



National Beer
Wholesalers Association



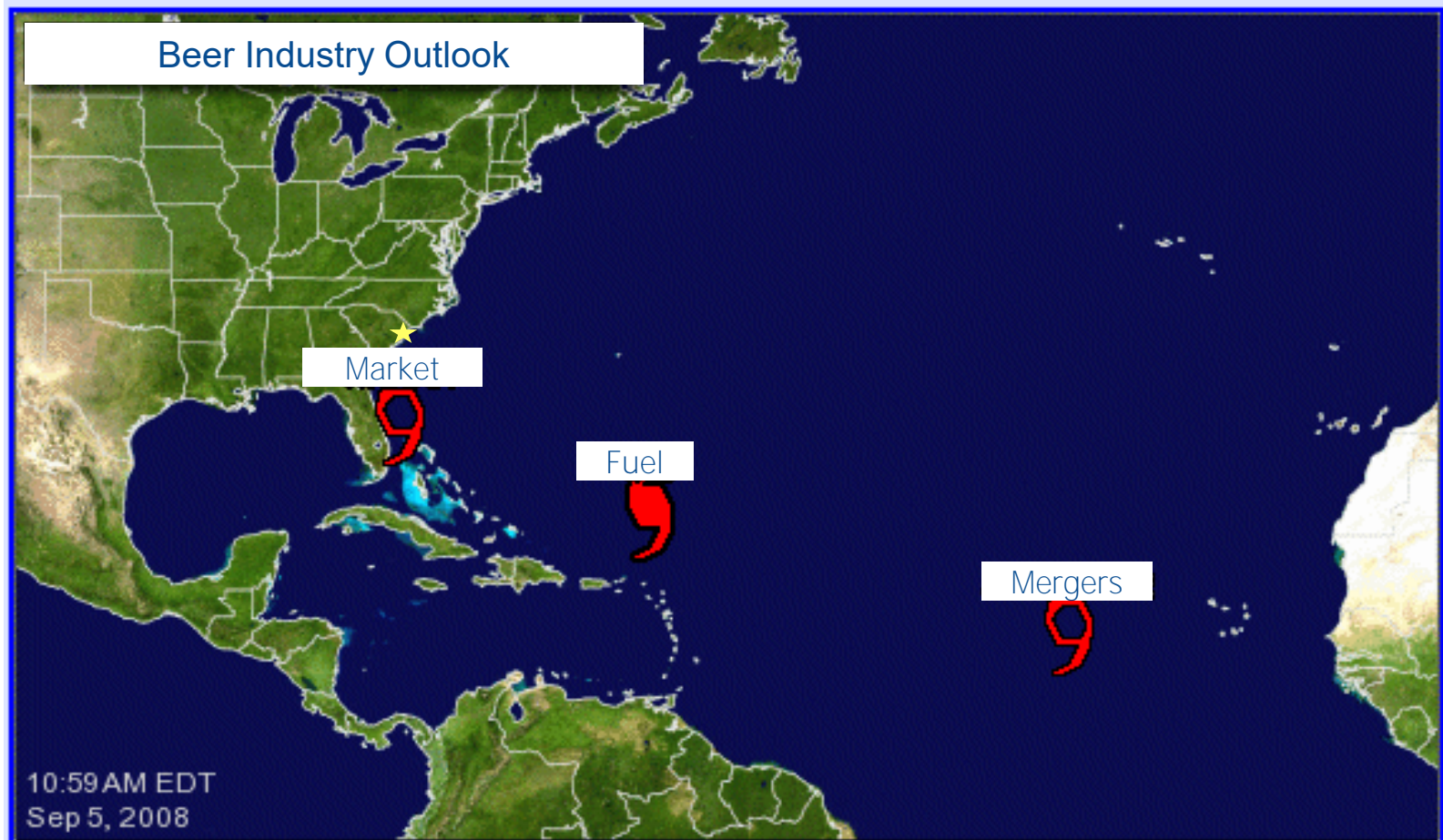
Warehouse Location Strategy

The Impact on Overall Logistics Costs

 **Agillence**
Optimization Company

 **SCPI** **SUPPLY CHAIN**
PROCESS IMPROVEMENT
Established 2003

'Hurricane' Preparedness



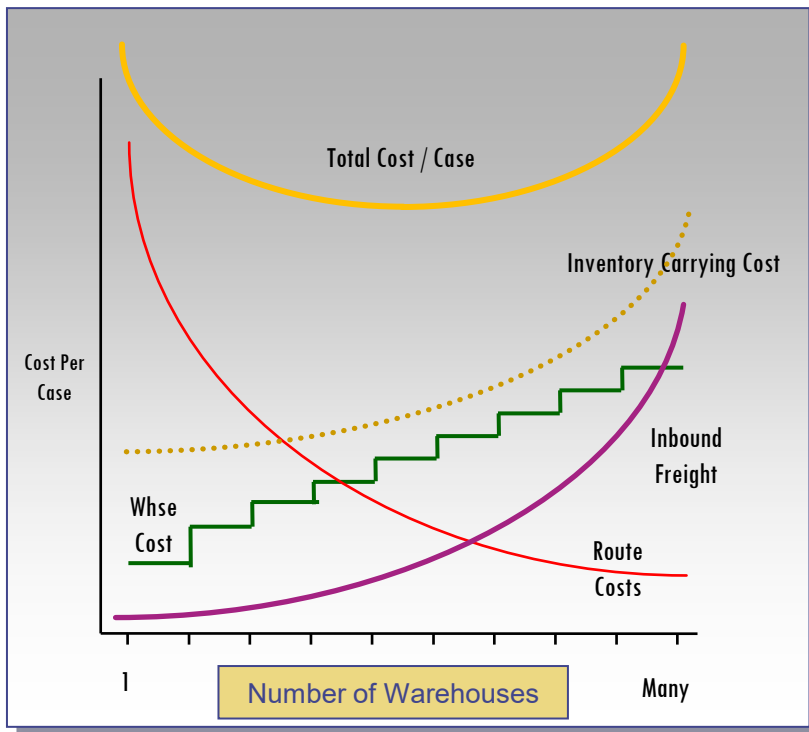
What must we do to prosper given our market and competition?

