



# How Can We Successfully Use Artificial Intelligence and Machine Learning to Update and Maintain Mass Appraisal Data Sets?

*Ensuring Accuracy, Equity and Uniformity.....*

**Michael Lomax, R.I., M.B.A.**

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**Esri Canada**

**INTERNATIONAL RESEARCH SYMPOSIUM**

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# Michael Lomax



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Managing Director, Assessment  
Esri Canada Limited

- Creator of GAMA at Esri Canada (13 years)
- Deputy Assessor, BC Assessment (20 years)
- Instructor for Mass Appraisal – University of British Columbia, Sauder School of Business
- Author on IAAO Body of Knowledge
- Past Member of IAAO – Education Committee
- Past Member of IAAO – International Committee
- Practitioner, Educator, Technology Solution Provider

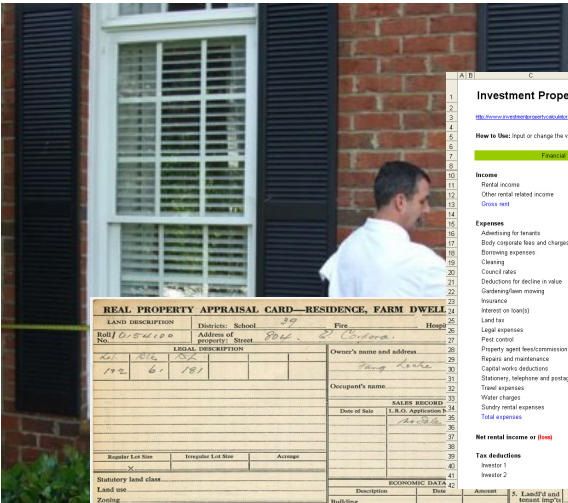


# Session Overview

- What tools and techniques are currently being used?
- What is the value added to the user?
- Practical examples.
- Where is the roadmap for AI & ML headed for mass appraisal?



# Tools and techniques – Timeline over the years



**REAL PROPERTY APPRAISAL CARD—RESIDENCE, FARM DWELL**

LAND DESCRIPTION: 192 61 181  
 District: 39  
 Address of property: 806 1/2 Coloma

Owner's name and address: [Redacted]

Occupant's name: [Redacted]

SALES RECORD: [Redacted]

Statutory land class: [Redacted]

Zoning: [Redacted]

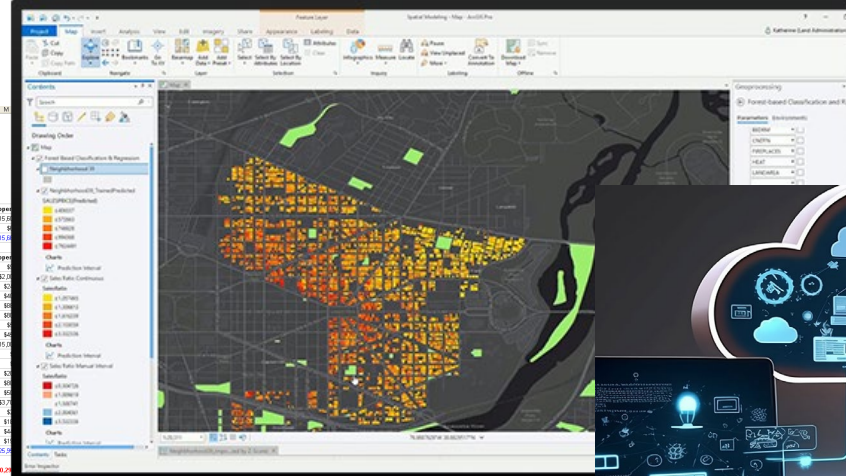
URBAN OR RURAL LAND VALUE CALCULATIONS: [Redacted]

ADJUSTMENTS FOR RURAL LAND: [Redacted]

**Investment Property Record Summary**

How to Use: Input or change the values in all the YELLOW cells (by LINE calls if you like). Press "F9" if things do not change after you change anything.

