched.
2. The driver picks up a bare chassis or a container on a chassis at the terminal.
3. The driver may have to go through a roadability inspection if the terminal requires one.
 - a. If driver fails roadability he/she must find another roadable chassis.
4. The driver brings the container to a distribution center or warehouse location for drop off.
5. The driver returns to the terminal with an export or bare chassis.
 - a. If the return load is designated for the same terminal as the original pick-up location
 - i. The driver must drop off the container (if there is a return container).
 - ii. The driver drops off the bare chassis.
 - b. If the return load is designated for a different terminal than the pick-up terminal
 - i. The driver must drop off the container at the correct terminal for the container.
 - ii. The driver must return the bare chassis to the original terminal.
6. The chassis is dropped off at the terminal along with the container if there is one.
7. The driver picks up a new chassis for the next transaction.

With the implementation of the pool of pools model, truckers are now experiencing different kinds of moves throughout the ports and terminals. Scenario A lists the steps truckers take when there are chassis available at the terminal. This is the more efficient series of transactions expected to result from the pool of pools. This is not always possible however. Scenario B shows the process truckers go through when the correct chassis size is not available at the terminal. Scenario C shows how the trucker must proceed when (s)he wants to use the pool of pool chassis continuously throughout the day. Scenario D shows what occurs if the trucker picks up a chassis that needs to be flipped. Scenario E shows the process a trucker must go through when bringing a privately owned chassis to the terminal. Finally, Scenario F shows the process a trucker goes through when using the chassis from a third party leasing company, not the pool of pools. The scenarios demonstrate that truckers now have more options when it comes

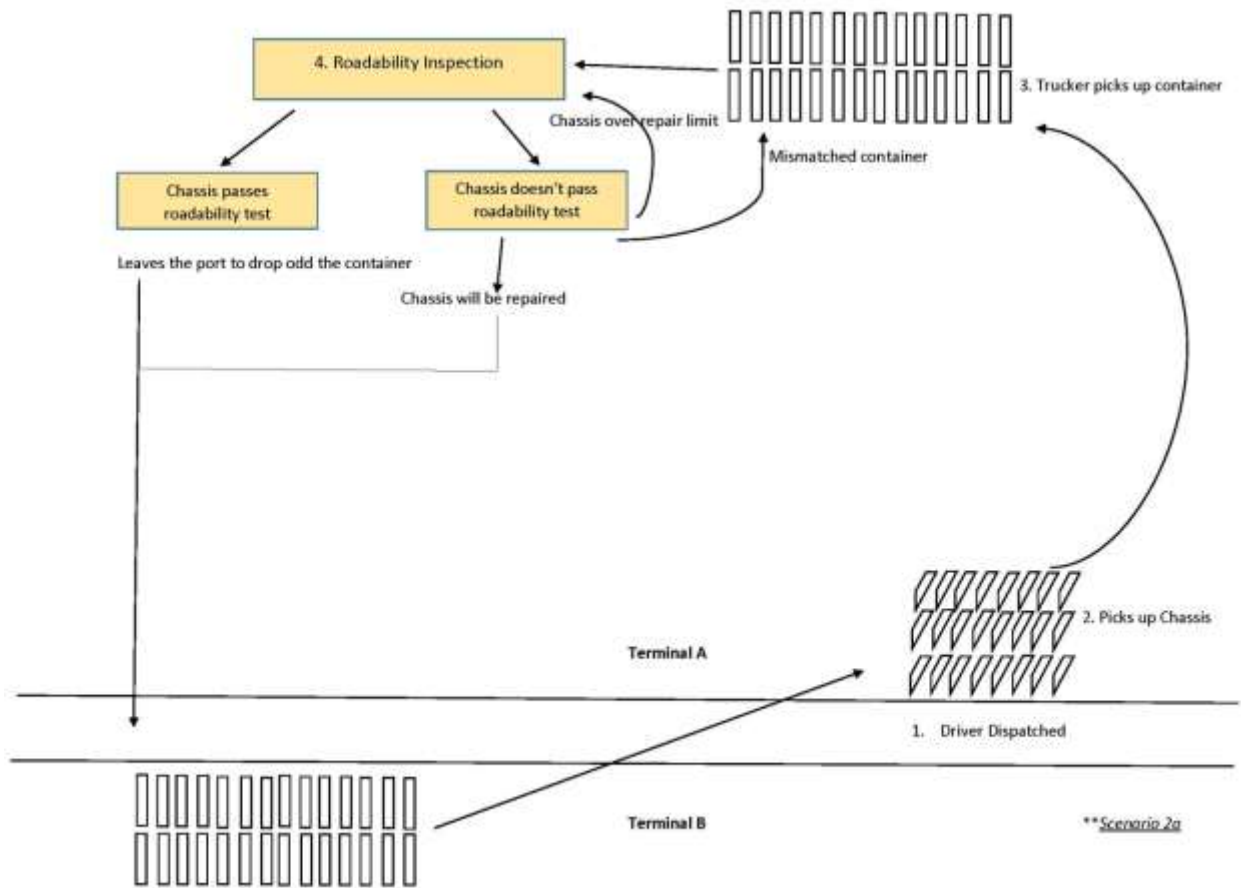
to sourcing a chassis but that the pool of pools system has led to a whole new series of moves impacting chassis management at the ports.

