THE UNIVERSITY of TENNESSEE
CENTER for EXECUTIVE EDUCATION

Transolve

Supply Chain Visions®

Unpacking Transportation Pricing



Unpacking Transportation Pricing

A White Paper Challenging Transportation Pricing Models

By Peter D. Moore, Hank Mullen, Lynnette Guess, Alan Van Boven



Executive Summary

In its simplest form, transportation is getting your shipment from Point A to Point B within a certain amount of time, using a set amount of space. The cost to transport finished goods from the plant through the warehouse facilities and, finally, to the customer continues to be the largest single logistics expense for most companies, averaging 63% of the company's total logistics cost. Transportation commerce is the business of buying and selling transportation services.

Unfortunately, most companies still rely on the outmoded National Motor Freight Classification (NMFC) schema established in 1936. This method allocates the cost of using the space and/or weight resources the carrier is supplying to the shipper.

The National Motor Freight Classification has outlived its key use (borrowed from the railroad's Uniform Freight Classification (UFC) of creating a "simplified" table of classes to which a rate can be assigned). This clone is the basis for pricing transportation commerce for shipments from 150 lbs to less than 20,000 lbs., which are classified as Less-Than-Truckload (LTL). It is the authors' opinion that this approach for pricing and structuring LTL transportation commerce is based on a dogma that is an accepted industry practice, but is actually archaic for today's businesses.

However, the outmoded pricing schema is only one part of the problem. Industry experts suggest that the industry is likely on the verge of shifting pricing power from the shipper to carriers among all modes of transportation. The recession has forced a considerable rationalization of enterprises, assets and cost structure, which leaves fewer, but considerably stronger major LTL carriers in the marketplace. Currently, 85.5% of the total LTL market is controlled by the top 25 LTL carriers, with 98.5% controlled by the top 50 LTL carriers. Typically, the shipper community, including third-party logistics providers (3PLs) and other Logistics Service Providers (LSPs), is ill prepared to cope with this shift in the economic strength and pricing power of its LTL carriers.

But more than just money is at stake when it comes to transportation. Customer service and a company's reputation, for example, are both greatly affected by the ability to get goods to the market in a reliable, timely, and more efficient manner.

The University of Tennessee teamed with thought-leading practitioners from Transolve and Supply Chain Visions to develop this white paper. The team felt strongly that the industry needed to challenge conventional thinking in how companies approach transportation commerce if organizations are to be successful in the future. Our attention is drawn to the LTL segment due to the complex, overbearing and serious inefficiencies in common practice today. The Vested Transportation principles outlined in the last section of this white paper may be applied to all modes of transportation.

This paper is divided into four main parts.

1. We first set the stage that the industry is at potential tipping point – where some will hunker down and try to preserve the old school ways, while others will take the leap to find alternative ways to manage transportation commerce.



2. Next we explain the dogma associated with the most widely-used LTL pricing methodology – class-rate pricing. We do this in an effort to educate practitioners of the basics of transportation pricing and show that class-rate pricing has outlived its purpose.
3. We then demonstrate that old-school class-rate pricing is flawed, providing real-world examples of "dilemmas" – a perfect storm that is upon us now for both shippers and carriers.
4. We then introduce the concept of Vested Outsourcing: a break-through approach the authors believe will transform how companies approach transportation commerce.
5. Lastly, we introduce the concept of Vested Transportation™, where we strive to lay a roadmap for companies to apply the Vested Outsourcing rules to the unique business needs of the transportation industry. We provide examples how application of Vested concepts can create substantial improvements in the area of transportation commerce with real benefits in terms of pricing for the shipper and cost reduction for the carrier.

Call to Action

Vested Transportation espouses transparency and fairness and is designed to solve today's real transportation problems – how to optimize overall transportation and reduce fuel consumption, producing the very tangible benefit of reducing carbon emissions from the transportation process. Vested Transportation is based on the pioneering Vested Outsourcing work by Kate Vitasek, Karl Manrodt and Mike Ledyard. We urge the transportation community to rise to the occasion to work together to optimize transportation and quit playing a shell game, bickering over fuel surcharges and rate discounts where the company with the most muscle wins.

Our Disclaimer

This white paper is an opinion paper. It is the collective writers' best attempt to "unpack" the complexities and old-school thinking that has driven the LTL segment of the transportation industry since 1936, and to provide a fresh approach as to how companies should face today's real transportation problem.

For those who have the time and desire, we highly encourage you to read Kate Vitasek, Karl Manrodt and Mike Ledyard's pioneering book on Vested Outsourcing entitled *Vested Outsourcing: Five Rules that Will Transform Outsourcing.* We also conclude this white paper with a listing of additional resources that can help you on your journey to improve how you approach buying and selling transportation services. For this reason, we encourage you to review the citations found in this document to enhance your understanding of LTL pricing. We are sure you will agree with us that there really *is* a better way for companies to develop commercial agreements for transportation.

Part 1: The Tipping Point for Transportation Commerce

In its simplest form, transportation is getting your shipment from Point A to Point B within a certain amount of time, using a set amount of space. The cost to transport finished goods from the plant through the warehouse facilities and, finally, to the customer continues to be the largest single logistics expense most companies face, averaging 63% of the company's total logistics cost. But more than just money is at stake when it comes to transportation. Customer service and a company's reputation, for example, are both greatly affected by the ability to get goods to the market in a reliable, timely, and more efficient manner.

There are three key forces in the industry causing a great deal of tension in the entire transportation community. We believe these forces can no longer be ignored, and, in fact, they are converging to create a force that creates a tipping point in the industry that will result in a significant shift in the way shippers and carriers approach transportation commerce. Each of these forces is addressed below.

Stricter Regulations

Today's regulation-heavy government is posing a challenge to the transportation industry because it makes drivers harder to hire and retain. The Comprehensive Safety Analysis 2010 (CSA 2010) legislation by the Federal Motor Carrier Safety Administration (FMCSA) is expected to come into effect in November 2010. Under the CSA 2010, a carrier's safety fitness determination will be closely tied to the driver's condition and performance.

MEASUREMENT AREAS
On-Road Safety Performance (BASICs)

- Unsafe Driving
- Fatigued Driving (hours of service)
- Driver Fitness
- Controlled Substances / Alcohol
- Vehicle Maintenance
- Cargo-Related
- Crash Indicator

Source: CSA 2010 Website: csa2010.fmcsa.dot.gov

The FMCSA also introduced their Pre-Employment Screening Program (PSP), which will enable carriers to assess individual operator's crash and safety violation history as a precondition for employment using the BASIC scoring method. The higher the BASIC score, the more difficult for a driver to find a job and the carrier to maintain risk and liabilities associated with drivers. The lower-scoring "premium" driver pay scales are now going up. We anticipate this legislation taking over 5% of the existing drivers out of the system.

Old School and Outmoded LTL Pricing Models

Less-Than-Truckload (LTL), is the primarily method used shipments from 150 lbs to just under 20,000 lbs and provides the most cost-effective method to transport your shipment. For many shippers LTL charges can represent a good share of their transportation budget. However, LTL pricing is not without problems. As stated in an article, "LTL Pricing Hurts Industry," published in *Traffic World*



(now *The Journal of Commerce*), “complex rating, classification system breeds mistrust among shippers, erodes profit margins for carriers.” The article further states that, “the base rates are out of line with the cost of services.”

This approach is myopic and inefficient and breeds discontent between shippers and carriers, promoting finger pointing and distrust between shippers and carriers (Mullen, 2010). In addition to issues with classification and base rates, there are a number of federal and state regulations, fine print and “gotchas” that can contribute to this mistrust and affect your cost, claims, and ability to deliver.

While any negative force in the industry should be mitigated, we believe pricing models are one area where both shippers and carriers can come together and make significant advances that lead to stronger collaboration. This paper devotes Part 2 to educating practitioners regarding the flaws with the existing pricing approaches.

Shifting Balance of Power

If stricter regulations and old school pricing models were not enough, industry experts suggest we are likely on the verge of shifting pricing power from the shipper to carriers. This may be good news for the carriers, but it’s likely frightening for the shippers. The recession has forced a considerable rationalization of enterprises, assets and cost structure which leaves fewer, but considerably stronger, major LTL carriers in the marketplace. Currently, 85.5% of the total LTL market is controlled by the top 25 LTL carriers, with 98.5% being controlled by the top 50 LTL carriers (Cassidy, 2010).

Typically, the shipper community, including third-party logistics providers (3PLs) and other Logistics Service Providers (LSPs), are ill prepared to cope with this shift in the economic strength and pricing power of their LTL carriers. Equipment and driver shortages are expected to further compound the complexity and existing issues. Just in the last 18 months, industry experts have projected that trucking capacity has decreased 24%.

This shifting balance of power will likely add fuel to the fire and further create discontent between shippers and carriers.

A Better Way

A better way of managing transportation must be developed. There is no better time for shippers and carriers to come together to address ***the real problem – how to optimize overall transportation and reduce fuel consumption, producing the very tangible benefit of reducing carbon emissions from the transportation process.*** Both shippers and carriers have a vested interest into the success of the industry, and we challenge companies to get smart about how they are buying and selling transportation.

Transportation commerce is at a crossroads. Shippers and carriers can choose to sit across the table, using their power and influence to preserve margins, understanding there will be winners and there will be losers. *Or* they can choose to work together to solve the real problem.

Part 2: Deciphering Transportation Pricing

Setting the Stage for Today's Complexity

The history of transportation pricing can be traced back to the late 1800s with the Interstate Commerce Act. The good news is that the industry has progressed steadily, and today there are several pricing models shippers and carriers can use when developing commercial contracts (or even spot buys) for transportation commerce. The bad news is that most LTL carriers are still using the class-rate methodology, which uses the National Motor Freight Classification (NMFC) for pricing transportation. In fact, class-rate pricing is the most popular approach with approximately 900 LTL carriers using the methodology. All of the top 50 LTL carriers, which represent 98.5% of LTL shipments, use class-rate pricing.

Earlier the authors made a claim that the class-rate pricing is old school and outmoded. This section of the paper strives to explain the dogma and outdated principles associated with the class-rate approach and to educate practitioners that this approach should be transitioned into more contemporary pricing models.

In order to express our point-of-view, we will start by going back to the Interstate Commerce Act, which was passed by Congress in 1887. This Act made the railroads the first industry subject to federal regulation. Congress passed the Act largely in response to public demand that railroad operations be regulated. The Act also established a five-member enforcement board known as the Interstate Commerce Commission.

Until World War I, rail was the predominant transportation mode. During World War I, the railroads were nationalized to transport military troops and supplies rapidly, which often resulted in the suspension of other freight shipments. Motor carriers stepped in to cover the slack. The railroads returned to private control in 1920; however, at that time trucks were widely accepted.

The 80th Congress yielded to the transportation lobby and passed the Reed-Bulwinkle amendment to the Interstate Commerce Act over President Truman's veto on June 17, 1948. Under the Reed-Bulwinkle Act now codified (as to motor carriers) as 49 U.S.C13703, motor carriers could collectively determine rates and practices that apply to the transportation they provided by submitting agreements governing their collective activities to the Interstate Commerce Commission (ICC) for approval. (The ICC was sunsetted in December 1995.)