	Property 1	Property 2	Property 3	Property 4	Property 5	Property 6	Property 7	Property 8	Property 9	Property 10
<b>Income</b>										
Rental income	\$13,000.00	\$13,000.00	\$13,200.00	\$14,400.00	\$15,600.00	\$15,600.00	\$15,600.00	\$15,600.00	\$15,600.00	\$15,600.00
Other rental related income	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Gross rent</b>	<b>\$13,000.00</b>	<b>\$13,000.00</b>	<b>\$13,200.00</b>	<b>\$14,400.00</b>	<b>\$15,600.00</b>	<b>\$15,600.00</b>	<b>\$15,600.00</b>	<b>\$15,600.00</b>	<b>\$15,600.00</b>	<b>\$15,600.00</b>
<b>Expenses</b>										
Advertising for tenants	\$95.00	\$95.00	\$95.00	\$95.00	\$95.00	\$95.00	\$95.00	\$95.00	\$95.00	\$95.00
Body corporate fees and charges	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00	\$2,000.00
Borrowing expenses	\$240.00	\$240.00	\$240.00	\$240.00	\$240.00	\$240.00	\$240.00	\$240.00	\$240.00	\$240.00
Cleaning	\$450.00	\$450.00	\$450.00	\$450.00	\$450.00	\$450.00	\$450.00	\$450.00	\$450.00	\$450.00
Council rates	\$800.00	\$800.00	\$800.00	\$800.00	\$800.00	\$800.00	\$800.00	\$800.00	\$800.00	\$800.00
Depreciation for decline in value	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Gardening/maintenance	\$300.00	\$300.00	\$300.00	\$300.00	\$300.00	\$300.00	\$300.00	\$300.00	\$300.00	\$300.00
Insurance	\$450.00	\$450.00	\$450.00	\$450.00	\$450.00	\$450.00	\$450.00	\$450.00	\$450.00	\$450.00
Interest on loans	\$15,200.00	\$13,400.00	\$13,400.00	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00	\$15,000.00
Land tax	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Legal expenses	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Post control	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00
Property agent fees/commission	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Repairs and maintenance	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Capital works deductions	\$3,700.00	\$3,700.00	\$3,700.00	\$3,700.00	\$3,700.00	\$3,700.00	\$3,700.00	\$3,700.00	\$3,700.00	\$3,700.00
Travel expenses	\$180.00	\$180.00	\$180.00	\$180.00	\$180.00	\$180.00	\$180.00	\$180.00	\$180.00	\$180.00
Water charges	\$440.00	\$440.00	\$440.00	\$440.00	\$440.00	\$440.00	\$440.00	\$440.00	\$440.00	\$440.00
Steady rental expenses	\$190.00	\$190.00	\$190.00	\$190.00	\$190.00	\$190.00	\$190.00	\$190.00	\$190.00	\$190.00
<b>Total expenses</b>	<b>\$27,400.00</b>	<b>\$24,640.00</b>	<b>\$24,640.00</b>	<b>\$26,200.00</b>	<b>\$26,200.00</b>	<b>\$26,200.00</b>	<b>\$26,200.00</b>	<b>\$26,200.00</b>	<b>\$26,200.00</b>	<b>\$26,200.00</b>
<b>Net rental income or loss</b>	<b>(\$14,400.00)</b>	<b>(\$11,640.00)</b>	<b>(\$11,440.00)</b>	<b>(\$11,800.00)</b>	<b>(\$10,600.00)</b>	<b>(\$10,600.00)</b>	<b>(\$10,600.00)</b>	<b>(\$10,600.00)</b>	<b>(\$10,600.00)</b>	<b>(\$10,600.00)</b>
<b>Tax deductions</b>										
Investor 1	\$6,774.00	\$6,774.00	\$6,774.00	\$6,774.00	\$6,774.00	\$6,774.00	\$6,774.00	\$6,774.00	\$6,774.00	\$6,774.00
Investor 2	\$6,774.00	\$6,774.00	\$6,774.00	\$6,774.00	\$6,774.00	\$6,774.00	\$6,774.00	\$6,774.00	\$6,774.00	\$6,774.00



**Street Information**

House # 0, Ext, Dir, Units, Street Name

Type, Quad, Latitude, Longitude, Zip Code

Property Information

LL, LD, GMD, Zoning

Legal: NORTH TIFTON S.S.

Neighborhood, Company #, Subdivision

Lot, Blk, Sec, Phase

Covenant

Values

Previous	440,000
Current	440,000
PC ReIn	440,000
Cur-MAV	440,000
Prev-MAV	440,000

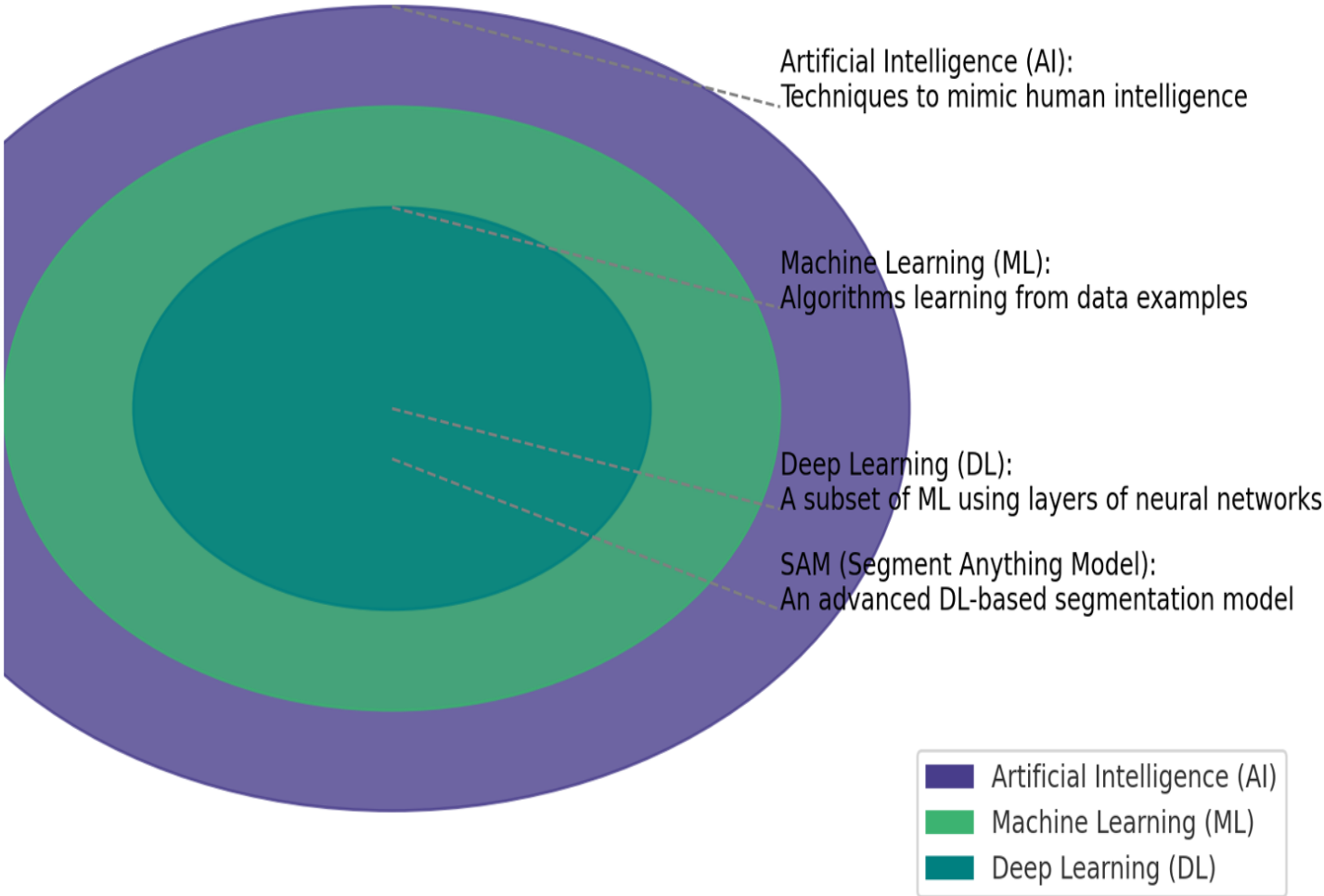
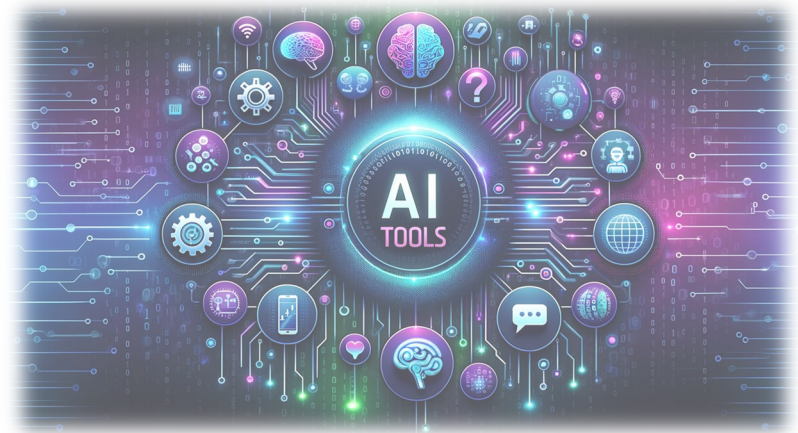
Estimated Tax, FMV, MAV

