

GIS in Public Works

How spatial data currently runs design, asset management, and emergency coordination

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Where we came from

GIS in the past

Over the last 30 years GIS has evolved to become so much more than a map book.

Hard Copy Plans

Freehand and interpreted As - builds into shapefile for Water and Sewer –Accuracy was low

Field Verifications

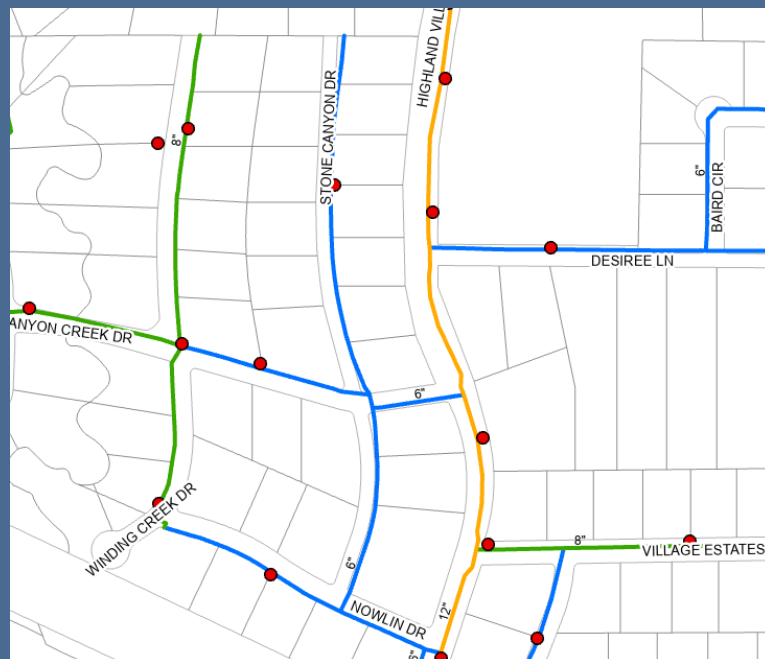
Field verified map books with hand drawn paper maps.

GPS

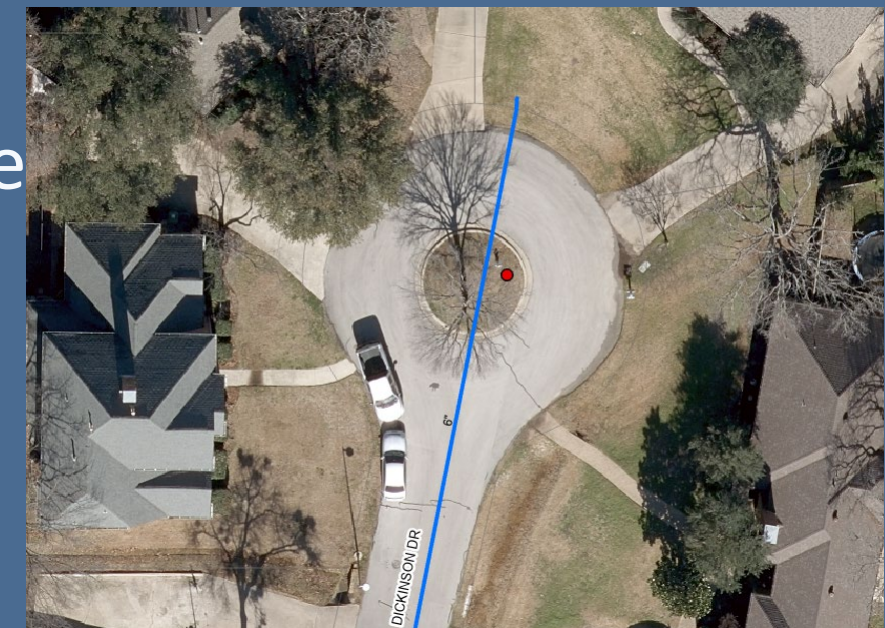
GPS revolutionized the accuracy of the data- Accuracy was sub meter.

