# Universal Data Intelligence Report

Generated: 10/26/2026, 6:37:07 AM
Source: Transportation_10000_Loads.csv · 10,000 rows

## Detected Industry

| Field | Value |
|---|---|
| **Industry** | Transportation |
| **Confidence** | High |
| **Company Size** | Mid-market |
| **Reasoning** | The dataset contains freight transportation operational headers such as Load_ID, Truck_ID, Loaded_Miles, Actual_Empty_Miles, Equipment, and Fuel_Price_Per_Gallon. |

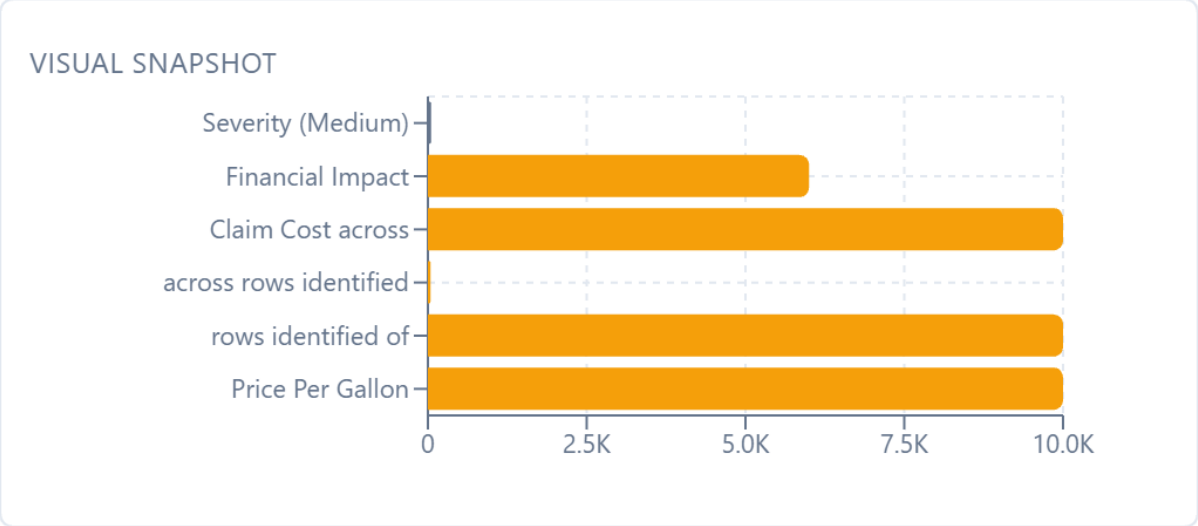
## Executive Summary

Analysis of 10,000 freight loads indicates strong revenue capture across core line-haul freight, but isolated operational cost misalignments impact profitability. Across the fleet, actual maintenance costs exceed approved caps, while unrecovered damage claims and trip expense friction dilute net line contribution. Closing price-versus-cost leakage across direct operating expenses will safeguard operating margins across core truckload operations.

