Driver-LMC Relationships in Port Drayage: Effects on Efficiency, Innovation, and Rates

With Special Attention to Shippers Transport Express

Marin Economic Consulting

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Disclaimer: This is not a legal report. No attempt is made to show that any model complies with any law. The objective of the economic study is to analyze any significant impact of classifying as employees those drivers that LMCs choose to control on the overall competition in the industry.

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Introduction

Drayage is a term used to describe the process of transporting goods over a short distance as part of a longer-distance move. In practice, drayage most often refers to the land transportation of containers to or from seaports, although drayage services are utilized in other instances as well. Throughout this report, drayage will refer to the act of using a truck to pick up or drop off a container at a seaport, generally the twin ports of Los Angeles and Long Beach, but also the Port of Oakland.

At all three ports, drayage services primarily use trucks to move containers onto and off of the port, though the use of trains has increased. In general, trucks pick up the containers at the port and deliver them to one of the following destinations:

1) a railyard;
2) a warehouse for the storage or transloading of the containers' contents;
3) a temporary storage facility where containers wait to be picked up for delivery to a railyard or warehouse; or
4) the final destination of the containers' contents.

The transportation of containers to a temporary storage facility is sometimes referred to as a dray-off.[1] The storage of loaded containers becomes necessary when the containers will not be picked up for longer carriages for a significant period of time, or when the terminal becomes generally congested. This not only alleviates congestion at the terminals at the port, but is also cheaper than storing containers at the terminals.

[1] The term "dray-off" is also frequently used to describe the practice of transferring goods from "clean" trucks to "dirty" trucks off of port grounds. The "dray-offs" discussed in this report are for off-port storage purposes only and do not include the intention of switching to a less clean truck.

In April of 2014, there were approximately 16,500 trucks in the fleet of licensed motor carriers (LMCs) serving the Southern California port complex, of which just 9,972 were in service.[2] In all, nearly 600 licensed motor carriers provided drayage services at the Southern California ports.[3] In contrast, estimates indicate a smaller fleet of 2,000 drivers and 121 LMCs served the Port of Oakland in 2008.[4] The majority of the drivers in Oakland were independent operators and not employed by a motor carrier. Nonetheless, although drivers were primarily independent, up to one-third were estimated to be employees of an LMC.

The current market for drayage services is best thought of as two separate markets. In the first market, LMCs contract with shippers, carriers, and others involved in goods movement to provide drayage services. In the second market, the LMCs contract with drivers who will perform the services. When the drivers are employees of the LMC, the market activities are combined in the same entity.

Both markets are highly competitive, as evidenced by the large number of independent owner operators and LMCs that are active in providing drayage services. The large number of LMCs suggests a significant amount of vying for business among LMCs as they interact with those requiring the transportation of containers. The large numbers of drivers, particularly independent drivers, assures competition for drays that LMCs make available.

Despite this competition, or perhaps because of it, many inefficiencies remain in the drayage system. These inefficiencies include long waits at the terminal gates and long turnaround time on the terminals for trucks and drivers (see Appendix A). In

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[2] See http://www.portoflosangeles.org/ctp/ctp_Cargo_Move_Analysis.pdf.
[3] See http://www.portoflosangeles.org/ctp/ctp_Cargo_Move_Analysis.pdf. Licensed motor carriers (LMCs) are trucking companies that have obtained licenses to operate at one or more ports.
[4] Jon D. Haveman and Kristen Monaco, "Comprehensive Truck Management Program: Economic Impact Analysis," Beacon Economics, April 17, 2009, p. 70. More recent statistics are unavailable.

addition, after the loads have been delivered, there is insufficient coordination in the effort to find nearby containers that need to be carried back to the port. It is frequently the case that the return trip to the port is made without a load. Trucks on the move with no trailer in tow are referred to as "bobtails."[5] These inefficiencies in the drayage system are in part owing to the nature of the driver-LMC relationship. The incentives to remove these inefficiencies are currently not strong enough or are misaligned with the control needed to eliminate them.

Discussions of the nature of the driver-LMC relationship have become commonplace since the introduction of the Clean Truck Program at the Port of Los Angeles.[6] This program was not intended to focus on the inefficiencies in the system, but rather on air pollution, an externality associated with trucking services, primarily drayage, provided at the port.[7] The program was designed to reduce the impact of truck emissions associated with drayage services on the environment, improving air quality for people who work or live at or near the port.

The trucks serving the ports have historically been older models that do not incorporate the latest technology in emissions control (Figure 1). With pollution arising from drayage services having a significant impact on surrounding communities as well as on the health of workers at the port, it was clear that an age requirement for trucks would reduce emissions significantly.

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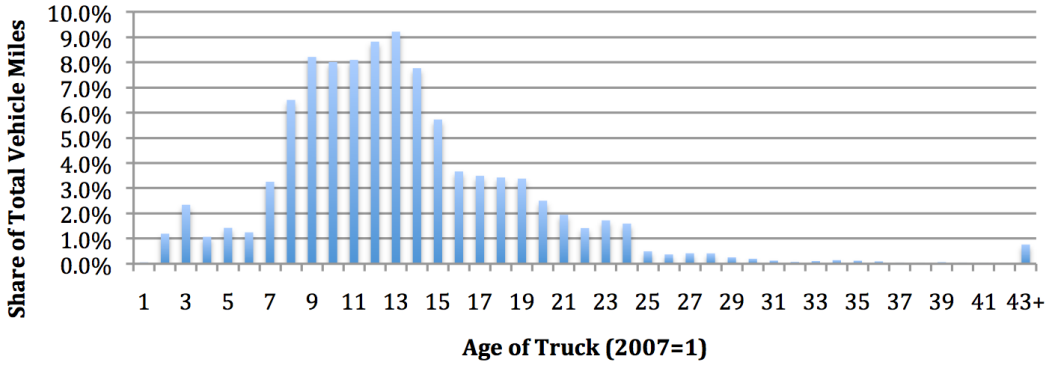
[5] In April of 2014, over 42% of all gate moves were empty; *i.e.,* nearly half of all moves were either bobtail in or bobtail out of the terminal.

[6] See the analysis of the Boston Consulting Group, "San Pedro Bay Ports Clean Truck Program: CTP options analysis," March 2008, available at http://www.portoflosangeles.org/CTP/CTP_Analysis.pdf, and also Beacon Economics' "Clean Trucks Program," February 2008.

[7] An externality is said to exist whenever an activity engaged in by one party has either a positive or a negative effect on another party. The other party is not compensated in the case of a negative externality, nor does it pay for the positive externality, although benefiting from the activity.

At the time, it was commonly thought that simply mandating cleaner trucks would not be feasible as many independent owner operators (IOOs) would not be able to afford to purchase a new or late model truck. Accordingly, the Clean Truck Program originally included a provision that required all drivers serving the port to be employed by an LMC. This requirement focused attention on the driver-LMC relationship but was not ultimately implemented.

Figure 1: Port Drayage Service by Truck Age at the Port of Los Angeles, 2007



As stringent standards regarding the age of trucks used for drayage and their emissions levels have been put in place (Table 1), suitable adjustments have occurred in the industry—any fears that there might be a shortage of trucks providing drayage services have been unfounded. In general, these adjustments have involved a shift in the ownership of the trucks from independent owners to LMCs. This has, to a limited extent, increased the direct employment of drivers by LMCs. Nonetheless, because the requirement in the Clean Truck Program that all drivers be employees was dropped, most drivers remain independent.

Table 1: Clean Truck Program Progressive Ban Schedule for the Port of Los Angeles

October 1, 2008: All pre-1989 trucks are banned from entering the Port.