An aerial photograph of a vast, flat, arid landscape, possibly a salt flat or a desert. The terrain is a mix of light and dark blue-grey tones, suggesting different mineral compositions or perhaps a thin layer of water reflecting the sky. The horizon is a sharp, curved line in the upper third of the image. The overall scene is desolate and expansive.

Warehouse Location Strategy Defined

Location Strategy is...

A strategic analysis that defines the number, location, and function of network facilities (warehouses or cross docks), equipment and resources while maintaining delivery service levels



When to Use

- Acquisition
- Facility Relocation
- Facility Consolidation
- Territory Redesign
- Brand Integration

The objective is to minimize total cost over the long term ...

Location, Location, Location

- ❑ Location drives performance
 - Driving miles; access to roads
 - Equipment utilization
 - Volume; Operational efficiency
 - Workforce
 - Other costs; taxes, utilities
- ❑ Advantage of fewer warehouses
 - Volume to Support Automation
 - Combined overhead
 - Less safety stock inventory
 - “Simpler” to manage



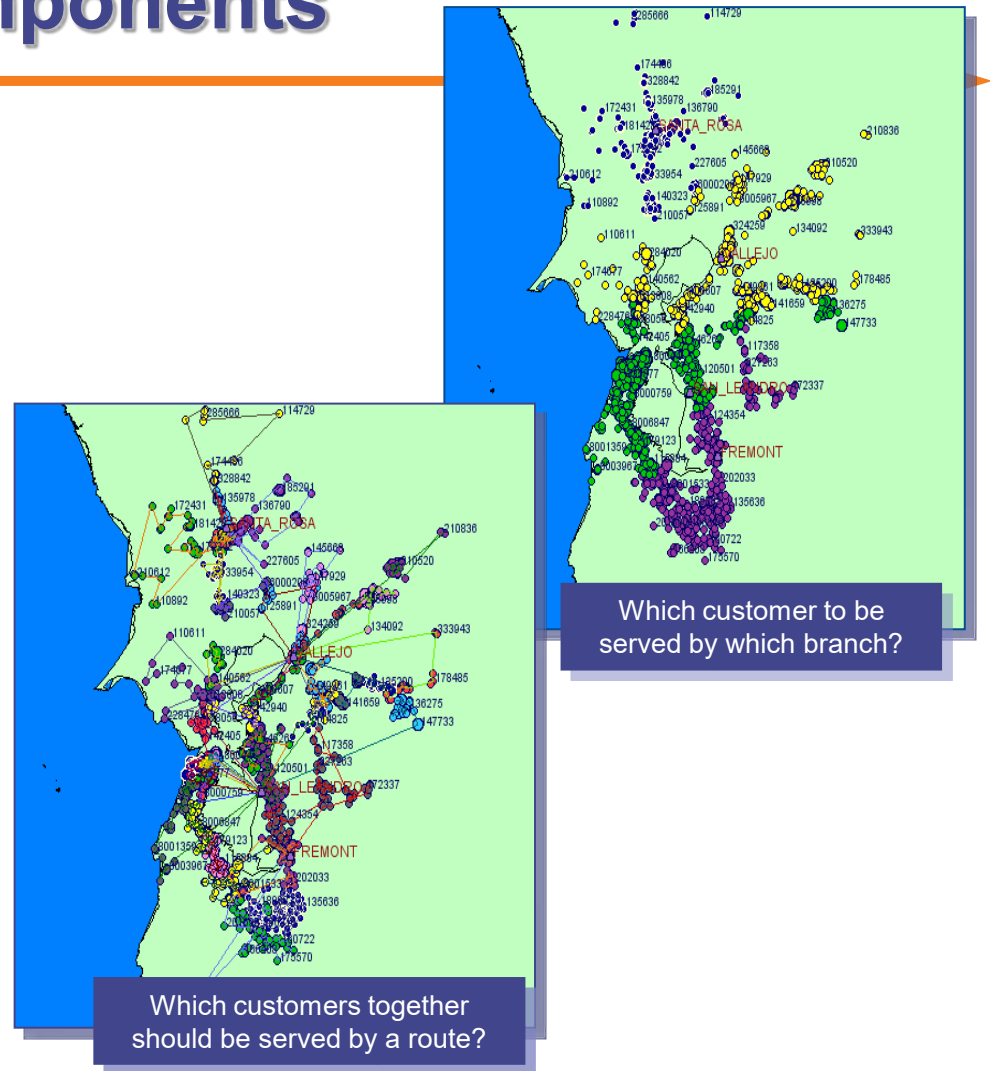
“But what is the Best Location and what will our Route Costs be...?”

The Analysis Components

- Simultaneously decide
 - Facilities; Number, Location, and Size
 - Facility Territories
 - Route Territories

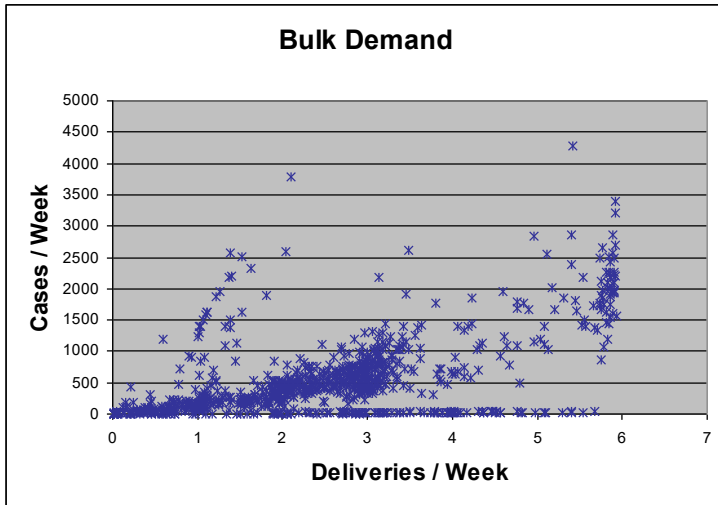
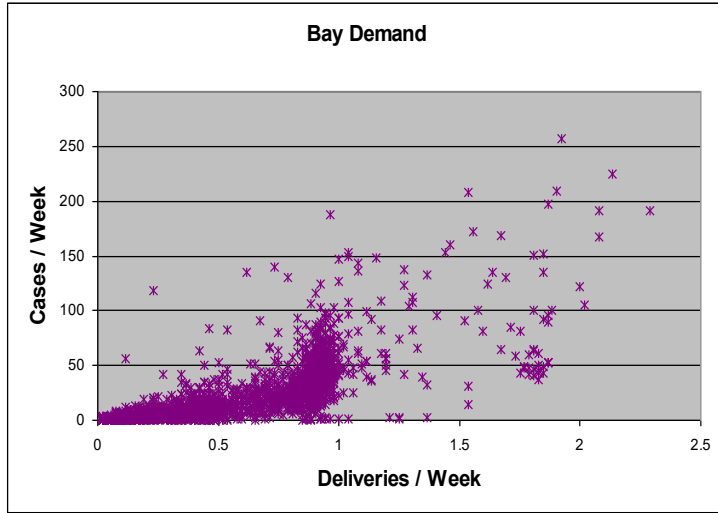


