

The background of the slide is an aerial photograph of a suburban area in Washington State. Overlaid on the map are several semi-transparent, colored polygons (yellow and orange) that represent real estate parcels. The map includes labels for various streets such as W Airport Dr, S Gelger Blvd, W Lawton Rd, W Park Dr, W Thorpe Rd, W 16th Ave, W 19th Ave, W 21st Ave, W 27th Ave, W 41st Ave, W 44th Ave, and W 47th Ave. There are also labels for S Godfrey Blvd, S Spotted Rd, S Assembly Rd, S Tramor Rd, S Abbott Rd, and S Dorset Rd. A highway shield for Interstate 90 is visible in the center-right. The text "Finch Arboretum" and "Trolley Trail Conservation Area" are also present on the map.

# Unlocking the Past to Empower the Future: Geo-Enabling WSDOT's Statewide Real Estate Parcel Inventory

Golnaz Badr, *PhD., GISP*  
Washington State Department of Transportation  
HQ Real Estate Services  
May 21., 2026

## Overview

Objectives

Problem Statement

Solution workflows

Demo

Q&A



# Unlocking Real Estate Insights with GIS Technology

## Objective

- Create and maintain a fully-functional GIS geodatabase for WSDOT REAL ESTATE

### Past

- From numerous maps in the same area with hand-colored WSDOT parcels ( colored with crayons)

### Future

- Fully digitized WSDOT Parcels Inventory and Geodatabase



# Problem Statement

As a WSDOT Real Estate employee I need to **answer** burning questions such as:

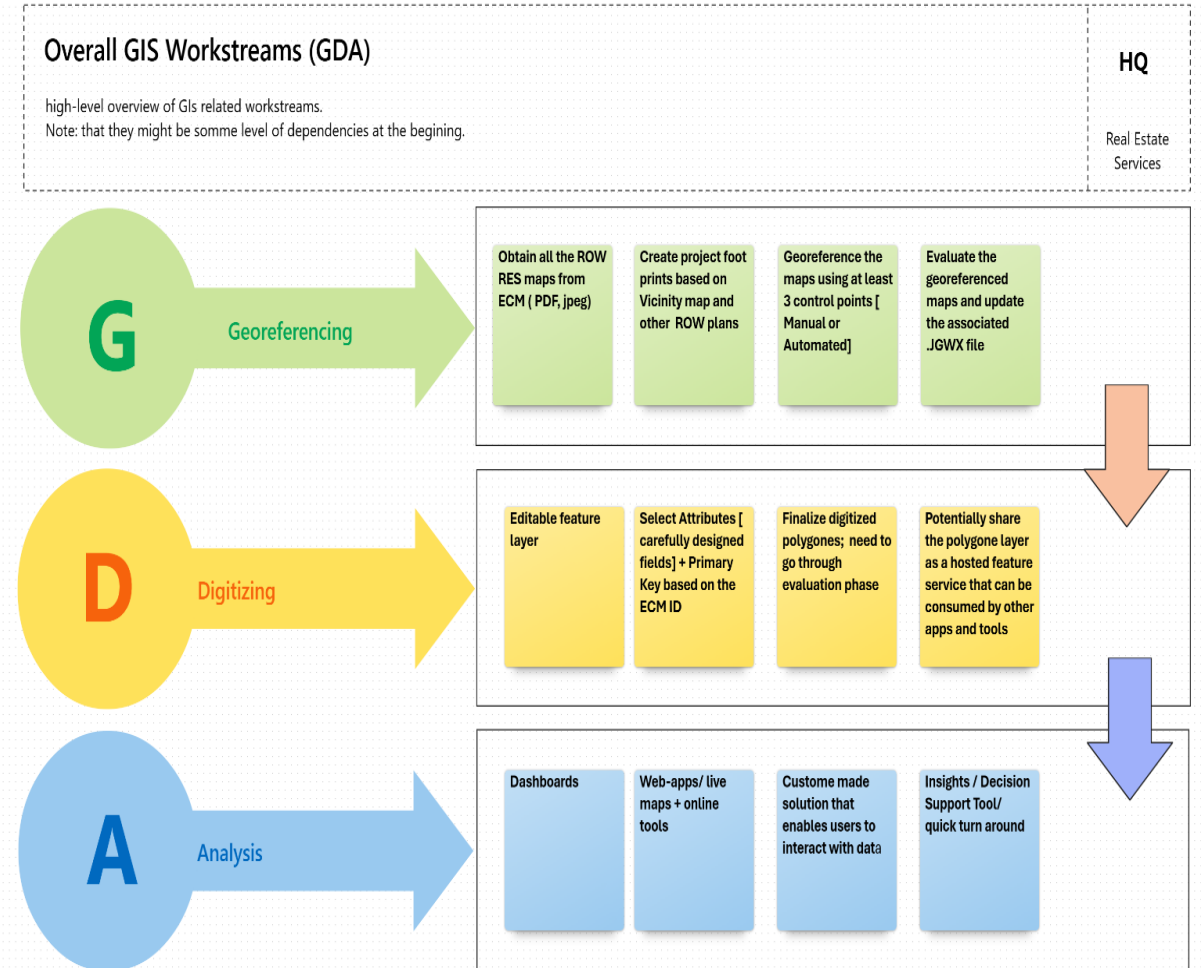
- How do I obtain a list of WSDOT Properties?
- Give me an estimate of total acreage of land that WSDOT owns?
- How can I detect surplus property?
- What percentage of WSDOT properties are sundry sites, pits, etc.?



