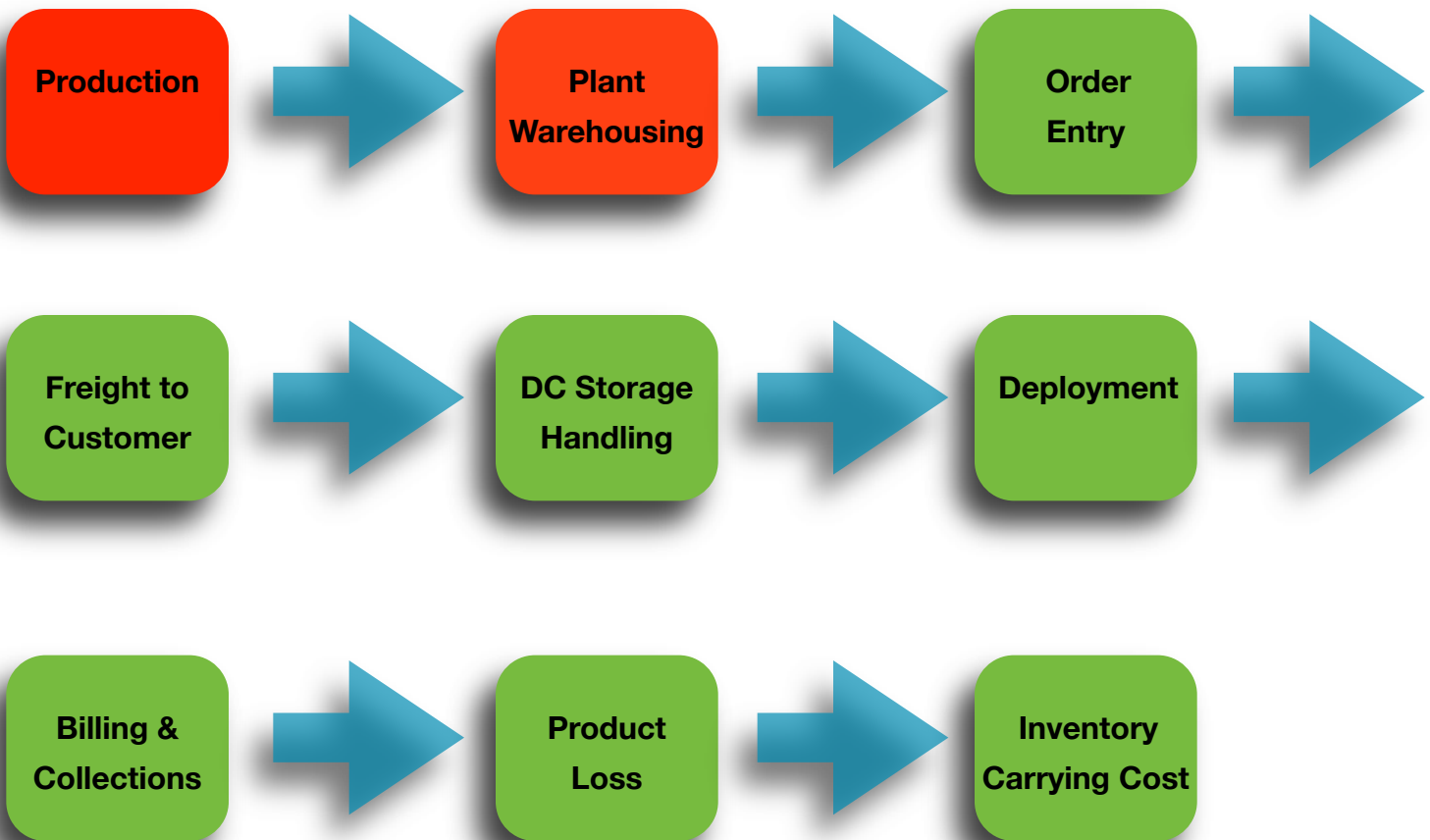


# A New Look at Cost-to-Serve

# Purpose

Since 2007, Franklin Foodservice Solutions has been conducting a series of Cost-to-Serve studies with manufacturers of Foodservice and Consumer Products. The purpose of these studies is to help manufacturers understand their Total Cost-to-Serve from Order to Cash. The studies begin with receipt of an order and proceed through all movements, storage, and handling of products, and end with collection and application of cash. Activities shown in red are out-of-scope; all other activities are in-scope



Importantly, we organize the cost data based on the weight of the outbound shipments, as a means of making clear the cost differences for the smallest orders ranging through full truckloads. All of the data is broken down and allocated to one of 6 Outbound Weight Brackets.

The data is further broken out into 20 Cost Driver Activities for each Weight Bracket, providing an exceptionally detailed view of the business.

This methodology stands in stark contrast to the common practice of dealing with average costs across the full spectrum of shipments. Our unique approach sheds light on the key cost drivers and provides new insights which support Sales, Marketing, and Supply Chain decisions.

\*Plant warehousing is included if shipments are made directly to the customer (from the plant).

# Participants

Participants are Foodservice and Consumer Products manufacturers supplying multiple channels. They include manufacturers of dry goods as well as refrigerated and frozen products. Sales volume ranges from mid-level to very large food manufacturers, to major consumer packaged goods companies. All are considered leading companies within their respective product categories.

Our study encompassed many different network configurations, including:

- Number of Production Plants
- Number of forward Distribution Centers (DC's)
- Use of Plant Locations as Mixing Warehouses
- Mix of Plant vs. DC Shipments
- Mix of Shipments vs. Customer Pickups (CPU's)
- Mix of Straight Truckload Volume vs. Multi-Stop Truckload Volume vs. Less-than-Truckload (LTL) Volume

# General Findings

While every study has been unique, there have been common threads among all participants.

