



Land Records an Overview of Geographic Information Systems (GIS) and Project Development

LAND RECORDS, PROJECT
MANAGEMENT &
ENGINEERING DEPARTMENT



INTRODUCTION

Land Records is part of the
Survey/Right of Way (ROW)
Division of the Project
Management & Engineering
Department (PM&E) of the
Municipality of Anchorage (MOA)

RESPONSIBILITIES

- ❖ Support PM&E data and mapping requirements
- ❖ Maintain MOA cadastral data
- ❖ Mapping and data work for other departments as requested i.e.; (Real Estate Services/Heritage Land Bank (HLB), DHHS, and Public Works Admin)

MOA GIS PUBLIC GALLERY



MOA GIS Public Resources

Managed by the Municipality of Anchorage Geographic Data and Information Center



1 ACCESSING OUR GALLERY

On the **main MOA website** (www.muni.org) there is an icon with a green map of Anchorage on the third row.

Click the icon under the word "Map" to launch the MOA Maps and Data Gallery.



2 DECIDE WHAT YOU ARE LOOKING FOR

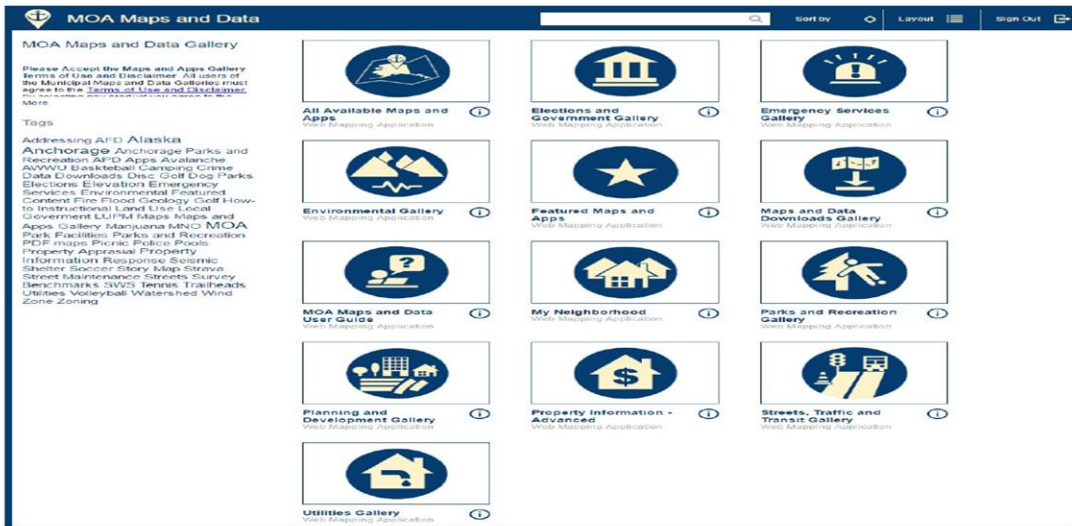
The MOA Maps and Data Gallery is organized by themes. Each theme will have maps that relate to that topic.

The first link will take you to a gallery that displays every map that we have in the gallery on a single page.

There are also a couple of links that take you directly to mapping applications. These are MOA Maps and Data User Guide, My Neighborhood and Property Information - Advanced.

Explore the gallery and the themes to see everything that is available!

Feedback is always welcome on ways to improve our gallery or additional maps to include.



MOA GIS PUBLIC GALERY CONT.

3

GETTING THE MOST OUT OF THE MAPS

On most of the maps within the **Maps and Apps Gallery** there are a few common tools available to help you utilize the information to the fullest. Below are short descriptions of the main tools. Tools will have the same icons always but may appear in other part of the webpage on different maps.



Zooming: moves the map in and out. To zoom in on a specific area, hold down the shift button then draw a square around where you want to zoom to.

Previous Extent: takes you to the zoom level or location you were at one step earlier on the map. This goes both forward and backwards for extents.

Links: links may be at the top of the map to take you to other pages or back to the main Maps and Apps Gallery.



LEGEND

Show all layers that are visible on the map and what the various symbols represent.



SEARCH

Allows you to search by specific layers on the map to find anything you might be looking for.



INFO

Provides additional information about the data and which department to contact with questions.



BASEMAP

Change the background map that appears under the different layers. Includes imagery options.



DRAW

Drawing allows you to add points, lines, shapes and even text to the map you are viewing. This is not saved on the map and can't be shared can be printed as a PDF for reference.



PRINT

Print send the map you are viewing to a PDF. You can choose to print just the map or include a legend and title. There are also different sizes that are available to print.



SHARE

Share map via email, Facebook, Twitter or Google+ at the zoom level you have set. This is great if you have a specific area you want to show someone! You can also get information here about embedding the map in your own application

MOA GIS PUBLIC GALLERY CONT.

4

HIGHLIGHTED MAPS and APPS

MOA Maps and Data User Guide

This online guide provides more detailed information on the use of tools within maps. It provides useful basic information for new users.



Property Information - Advanced

The advanced property information map provides extensive information on parcels. This includes parcel size, address, owner information and a link to the webpage for the given parcel.

My Neighborhood

Have you ever wondered what is available around your neighborhood? No need to worry anymore, My Neighborhood allows you to enter your address and see what is within a set distance around you.



Maps and Data Download Gallery

In this gallery there are multiple maps that allow you to print PDFs for self service mapping and download data. Included are: Assembly District, Community Council, Data Downloads, Maps Downloads, Grid Maps, Open Data and Photo and LiDAR Tiles.

Streets Ownership and Maintenance

In the Streets, Traffic and Transit Gallery, this app contains three maps. Each shows road service areas with the roads contact information when you click on each. Then each map is uniquely symbolized by owner, and winter or summer maintenance.



Anchorage Crime Mapping

Located in the Emergency Services Gallery, crimes within the MOA are displayed on the map. You can sort by crime type and date.

Marijuana Establishments

Within the Planning and Development Gallery you can find Marijuana Establishments. There are multiple protected land uses displayed on the map. Establishments that are proposed, conditionally approved and full approved are shown.



Elections and Government Gallery

This gallery has information about how our unique municipal government functions including community councils, assembly districts and other political boundaries. It also has election information such as drop boxes and sample ballots.

Environmental Gallery

Contained in the Environmental Gallery are natural hazards, like avalanche and seismic zones, as well as watershed information, elevation contours and links to the Grid Map that allows downloads of various data.



SELF-SERVICE PRINT MAPS

<https://moa-muniorg.hub.arcgis.com/pages/maps>

Self-Service Print Maps

The Geographic Data and Information Center coordinates with municipal departments to provide maps. Maps are available as PDFs of various sizes.