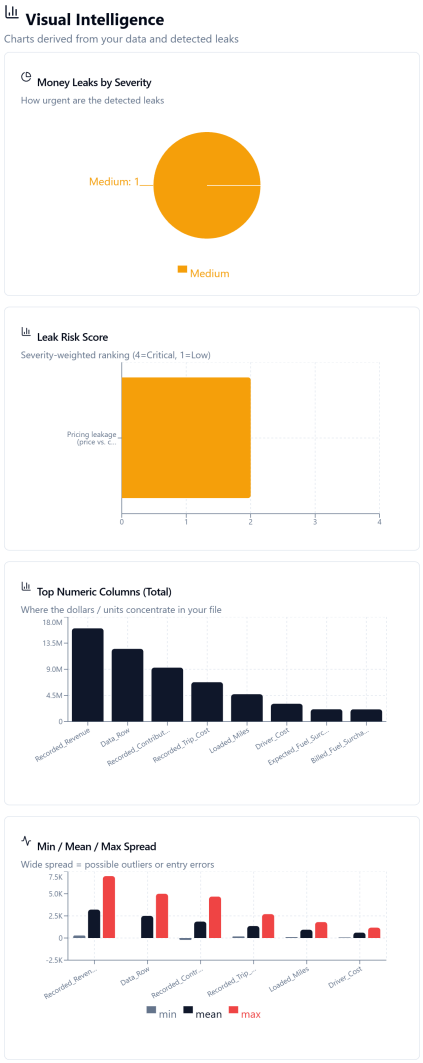
## Top Money Leaks

| #1 · Pricing leakage (price vs. cost) | Medium |
|---|---|
| **Signal** | Actual maintenance cost exceeds approved maintenance authorization by $6,000 across 3,933 loads, alongside significant unhedged Driver_Cost and Other_Trip_Cost outlays. |
| **Evidence** | Row-level scan of Fuel_Price_Per_Gallon, Driver_Cost, Other_Trip_Cost, Approved_Maintenance_Cost, Actual_Maintenance_Cost, Damage_Claim_Cost across 10,000 rows identified 40 of 10000 rows affected. Detail: Fuel_Price_Per_Gallon: 10,000 non-zero rows, total 39,479 \| Driver_Cost: 10,000 non-zero rows, total 6,131,351 \| Other_Trip_Cost: 10,000 non-zero rows, total 1,151,414 \| Approved_Maintenance_Cost: 3,933 non-zero rows, total 436,000 \| Actual_Maintenance_Cost: 3,933 non-zero rows, total 442,000 \| Damage_Claim_Cost: 2,140 non-zero rows, total 229,000. Example rows include row 1 {Fuel_Price_Per_Gallon=4.35, Driver_Cost=954.20, Other_Trip_Cost=59.06, Approved_Maintenance_Cost=0.00, Actual_Maintenance_Cost=0.00, Damage_Claim_Cost=100.00}, row 2 {Fuel_Price_Per_Gallon=4.51, Driver_Cost=1147.90, Other_Trip_Cost=162.91, Approved_Maintenance_Cost=0.00, Actual_Maintenance_Cost=0.00, Damage_Claim_Cost=0.00}, row 3 {Fuel_Price_Per_Gallon=3.91, Driver_Cost=101.40, Other_Trip_Cost=54.88, Approved_Maintenance_Cost=0.00, Actual_Maintenance_Cost=0.00, Damage_Claim_Cost=0.00}, row 4 {Fuel_Price_Per_Gallon=4.07, Driver_Cost=940.55, Other_Trip_Cost=134.76, Approved_Maintenance_Cost=80.00, Actual_Maintenance_Cost=80.00, Damage_Claim_Cost=0.00}, and row 5 {Fuel_Price_Per_Gallon=3.81, Driver_Cost=415.35, Other_Trip_Cost=134.78, Approved_Maintenance_Cost=140.00, Actual_Maintenance_Cost=140.00, Damage_Claim_Cost=100.00}. |
| **Benchmark** | American Transport Research Institute (ATRI) Operational Costs of Trucking 2023: non-fuel direct line operating costs and maintenance variance typically represent 1.5% to 3.0% margin leakage. |
| **Root Cause** | Unbudgeted maintenance overruns beyond approved authorization limits coupled with unbilled or unrecovered direct trip expenses incurred during dispatch. |

| #1 · Pricing leakage (price vs. cost) | Medium |
|---|---|
| **Financial Impact** | $6,000 direct maintenance overrun ($442,000 Actual_Maintenance_Cost - $436,000 Approved_Maintenance_Cost) plus potential exposure across unmitigated trip cost components. |
| **Recommended Action** | Implement strict spend approval gates preventing maintenance invoice payments exceeding Approved_Maintenance_Cost without explicit fleet operations manager sign-off. |