We learned that by and large, manufacturers have a good handle on their total logistics costs and average cost per pound, but have not measured their Total Cost-to-Serve from Order to Cash by shipment size. Our studies provide not only a lot of useful information, but a new perspective from which to view their businesses.

We found that for all manufacturers, data resides in a lot of different places, in various formats, including at 3rd Party Logistics providers. This is one reason such studies are not more commonplace.

We also learned that there is a lack of common understanding and usage of terminology related to the Supply Chain. Terms such as “Truckload,” “LTL,” “Load,” “Order,” “Shipment” and “Drop” have different meanings at different companies, and in fact can be used interchangeably by different people within a given company.

And while people have a general sense that filling small orders costs more than filling large orders, few have done a good job of quantifying the difference.

As a result, there is general uncertainty about price structures, order policies (minimums, CPU’s, etc.) and redistribution strategies as they relate to costs.

# Methodology

We used a consistent, detailed methodology which was reviewed and validated by Acorn, a leading Activity-Based Costing consulting firm.

Features of our methodology include:

1. Calculating all costs on a “cents/gross lb” basis
2. Breaking out all costs by outbound shipment size, using 6 brackets:
  - a. <1K lb
  - b. 1-2K lb
  - c. 2-5K lb
  - d. 5-10K lb
  - e. 10-20K lb
  - f. >20K lb
3. Allocating costs by activity across the weight brackets wherever feasible, including:
  - a. Cost of entering manual orders vs. EDI orders, including number of line items by shipment size
  - b. Cost of case-picking activity on small orders vs. larger orders
  - c. Cost of customer freight, including fuel surcharge and accessorial charges (stop charges, lumper fees, out-of-route miles, etc.)
4. Using “all outbound volume” as the denominator for deployments
  - a. For example, if cost of deployments is \$.04/lb, and deployed volume is 50% of the total outbound volume, deployment cost shows as \$.02/lb
5. Standardizing the Benchmark Report costs over time based on Department Of Energy Fuel Cost and Consumer Price Index at the time of each study
6. Creating separate Benchmark Reports by temperature class (Dry, Refrigerated, and Frozen)

# Key Findings

In addition to the quantitative, data-driven information, there were several Key Findings which were consistent across all participants.

1. There is a surprising amount of Less-than-Minimum shipment activity among virtually all participants. In many cases, but not always, this is driven by backorders or “emergency shipments.” Although most participants have policies stating that backorders will ship with the next regular order, it is common to make exceptions to this rule.

In other cases, national account contracts serviced through broadline distribution require manufacturers to make exceptions to their Order Minimum policies.

2. In addition to Less-than-Minimum shipments, most manufacturers are surprised to see the high number of small shipments in their businesses. The classic “80/20 Rule” applies here, with a large proportion of activity and cost being expended to service a small portion of the overall volume.
3. Probably the most significant finding is the high cost of fulfilling orders that fall into the manufacturers’ lowest price brackets. While all participants understand intuitively that “small shipments cost more than large shipments,” the size of the gap between cost/lb for a minimum order vs. a truckload order is much greater than most expect to see.

The “Total Costs” Charts illustrate the range of this cost/lb premium:

	<u>TL to &lt;1K lb</u>	<u>TL to 2-5K lb</u>
Frozen	\$.33	\$.13
Refrigerated	\$.43	\$.19
Dry	\$.26	\$.11

This is explained in part by the higher customer freight cost/lb for smaller shipments, but is also driven by significantly higher administrative (Order Entry and Credit/Collections) costs.

Because these administrative costs are driven on a “per order” basis (regardless of order weight), the cost/lb becomes significant on shipments that fall into the lowest bracket, and especially on less-than-minimum shipments.

Another contributing factor is the high cost of case-picking for small orders. In our studies, we allocate the “handling” charges from 3rd Party Distribution Centers based on the case pick percentage for the various shipment sizes. Because case picking generally is reduced on larger orders, this can be a key driver of cost differences across shipment sizes.

All of this is to say that manufacturers who look only at Customer Freight costs when establishing bracket pricing and order policies are only seeing part of the picture.

4. There are no firm conclusions to be drawn regarding what networks or order policies drive higher or lower costs. As one would expect, manufacturers who use a network of 4 or more forward DC’s tend to have lower Customer Freight costs due to shorter distances to customers. But these savings are offset by the costs of deployments, as well as storage and handling at the DC’s.

Conversely, manufacturers who ship a high percentage of their volume direct to customers from producing plants save the deployment and warehousing costs, but often incur higher Customer Freight costs.

If there is one consistent theme regarding network configurations, it is “I wish we could do more plant-direct shipments, but our production plants aren’t designed to support warehousing, order-picking, and staging.”

5. Several participants have strategies and programs in place to encourage Customer Pickups at plants or Distribution Centers. Indeed, these participants serve a high proportion (in some cases over 50%) of their volume via CPU. But many manufacturers seem to be uncertain about the desirability of increasing CPU activity, or exactly which customers and order sizes they would like to serve in this manner. The studies have shown that “pickups aren’t free;” the best-planned CPU programs can improve efficiency for both the manufacturer and the customer.
6. Another surprise is the low average number of line items per shipment. While all participants have hundreds (if not thousands) of line items in their portfolios, it is not unusual to see single-digit line item counts across all shipment sizes.
7. Invariably, our breakout of volume and cost by shipment size leads to questions about “which customers are ordering in which weight brackets.” Deeper analysis usually reveals that individual customers are likely to show wide fluctuations in their order weights over the course of a year, based on their needs at that particular time. This finding raises questions about policies regarding bracket pricing; in particular whether to fix customers in a given bracket or assign the price bracket on an order-by-order basis.
8. In all cases, we have found that this study provides a new perspective on the Supply Chain for the manufacturer organization. Marketing and Sales people always gain a new appreciation for how product moves and what it costs. But even people within the Supply Chain organization gain the “big picture view” and fresh insights that often lead to new opportunities for improvement.
9. Finally, we learned that some participants have a strategy to influence and manage order behavior and costs, while others seem to “let it be what it will be.” Manufacturers with the latter attitude cite a philosophy of “just wanting to serve our customers however they want to be served.”