- While Considering
 - Inbound costs
 - Facility costs
 - Outbound costs
 - Customer service requirements

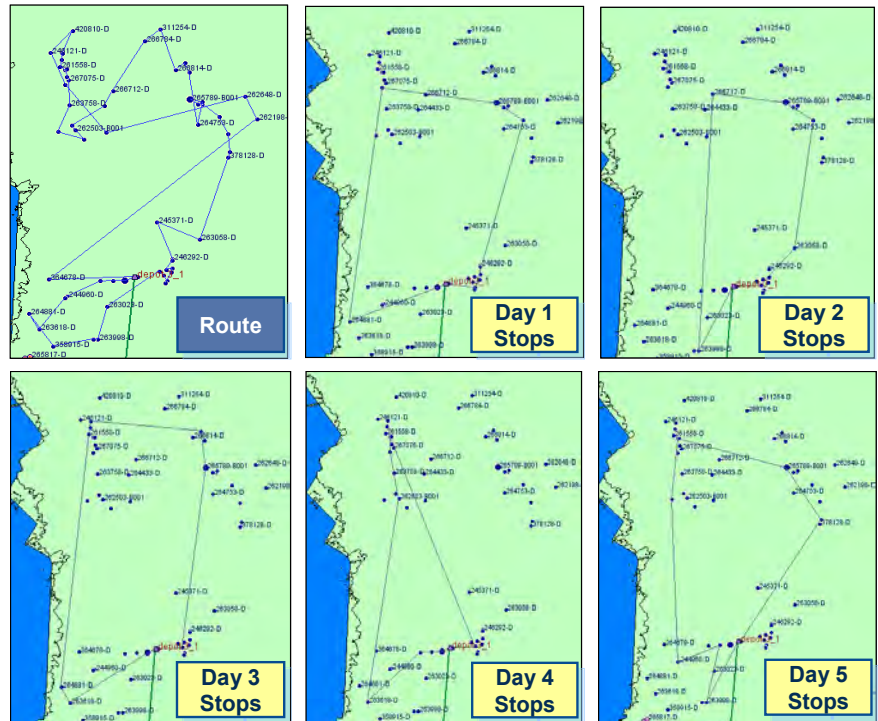


Combined network optimization and routing typically by Truck Type

What's So Complex About it?



CASE DEMAND
v.
DELIVERY
FREQUENCY



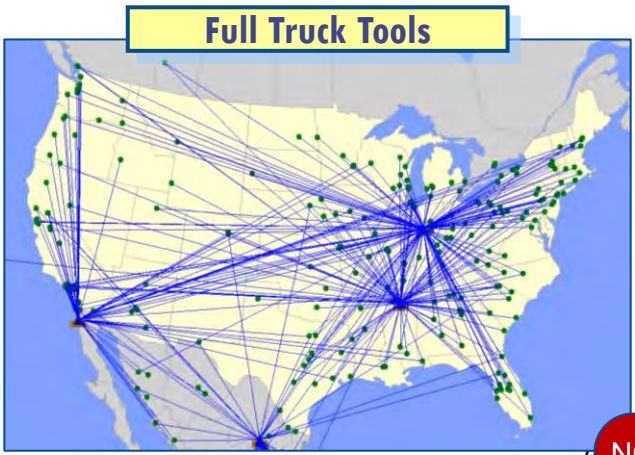
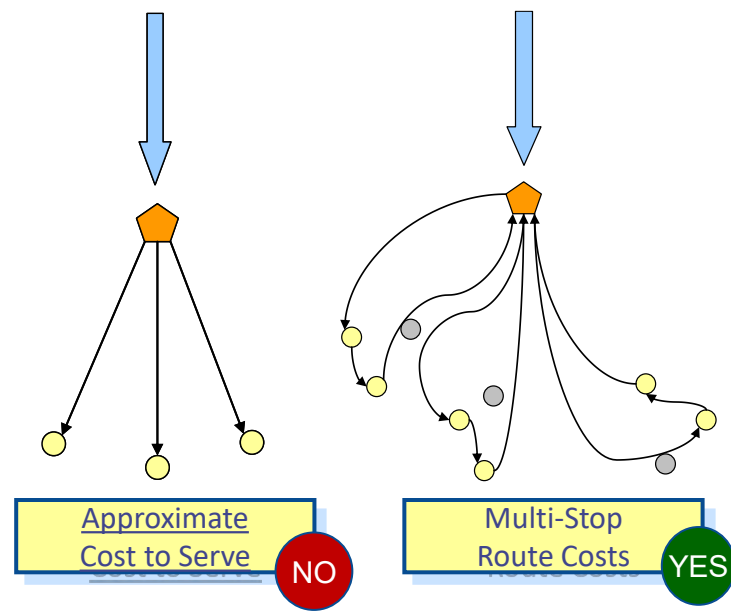
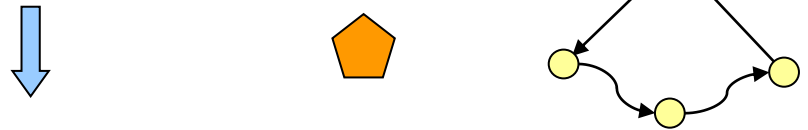
An aerial photograph of a large, circular geological formation, possibly a crater or a large-scale erosion feature. The formation is characterized by concentric ridges and a central depression, with a light-colored, sandy or silty interior. The surrounding terrain is rugged and hilly. The text "What To Look For" is overlaid in the center in a bold, red, sans-serif font.

