

The Fleet We Couldn't See: What Joining Three Data Systems Revealed About the Trailer Inventory

The fleet system of record appears to be missing roughly 20% of the physical trailer fleet. Every number below is traceable to a live tool and open to challenge.

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The Situation

Element, the fleet management system of record, lists **2,245 trailers**. The RIM system — where chapter teams record trailers during physical inspections — accounts for **2,038 unique trailers**. When the two lists are joined by VIN — and every decodable VIN run through the federal NHTSA vehicle database, free and requiring no new data collection — only **1,589 trailers appear on both lists**. The combined unique inventory is **2,694**. The gap between what the system of record knows and what physically exists is the central finding of this study.

Five Findings

NUMBER	FINDING	EVIDENCE
449	Trailers unknown to the system of record — roughly 20% of the fleet on record.	168 RIM trailers carry valid VINs that do not exist in Element — hard evidence. 281 more were entered in RIM with no VIN recorded; after duplicate review, most appear genuinely absent from Element.
656	Element trailers never physically verified — 29% of the system of record.	In Element, but no matching RIM record. Condition, location, and existence unconfirmed by human eyes.
12	Trailers reported missing or stolen still carry ACTIVE status.	Field staff wrote "missing" or "stolen" in RIM notes; the official Element status was never updated. The two fields do not sync.
50	License plates expired or expiring — 9 already expired, 41 within 90 days.	Element registration data. (A further 790 trailers hold permanent plates that never expire — excluded from these counts.)
66	Possible double-counts under adjudication. True fleet size: ~2,628–2,694.	VIN-less RIM records within 0.1 mile of an Element-only trailer — plausibly the same physical trailer entered without its VIN. Each carries a Possible Element Match field for field verification.

How the 2,694 Decomposes

Two lists, joined by VIN. Trailers known to both systems are counted once — the gap is what one system holds and the other does not:

656 IN ELEMENT ONLY — NOT PHYSICALLY VERIFIED	1,589 ON BOTH LISTS — HIGHEST CONFIDENCE	168 IN RIM WITH A VIN — ABSENT FROM ELEMENT	281 IN RIM, NO VIN RECORDED — CANNOT BE MATCHED
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Method — Built to Be Challenged

Three sources, one join key. **Element** (administrative record: VIN, plate, registration, driver, status), the **RIM system** (chapter-entered physical record: condition, measurements, GPS location), and the **federal NHTSA VIN database** (manufacturer, model year, axle count, length — free, public, no authentication). Records are matched by VIN; RIM records without VINs are retained separately and flagged, never silently merged or dropped. Red Cross chapter, region, and division are assigned to every record via ZIP and point-in-polygon geography. The unified master table holds 2,694 records across 81 columns; nothing in this paper required new data collection — only the willingness to join data that already existed.

Verify Any Number Yourself

CLAIM	WHERE TO CHECK
The 2,694 total and how it decomposes (656 + 1,589 + 168 + 281)	trailer-ops.jbf.com → "Data Notes"
168 RIM trailers with VINs absent from Element	trailer-ops.jbf.com → query "Survey Only" → export CSV
12 missing/stolen still ACTIVE; 9 expired plates	trailer-ops.jbf.com → queries "Missing / Stolen", "Expired Plates"
The 66 candidate duplicates, with evidence, pair by pair	trailer-ops.jbf.com → per-trailer "Possible Element Match"
Fleet distribution and breakdown by chapter	trailer-study.jbf.com → Charts, About the Data

What This Does Not Say

This is not a finding of negligence. Element and RIM measure different things — an administrative ledger and a physical census — and neither was ever wrong about what it measured. The gap between them was invisible precisely because the two systems were never joined. It is also not a final count: 66 records await human adjudication, and the honest answer today is a range, **2,628–2,694**, not a single number.

How to Frame It

"None of this required new software, new data collection, or new budget. The VIN — a field both systems already hold — is a direct key into a free federal database and into each other. One join revealed several hundred trailers our system of record doesn't know we own, and 656 more it has never physically confirmed. The question is not how this happened; it is which of our other asset systems would show the same gap if joined."

Recommendations

- **Make VIN capture mandatory** for every RIM entry — the 281 no-VIN records are the single largest source of uncertainty in this study. (1,757 VINs are now captured in RIM — progress is already underway.)
- **Make NHTSA VIN decode a standard enrichment step** for every Element export. It is free and runs in under two minutes for the full fleet.
- **Reconcile the 168 unregistered trailers** — physical assets operating with no administrative record, insurance, or accountability trail.
- **Create a status-sync trigger**: a "missing" or "stolen" note in any field system should force an Element status review.
- **Complete the 66-record duplicate review** — field-verify whether each VIN-less RIM trailer is the Element unit at the same site.

The Live Applications

TOOL	WHAT IT IS
trailer-study.jbf.com	The study view. Four tabs: an interactive map with Red Cross chapter/region/division boundaries, fleet charts, a plain-English "About the Data" guide, and the live operational view. The Map & Analysis tab requires a Red Cross ArcGIS sign-in; the rest are open.
trailer-ops.jbf.com	The operational view. One-click queries (expired plates, missing/stolen, possible duplicates, RIM-only assets), geography drill-down across 222 chapters, per-trailer detail cards, CSV export of any filtered result, and a "Data Notes" explainer behind every number in this paper. No sign-in required.

The Data Behind It

Both applications and this paper are built from a single master table — one row per unique trailer, 81 columns, every value's lineage tracked by source (Element fleet system, RIM field survey, NHTSA VIN decode, Red Cross geography). The data refreshes weekly from the latest field file, so the figures above are current as of June 21, 2026, not a frozen snapshot.

A curated, human-readable export (friendly column names, no internal codes) is available to Red Cross staff on request.

Footnotes

1	Permanent plates. 790 trailers show a plate expiration of 2049-12-31 — Element's internal placeholder for never-expiring registrations, not a real date. These are excluded from all expiration alerts.
2	Undecodable VINs. 105 records carry a VIN that is not the standard 17 characters — older trailers predating the 1981 VIN standard, or transcription errors at data entry — and cannot be decoded by NHTSA; their make/model/year fields stay blank.
3	Map locations are addresses of record, not live positions. A trailer assigned to a chapter office may be deployed elsewhere during disaster operations.
4	Duplicate VINs. Where the same VIN was entered more than once in the raw RIM data (re-entries), each was collapsed to a single record before joining.
5	Weekly refresh. All figures reflect the most recent weekly extract. Acquisitions, disposals, and renewals appear at the next refresh.