GPS /Orthos/CAD

GPS coordinates, common language with CAD designers, sub foot accuracy.



Every year the data got more accurate and the tools became easier to use. Now crews use mobile apps and digital maps.



GIS is constantly evolving with the needs of the community

Analytics!

You have all this data now what?

Years worth of Data

Years worth of data, history and asset conditions.

Analytics

Put all that data to use!

Tell your story

Present the conditions of your assets in a way that speaks to council and management

Data Driven Decisions

Budget and replace based on science not just a favorite location



Asset condition budgeting, maintenance, and replacement replacement built on years of work orders, and inspections inspections all tied to an asset not a spreadsheet.



A Personal GIS Story

GIS over the Course of my Career

How I found GIS at Colleyville

Took those skills to Lewisville and Lewisville and Community Dev Dev and Code Enforcement

GIS and the first digital PCI project at Highland Village

Where GIS continues to take me in Bedford. Bedford.

Early GPS backpacks



Code Enforcement Dashboard



How is GIS being used today?

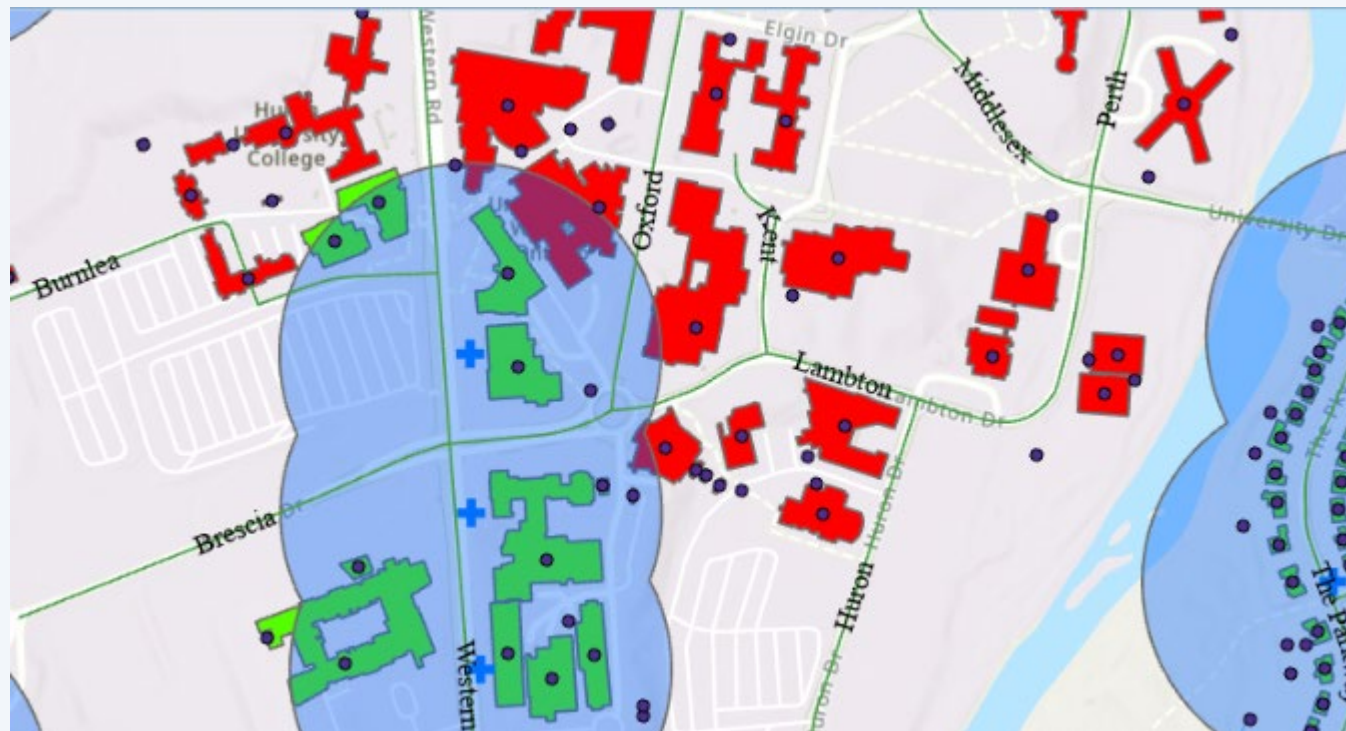
Now in the hands of the crews

The shared data layer connecting design, permitting, construction, and long-term maintenance. Proactive maintenance.