What To Look For

Typical Mistakes

1. Winging it!
2. Static spreadsheet models
3. Separate analysis for facility vs. inbound vs. routes
4. Using standard network optimization tools built for full truck analysis (LogicTools, etc..)
5. Approximate modeling of customers (grouping them before loading into modeling tool).

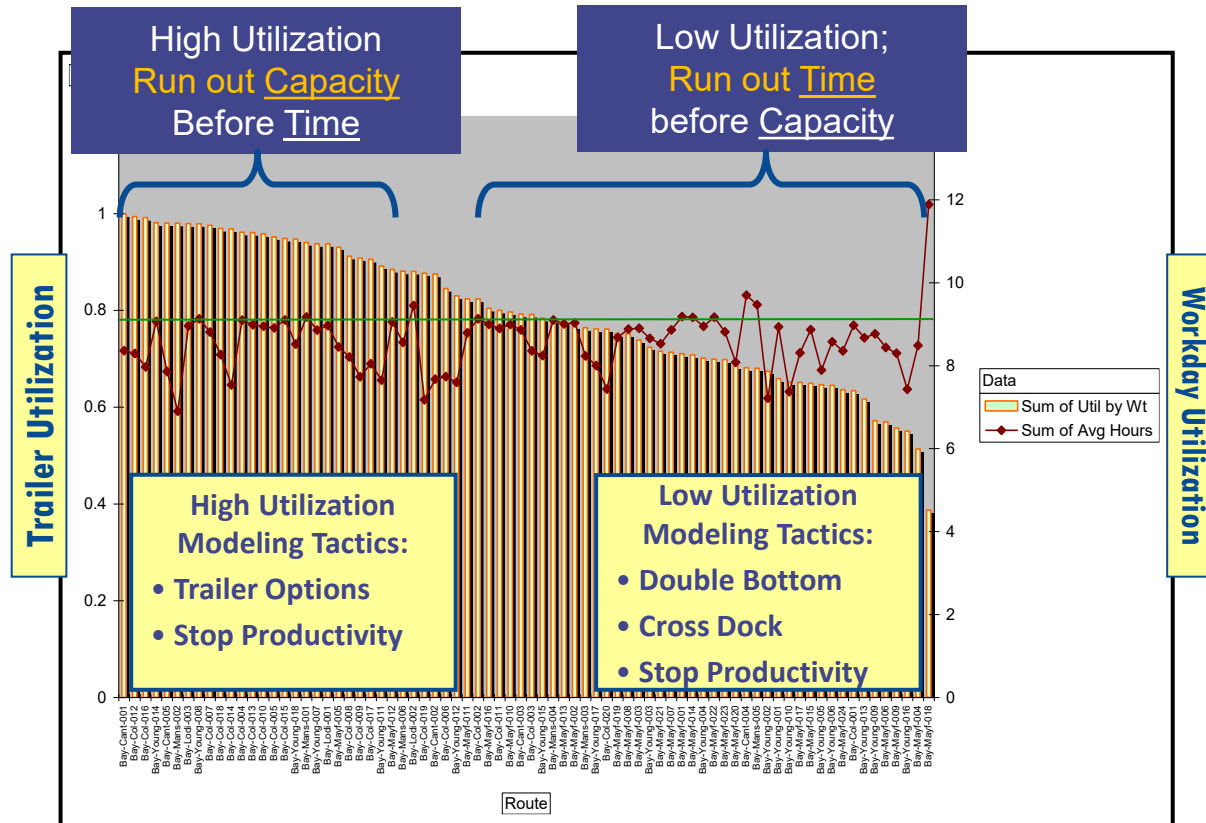
Inbound separate from Facility separate from Routes **NO**



NO of Your Team

DSD Model – Route Utilization

- Location consolidation, in particular, will add miles and challenge stem time rules of thumb
- Consolidation may provide the volume (and capital?) required to improve route efficiency at the warehouse



Part Of Your Team

DSD Modeling - Typical Project Sequence

1/3 Data Collection, Summary, and Process Review

- Understand current route counts and costs by trailer type, prepare model data, geo code customers and prepare baseline costs.

Baseline Network Model

Current case demand & delivery frequency, modeled with actual cost structures; provides comparison for subsequent runs

1/3 Optimized Baseline Model

To identify short term opportunities
Optimized network flows

Benchmark Model

Design year volumes with current network
Optimized network flows
Basis for alternative evaluation

- Explore costs and case loads for all candidate locations

Network Alternative Models

Sensitivity Analysis

- Content is defined in project startup. Examples are fuel, volume, etc...