As a starting point, consider the basic movements of a driver using the pool of pool when chassis are available:

Scenario A: If chassis are available at the terminal

- a. A driver is dispatched.
- b. The driver picks up a chassis from the terminal.
- c. The trucker picks up an import container.
- d. Trucker must go through a roadability inspection before leaving the terminal.
- e. During inspection there are two possible outcomes
 - i. Chassis passes roadability:
 - a. The trucker leaves the terminal
 - ii. Chassis doesn't pass roadability:
 - a. If chassis is over the repair limit at roadability:
 - a. The driver must flip the chassis and pick up a new one
 - b. Driver goes through a roadability inspection again
 - b. If the chassis can be repaired:
 - a. The chassis will be repaired while the trucker waits
 - c. Mismatched container to chassis
 - a. Trucker flips the chassis
 - b. Trucker goes through a roadability inspection again
- f. Trucker leaves the port to drop off the import container
- g. Trucker returns the chassis to a terminal or railroad location

Figure 1: Scenario A

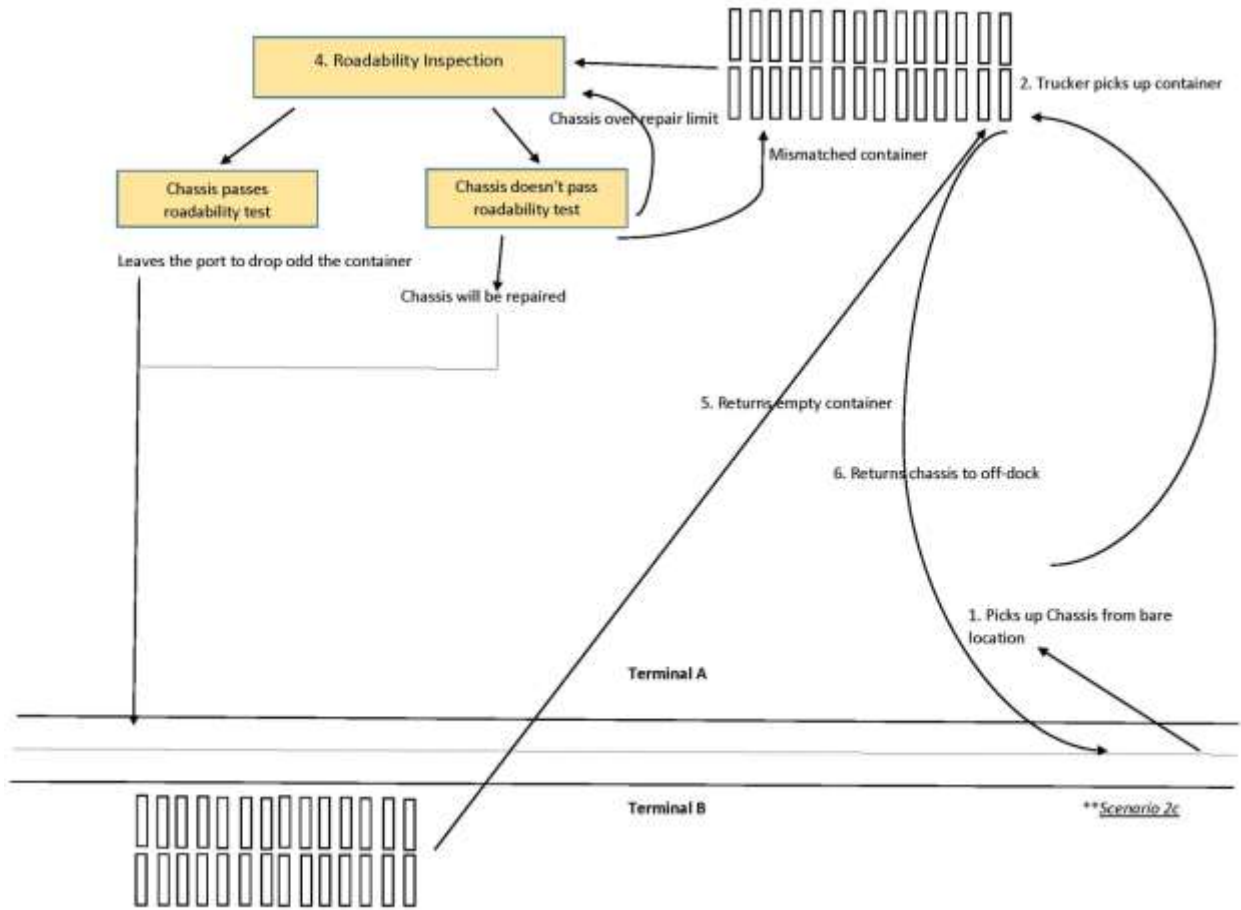


The above diagram offers a practical visualization of Scenario A when the appropriate chassis is available for the driver. However, if chassis are not available at the terminal (usually because it is not the right size), Scenario B goes into effect.

Scenario B: *If the right size chassis is not available at the terminal during the day*

- a. Trucker receives emails every day about any chassis shortages
- b. If there is a chassis shortage at the terminal, drivers are instructed to bring their own chassis.