The Surface Transportation Board (STB) was created in the Interstate Commerce Commission Termination Act of 1995 and is the successor agency to the ICC. The STB is an economic regulatory agency that Congress charged with the fundamental mission of resolving railroad rate and service disputes and reviewing proposed railroad mergers. The STB is decisionally independent, although it is administratively affiliated with the Department of Transportation.

Since 1948 the business of hauling goods has changed considerably as demonstrated in Figure 1. The good news is that government legislation has kept up with the times. In January 2008, the STB removed

the anti-trust protection of the rate and classification bureaus (collective rates) in favor of welcoming competition to the established base rates set forth by the Freight Classification bureaus.

The 2008 ruling specifically states:

> …to the extent our decision facilitates the entry of competitors to NCC (National Classification Committee, now the Commodity Classification Standards Board, or CCSB) that might devise different ways of determining the transportation characteristics of commodities, we believe it will increase the variety of pricing options available to both carriers and shippers.



Figure 1 – Trucks and capacity configurations have changed since the NMFC was developed**.**

The NMFC has outlived its key use. As stated in the current NMFC book (NMF 100-AJ):

> National Motor Freight Classification NMF 100-AJ cancels National Motor Freight Classification NMF 100-AI in its entirety. Participating carriers and transportation companies as well as other provisions previously listed and not brought forward herein are hereby cancelled.
>
> *Notice of General Application*
>
> This publication contains *voluntary* standards for the classification of commodities moving in interstate, intrastate, and foreign commerce, including associated rules and packaging definitions, specifications and requirements. It contains no rates or charges for transportation services nor does it suggest rates or charges.
>
> The provisions herein and in effective supplements are established for the accounts of participating carriers and transportation companies to be used by them and their customers in whatever manner they deem appropriate Participants are neither constrained nor compelled to use or abide by these provisions, *as they always have the free and unrestrained right of independent action*.
>
> Except as provided under “Participating Interstate Shippers,” carriers or other transportation companies whose rates, charges, or terms of transportation – including packaging and bills of lading – are based on, or reference, the NMFC, or any of its



> provisions must participate herein This publication has no application for such carriers or transportation companies that do not participate *(emphasis added).*

We find it refreshing that even Congress can possess the insight to understand that the times have changed and that old regulations needs to die. Unfortunately, a majority of carriers are stuck in the 1940s and continue to use the freight classification approach for pricing transportation. Yet competition has introduced an interesting dynamic. Today, carriers compete by discounting their rates, often up to 90%.

Deep and variable rate discounting has created confusion, distrust, and finger-pointing among shippers and carriers, and makes it difficult for shippers to understand the real value of what they are purchasing. In fact, for anyone less than an expert, it's downright hard to determine just how much a shipment will cost. To explain, we will go into detail on how to price a shipment using the class-rate methodology.

How Much Will That Shipment Cost?

The late Ray Bohman, noted LTL pricing expert, educator and author, told a story about a question he was asked during one of his seminars. A younger woman noted, "Mr. Bohman, you really understand transportation pricing." To which Bohman replied, "I know a little."

"Mr. Bohman, what one book can I read so I can know everything about transportation pricing?"

"If you find that book, I would sure like to read it," said Bohman.

In order to compute the total cost for your shipment using class-rate LTL pricing, you will need the origin address, the destination address (including zip code), freight classification and weight. These need to be applied to the base rate year (you can use rates from 1995, 1998, 2007, etc.) you currently have with your LTL carriers with the appropriate discount, fuel surcharge, minimums and any accessorials (such as a notification charge).

You also need to understand your carrier's pricing agreement, rules tariff and bill of lading terms and conditions for any additional fees and situations that may cause you to lose your discount and/or claims ability on your shipment. These are all combined to find the final cost of the shipment, which is also referred to as *total landed cost.* An important point is that one or more of these variables may change without notice to you, and can be "incorporated by reference" to your agreements. There are also implications within each one of these variables which we will describe next. If you consider yourself an expert in using the NMFC for pricing freight, feel free to skip to Part 3 of this white paper.

Freight Classification

Freight classification is the grouping of commodities with similar transportation characteristics into categories or "classes." Each commodity that can be shipped by truck is placed into a class with other commodities with similar transportation characteristics, and each class is assigned a number, which increases as transportability becomes more difficult.

There are 18 freight classes that start at class 50 (lowest insured value and rate per hundred pounds) and go to class 500 (highest insured value and rate per hundred pounds).

The NMFC is a standard that provides a comparison of commodities moving in interstate, intrastate, and foreign commerce Commodities are grouped into one of 18 classes – from a low of class 50 to a high of class 500 – based on an evaluation of four transportation characteristics: density, stowability, handling, and liability. Together, these characteristics establish a commodity's "transportability."

As a shipper, you will pay more per hundred pounds for a higher classification shipment and will typically be offered a higher release valuation (insurance per hundred pounds) on the shipment. Some carriers will cap the release valuation in their pricing tariffs (pricing agreement) and/or rules tariff.

To simplify freight classifications, it is common to see a freight classification system called Freight All Kinds or FAK. An FAK is a group of freight classifications which will rate and be insured at a single class. For example, FAK 50 could be used for actual freight class 50 through actual freight class 100. Pricing for shipments within this FAK range will be rated and insured at class 50 or as specified in your pricing agreement and/or carriers' rules tariff. Interestingly, FAK applications were developed by carriers, not by the NMFC.

COMMODITY CLASSIFICATION STANDARDS BOARD VALUE GUIDELINES	
Class	Maximum Average Value Per Pound
50	$ 1.11
55	$ 2.17
60	$ 3.28
65	$ 5.44
70	$ 8.20
77.5	$ 10.93
85	$ 16.42
92.5	$ 21.85
100	$ 27.33
110	$ 30.08
125	$ 34.17
150	$ 41.04
175	$ 47.87
200	$ 54.71
250	$ 68.38
300	$ 82.04
400	$ 109.40
500	$ 136.76

COMMODITY CLASSIFICATION STANDARDS BOARD DENSITY GUIDELINES	
Minimum Average Density (in pounds per cubic foot)	Class
50	50
35	55
30	60
22.5	65
15	70
13.5	77.5
12	85
10.5	92.5
9	100
8	110
7	125
6	150
5	175
4	200
3	250
2	300
1	400
Less than 1	500

(NMFTA Dockets and Directives, 2010)

Freight classification can vary within a commodity based on the weight per cubic foot, referred to as the density. For example, the freight classification for paper clips can vary from class 60 to class 400, depending on the density. The density must be shown on the bill of lading at the time of shipment. If it is not on the bill of lading, the carrier has the right to bill you at the lowest density (Sub 1 or highest applicable freight classification).

In the example below, the paper clip shipment may be subject to pricing at class 400. This is known as the *Inadvertent Clause* in the NMFC under Item 170. Another application to change your freight classification is listed in NMFC Item 171, also known as the *bumping clause.* If your shipment qualifies, and it has item 170 and item 171 listed in the NMFC description, you can reduce your freight classification under this provision by one class, for example, from class 85 to class 70. Qualification is determined by a commodity with multiple density ratings, such as paper clips illustrated in Figure 2.

Item Number	Description	Class
	Stationary Group: Subject to item 178850	
179000	Fasteners, Clips, Clasps or Holders, paper or letter file, metal, etc.	Cancel;
	item 179180 Fasterners or clips, paper or letter file, plastic, etc.	Cancel;
179005	item 179180, Stationary viz	
179180	Fasteners, Clips, Clasps or Holders, paper or letter file Pens, ink, NOI; Stationary, NOI, see note, item 179181; Stationary sets, see note, item 179182; In boxes, subject to Items 170 and 171 and having a density in pounds per cubic foot of:	
Sub 1	Less than 1 ……	400
Sub 2	1 but less than 2 ……	300
Sub 3	2 but less than 4 ……	250
Sub 4	4 but less than 6 ……	150
Sub 5	6 but less than 8 ……	125
Sub 6	8 but less than 10 ……	100
Sub 7	10 but less than 12 ……	92.5
Sub 8	12 but less than 15 ……	85
Sub 9	15 but less than 22.5 ……	70
Sub 10	22.5 but less than 30 ……	65
Sub 11	30 or greater ……	60
179181	Note - not involved	
179182	Note - not involved	

Figure 2 – NMFC Classification for Paperclips (National Classification Committee Docket 2006-2 (Section II), review matter N)

Freight classifications are maintained by the Commodity Classification Standards Board or CCSB. The CCSB is a part of the National Motor Freight Traffic Association (NMFTA). Currently, there are six people that control all of the freight classifications as well as all work for the NMFTA. The purpose of the CCSB is to amend the classification of commodities, commodity descriptions, classes, rules, packaging definitions, specifications or requirements, bill of lading formats, terms and conditions, and any other provisions contained in the NMFC.

The CCSB meets three times a year, or more if needed, in Alexandria, Virginia. You can purchase the NMFC (currently the NMF 100-AJ) Book 2010 for $239 on NMFTA's website, or subscribe to Class-It, a web-based application, for $288 per year to find the freight classification for your commodities.



Base Rates

Carriers use base rates to apply a cost per hundred pounds to any of the 18 freight classifications As later described, independent base rates, also known as independent action, are developed by each carrier, and are determined by the individual carrier's own efficiencies, which may result in higher or lower savings passed along to shippers. These independent base rates will vary from carrier to carrier Another option is to use a standardized base rate such as CzarLite™ by Southern Motor Carriers Association, also known as SMC3, or MARS PC Rating System by Middlewest Rate Bureau (MARS™).

Additionally, there are a host of private base rates offered by transportation consultants and Transportation Management Systems (TMS). You may subscribe to base rates developed in prior years, for example 2005 CzarLite™. Typically, a base rate is subject to a general rate increase (GRI) which usually happens once per year, but some years may have zero or two or more general rate increases. The GRIs accommodate changes in lane balance and economic conditions.

The standardized base rates, formerly called *bureau rates* or *jointly-determined rates*, are calculated by averaging costs among a sampling of carriers for each possible lane or zip code pair. As mentioned above, in January 2008 the Surface Transportation Board eliminated anti-trust immunity of jointly-determined rates published by the rate bureaus. This ruling encourages competition to the rate and classification bureaus. 2007 was the last year of jointly-determined rates. Typically, carriers pay a fee to subscribe to standardized base rates and shippers typically pay a fee to use these base rates.