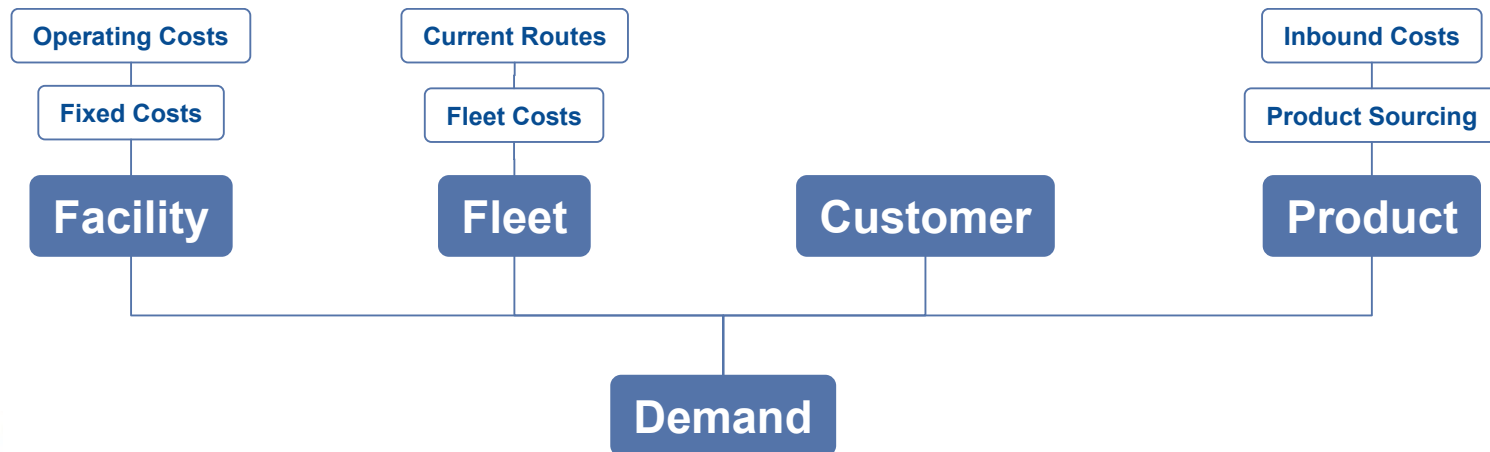
- ## 1/3
- Cost matrix including fixed and variable annual costs, route attributes, inventory carrying costs, etc... for each scenario

Results Evaluation

Network Recommendation

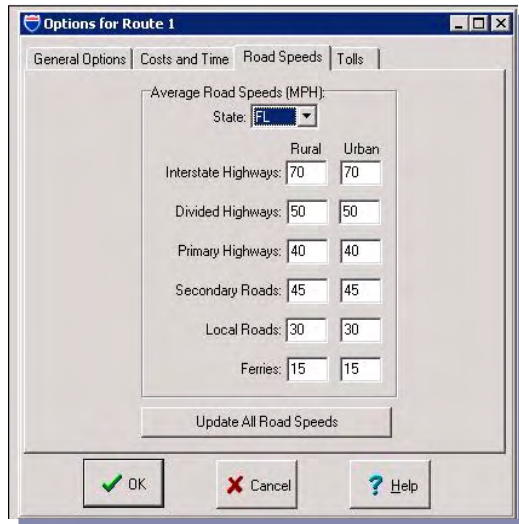
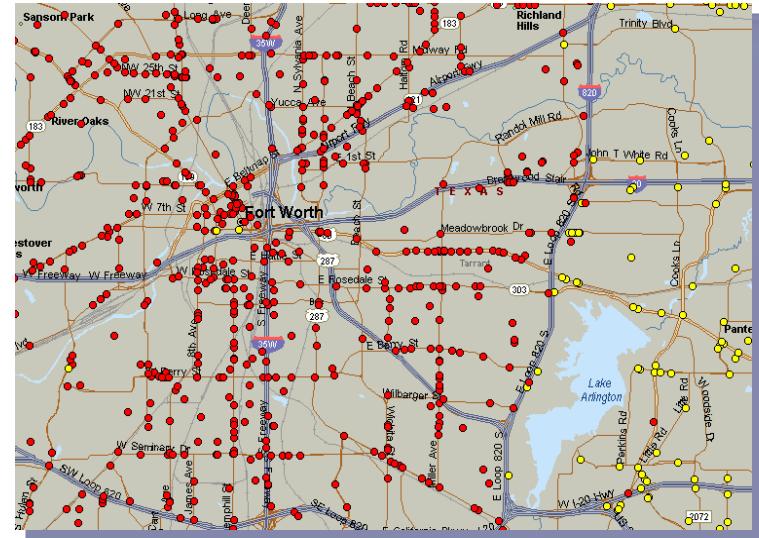
DSD Model - Typical Data Inputs

- ❑ Current state data
 - Actual Delivery Costs
 - Current Route Count, Miles Driven
- ❑ Customer Data
 - Location Geo Code
 - Customer Name & Address
 - Case Demand & Frequency
 - Delivery Format, Current Warehouse
- ❑ Item / Facility (Whse/Cross dock)
 - Facility Location, Capacity, Fixed & Variable Costs, Real Estate Value
 - Product Suppliers, Locations, Inbound / Transfer Costs
 - Inventory Snapshots
- ❑ Delivery Data
 - Working Hours, Fixed & Variable Costs, Stop Times, Equipment Capacity



DSD Modeling: Fit to Capacity and Time

- Demand volume and frequency is satisfied considering:
 - Equipment Costs & Capacity
 - Drive time
 - Stop time
 - Work time
 - Fleet capacity



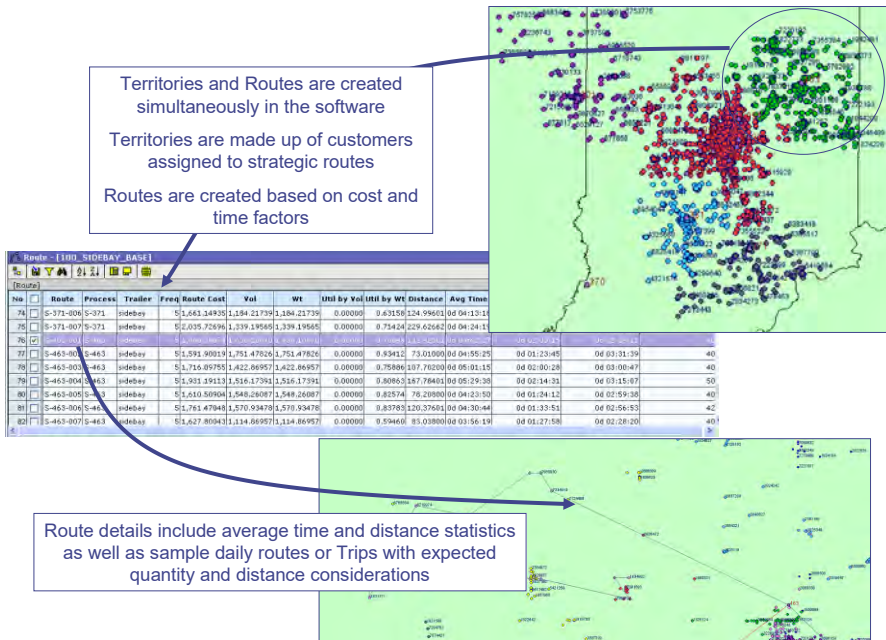
- Routes are not determined in advance of the modeling; tools utilize road data (e.g. PC Miler) to ensure accuracy of results