January 1, 2010: 1989-1993 trucks will be banned in addition to 1994-2003 trucks that have not been retrofitted.

January 1, 2012: All trucks that do not meet the 2007 Federal Clean Truck Emissions Standards will be banned from the Port.

In many cases, the LMCs have adopted a middle ground, purchasing trucks and leasing them to independent drivers. The leases are often restrictive, allowing the driver to use the truck only to provide services to the LMC from which the truck is leased. The terms of these leases generally pertain to price (lease amount), restrictions on use, and duration of the lease, while varying significantly across motor carriers. Drivers operating under these arrangements are commonly referred to as lease drivers (LDs).[8]

Thus there are primarily three different relationships that exist between drivers and LMCs:

1) independent owner operators (IOOs),
2) lease drivers (LDs), and
3) employee drivers (EDs).

At most ports, the drayage system incorporates all three relationships. Prior to the Clean Truck Program, independent operators were the most common type of driver in both Southern California and Oakland. At the present time, there are no good data on the current shares of each of the three types of relationships. It is likely that both the employee and the LD relationships have increased as a proportion of all drivers, while the share of IOOs has likely declined.

At present, little is known about how the different driver-LMC relationships affect efficiency and pricing in the industry. The purpose of this report is to elaborate on the three models and their respective abilities to provide efficient, innovative, and low-cost services. As is discussed in the report, the three models present different degrees of alignment between incentives and control, in some cases the lack of alignment prevents low-cost models from achieving high levels of efficiency.

[8] They are also referred to as independent contractors. The term lease drivers is used here as it more accurately describes the relationship between the driver and the LMC.

Three Models of Driver-LMC Relationships

Independent Operator Owners (IOOs)

Description

The use of independent owner operators has dominated port drayage for most of recent history. Independent owner operators are licensed drivers who own their own trucks. Drivers rely on LMCs, acting in essence as drayage brokers, to provide them with work. Their compensation is generally a fixed fee per container moved. The fee is highly correlated with the distance of the dray—higher fees are paid for longer drays. All of the driver's expenses are to be covered out of that fixed fee, with the driver's net earnings determined by the amount left over. In this model, individual drivers make decisions about their respective vehicles, such as when the trucks are driven, where they go, the manner of driving, and how the vehicles are maintained and insured.

Because the barriers to entry are very low, the market is very competitive. For the drivers, entry involves obtaining the appropriate license and having access to a truck for a significant continuous period each day. For the LMCs, entry into the business is likewise relatively uncomplicated. To be an LMC, it is necessary to obtain the appropriate license, to have a telephone, and to acquire a set of contacts with shippers, terminals, and other consumers of drayage services.

The ease of entry and the steep competition contribute to the high rates of turnover among drivers.[9] There is significant demand for each dray, whether it involves a bobtail return or not. Many drivers will take loads that do not cover their average costs as a way of making their day worthwhile. That is, once out on the road, some drivers will take whatever drays come along that will cover the cost of the gasoline used. This serves as a constraint on prices, keeping them low.

[9] At the Port of Oakland, the average tenure of drivers was found to be 6.5 years. This suggests the need to replace about 15% of drivers each year.

This model has been common in the industry and at most ports for many years. LMCs that operate with IOOs include:

1. California Multimodal, LLC
2. Pacific 9 Transportation, Inc.
3. Green Fleet Systems

Efficiency and Cost of Service

With regard to efficiency, the IOO model gives the appearance of leading to the lowest possible cost of providing drayage services. The drivers are extremely conscious of the costs of inefficiency and work hard to keep costs low. However, a failing of this model is that the truck, the fuel, and the driver's time all tend to be used inefficiently. Even though the drivers clearly have significant incentives to eliminate these inefficiencies, they generally lack sufficient control to address them. Much of this control lies with the LMCs and terminal operators. Because of the intense competition among drivers, there is very little incentive among LMCs and terminal operators to solve problems regarding a driver's time, the truck's maintenance, or fuel usage. Whether or not trucks and drivers are being used efficiently, LMCs can generally find another driver to fulfill their obligations to their clients.

In this model, the LMC offers a level of compensation to the driver, who accepts or rejects it. If accepted, the driver is then responsible for providing drayage as efficiently as he or she chooses. However, many aspects of the dray are out of the control of the driver. In particular, drivers frequently wait extended periods of time at the terminal gates before they are allowed entry to the terminal (Appendix A). Daily wait times at the gate average about 20 minutes. Even worse, specific terminals have average wait times in excess of an hour at certain times of the day. Drivers also travel many "empty" miles, miles without a container in tow. Maximizing their efficiency would involve reducing wait times at the terminals and matching loads with inbound and outbound trips to and from the ports.

The matching problem is significant. Given that the port is the primary source of containers to be moved, the port is generally the point of departure for a dray. Once an imported container has been delivered to its destination, the driver will turn around and return to the port to wait for his or her next drayage assignment. Returning to the port without a load, or bobtailing, has historically been an important source of inefficiency, congestion, and pollution in this industry.

Drivers strongly prefer traveling loaded, both for safety and for financial reasons, but matching their location with that of a container destined for the port is difficult for IOOs.[10] If drivers return to the port without a load, they lose money for themselves, while creating traffic congestion for other drivers and generating pollution for the region, with no direct economic benefits for anyone.

This inefficiency arises through a disconnect between LMCs and the total cost of the dray—the true total cost of the dray includes the expense of the return trip. To some degree, the explicit cost (the amount that LMCs must pay IOOs to perform services) likely takes this total cost into account. As such, the price of drayage services is no doubt higher than it would otherwise be in this model; drivers are unwilling to be paid the same amount for essentially two trips (one in each direction for a particular dray) as they would for one. If there were greater coordination, there would be less bobtailing, greater efficiency, and lower rates.

Consider the two extremes: 100% bobtailing and no bobtailing. Were there perfect matching, then each delivery of a container would be closely followed by the pickup of a second container for drayage back to the port. These two trips would be

[10] The Port of Long Beach has initiated a Virtual Container Yard that has the potential to eliminate some inefficiencies, but the significant number of bobtail trucks continuing to arrive at the ports indicates that there is much work yet to be done to minimize the number of trucks heading to port without a load. For information on the Virtual Container Yard, see http://www.polb.com/civica/filebank/blobdload.asp?BlobID=3755.

compensated separately, and the rate of compensation would reflect only the expense associated with the delivery of each container.

On the other hand, if every dray involved an empty trip to or from the port, drivers would be compensated for this expense, even in a perfectly competitive market. This compensation would push rates to nearly twice what they would be with perfect matching. The higher cost is necessary because the driver is essentially covering twice the distance of the dray once the return trip to the port is included. Assuming that driving empty is less expensive than hauling a container, and that some drivers will accept drays at below cost, the rate for a dray with no matching return trip will in practice be less than twice what it would be with a match, but still higher than it would be with full matching. This inefficiency, the lack of matching, therefore causes rates to be higher than they would otherwise be.

The use of independent owner operators does have cost-minimizing features. In particular, costs are kept down because drivers are responsible for maintaining and insuring their vehicles. Certainly not all, but many drivers will skimp on maintenance, adhering to the minimum standards in the law or taking a chance and allowing the trucks to fall into greater levels of disrepair. The extent to which drivers insure their vehicles is currently unknown, but it is likely that some opt to forgo the full complement of reasonable insurance as a way of lowering costs.