Land (1) 440,000, Res Imp 0, Com Imp (1) 0, Acc Imp 0

Comp ReIn 440,000, DOR Value 440,000, Float Base2 0, Float Cur2 0, State HS Val 0, 295(c) Value 0, 295(c) Year 0



# Technology Hierarchy for AI/ML/DL





# Tools and techniques – Today



Pool Discrepancies

- Incorrect Pool in CAMA
- Missing Pool in CAMA

Image Classification - Pool

assessment analyst





# Tools and techniques – Today

The screenshot displays the GeoSketch software interface. The main window shows an aerial view of a residential area with a street labeled "MEFFORD HEIGHTS". A specific building area is highlighted in cyan, with a red box indicating a "Building Area" of 363.32 ft². A tooltip says "Double click to stop". The interface includes a top toolbar with "Folios" search, zoom controls, and a "3D" button. A right-hand sidebar contains "Settings", "Editing" (with a "Click stop icon to stop" instruction), "Floor" (set to "All"), "3D View", "Create" and "Select" buttons, "Create Tools" (with icons for polygon, rectangle, line, circle, and area), "Improvements" (set to "Building Area"), and a "Bing" map view showing the location relative to Aberdeen and Maysville. The user's name "Brian Smith" is visible in the top right corner.



# Tools and techniques – Today

## Image classification

Image classification involves assigning a label or class to a digital image. For example, the drone image on the left below might be labeled crowd, and the digital photo on the right might be labeled cat. This type of classification is also known as object classification or image recognition, and it can be used in GIS to categorize features in an image.



## Instance segmentation

Instance segmentation is a more precise object detection method in which the boundary of each object instance is drawn. For example, in the image on the left below, the roofs of houses are detected, including the precise outline of the roof shape. On the right, cars are detected, and you can see the distinct shape of the cars. This type of deep learning application is also known as object segmentation.



## Panoptic segmentation

Panoptic segmentation combines both semantic segmentation and instance segmentation. For example, the image below shows all the pixels are classified, and each unique object, such as each car, is its own unique object.



## Object detection

Object detection is the process of locating features in an image. For example, in the remote sensing image below, the neural network found the location of an airplane. In a more general computer vision use case, a model may be able to detect the location of different animals. This process typically involves drawing a bounding box around the features of interest. It can be used in GIS to locate specific features in satellite, aerial, or drone imagery and to plot those features on a map.



## Semantic segmentation

Semantic segmentation occurs when each pixel in an image is classified as belonging to a class. For example, in the image on the left below, road pixels are classified separately from nonroad pixels. On the right, pixels that make up a cat in a photo are classified as cat, while the other pixels in the image belong to other classes. In GIS, this is often referred to as pixel classification, image segmentation, or image classification. It is often used to create land-use classification maps.



## Change detection

Change detection deep learning tasks can detect changes in features of interest between two dates and generate a logical map of change. For example, the image on the left below shows a housing development from five years ago, the middle image shows the same development today, and the image on the right shows the logical change map where new homes are in white.