Regardless of the participants’ approach to customer order behavior, all agree that understanding Cost-to-Serve will help them make price and policy decisions to influence desired behavior or make sure the cost of undesirable behavior is covered.



# Conclusions

We have found that differences in overall Supply Chain costs among participants are driven by two key factors:

1. How well their Plant and DC network reflects the current nature of their customer order patterns
2. Their ability to negotiate favorable contracts with carriers and warehouses

In some cases, manufacturers continue to utilize 3rd Party DC locations which made strategic sense in the past, but are no longer serving the same volume. In others, the Foodservice business is “shoehorned” into a network which supports a higher-volume Retail business, driving up costs for the Foodservice channel. And it is not unusual for manufacturers to put inventory in forward locations which are dictated by a large customer; this can be a strategic decision in which such an arrangement is a necessary cost of doing business.

Generally speaking, the highest-volume manufacturers receive favorable rates for logistics services. The picture is also somewhat clouded by different billing practices among 3PL warehousing firms and transportation providers. For example, several participants reported that they had moved to simplified contracts with warehouse providers, eliminating some of the cost detail that had previously been provided. And manufacturers who use different warehouse providers across the country must deal with multiple contract, reporting and invoice formats.

By far the more compelling story is the large gap between the costs of filling small orders vs. truckload orders, for all participants. This is why we caution against using averages and “rules of thumb” when establishing prices and programs based on Supply Chain costs.

# Recommendations

We close with four recommendations which apply to all manufacturers:

1. Take the time and make the effort to **understand your Total Cost to Serve by shipment weight and cost driver**. Not only are you likely to find cost-reduction opportunities, but it will provide a new level of clarity to support your Sales, Marketing, and Supply Chain decisions.
2. **Find a way to minimize or eliminate small shipments**. They drive a surprisingly large amount of activity and cost, and will sap your company's profits.
3. **Maximize the use of plant-direct shipments and large-order pickups wherever possible**. Provide Special Prices and CPU Allowances which reflect your savings in deployment, warehousing, and customer freight costs. If your plant warehouse is not configured to support case picking and staging, establish policies which require straight pallets and drop-trailer programs. Or analyze the ROI on reconfiguring your plant warehouse, taking into account the savings in deployment and warehousing costs.
4. **Learn to influence customer order behavior**. While it is right-minded to want to serve customers "however they want to buy," it is good business to make sure that wherever possible you are recovering the high cost of filling inefficient orders. And where market price levels prevent raising prices to your highest cost-to-serve customers, it is wise to seek alternative methods of serving them.

We always welcome the opportunity to talk about Supply Chain costs, and how they can be linked to marketing and sales decisions. If you have questions, comments, or observations, please call or email me any time.

## Dave DeWalt

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# Appendix: Cost-to-Serve Results