- c. Drivers must find and contact a third party chassis leasing company (they are not redirected to another terminal)
- d. Driver picks up the bare chassis from an off-dock location
- e. Driver comes back to the terminal to get a container
- f. Driver goes through a roadability inspection (3 possible outcomes of roadability)
- g. Trucker leaves the port to drop off the container
- h. Trucker returns the chassis to the off-dock location

Figure 2: Scenario B



This scenario reflects an unintended and undesirable outcome of the pool of pools approach by adding an additional trip to an off-dock location that did not exist under the terminal pool model.

Other pool of pools scenarios include:

Scenario C: If driver wants to use the same chassis all day (different terminal locations)

- a. Driver obtains a chassis release from the pool administrator to exit all possible terminals (they will not let you leave the terminal with a bare chassis without the release)
- b. The trucker goes through a roadability inspection at all terminals.
- c. During inspection there can be two outcomes
 - i. Chassis passes roadability:
 - a. The trucker leaves the terminal
 - ii. Chassis doesn't pass roadability:
 - a. If chassis is over the repair limit at roadability:
 - a. The driver flips the chassis
 - b. Driver goes through a roadability inspection again
 - b. If the chassis can be repaired:
 - a. The chassis is repaired while the trucker waits
 - c. Mismatched container to chassis
 - a. Trucker flips the chassis
 - b. Trucker goes through a roadability inspection again
- d. Trucker leaves the port to drop off the container
- e. Trucker returns the chassis to a terminal or railroad location