The maps available here are updated at least weekly with the most available up-to-date information (plating maps are updated monthly). All users of the map downloads provided below must agree to the Terms of Use and Disclaimer. By downloading any map from this page, you agree to the Terms of Use and Disclaimer.

[MOA Homepage](#)

[MOA GIS Main Page](#)

[Data Downloads](#)

[Contact Us](#)

Base Maps

Name	Type	Size	Link	Size	Link	Size	Link
Anchorage Bowl	pdf	36x42	↓	22x34	↓	17x22	↓
Girdwood	pdf	36x42	↓	22x34	↓	17x22	↓
Northern Communities	pdf	36x42	↓	22x34	↓	17x22	↓
Portage	pdf	36x42	↓	22x34	↓	17x22	↓
Turnagain	pdf	36x42	↓	22x34	↓	17x22	↓

DOWNLOADABLE DATA

<https://moa-muniorg.hub.arcgis.com/pages/data>

Downloadable Data

The Geographic Data and Information Center coordinates with municipal departments to provide GIS data. KML file downloads are optimized for use in Google Chrome.

The data available here are updated at least weekly. All users of the data downloads provided below must agree to the Terms of Use and Disclaimer. By downloading any data from this page, you agree to the Terms of Use and Disclaimer.

Land Records

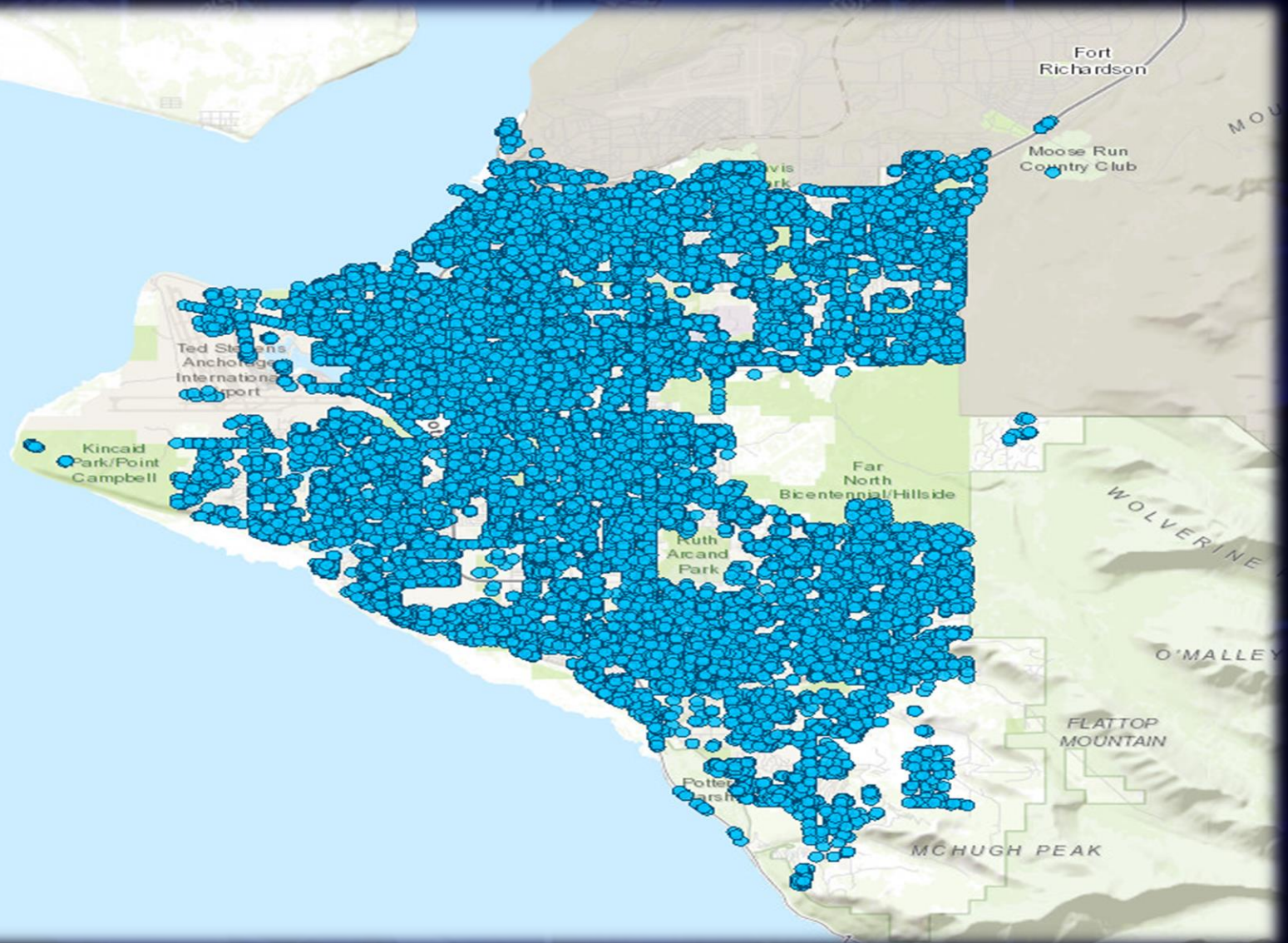
[Contact Land Records](#)

Name	File GDB	ShapeFile	KML
100 Scale Grid	↓	↓	↓
500 Scale Grid	↓	↓	↓
Easements	↓	↓	↓
Monuments	↓	↓	↓
Parcels	↓	↓	
Subdivisions	↓	↓	↓
Survey Benchmarks	↓	↓	↓
Township Range Section	↓	↓	↓

PM&E PROJECTS

- ❖ Soils data project
- ❖ Construction mapping project
- ❖ Eagle River shift project
- ❖ Parcel Fabric project