**Overall CTS Chart For Dry**

**Overall CTS Chart For Refrigerated**

**Overall CTS Chart For Frozen**

**Customer Freight Chart For Dry**

**Customer Freight Chart for Refrigerated**

**Customer Freight Chart For Frozen**

**Order Entry Chart**

**Credit & Collections Chart**

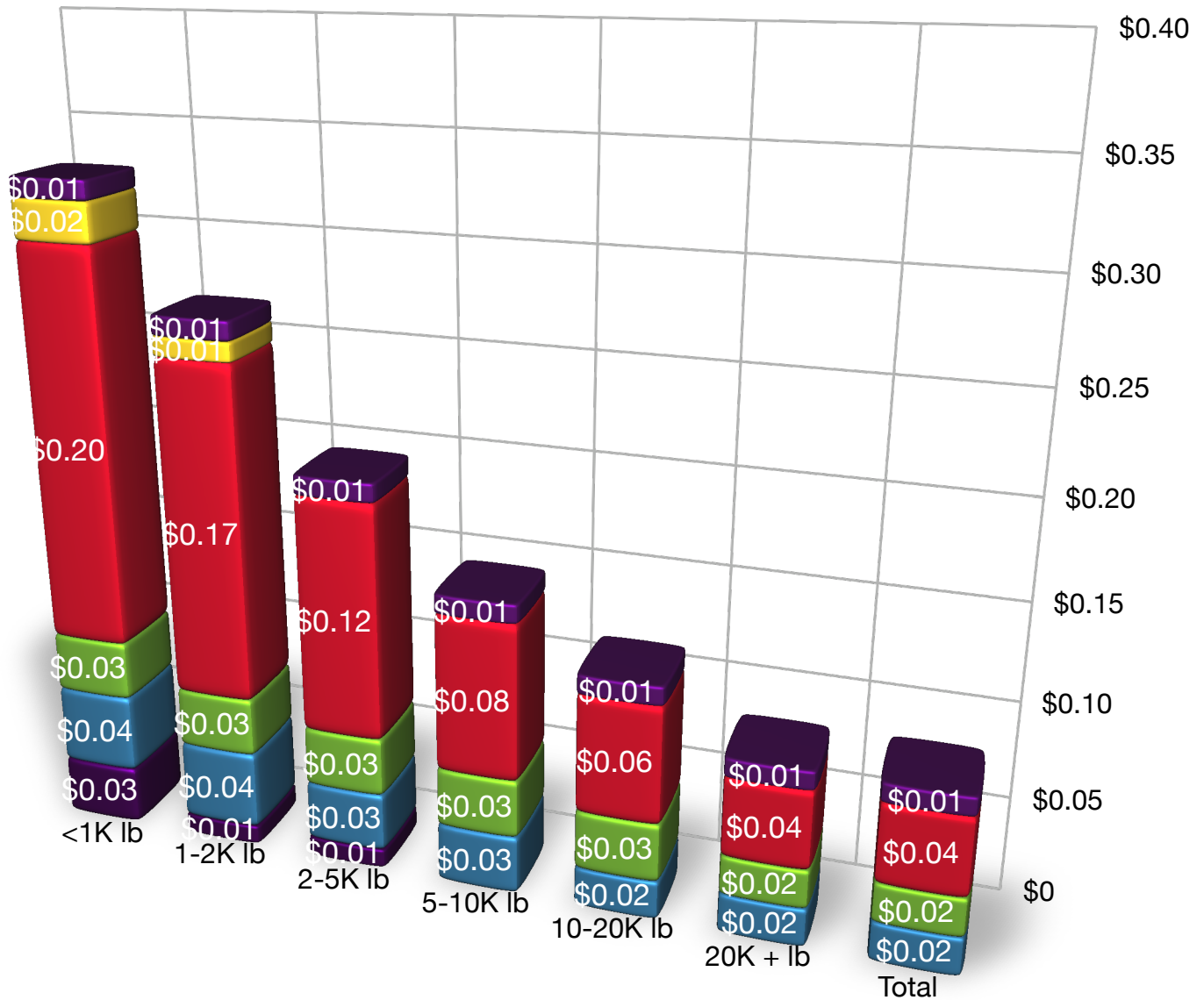
- Order Entry
  - Customer Freight
  - Inventory Carrying Cost
- Warehousing
  - Product Loss
- Replenishment Freight
  - Collection

## Overall CTS Chart For Dry



**NOTES:**

- Smallest shipments cost over 3 times as much as TL shipments
- Higher Customer Freight cost/lb is a major driver, as are Order Entry and Collections costs when spread over smaller order sizes
- Warehousing Cost is allocated based on Case Pick activity