Scenario D: If the driver picks up a chassis that needs to be flipped

- a. Driver picks up a chassis
- b. Driver goes through a roadability inspection
 - i. At roadability, the driver is told that the chassis is a non-pool chassis
 - ii. Driver is directed to the flip line to get the chassis flipped to a pool chassis
 - a. Driver gets the chassis flipped
- c. Trucker goes through a roadability inspection before leaving the terminal.
- d. During inspection there can be two outcomes
 - i. Chassis passes roadability:
 - a. The trucker leaves the terminal
 - ii. Chassis doesn't pass roadability:
 - a. If chassis is over the repair limit at roadability:
 - a. The driver flips the chassis
 - b. Driver goes through a roadability inspection again
 - b. If the chassis can be repaired:
 - a. The chassis will be repaired while the trucker waits
 - c. Mismatched container to chassis
 - a. Trucker flips the chassis
 - b. Trucker goes through a roadability inspection again

Scenario E: Owning and using your own chassis:

1. Driver picks up the chassis from company yard
2. Driver picks up a container on the terminal
3. Driver is asked to verify ownership of chassis and may be asked to go through a roadability inspection
4. If driver is asked to go through roadability regardless of ownership, there can be two outcomes
 - i. Chassis passes roadability:
 1. The trucker leaves the terminal
 - ii. Chassis doesn't pass roadability:
 1. If chassis is over the repair limit at roadability:
 - a. The driver takes the bare chassis off-terminal for repairs
 - i. The driver returns with the fixed chassis and starts at #2
 - b. The driver returns the un-roadable chassis to the company yard and picks up a new chassis from the company yard.
 - i. The driver returns with the new chassis and starts at #2
 2. If the chassis can be repaired:
 - a. The chassis will be repaired while the trucker waits
5. Driver leaves the terminal and drops off the container at distribution center/warehouse location
6. Driver returns the bare chassis to its off-dock location or picks up another container at another terminal

Scenario F. Leasing from a third party leasing company (not part of the pool of pools):

1. The driver makes a chassis reservation on line or by phone call.
2. Chassis should be available and in their system in approximately 20 minutes.
3. Driver picks up the chassis from the off-dock location.
4. Driver picks up a container at a marine terminal
5. Driver goes through a roadability inspection
6. During inspection there can be two outcomes
 - i. Chassis passes roadability:
 1. The trucker leaves the terminal
 - ii. Chassis doesn't pass roadability:
 1. If chassis is over the repair limit at roadability:
 - a. The driver flips the chassis
 - b. Driver goes through a roadability inspection again
 2. If the chassis can be repaired:
 - a. The chassis will be repaired while the trucker waits
7. Driver leaves the terminal and drops off the container at distribution center/warehouse location
8. Driver returns the bare chassis to the off-dock location

Developing the chassis move scenarios is a valuable exercise. While revealing the benefits of the pool of pools concept, which helps to eliminate terminal-specific chassis pick-ups, the scenarios also underscore the importance of the roadability inspection, which has not changed under the new model. In fact, interviews revealed concerns about unresolved questions of jurisdictional authority over inspections. Labor's assertion that it has authority to inspect chassis at the terminal out-gate negates one of the benefits of a trucker providing his or her own chassis. It increases turn times for a transaction that already involves an off-site pick-up. It is likely that the question of jurisdictional authority over chassis inspections will be resolved in the courts. That resolution will help determine the incentives for truckers to invest in their own equipment or enter into long-term chassis leases; which is what many believe is the future.

Conclusions and Recommendations

The main theme emerging from the interviews is that the 'pool of pools' model is seen as a temporary solution to a longer-term structural challenge of moving goods through the San Pedro Bay ports. While the pool of pools is a more efficient approach than the terminal pool model, which it replaced, it has not eliminated altogether the repositioning of equipment between terminals to ensure equipment availability. Furthermore, it has created a more uncertain and contentious environment at the roadability inspection station, which needs to be resolved before the long-term fate of the experiment can be determined. This includes the need for drivers with minor damaged chassis to wait for drivers with major problems before they can have their equipment repaired.