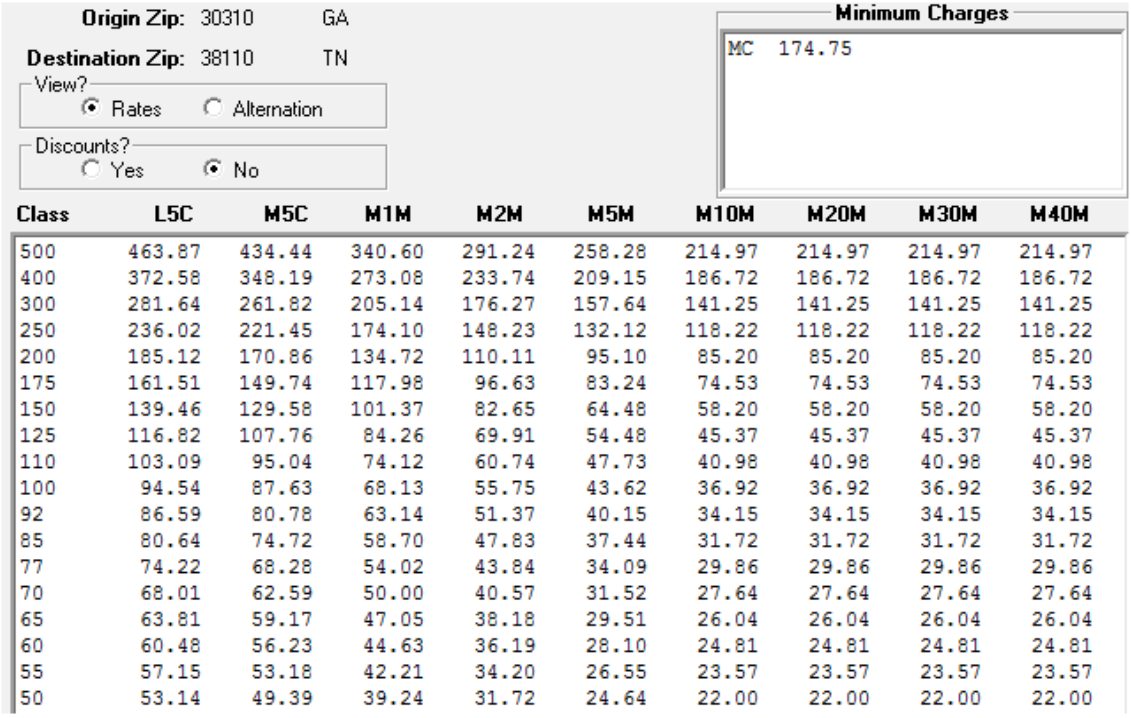
One advantage of independent rates is carriers have tuned or adjusted the rates to their own efficiencies, which can result in higher savings passed along to shippers. The disadvantage is it is nearly impossible to compare rates from carrier to carrier unless you have access to systems and have the time to rate shop each shipment.

Today's technical advances in Transportation Management Systems allow for rate shopping to be easily integrated into a company's supply chain process.

TMS technology was once prohibitively expensive; however, with web-based systems in use today, even the smallest shipper can take advantage of savings through rate shopping. TMS systems also provide a "total landed cost" of the shipment, accounting for accessorials and rules tariff conditions which affect pricing. These conditions are not easily determined without the use of a system.

TMS systems include larger stand-alone packages, such as Manhattan Associates, and web-based systems, such as Banyan Technology. Another alternative is to capture pricing information through an on-line quote delivered on most carriers' websites.

The advantages of bureau rates or third-party rates are that all of your carriers' pricing is on the same playing field. The rates for all carriers subscribed to the base rate are the same. It is easier for shippers to determine the better price without rate shopping each shipment, sometimes at the expense of higher prices.



Origin Zip: 30310 GA

Destination Zip: 38110 TN

View? Rates Alternation

Discounts? Yes No

Minimum Charges: MC 174.75

Class	L5C	M5C	M1M	M2M	M5M	M10M	M20M	M30M	M40M
500	463.87	434.44	340.60	291.24	258.28	214.97	214.97	214.97	214.97
400	372.58	348.19	273.08	233.74	209.15	186.72	186.72	186.72	186.72
300	281.64	261.82	205.14	176.27	157.64	141.25	141.25	141.25	141.25
250	236.02	221.45	174.10	148.23	132.12	118.22	118.22	118.22	118.22
200	185.12	170.86	134.72	110.11	95.10	85.20	85.20	85.20	85.20
175	161.51	149.74	117.98	96.63	83.24	74.53	74.53	74.53	74.53
150	139.46	129.58	101.37	82.65	64.48	58.20	58.20	58.20	58.20
125	116.82	107.76	84.26	69.91	54.48	45.37	45.37	45.37	45.37
110	103.09	95.04	74.12	60.74	47.73	40.98	40.98	40.98	40.98
100	94.54	87.63	68.13	55.75	43.62	36.92	36.92	36.92	36.92
92	86.59	80.78	63.14	51.37	40.15	34.15	34.15	34.15	34.15
85	80.64	74.72	58.70	47.83	37.44	31.72	31.72	31.72	31.72
77	74.22	68.28	54.02	43.84	34.09	29.86	29.86	29.86	29.86
70	68.01	62.59	50.00	40.57	31.52	27.64	27.64	27.64	27.64
65	63.81	59.17	47.05	38.18	29.51	26.04	26.04	26.04	26.04
60	60.48	56.23	44.63	36.19	28.10	24.81	24.81	24.81	24.81
55	57.15	53.18	42.21	34.20	26.55	23.57	23.57	23.57	23.57
50	53.14	49.39	39.24	31.72	24.64	22.00	22.00	22.00	22.00

Figure 3 – An example of a carrier's base From Zip Code 30310 to Zip Code 38110 by weight break and freight classification. Freight classification is the left column; weight breaks are the top column. This carrier has added weight breaks of 20,000 lbs, 30,000 lbs., and 40,000 lbs. Over 20,000 are typically considered a full truckload.

All base rates are typically broken down into the cost per hundred pounds by weight break and freight classification for each origin and destination pair. The cost per hundred pounds can vary greatly depending on what base rate and freight class you use. The cost per hundred pounds typically is lower as the weight break is higher. Also, the cost per hundred pounds is higher for higher freight classifications.

Most LTL class-rate scales have six weight breaks that provide for lower rates per 100 pounds as the weight of the shipment increases. They are shown below (Bohman, 2006):

Weight Break	Tariff Symbol
0–500 lbs.	L5C
500–999 lbs.	M5C
1,000–1,999 lbs.	M1M
2,000–4,999 lbs.	M2M
5,000–9,999 lbs.	M5M
10,000–19,999 lbs.	M10M



Carriers' discount base rates and these discounts fluctuate greatly. We have recently seen some discounts in the 20% range and as high as the low 90% range. The discount varies from carrier to carrier and can vary depending on the origin and destination, regardless of the base rate.

Base rates can be subject to up to three minimum charges. Bohman has the best explanation we've seen describing minimums:

> Every class rated LTL shipment you make is not only subject to a standard minimum charge, but may be subject to as many as three minimums. Between every two points moving under for-hire LTL general commodity motor carrier class rates, a per-shipment minimum charge applies. As the distance of an LTL shipment increases, the minimum charge increases just as the LTL rates do.
>
> However, don't overlook the fact that many LTL carriers maintain as many as two other minimum charges that may come into play. One is called a single shipment minimum charge or "SSMC." This charge, higher than the normal per shipment minimum charge, applies when the carrier picks up a single shipment weight under 500 pounds, unaccompanied by any other shipment. Obviously, to avoid such charges, you should tender a carrier at least two or more shipments any time your carrier makes a pick-up, if you have them, or eliminate this provision in the carrier's rules or pricing tariff.
>
> Another minimum charge that can come into play is called an "absolute minimum charge." This is the charge below which a carrier simply will not go. For example, the current absolute minimum for a carrier is $99.00; however, to congested cities such as Manhattan (zip 100-104, 111-114, and 116) that absolute minimum is $187.00. In a few states, particularly in the West, this carrier has an absolute minimum below $99.00. These absolute minimums are not usually found in a carrier's class rate tables but in a carrier's rules tariff. Keep in mind that most carriers add their fuel surcharge and accessorials to these minimums (Bohman, 2008).

Your freight cost is computed by identifying the base rate per hundred pounds for the freight classification of the shipment (for the origin and destination pair), then applying the appropriate discount, and multiplying that discounted rate per hundred pounds by the actual weight of the shipment divided by 100.

An important point to remember is a condition called *Weight Alterations* or *As-Weights.* This is a provision in the base rate known as the *alternation clause.* The alternation clause provides that a carrier must charge a customer the lowest possible rate. At certain weight breaks, it becomes less expensive to go to the next higher weight group to get a lower charge. Carriers do not obtain any additional revenue for approximately 7% of shipments meeting these criteria, as shown in Figure 4.

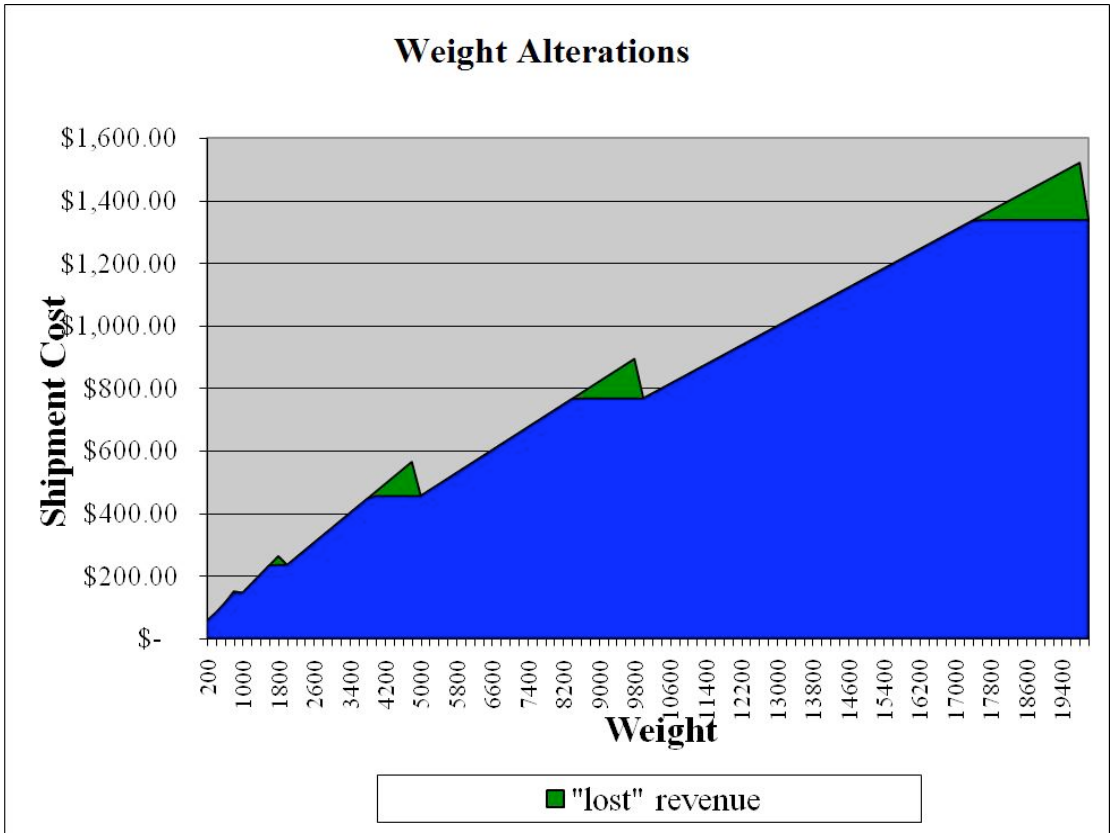


Figure 4 – Weight Alterations Chart
© 2008 Transolve, Inc.