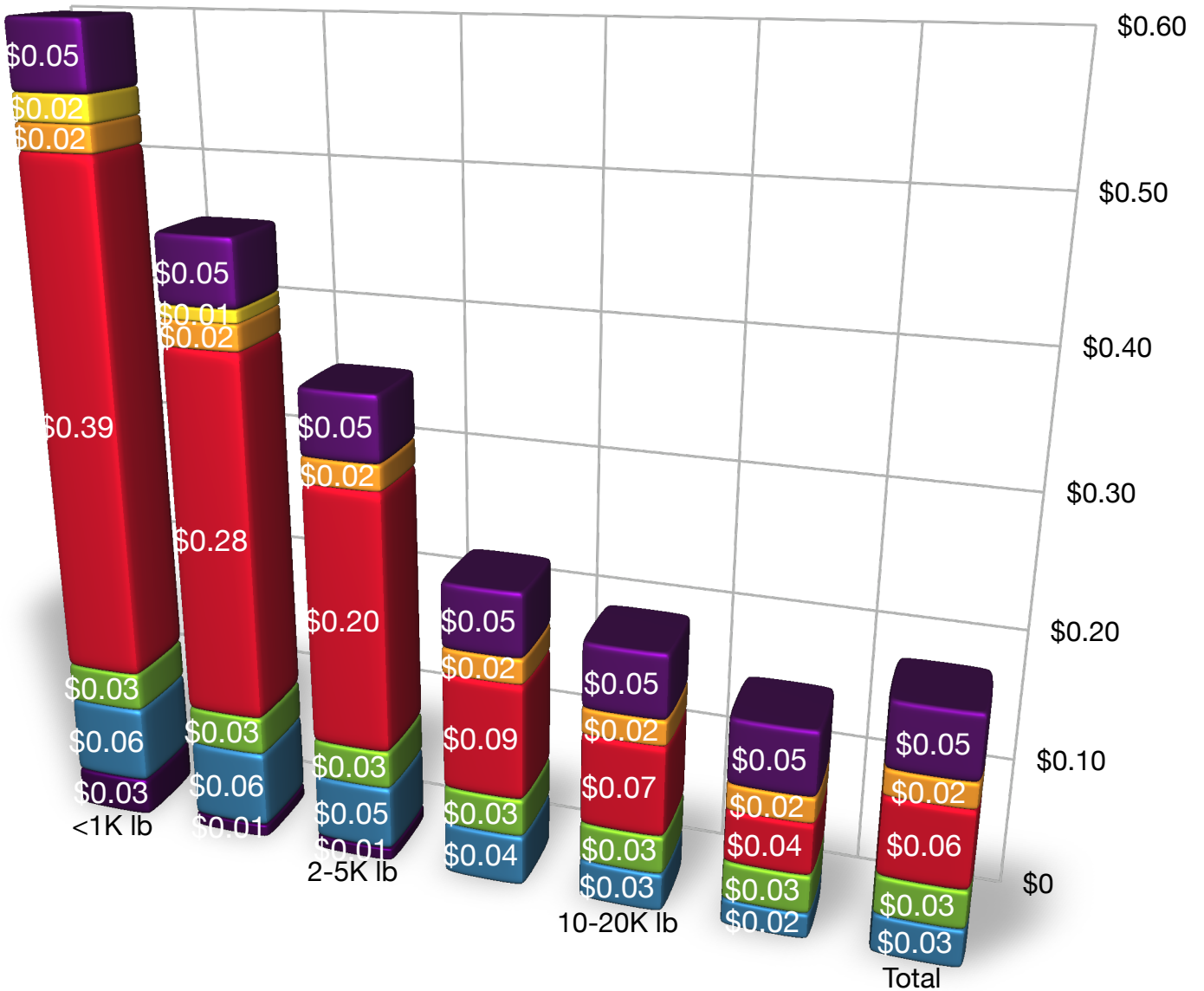


- Order Entry
- Warehousing
- Replenishment Freight
- Customer Freight
- Product Loss
- Collection
- Inventory Carrying Cost

## Overall CTS Chart - Refrigerated

**NOTES:**

- Smallest shipments cost over 3 times as much as TL shipments
- Higher Customer Freight cost/lb is a major driver, as are Order Entry and Collections costs when spread over smaller order sizes
- Warehousing Cost is allocated based on Case Pick activity



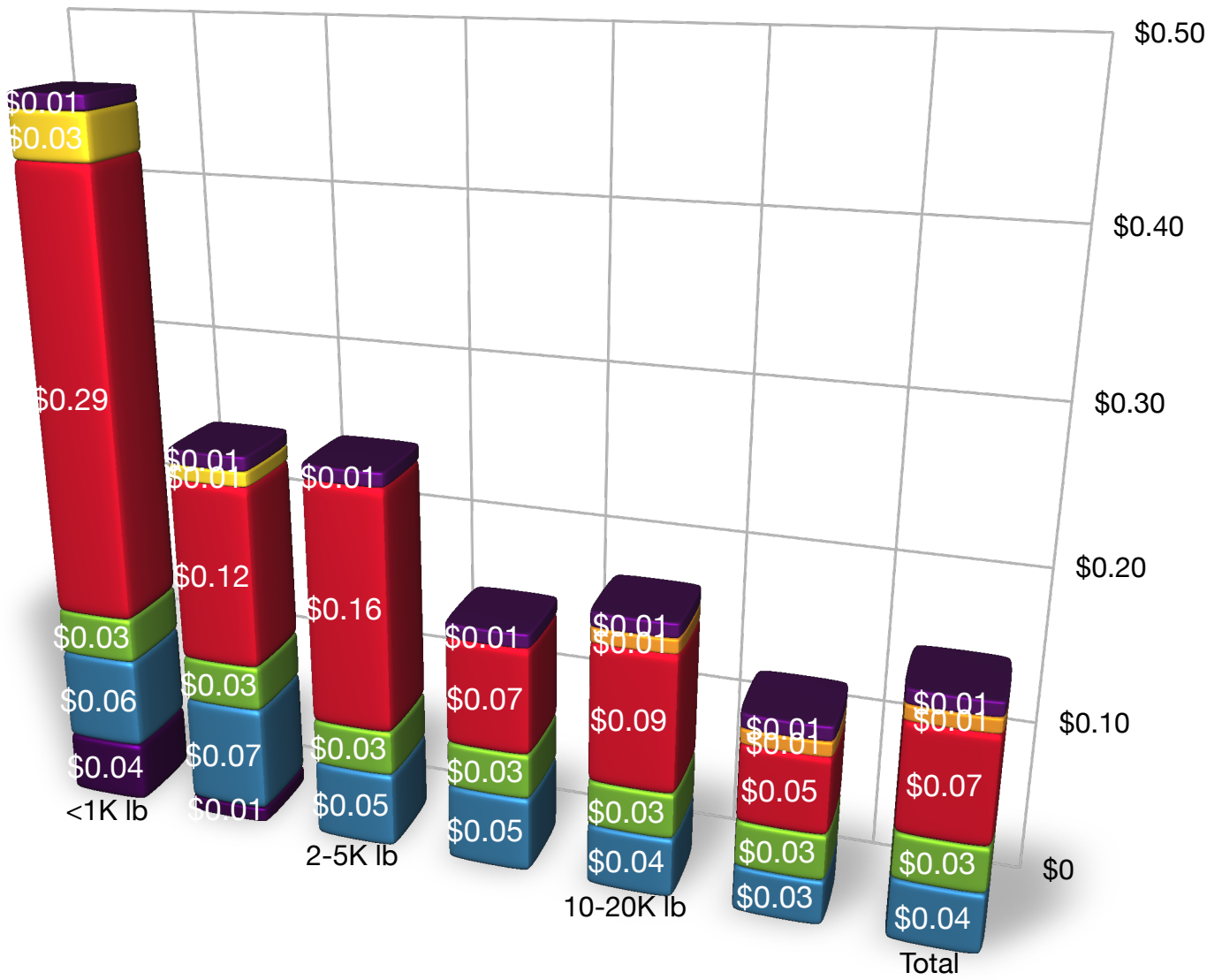
- Order Entry
- Warehousing
- Replenishment Freight
- Customer Freight
- Product Loss
- Collection
- Inventory Carrying Cost

## Overall CTS Chart For Frozen



**NOTES:**

- Smallest shipments cost nearly 3 times as much as TL shipments
- Higher Customer Freight cost/lb is a major driver, as are Order Entry and Collections costs when spread over smaller order sizes
- Warehousing Cost is allocated based on Case Pick activity