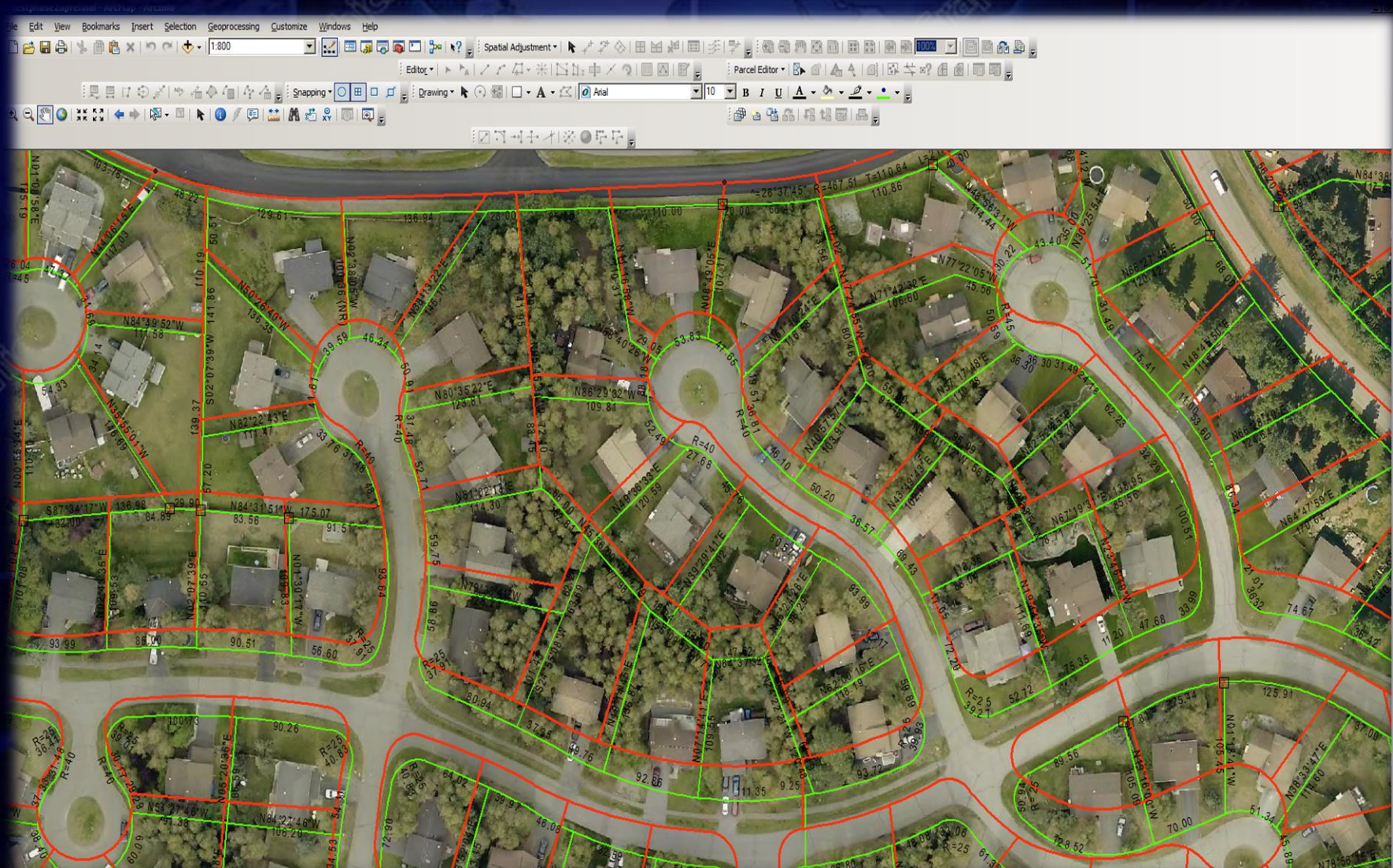
SOILS MAPPING



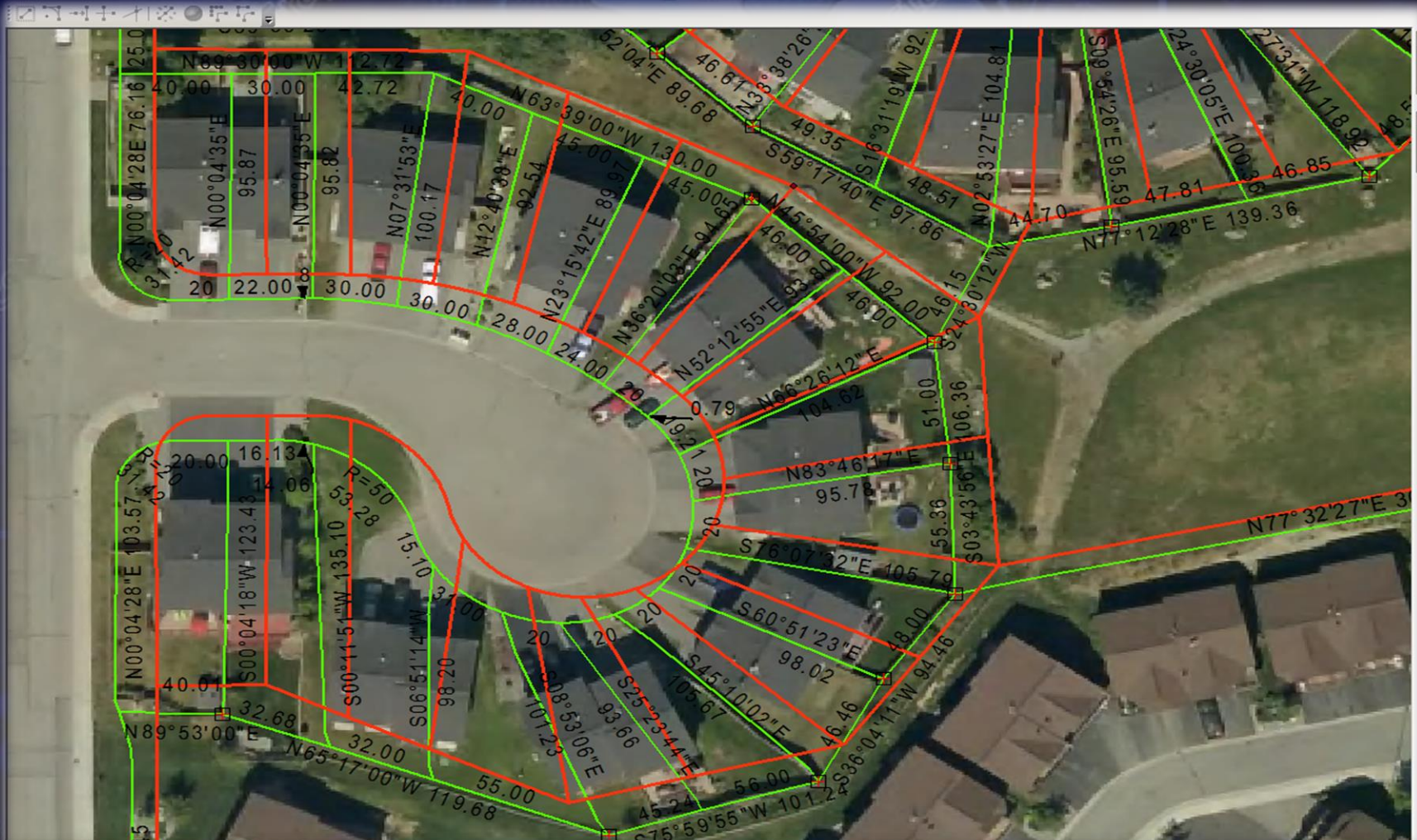
CADASTRAL DATA

- ❖ Little to no survey control in Eagle River & Chugiak
- ❖ High discrepancy between cadastral when imagery was taken in 2009
- ❖ Land records department rectified errors by using contracting survey data and matching up corner lots/fence corners. There was a total of 1152 linked survey and orthoimagery points within the Eagle River/Chugiak area
- ❖ Selected cadastral data within Eagle River area and did a rubber sheet adjustment

CADASTRAL DATA ADJUSTMENT



CADASTRAL DATA ADJUSTMENT CONT.