# Tools and techniques – Today

ArcGIS Pro

Overview

Extensions

Features

Resources

Free Trial

Home Get Started Help Tool Reference Python SDK Migrate from ArcMap

Help / Analysis and geoprocessing / Artificial Intelligence

Spatial analysis in ArcGIS Pro

> Geoprocessing

> Raster Functions

> Charts

> Data Engineering

▼ Artificial Intelligence

GeoAI

> Deep Learning

> 3D Analyst

> Business Analyst

> Geostatistical Analyst

> Image Analyst

> Link Analysis

> Network Analyst

> Spatial Analyst

> Visibility Analysis

## GeoAI

ArcGIS Pro 3.4 | [Other versions](#) | [Help archive](#)

GeoAI is the integration of artificial intelligence (AI) with spatial data, science, and geospatial technology to increase understanding and solve spatial problems. GeoAI includes the application of traditional AI techniques to generate spatial data through the extraction, classification, and detection of information from structured and unstructured data. GeoAI is also the use of spatially explicit AI techniques that are designed to solve spatial problems through the analysis of spatial data, and includes techniques for detecting patterns, making predictions, spatiotemporal forecasting, and more.

## Key concepts

The following terms will help you understand GeoAI within ArcGIS Pro.

- Spatial analysis—The process of examining the locations, attributes, and relationships in spatial data through a series of techniques from simple overlays to advanced spatial statistics and other analytical techniques.
- Artificial Intelligence (AI)—The ability of a machine (for example, computer) to perform tasks that traditionally require human intelligence, such as perception, reasoning, and learning. We see AI applications everywhere in our daily lives—in smart assistants on our phones, in recommendations on our social media feeds, and in self-driving cars and robots. AI encompasses both machine learning and deep learning.
- Machine learning (ML)—A subset of AI referring to a set of techniques that allow computers to learn patterns within data and acquire knowledge without being explicitly programmed. ML techniques

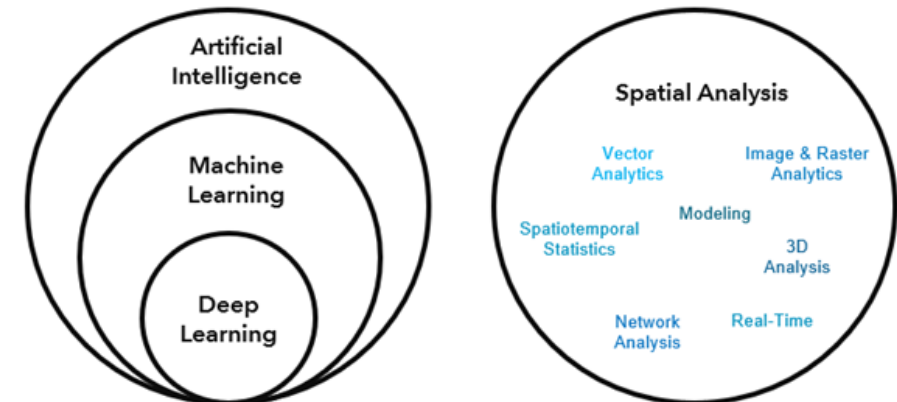
In this topic

[Key concepts](#)

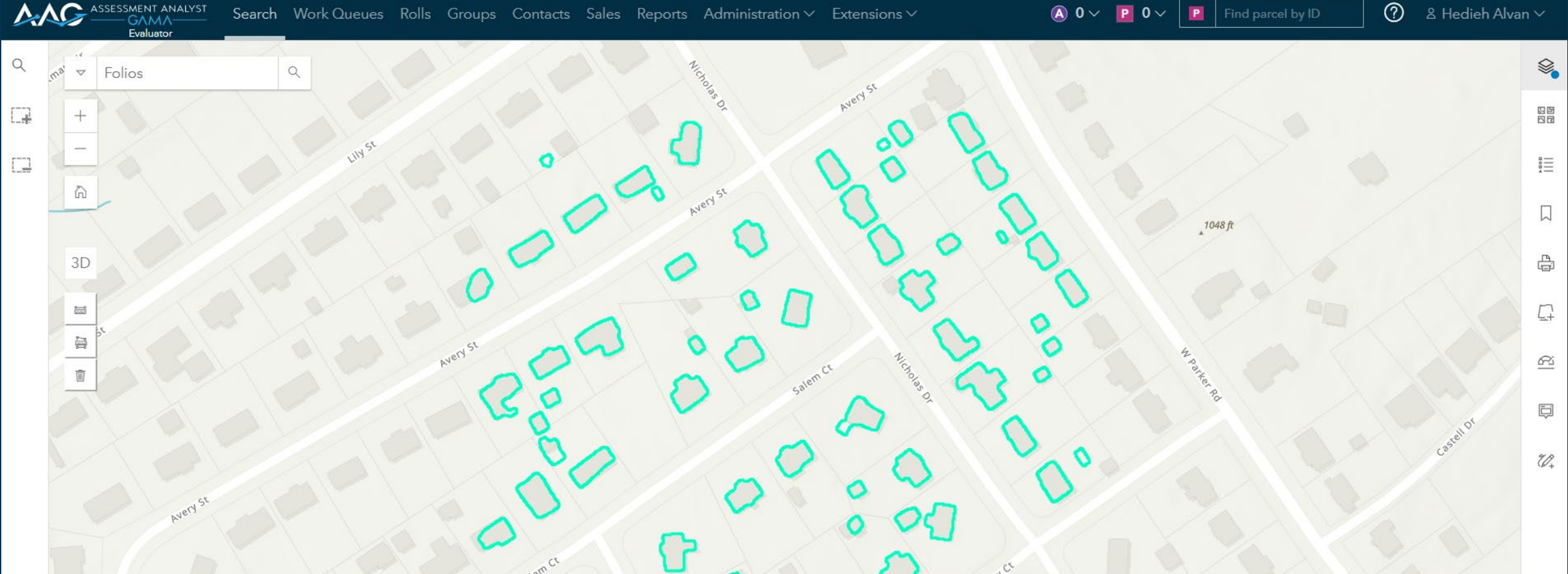
[Problem-solving](#)