That drivers might skimp on costs is not a reflection of driver character or greed, but rather a function of their economic circumstances. Because their compensation is so low, there is often a direct conflict between keeping up their vehicles and putting food on the table. Moreover, whether there is sufficient attention to maintenance and insurance depends on the level of risk the driver is willing to embrace. Drivers are more likely to take on risk in the drayage industry than any of the other participants—in particular, the LMCs.

Thus one of the serious drawbacks of the IOO model is the potential sacrifice of safety. Insufficient attention to vehicle maintenance could lead to accidents related to equipment failure. It is also true that drivers will tend to go as fast as they reasonably can and will search for routes that avoid congestion, sometimes traveling through residential areas. Some of the efficiencies of this model come at the price of greater risk for the drivers themselves, as well as for other drivers, bicyclists, and pedestrians who share the same roads.

Lease Drivers (LDs)

Description

The primary difference between a lease driver (LD) and an independent owner operator (IOO) is that the IOO owns his or her own truck while an LD generally leases a truck from, or through, an LMC. Often these relationships are exclusive, though not always.

Compensation is generally the same for an LD as for an IOO, although a driver who is an lease driver might be closely tied to the LMC from which the truck was leased. In some cases, the LD is prohibited from providing drayage services for other LMCs. Often, LMCs exert greater control over a driver who is lease driver than they could with an IOO. For example, the leased trucks may be equipped with GPS equipment, allowing constant monitoring by the LMC. The LMC may dictate routes and speeds of travel, both of which can be monitored through GPS. At the same time, drivers continue to be responsible for much of the operational cost of driving the truck; the cost to the driver may include charges for insurance, gas, and sometimes maintenance, as a part of the lease.

LMCs that employ the LD model are growing in numbers largely due to the Clean Truck Program. Examples include:

1. Shippers Transport Express
2. Harbor Express, Inc.
3. Gold Point Transportation, Inc.

Efficiency and Cost of Service

The use of lease drivers is likely to be a higher-cost model than the IOO model. This higher cost arises from the fact that in this model the LMC carries the full responsibility for maintenance and insurance of the trucks. That is, the LMC may very well charge the driver a fee for maintenance and insurance of the vehicle, but passing on some or all of these costs to drivers does not shift the responsibility or the ultimate liability. LMCs are inherently less likely to take on risk than are individual drivers, making them inclined to spend more on maintenance and insurance. Their relative distaste for risk arises from the different set of consequences for mechanical failure, the failure to pass an inspection, or the failure to carry sufficient insurance on the vehicle and its cargo.

For drivers who own their vehicles, a citation or a breakdown on the road may mean that they can no longer operate in the industry. Studies have shown that there is significant turnover among drayage drivers and, given their low wages, there are no doubt alternative ways of obtaining the same standard of living. Drivers frequently transition between trucking, construction and other material moving occupations. In contrast, when an LMC devotes too little attention to maintenance or insurance, the paring back on routine expenses may result in the failure of the business or a costly lawsuit. In these cases, the consequences affect more people and carry much larger costs. Because LMCs have stronger incentives to minimize their risks, more will be spent on maintenance and insurance when lease drivers are used, raising overall costs in this model.

In fact, in many lease contracts between an LMC and a driver, the driver pays a fee for the use of the truck and the cost of insurance while the driver is using the truck. The driver may additionally be required to contribute to the maintenance of the truck regardless of the condition and care of the truck during his or her dray. Even

though the driver is responsible for many of these payments, the LMC is responsible for setting the amount, and thus there will tend to be higher levels of spending on these items. That is, this feature of the relationship may well cause the LMC to spend more on insurance and maintenance than were they solely responsible for the cost.[11] This may be money well spent. Nonetheless, these expenses raise overall costs in the industry and ultimately drayage rates.

Here, as with the IOO model, the incentives break down with regard to maximizing the efficient use of both the driver's time and the truck. Given that the driver is compensated by the load, the LMC still does not bear the full cost of the time spent waiting at the gates or in traffic. There is some additional cost to the LMC for driver wait times—the LMC has only so many drivers, and their profits are generally tied to how many drays are performed on an average day. However, this incentive is secondary. To the extent that LD drivers are not able to provide sufficient service, there are IOOs willing to pick up the slack at similar or sometimes lower levels of compensation. It remains true that the driver has the incentive to be as efficient as possible. However, in this model, the driver is less able to compromise on safety because of the improved state of repair of the vehicles.

Although counterintuitive, the LMC's incentive to maximize the use of the vehicle may be weak. Even though the LMC owns the truck and carries the responsibility for the vehicle, it does not bear the full cost of ownership. Thus the value of the truck to the LMC is increased by minimizing the number of miles it is driven. Understanding this situation requires a quick look at truck depreciation.

Trucks depreciate in two ways. First, trucks lose value simply by aging. Consider two trucks with similar mileage. The newer truck will generally command a higher

[11] Uwe Reinhardt, a health care economist, spells out how an increase in health care spending takes place with employer-provided health insurance in "The Illogic of Employer-Sponsored Health Insurance," *New York Times,* July 1, 2014. The same principle applies here. If employers are making decisions with other people's money, they will choose to spend more than if they were spending their own money.

price and for good reason—it will likely be more energy efficient, include more sophisticated technology, and have a lower emissions footprint. The depreciation that occurs because of aging is largely outside of the LMC's control. A truck will age regardless of how many or how few miles it is driven. Given that lease rates are generally per period of time rather than per mile, they can be thought of as offsetting this age-related depreciation.

Second, trucks depreciate by being driven. Of two vehicles purchased at the same time, the truck with fewer miles will generally command a higher price. This second consideration results in a perverse incentive for LMCs. Given a lease rate, they would, in fact, prefer that the trucks be driven fewer rather than more miles. It is unlikely that this incentive comes into play very often, but it underscores the notion that LMCs are not necessarily concerned with having drivers perform more rather than fewer drays in a given day.

With the drivers paying most of the expenses related to the use of the trucks, there is little incentive on the part of LMCs to get the maximal use out of the trucks. This is counterintuitive in the sense that the LMC has an economic interest in having their trucks used to their fullest extent as they depreciate with time. However, if the LMC is insulated from the cost of the truck through the lease payments, this incentive is substantially reduced. Thus the problem of having a lack of incentive in two crucial areas—the driver's time and the truck usage—occurs in the lease driver model as well as in the IOO model.

Employee Drivers (EDs)

Description

The employee-driver model unfolds much like any other employment relationship. Drivers are paid wages, which are primarily related to their time on the job. LMCs, the employers, indicate the work that the drivers are to perform and provide as

much or as little guidance as to how it is carried out as the LMC feels is appropriate. LMCs are responsible for providing trucks, fuel, maintenance, insurance, and all other operational costs.

Although they represent a minority of existing LMCs, there are several that employ drivers:

1. Fox Transportation
2. Knight Transportation
3. Toll Group

Efficiency and Cost of Service

Having employee drivers solves both incentive problems, as the LMC is now directly responsible for costs occurring from delays and from the use of the truck. The LMC now has the incentive to maximize the efficiency with which the drivers and trucks are used. In particular, the LMC has the incentive to devote effort toward matching containers with drivers and assigning drayage tasks to the nearest driver.

At the same time, unless the compensation package is appropriately designed, the driver's incentives to use his or her time efficiently can be significantly curtailed. The compensation package has to balance requirements, such as minimum wage laws, with induced incentives, such as bonus pay that is related to the amount of service or number of drays provided by the driver. Without these incentives, driver-related inefficiencies may exist.

