Land Records: An Overview of Geographic Information Systems (GIS) and Project Development
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)
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.
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 (platting 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.

Base Maps

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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

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PM&E PROJECTS

❖ Soils data project
❖ Construction mapping project
❖ Eagle River shift project
❖ Parcel Fabric project
CONSTRUCTION COORDINATION MAP

2019 Construction Projects

Legend
- Chugach Electric Association
- Municipal Light & Power
- MOA Parks & Recreation
- MOA Private Development
- MOA Project Management & Engineering
- Alaska Department of Transportation
- MOA Street Maintenance
- AWWU Private Systems
- AWWU Private Development
- AWWU Capital Projects

[Map with various projects marked on it]
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
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.

❖ 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
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
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
ADDING PARCEL NUMBERS

Parcels sequence naming

Starting parcel number: 00106456
Increment: 1
Prefix:
Suffix: 0001

OK Cancel
ADDING PARCEL NUMBERS CONT.
QUESTIONS?