## Visual Summary




# Recommended KPIs

| KPI | Formula | Why It Matters | Benchmark |
|---|---|---|---|
| Total Cost Per Mile | Recorded_Trip_Cost divided by (Loaded_Miles + Actual_Empty_Miles) | Measures true line-haul operating efficiency across loaded and deadhead transit. | $1.80 - $2.25 per mile |
| Deadhead (Empty Mile) Ratio | Actual_Empty_Miles divided by (Loaded_Miles + Actual_Empty_Miles) | Identifies uncompensated tractor movement eroding net line margin. | < 10% - 15% |
| Revenue Per Loaded Mile | Recorded_Revenue divided by Loaded_Miles | Tracks contract billing yields against freight market baselines. | $2.50 - $3.50 per mile |
| Fleet Fuel Efficiency | Loaded_Miles divided by Actual_Fuel_Gallons | Monitors tractor performance against Target_Fuel_MPG to curb excessive diesel consumption. | 6.5 - 7.5 MPG |
| Net Contribution Margin | Recorded_Contribution divided by Recorded_Revenue | Evaluates residual load earnings after variable direct operating expenses. | 20% - 35% |

## Column Mapping

| Source Column | Canonical Concept | Data Type |
|---|---|---|
| Data_Row | id | id |
| Load_ID | id | id |
| Delivery_Date | date | date |
| Customer_ID | customer_id | id |
| Truck_ID | id | id |
| Equipment | category | category |
| Origin | category | category |
| Destination | category | category |
| Loaded_Miles | units | numeric |
| Target_Empty_Miles | units | numeric |
| Actual_Empty_Miles | units | numeric |
| Contract_Rate_Per_Loaded_Mile | revenue | numeric |
| Billed_Rate_Per_Loaded_Mile | revenue | numeric |
| Expected_Fuel_Surcharge | revenue | numeric |
| Billed_Fuel_Surcharge | revenue | numeric |
| Eligible_Detention_Hours | units | numeric |
| Detention_Rate_Per_Hour | revenue | numeric |
| Billed_Detention | revenue | numeric |
| Extra_Stops | units | numeric |
| Contract_Extra_Stop_Fee | revenue | numeric |
| Billed_Extra_Stop_Charges | revenue | numeric |
| Target_Fuel_MPG | units | numeric |
| Actual_Fuel_Gallons | units | numeric |
| Fuel_Price_Per_Gallon | cost | numeric |
| Driver_Cost | cost | numeric |
| Other_Trip_Cost | cost | numeric |
| Approved_Maintenance_Cost | cost | numeric |
| Actual_Maintenance_Cost | cost | numeric |
| Damage_Claim_Cost | cost | numeric |
| Contractually_Recoverable_Claim | revenue | numeric |
| Claim_Recovery_Received | revenue | numeric |
| Recorded_Revenue | revenue | numeric |
| Recorded_Trip_Cost | cost | numeric |
| Recorded_Contribution | margin | numeric |

## Methodology

*This analysis provides an auditable risk-sizing estimate rather than a forensic audit, combining deterministic row-level transaction scans with published freight transportation cost benchmarks. Figures represent indicated operational variance and should be reconciled against general ledger expense accounts before implementing contractual adjustments.*

## Recommended Next Step

Audit maintenance work orders and carrier expense reconciliations where Actual_Maintenance_Cost exceeded Approved_Maintenance_Cost to implement hard authorization caps before invoice disbursement.

# Audit Trail — What the AI Analyzed

*Every claim in this report must trace back to the data below. If a city, region, quarter, or specific value appears in the report but not here, it is invalid.*