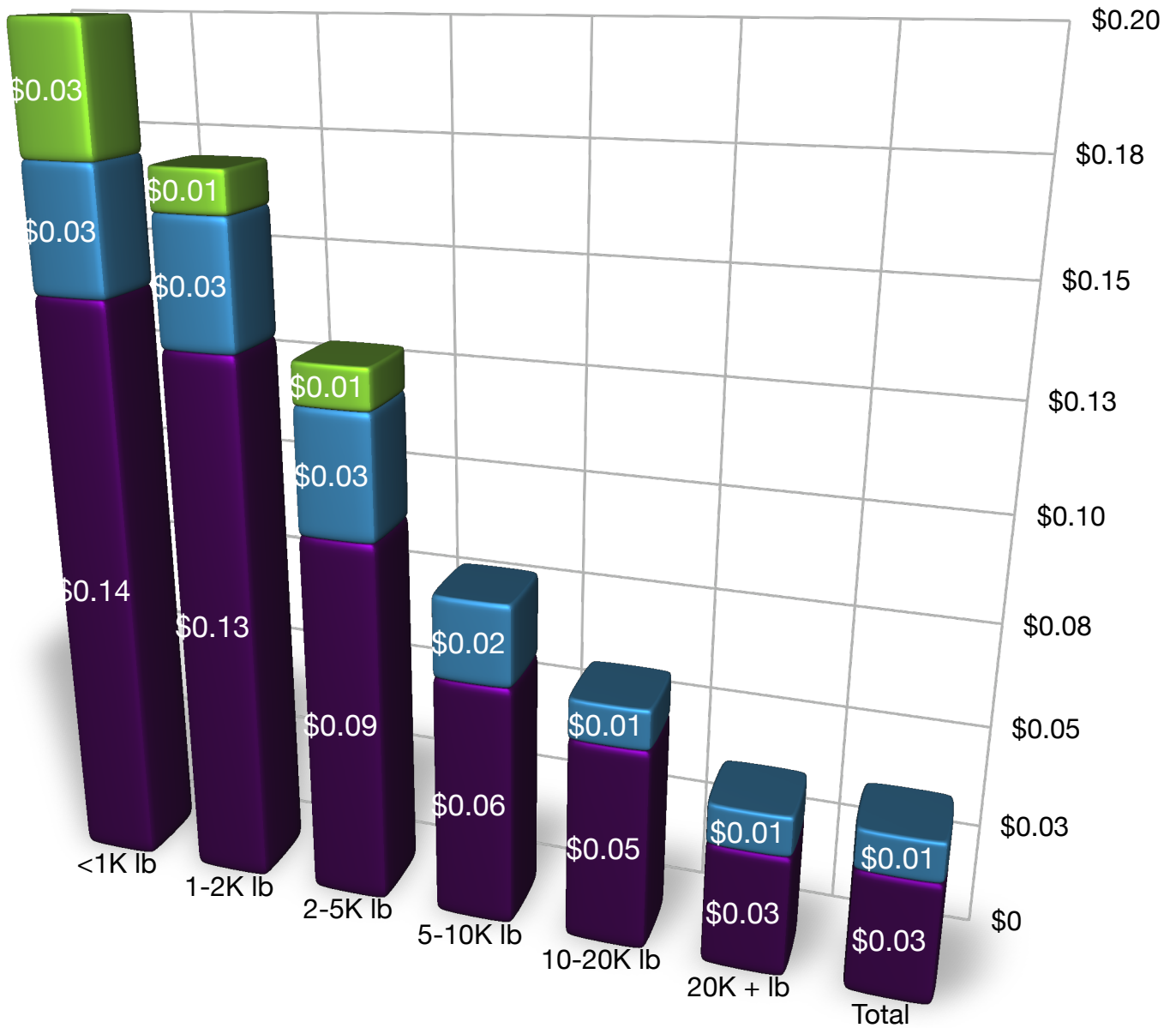
Freight Costs
  Fuel Surcharge
  Accessorial Charges

## Customer Freight Chart For Dry



**NOTES:**

- Smallest shipments cost over 5 times as much as TL shipments
- Fuel Surcharges "per lb" tend to be higher on smaller shipments