1714333, 778, 2677320, 75 Feet

PARCEL FABRIC PROJECT

- ❖ Project Started – August 2018
- ❖ Under consideration for several years

WHAT IS A PARCEL FABRIC

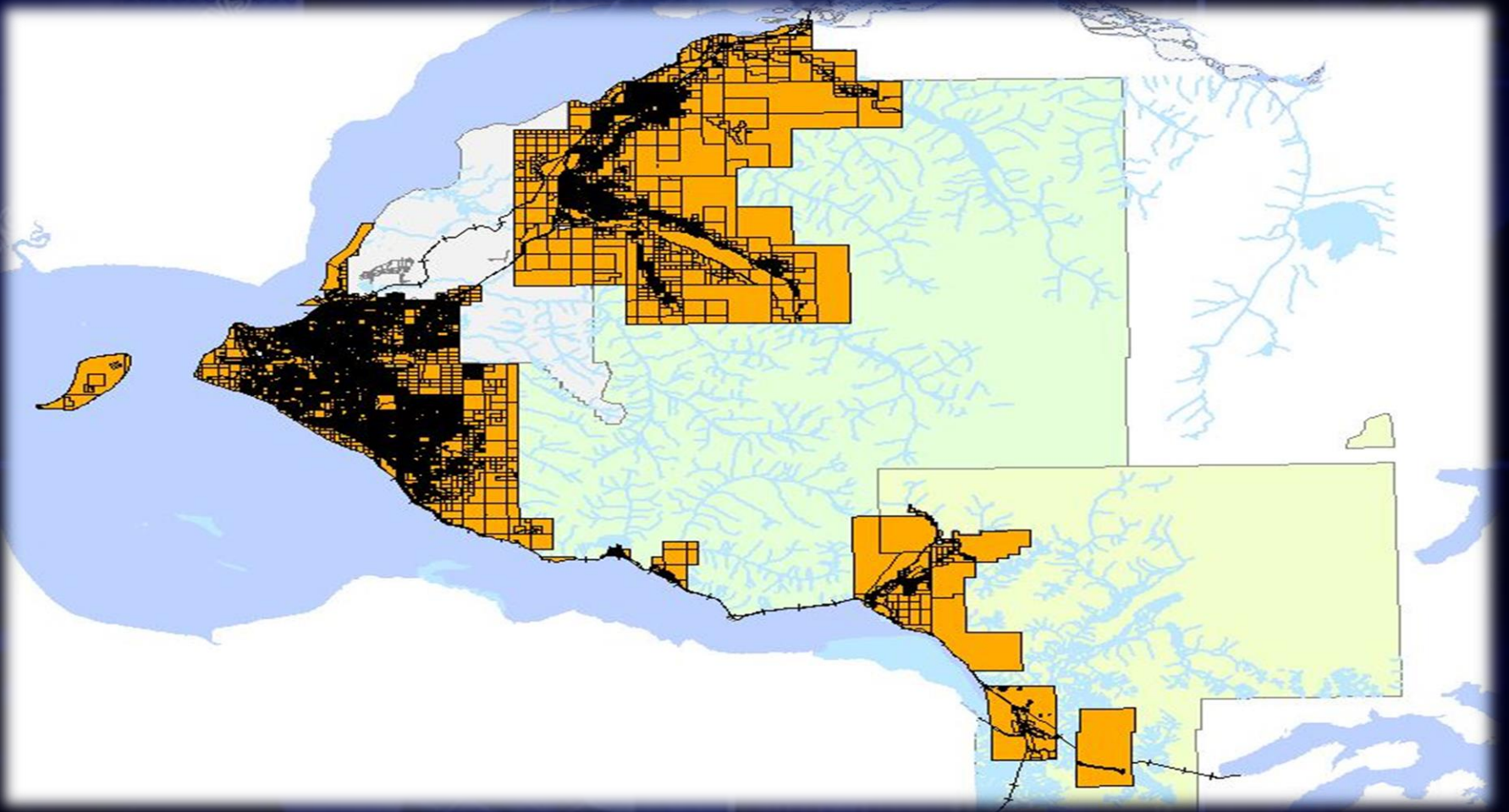
- ❖ Land Records Management System that maintains parcels and stores associated information
- ❖ Standardized model across all land records organizations
- ❖ Part of ESRI's Local Government Information Model