In this model, drivers do continue to have some discretion over their activities. In particular, they may choose to get in longer lines rather than shorter lines at the terminal gates, inducing longer wait times. Introducing a higher level of compensation for times when the driver is in transit than when the driver is waiting can mitigate this potential inefficiency. This could be achieved with a compensation schedule in which the driver is paid the minimum wage for all hours worked and a

per dray bonus, making hours in transit with a loaded container more valuable than those spent waiting or returning to the port unloaded.

This kind of compensation is in keeping with the other incentives in this model for LMCs to ensure that drivers perform individual drays as fast as possible and as efficiently as possible. The efficiency side of this equation necessitates minimizing the number of miles a given truck and driver travel without a load. The LMC is in a good position to address this inefficiency with computer programs (already available or easily developed) that can track loads and carrier requests in real time, reducing bobtailing and enabling container pickups to be assigned to the nearest available driver.

There is an additional positive aspect of the push toward efficiency inherent in this model. Here, the LMC has the motivation to influence components of the service that individual drivers cannot. In particular, LMCs have the ability to levy surcharges on containers from terminals with notoriously long wait times or terminals with unpredictable hours or days of service. The more prominent the employee model, the more influence LMCs will have to effect changes in the drayage industry over circumstances that are not under their direct control.

In principle, this should be the most efficient model and hence offer the lowest rates. In practice, however, state and federal regulations impose significant costs on employers that do not apply to independent operators, whether owners or lease drivers. These costs include payments for social security, unemployment insurance, workers' compensation, and health insurance, as well as generally higher expenditures on human resource functions within the company. All else equal, these requirements raise the costs of providing services.

However, it is possible that the LMCs' increase in profits, stemming from the incentives in this model to improve efficiency, can offset these higher costs.[12] The extent to which the gains in efficiency will offset the costs is currently unknown. By some accounts, these higher costs, and other expenses related to the use of employee drivers, raise the overall costs of providing drayage services by around 10% relative to the costs of using lease drivers or independent owner operators. In a competitive market, this suggests an increase in rates of 10% or more.[13] Whether this increase in rates comes to pass with an industry-wide shift toward employees is unclear.

When drivers are employed, there are two important changes. First, the LMC now has a vested interest in the effective use of the driver and truck's time. Second, there are significant labor costs introduced into the industry that are not present in the other models. Accordingly, there are opposing pressures with respect to overall costs, and the effect on rates is unclear.

What Is Low Cost? Independent Owner Operators, Lease Drivers, or Employee Drivers?

A simplistic view of the relationship between the driver models and the costs leads to a clear conclusion: intense competition results in a very low cost for drayage under the independent owner operator (IOO) model. Truck ownership under the lease driver (LD) model changes the system in a way that likely leads to more money being spent, at least on maintenance and insurance, which in turn leads to higher costs, and perhaps higher prices. Moving from the LD model to the employee model suggests yet higher costs, with the need to spend additional money on

[12] Beacon Economics, "Clean Trucks Program," February 2008, discusses these inefficiencies and the likelihood that their elimination could offset the increase in labor cost increases.

[13] This percentage increase comes from an interview with Joe DeSaye of Toll Group. A slightly lower figure of 8% was developed in an analysis by Jon D. Haveman and Kristen Monaco in "Comprehensive Truck Management Program: Economic Impact Analysis," Beacon Economics, April 17, 2009, p. 35.

employee costs, including unemployment insurance, health insurance, and workers' compensation.

The provision of drayage services, however, is anything but simple. In general, businesses respond to changing conditions so as to mitigate any increase in costs. With the realignment of incentives, costs, and control, the LMC has the ability and impetus to mitigate higher costs, especially under the employee model. If the LMCs with employee drivers work to offset their higher costs, other carriers will benefit because their actions will result in efficiency gains in the drayage industry as a whole.

When seeking to improve efficiency in the drayage industry, we see two different levels of concern. The first is at the level of the individual driver, and the second is systemic. Systemic inefficiencies are those that are uniform across the industry. Although they affect all drivers, they are nonetheless external to the motor carrier business or outside of their direct control. Inefficiencies at the level of the individual drivers occur within each dray as well as between drays. Working together, drivers and LMCs can in principle address these inefficiencies under all three models. However, it is very difficult to address systemic inefficiencies under either the IOO or the LD models. The employee-driver model alone provides the proper incentives and hence the potential to address this second set of inefficiencies.

Driver-Level Inefficiencies

The inefficiencies that occur at the level of individual drivers are related to resource utilization and economies of scale. As has been discussed, a truly efficient system would minimize the number of bobtail trips and obtain resources at the lowest possible cost. With IOOs, it is difficult to match trucks with potential loads based on the nearest available truck or bobtail. In general, this is a significant source of utilization inefficiency. Drivers have a preference for driving while loaded, raising revenues relative to costs, yet there is no mechanism in place that will allow them to

be assigned to a container that is two miles away rather than one that is 10 miles away when both are available, either of which is better than driving back to the port with an empty container, which happens frequently.

It is certainly true that some fledgling effort is being made to reduce bobtailing, but there is ample room for improvement as evidenced by the large number of trucks that currently enter or exit the port empty. The LMCs that employ drivers have the greatest incentive to address these inefficiencies.

In the IOO model, there is simply no incentive on the part of the LMC to put the effort and expense into developing a computer program that uses real-time data and alleviates this inefficiency. The LMC has the power but not the incentive, while the driver has the incentive but not the power. Enterprising IOOs will take it upon themselves to communicate with a set of LMCs when they are taken far from the port, but this is not an efficient way to address the problem. It would be more effective if LMCs had the incentive to be proactive in this regard.

LMCs with employees have the incentive to reduce bobtailing. More bobtailing means more miles driven per dray. This not only pushes costs higher, it also potentially requires the hiring of additional drivers. Employee-based LMCs have a strong preference for minimizing the number of drivers hired, given the extra employee costs associated with each hire. The number of drivers hired and the number of trucks purchased will be lower if drivers have well-planned routes with loaded containers.

Independent owner operators (IOOs) do not have the scale of operation to take advantage of other strategies for minimizing costs. Some areas where costs could be streamlined include gasoline purchases, truck maintenance, and insurance premiums. An LMC with a significant number of trucks could be in a position to negotiate lower prices with a gas station or a set of gas stations in return for business. Per truck, the process of changing the oil, checking tire pressure, or

performing other aspects of routine maintenance are more cheaply accomplished on 10 trucks simultaneously than on 10 trucks individually. It is also likely that purchasing an insurance policy for 10 trucks, or 100 trucks, is cheaper on a per truck basis than it is for a single truck.

An additional cost savings in the employee model comes from the ability of the LMC to finance and purchase trucks at lower rates and prices. Many LMCs will be able to internally finance truck purchases, and purchasing 50 or 100 trucks at the same time will result in a lower price negotiated with the dealer. Some LMCs are subsidiaries of other larger companies, with access to financial resources that can substantially reduce the costs of purchasing trucks relative to competitors.

The sharing of information among drivers within a single LMC is another potential benefit of scale. Information such as how long the lines are at particular terminals could have a considerable effect on drayage services, as would information about accidents on the highways, port congestion, broken-down rigs, or the availability of other trucks to receive a load.

Systemic Inefficiencies

Systemic inefficiencies are those that are beyond the control of individual drivers or LMCs, but the elimination of which benefits all market participants. These inefficiencies persist because the incentives to remove them are not well aligned with the power to do so. Although they are inherent in all three models, they have the potential to be eliminated only in the employee model. Under the employee model, LMCs have strong and common incentives to increase the productivity of their drivers.