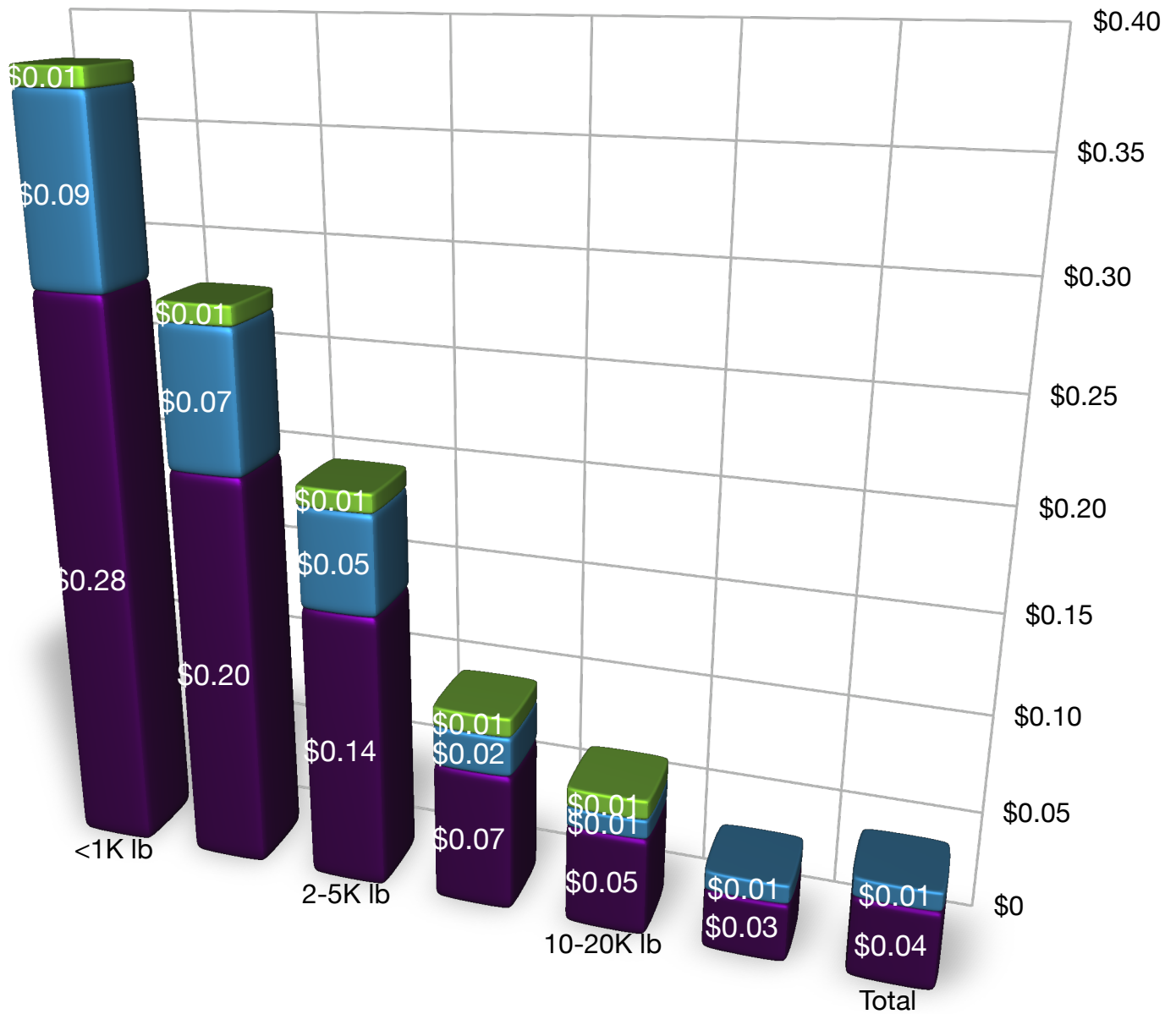
Freight Costs
  Fuel Surcharge
  Accessorial Charges

## Customer Freight Chart For Refrigerated



**NOTES:**

- Smallest shipments cost over 9 times as much as TL shipments
- Fuel Surcharges "per lb" tend to be higher on smaller shipments





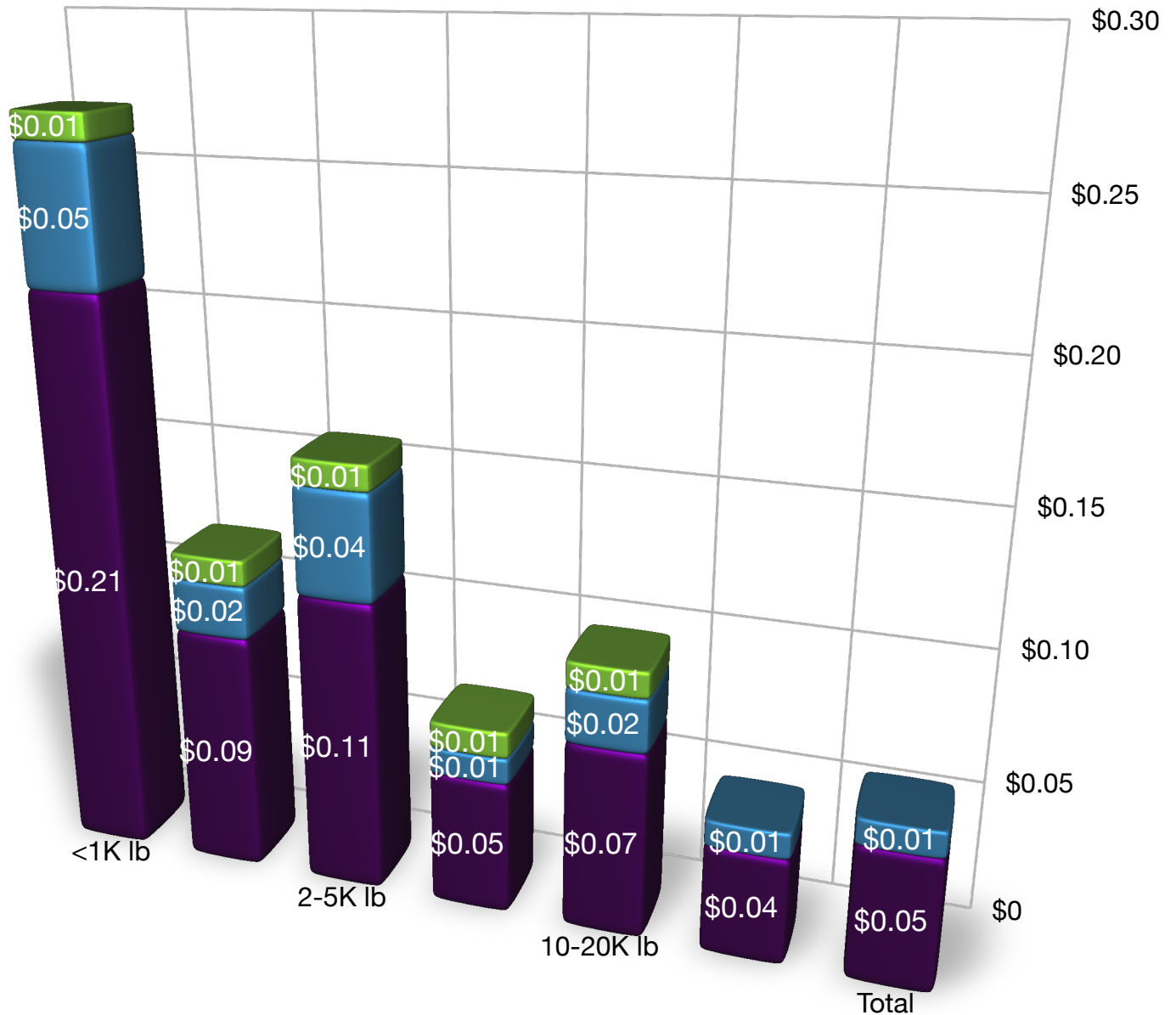
Freight Costs
  Fuel Surcharge
  Accessorial Charges