## Headers sent (34)

Data_Row, Load_ID, Delivery_Date, Customer_ID, Truck_ID, Equipment, Origin, Destination, Loaded_Miles, Target_Empty_Miles, Actual_Empty_Miles, Contract_Rate_Per_Loaded_Mile, Billed_Rate_Per_Loaded_Mile, Expected_Fuel_Surcharge, Billed_Fuel_Surcharge, Eligible_Detention_Hours, Detention_Rate_Per_Hour, Billed_Detention, Extra_Stops, Contract_Extra_Stop_Fee, Billed_Extra_Stop_Charges, Target_Fuel_MPG, Actual_Fuel_Gallons, Fuel_Price_Per_Gallon, Driver_Cost, Other_Trip_Cost, Approved_Maintenance_Cost, Actual_Maintenance_Cost, Damage_Claim_Cost, Contractually_Recoverable_Claim, Claim_Recovery_Received, Recorded_Revenue, Recorded_Trip_Cost, Recorded_Contribution

| Column | Min | Max | Mean | Sum |
|---|---|---|---|---|
| Data_Row | 1 | 5,000 | 2,500.5 | 12,502,500 |
| Loaded_Miles | 100 | 1,800 | 938.94 | 4,694,714 |
| Target_Empty_Miles | 10 | 100 | 54.64 | 273,209 |
| Actual_Empty_Miles | 10 | 242 | 55.68 | 278,422 |
| Contract_Rate_Per_Loaded_Mile | 2.4 | 3.25 | 2.8 | 14,018.4 |
| Billed_Rate_Per_Loaded_Mile | 2.15 | 3.25 | 2.8 | 14,006.15 |
| Expected_Fuel_Surcharge | 45 | 810 | 422.52 | 2,112,621.3 |
| Billed_Fuel_Surcharge | 0 | 810 | 419.14 | 2,095,704 |
| Eligible_Detention_Hours | 0 | 5 | 1.02 | 5,114 |
| Detention_Rate_Per_Hour | 75 | 75 | 75 | 375,000 |
| Billed_Detention | 0 | 225 | 74.1 | 370,500 |
| Extra_Stops | 0 | 3 | 0.63 | 3,146 |
| Contract_Extra_Stop_Fee | 100 | 100 | 100 | 500,000 |
| Billed_Extra_Stop_Charges | 0 | 200 | 60.68 | 303,400 |
| Target_Fuel_MPG | 7 | 7 | 7 | 35,000 |
| Actual_Fuel_Gallons | 15.86 | 287.46 | 142.4 | 712,016.1 |
| Fuel_Price_Per_Gallon | 3.3 | 4.6 | 3.94 | 19,716.7 |
| Driver_Cost | 65 | 1,170 | 610.31 | 3,051,564.1 |
| Other_Trip_Cost | 50.02 | 179.99 | 115.02 | 575,084.68 |
| Approved_Maintenance_Cost | 0 | 140 | 42.88 | 214,420 |
| Actual_Maintenance_Cost | 0 | 180 | 43.4 | 217,000 |
| Damage_Claim_Cost | 0 | 250 | 23.77 | 118,850 |
| Contractually_Recoverable_Claim | 0 | 250 | 23.77 | 118,850 |
| Claim_Recovery_Received | 0 | 100 | 20.82 | 104,100 |
| Recorded_Revenue | 285 | 6,995.2 | 3,208.71 | 16,043,561.1 |
| Recorded_Trip_Cost | 183.57 | 2,696.8 | 1,353.85 | 6,769,239.08 |
| Recorded_Contribution | -213.93 | 4,682.22 | 1,854.86 | 9,274,322.02 |