Example of georeferenced Real Estate Services maps (SR 090- Lake Sammamish).

# Solution Workflows

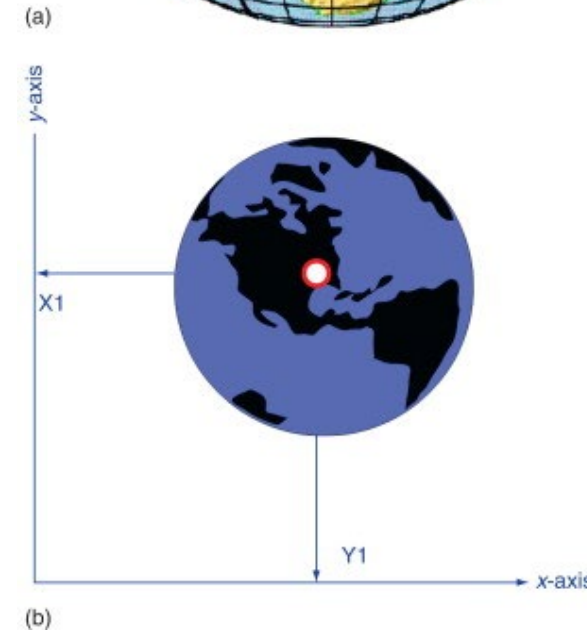
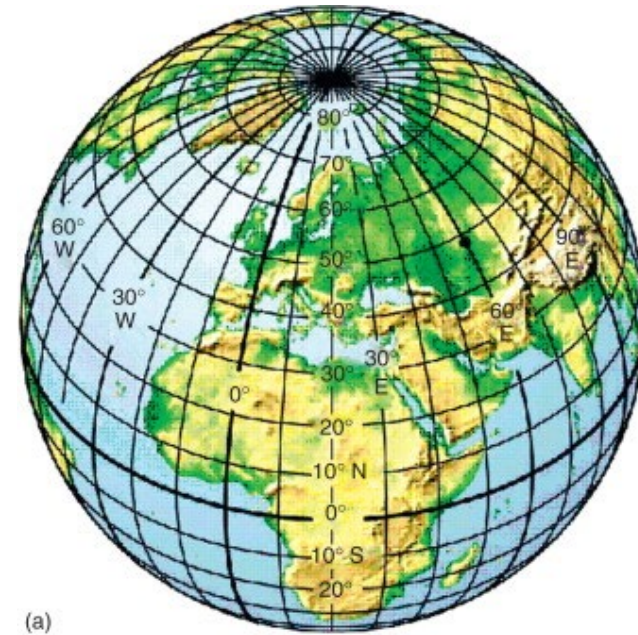
- At Real Estate Services Head Quarters, we have developed several State-of-the-art GIS workstreams for various steps that needs to happen, to have a comprehensive Geo-Database (.gdb) that can help answer various enquiries around ROW Real Estate properties.