But There's More! Fuel Surcharges

No doubt fuel is a very frightening aspect of transportation – so here is how it works now. Fuel charges change on a weekly basis with most LTL carriers and can vary as much as 25% from carrier to carrier.

Diesel Fuel (Dollars per Gallon)			
07/12/10		Change from	
	Price	Week Ago	Year Ago
U.S.	2.903	-0.021	0.361
East Coast	2.921	-0.023	0.362
New England	3.017	-0.016	0.394
Central Atlantic	3.022	-0.033	0.359
Lower Atlantic	2.869	-0.020	0.361
Midwest	2.865	-0.025	0.353
Gulf Coast	2.857	-0.009	0.363
Rocky Mountain	2.912	-0.016	0.293
West Coast	3.057	-0.020	0.416
California	3.123	-0.009	0.396

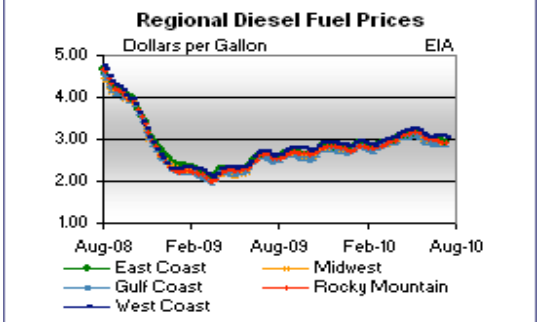


Figure 5 - Weekly regional and national average prices for diesel (U.S. Department of Energy)

Fuel surcharges first became a hot topic in the transportation industry in the mid-1970s when the U.S. Department of Energy (DOE) created the National Retail Average to compensate carriers for the volatile fuel prices of the OPEC oil crisis era. It operates the same way today as it did back then: Each Monday, a representative group of approximately 350 retail diesel outlets, including truck stops and service stations, report their retail diesel prices, which the DOE uses to issue the national average diesel price for that week. It became, by default, the baseline for the weekly fuel surcharge rates billed by the carrier.

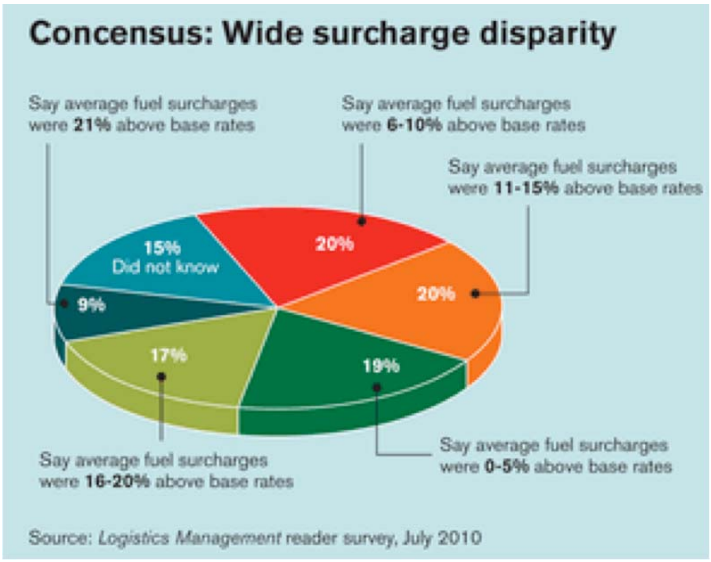
Under this scenario, if fuel prices increase during the week, the shipper wins and the carrier loses.
If fuel prices fall during the week, the carrier wins and the shipper is the loser.

Your fuel surcharge is a percentage of the shipment charges expressed as a percentage of the total freight cost. We have seen these percentages range from 0% to 44% of the total shipment charge. The less your freight charge, the less the fuel cost portion. The higher your freight class, the higher the freight cost, the more you pay for fuel as determined as a percentage of the shipment cost (Mullen, 2010).

There is a large disparity among shippers' interpretation of fuel surcharges. According to a reader survey conducted by *Logistics Management,* most shippers' views of fuel surcharges are greatly misinterpreted. In July 2010 the average fuel surcharge was 20% to 22%, and, according to the survey, a majority of shippers thought they were paying less for fuel.

Act Now! Accessorials

Accessorials are additional services or non-standard general deliveries. Examples of accessorials include notification fees, residential pickup, residential delivery, single shipment charges, trade-show deliveries, congested areas and additional insurance, to name a few. The most common accessorials are computed as a percentage of your freight, or freight and fuel charge, as a flat rate added to the final price, or as an hourly charge.



Many shippers are unaware of additional accessorial charges stated in the carrier's rules tariff, which are "incorporated by reference" on the bill of lading and/or in the pricing agreement you have with your carrier. A typical rules tariff can run between 30 pages to over 200 pages per carrier and are subject-to-change with no notice to the shipper. Alternatively, a shipper may require the carrier to utilize a common rules tariff, such as the SMC[3] 190 Rules Tariff, or write their own rules tariff in conjunction with the carrier.

Examples of rules tariff accessorial charges can include linear foot rules exceeding 750 cubic feet, excessive length, non-stackable commodities and additional handling for conditions such as heat, cold, fragile, non-magnetic, radiation and "no tipping", among many others.

So How Much Will It *Really* Cost? Putting It All Together

Now that we have all inputs into computing the total landed cost, the formula to compute the cost is to:

1. Find the base rate per hundred pounds for the origin/destination zip code pair, freight classification and weight break for the base rate indicated in your pricing agreement (Note: Make sure you are using the correct base rates as they can change!).
2. Divide the total shipment weight by 100.
3. Multiply the rate per hundred pounds with the result obtained in Step 2.
4. Apply the discount if the minimum charge does not apply. If this charge is less than the minimum charge, then the minimum charge should be used.
5. Add fuel surcharge.
6. Add accessorials, if any.
7. Add any charges applicable to the shipment from the NMFC rules, the carrier's rules tariff, and/or your pricing agreement with the carrier.



In his article “Understanding LTL carrier class rates,” Bohman notes seven things to keep in mind regarding rates:

1. For the most part, rates vary from carrier to carrier.
2. Every class rated LTL shipment you make is not only subject to a standard minimum charge but may be subject to as many as three minimums.
3. As the weight of LTL shipments go up, rates per 100 pounds go down as your shipments reach certain weight thresholds.
4. Class rates are not uniform for any given distance.
5. LTL class rates do not increase uniformly as distances increase.
6. Class rate tables covering shipments weighing 20,000 pounds or more are considered to be truckload shipments.
7. As the weight of your LTL shipment approaches the lowest weight in the next heaviest weight group, it will be rated at the rate and lowest weight in that weight group, whichever benefits the shipper.

It is necessary for the shipper to understand all of the above information, in particular the base rates to use, the NMFC rules, the carrier’s rules tariff, the bill of lading terms and conditions, and existing fuel charges in effect at the time of shipment. Specialists who understand the nuances of the NMFC are few. The average shipper is not capable of negotiating as well as the carrier who has years of experience in the rules, classes and exceptions. A whole industry of professionals has grown up to support the shipper, including consultants, auditors, and attorneys. All extract a portion of the value of the transport system.

Part 3: The "Dilemmas" of Class-Rate Pricing

In this section, we would like to focus on some real-world examples of how we've seen the above complexity result in unpleasant surprises and frustration. We refer to these as *dilemmas*.

Freight Classification Dilemmas

Situation: Mixed shipments rated at highest classification.

According to NMFC Item 640, if there is a mix of classes in one shipment, the highest class prevails for pricing. For example, if individual packages within a shipment are freight class 100, class 85 and class 50, then a wooden pallet is used which is class 70, and then the entire shipment (every package) and the pallet will be rated at class 100. Experts refer to this as *Rated Same or Lower.*

We had an interesting problem with Rated Same or Lower for a client. This client, who had all class 50 freight, had their classification of the entire shipment increased to class 70, which is the classification of a pallet. When the carrier came to pick up the shipment, we asked for the pallet back. Needless to say, after a few phone calls and exchange of words, the entire shipment was tendered at class 50. If we did not notice this, the client would have had a double digit percentage increase in price.

The opposite problem also impacts pricing. Another client had all class 92.5 freight (computers). The client had 10 LTL shipments, each of which was on a wooden pallet. Each pallet weighed approximately 50 pounds, totaling 500 pounds among the 10 LTL shipments. The total pallet portion of all shipments would have cost the shipper the difference between class 92.5 and class 70 (pallet classification) for 500 pounds, which would have resulted in a higher total cost. To remedy this issue, we recommend listing the pallet weight separately on the bill of lading if the freight class is class 77.5 or higher.

Situation: CCSB changes freight classification, resulting in a higher price.

Freight classification changes have, in many instances, caught entire industries off-guard.

There is one recent classification change that has a footwear industry in an uproar. In January 2010, the classification for footwear was changed by a CCSB ruling from class 100 to class 150, effectively increasing the cost of transportation for 2 billion pairs of shoes annually up to 50%. Analysts estimate the effect of this increase would result in a 20% increase in the price of shoes.

Nate Herman, senior director of international trade for the American Apparel and Footwear Association, noted "the footwear group claimed it wasn't aware of the earlier proceeding until it was too late to submit its own data" (Watson, 201). The American Apparel and Footwear Association and Footwear Distributors and Retailers Association challenged the decision, only to be turned down in June 2010. A subsequent lawsuit was filed by a Wisconsin Senator, seeking an antitrust investigation into the commodity classification process and pricing (Cassidy, 2010).

One of the most notorious cases involved candy canes. The classification change involved the differences in freight class for straight candy canes versus bent candy canes. This dispute went before Congress!



At the time of this writing, the CCSB is seeking a classification change on apparel, which analysts predict may result in a 50% to 300% increase in the transportation cost of apparel.

Remember the NMFC is NOT written in stone. Ask your carrier for a more user-friendly rate structure that ensures you ship more with this carrier.

Situation: Shipper uses incorrect freight classification.

The shipper is required to list the contents and the freight classification on the bill of lading. If the carrier notes a discrepancy with the freight classification, the carrier has 180 days from the date of shipment to bill you for the difference, along with a charge for the carrier to re-evaluate the freight classification. This is explained in the Negotiated Rate Act of 1993.

If you use a higher class that increases your charges, few carriers will notify you. If, however, you use a lower class that leads to a lesser charge, you will be notified of the additional charges. If you use a freight bill auditor, ask them about this.

Bill of Lading Dilemmas

The bill of lading is the default written document in transportation and has been in use more than 70 years (Barrett, 2009). The BOL is copyrighted and owned by the NMFTA, and is:

1. A receipt for the goods received in apparent good condition, except as may be specifically noted on the BOL.
2. A contract of carriage to move the goods, which have been duly marked, to the consignee and destination as indicated on the BOL.
3. A title document for the goods. A BOL may be negotiable or non-negotiable, depending on the terms of sale.

If you want to create your own customized bills of lading, you are allowed to do so under the provisions of NMFC Item (Rule) 360 – Bills of Lading, Freight Bills and Statements of Charges, Sec1 (h), Note 2. This rule also sets forth what information must be shown on such bills of lading and the order in which it must be shown.

