Overcoming marine intermodal drayage problems

Better information, utilization could cure unrest with truckers, ocean carriers, terminal operators.

By Theodore Prince

For the most part, the success of international trade is the success of intermodal. The fulfillment of Moore's Law (predicting the microprocessor revolution) has delivered constantly improving — and significantly cheaper — technology. Engineering is one thing, and manufacturing and delivery is something else. Texas Instruments, one of the early electronic goods manufacturers, first wanted to manufacture in the Caribbean, but the "Yankee Go Home" attitude prevalent during the Vietnam war persuaded them to opt for Asia — considered at the time to be more receptive to American business.

The subsequent electronic goods revolution in Asia could only have been accomplished with the help of a reliable and cost-effective transportation solution. Containerization and intermodal were key components of the subsequent Asian economic miracle. In the world of intermodal transportation, the drayage, or local, trucking company represents the critical link in the service chain. Every loaded container entering or leaving this country is intermodal because it has at least one truck movement between the customer and the ocean terminal.

Problems

Truckers serving steamship lines in the ports are often perceived as bottom-dwellers. As in most industrial trades, there exists a "pecking order." In the trucking community, drayage companies handling marine terminal business rank below domestic intermodal carriers, longhaul drivers and unionized truckers. They frequently drive cheaper equipment, which has been discarded by other truckers. They also often lack the political influence to protect themselves.

One significant problem for marine terminal draymen is that they are paid by the trip, not by
the hour (as are unionized drivers). Dr. Michael Belzer, of the University of Michigan Trucking Industry Program, has called these operations "sweatshops on wheels" due to the existence of classic sweatshop conditions: low wages, long hours, significant degree of piece-work, subcontracting, and unsafe or unsanitary conditions.

Highway congestion and terminal congestion have worsened recently at many ports, diminishing the number of trips manageable per day for draymen — and reducing their gross income. Most attempts by harbor truckers to improve their lot have failed. Because they own their tractors, owner-operators are prohibited by antitrust law from collective bargaining. Nevertheless, in December 1999, the Teamsters committed to organizing owner-operators who serve the nation’s ports.

Now, ports, terminal operators and steamship lines must confront and correct a tradition of ignoring the truckers, as well as the inherent industry problems blocking efficient, through intermodal movement.

**Congestion, Peak Volumes**

Container shipping is famous for the congestion which arises from its unique combination of peak volumes. Imports peak during the early fall. Exports — when they were still a major traffic component — would peak in the early spring.

Last year, one major importer criticized the common steamship line industry practice of quoting a rapid transit time from the Far East (assuring a high-load factor) and its subsequent neglect to make loads available for pickup for several days, which reduced asset velocity and disrupted customer product distribution.

This is a common problem. Vessel deployments are usually designed around certain markets. Traditionally, import markets sought to provide a Sunday cutoff in Hong Kong, to allow for consolidation of south China merchandise at weekend. For exporting refrigerated commodities, lines sought to arrive in Hong Kong and Taiwan in time for the Thursday market shopping.

Such peaks are endemic to the shipping industry. Seasonal peaks cannot be changed because they reflect the retail buying habits of customers. Schedule grouping will not change because lines deploy assets to best fulfill the requirements of their customers. In fact, weekly peaks may grow as a result of the introduction of larger vessels intended to affect cost savings and economies to financially strapped steamship lines. In the past five years, international liner vessel capacity has almost doubled. Two years ago, the largest vessel was 5,000 TEUs. Today, vessels are close to 7,000 TEUs. Almost 90 percent of vessel capacity on order today is for these large vessels.

If peak demand is here to stay, then other problems need solving to improve overall system efficiency.

**Gate Operations**

The real point of interaction between truckers and marine terminals is the gate. This has presented obstacles for years. To date, although some terminals have implemented scanners and other technological enhancements, most efforts have been directed at correcting spot
problems.

For example, gate processing is too slow. Rather than overhaul the gate process, terminals simply widened staging areas to accommodate queuing delays. On-dock rail, the response to an inability to manage peak traffic surges to and from vessels — simply sweeps the problem from one area of the terminal to another.

Additionally, clerical gate functions are rife with labor problems. Many remember the labor featherbedding prevalent in the rail industry prior to deregulation (e.g., diesel replaced coal but firemen stayed on engines.) Similar practices exist today at marine terminals. In some cases, a computer will enter all information automatically — the clerk need simply hit "enter." But with the constant risk of labor disruption, no incentive exists to invest in labor-saving techniques and gate queues still remain interminable.