[Learn more](#)

- GIS + AI = GeoAI
- Leverages Spatial Reference
- Real Estate Value = Location, Location, Location

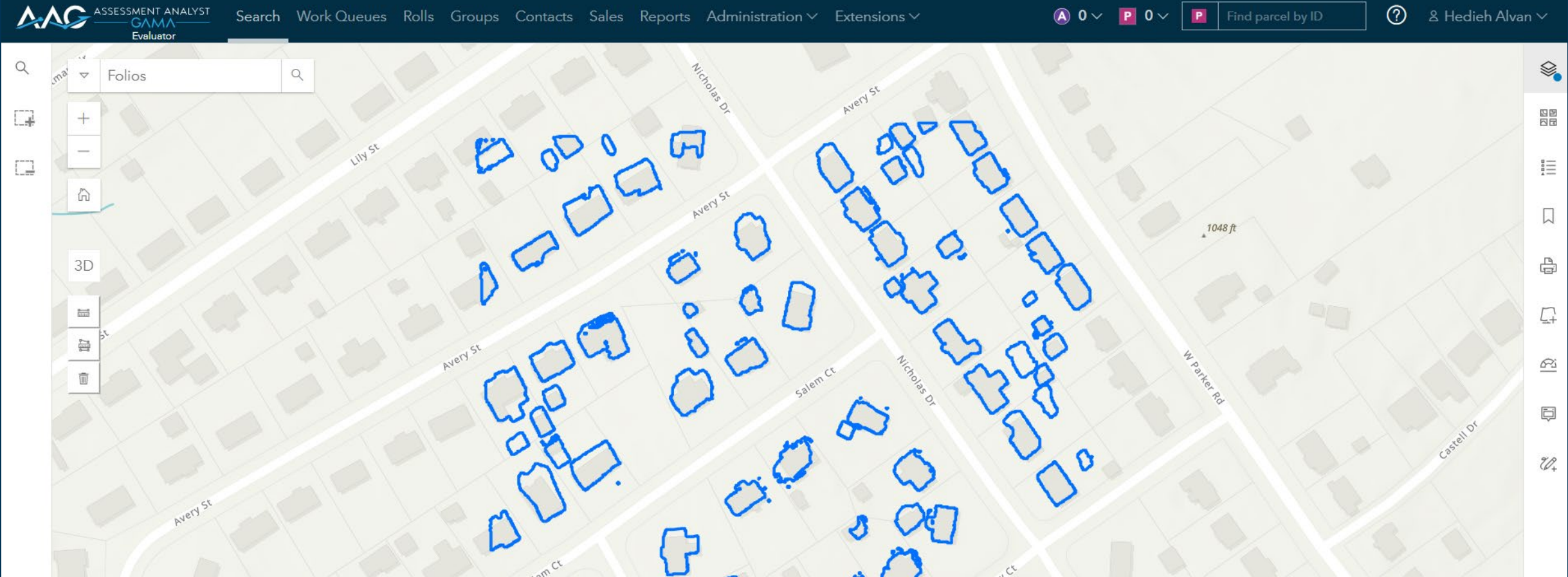


# Building Footprints – Deep Learning USA Model





# Building Footprints – SAM



# What is the Value of AI/ML to the User?

- Enhanced Data Accuracy, Uniformity, Equity in Assessments
- Computers can process big data more efficiently than manual intervention
- Assessment Agencies can effectively do more work at less cost
- Leverages the capabilities of technology
- Facilitates Digital Transformation of the Assessment Industry
- Helps meet or exceed Stakeholders expectations
- Allows Appraisers/Assessors to be Value Influencers vs Data Collectors



# What is the Value of AI/ML to the User?

## ➤ **Optimizes property search results**

Traditional property searches offer you no more than a manual time-consuming filtering based on location, price, and other factors. AI takes this to the next level by analyzing user behavior and preferences and recommending properties that meet stated criteria and implicit preferences.

## ➤ **Predicts market trends and values**

AI-driven predictive analytics can assess past and current data to forecast future trends. Therefore, Artificial Intelligence platforms generate insights that were previously difficult to obtain, whether it's predicting shifts in property prices or emerging neighborhoods.

## ➤ **Automates property valuation processes**

AI in real estate can assess large datasets in minutes—including property features, market trends, and historical data—to provide real-time property valuations. Such tools minimize human error and speed up the entire process.

# Practical Example: Zoning

- Can AI provide the Zoning Discrepancy and even provide the fix, or suggested fix to relate the zoning error back to the authoritative zoning layer source?



Tax Period 2024 Parcel ID 0537080102400 Parcel Status A - ACTIVE Land Size ( Acres ) 0

Situs Address 104 FREDERICK ST GREER SC 29651 Owner GIBSON AMANDA M (JTWROS)

PUC 1100 Parcel Class RESIDENTIAL PSC Appraisal Areas

Valuation Approach

DATA MIGRATION

Table with 2 columns: Category (Land, Improvements, Fair Market Value, Taxable Market Value) and Amount (\$43,000, \$219,560, \$262,560, \$383,080)

Hello Michael, what can I help you with?

Is the parcel zoning correct?

The parcel is classified as "Residential" in the Parcel Class and is used as single-family residential land, according to the Land Usage Details. However, the zoning information indicates that the parcel is "UNZONED." Ideally, residential parcels should be in a residential zone, but since it is officially unzoned, there is no specific zoning discrepancy with the current land use and parcel classification. Nonetheless, it's worth checking further with municipal planning authorities if there are specific restrictions or allowances tied to this "unzone" status that might affect future developments or uses.