LOCAL GOVERNMENT INFORMATION MODEL

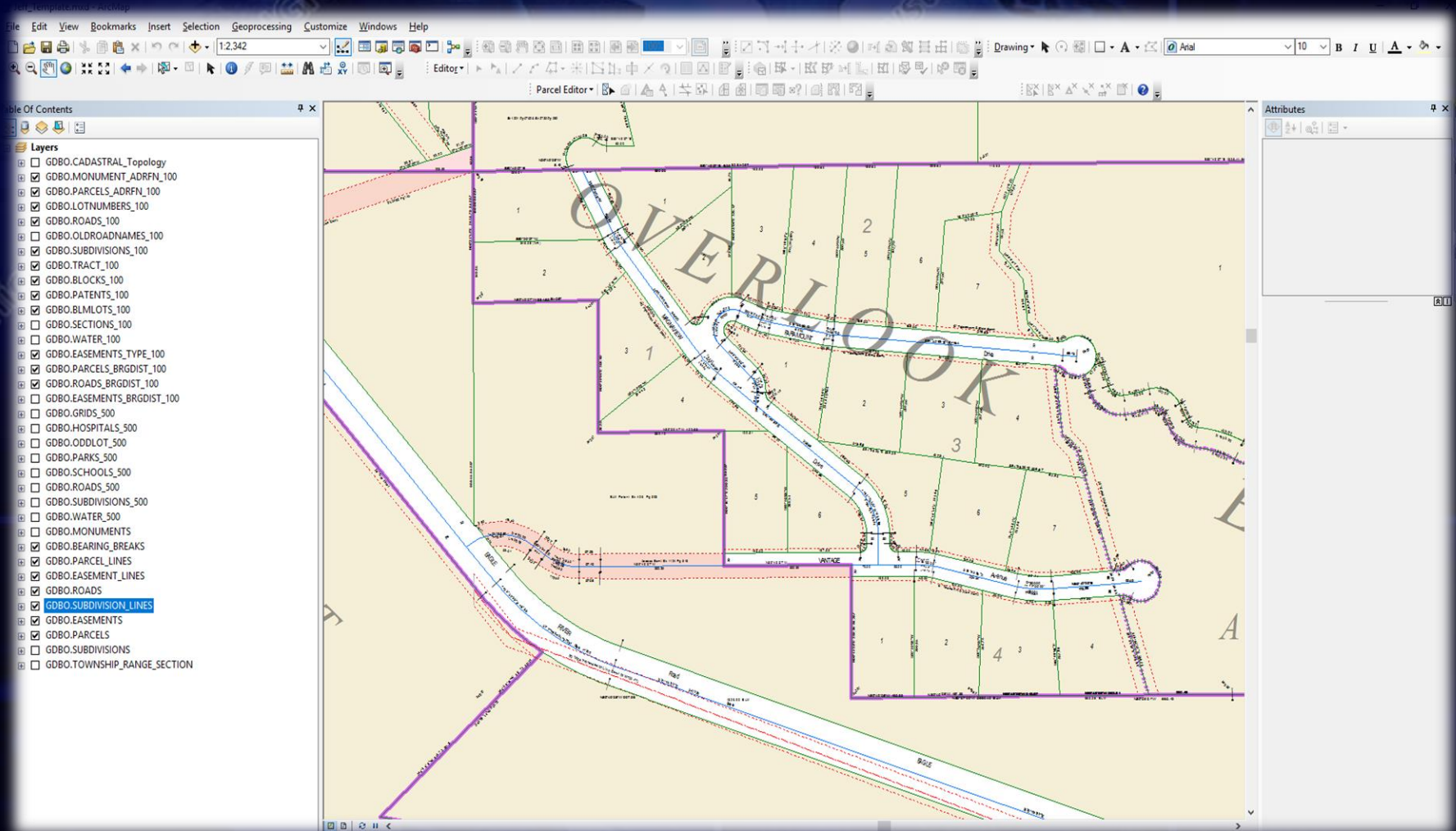
- ❖ Database model designed to work across all matters of
Local Government GIS related operations
- ❖ Standardized database that can work for everyone
- ❖ Works with a growing number of ESRI web services and
applications
- ❖ Makes it easier to share data across organizations

MOA'S PARCEL COUNT

❖ Parcel extent



CADASTRAL DATA BEFORE MIGRATION



ESRI SEMINAR

- ❖ Three day seminar taught by Dan Stone
- ❖ Parcel fabric processed with MOA data
- ❖ DATA mapping and subtypes
- ❖ Document

DATA CLEANUP & MIGRATION PROCESS

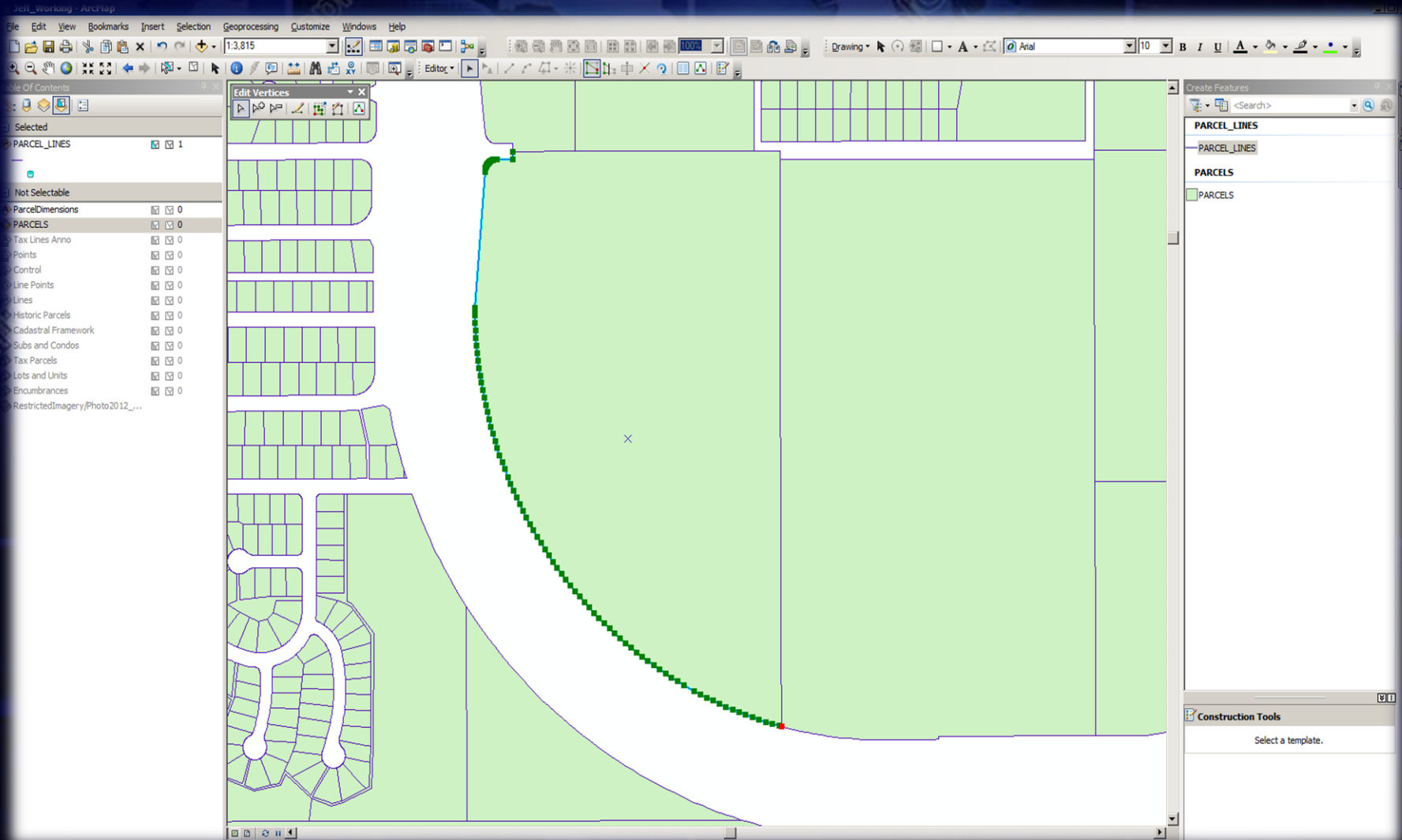
- ❖ Cleaned line topology to meet geometry standards within the parcel fabric
- ❖ Data mapping
- ❖ Validate parcel fabric to meet topology rules
- ❖ Stage data for migration
- ❖ Check results to correct parcels that may fail to load

DATA MIGRATION CONT.