Unlike other intermodal terminals, marine terminals are open for only part of the day. An open marine terminal gate usually necessitates yard labor. This is often mandated by labor practices which have not yet been modified by collective bargaining.

In California, government has twice considered imposing solutions. One thought was to mandate marine terminals being open 24 hours daily. Earlier, Los Angeles threatened to impose truck curfews on major transportation arteries — which would have forced the marine terminals to remain open.

To date, such initiatives have been successfully resisted. Often, at times of extreme operational trauma, stress or volume, gate hours have been extended. This means anything from not closing the gates for lunch, to extending the day several hours earlier or later.

Gate problems only promise to worsen. Highway capacity is short and congestion is becoming a political, quality-of-life issue. The freight transportation industry must improve its practices, or it will have change forced upon it by government.

**Terminal Management**

Liner shipping is characterized by extensive vertical integration. When containerization began in the late 1960s, lines were forced to invest in vessels and containers to provide basic service. Liner carriers were selling their own vessels, terminals and containers, and line-controlled terminals became the standard. Asset ownership was crucial to the customer. Years ago, these terminals could be counted upon to be a source of profit to their owning lines.

Today, management of the terminals is often turned over to retired seafarers, or other "captains." These individuals are frequently inexperienced in U.S. terminal management. One positive change has been the development of professional terminal operating companies. Some of these companies operate common-user terminals. Others subcontract the operation of line-controlled marine terminals. But many of these companies are reluctant to join in industry-wide initiatives for fear of obviating their investment in systems improvements. This is well-founded, yet opportunity probably exists for both participation and service distinction.

Management problems for terminals will continue as volume increases and land available for
expansion disappears. Volume throughput per unit of land must increase, which will require increased grounding and stacking of containers.

**Information Silos**

Despite the explosion of the Internet, tracking information stored there still exists largely in silos and is not of much use. Even the development of terminal Web sites has failed noticeably to improve productivity.

Many Web sites were developed for simple reasons. A customer visiting a Web site requires no paid employee — a real benefit to the line. Web sites not only represent a cost savings, but they also eliminate the risk of unsatisfactory customer/employee exchange. (This worry plagues companies in today’s full-employment society, in which it is so difficult to attract and keep qualified employees.)

Web pages are a natural extension of customer service centers. Truckers must browse multiple Web pages for different steamship lines and marine terminals, and without complete information, they cannot optimize their movements. It is completely possible for a trucker to depart a terminal empty, not realizing that a return move is coming available. In some cases, Web pages have become hostage to labor relations, and are shut down when union clerks aren’t working.

**Solutions**

The above-mentioned problems contribute to unrest within the intermodal drayage community. But better information could lead to better utilization, which could make truckers more profitable without raising their rates. Carriers would benefit while terminal assets would become more productive. Customer service would improve without additional infrastructure capacity. Yet progress has been slow.

**Asset Utilization**

The typical port community solution is to build bigger and buy more assets. But today’s system has expanded to a point where we need to do more with less. Figure No. 1 quantifies the utilization of land — a port’s most scarce resource. To improve utilization, marine terminals will need to institute new operating practices, such as increased stacking and expended gate hours.

Improvement of the entire network’s performance will be key. We must seek to avoid a situation where one component improves efficiency at the expense of another (Many draymen feel that this has been a longstanding practice within marine terminals).

**Port Internet Community**

An Internet community should be established to provide views to various port constituencies:

1. Truckers need a port-wide view to see, with a single request, the status and location of all their intended movements within the port community, regardless of location (such as marine
terminal, rail ramp, customer location). This enables them to plan an entire day’s activity in advance, and to support ongoing revisions to the plan.

2. Terminals must provide an overview of their operational situation. This would include vessels, operating schedules, equipment and congestion.

3. Railroad intermodal cargo requires seamless integration. Railroads must be able to view import cargo coming off vessels and destined for them. Lines and terminals should know the status of export cargo being moved by the railroad to the port.

4. Equipment utilization statistics can be compiled with complete equipment tracking. This is especially important for chassis, where the true cost of ownership is determined by understanding the percent of time they are actually utilized and the amount of empty repositioning.

5. Customers must be able to access information about the status of their moves within the port, and to communicate their changing requirements. They should also be able to identify priority loads (for reservations) and the change in status (loads devanned, empties vanned) indicating readiness for pickup.