# 1. Georeferencing

This is the process of assigning real-world coordinates to a raster image, like a scanned map or aerial photograph, so it can be accurately displayed and used within a Geographic Information System (GIS).

For Right-of-Way (ROW) maps, georeferencing ensures these maps, often scanned from older documents, are correctly positioned and aligned with other geographic data, enabling their integration into spatial analysis and mapping workflows.

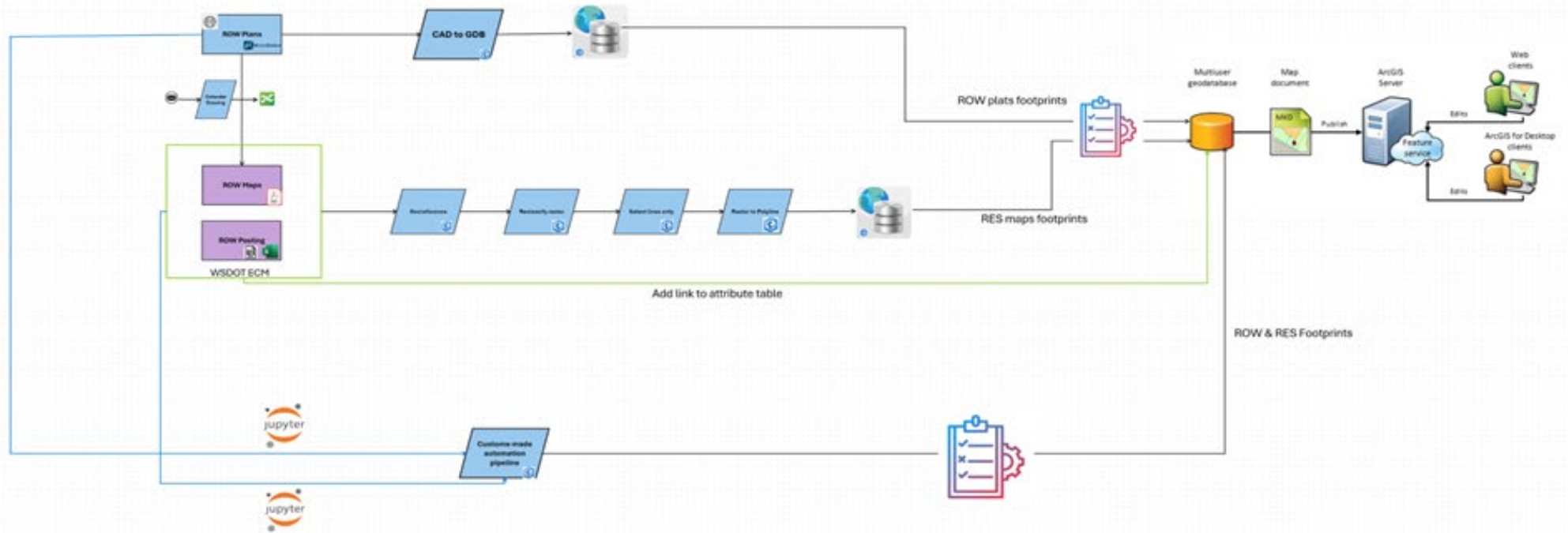


## Steps to Geo-reference ROW Maps for Real Estate Projects

- 1. Collect Source Maps:** Download all Right-of-Way (ROW) RES maps from ECM in PDF or JPEG format.
- 2. Create Project Footprints:** Use the Vicinity Map and related ROW plans to outline the project footprint in GIS.
- 3. Georeference the Maps:** Align each map using a minimum of three known control points (either manually or through automated tools ) to ensure spatial accuracy.
- 4. Review & Finalize:** Assess the georeferenced outputs and refine as needed. Update the associated .JGWX world files to preserve location data for GIS integration.