Item 362, application of bills of lading states: “unless the shipper and carrier have an effective prior written agreement to use another bill of lading, all motor carriage performed by carriers participating in this tariff shall be subject to the bill of lading terms and conditions of the Uniform Straight Bill of Lading shown in the NMFC.” For carriers that are not party to the NMFC, the shipper and carrier may use any bill of lading or document that fulfills the purposes stated above.

Although shippers are not required to print the terms and conditions shown on the back of the Uniform Straight Bill of Lading on their own customized BOLs, the NMFC rules state that those bills of lading "shall be deemed to be an acceptance of such terms and conditions as provided in the Uniform Straight Bill of Lading."

Situation: Incorrect weight used in the bill of lading.

Most carriers have a weight and inspection (WI) department and will allow a slight variance in weight. If, however, you exceed this limit, they will bill the higher weight charges and add a penalty.

Situation: Changes to NMFC and/or carrier's rules tariff, incorporated by reference in the bill of lading, result in pricing changes and/or liability changes.

Most pricing agreements will state that the "current rules tariff in effect at the time of shipment" prevail or will utilize the NMFC rules as indicated in the bill of lading. This is also referred to as *incorporated by reference.* If not monitored, these changes may impact your pricing and claims ability.

NMFC Rules Dilemmas

When class-rate pricing is used, the shipper and carrier are subject to numerous rules contained within the NMFC. The carrier's rules tariff may override these rules as specified.

Situation: Shipper denied damage claim for non-compliance with NMFC packaging requirements (Rule 222).

In 2009, the CCSB published strict requirements for packaging of which few shippers are aware. Subject 18 of the October 2009 docket of the CCSB – CCSB DOCKET 2009-3 – was a proposal to amend Item (Rule) 222 of the NMFC by requiring shippers using numbered packages published in the NMFC to certify, for the first time ever, that they're complying with the specifications of a particular numbered package.

Also approved by the CCSB as part of Subject 18 was a change in wording on the rectangular box manufacturer's certificate required to be printed on fiberboard boxes packaged in accordance with NMFC numbered packages.

BOX CERTIFICATE

THIS BOX MEETS ALL CONSTRUCTION REQUIREMENTS
OF THE NATIONAL MOTOR FREIGHT CLASSIFICATION FOR

PACKAGE NO. 000

BURSTING TEST (LBS PER SQ IN) 000

(BOX MANUFACTURER)
(CITY & STATE)

The current certificate is headed with the title "PACKAGE CERTIFICATE." That wording must now be changed to read "BOX CERTIFICATE." There are possible consequences for non-compliance.

If you fail to print, stamp, or affix a sticker on one or both of these two rectangular certificates on your fiberboard box and damage occurs while the product is in transit, you may be denied any claims. A claim history with the carriers of 1% is considered normal; you should know which carriers have the best industry averages but, better yet, just track how the carrier does with YOUR shipments.



Pricing Agreement Dilemmas

The pricing agreement, which is a separate addendum to your motor carrier contract, specifies the pricing between you and your carrier. Base rates, discounts, minimum charges, and fuel surcharges are, at a minimum, specified on the pricing agreement. The pricing agreement should note addresses and states to which the agreement applies, the effective date as well as the time period upon which you and your carrier agree.

Situation: Pricing agreement canceled.

Most pricing agreements will have a 30-day out clause for the carrier and the shipper the carrier can deny discounts on a canceled pricing agreement, but may not cancel service.

Situation: Pricing agreement expired.

Most pricing agreements will state that if you do not use the carrier within a certain number of days of the effective date of the pricing agreement, the pricing agreement is void. Another situation that happens quite often is shippers not realizing that their pricing agreement has expired. In the above two cases, what you thought you would pay will probably be increased by at least 70% due to loss of discount.

Situation: Carrier uses other carrier(s) to complete delivery of the shipment.

This situation, called *inter-line*, will result in a significantly reduced discount due to carriers having to share the revenue for this shipment. This is typically on a carrier's pricing agreement. Unfortunately, unless you know on a shipment-by-shipment basis if the carrier covers the entire lane and state, you will not know another carrier was used until you receive the bill. Interline discounts will ALWAYS be less (cost more) than direct shipments.

Carrier Rules Tariff Dilemmas

Carrier's rules tariffs, which are typically maintained on the carrier's website, may change with no notice to the shipper. Some of these changes can affect pricing and liability (claims), sometimes significantly.

Situation: Maximum weight or size exceeded.

We have seen carrier's rules tariffs indicating loss of discount for weights over a certain threshold. LTL carriers' discounts typically apply to shipments up to and including 19,999 pounds. If you exceed this weight, you lose your discount.



Claims Dilemmas

Situation: Claim paid at a lower maximum liability amount than expected.

A release value amount would look like the example below. Typically, this is contained within the carrier's rules tariff and incorporated by reference into your bill of lading terms and conditions (Item 360 NMFC). Be careful with Freight All Kinds – the release values are always lower than full standard broad value guidelines described below. For example, if you have a FAK 70 in place for classes 50 to 150 and have a shipment at class 150, with maximum liability per pound of $5.50 per pound, your shipment before the FAK rates would be insured at the class 150 rate or $41.04 per pound. Some carriers also specify a maximum liability per pound on their pricing agreements, which supersedes the published liabilities in effect.

LIABILITY FOR COMMODITIES OR ARTICLES SUBJECT TO EXCEPTION RATINGS (See note 6)

Carriers liability for loss, damage, or destruction to any shipment or part thereof for which the charges are determined by class exception ratings or freight of all kinds class exceptions is limited to the: (1) actual invoice value of the commodities or articles lost, damaged or destroyed; (2) limited liability provisions of the bill of lading; or, (3) applicable limited liability provisions of the NMFC, whichever is less, subject to the maximums by exception class as shown below, unless Excess Declared Value Coverage is requested and the additional charges are paid.

CLASS	*MAXIMUM LIABILITY	CLASS	*MAXIMUM LIABILITY
50	$0.99	100	$15.00
55	$1.98	110	$15.25
60	$2.53	125	$15.81
65	$4.90	150	$16.10
70	$5.50	175	$17.15
77.5	$7.25	200	$18.10
85	$10.25	250 & up	$20.00
92.5	$12.25		

*Maximum liability per pound per package.
Source: Carrier Rules Tariff

Figure 6 - Example of Maximum Liability per Pound per Package



Getting with the Times

In January 2008, the Surface Transportation Board removed *anti-trust immunity* from the freight classification and rate bureaus to collectively set freight classification and LTL rates, which both determine your final cost. Today, with the STB ruling, new pricing methodologies are available to shippers and carriers. Unfortunately, most practitioners purchasing transportation services don't understand their alternatives, therefore, they go along with the carrier's desire to use the outmoded class-rate methodology.

We would like to shed some light on the other methodologies:

- Independent Action – rates set by the individual carrier for specific customers, specific freight, and/or specific lanes Independent action, also known as *independent rates*, takes into account the carriers' strengths and weaknesses.
- Exception Rating – from time to time carriers may depart from descriptions, ratings, rules, or packaging requirements in the NMFC Such departures are called *exceptions to the classification* and are commonly referred to as *exception ratings.* This is rarely used, but is typically considered if your freight characteristics deviate significantly from that described in the NMFC (Bohman, 1984).
- Commodity Column Rates – these rates are somewhat of a cross between a point-to-point commodity rate (described below) and a general commodity rate (class-rate). Generally, such rates are a fixed percentage below class rates, such as 90% of class, applicable from a named point of origin on named commodities to all points in one or more named states served by the carrier.
- Point-to-Point Rates – a specific rate for specific lanes, which can be state to state, zip code to zip code, city to city, etc.
- Density Pricing – pricing based on the pounds per cubic foot.
- Cube Based Pricing – pricing based on the amount of space the shipment occupies. Pricing adjusts for distance, night time deliveries, weight, value, day of week shipped, payment terms, fuel, and lanes.
- Pallet Rates – a set rate for commodities fitting a specific size pallet. Rates are capped by height, weight or both. Carriers and shippers can add or delete specifications to their specific situation.
- Truckload Rates – fills the capacity, in either dimensions or weight, of the equipment.
- Truckload Stop-Off– sometimes referred to as milk runs, this is a set number of shipments per trailer in a specific delivery order several deliveries and pickups can occur in one trip.
- Pool Distribution – consolidating several shipments to one destination, then delivering the individual shipments to the final destination.
- Spot Quote – one-time price effective for one move on a specific date.

While these are all viable options, we would like to focus the rest of this paper on an approach we call *Vested Transportation*, which is discussed in detail in Sections 4 and 5.

Part 4: Vested Outsourcing – A Better Way

We want to focus the rest of this paper on a better way to approach transportation commerce, one which is geared around a concept known as Vested Outsourcing. Pioneered by supply-chain innovator and lead researcher Kate Vitasek, Vested Outsourcing was developed on a combined research project with the University of Tennessee and the United States Air Force, which outsources 50 percent of its entire procurement budget on procured services. The goal of Vested Outsourcing is to create a long-term "partnership" based on mutual benefits, and working collaboratively to achieve benefits that may not be realized in traditional outsourcing relationships.



In the book *Vested Outsourcing,* Ms. Vitasek describes five rules that transform outsourcing to create a win/win business relationship:

Rule 1: *Focus on Outcomes, not Transactions.* In typical outsource arrangements, costs are typically based on the lowest cost per transaction. Vested Outsourcing shifts to a performance-based approach. Instead of paying an outsource provider for unit transactions for various services, the company and service provider agree on desired outcomes.

Rule 2: *Focus on the "What," Not the "How."* Companies typically outsource when in-house operations are either too expensive, ineffective or both. Using this rule, performance partnerships let each firm do what it does best.



Rule 3: *Agree on Clearly-Defined and Measurable Outcomes.* Ideally, no more than five high-level metrics should be set to measure performance. This part is crucial to the relationship – getting it wrong can result in an ailment described as *measurement minutiae*.

Rule 4: *Optimize Pricing Model Incentives for Cost/Service Trade-offs.* Incentives are incorporated based on balancing risk and reward for the organizations. For example, a transportation service provider should not be penalized for the rising costs of fuel. Additionally, the service provider should deliver solutions, not just activities.

Rule 5*: Governance Structure Should Provide Insight, Not Merely Oversight.* A properly designed governance structure should establish good insight, not provide layers of supervisory oversight.

Ms. Vitasek also notes that typical outsourcing arrangements are conceived with fundamental flaws in the business model, the relationship, and the contract structure, resulting in what she calls a *perverse incentive.*

Vested Outsourcing, however, is not for everyone. If transportation is your core competency, do not outsource. Vested Outsourcing is also not appropriate for all LTL carriers you may use. There is room for transaction-based contracts for non-strategic shipper-carrier relationships.

So how is a performance partnership or strategic alliance achieved in transportation? We are pleased to tell you there IS a better way, which we outline next in Part 5.



Part 5: Vested Transportation

The goal of any credible transportation program is to optimize the delicate balance of cost, service, and ease of use. This is easier said than done. Optimization is really a prudent combination of acceptable rates, mutually fair terms, and measurable and efficient service level – all of which must conform to the organization's unique business rules and system constraints and with minimal administrative burdens. When viewed in this light, it eliminates any possibility of short-cut solutions

We have coined the phrase *Vested Transportation* to refer to the combination of the five rules of Vested Outsourcing in transportation.