Some terminals already utilize Internet cameras to display operations. The Internet community could link to terminal Web pages for real-time updates. The Internet community should also integrate with the various intelligent transportation system (ITS) initiatives for local traffic conditions, including notification of traffic delays and alternative routes.

Several attempts have been made to accomplish at least some of the above-mentioned goals. eModal has provided some answers, but has been unable to get complete participation from all San Pedro terminals. Americas Systems Inc. is building communities for New York/New Jersey and Georgia port authorities. If the ports mandate participation, it will represent a major improvement.

**Terminal Operating Practices**

Once an Internet port community is established, improved terminal operating practices will become easier to implement.

Establishing a reservation system should be the first step (See Figure No. 2). Reservations can be made for picking up loads and empties. Today, in an effort to respond to commercial pressures, some terminals have begun to load all imports on chassis for immediate availability. Volume increases, however, have made this a most undesirable option for many terminals.

The reservation system would establish the subset of loads which would be required for immediate pickup. Those loads would be premounted on chassis, so that the trucker could pick up the load immediately, without waiting for the yard crew to mount the load from the ground. Picking up an empty would involve the same process, with the added step of the terminal passing back the equipment initial and number.

The introduction of a reservation system would also solve the Gordian knot of terminal gate hours. To avoid bringing in a full deployment of gate and yard labor, terminals have resisted
extended gate hours. Now, gates could be opened with clerical labor only. Equipment for reservation pickup would be available without the need for any yard labor. Drivers literally could drive in, pick up the container and depart immediately (See table below).

Terminals would be able to spread the volume over a greater period of time, increasing efficiency and creating additional terminal capacity without any infrastructure investment. Ideally, this system could be expanded to all hours of operation. If the system were successful, drivers with reservations could use a separate gate to further improve transit through the marine terminal.

There must be a control. If peak volumes create infrastructure demands beyond terminal capacity, reservations may need to be limited, much like slots at certain airports. Furthermore, a compliance system could and should be developed to highlight — and measure — performance. Terminals not premounting containers should be held up to public scrutiny, as should truckers not picking up containers reserved. These statistics could be published, and market commercial forces could exact consequences.

**Improve Driver Turntime**

To generate credibility, marine terminals must improve driver transit through the terminals. Most terminals measure the elapsed truck time between gate entry and departure. That is insufficient, as it overlooks time spent waiting by drivers.

A solution here is two-fold. First, drivers must be able to report into the Internet community. This can be accomplished either through their dispatchers, or by use of a wireless device. Second, using driver information, terminals need to start measuring driver waiting time to enter and depart the terminal. This will give a real picture of driver productivity. Also, time within the terminal needs better accounting so that problem areas can be identified and remedied (See Figure No. 3).

**Increase Street Turns**

Recently, proposals have been made to implement off-dock terminals as a solution to maritime terminal problems. This represents just another problem transfer (The problem is complicated by the ILWU seeking to expand their jurisdiction). Recent land issues in Chicago have made these depots a zoning issue and locations like Southern California are no strangers to "not-in-my-back-yard" objections.

One of the more obvious ways to improve driver terminal transit is to eliminate the move. Figure No. 4 shows the traditional method of import devanning and export vanning, both involving empty moves through the marine terminal. Improved visibility — from the Internet community — should enable increased "street turns" (see Figure No. 5.). Improvements would include fewer gate transactions, better driver productivity and enhanced equipment utilization. Street turns could also save the steamship lines millions of dollars in trucking expense. Technology makes the units "on the street" part of a virtual terminal.

**Consider Chassis Pools**

Only in North America must steamship lines provide chassis. Empty chassis consume
considerable marine terminal assets (e.g., land, operations and gate moves). Formation of a chassis pool would reduce the number of necessary chassis and the amount of empty repositioning moves.

Chassis pools definitely constitute a long-term solution. A great number of obstacles exist here, including financing, labor jurisdictions, maintenance and repair. However, the benefits are too significant to continue to ignore.

**Strategy for Success**

It is unrealistic to expect these changes at once. But a step-by-step approach could affect improvements sensibly. Initial success would most likely spur more ambitious endeavors — and achievements.

International trade is expected to grow. Port infrastructure is limited and trucking is becoming more problematic. It is time for the industry to start doing more with less instead of looking to add capacity to compensate for sub-optimal asset utilization.