The most obvious systemic inefficiencies are related to congestion. Drivers face congestion within the port at specific terminals and they encounter considerable traffic on the roads that are frequently used by drayage service providers. Whereas

LMCs have little influence over congestion outside of the port, regardless of the driver model, they can have influence over congestion at the terminals.

Congestion at the terminals can occur at any time, but it most often correlates with particular peak times of access. These times include the beginning of a shift, right after lunch, on days when a large vessel arrives, and during the day (versus the night).[14] Having employees on payroll provides an important incentive for LMCs to encourage the terminals to alter their practices so as to minimize the congestion at peak times.

For instance, were terminals to operate 24-7, there would be no congestion at the beginning of the day. Were they to operate in at least a limited capacity through the lunch hour, there would be no congestion buildup at the beginning of the afternoon. Although it is not clear how best to address the congestion resulting from the arrival of either a single extremely large vessel or several large vessels, the creativity of the marketplace is likely to generate better solutions than any analysis by an economist. When LMCs have employees who are forced to resort to knocking at the gates of the terminals, and when they see their trucks helplessly idling in queues, they will have significant economic incentives to innovate and develop solutions, pressuring terminals to address the congestion.

Surprisingly, some reports indicate that when terminals face financial difficulties, their first response is to cut back at the terminal gates.[15] From the point of view of the drayage sector, this broken system needs a fix. Terminal operators cut back at the gate because they are willing to ignore the large number of small voices condemning the practice, whereas they are far more responsive to the small number

[14] These peaks are clearly seen in the figures in Appendix A. Note that they are present for terminals with exceptionally short wait times (Matson, Figure A.2) as well as for those with exceptionally long wait times (LBCT, Figure A.3).
[15] See "Harbor Truckers Seek Fix to Broken Drayage Model," available at http://www.joc.com/trucking-logistics/drayage/harbor-truckers-seek-fix-broken-drayage-model_20140721.html.

of very loud voices that create an uproar when terminals consider reducing resources devoted to loading and unloading boats. Cuts that reduce loading times for vessels require the vessels to stay in port longer, which is very expensive for the carriers. Were the truckers to be employees, the LMCs would speak up with more clout and a louder collective voice, achieving a greater effect than the cries of individual drivers.

There have been some efforts to make terminals share the costs of congestion. The practice is not widespread, but a few LMCs do have congestion charges in contracts with clients at some terminals. Under an employee model, these charges would likely become increasingly common, encouraging terminals to evaluate their practices and implement new policies. Without this pressure, there will be insufficient incentive for the terminals to improve efficiency. That congestion at terminal gates remains a topic of conversation testifies to the ongoing nature of the problem.

Two programs have been implemented to alleviate congestion, PierPass and an appointment system, but both have fallen short of their potential. Under the PierPass program, a fee is charged for daytime pickup or drop-off of containers at the ports of Los Angeles and Long Beach. The fees associated with daytime delivery are high and may well be resulting in too many trucks being diverted to the night shifts. The terminals are now reporting congestion at night. Ironically, if the incentive to pick up containers at night becomes too strong, it will generate nighttime congestion at the terminal and will also result in trucks sitting idle at their destinations, waiting for facilities at the other ends of the routes to open in the morning so that drivers can deliver their loads. These inefficiencies potentially compromise the advantages of round-the-clock loading.

Appointment systems allow an LMC or driver to indicate a time at which they will be picking up or dropping off containers. These systems have significant drawbacks and are hence underutilized. In particular, if appointments must be made for a

specific time and not a time range, the fear of missing an appointment makes their use less than attractive.[16] When appointment systems are used, LMCs are loath to send trucks in with a container to drop off out of fear that there will be delays and the appointment will be missed. This leads to more bobtailing into the port to make an appointment, offsetting any gains in the efficient use of resources.

With greater interest on the part of LMCs, pressure can improve the efficacy of these and other programs intended to alleviate congestion. At present, there are an insufficient number of LMCs exerting pressure to improve these systems. Independent owner operators and lease drivers do not have the rallying power to change the system, only the employee model has the ability to call for increased efficiency and to drive innovation.

Efficiency Summary

Table 2 provides a summary of the incentives and degree of control of drivers and LMCs in the various driver-LMC relationships. There are three potential sources of inefficiency:

1) Within a dray, the degree of efficiency depends on the speed of driving, the route selection, and the wait times in lines.
2) Between drays, the degree of efficiency depends on whether the truck has a load on both legs of the trip to and from the port, in addition to depending on whether drivers are assigned loads based on their proximity to containers.
3) System-wide, port operations affect efficiency, including the amount of congestion at terminal gates, as well as the success or failure of port-related programs and policies, such as PierPass.

[16] A recent Journal of Commerce article, "Appointment System Helps APL Clear L.A. Terminal Congestion," July 31, 2014, underscores the importance of windows in appointment systems and other efficiency improving measures that are available to the terminals.

In the table below, the three potential sources of inefficiency are listed in the first column. The subsequent columns indicate the strength of the incentive and the degree of control that drivers and LMCs have over each source of inefficiency. An ideal driver-LMC model is one where incentives and control are well aligned.

Table 2: Efficiencies, Incentives, and Control in Driver-LMC Models

		IOO		LD		ED	
Category of Inefficiency		**Driver**	**LMC**	**Driver**	**LMC**	**Driver**	**LMC**
1. Within Dray							
	Incentive	H	L	H	L	L	H
	Control	H	L	M	M	M	M
2. Between Drays							
	Incentive	H	L	H	M	L	H
	Control	L	H	L	H	L	H
3. Systemic							
	Incentive	H	L	H	L	L	H
	Control	L	M	L	M	L	M

Degree of Control: H = High M = Moderate L = Low

This table indicates the relationship between incentives and control. For drivers, the IOO model provides the best alignment. However, only within drays do drivers have much, if any, control. The LD model is less appealing because in this model drivers have less control over efficiency within a dray, as driver activities may be more closely monitored by the LMC. Without incentive pay, or another reward system, the employee model largely eliminates the driver's incentive for efficiency. It is worth noting that the "Driver" column under IOO can be largely replicated under ED with a system of incentive payments for drivers.

For LMCs, the relationship is largely reversed, with the ED model providing the greatest correlation between incentives and control. Within drays, control is shared between the driver and the LMC. With respect to systemic inefficiencies, LMCs have strong incentives to push for change, but cannot exert control. The LD model

reduces the LMCs' incentive to provide efficient service, and the LMC further loses some control within drays.

The most efficient system of drayage provision is therefore the employee model coupled with incentive payments to the employee drivers. This model provides the closest link between incentives and control over inefficiencies of any of the three models. Whether or not this model provides drayage at the lowest cost, and therefore with the lowest prices, is unknown. Previous research suggests that significant inefficiencies could be addressed—hence, if the employee model is implemented on an industry-wide basis, rates are unlikely to be higher and may be lower.[17] It is plausible that driver welfare will significantly improve under this model; the other two models provide greater independence but lower compensation and benefits.[18]

Driver Model Effects on Routes and Services

The effects of different driver models on routes and services would be negligible. It remains the case that containers need to go from point A to point B within a set period of time. These points are not determined by the LMCs, but rather by the clients, often steamship lines. The services provided include moving a container from one specified place to another.

Whether the drivers are employees or lease drivers would have no effect on pickups or drop-offs. The LMCs, which have historically functioned primarily as brokers, cannot alter either end of the dray without losing business. Choices of transloading, rail, and storage are made strategically by the beneficial owner of the cargo or their agents, and not by the LMC.

[17] Beacon Economics, "Clean Trucks Program," February 2008.
[18] This conclusion is not true of all drivers, as some have a strong preference for independence, but it will likely be true for most.

