GWF 2026 · Session 6 · Geospatial Knowledge Infrastructure Across Cadastre, Registry, Valuation and Planning

From Scanned Maps to Living Parcel Data

Case in Point

POC of how AI collapses days of manual digitization into minutes — and builds the knowledge infrastructure that Governments promise

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The Problem:
Knowledge Trapped on Paper

Thousands of counties
Across the US manage parcel data — each with a backlog of historical subdivision plats existing only as scanned images and new plat filings and their transformation into tax parcels.

Manual digitization
A trained GIS analyst spends 1–several days per plat: tracing boundaries, typing COGO values, populating attributes by hand.

Error-prone at scale
Manual entry = inconsistency. Wrong bearings, missed attributes, geometry inversed from guesswork rather than legal dimensions.

A bottleneck for Governments
Without accurate parcel data, governments can't assess property, plan infrastructure, or deliver the location-aware decisions GKI promises.

The Cost of Inaction

500 backlogged plats
$400,000
in analyst time

Each plat
1–3 days
of skilled GIS work

Data quality
Inconsistent
legally uncertain

"What is the true cost of not having a functioning geospatial knowledge infrastructure"

MTerra: From Scanned Plat to Authoritative Parcel — in Minutes

01	02	03	04	05
				
Upload Plat	**AI Vectorization**	**Human Review**	**Adjustment & QA**	**Parcel Fabric Export**
County uploads JPG/PDF of historic or new subdivision plat	Computer vision detects boundaries, lots, COGO, attributes	GIS analyst reviews flags & corrects errors before commit	Least-squares adjustment to 0.02 ft — F-test & W-test pass	LADM-conformant File GDB appended to ArcGIS Parcel Fabric

AI-powered · Human-in-the-loop · LADM-conformant · Native ArcGIS Parcel Fabric Integration

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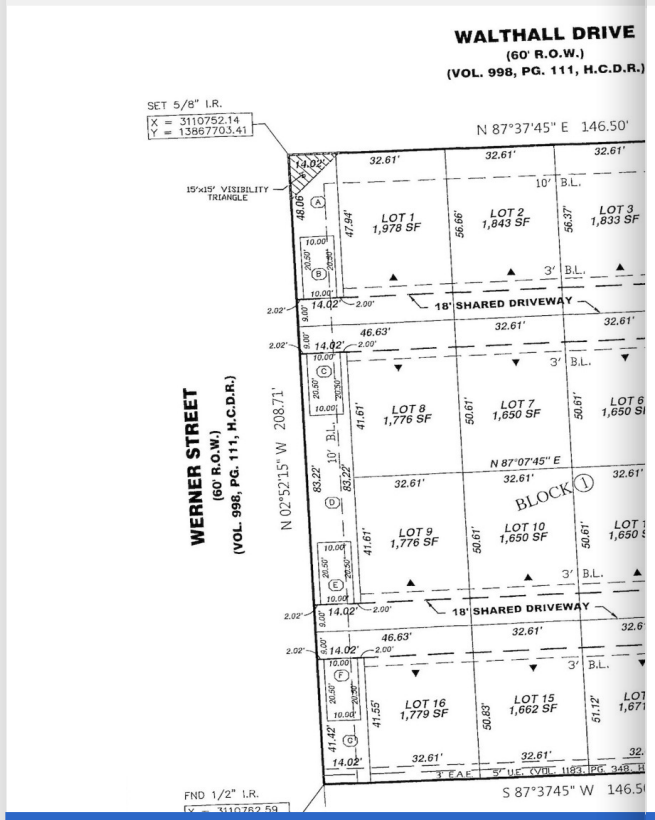
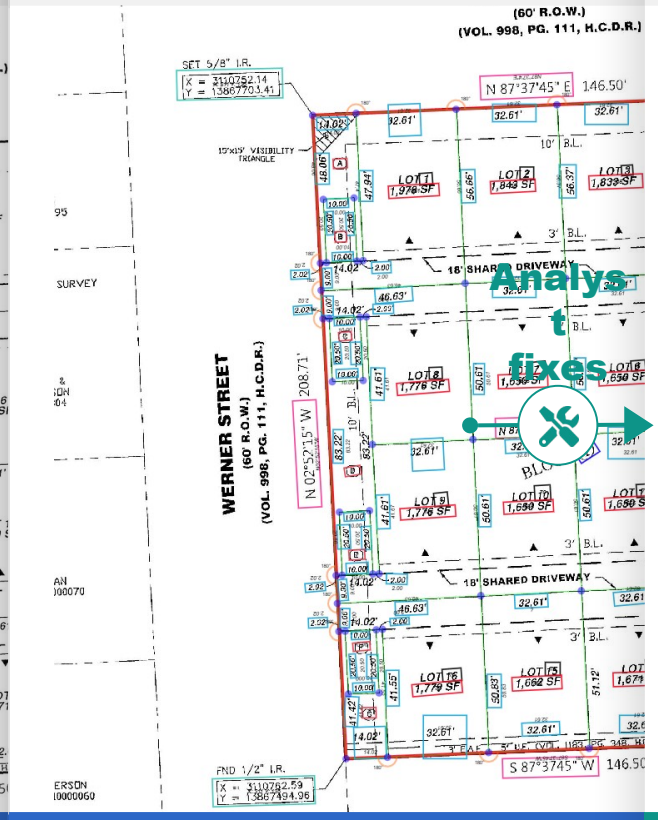
MTerra Step 1 & 2: Human-in-the-Loop Detection