The pool of pools has demonstrated to truckers the benefits of more control over equipment (whether by ownership or long-term lease) and to terminal operators and port

authorities the benefits of more efficient land use at the ports when space is not dedicated to chassis storage. This last point is critical given other changes occurring in the global supply chain. The trend toward ocean carrier alliances and mega-vessels is placing increased pressure on marine terminals to use land more efficiently to handle increasing cargo volumes.

However, our respondents recognized the inherent inefficiencies of a pool of pools with three independent companies creating redundancies in managing logistics and stock control, customer coordination and labor coordination on maintenance and repair. These are inefficiencies pointed to by proponents of the market pool approach. As a result, many see the model as an interim solution with the end result being a competitive market place for the three leasing companies in which they pursue long-term leases or sales directly with trucking companies. This model allows the individual companies to focus on their own forecasting needs while allowing the trucker to continue using the same equipment throughout the terminal complex.

Deployment and Implementation

The pool of pools is still a work in progress. As such, it merits further study to determine its long-term impact. However, understanding its short-term impact has proven to be a useful exercise. The research contributes to our understanding of chassis management practices in the nation's largest port complex. More important, the role played by the ports as a convener of private sector stakeholders is significant. This development is part of a broader port-led effort in supply chain optimization and an organizational and institutional model of potential interest to ports around the world, even those without similar equipment management challenges. Further

research that places the chassis management strategy in the broader context of supply chain optimization will benefit those who must plan and accommodate freight movements.

For planners, particularly those in California, the outcome of the pool of pools effort is also of interest. The shift to management by third party providers, whether operating independently or as part of the pool of pools, may create a need for chassis storage facilities near the ports and rail yards and at inland locations near distribution centers and warehouses. This has the potential to change intra-metropolitan freight flows, creating demand for infrastructure, including new access roads, particularly in the vicinity of ports. Fewer truck movements, as a result of reduced repositioning, also have the potential to reduce vehicle miles travelled and emissions.

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Appendix A: Chassis Management Timeline

12/14/2009	Direct ChassisLink Inc. (DCLI), a Maersk Line subsidiary, extends its trailer hire operation, which commenced in August 2014.
3/31/2014	Chassis shortages cause long delays at the Ports of Los Angeles and Long Beach.
4/3/2014	Retailers step up their criticism of management and labor in the upcoming West Coast longshore negotiations.
4/7/2014	The emergence of the P3 Network in the second quarter of 2014 drives the strategic plans of West Coast ports in 2014 and beyond.
4/11/2014	U.S. shippers engage in a full-court press on Capitol Hill and at the White House to voice the importance of preventing labor disruption at West Coast ports as the expiration of the current coastwise longshore agreement approaches.
7/1/2014	Fitch Ratings says a potential strike or some form of work slowdown affecting West Coast ports resulting from a contract impasse between dockworkers and terminal operators is likely to be short and manageable.
7/8/2014	The International Longshore and Warehouse Union and the Pacific Maritime Association agree to a 72-hour break in negotiations.
7/16/2014	Labor actions and crippling disruption occur—this time in Portland, Oregon.
7/16/2014	The Long Beach Board of Harbor Commissioners approves a fiscal year 2014-15 budget that calls for \$579 million in capital expenditures, including replacement of the Gerald Desmond Bridge and redevelopment of the Middle Harbor container terminal.
7/24/2014	The International Longshore and Warehouse Union completes its two-day caucus in San Francisco.
9/4/2014	Truckers in Los Angeles-Long Beach agree turn times are lousy — oftentimes two hours or longer. Marine terminal operators are adamant that the average turn time is less than one hour. Transportation consultant Val Noronha says both claims are accurate; it's the measurement that's flawed.
9/26/2014	Negotiators for the International Longshore and Warehouse Union and the Pacific Maritime Association reach a tentative agreement on the crucial issue of medical benefits.
10/8/2014	The Port of Long Beach takes immediate actions to target hot spot congestion in the harbor area and shares information on chassis availability with all port stakeholders.