## Sample rows sent (20 of 10,000 total)

| Data_Row | Load_ID | Delivery_Date | Customer_ID | Truck_ID | Equipment | Origin | Destination | Loaded_Miles | Target_Empty_Miles | Actual_Empty_Miles | Contract_Rate_Per_Loaded_Mile | Billed_Rate_Per_Loaded_Mile | Expected_Fuel_Surcharge | Billed_Fuel_Surcharge | Eligible_Detention_Hours | Detention_Rate_Per_Hour | Billed_Detention | Extra_Stops | Contract_Extra_Stop_Fee | Billed_Extra_Stop_Charges | Target_Fuel_MPG | Actual_Fuel_Gallons | Fuel_Price_Per_Gallon | Driver_Cost | Other_Trip_Cost | Approved_Maintenance_Cost | Actual_Maintenance_Cost | Damage_Claim_Cost | Contractually_Recoverable_Claim | Claim_Recovery_Received | Recorded_Revenue | Recorded_Trip_Cost | Recorded_Contribution |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | LOAD-0000001 | 2026-07-01 | CUST-0051 | TRK-0779 | Flatbed | Columbus OH | Dallas TX | 1468 | 29 | 29 | 2.65 | 2.65 | 660.60 | 660.60 | 2 | 75.00 | 150.00 | 0 | 100.00 | 0.00 | 7 | 213.86 | 4.35 | 954.20 | 59.06 | 0.00 | 0.00 | 1000.00 | 100.00 | 100.00 | 4800.80 | 2043.55 | 2757.25 |
| 2 | LOAD-0000002 | 2026-07-01 | CUST-0001 | TRK-0944 | Refrigerated | Chicago IL | Charlotte NC | 1766 | 44 | 44 | 2.90 | 2.90 | 794.70 | 794.70 | 3 | 75.00 | 225.00 | 0 | 100.00 | 0.00 | 7 | 258.57 | 4.51 | 1147.90 | 162.91 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 6141.10 | 2476.96 | 3664.14 |
| 3 | LOAD-0000003 | 2026-07-01 | CUST-0116 | TRK-0655 | Flatbed | Chicago IL | Dallas TX | 156 | 23 | 23 | 3.25 | 3.25 | 70.20 | 70.20 | 3 | 75.00 | 225.00 | 0 | 100.00 | 0.00 | 7 | 25.57 | 3.91 | 101.40 | 54.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 802.20 | 256.26 | 545.94 |
| 4 | LOAD-0000004 | 2026-07-01 | CUST-0711 | TRK-1120 | Flatbed | Newark NJ | Dallas TX | 1447 | 65 | 65 | 2.90 | 2.90 | 651.15 | 651.15 | 0 | 75.00 | 0.00 | 0 | 100.00 | 0.00 | 7 | 216.00 | 4.07 | 940.55 | 134.76 | 80.00 | 80.00 | 0.00 | 0.00 | 0.00 | 4847.45 | 2034.43 | 2813.02 |
| 5 | LOAD-0000005 | 2026-07-01 | CUST-0255 | TRK-0333 | Flatbed | Newark NJ | Columbus OH | 639 | 69 | 69 | 3.25 | 3.25 | 287.55 | 287.55 | 0 | 75.00 | 0.00 | 1 | 100.00 | 100.00 | 7 | 101.14 | 3.81 | 415.35 | 134.78 | 140.00 | 140.00 | 1000.00 | 100.00 | 100.00 | 2564.30 | 1175.47 | 1388.83 |
| 6 | LOAD-0000006 | 2026-07-01 | CUST-0684 | TRK-1100 | Refrigerated | Charlotte NC | Chicago IL | 1133 | 64 | 64 | 3.25 | 3.25 | 509.85 | 509.85 | 0 | 75.00 | 0.00 | 0 | 100.00 | 0.00 | 7 | 171.00 | 4.11 | 736.45 | 518.81 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4192.10 | 1491.07 | 2701.03 |
| 7 | LOAD-000 | 2026-07 | CUST-0044 | TRK-0644 | Flatbed | Atlanta | Charlotte | 1690 | 86 | 228 | 2.90 | 2.90 | 760.50 | 760.50 | 0 | 75.00 | 0.00 | 1 | 100.00 | 100.00 | 7 | 274.00 | 4.27 | 1098.50 | 123.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5761.50 | 2391.64 | 3369.86 |