Type your message...

Send Reset

# Practical Example: Crime Rate Statistics

- Can AI provide the summary of Crime Rate to a property or Appraisal Areas and its affect to Assessed Value?

Tax Period 2024 Parcel ID 0537080102400 Parcel Status A - ACTIVE Land Size (Acres) 0

Situs Address 104 FREDERICK ST GREER SC 29651 Owner GIBSON AMANDA M (JTWROS)

PUC 1100 Parcel Class RESIDENTIAL Appraisal Areas

Valuation Approach

DATA MIGRATION

Table with 2 columns: Category (Land, Improvements, Fair Market Value, Taxable Market Value) and Amount (\$43,000, \$219,560, \$262,560, \$383,080)

The Assessment to Sale Ratio (ASR) for this parcel is 05. This suggests that the assessed value of the property is much lower than its typical sales price, since an ASR value below 80 is considered low. This might imply that the property is undervalued in terms of its assessment relative to market conditions. This information could be useful for potential adjustments or appeal discussions regarding the assessed value.

What is the crime and policing situation in this area?

In the area where this parcel is located, the crime situation is slightly above the national average, as indicated by a Total Crime Index of 119 (with the national average being 100). This reflects a somewhat higher crime rate, which can negatively impact property values due to perceived safety concerns.

In terms of policing, the nearest police station is the Greer Police Department, located at 102 South Main Street, Greer, which is approximately 4.83 kilometers from the parcel. The presence of a police station in relatively close proximity can be seen as a positive factor, offering peace of mind through enhanced community safety services.

Type your message...

Send Reset



# Practical Example: Market Segmentation

- Can AI provide the roll up of the Segmentation and anything else related to Segmentation?

Tax Period 2024 Parcel ID 0537080102400 Parcel Status A - ACTIVE Land Size ( Acres ) 0

Situs Address 104 FREDERICK ST GREER SC 29651 Owner GIBSON AMANDA M (JTWROS)

PUC 1100 Parcel Class RESIDENTIAL PSC Appraisal Areas

Valuation Approach

DATA MIGRATION

Land	\$43,000
Improvements	\$219,560
Fair Market Value	\$262,560
Taxable Market Value	\$383,080

Which segmentations does this parcel fall within?

The parcel falls within several geographic segmentations:

- 1. **Zoning/Special Land Use:** The parcel is classified as "UNZONED." This may affect land use flexibility and future development potential, so it's worth consulting local planning authorities for specific details or restrictions.
- 2. **Market Area:** The parcel's market area is designated as "1156." This aligns correctly with the Market Area feature identified as "001156," indicating no discrepancies in this segmentation.
- 3. **Appraisal Area:** The parcel is within appraisal area "008." This helps ensure consistent appraisals with nearby properties within the same area.

These segmentations are crucial for understanding how the parcel is assessed, valued, and potentially used, especially when considering its unzoned status. If you have further questions, feel free to ask!

Type your message...

Send Reset

Tax Period Parcel ID Parcel Status Land Size ( Acres )

2024 2 0537080102400 A - ACTIVE 0

Situs Address Owner 104 FREDERICK ST GREER SC 29651 GIBSON AMANDA M (JTWROS)

PUC Parcel Class PSC Appraisal Areas 1100 RESIDENTIAL

Valuation Approach

DATA MIGRATION

Land	\$43,000
Improvements	\$219,560
Fair Market Value	\$262,560
Taxable Market Value	\$383,080

Provide a brief overall analysis of this parcel

Based on a thorough analysis of the parcel at 104 Frederick St, Greer, here are some key insights:

- Parcel and Land Details:** The parcel is classified as residential and used for single-family purposes in the Jamestowne Estates neighborhood. The full cash value is \$262,560, with a land value of \$43,000 and an improvement value of \$219,560.
- Zoning and Usage:** The parcel is unzoned, which provides a degree of flexibility in land use, although it is used as a residential area currently. No discrepancies are found between the parcel class and current usage.
- Building Characteristics:** The primary building was constructed in 1982 and is a good-quality single-family residence with a gross livable area of 2,599 sq ft. Additional features include an attached garage, a vinyl-lined pool, a raised slab porch, and brick veneer exterior walls.
- Crime and Policing:** The crime index of the area is slightly above the national average at 119, which could be a factor in property valuation. However, the presence of the Greer Police Department within approximately 4.8 kilometers may mitigate some safety concerns.
- Market and Appraisal Areas:** The parcel aligns with its market area (1156) and is part of appraisal area "008", ensuring consistency with nearby properties.
- Assessment to Sale Ratio (ASR):** The ASR is 65, indicating the assessed value is significantly lower than the



# Practical Example: ASR Confidence Level

- Can AI identify which Sold Properties (properties with a calculated ASR) are outside the range of acceptable IAAO standards or local Legislated Requirements within the same Appraisal Area?
- IAAO Standards:
  - 90 – 110% ASRs are good
  - >+110% ASR is too high
  - <90% ASR is too low

Tax Period 2024 Parcel ID 0537080102400 Parcel Status A - ACTIVE Land Size (Acres) 0

Situs Address 104 FREDERICK ST GREER SC 29651 Owner GIBSON AMANDA M (JTWROS)

PUC 1100 Parcel Class RESIDENTIAL Appraisal Areas

Valuation Approach	
<b>DATA MIGRATION</b>	
Land	\$43,000
Improvements	\$219,560
Fair Market Value	\$262,560
Taxable Market Value	\$383,080

feature identified as "001156," indicating no discrepancies in this segmentation.

3. **Appraisal Area:** The parcel is within appraisal area "008." This helps ensure consistent appraisals with nearby properties within the same area.