10/10/2014	ILWU members at LA-Long Beach begin requiring truck inspections that reportedly go far beyond the normal safety procedures.
10/10/2014	DCLI and TRAC announce plans add over 3,000 chassis to their local fleets over the next few weeks to match supply and demand.
10/14/2014	The Long Beach Board of Harbor Commissioners direct Port of Long Beach staff to develop plans for purchasing and providing thousands of truck chassis for congestion relief during peak periods.
10/16/2014	Truck turn times increase due to increases in cargo volumes, chassis shortages, and rail availability causing cargo delays and an increase in the average in-terminal truck turn times.
10/16/2014	A new chassis plan will allow the port to acquire, manage and maintain the trailers that attach to big trucks and to transport cargo containers.
10/17/2014	Congestion is generating increased complaints by truckers and shippers about demurrage penalties for late pickup of containers that can't be removed from gridlocked marine terminals.
10/17/2014	Port representatives, shippers, and labor communities agree that the Los Angeles and Long Beach ports must reduce congestion and improve productivity at marine terminals, but they differ on how to reach those goals.
10/17/2014	The Port of Long Beach adds an extra three days to the time that overseas import containers can remain on the docks without charge in order to grant some relief to cargo owners as the supply chain works to eliminate cargo delivery delays.
10/23/2014	The Port of Long Beach exercises tariff provision 406(c) to allow container terminals in the port to provide up to three additional working days of free time for the delivery of international import containers; from October 18, 2014, through October 31, 2014.
10/25/2014	In the Port of Savannah, drayage drivers pick up or dropping off loads in an average of just 35 minutes.
10/28/2014	Port congestion is significantly affecting the number of turn's independent truck drivers and logistics companies that offer trucking services can make in one day.
10/29/2014	Terminal operators and PierPass officials say that one of the core reasons for port congestion is lack of chassis—the situation may not be resolved for several months.
10/31/2014	U.S. shippers have difficulties finding long-haul trucks to move their loads, which is making intermodal rail including the transport of refrigerated goods, more a “capacity play” than about saving money.
10/31/2014	Harbor truckers are imposing congestion surcharges of \$50 to as much as \$100 an hour, and retailers and other beneficial cargo owners are paying the extra charges if the alternative is that they will not get their containers that day.

10/31/2014	Four companies that control about 95 percent of the chassis at the Los Angeles and Long Beach ports agree to develop a neutral or gray chassis pool for the largest port complex in the Americas, with the phased rollout to begin Feb. 1, 2015.
10/31/2014	The Port of Long Beach is pursuing a new measure to respond to customer concerns and tackle congestion issues that are slowing cargo movement at some of its terminals during the current pre-holidays “peak-shipping season.”
11/1/2014	Bureau International des Containers et du Transport Intermodal (BIC) emphasizes advantages of registering containers with the non-profit organization with a 4-letter BIC Code, such as recognition from the World Customs Organization (potential 90-day duty free admission, and potential to avert delays related to physical exams/inspects), and recognition from partnering as the official registrar of more than 2,200 codes used by more than 1600 members in 120 countries.
11/3/2014	The major chassis providers agreed with the ports agreed to allow their chassis to freely interchange with each other throughout the harbor.
11/3/2014	One of the largest U.S. shipper groups is throwing its weight behind an effort to convince PierPass to temporarily waive millions in fees to ease the pain of congestion at the Los Angeles-Long Beach port complex.
11/3/2014	The Ports of Los Angeles and Long Beach nabbed a bigger piece of the West Coast volume pie through the first three quarters of 2014.
11/3/2014	Port of Long Beach proposes empty yard to alleviate chassis shortage.
11/7/2014	Harbor truckers in Southern California ask federal regulators for a temporary suspension of the 34-hour restart provision in the hours of service regulations.
11/7/2014	The Pacific Maritime Association blasts the International Longshore and Warehouse Union for withholding skilled labor at Los Angeles-Long Beach.
11/7/2014	U.S. Federal Maritime Commission Chairman Mario Cordero expects congestion at the Ports of Los Angeles and Long Beach to ease in the next couple weeks, but, in the meantime, he said the agency is scrutinizing the PierPass program.
11/7/2014	Strong cargo volumes continue into early November at the Port of Long Beach, resulting in delays due to a shortage of truck trailers, but underscoring this year’s rebound in international trade and pointing to an economic upswing.
11/7/2014	Pacific Maritime Association says ILWU is refusing to dispatch dockworkers in the Ports of Los Angeles and Long Beach.
11/7/2014	HTA asks DOT for exemption from weekly HOS limits.
11/7/2014	Retailers and BCOs ask for federal assistance in resolution of port congestion.
11/7/2014	Federal Maritime Commissioner Richard Lidinsky calls for global regulation of container shipping alliances.