Now in the hands of the decision makers

Council/ Commissioners can make straightforward decisions based on science and accurate data.

Fire Hydrant Gap Analysis



Common Operating Picture for all departments! Emergency services depends on Public Works for accurate, well maintained infrastructure, data and location analytics.

Reported Geolocated Issues Reach Crews

- GIS is paired with our 311-style request system, so potholes, water leaks, and signal outages are captured with captured with coordinates.
- Requests route automatically to the responsible department instead of passing through a phone queue.
- In Highland Village, residents use the Eyes on Highland Highland Village app — a photo and description, sent with sent with its location attached.

WHAT CHANGES FOR CREWS

A work order arrives with a location, a photo, and a history — before anyone drives out to look.



STORM EVENTS

Stormwater Data in Flood Response

Given Texas flash-flood exposure, stormwater GIS feeds directly into flood warning and road-closure systems.

Warning

Gauge and drainage data data trigger flood alerts. alerts.

Barricades

High-water crossings drive barricade deployment.

Routing

Closures reshape evacuation and detour routes.

Recovery

Crews and responders coordinate off one map after the event.

Asset Dashboard



Across design, maintenance, and emergency response, every department is now working from the same map.

SHOW ME THE MONEY

Doing more with less

Given current rising operations, construction costs and reduced revenue, Public Works continues to innovate and innovate and adapt.

Data Driven Decisions Decisions

Use data to make decisions
decisions for community
community funding.

Streamline

Use GIS to streamline processes
processes across departments
departments and save time and
and money.

Options

There are low cost GIS
options available.

Budget Constrctions

Accurate asset data can
reduce costly hunt and find
when emergencies hit.

AGIS improves productivity and efficiency by linking all
linking all divisions, from call centers to asset life cycles.
cycles.



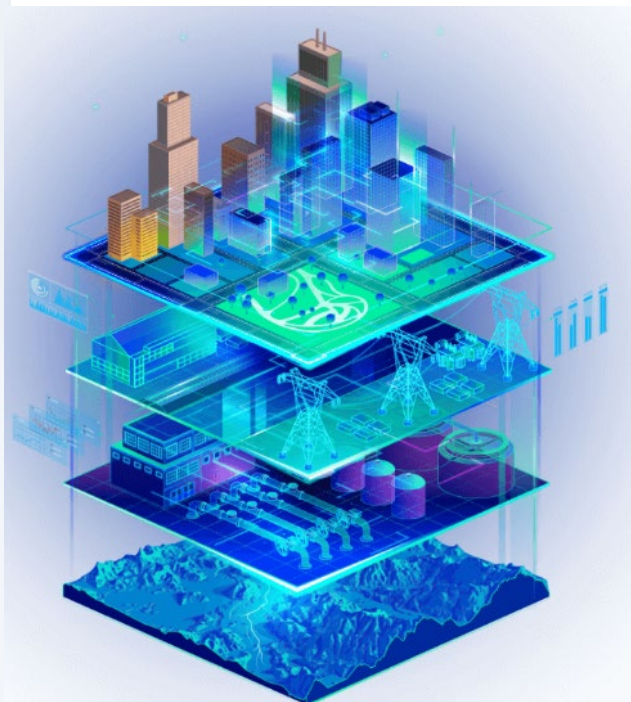
The Future

Next Generation of Public Works GIS

GIS continues to evolve and change to meet the needs of the customer and of the future of the profession.

The Digital Twin

A living model of Public Infrastructure



GIS and AI

From Mapping to Predictive Public Works



Indoor GIS and Public Safety

Taking the common Operating Picture Inside! Shared view of assets and facilities inside buildings.

