CASE STUDY

bluegrace®

Distribution Network Optimization

A leading manufacturer of private-label healthy snacks cut annual freight spend by $1.52M and reduced Scope 3 emissions by 63% after BlueGrace identified a critical distribution network misalignment and delivered a clear relocation roadmap.

Industry: **Food Manufacturing / Healthy Snacks**

$1.52M	42.1%	63%
Annual freight savings	Reduction in freight cost	Reduction in Scope 3 CO2

Introduction

One of North America's largest manufacturers of private-label and branded healthy snacks holds leading market positions in nuts, trail mixes, and dried fruit, with a national retail customer base spanning major grocery, club, mass, drug, and convenience chains. With three manufacturing plants spread across the country, getting finished goods to market efficiently is not just a logistics issue. It is a competitive one.

BlueGrace conducted a full distribution network study using 12 months of the company's outbound freight data. The analysis revealed a significant misalignment between the manufacturer's primary distribution point and its actual demand center. By relocating finished-goods distribution from El Paso, TX to the Atlanta, GA metro area, the company reduced annual outbound freight spend by $1,521,668 (42.1%), cut average shipment distances by 61%, and eliminated over 831 metric tons of CO2 annually.

Freight Profile

Annual shipments
1,291 outbound loads

Total freight weight
9.64 million lbs

Unique destinations
95 across 29 states

Baseline freight spend
$3,617,007 / year

Analysis date
May 2026

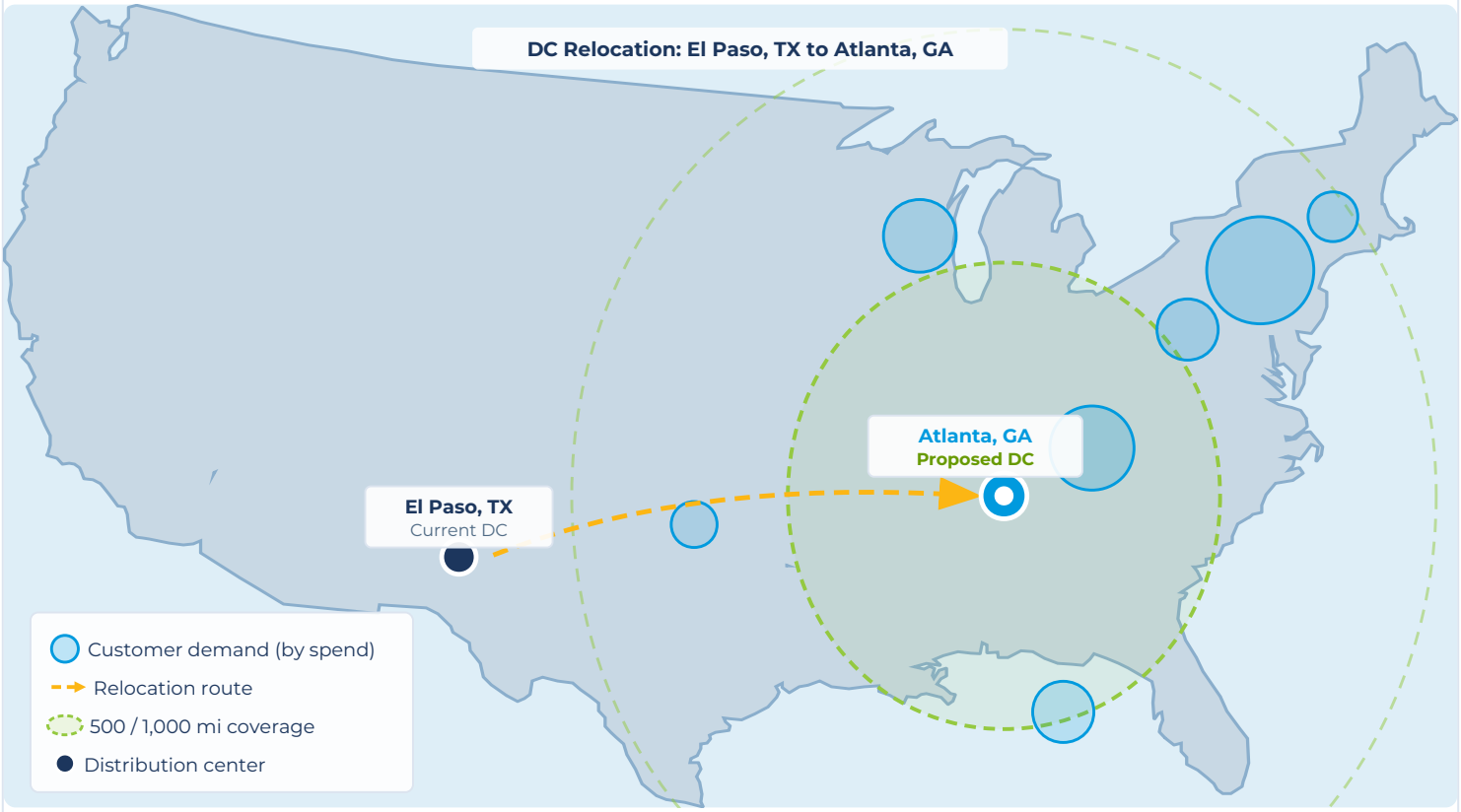
Background

The manufacturer operates plants in three locations across the South and Southeast, with the El Paso, TX facility serving as both a production site and the primary finished-goods distribution point, shipping to 95 customer destinations across 29 states.