Overall project footprint over Washington Ortho imagery ( Washington 6in 2021-2022, 4 band, Statewide Imagery (Service-DES))



## 2. Digitizing

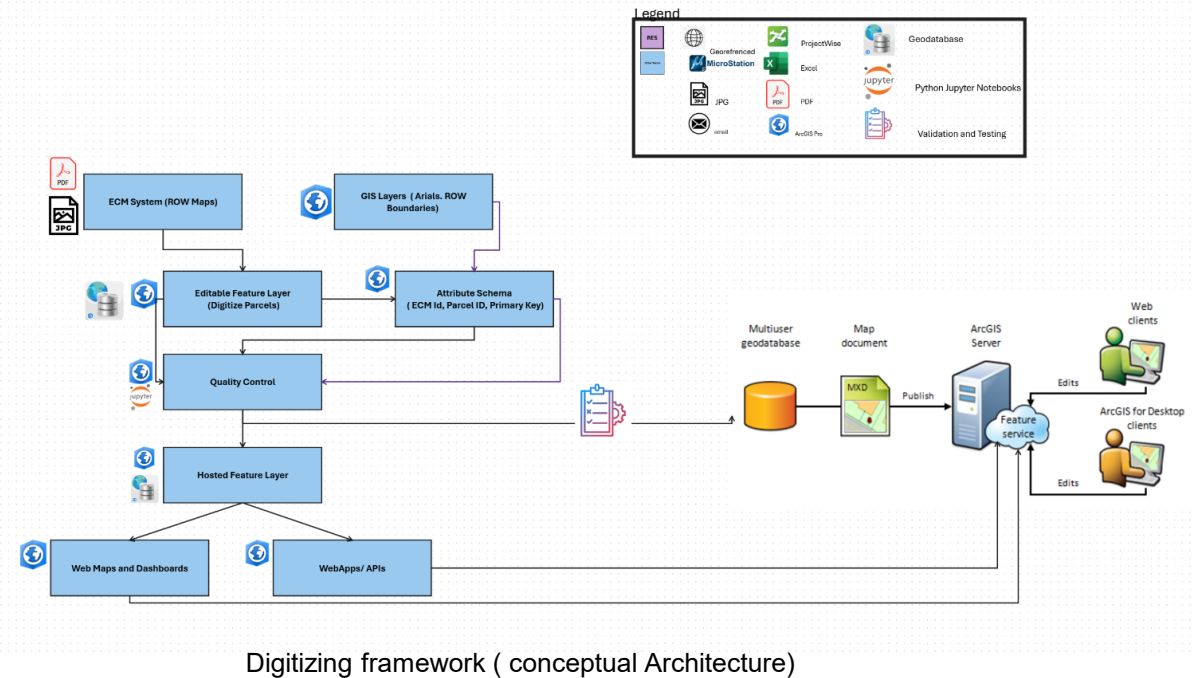
- Digitizing refers to the process of converting geographic features on a map (either a paper map or a digital basemap like satellite imagery or aerial photographs) into a digital vector format.
- This involves drawing shapes, in this case polygons, on the screen using the mouse or other input devices to represent real-world features like buildings, lakes, or land parcels.



Example of editable feature layer and new polygons.

# Steps for Digitizing Real Estate Property Map Parcels

- **1. Set Up Editable Feature Layer** Create or access an editable GIS feature layer as the workspace for digitizing parcel boundaries.
- **2. Define and Apply Attribute Schema** Use a carefully structured set of attribute fields, including a unique **Primary Key** derived from the ECM ID to ensure accurate tracking and integration.
- **3. Digitize and Evaluate Parcels** Draw and finalize parcel polygons, followed by a quality review to confirm spatial accuracy and attribute consistency.
- **4. Share as Hosted Feature Layer** (Optional) Publish the digitized parcel layer as a hosted feature service, enabling access and integration with other GIS applications and tools.



**DEMO**

**WSDOT RES Team  
M2D2 Leadership  
Common Street Team**