| Data_Row | Load_ID | Delivery_Date | Customer_ID | Truck_ID | Equipment | Origin | Destination | Loaded_Miles | Target_Empty_Miles | Actual_Empty_Miles | Contract_Rate_Per_Loaded_Mile | Billed_Rate_Per_Loaded_Mile | Expected_Fuel_Surcharge | Billed_Fuel_Surcharge | Eligible_Detention_Hours | Detention_Rate_Per_Hour | Billed_Detention | Extra_Stops | Contract_Extra_Stop_Fee | Billed_Extra_Stop_Charges | Target_Fuel_MPG | Actual_Fuel_Gallons | Fuel_Price_Per_Gallon | Driver_Cost | Other_Trip_Cost | Approved_Maintenance_Cost | Actual_Maintenance_Cost | Damage_Claim_Cost | Contractually_Recoverable_Claim | Claim_Recovery_Received | Recorded_Revenue | Recorded_Trip_Cost | Recorded_Contribution |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 00007 | -01 | | | | GA | NC | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | LOAD-0000008 | 2026-07-01 | CUST-0377 | TRK-0766 | Flatbed | CharlotteNC | DallasTX | 556 | 26 | 26 | 2.65 | 2.65 | 250.20 | 250.20 | 2 | 75.00 | 150.00 | 2 | 100.00 | 200.00 | 7 | 83.14 | 4.46 | 361.40 | 169.07 | 0.00 | 0.00 | 1000.00 | 100.00 | 100.00 | 2173.60 | 1001.27 | 1172.33 |
| 9 | LOAD-0000009 | 2026-07-01 | CUST-0488 | TRK-0077 | DryVan | CharlotteNC | AtlantaGA | 16554 | 17 | 17 | 2.90 | 2.90 | 744.30 | 744.30 | 2 | 75.00 | 150.00 | 0 | 100.00 | 0.00 | 7 | 238.71 | 4.29 | 1075.10 | 57.47 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5690.90 | 2156.64 | 3534.26 |
| 10 | LOAD-0000010 | 2026-07-01 | CUST-0688 | TRK-0006 | DryVan | AtlantaGA | NewarkNJ | 875 | 54 | 54 | 3.25 | 3.25 | 393.75 | 393.75 | 2 | 75.00 | 150.00 | 0 | 100.00 | 0.00 | 7 | 132.71 | 3.97 | 568.75 | 134.71 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 3387.50 | 1230.32 | 2157.18 |
| 11 | LOAD-0000011 | 2026-07-01 | CUST-0188 | TRK-0555 | DryVan | AtlantaGA | ChicagoIL | 631 | 73 | 73 | 2.65 | 2.65 | 283.95 | 283.95 | 0 | 75.00 | 0.00 | 0 | 100.00 | 0.00 | 7 | 100.57 | 4.36 | 410.15 | 117.68 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1956.10 | 963.2 | 989.78 |
| 12 | LOAD-0000012 | 2026-07-01 | CUST-0133 | TRK-0977 | Refrigerated | ColumbusOH | ChicagoIL | 1499 | 53 | 53 | 2.40 | 2.40 | 674.55 | 674.55 | 0 | 75.00 | 0.00 | 0 | 100.00 | 0.00 | 7 | 221.71 | 3.34 | 974.35 | 82.62 | 140.00 | 140.00 | 1000.00 | 100.00 | 100.00 | 4372.15 | 2037.48 | 2334.67 |
| 13 | LOAD-0000013 | 2026-07-01 | CUST-0556 | TRK-0244 | DryVan | DallasTX | NewarkNJ | 717 | 11 | 11 | 2.90 | 2.90 | 322.65 | 322.65 | 0 | 75.00 | 0.00 | 1 | 100.00 | 100.00 | 7 | 104.00 | 3.74 | 466.05 | 85.86 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2501.95 | 940.87 | 1561.08 |
| 14 | LOAD-000 | 2026-07 | CUST-0020 | TRK-0300 | Refrigerator | Charlotte | Atlanta | 17600 | 49 | 49 | 2.40 | 2.40 | 792.00 | 792.00 | 2 | 75.00 | 150.00 | 1 | 100.00 | 100.00 | 7 | 258.43 | 3.31 | 1144.00 | 137.92 | 80.00 | 80.00 | 0.00 | 0.00 | 0.00 | 5266.00 | 2217.32 | 3048.68 |