The problem: the company's customers are not in the West. Over the 12-month study period, the manufacturer ran 1,291 outbound shipments totaling 9.64 million pounds. Demand was heavily concentrated in the Southeast and Mid-Atlantic, with major retail partners clustered in Florida, Georgia, the Carolinas, Virginia, and the Northeast corridor.

Shipping from El Paso to that customer base meant the average outbound shipment traveled 1,723 miles. Roughly two-thirds of all shipments covered 1,500 miles or more. The spend-weighted center of gravity is the geographic point that mathematically minimizes total freight cost. It sat near the Spartanburg/Charlotte corridor, more than 1,400 miles east of El Paso.

The result was an annual outbound freight bill of $3,617,007 and a service level where only 22% of shipments reached customers within three days.



The Solution

Methodology

BlueGrace performed a Center of Gravity (CoG) analysis using the manufacturer's full 12-month outbound freight sample. The study tested 12 candidate metro areas, evaluating each against freight cost, weighted-average shipment distance, and transit day performance.

01
Freight Data Collection
1,291 shipments and 9.64 million pounds of outbound freight data analyzed

02
Center of Gravity Analysis
Spend-weighted, weight-weighted, and loads-weighted CoG calculations

03
Rate Modeling
TL and LTL rate modeling against DAT national van rate and AFS LTL Freight Index

04
Emissions Assessment
EPA SmartWay emission factors applied for full Scope 3 CO2 impact assessment

05
Transit Day Modeling
Transit day modeling across all 12 candidate metro areas

06
Site Ranking
12 major US metros ranked by freight cost, distance, and service level

The recommendation: relocate finished-goods distribution to the Atlanta, GA metropolitan area.

Atlanta placed first across all key metrics. It sits within 20 miles of the spend-weighted CoG, has immediate access to I-75, I-85, and I-20, and reaches approximately 70% of the US population within a 500-mile radius. Atlanta sub-markets offer a deep pool of Class A industrial space and a large warehouse labor force, practical considerations that make the freight math actionable.

Results

Freight Cost

Relocating to Atlanta reduces the company's annual outbound freight spend from $3,617,007 to $2,095,339, a savings of $1,521,668 per year (42.1%). These savings recur every year the new network is in place.

Transit Performance

From El Paso, only 22% of the manufacturer's shipments reached customers within three days. From Atlanta, that number rises to 96%. For retail customers with DC receiving windows and shelf-replenishment cycles, this is a material improvement in supply chain reliability.

Network Efficiency

The weighted-average shipment distance drops from 1,723 miles to 670 miles, a 61% reduction. Atlanta's coverage confirms that the vast majority of the company's grocery, club, and mass-channel customers fall within one- to two-day ground transit from any Atlanta sub-market.

Sustainability Impact

By shortening average outbound hauls by more than 1,000 miles per shipment, the company's annual CO2 footprint drops from 1,326 to 494 metric tons, a reduction of 831 metric tons per year (62.7%). That is the equivalent of removing approximately 181 passenger vehicles from the road annually.

Results Summary

$1.52M Annual outbound freight savings	**42.1%** Reduction in outbound freight cost
61% Reduction in weighted-average shipment distance	**96%** Shipments delivered in 3 days or fewer (up from 22%)
831 MT Annual CO2 reduction (Scope 3 outbound)	**63%** Reduction in outbound carbon emissions

Site Comparison

All 12 candidate metro areas tested produced material freight savings vs. the El Paso baseline. The top six are shown below. All sit within $200K per year of one another, making the final site selection a function of industrial real estate availability, labor market depth, and proximity to the company's existing manufacturing plants.

Rank	Site	Wt-Avg Distance	Annual Freight Cost	Annual Savings	% Savings
1	**Atlanta, GA**	670 mi	$2,095,339	**$1,521,668**	**42.1%**
2	Greensboro, NC	705 mi	$2,117,904	$1,499,103	41.4%
3	Knoxville, TN	697 mi	$2,192,766	$1,424,241	39.4%
4	Chattanooga, TN	697 mi	$2,225,042	$1,391,965	38.5%
5	Birmingham, AL	717 mi	$2,239,824	$1,377,183	38.1%
6	Indianapolis, IN	841 mi	$2,254,186	$1,362,821	37.7%

Baseline (El Paso): $3,617,007/year. Rates modeled using DAT national blended TL ($2.40/mi) and AFS LTL Freight Index Class 70 benchmarks.

Conclusion

This manufacturer's distribution challenge is not unusual. Companies that grow through acquisition or whose plant locations were set years before their current customer mix solidified often find their distribution footprint drifting out of alignment with where demand actually lives. When that gap is identified and closed, the results compound: lower freight spend, faster service, and a measurable reduction in emissions, all from a single network change.

BlueGrace's network analysis delivered a data-driven path forward. Not a broad suggestion to move east, but a ranked comparison of 12 real markets with specific freight, distance, transit, and emissions outcomes attached to each. The conclusion was clear. Atlanta delivers $1.52M in annual freight savings, moves 96% of shipments into a three-day delivery window, and removes 831 metric tons of CO2 from the company's outbound supply chain every year.

ABOUT BLUEGRACE

BlueGrace Logistics is one of the nation’s largest Managed Logistics providers, delivering customizable transportation management solutions that help shippers control freight spend through advanced technology and a broad network of trusted carriers. With offices strategically located in major transportation hubs across the U.S. and Mexico, including national headquarters in Tampa, BlueGrace serves over 10,000 customers annually through its proprietary technology platform, BlueShip, that has connectivity with more than 250,000 carrier suppliers. BlueGrace is part of the technology portfolio of Warburg Pincus, a leading global private equity firm.

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