❖ Topology rules for migration

- ❖ Line features must be covered by polygon boundaries
- ❖ Lines must not self-overlap
- ❖ Lines must not self intersect
- ❖ Lines must be single part
- ❖ Lines must not intersect or touch interior
- ❖ Polygon boundaries must be covered by lines

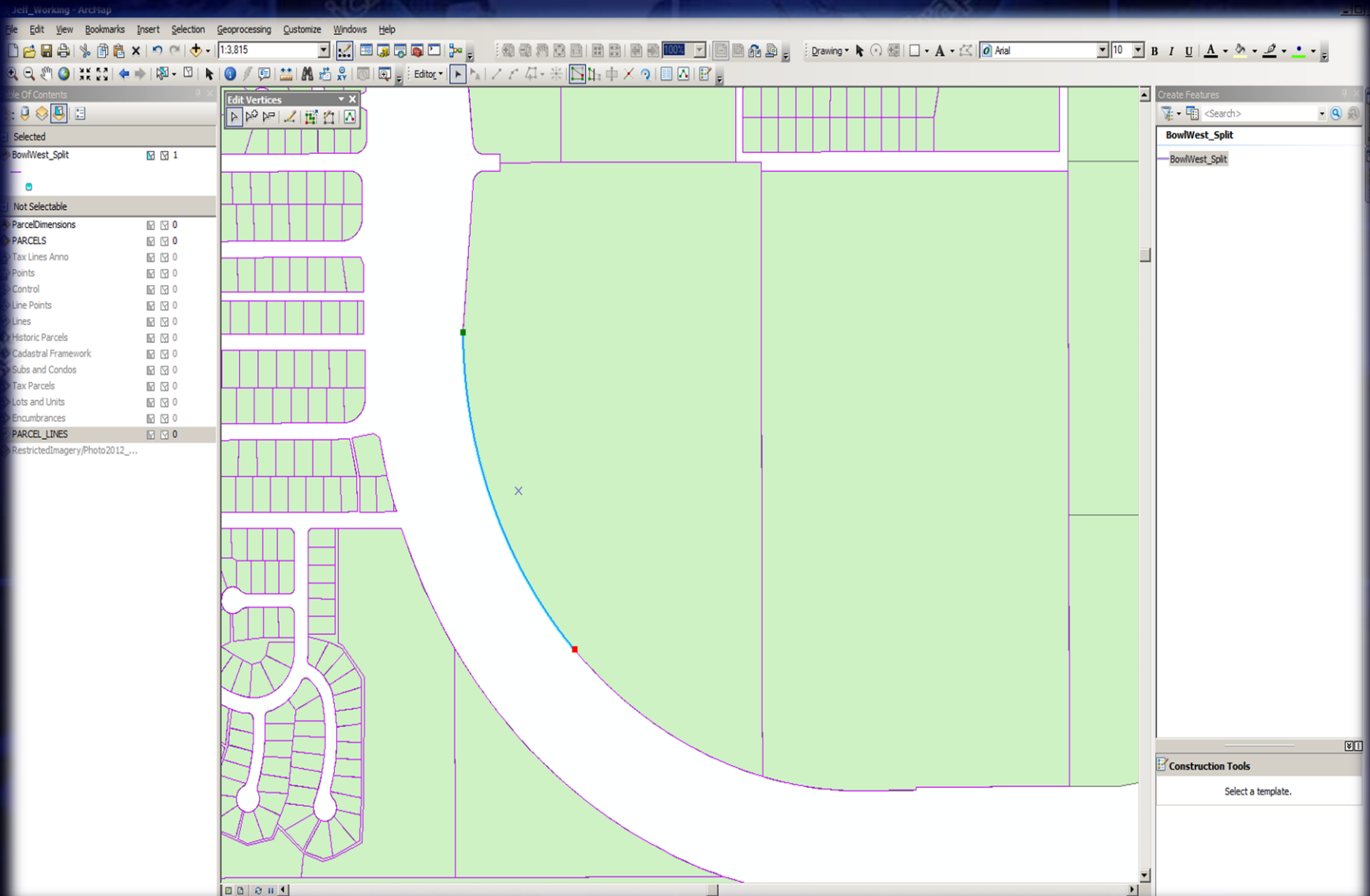
DATA MIGRATION CONT.



DATA MIGRATION CONT.

- ❖ Process lines using ESRI curves and line tools within ArcGIS PRO
- ❖ Convert multi-part curves to two point curves
- ❖ Convert lines to string curves to true curves
- ❖ Reduce unnecessary vertices in line segments

DATA MIGRATION CONT.



DATA MIGRATION CONT.

- ❖ Staging data for load to parcel fabric
 - ❖ Decide which attributes you want to bring into the parcel fabric
 - ❖ Matching attributes between staging and loading geodatabases make the process a lot quicker