Summary

The different relationships between drivers and motor carriers in the modern port drayage system primarily fall into three models: the independent owner operator (IOO), the lease driver (LD), and the employee driver (ED). All three models can be found in the current system.

The IOO model involves an arms-length relationship between the driver and the LMC—the LMC provides little more than a request to move a container and a rate of payment for the move. The LD model is different in the specific sense that the LMC may provide the driver with access to a truck, at the driver's expense. The employee model goes further and includes much greater control over the employee's actions, with the LMC providing the truck and absorbing all truck-related expenses.

Requiring LMC compliance with state law need not have an impact on rates, routes, and services. This is because the LMC has a choice: the LMC can exert control over drivers' actions and employ them, or it can relinquish that control and honor the "independence" inherent in the other two models.

It is the existence of this choice that severs the link between rates and the specific driver-LMC model chosen. Were the entire industry required to employ drivers, labor costs would indeed rise. Employing drivers involves expenditures that are not present in the other two models. However, it also gives rise to incentives, and it enables the minimization of costs in ways that the other models do not. These incentives have the potential to significantly increase innovation and efficiency in the drayage market. It is ultimately an empirical question as to the overall effect on rates (up or down) should *all* LMCs employ their drivers.

The question of a single LMC, however, is quite different. Given the configuration of the market—its composition in terms of driver-LMC models—an LMC will weigh the relative merits of each model and select the one that generates the greatest return.

As this market is particularly competitive, the decision of one LMC will likely have little effect on rates in either the market as a whole or for the specific carrier. Any attempt by that LMC to raise rates would be rejected by customers who would seek services from other carriers.

Should an LMC select the employee model, in compliance with state law, there are two choices available to the LMC. The LMC can absorb the higher costs and accept lower profits, or the LMC can innovate in ways that offset the higher costs and perhaps raise profits relative to the other models. Unless some unique service is being provided, the market will not accept an increase in price from one of the many carriers.

It is also possible that the LMC would remain cost competitive with LMCs that do not employ their drivers. This could occur for a variety of reasons. In particular, this would be possible under the following conditions:

1) the LMC has a special relationship with terminals allowing them faster access to the terminal, with reduced wait times at the gate and perhaps shorter in-terminal wait times;
2) the LMC is part of a much larger organization and its overhead costs are reduced because they are provided by other parts of the organization; or
3) the LMC also has a long haul or other trucking component and is thereby able to take advantage of economies of scope—other trucking activity may lower the costs of providing drayage services.

These factors, and others, enable the market to be characterized by all three types of driver models simultaneously.

A direct link between costs and prices in a highly competitive market only exists when a) the increase in costs affects all market participants and b) the source of the cost increase does not facilitate efficiencies that offset the cost increase. In the case of the drayage sector and the state employment law, neither is true.

Given the highly competitive nature of the drayage industry, an individual motor carrier's decision with regard to driver model will not affect either that carrier's rates or rates in the market as a whole. Only a uniform requirement that all motor carriers employ drivers has the potential to affect rates. This, however, is neither a necessary requirement of the law nor a likely outcome. As the law does not mandate the employment of drivers, but merely affects carrier's options, it is unlikely to affect rates for either individual motor carriers or the market as a whole.

In the end, the state law regarding the definition of an employee is likely to have little effect on rates, it merely informs the choices that carriers have regarding the relationships with their drivers. The effects on routes and services are even more tenuous. With regard to routes, providing drayage is more akin to providing taxi services than to providing transportation by bus, train, or airplane. Whereas the latter have fixed points of origin and destination, a taxi picks up where necessary and drops off where requested. The effects on service are equally tenuous. The service provided is the movement of a container from one place to another. The relationship between the LMC and the driver has little room to influence services; none of the three driver models binds an LMC to a particular set of services.

The Specifics of Shippers Transport Express

Summary of Operations

Shippers Transport Express (STE) is a licensed motor carrier performing port-related trucking operations in California and Washington state. Of primary interest are STE's operations in California at the ports of Long Beach and Oakland. STE is a subsidiary of Carrix, Inc., headquartered in Seattle, Washington.

STE has the same parent corporation as SSA Marine Inc. (SSA), the biggest marine terminal operator in the country, and the biggest subsidiary of Carrix. SSA provides a full spectrum of transportation services, including trucking and off-dock yard operations. In California, these trucking services are provided through STE.

It is typical to have a parent corporation exercise control over a subsidiary. In this case, however, the control over operations appears to be exercised by a major subsidiary over another, of SSA over STE. As discussed here, this control is important to evaluate the impact of driver classification, if any, to the price, route, or services provided by STE.

In Long Beach, the vast majority of STE's operations involve picking up inbound imported containers at the port and delivering them to a storage facility owned by STE. This activity is commonly referred to as a "dray-off."[19] This activity accounts for 80%–85% of STE's port drayage work in Long Beach. Full drays, from the port to the ultimate local destination and to the port from an inland destination, make up the remaining 15%–20% of STE activities. STE is currently the only organization providing this specific type of dray-off activity. The majority of STE drayage services are provided by drivers classified as lease drivers. Independent owner operators are also used when there is a shortage of LD drivers.

In Oakland, STE performs drayage operations much as any other LMC in the area, moving containers between the port and inland destinations. The majority of these drays are undertaken by drivers classified as lease drivers. As in Long Beach, STE offers storage for containers in Oakland, both for its drivers and, for a fee, for other drivers. But storage only amounts to about 10% of STE's activities in the area.

[19] In this report, the term "dray-off" refers to the act of picking up a container at the port and delivering it to some point intermediate between the port and the container's final local destination; the container will subsequently be transferred to another truck for the remainder of the dray.

In both locations, STE owns the trucks and leases them to the drivers who will be providing drayage services for STE. The lease arrangements differ with regard to duration—lease times are for a single day in Long Beach and for a week in Oakland—but are otherwise comparable.

STE was originally formed to provide dray-off services to members of joint ventures between other SSA Marine and terminal operators at the ports in California and Washington state. For most of its history, it has been run as a service-providing organization to these entities rather than as a profit center. STE is compensated for this activity in a way that offsets its costs; the company seldom generates a significant profit or suffers a significant loss. In Oakland, STE provides standard drayage services in large part because the demand for dray-offs has not materialized. In Long Beach, dray-off services are in high demand.

Dray-offs provide a service to the terminal operators—they are an effective and low-cost means of increasing the amount of space available on the terminal proper. Storing cargo off-site allows for greater throughput of containers and for more ships to dock and offload their contents. Dray-offs also provide a service to many cargo owners in that their cargo is generally more accessible at the STE storage facility than it is on the terminal grounds. For example, Walmart might be interested in dray-offs because its drivers can pick up containers at the STE facility without waiting in the long terminal lines or sitting at the terminal for an extended period while the specific container is located and made available. With lower overall volumes, the STE facility can provide these services much more efficiently than most terminals.

Effects of Employing Drivers on Rates, Routes, and Services

As has been previously discussed, were STE to employ its drivers, rather than use lease drivers, there would be minimal effect on routes and services. STE's primary

routes and services involve moving containers from a terminal to STE's storage facility. The other drayage services that it provides depend on the needs of clients. The routes and services in this industry are determined by cargo owners or terminal operators; in general, costs are not subject to negotiation or alteration based on a change in the cost structure of the LMC.

It is clear that employing the drivers who are currently lease drivers would have cost implications for STE. In particular, the labor component of operations would increase. STE has estimated that this would increase the overall cost of providing drayage services by 20%–25%. Some of this cost increase could be offset by other efficiency enhancing measures, as described above.