These segmentations are crucial for understanding how the parcel is assessed, valued, and potentially used, especially when considering its unzoned status. If you have further questions, feel free to ask!

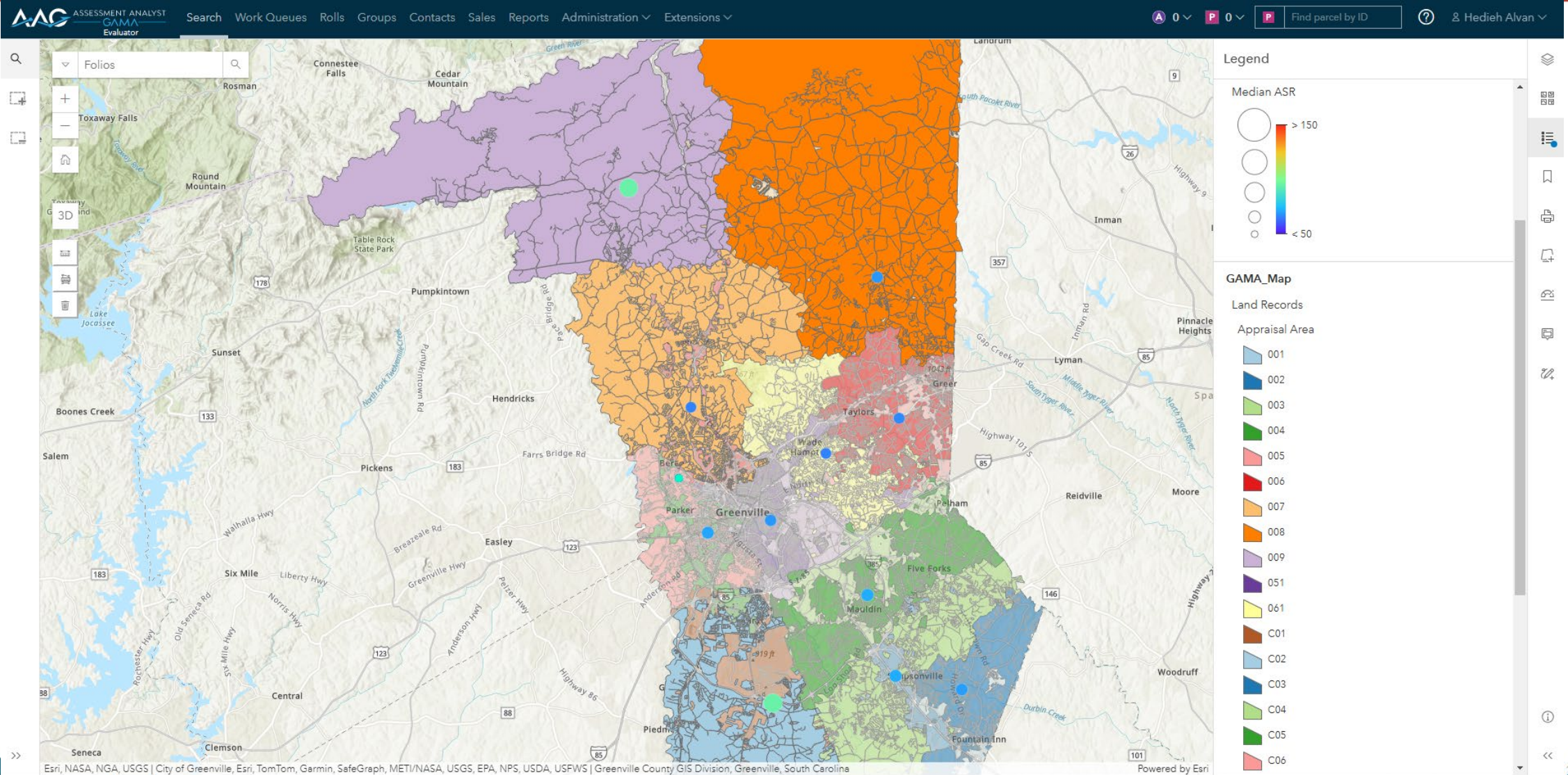
What is the ASR?

The Assessment to Sale Ratio (ASR) for this parcel is 65. This suggests that the assessed value of the property is much lower than its typical sales price, since an ASR value below 80 is considered low. This might imply that the property is undervalued in terms of its assessment relative to market conditions. This information could be useful for potential adjustments or appeal discussions regarding the assessed value.

Type your message...