11/10/2014	Carriers are notifying exporters that the terminals are running out of space, and those terminals are limiting the number of days that they will accept export loads to four days, or in some cases fewer.
11/10/2014	The vast majority of all chassis in operation in the harbor will fall under the new 'pool of pools' program. DCLI has approximately 30,000 chassis, Flexi-Van has 19,000, and TRAC has 37,000 and SSA Marine 9,000.
11/10/2014	The Hub Group says it no longer has problems with a lack of chassis, gate reservations and repositioning at Union Pacific terminals.
11/14/2014	The Long Beach Board of Harbor Commissioners approves the use of Port of Long Beach property as a temporary site for the storage of empty containers.
11/17/2014	Multiple container lines operating in the trans-Pacific lane have plans to implement some of the largest port congestion surcharges ever — up to \$1,000 per 40-foot container — on cargo moving via U.S. West Coast ports, signaling the extent to which carriers are being battered financially by the worst U.S. port congestion in years.
11/17/2014	Retailers losing revenues due to U.S. port congestion are forced to make costly last-minute transportation decisions because of clogged West Coast ports.
11/17/2014	Macy's CEO Terry Lundgren is pressuring the Obama administration to help prevent a potential U.S. West Coast port strike and has invited his friend and Wal-Mart CEO Doug McMillon to help.
11/17/2014	Evergreen announces that it is dropping Los Angeles and Oakland port calls from a westbound U.S. East Coast to North Asia service due to berthing delays tied to the congestion at U.S. West Coast ports.
11/17/2014	A study commissioned by the Pacific Maritime Association argues that West Coast ports stand to lose significant volumes of cargo in the years following the Panama Canal expansion.
11/19/2014	President Obama is confident U.S. West Coast longshoremen and waterfront employers can reach a labor contract.
11/19/2014	At least seven carriers have suspended newly announced port congestion surcharges on cargo heading from Asia to the U.S. West Coast.
11/19/2014	Keeping gates open continuously from early morning until late at night and adding shifts weekly — will prove to be more effective than eliminating the PierPass traffic mitigation fee, as some groups are asking for, said John Cushing, president of PierPass Inc.
11/21/2014	The International Longshore and Warehouse Union calls for a 12-day suspension of “big-table” talks, which refers to negotiations on coast wide issues.
11/24/2014	Four carriers today joined Mediterranean Shipping Co. in announcing congestion surcharges on cargo heading from Asia to U.S. West Coast ports.