Modeled with Operational-Like Detail

DSD Model - Typical Model Outputs

- ❑ Multiple scenarios are run for each analysis:
 - Optimize current locations
 - Best single candidate
 - Forced candidate
 - Drop 2, add 1 from candidates

- ❑ Scenario outputs include:
 - Cases by location
 - Total Cost / Cost Per Case
 - Route Costs
 - Inbound costs
 - Inventory carrying costs
 - Labor Costs
 - Warehouse Costs
 - Route Info
 - Route count by trailer type
 - Route Miles
 - Average stem, travel and stop time
 - Average MPH
 - Territories
 - Trailer Utilization



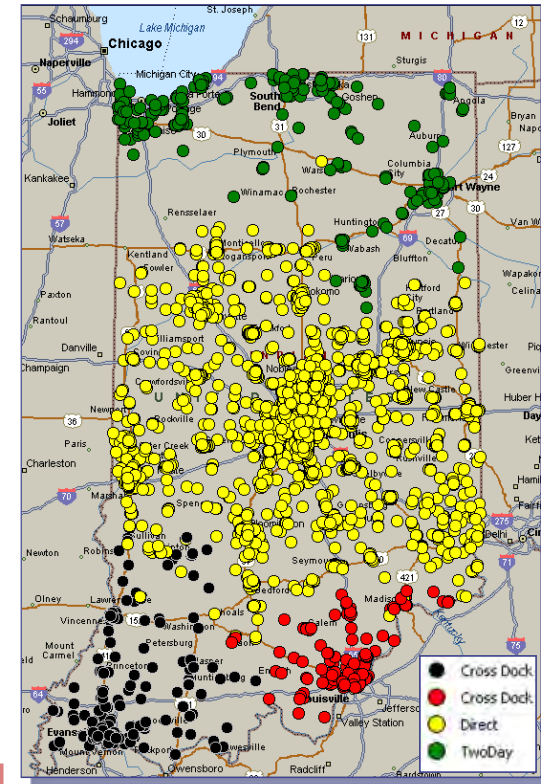
Scenario Outputs Compared Against Baseline

An aerial photograph of a vast, arid desert landscape. The terrain is characterized by a large, circular, crater-like depression in the center, surrounded by concentric ridges and valleys. The ground is a mix of light tan and brown hues, with some darker patches and sparse, low-lying vegetation. The sky is a clear, pale blue, and the overall scene suggests a remote, possibly military or industrial, site.

Warehouse Relocation Case Study

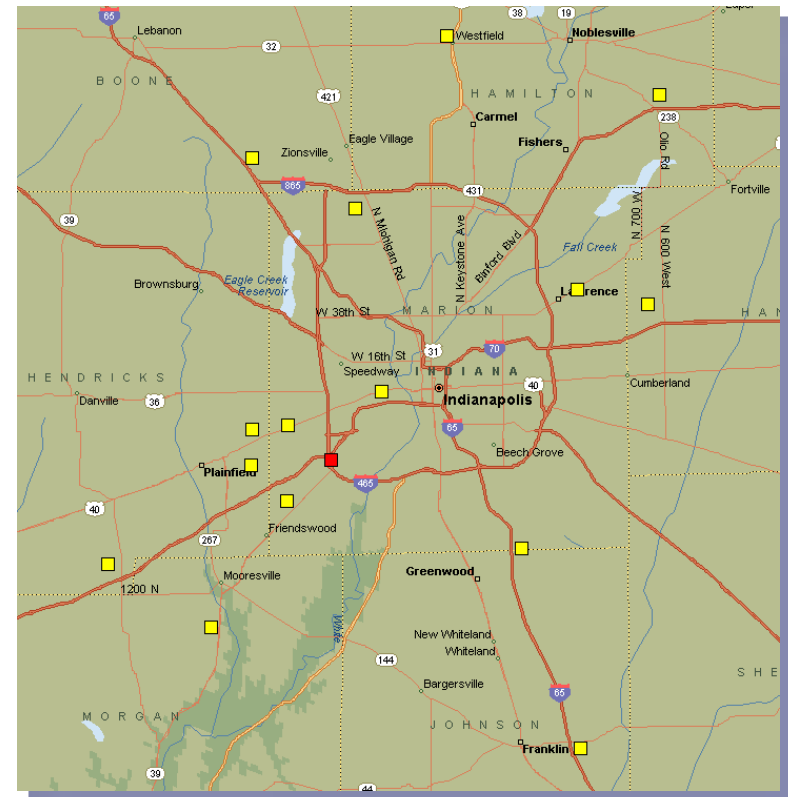
Background - Warehouse Relocation

- ❑ Current warehouse operation was out of space and had inefficient layout for expanding brands and volume.
 - ❑ Additional shared services operation couldn't fit on site and required additional leased property.
 - ❑ Employee retention would be a big factor in any relocation decision.
 - ❑ Questioned current use of cross docks in southern part of territory.
- ❑ What are best of candidate locations for new combined warehouse & shared service yard?