In this specific case, it is also likely that employing drivers will have little effect on rates. There are two substantively different activities performed by STE: standard drayage operations in a market in which STE competes with a large number of LMCs and drivers, and dray-offs to an off-port storage facility.

With regard to standard drayage operations, were STE to employ the drivers used to provide these services, it would not be in a position to raise rates.[20] Because of the intense competition in the market, it would likely lose a significant share of the demand for its services if it unilaterally boosted prices. However, at the present time, STE makes use of IOOs and could in principle continue offering these standard drayage services through the use of IOOs. This would allow STE to remain in the market without a rate increase.

For the provision of dray-off services to terminals in Long Beach, there are no published rates. STE furnishes this service when requested and is compensated for its costs. Because of its position, STE and its costs are best thought of as an input

[20] Regardless of the issue of employing drivers, STE may be in the process of eliminating its operations in Oakland according to a deposition from Edward DeNike (June 10, 2014).

into a much more expensive service that is being provided to the cargo owners. That service is moving the container from one location overseas to another location in the United States, with the cost ranging from $2,000 and $4,000 per container.

This is the service that the terminal has contracted with its client to provide. Adding the dray-off service enhances the terminal's bottom line, not through the effect on any specific container but rather through the effect on the overall throughput of containers that arrive at the terminal, which benefits all containers arriving at the terminal.[21] The terminal may offer this specific service to larger clients, but it is not a service that clients generally have built into their contracts with the terminal.

Accordingly, the dray-off services provided by STE can be thought of as an input into the production process of a terminal and as a fixed cost of doing business for the terminal. For each container moved, this increase in cost could range from $10 to $25, or between 0.25% and 1.25% of the cost of moving the individual container.[22] However, it is more appropriate to attach this cost to all containers moving through the terminal. If containers that are drayed off of the terminal amount to one-quarter of all containers handled by the terminal, the cost increase becomes negligible—between 0.06% and 0.31% of the total cost of moving the containers, or as little as $6.25 for each container.

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[21] Thus, for Carrix and SSA Marine, whether STE makes a profit on the specific services that it supplies is immaterial. Even if STE loses money, the terminal is likely to increase its bottom line to more than offset the loss at STE. "Now, the intent was not to make money at Shippers. The intent was to convince our partners and those corporations that we could make more money on waterfront if we had that kind of mode of operation to truck off-dock." (See DeNike's Deposition, Vol. II, 221: 18-22.)

[22] These figures are based on information gleaned from the DeNike deposition on June 10, 2014. On p. 234 of the transcript, it implies that drivers are paid 80% of STE's revenue for a particular dray. An abstract example suggests that the revenue is on the order of $100, while a more specific discussion on p. 236 suggests that drivers are paid $45 for drays between a terminal and STE's storage facility. The lower figure, $10, is derived from the $45 that drivers are paid. (That is, $45 divided by .8 equals $56. Twenty percent of $56 is approximately $11.20.) The higher figure is derived from the revenue number of $100 ($25 is 25% of $100).

With a change to employee status of STE's drivers, the increase in cost to the terminals is a very small fraction of their total revenues. Accordingly, if the terminals were to increase the rate that they charge their clients to account for this cost increase, that increase would be negligible, at less than 0.31% ($6.25). Because the amount is so small, and because terminals face steep competition from other terminals, it is more likely that this cost increase would simply be absorbed into their operating costs, leaving a slightly smaller profit margin, but one that still reflects the benefits of paying STE to dray containers off of the terminal property.

Alternatively, rather than employ drivers, STE has the option of reducing its control over the drivers so that they are legally lease drivers under California law. This would have two effects. First, it would reduce STE's operating costs, not only vis-á-vis employing drivers but also vis-á-vis their current practices. Maintaining control over drivers is a costly endeavor, with other employees of the company monitoring their activities and providing training sessions. Second, it would reduce the benefit to STE of maintaining this control over drivers. This benefit may be through reputational effects, or through reduced wear and tear on the trucks that STE currently leases to drivers.

In the event that this benefit exceeds the increased costs of employing the drivers, STE would maintain control and incur the additional costs. These costs would be passed on to the terminals using STE services and would likely be absorbed there or in turn passed along to the owners of the cargo through a negligible increase in rates.

If this benefit does not exceed the increased costs of employing the drivers, STE can relinquish some control and treat the drivers as independent, potentially lowering the overall costs to the terminals. STE also has the option of using IOOs. Because of the nature of the dray-off work, many IOOs would prefer this work to standard

drayage work. It offers more consistent hours, with shorter wait times at the terminal, and is hence more profitable.

Ultimately, STE faces choices in how it provides services if its current practices are deemed to be inconsistent with California law. STE can employ its current stock of drivers, or it can relinquish elements of control that make compliance with California law problematic. With regard to its relatively limited standard drayage operations, which take place in the context of a very competitive market, STE has the capacity to connect with and hire IOOs to perform the work.

At the same time, it must be recognized that STE is likely a low-cost drayage service provider. This is so because many of STE's core services are supplied by SSA Marine. In particular, payroll, general finance, tax and accounting, human resources, and most C-level functions at STE are staffed by SSA Marine personnel who are not compensated by STE for providing these services. In fact, all of STE's corporate officers are fully compensated by SSA Marine and receive no compensation from STE. Freeing STE of these expenses may make it possible for it to remain profitable even if it were to employ its drivers.

With regard to the more substantial dray-off operations, it is likely that the terminals to which the service is being provided have the capacity to absorb the higher cost of dray-off services. STE is in a very unique position. It has an ongoing relationship with the terminals, owing to the joint ventures between the terminals and SSA Marine, and it offers a service provided by no other LMC in the Long Beach area. Therefore, it is unlikely that STE will come under competitive pressure that would prohibit it from continuing operations despite the higher costs of employing drivers should it choose to do so. It is also likely that the terminals will continue to view its services as valuable, even at the slightly higher cost.

We have been provided with the following information for our review:

1. Plaintiffs First Amended Complaint

2. STE and SSA's Answer to First Amended Complaint

3. US District Court Order Granting Class Certification

4. Deposition Transcripts, including documentary Exhibits, of the following:

    a. Edward DeNike, Vol. 1
    b. Edward DeNike, Vol. 2
    c. Gordon Hoffman, Vol. 1
    d. Gordon Hoffman, Vol. 2
    e. Kevin Baddeley, Vol.1
    f. Kevin Baddeley, Vol. 2
    g. Guy Anderson
    h. Jose Alvarez
    i. Joe Salinas

5. Disclosures of STE and SSA

6. Website addresses of STE and SSA

7. Carrix/Goldman Sachs Phase one Conceptual Proposal under the Public-Private Transportation Act of 1975.

8. STE Report re: Income Analysis

9. Recent Court Cases that discuss effects of California laws on worker classification on the price, route or services in the trucking industry:

    a. Harris v. Pac Anchor
    b. Dilts v. Penske

Appendix A: Terminal Wait Times

These images were pulled from the Harbor Trucking Association website on July 26, 2014. They are provided as part of the Truck Mobility Data Report.