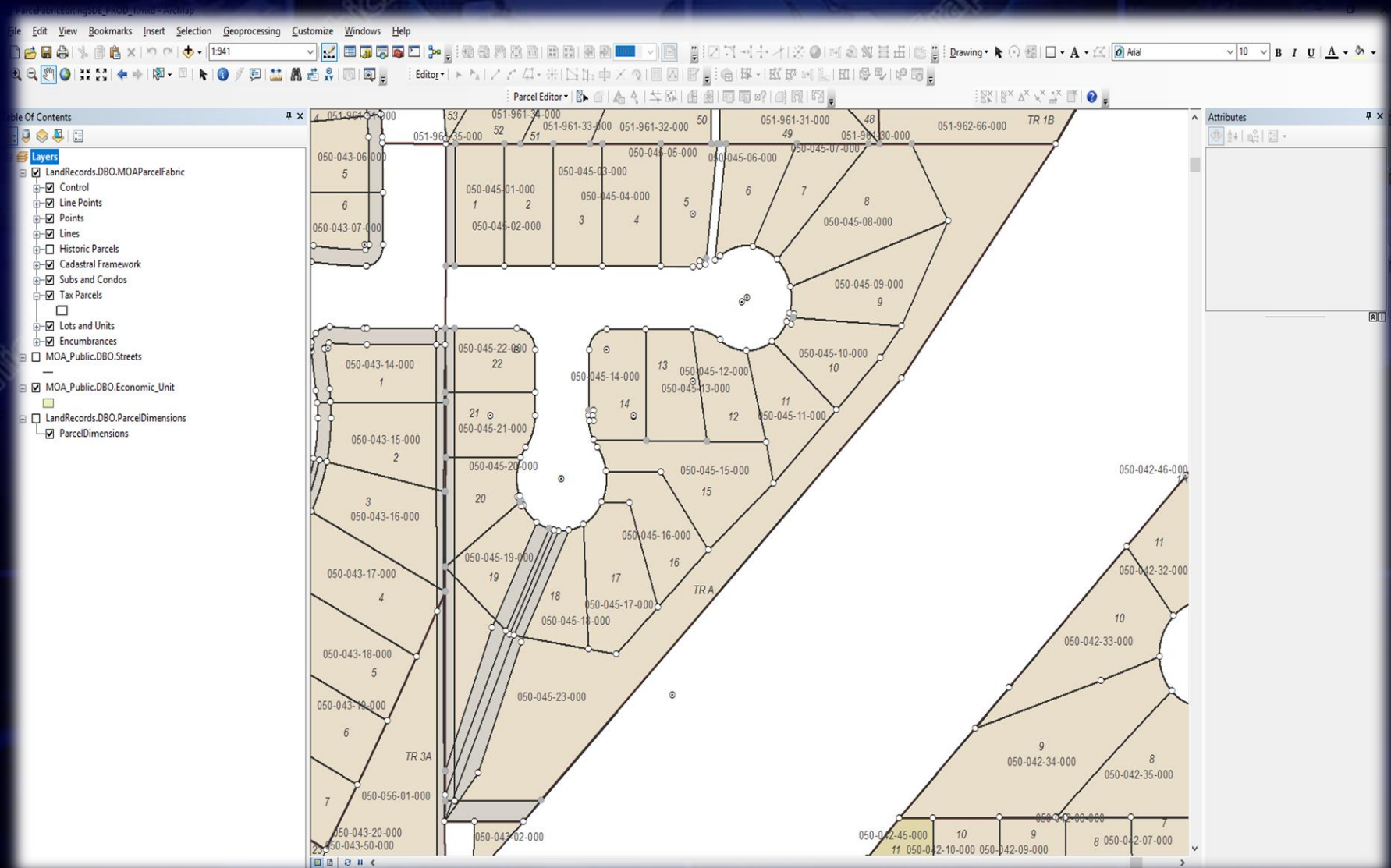
DATA MIGRATION CONT.

- ❖ Check your results

- ❖ Check for missing parcels

- ❖ Use check fabric tool to run ESRI checks on the parcel fabric to identify possible errors

THE PARCEL FABRIC



ADVANTAGES OF THE PARCEL FABRIC

- ❖ Polygons and lines work together in a connected environment with built in topology
- ❖ Keeps a history of changes
- ❖ Store original survey dimensions and geometry
- ❖ ESRI supported tools, workflows, and applications
- ❖ Use of control points and adjustments to improve accuracy
- ❖ Editing is more efficient

KEEPS A HISTORY

The screenshot displays the ArcMap software interface. At the top, the title bar reads "Parcel Editor - MOA_Public.DBO.Economic_Unit - ArcMap". The menu bar includes "File", "Edit", "View", "Bookmarks", "Insert", "Selection", "Geoprocessing", "Customize", "Windows", and "Help". The toolbar contains various icons for map navigation and editing. The main map area shows a parcel map with numerous numbered parcels (e.g., 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22) and a central blue-shaded area. The map is overlaid with a grid. The left sidebar shows the "Table of Contents" with a "Layers" list including "LandRecords.DBO.MOAParcelFabric", "Control", "Line Points", "Points", "Lines", "Historic Parcels", "Cadastral Framework", "Subs and Condos", "Tax Parcels", "Lots and Units", "Encumbrances", "MOA_Public.DBO.Streets", "MOA_Public.DBO.Economic_Unit", and "LandRecords.DBO.ParcelDimensions". The right sidebar shows the "Attributes" panel. The status bar at the bottom indicates the current scale is 1:941.

ADVANTAGES OF THE PARCEL FABRIC CONT.

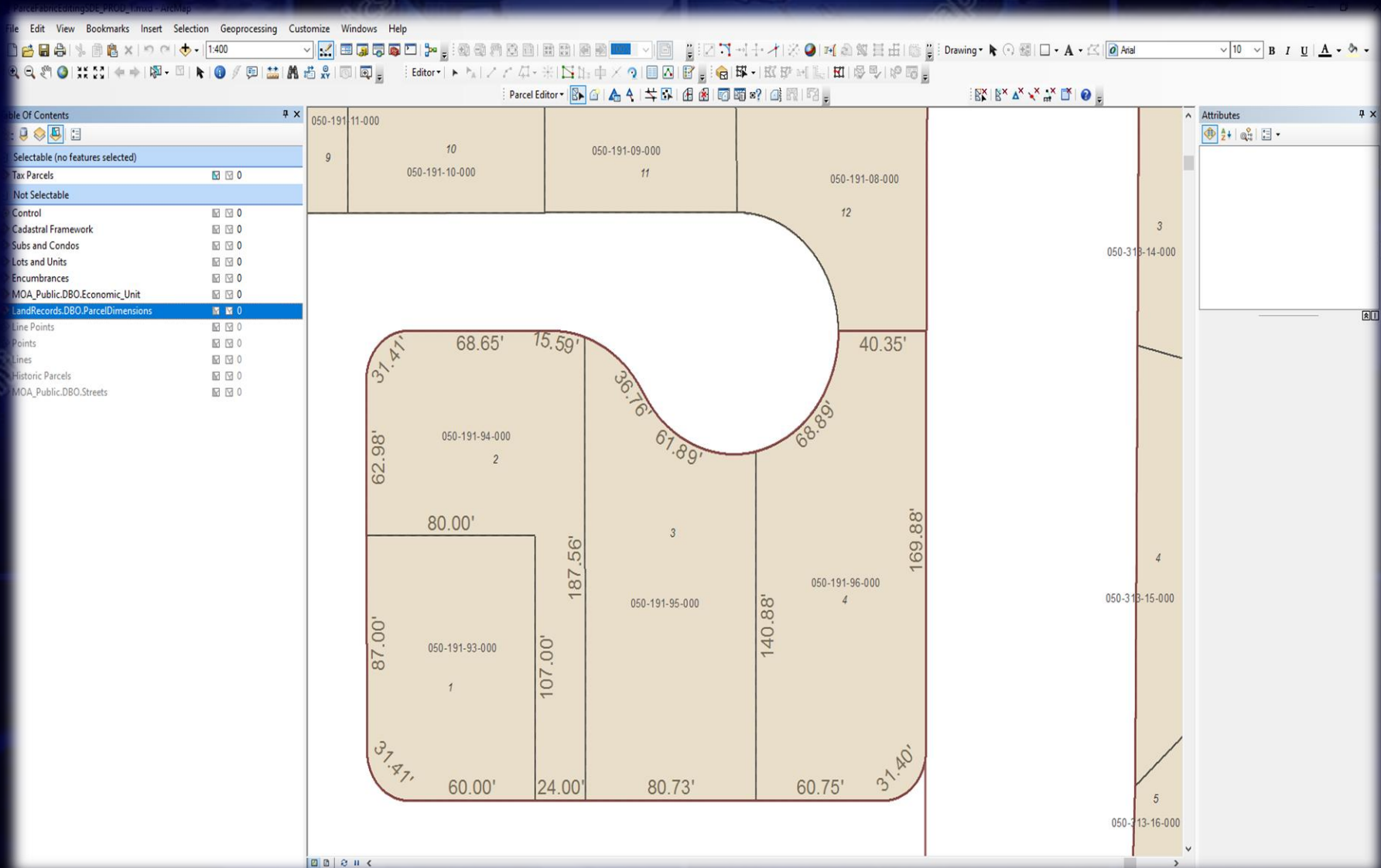
- ❖ Stores original survey information as entered from the legal document
- ❖ Survey dimensions are stored even if a line must be altered to fit surrounding area
- ❖ Can “go back” to original geometry to un-joining and re-joining the parcel