Vested Transportation is a fresh approach to a typically adversarial win/lose or lose/win relationship between shippers and carriers. “The concept espouses transparency and fairness, and the transportation community should rise to the occasion to work together to optimize transportation and quit playing a shell game and bickering over fuel service charges and rate discounts where the company with the most muscle or political clout wins” (Mullen, 2010). Vested Transportation allows the free exchange of information and ideas for the betterment of both parties.

Vested Transportation in Action

Many carriers are set-up to have a hostile relationship between sales and operations, as most sales personnel are compensated on total revenue, not profitability. In one situation, a shipper moved a significant amount of business away from this carrier because their operating ratio (*operating ratio* measures expenses as a percentage of revenue) was 160, representing a 60% loss to the carrier. The approach was to analyze existing carriers, identify their strengths and most efficient lanes, and then match-up with the client’s existing distribution pattern. At conclusion, this client had achieved savings while in turn assuring the carriers maintained an acceptable operating ratio. The result? The carrier thanked the client!

A second example is a shipper located in Texas who retained its freight audit and payment company to re-negotiate rates with carriers. Unfortunately, the freight audit and payment company took a win-lose approach and was able to reduce costs among the seven carriers this shipper used. However, because of the heavy increase in operating ratio, ultimately four out of the seven carriers refused to continue accepting shipments from this shipper. The shipper then re-aligned the routings with the same seven carriers and was able to regain profitable operating ratios for the carriers, while reducing the shipper’s transportation costs by 27%.

Moving to a Vested Transportation approach to manage LTL pricing will only be possible by fully understanding how the current system works. The pricing of transportation services involves multiple components, and its history can be traced back to the late 1800s.

Changing the Game

Now you may be asking – what can I do as a shipper to impact these costs? How do I better align rates with key metrics that are important to the shipper and the carrier?

The most common reason for less-than successful relationships between shippers and carriers is that often shippers will expertly analyze and negotiate several of the key pricing factors but ignore, underestimate or make erroneous assumptions regarding some of the remaining factors. The shippers will then be punished over time for the oversights with leakage in their planned savings. This leads to mistrust and is evidenced in exceptions, exclusions, incorporated by reference, accessorial charges, changes to rules tariffs, and general rate increases described above, to name a few.

To us, “devise different ways of determining the transportation characteristics of commodities” specified by the Surface Transportation Board in its historic January 2008 ruling, is a welcome invitation to change. As mentioned above, 98.5% of the LTL market is controlled by the top 50 LTL carriers (Cassidy, 2010). For the most part, these carriers are playing the discounting game with most other LTL carriers following suit. Additionally, as capacity is currently shrinking and the availability of qualified drivers diminishing, those LTL carriers are paving the way for rate increases.

In the article “LTL Breaks Out,” the author notes:

> Shippers need only remember back to the economic recovery of 2002 following the 9/11 attacks to recall tightened LTL capacity. The bankruptcy of the $3 billion LTL giant Consolidated Freightways on Labor Day of 2002 created stress on the overall system, which then resulted in a period from 2002 through 2006 of carrier pricing power unheard of since deregulation in 1980. Carriers routinely sought and received annual rate increases in the 6-percent to 8-percent average range, depending on geographic lane (Schulz, 2010).

At closer inspection, these “average” pricing increases can wallop an uneducated shipper. Take, for consideration, the detailed GRI analysis in Figure 8. This general rate increase was published at an average of 5.9%. If you are unlucky enough be subject to this GRI and have shipments going to Zip Code 37734, the actual increase is 51.7%!

LTL carriers are announcing GRIs prior to the 4Q busy season. ABF, for example, said in a statement it was raising its general tariff rates 5.9% on October 1, 2010. The impact on customers will vary depending on lane and types of shipment.

37176 - 37177	TN	15.8	12.4	10.5	9.9	9.9	9.9	9.9
37178 - 37178	TN	13.8	12.3	10.5	9.9	9.9	9.9	9.9
37616 - 37616	TN	11.3	9.8	8.0	7.4	7.4	7.5	7.5
37714 - 37719	TN	51.7	46.1	43.6	42.9	42.9	42.9	43.0
37727 - 37729	TN	40.9	46.1	43.6	42.9	42.8	42.8	42.9
37730 - 37730	TN	51.7	46.1	43.6	42.9	42.9	42.9	43.0
37734 - 37735	TN	51.7	46.1	43.6	42.9	42.9	42.9	43.0
37810 - 37810	TN	33.9	46.1	43.6	42.9	42.9	42.9	43.1
37877 - 37880	TN	33.9	46.1	43.6	42.9	42.9	42.9	43.1
37900 - 37999	TN	19.1	12.3	10.5	10.0	9.9	10.0	9.9
38000 - 38006	TN	6.7	9.8	8.0	7.4	7.4	7.4	7.5
38081 - 38099	TN	6.7	9.8	8.0	7.4	7.4	7.4	7.5
38392 - 38393	TN	6.7	9.8	8.0	7.4	7.4	7.5	7.5
38401 - 38401	TN	13.8	12.4	10.5	9.9	9.9	9.9	10.0
38631 - 38631	MS	6.4	9.8	8.0	7.4	7.4	7.5	7.5
38632 - 38632	MS	6.7	9.8	8.0	7.4	7.5	7.4	7.5

Page: 4 of 5 Class 70 Outbound from 30310

ZIP RANGE	ST	CHARGE	L5C	M5C	MIN M1M	M2M	M5M	M10M
39194 - 39194	MS	6.4	9.8	8.0	7.5	7.4	7.4	7.5
39200 - 39299	MS	9.5	12.4	10.5	9.9	9.9	9.9	10.0
40175 - 40178	KY	6.4	9.8	8.0	7.4	7.4	7.4	7.5
40204 - 40204	KY	12.2	12.3	10.5	9.9	9.9	9.9	9.9
40205 - 40205	KY	12.2	12.3	10.5	9.9	9.9	9.9	10.0
40316 - 40316	KY	6.4	9.8	8.0	7.5	7.4	7.4	7.5
42077 - 42077	KY	11.6	9.8	8.0	7.5	7.4	7.5	7.5
43000 - 43004	OH	8.3	11.0	9.1	8.5	8.5	8.5	8.6
43009 - 43010	OH	8.3	11.0	9.1	8.5	8.5	8.5	8.6
44826 - 44829	OH	8.3	10.9	9.1	8.5	8.5	8.5	8.6
46129 - 46129	IN	8.3	10.9	9.1	8.5	8.5	8.6	8.6
46130 - 46140	IN	8.3	10.9	9.1	8.5	8.5	8.6	8.7
46204 - 46204	IN	8.3	15.9	14.0	13.4	13.5	13.5	13.6
46205 - 46224	IN	8.3	10.9	9.1	8.5	8.5	8.6	8.6
46225 - 46225	IN	8.3	15.9	14.0	13.4	13.5	13.5	13.6
48473 - 48474	MI	8.3	10.9	9.1	8.5	8.5	8.5	8.7

Figure 7 - General Rate Increase Analysis Detail

Most shippers' relationships with their carriers are on a transaction-by-transaction basis. Strong-arming your carrier into better pricing is NOT the key to collaboration and Vested Transportation.

Vested Transportation is not for all carriers and shippers. Most industries follow the supply and demand curve – why not LTL? Due to competitive environments, a shipper has to work in the environment of competitors, not just to cater to their LTL carrier's needs. A shipper may lose business to competitors if this is the case

As we mentioned, a Vested Transportation relationship is not suitable for all LTL carriers a shipper might use. In fact, it is desirable and has real win-win for a select few that both parties wish to build a strategic, long-term relationship around. It is clear that there is also room for transaction-based contracts for non-strategic shipper-carrier relationships. You could infer that a Vested Transportation approach is good for all shipper-carrier (LTL) relationships, when it is likely not so.

A handful of carriers and shippers have developed a one-size-fits-all approach to Vested Transportation, which is a good start. However, Vested Transportation customizes this approach to deliver value for all.

So how do you start vesting with your LTL carriers? Let's first lay the groundwork.



Vested Transportation Rules

Earlier we reviewed five rules critical for favorable outcomes in a Vested Outsourcing transaction Let's examine those rules now in the context of Vested Transportation.

Rule 1: *Focus on Outcomes, not Transactions.* The price of the shipment is not directly related to costs. In a vested relationship, if a carrier has excess capacity in any given lane, i.e., 16 scheduled trailers moving outbound, and only two are full and 14 are empty, why not obtain a better rate for that lane on that day for those 14 empty trailers? Most carriers have no way of knowing months in advance that these conditions will surface. The term of the standard pricing agreement is one year, yet these market conditions can change *hourly.* Conversely, a carrier may have changes in anchor clients, market conditions, the economy, weather and other unforeseeable circumstances that would equate to a loss to the carrier. In this situation, the carrier "eats" the difference, mostly because of the length of term of the standard pricing agreement. If those conditions sustain over a month, the carrier may elect to activate the 30-day right of cancelation on most pricing agreements rather than continue to operate at a loss. Another common situation are two identical shipments which may be priced differently due to pricing concessions or FAKs, different base rate years, exclusions for lanes, and varying discount structures, etc. Is this way of thinking appropriate?

Rule 2: *Focus on the "What," Not the "How."* A carrier is not often given the opportunity to make changes that would reduce its own costs and present savings back to the shipper. For one of our clients, after years of inefficiently using a pool distribution point in Pittsburgh, PA, their *carrier* had suggested a different pool distribution point in Aetna, PA. This new pool distribution reduced transit time 1–2 days, reduced the carrier's costs and resulted in a 12% savings to the shipper.

Rule 3: *Agree on Clearly-Defined and Measurable Outcomes.* According to a study by Peedeman Media Research Group, the most important carrier's features, in descending order of importance, are:

- Reliability
- Pricing
- Transit Time
- Customer Service
- Low Incidence of Damaged Goods
- Tracking Visibility
- Promised Delivery Dates
- Reputation of Provider
- Customs Brokerage



We suggest you pick no more than five attributes to measure and review the results regularly with your carrier. A good Transportation Management System can accurately measure many of these attributes. The carrier must agree to provide timely, consistent and accurate data, which itself should be a key term of a vested contract.

Rule 4: *Optimize Pricing Model Incentives for Cost/Service Trade-offs.* The existing and rigid pricing systems largely used today do not foster incentives. For example, we know through rigorous analysis of carrier operations that certain days of week pickup and delivery volumes are lower. As a carrier, why not incentivize a shipper to pre-arrange for pickup on one of those days?

Rule 5: *Governance Structure Should Provide Insight, Not Merely Oversight.* Formerly, rate bureaus and the freight classification system influenced class-rate LTL pricing. Collectively, set rates do not take into account each carrier's unique balance of costs and profitability, which result in complicated pricing agreements with various discounts taking into account the carrier's unique strengths and weaknesses. Combined with the freight classification system, carriers have to determine ways around these artificial layers of complexity and bureaucracy, such as in the case of Freight All Kinds (FAK), to more align pricing with their costs.