| Data_Row | Load_ID | Delivery_Date | Customer_ID | Truck_ID | Equipment | Origin | Destination | Loaded_Miles | Target_Empty_Miles | Actual_Empty_Miles | Contract_Rate_Per_Loaded_Mile | Billed_Rate_Per_Loaded_Mile | Expected_Fuel_Surcharge | Billed_Fuel_Surcharge | Eligible_Detention_Hours | Detention_Rate_Per_Hour | Billed_Detention | Extra_Stops | Contract_Extra_Stop_Fee | Billed_Extra_Stop_Charges | Target_Fuel_MPG | Actual_Fuel_Gallons | Fuel_Price_Per_Gallon | Driver_Cost | Other_Trip_Cost | Approved_Maintenance_Cost | Actual_Maintenance_Cost | Damage_Claim_Cost | Contractually_Recoverable_Claim | Claim_Recovery_Received | Recorded_Revenue | Recorded_Trip_Cost | Recorded_Contribution |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 00014 | -01 | | | ated | NC | GA | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | LOAD-0000015 | 2026-07-01 | CUST-0400 | TRK-0399 | Refrigerated | Columbus OH | Charlotte NC | 1159 | 58 | 58 | 2.90 | 2.90 | 521.55 | 521.55 | 2 | 75.00 | 150.00 | 0 | 100.00 | 0.00 | 7 | 173.86 | 4.37 | 753.35 | 166.07 | 0.00 | 0.00 | 1000.00 | 100.00 | 100.00 | 4132.65 | 1779.19 | 2353.46 |
| 16 | LOAD-0000016 | 2026-07-01 | CUST-0533 | TRK-0466 | Flatbed | Columbus OH | Newark NJ | 1067 | 28 | 28 | 3.25 | 3.25 | 480.15 | 480.15 | 0 | 75.00 | 0.00 | 0 | 100.00 | 0.00 | 7 | 156.43 | 4.45 | 693.55 | 69.46 | 120.00 | 180.00 | 0.00 | 0.00 | 0.00 | 3947.90 | 1639.12 | 2308.78 |
| 17 | LOAD-0000017 | 2026-07-01 | CUST-0221 | TRK-0399 | Refrigerated | Chicago IL | Dallas TX | 165 | 84 | 84 | 2.90 | 2.90 | 74.25 | 74.25 | 3 | 75.00 | 225.00 | 1 | 100.00 | 100.00 | 7 | 35.57 | 3.90 | 107.25 | 133.54 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 8777.75 | 3795.1 | 498.24 |
| 18 | LOAD-0000018 | 2026-07-01 | CUST-0355 | TRK-0363 | Dry Van | Atlanta GA | Charlotte NC | 1314 | 92 | 92 | 2.90 | 2.90 | 591.30 | 591.30 | 2 | 75.00 | 150.00 | 2 | 100.00 | 200.00 | 7 | 208.86 | 3.66 | 854.10 | 110.08 | 80.00 | 80.00 | 1000.00 | 100.00 | 100.00 | 4851.90 | 1879.33 | 2972.57 |
| 19 | LOAD-0000019 | 2026-07-01 | CUST-0558 | TRK-0177 | Refrigerated | Columbus OH | Chicago IL | 920 | 73 | 73 | 2.90 | 2.90 | 414.00 | 414.00 | 0 | 75.00 | 0.00 | 2 | 100.00 | 200.00 | 7 | 141.86 | 3.88 | 598.00 | 142.21 | 140.00 | 140.00 | 1000.00 | 100.00 | 100.00 | 3382.00 | 1530.63 | 1851.37 |
| 20 | LOAD-0000020 | 2026-07-01 | CUST-0099 | TRK-0699 | Flatbed | Charlotte NC | Dallas TX | 404 | 62 | 62 | 2.40 | 2.40 | 181.80 | 181.80 | 0 | 75.00 | 0.00 | 0 | 100.00 | 0.00 | 7 | 66.57 | 4.53 | 262.60 | 167.39 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1151.40 | 731.55 | 419.85 |