CREATES ANNOTATION

The screenshot displays the ArcMap Parcel Editor interface. The main map area shows a parcel map with several parcels outlined in cyan. A tooltip titled "Annotate Parcel Courses" is visible, stating: "Open the Annotate Selected Features dialog box to choose an annotation class to annotate the selected parcels' lines." The interface includes a menu bar (File, Edit, View, Bookmarks, Insert, Selection, Geoprocessing, Customize, Windows, Help), a toolbar with various editing tools, and several panels:

- Table Of Contents:** Lists layers such as Tax Parcels, Control, Cadastral Framework, Subs and Condos, Lots and Units, Encumbrances, MOA_Public.DBO.Economic_Unit, Line Points, Points, Lines, Historic Parcels, MOA_Public.DBO.Streets, and LandRecords.DBO.ParcelDimensions.
- Attributes:** Displays metadata for the selected parcel, including Parcel Identification (05019196000), Economic Unit (<Null>), Floor Number (<Null>), Stated Area (0.3161 a), Legal Start Date (<Null>), Legal End Date (<Null>), OBJECTID (205616), Joined (1), Plan ID (22804), and various other fields.

ANNOTATION CONT.



ADVANTAGES OF THE PARCEL FABRIC CONT.

❖ Control and adjustments

- ❖ Can better incorporate control points such as NGS monuments or other x,y locations and relate locations to parcel corners
- ❖ Control can also be established from high confidence corners existing in data
- ❖ Once control is established, Least Squared Adjustment can be ran on those related parcels

EDITING TIME SAVER

The screenshot displays a GIS application window titled "Parcel Editor". The interface includes a menu bar (File, Edit, View, Bookmarks, Insert, Selection, Geoprocessing, Customize, Windows, Help), a toolbar with various editing tools, and a scale of 1:2,000. The main map area shows a parcel map with several neighborhoods labeled: MEADOW BROOK, KANAHA, BRENDLWOOD, LECORCHICK, EAGLE RIVER HEIGHTS, EAGLE RIVER RANCHETS, and BAKERS. A tooltip titled "Name Parcels" is visible, stating: "Drag a line along an adjacent series of parcels to name them sequentially." The left sidebar contains a "Table Of Contents" with a list of layers and their selection status. The right sidebar shows an "Attributes" panel.

Layer Name	Selection Status
Selectable (no features selected)	
Tax Parcels	0
Not Selectable	
Control	0
Cadastral Framework	0
Subs and Condos	0
Lots and Units	0
Encumbrances	0
MOA_Public.DBO.Economic_Unit	0
LandRecords.DBO.ParcelDimensions	0
Line Points	0
Points	0
Lines	0
Historic Parcels	0
MOA_Public.DBO.Streets	0

ADDING PARCEL NUMBERS

Parcel Editor

Table Of Contents

- Selectable (no features selected)
- Tax Parcels
- Not Selectable
- Control
- Cadastral Framework
- Subs and Condos
- Lots and Units
- Encumbrances
- MOA_Public.DBO.Economic_Unit
- LandRecords.DBO.ParcelDimensions
- Line Points
- Points
- Lines
- Historic Parcels
- MOA_Public.DBO.Streets

Parcel sequence naming

Starting parcel number: 00106456

Increment: 1

Prefix:

Suffix: 000

OK Cancel

MEADOWBROOK

KANANA

BRENDLWOOD

LECORCHICK

EAGLE RIVER HEIGHTS

EAGLE RIVER RANCHETS

BAKERS

ADDING PARCEL NUMBERS CONT.

The screenshot displays the ArcMap interface with the following components:

- Table of Contents:**
 - Layers
 - LandRecords.DBO.MOAParcelFabric
 - Control
 - Line Points
 - Points
 - Lines
 - Historic Parcels
 - Cadastral Framework
 - Subs and Condos
 - Tax Parcels
 - Lots and Units
 - Encumbrances
 - MOA_Public.DBO.Streets
 - Tax Parcels selection
 - MOA_Public.DBO.Economic_Unit
 - LandRecords.DBO.ParcelDimensions
 - ParcelDimensions
- Main Map Area:** A parcel map showing various lots with parcel numbers (e.g., 05023135000, 05023134000, 05023133000, 05023132000, 05023131000, 05023136000, 05023137000, 05023138000, 05023130000, 05023129000, 05023128000, 05023127000, 05023122000, 05023113000, 05023114000, 05023115000, 05023120000, 05023118000, 05023118000, 05023117000, 05023116000) and labels for 'LECORCHICK', 'EAGLE RIVER HEIGHTS', and 'EAGLE RIVER RANCHETS'. A white road or path is visible.
- Attributes Panel:** Empty on the right side.



QUESTIONS?