Location Strategy – Warehouse Relocation

- ❑ Analyze fifteen potential sites within 30 miles radius for delivery and shared services costs.
- ❑ Determine best site for investment based on operating cost factors along with taxes and other incentives.
- ❑ Provided initial center-of-gravity location; proved to be oversimplified by not accounting for dynamics of:
 - Frequency
 - Road speed
 - Cross docks
 - Truck capacity

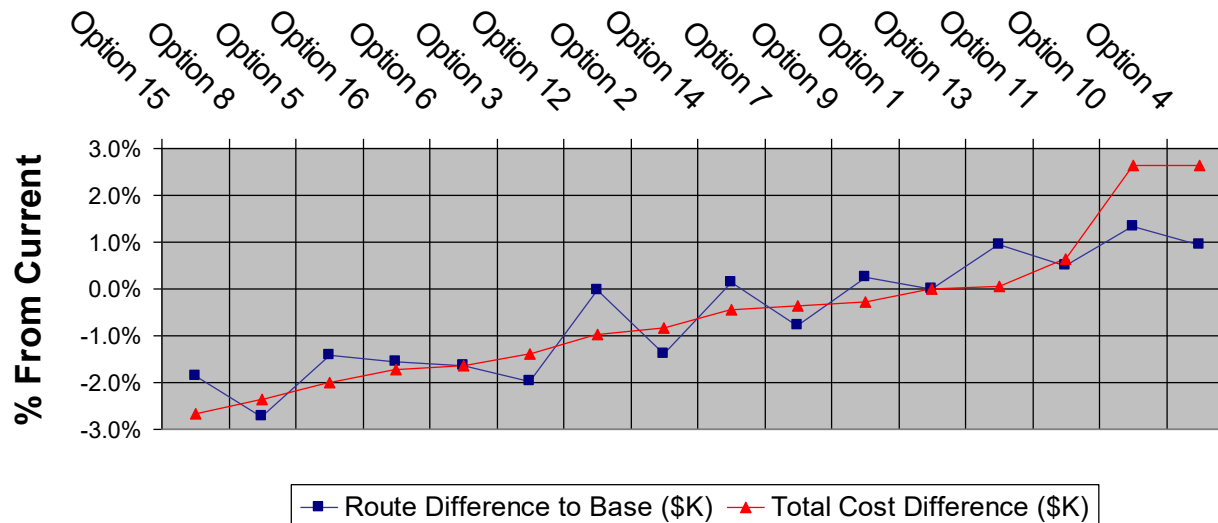


Two Locations Added After First Round; 10% More Effort to Include

Candidate Costs - Warehouse Relocation

Annual Cost Differences

Candidates
(Option 1 is Current Site)



Center-Of-Gravity Selection Closest to Option 7

Results – Warehouse Relocation

Background

Distributor volume and brand growth had exceeded the capacity of the current warehouse operation. New locations needed to be considered for a new warehouse and shared services location.

Warehouse Location Strategy

Analyze potential sites for total inbound, route and shared services costs. Determine best site for investment.

<u>Results</u>	<u>Previous</u>	<u>Best Option</u>
Number of Delivery Warehouses/Truck Yards	2	1
Number of Cross Docks	2	2
Annual Delivery Miles	Base	+2.7%
Delivery Routes / Cross Dock Routes	Base / Base	-2 / -2
Annual Logistics Costs <u>Savings</u>	-	2.7%

Transportation Savings of 2¢ Per Case



**Integration /
Consolidation
Case Study**

Background - Integration / Consolidation

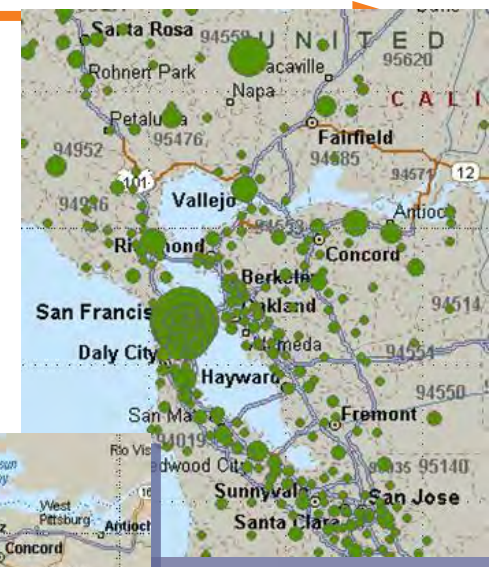
- ❑ Current west coast warehouse network included high value real estate that wasn't very efficient for current operations
- ❑ Additional brands had been acquired that included a more efficient leased warehouse and additional fleet – warehouse was being sought by adjacent tenant
- ❑ Interest to know impact of selling other smaller owned warehouse
- ❑ Traffic and toll costs were a location factor



- ❑ How much would costs increase if high value real estate were sold and all brands were delivered on each route truck?

Location Strategy – Integration / Consolidation

- ❑ Analyze eight potential sites for delivery and inbound costs. Determine best site for operating efficiency based on operating cost factors along with gain from real estate sale.
- ❑ Model integrated business baseline; rebalance territories
- ❑ Provide insight on sensitivity to number of warehouses
 - Drop 1
 - Add 1, Drop 1
 - Add 1, Drop 2
 - Etc...



Right Location Can Actually Reduce Costs

Analysis Results – Integration / Consolidation

Background	Minimize operating costs impact from closing and selling high value warehouse asset and consolidating DSD network into new or existing facilities
Warehouse Location Strategy	Model current sites for integrated business baseline. Analyze eight potential sites for delivery and inbound costs. Determine best site for operating efficiency based on operating cost factors along with gain from real estate sale.

<u>Results</u>	<u>Previous</u>	<u>Best Option</u>
Number of Delivery Warehouses	5	3
Annual Delivery Miles	Base	+0.6%
Delivery Routes	Base	-5
Annual Operating Costs Savings	-	3.8%

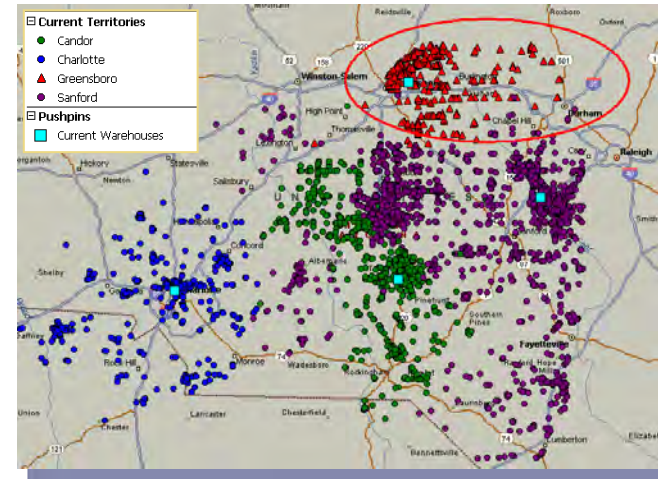
Close Three, Open One with 4¢ per Case Transportation Savings!