Vested Transportation suggests the basics be taken into consideration for insight: the price you pay, the service you get, and ease of use. We suggest using a Motor Carrier Contract as governance to align the outcomes (Rule #3) specific to the relationship between the shipper and carrier.

So How Do I Begin Vested Transportation?

Traditionally, transportation contract negotiation has been a win-lose situation, either by the shipper paying inflated rates or the carrier operating the account at a loss. By sharing information and collaborating with your carrier, you can achieve improved service and competitive rates while the carrier maintains a profitable account.

Perverse Incentives

In the book *Vested Outsourcing*, Vitasek describes *perverse incentives* as "an incentive that is intended to promote a desirable effect, but instead creates and nurtures a negative and unintended outcome" (Vitasek, 2010).

In his article "Parcel Pricing's Rock Weight Breaks," Colin Barrett has a question from a reader describing a perverse incentive that is as applicable to density LTL pricing as it is for parcel pricing. The question asked concerns a major parcel carrier offering a substantial discount once a parcel goes over the 20 pound limit. As the carrier would not offer any discount below 20 pounds, Mr. Barrett suggests that the reader add rocks to each parcel to increase the billed weight to 20 pounds, thereby, achieving the higher discount.

In Bohman's book, *A Comprehensive Guide to Freight Classification*, he dedicates an entire chapter to increasing the weight/density of your shipment in order to get a better price. Some of his ideas include:

1. Reducing its actual physical size with a commensurate reduction in the size of the outer shipping container.
2. Reducing the size (dimensions) of the product's display packaging with a commensurate reduction in the size of the outer shipping container.
3. Reducing the size (dimensions) of the outer shipping container.
4. Packing more of the same articles in the same shipping container, thereby increasing the gross shipping weight.
5. Using a heavier shipping container, thereby increasing the gross shipping weight.
6. Unitizing several packages having different densities.

Our analysis of LTL density pricing shows with LTL pricing there can be a significant revenue loss in specific lanes to the carrier with density in the 15 to 22.4 pounds per cubic foot (Class 70 density is 15 pounds per cubic foot. The next lower class 65 is 22.**5** pounds per cubic foot.).

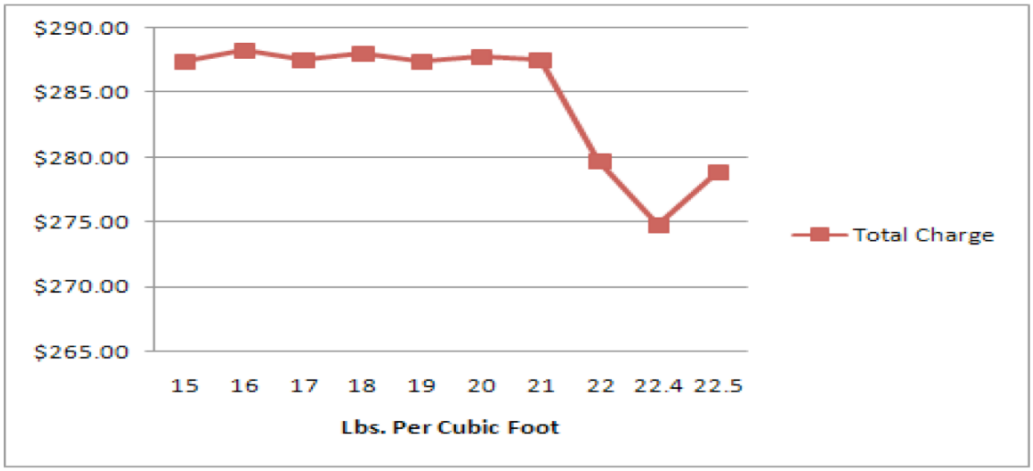


Figure 8 – Class 70 Origin 30310 (GA) to 38110 (TN), 500 lbs.



The Ailments

In Vested Outsourcing, there are 10 key ailments that prohibit or restrict the capacity to vest with your outsource providers. These 10 ailments are:

Ailment 1: Penny Wise and Pound Foolish

Ailment 2: The Outsourcing Paradox

Ailment 3: Activity Trap

Ailment 4: The Junkyard Dog Factor

Ailment 5: The Honeymoon Effect

Ailment 6: Sandbagging

Ailment 7: The Zero-Sum Game

Ailment 8: Driving Blind Disease

Ailment 9: Measurement Minutiae

Ailment 10: The Power of Not Doing

We have selected a few of the ailments to discuss, along with some examples we have experienced.

Ailment 4: The Junkyard Dog Factor

Unfortunately the class-rate LTL system is deeply ingrained in the industry. We also have noted resistance from shippers who are unwilling to partner with their carriers. “I don’t care if the carriers make money or not” is a comment we have heard mostly from logistics finance folks. Some carriers we have approached are of the “that’s the way it has always been done” approach or commented “where would we begin?” We need to reiterate that there are options. However, those options *will* take some work and thoughtfulness on both sides.

Ailment 6: Sandbagging

It is clearly in the shipper’s best interest to assign carriers to lanes in their network where they have the best internal cost structure, so they can provide the optimal price. Sounds reasonable enough. So why is the traditional RFP/bidding process often not an effective process to arriving at the best price? In the world of purchasing, most commodities are priced to reflect economies of scale. That is, the more you buy, the cheaper the price per unit because you are defraying the fixed costs when purchasing in large quantities. Transportation pricing doesn’t quite work that way.

During the bidding process, rarely will carriers disclose their true valuations of each. Lane Carriers typically artificially increase their bids based on uncertainty of information provided in order to compensate for possible losses. The trick to optimizing one’s transportation cost is to really understand the economics that drive your carriers.

Ailment 7: The Zero-Sum Game

Haggling over price, also referred to as *positional bargaining*, may give you the best price, but it breaks down trust and relationships. Your success in many ways is relying on your carrier's ability to perform – getting your goods where they need to go when they need to be there. This adversarial, zero-sum exercise is focused on claiming, rather than creating, value. In his article "Building Relationships and the Bottom Line: The Circle of Value Approach to Negotiation," author Bruce Patton describes some basic steps to what he calls a "circle of value," which achieves both goals of the most attractive deal, while maintaining a good relationship:

1. Explore options without commitments (or threats).
2. Use interests and standards of legitimacy to explore ways to create and distribute value.
3. Avoid becoming the voice of authority (Patton, 2004)

"We Have Empty Trucks" – Finding the Pony

In the book *Vested Outsourcing,* Vitasek describes "The Pony": "[The Pony] represents something the outsourcing company wants but was not able to get on its own or with existing service providers." Vitasek also shares a memorable story about "The Pony":

> It [The Pony] also represents what Ronald Regan used to portray as the optimistic approach. Reagan used to tell a story about a man who came upon a young boy excitedly digging through a large pile of manure "What are you doing, son?" the man asked. "Well, sir," the boy answered happily, "with all of this manure, there must be a Pony in here somewhere!" (Vitasek, 2010).

By focusing on long-term relationships, carriers would be more willing to drive innovation into the transaction, such as equipment changes. Some other ideas include:

- **Eliminating class-based LTL pricing.** There are a few other options out there, but one of our favorites for efficiency, greening and cost-reduction is space-based pricing, also known as *cube-based pricing.* This allows the carrier to price by the **space occupied**, which should be the most important measure in load factor. In the LTL industry, most equipment will "cube out" well before the weight limit of the equipment. "It is almost universally agreed that the **space occupied** by merchandise should be the predominating factor in the fixing of a classification and also the value of the article should have some weight" (1897 ICC Annual report, emphasis added).



Equipment available to maximize space in the trailer. Source: Con-way website, accessed 9/4/10.



Carrier double-stacking shipments with a load bar to optimize space.

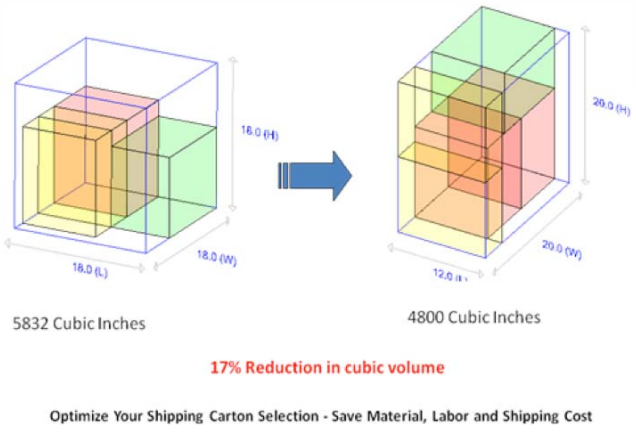
A carrier for one of our clients mentioned that they would give a 4% better discount to our client if they would know the dimensions of the shipment in advance for pickup. This carrier makes regular pickups from the client and plays a shell game with equipment – sometimes it is not enough, other times it is too much. Either situation creates an additional expense for the carrier. This collaboration assures the carrier provides proper equipment, which in turn helps the carrier maximize final mile pickup, delivery and line-haul equipment and cube.

Cube-based pricing provides a real incentive to the shipper to reduce packaging and shipment size, which in turn fosters a reduced carbon footprint for each shipment.

- **Increasing load factor.** LTL load factor is the ability of the carrier to maximize the cargo space in a trailer. The higher the load factor, the more profitable the load. The unfortunate reality is many carriers use weight to determine load factor, when the single most limiting factor is the amount of space available per LTL trailer. Rarely LTL carrier's equipment can have a total weight allowed of 48,000 pounds per schedule, but most have load factors in the low to mid 30,000 pound weight. These LTL carriers will cube out first, or in other words, use all the *space* available before hitting weight of 48,000 pounds. Why is this common practice? Because carriers typically price based on classification and weight, not by the amount of space your shipment takes. Another unfortunate and unintended consequence is that there are many trailers on the road with wasted capacity. The Safe and Efficient Transportation Act (SETA) of 2010, currently in the U.S. House and Senate, proposes to increase the truckload weight limit by 38%. Help your carrier understand how much space you will use so they send the right equipment. Remember, the carrier is not just picking up your freight but most likely combining freight with several customers. The more information the carrier has on the aspects of the shipment, the better.



Nested pallets reduce overall pallet height by 2" and reduce the amount of space needed to transit versus traditional wooden pallets.

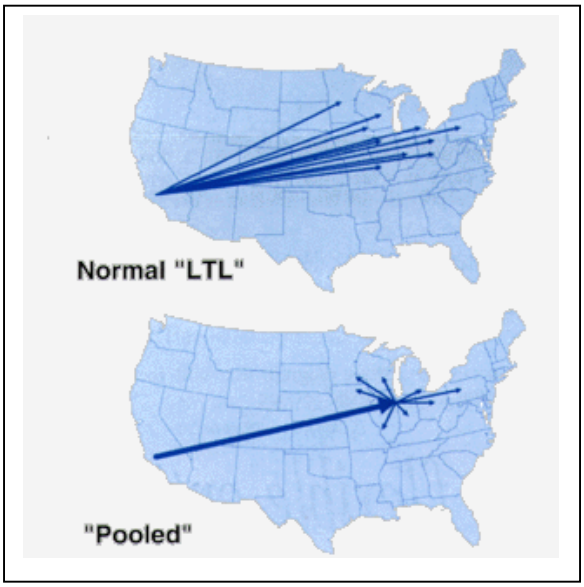


- **Optimizing packaging.** Another way to help carriers is to save material, labor, and, hence, shipping costs by optimizing your carton selection and palletizing as much freight as possible. This will also improve handling and can avoid expensive damages. Optimal packaging creates more dense shipments, taking fewer cubic feet on the trailer.