Figure A.1: Average Wait and In-Terminal Time at All San Pedro Port Terminals, by Time of Day

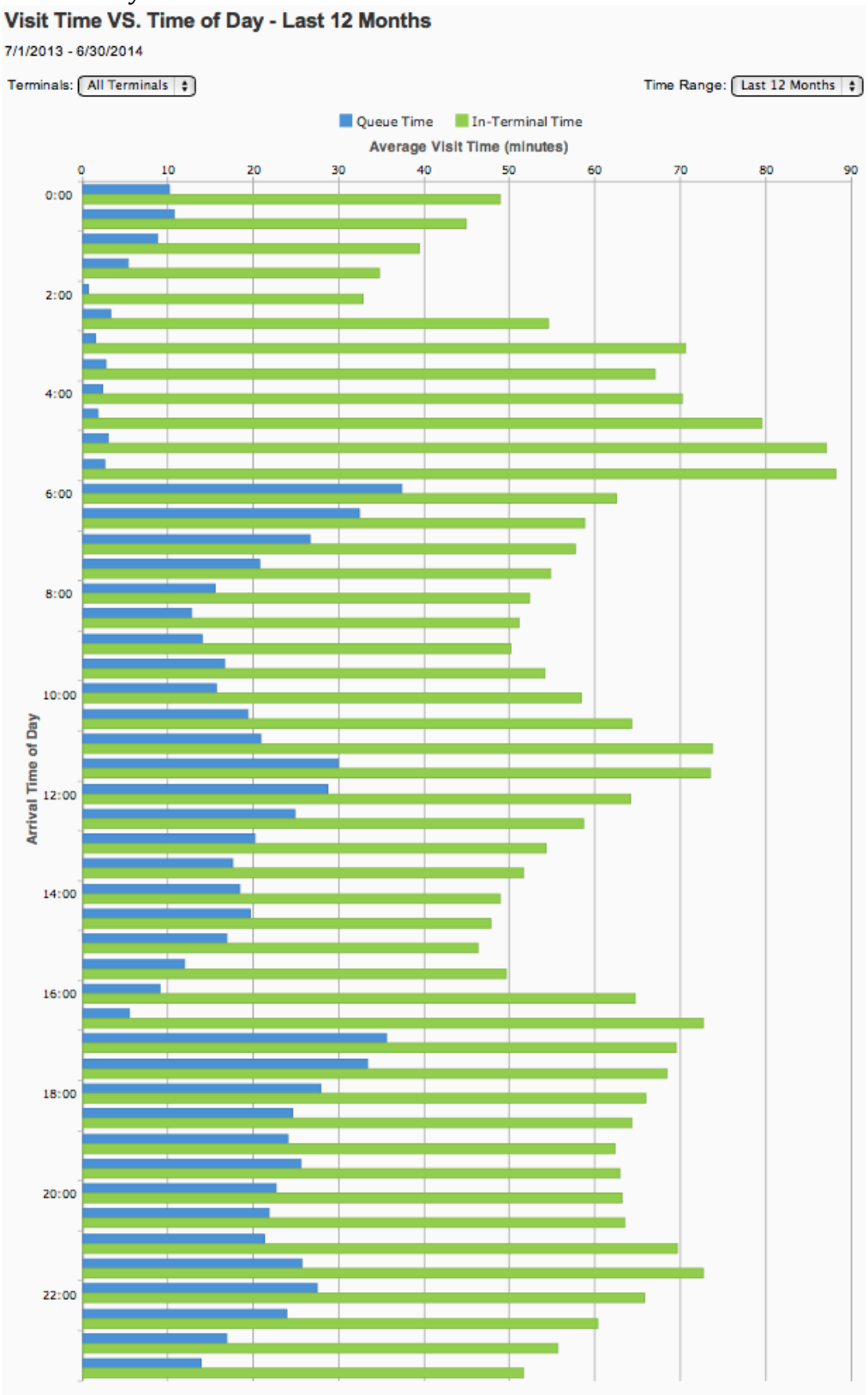

Figure A.2: Average Wait and In-Terminal Time at the Matson Terminal—a Terminal with Short Wait Times, by Time of Day

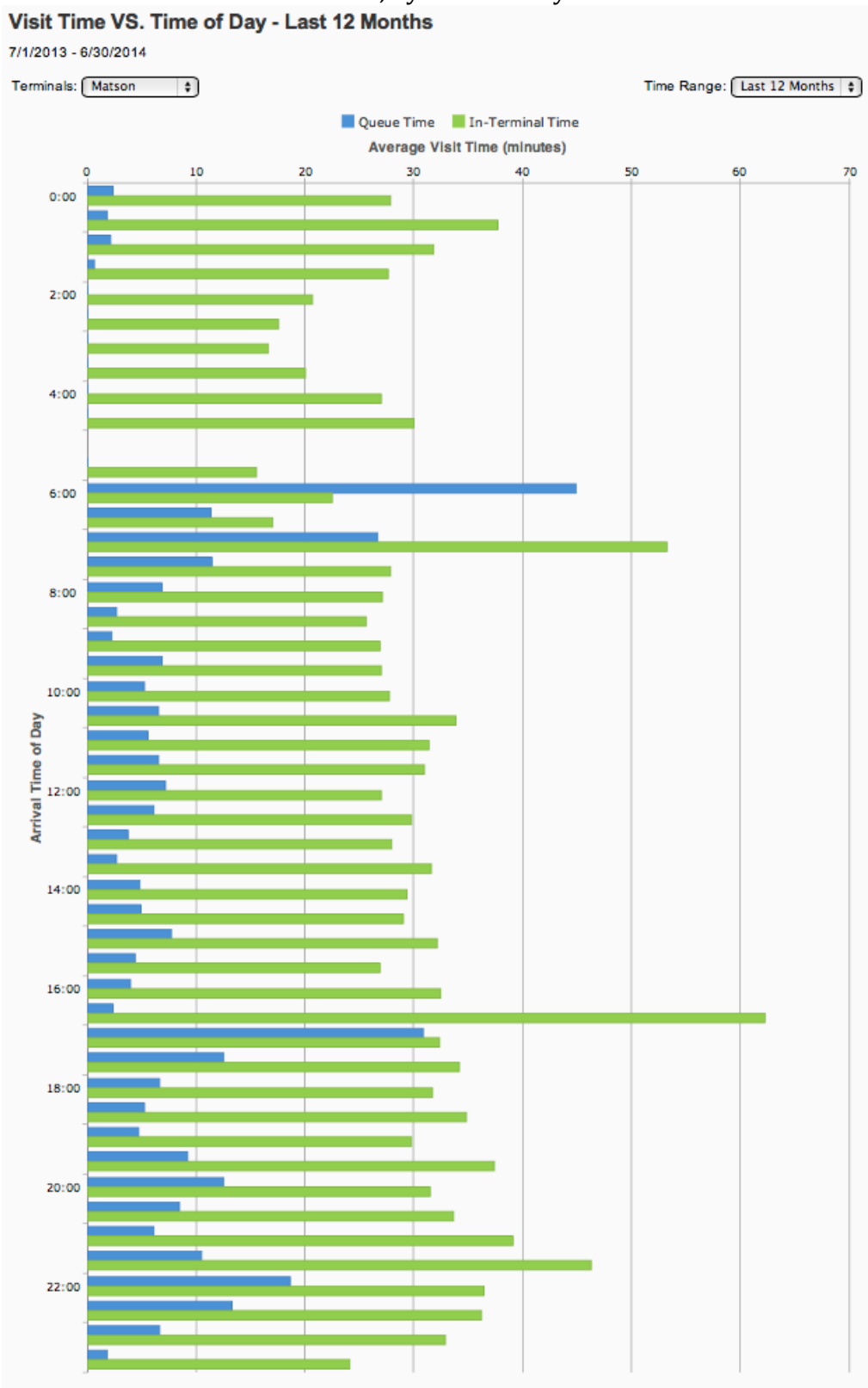

Figure A.3: Average Wait and In-Terminal Time at the LBCT Terminal—a Terminal with Long Wait Times, by Time of Day