**Acquisition /
Consolidation
Case Study**

Background - Acquisition / Consolidation

- ❑ Distributor had grown through acquisition but had not yet consolidated operations.
- ❑ Had new opportunity to add to current territory and wanted to understand cost effect of operations
 - Use current warehouses
 - Consolidate to candidate locations
- ❑ Questioned current use of cross docks.

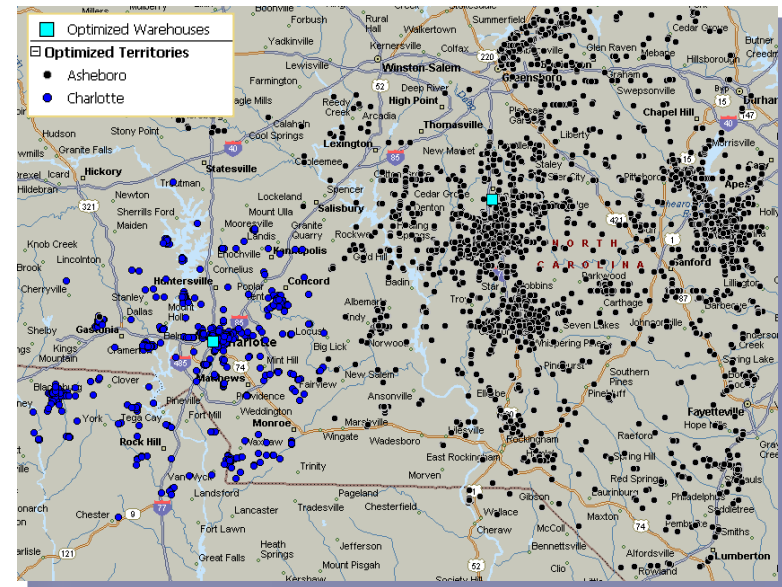


- ❑ What are best of candidate locations for new high volume warehouse under current and potential volume?
- ❑ Should we continue to use cross docks?

Opportunity to Right-Size Warehouse & Consolidate Operations

Location Strategy – Acquisition / Consolidation

- ❑ Analyze half dozen potential sites for delivery and inbound costs.
- ❑ Determine best site for investment based on operating cost factors along with taxes and other incentives.
- ❑ Acquisition model inputs vary
 1. Have customer address, case demand and delivery frequency
 2. Have total case demand and approximate county/zip code coverage



Weighted Population Data Used If No Customer Demand/Frequency


Results – Acquisition / Consolidation

Background Wholesaler had grown through acquisition but had not yet consolidated operations. Had new opportunity to add to current territory and wanted to understand cost effect of operations; using current warehouses, and consolidating to several candidate locations.

Warehouse Location Strategy Analyze both current and candidate sites to determine:
 (1) short term gains from territory adjustments within current locations
 (2) best consolidated location for current volume
 (3) best consolidated location for current + acquisition volume

<u>Results</u>	<u>Previous</u>	<u>Consolidated</u> (2)	<u>Full Volume</u> (3)
Number of Delivery Warehouses	Base	-1	-1
Volume Increase	Base	n/c	+19.7%
Annual Delivery Miles	Base	+4.0%	+20.6%
Delivery Routes	Base	-3%	+13%
Annual Operating Costs <u>Savings</u>	-	2.5%	1.6%

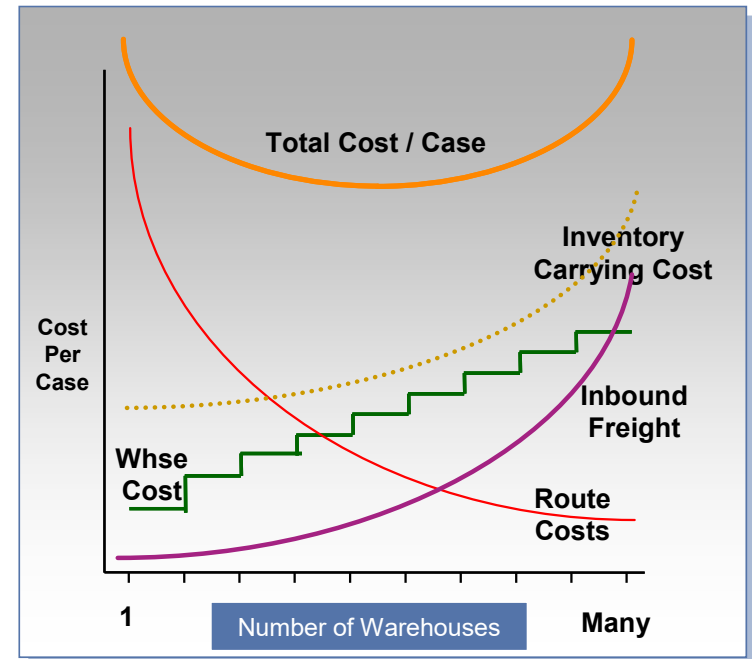
Short Term and Long Term Savings Identified From New Location

An aerial photograph of a vast, circular, crater-like structure in a desert landscape. The structure is composed of concentric, light-colored rings, possibly made of salt or sand, surrounding a central, darker area. The surrounding terrain is a mix of light and dark patches, suggesting a dry, rocky environment. The sky is a clear, pale blue.

Final Thoughts

Summary

- ❑ The complexity of operational improvements or location changes begs for thorough evaluation
 - Acquisition
 - Facility Relocation
 - Facility Consolidation
 - Territory Redesign
 - Brand Integration
- ❑ The tools exists to accurately analyze your costs
- ❑ Take the time and do it right; putting your operations in the right location will save you every day!



Thank You



Kevin Vahey
KVahey@SCPIteam.com
843-267-3077 c
864-314-1361 o

Srini Paruchuri
Srini.Paruchuri@agillence.net
202.550.4610 c
703.880.3141 o

www.SCPIteam.com

www.agillence.com