mterra.app / plats / villas-at-werner / uplo



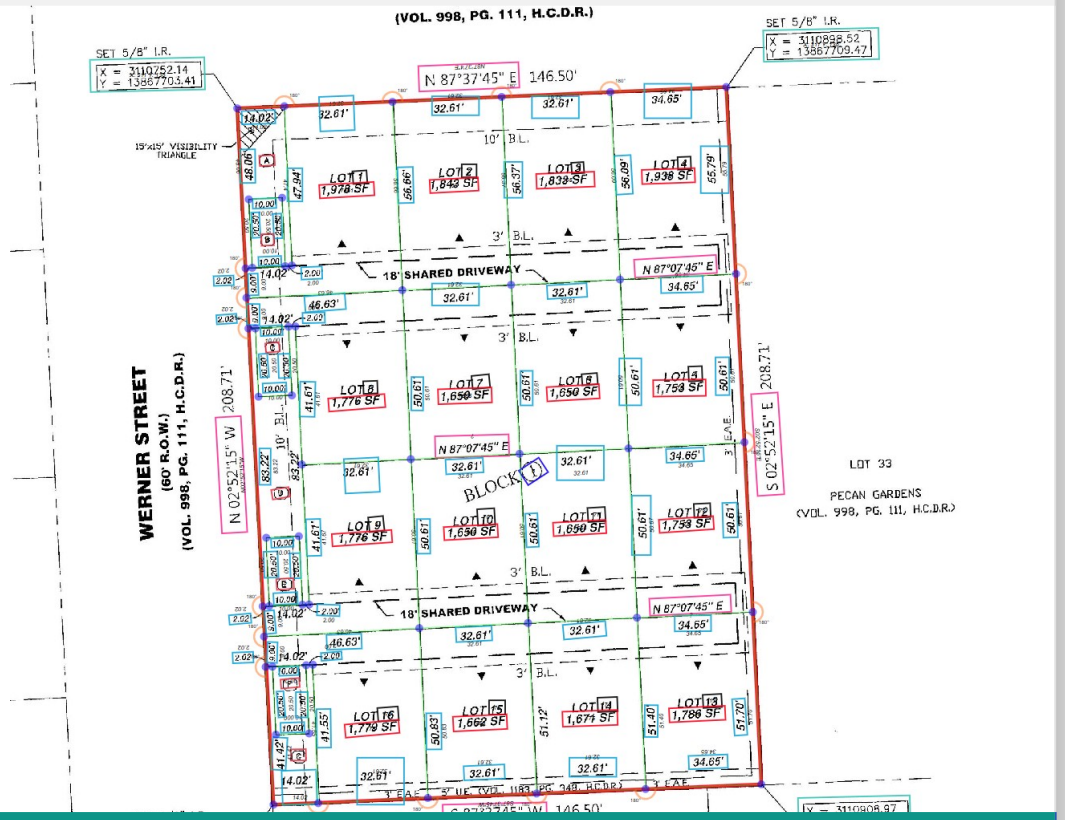
① Original scanned plat — Villas a

mterra.app / adjust — Error flagged



AI flagged: missing segments — ORIGI

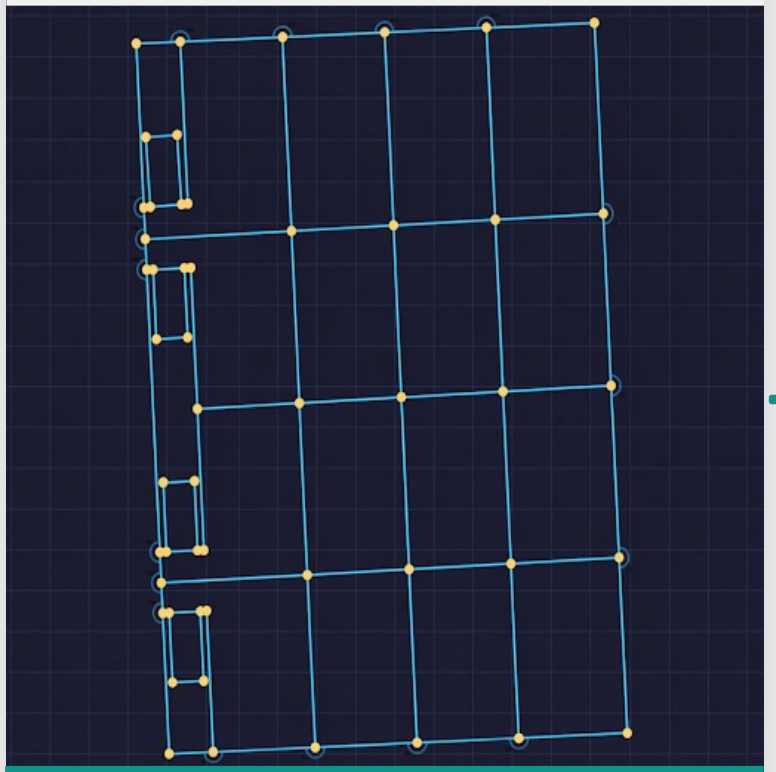
mterra.app / adjust — Corrected



Tools applied — features added, feature count updated, errors resolved

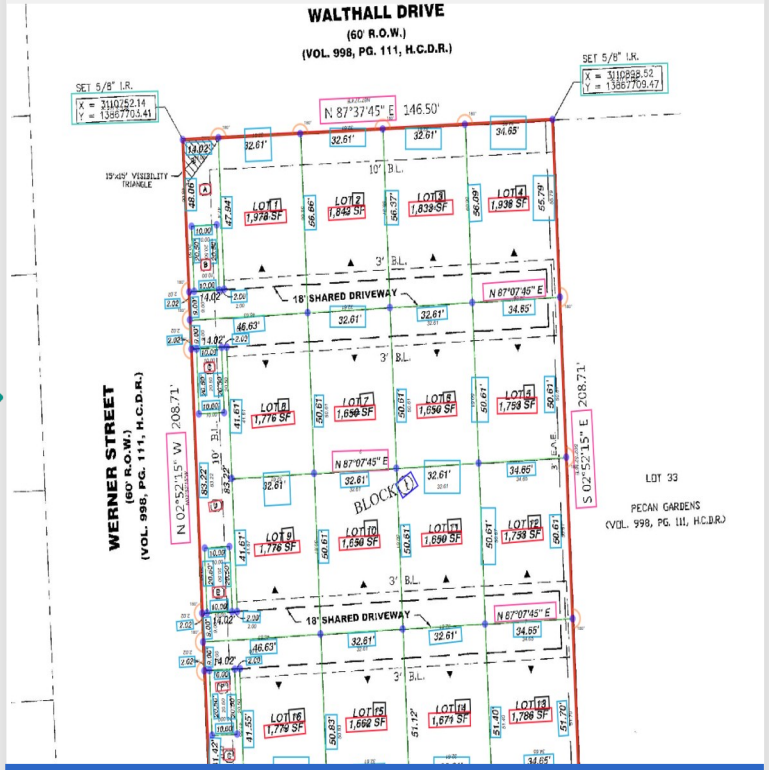
MTerra in Action - 4 & 5:
Adjustment → Parcel Fabric

mterra.app / adjust — vector canvas



Adjustment Canvas
Least-squares adjustment
0.02 ft tolerance · F-test ✓ W-test ✓

mterra.app / adjust — corrected plat view



Corrected Plat
Full COGO + attributes + georeferencing
LADM-conformant · Ready to export

ArcGIS Parcel Fabric — Production

ArcGIS Parcel Fabric

- Parcels appended to production
- LADM feature class hierarchy
- Authoritative · Legally defensible
- Available to all web map clients

Parcel Fabric Output
Production-ready · Analyst-reviewed
Available to all downstream clients

Proven at Harris County, Texas — #3 Largest US County

Days → Minutes
Processing time per subdivision

100% True to Legal Record
Geometry tolerance — HCAD standard met

5 of 5
Subdivisions validated in PoC

80–90%
Estimated cost reduction

What HCAD Validated

- AI vectorization correctly detected boundaries, lots & COGO across all 5 plats
- Dimension-driven geometry — legal values are the source of truth, not inversed
- Attribute extraction: lot names, block numbers, deed refs, legal dates — automated
- Output appended to production Parcel Fabric via LADM-conformant File GDB
- Human-in-the-loop review caught and corrected edge cases before commit

> *"ArcGIS Pro and ArcGIS Parcel Fabric provide new tools to take on new requests as they originate from appraisal staff, jurisdictions, and the public. The best outcome from using GIS is the amount of time saved."*
>
> **— Joshua Dye, GIS Analyst, Harris Central Appraisal District**

GKI is only as good as the data users can rely on

Data

Scanned plats digitized at scale — legal, accurate, LADM-conformant

Speed

Days to minutes.
Backlogs cleared.
Staff freed for higher-value work

Trust

Human-in-the-loop + dimension-driven geometry = defensible, authoritative records

MTerra + ArcGIS Parcel Fabric

Ready to deploy. Validated on real data. Scalable to every US county.

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