## Customer Freight Chart For Frozen



**NOTES:**

- Smallest shipments cost over 5 times as much as TL shipments
- Fuel Surcharges "per lb" tend to be higher on smaller shipments
- Higher cost on 2-5K lb shipments is an anomaly driven by small volume from one participant

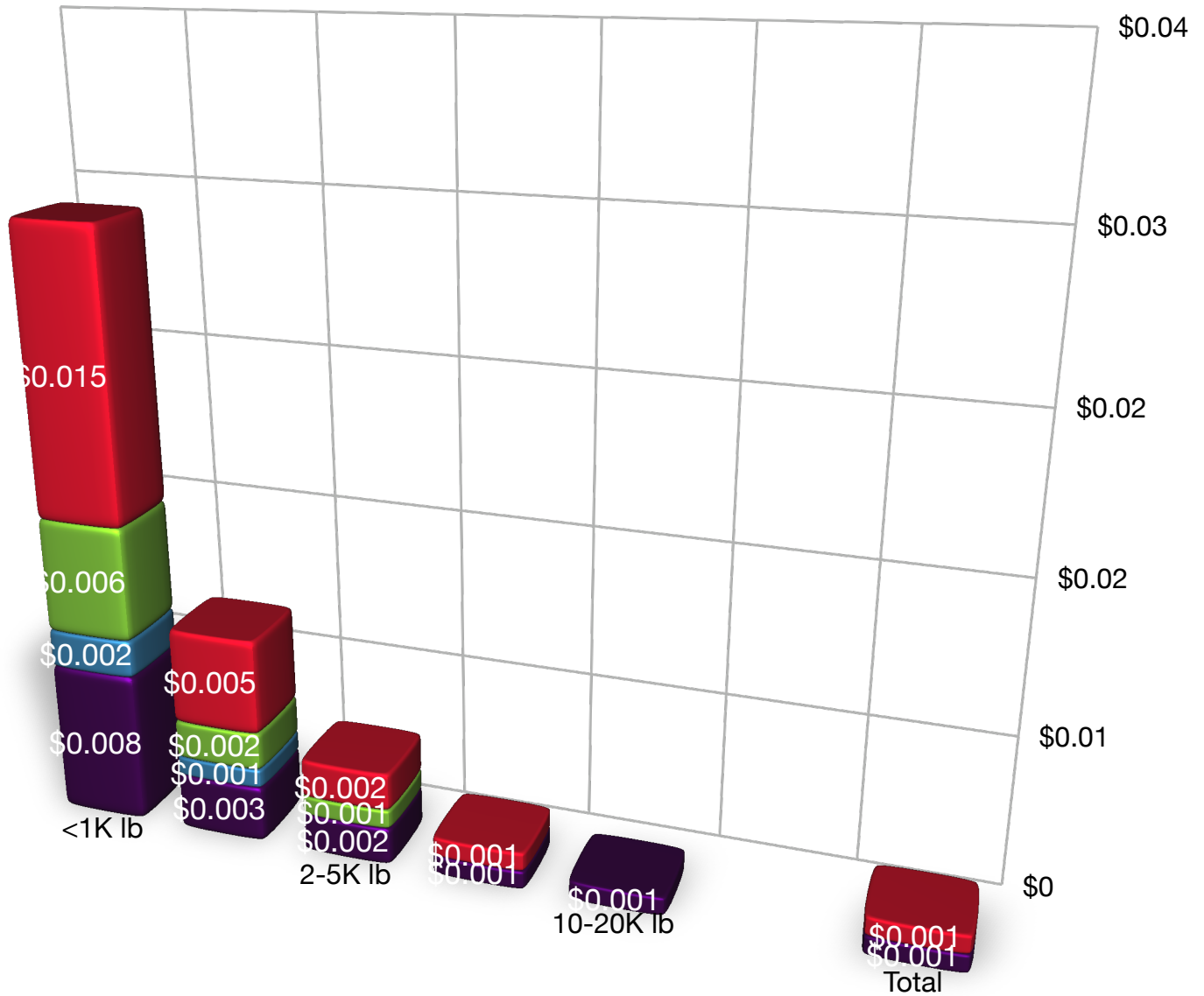


- Enter Order
- Reconcile Pricing
- Send Confirmation
- Tracking and Tracing

## Order Entry Chart



**NOTES:**  
 - While Order Entry costs practically nothing on a "per lb" basis for large orders, it becomes significant on the smallest orders



- Invoice
- Process OSD Deductions
- Process Pricing Deductions
- Apply Cash
- Collect Late Payments

## Credit & Collections Chart



**NOTES:**  
 - While Credit and Collections costs practically nothing on a "per lb" basis for large orders, they become more significant on the smallest orders