11/24/2014	Third International Longshore and Warehouse Union and the Pacific Maritime Association are unable to achieve consensus in the contract negotiations that began more than six months ago.
11/24/2014	The Port of Long Beach expects a “Temporary Empty Container Depot” planned for a vacant pier on Terminal Island to be open and operating in December, which will help to alleviate congestion at the docks.
12/1/2014	The recently announced Seaport Alliance between the port of Seattle and Tacoma is a strategic response to an undeclared war by Canada on U.S. container ports for market share.
12/5/2014	Fifteen trans-Pacific carriers have individually agreed to hold off on imposing U.S. West Coast port congestion surcharges until next year, offering the opportunity to continue dialogue.
12/16/2014	Businesses have been rerouting their shipments via air or diverting goods to other ports to avoid the congestion at the Ports of Los Angeles and Long Beach.
12/23/2014	The Temporary Empty Container Depot was approved by the Long Beach Board of Harbor Commissioners in November to free up truck-trailer chassis and ease congestion on the docks at the second busiest seaport in North America.
12/23/2014	The Long Beach Board of Harbor Commissioners approved measures to relieve congestion including filing an agreement with the Federal Maritime Commission to enable the port to work in concert with the neighboring Port of Los Angeles.
1/6/2015	The International Longshore and Warehouse Union’s announced they will join the Pacific Maritime Association in seeking federal mediation to help both sides reach a contract after eight months of talks.
1/6/2015	BNSF Railway stops taking international intermodal shipments headed to U.S. West Coast ports from interchange points.
1/8/2015	The Southern California ports continue to work toward a Feb. 1 rollout date for a neutral, or gray chassis concept at the busiest U.S. port complex.
1/8/2015	BNSF Railway is lifting its embargo on interchanging westbound ocean containers headed to U.S. West Coast on-dock facilities two days after the railroad implemented the ban.
1/9/2015	U.S. Customs and Border Protection will continue to go beyond standard operating procedures until the Los Angeles-Long Beach port complex is free from congestion and productivity is back to normal.
1/9/2015	The limited attention the contentious labor negotiations and broader port congestion have received within the Beltway speaks somewhat to the disconnect between the freight industry and Washington.
1/9/2015	No immediate negotiation breakthroughs when federal mediators waded into negotiations between the U.S. West Coast longshore union and waterfront employers, but a deal will likely be reached, according to two experts on labor negotiations.

1/13/2015	Big Ships are here to stay - ocean carriers are cutting costs.
1/14/2015	The union's work slowdowns have significantly increased operating costs for shipping lines and terminal operators, and the employers are countering by reducing work opportunities for rank-and-file longshoremen.
1/14/2015	Drayage companies are pressing their fight with New York-New Jersey marine terminals over a tariff change that allows terminals to refuse to compensate truckers for waiting time caused by late ships or other reasons beyond motor carriers' control.
1/14/2015	The Port of Oakland achieves record container volume in 2014 aided by strong import volumes in December stoked by diversions from Southern California.
3/3/2015	The 'Pool of Pools' model is implemented, 11 of the 13 container terminals and off-dock rail yards are participating, while the other 2 terminals use their own equipment.
3/15/2015	Marine terminals at the Port of Los Angeles and Port of Long Beach moved 46% more cargo containers by truck during the first half of March compared with the same period in February.
3/17/2015	The Ports of Los Angeles and Long Beach see monthly cargo numbers fall by double-digit percentages.
3/23/2015	Cargomatic has been using an Uber-type model and implementing it to trucking by using technology to break massive container congestion at the west Coast ports.
3/25/2015	Top executives from the Ports of Long Beach and Los Angeles hold a kickoff meeting earlier this week to begin working together to focus on cargo conveyance strategies that will enhance velocity and efficiency throughout their gateway's supply chain.
4/17/2015	Pacific Ports Operational Improvements Agreement Involving WCMTO and OCEMA clears FMC review. This helps the parties tackle issues that could help ease congestion in the West Coast Ports.
4/23/2015	The Federal Maritime Commission allows the outgrowth "supply chain optimization" process to become effective without any challenge. The agreement approved a few months back enables the two ports to cooperate far more strategically on ways to prevent congestion and cargo delays.
5/20/2015	The Port of Long Beach will seek bids on the creation of a new fleet of truck chassis for peak periods of the year.
5/20/2015	The Harbor Trucking Association is launching Trucker Chassis Connection, that seeks to improve the way port truckers get road equipment needed to move freight out of port terminals.
5/28/2015	Truck waiting times continued their rapid improvement in April, as the terminals at the Ports of Los Angeles and Long Beach saw the heavy congestion of last fall and early this year recede into the past.
6/7/2015	The California Trucking Association is looking into federal regulations about whether the ILWU is even allowed to inspect chassis.

6/10/2015	The Institute of International Container Lessors filed a complaint with the FMC arguing that the union contract agreement favors companies and drivers who own their own chassis because they are exempt from inspection while those who lease chassis are not.
9/25/2015	One Year After Congestion Crisis, Peak Season Cargo Moves Smoothly