Loading & unloading shippers may help offset the pickup and delivery costs by assisting the carrier to load the trailer. There are some rules and regulations about contract labor for the purposes of loading and unloading freight. These laborers are referred to as *lumpers* and are regulated in part by 49 USC 14103.

- Increasing the Number of Shipments. By tendering more shipments for each pickup, several variables are considerably lowered and the cost reduced for the carrier. This is evidenced by some carriers charging extra for “single shipment.”

- Using Pool Distribution. Shippers with significant volume and carriers have worked together to create “pool distribution” points, where shipments are “pooled” together to a carrier’s distribution center or pool point, then shipped out from the pool point to the final destination. This method can help the carrier and shipper avoid expensive line haul and break-bulk costs. LTL carriers collect freight from various shippers and consolidate that freight to fill trailers for travel to common destinations. An LTL motor carrier transports shipments that typically occupy only 5% to 10% of trailer capacity. As a result, LTL carriers collect and consolidate freight from various shippers to increase trailer utilization (load factor). Supporting these operations is a system of terminals, tractors, trailers, dockworkers, and drivers, collectively called the *line haul network.* The break-bulk is a facility used to consolidate pickups and to unload trailers for local delivery from other terminals or break bulks.



- Reducing Deadheading/Backhaul. According to the American Trucking Association, empty miles (trucks with no cargo) account for anywhere from 21% to 29% of the total reporting miles, representing a significant loss for the carriers. Do distribution trends affect your cost? Most definitely!



- Understanding Peak vs. Non-Peak Pickup and Delivery Times. Similar to the airline industry, carriers have peak and non-peak times. One example we have seen involves night delivery in New York City. Manhattan sees more than 110,000 curbside deliveries a day, and shifting even a portion of them to off-peak hours has an impact on daytime congestion. New York City will expand a program that encourages off-peak deliveries in Manhattan to help clear traffic jams that cost the city more than $13 billion a year. Delivering between 7pm and 6am has reduced congestion and improved productivity for truckers and retailers.
- Other "Ponies" with This Solution Include:
  - ✓ Drivers found they could make deliveries on-time and be much more fuel-efficient.
  - ✓ Receivers didn't spend hours waiting for deliveries each day.
  - ✓ Trucks reached their first stop 75 percent more quickly, allowing stops 50 percent more quickly.
  - ✓ Time spent unloading and loading trucks was reduced from about 90 to 30 minutes.
  - ✓ Delivering off-peak also cut-down on parking tickets.
- Invoicing. It costs carriers a pretty sizable sum to invoice shippers. One carrier noted: "our cost per bill for the administrative side scheduled at about $6.95 right now…we are including labor to bill and collect the invoice." Why not negotiate a better discount for quicker payment terms and self-invoicing? When you self-invoice, you are essentially billing yourself. Costs can be determined before orders are made and shipments are sent.

Auditing transportation invoices is most often done by a third-party auditing service. These auditors compare the charges on your carrier invoices with standard rates and policies and the volumes and rates outlined in your company's carrier contracts, identifying billing discrepancies, and then making requests to the carrier to recover funds or obtain credits on your behalf. The process is reactive rather than proactive. There will always be those discrepancies that, for one reason or another, go unchallenged or remain unresolved.

Self-invoicing, or self-billing, is becoming more common now as new technology is giving companies the ability to increase supply chain visibility and more accurately map their logistics charges.

Getting Started

So how do you approach your transportation service providers to start a vested relationship? Some key questions to ask yourself are:

- What is the desired outcome?
- Who will be impacted?
- What is the Pony?
- What is the outsourcing business model that will best capture the Pony?
- How can the contract be structured to support the business model in order to prevent perverse incentives?



Conclusion

The transportation industry is faced with challenges like never before. Stricter regulations, old-school and outmoded transportation pricing approaches, and a shifting in the balance of power from the shipper to the carrier community are converging, creating the perfect storm for a paradigm shift in how companies approach transportation commerce. We believe these forces can no longer be ignored. Shippers and carriers must come together and address the **real problem of how to optimize overall transportation and reduce fuel consumption, producing the very tangible benefit of reducing carbon emissions from the transportation process.**

We need to look no further than international modes of ocean and airfreight, which have long utilized a cube/weight calculation, as they were designed to serve the needs of craft with limited capacities. With modern warehouse and transport management systems, the dimensions and weight are already known. The origin, destination, service requirements, and value are also known. The carrier could use a cube-based scale to quote a rate that would reflect the revenue they wish to earn in a particular lane of movement. A tariff that reflected dimensions and cube would provide the carrier with valuable planning information for terminal cross-docks and long haul load equipment selection.

Furthermore, computers can store other shipper choices in service levels, release value for insurance and even delivery-date windows to take advantage of cost-saving efficiencies in a day of weekly variations the carrier might share with them. Add to this the ability for systems to communicate with each other in load-tendering, tracking, invoicing, and settlement and you have the ingredients for a transportation transaction without paper, auditors, and the NMFC.

Transportation commerce is at a crossroads. Shippers and carriers can choose to sit across the table, using their power and influence to preserve margins, and understanding there will be winners and there will be losers. Or they can choose to work together to solve the real problem. We urge the transportation community to rise to the occasion to work together to optimize transportation.

We believe application of the Vested Outsourcing pioneering concepts to the unique needs of the transportation community has the power to be a game-changer. Vested Transportation espouses transparency and fairness; the transportation community should quit playing a shell game and cease bickering over fuel surcharges and rate discounts where the company with the most muscle wins. Instead, the transportation community should rise to the occasion, working together to optimize transportation.

About the Authors



Peter D. Moore is a Program Faculty member for the University of Tennessee's *Vested Outsourcing* Executive Education course. Peter Moore has over 30 years of experience in Consumer Packaged Goods, regulated products, industrial manufacturing, third party logistics services, and consulting. Pete is a PhD candidate (ABD) in Organizational Management with a specialization in the skills needed to operate complex organizations. Pete can be contacted at *pmoore@utk.edu*.



Hank Mullen is a 42-year transportation industry veteran, actively providing transportation solutions to shippers and carriers alike. Hank has substantial expertise in the transportation industry and is a pioneer in cube-based pricing. He is a prolific author, writing on the subject of surface transportation pricing and regulations for *Logistics Management, Inbounds Logistics, WERC, American Shipper, DC Velocity,* and *PARCEL* magazines. Hank currently leads the Transportation Solutions team at Transolve. He can be reached at *hmullen@transolve.us*.



Lynnette Guess has managed numerous transportation optimization projects. Lynnette has helped to develop and refine the cube-based pricing model and helps bridge process with people and technology to bring companies' transportation programs to the next level. Lynnette has co-written numerous transportation articles and currently serves as Director of Operations for Transolve, Inc. She can be reached at *lguess@transolve.us*.



Alan Van Boven is an innovator in conceptual architecture and design of technology solutions for freight transport. Alan currently coaches enterprises in strategy creation and execution for the Supply Chain Management marketplace. He is an experienced executive in business and product strategy, business development, technology innovation, organization development and mergers and acquisitions. His current focus is on carbon and spend management in transportation, where real economic benefits can be achieved via technology-enabled innovation in optimization and collaboration processes. Alan can be reached at *alan@scvisions.com*.

Bibliography

Retrieved July 15, 2010, from NMFTA: *www.nmfta.org*

Barrett, C (2009, November). "Is Bill of Lading a Valid Contract?" *The Journal of Commerce*, 60.

Bohman, Ray (2006, August). "Understanding Weight Breaks." *Logistics Management*.

Bohman, Ray (2008, October). "Understanding LTL carrier class rates."

Bohman, Ray (1993). *A Summary of the Key Provisions of the "Negotiated Rates Act of 1993."* Gardner, Mass.: Bohman Industrial Traffic Consultants, Inc.

Cassidy, WB. (2009, September). Retrieved from *Journal of Commerce: www.joc.com.*

ClassIt (r) Search (n.d.) (2010, August). Retrieved from *National Motor Freight Traffic Association: www.nmfta.org*

CSCMP (2010). "21st Annual State of Logistics Report." Washington: CSCMP.

Jindel, S. (1999, January). "LTL Pricing Hurts Industry." *Traffic World, 1*.

Mullen, H (2010, June). "Addressing the pending fuel shortage: Optimize, don't just negotiate." *Logistics Management,* 30-32.

Mullen, H (2010, June). "Sharpening LTL Management." *Logistics Management,* 32-33.

Mullen, H (2010, February). "Masters Class – Negotiating LTL Costs." *Logistics Management,* 30–33.

NMFTA Dockets and Directives (2010, June). Retrieved from *NMFTA: www.nmfta.org.*

Patton, B (2004, April). "Building Relationships and the Bottom Line: The Circle of Value Approach to Negotiation." *Negotiation,* 4.

Pool Distribution (n.d.). Retrieved July 16, 2010, from *Taylor Distributing: www.taylordistributing.com.*

Robyn, D (1987). "Breaking the Special Interests – Trucking Deregulation and the Politics of Policy Reform." Chicago: *The University of Chicago Press*.

Ross, D (2008, April). "Costs Driving Trucking." Retrieved from *www.logisticstoday.com.*

Sheffi, CC. "Optimization Based Procurement for Transportation Services."

Sullivan III, RL (2003). "The Formula – Building Competitive Advantage." Bloomington: 1stBooks.

U.S. Department of Energy (n.d.). "Gasoline and Diesel Fuel Update." Retrieved July 15, 2010, from *U.S. Department of Energy: http://tonto.eia.doe.gov/oog/info/gdu/gasdiesel.asp.*

Vitasek, K (2010). *Vested Outsourcing.* New York, NY: Palgrave Macmillan.

Watson, R (2010, March). "Shoe Shippers Criticize Reclassification that Allow Rate Increases Up to 50%." *Transport Topics*



Additional Resources

Bohman, Ray (1982). “Guide to Cutting Your Freight Transportation Costs Under Trucking Deregulation.” Gardner, Mass.: Bohman Industrial Traffic Consultants, Inc.

Bohman, Ray (1984). “A Comprehensive Guide to Freight Classification.” Gardner, Mass.: Bohman Industrial Traffic Consultants, Inc.

Bohman, Ray (1977). Opportunities for Reducing Transportation Costs Through Classification Ratings Based on Density.” Gardner, Mass.: Bohman Industrial Traffic Consultants, Inc.

Bohman, Ray (1980). “Trucking Deregulation: How Far It Actually Goes.” Gardner, Mass.: Bohman Industrial Traffic Consultants, Inc.

Bohman, Ray (1979). “The Furniture Loss and Damage Claim Guide.” Gardner, Mass.: Bohman Industrial Traffic Consultants, Inc.

© Vested Outsourcing 2010
978-0-9845939-1-0