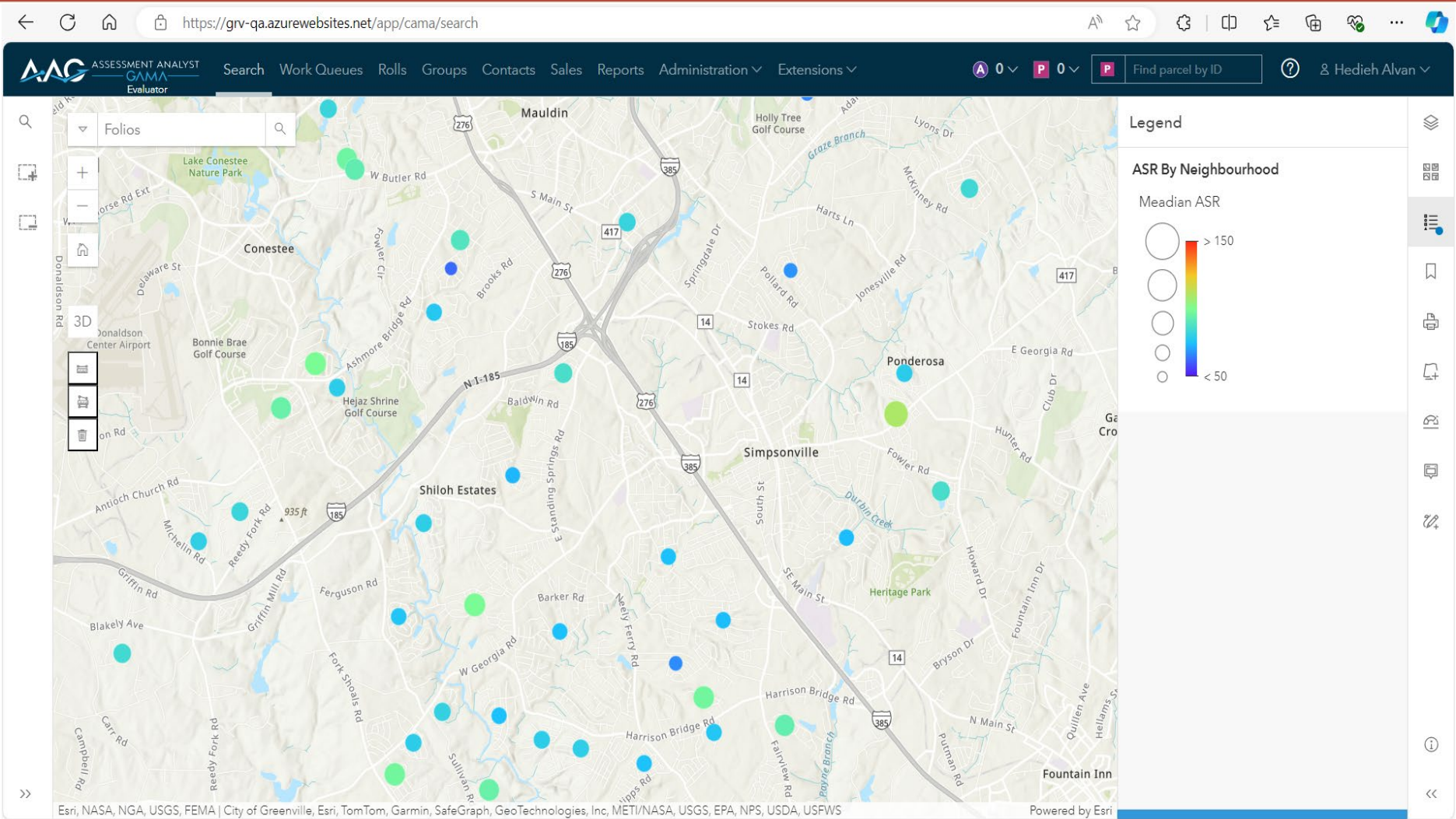
Send Reset

# ASR by Assessment Jurisdiction – Appraisal Areas





# ASR by Neighborhood







# Rules

+ Add

Save

Cancel

Remove	Edit Condition	Name	Cardinality	Message	Severity	Priority	Active
		PR-ASR	One 	ASR	Warning 	1	<input checked="" type="checkbox"/>

PR-ASR



```
1 [AI]
2 Is ASR too high or too low?
```

 Valid

Validate Rule

Tax Period Parcel ID Parcel Status Land Size (Acres)

2024 0537080102400 A - ACTIVE 0

Situs Address Owner  
 104 FREDERICK ST GREER SC 29651 GIBSON AMANDA M (JTWROS)

PUC Parcel Class PSC Appraisal Areas  
 1100 RESIDENTIAL

Valuation Approach

DATA MIGRATION

Land	\$43,000
Improvements	\$219,560
Fair Market Value	\$262,560
Taxable Market Value	\$383,080

- Parcel
- Land
- Approach to Value
- Value Reconciliation
- Owners & Contacts
- Deeds
- Genealogy
- Block
- Snapshots
- Workflows
- Notes

Location Edit

Plat Book Plat Page Lot Quarter Section Township Range

4-X 68

Location Description

Subdivision  
 1825 JAMESTOWNE ESTATES

Property Description  
 37,SEC2

Group Membership



Characteristics 2 of 24 Edit

0 Critical 0 Errors 1 Warnings 0 Information | Validate

Last validated 2024-11-27 14:39:37 Last updated by Assessment ESRI CANADA 2024-09-11 15:02:23

Type	Code	Description
Warning	PR-ASR	The ASR of 65 is considered too low, as it is below the acceptable range of 80 to 120.



# Roadmap for AI & ML headed for mass appraisers

**PARCEL DETAILS** ACTIONS REPORTS

Tax Period: 2024 Parcel ID: T027010104700 Parcel Status: A - ACTIVE Land Size (Acres): 0

Situs Address: 1004 HOLLOW OAK DR TAYLORS SC 29687 Owner: GRAHAM WILLIE F

PUC: 1100 Parcel Class: RESIDENTIAL PSC: Appraisal Areas:

Valuation Approach: DATA MIGRATION

Land	\$22,500
Improvements	\$79,580
Fair Market Value	\$102,080
Taxable Market Value	\$90,210

**Discrepancy in Land Area**

Land Area (from Parcel Fabric)	0.32 Acres
Land Area (Sum of Land Lines)	0.00 Acres
Difference	(-100.0%) -0.32 Acres

**Land Components**

Land Number	External ID	Predominant	Market Segment	Use	Valuation Type	Neighborhood Code	Override Type	Override Value	Area (Acres %)	Depth (ft)	Width (ft)
1	1		50000139	2 - Commercial/Industrial Land	14 - 14 Per Acre (by size range)	50000139			0	0	

**Zones**

Zone Type	Value	Assessment ...	External Syst...	Proportion	Comments
No records available.					

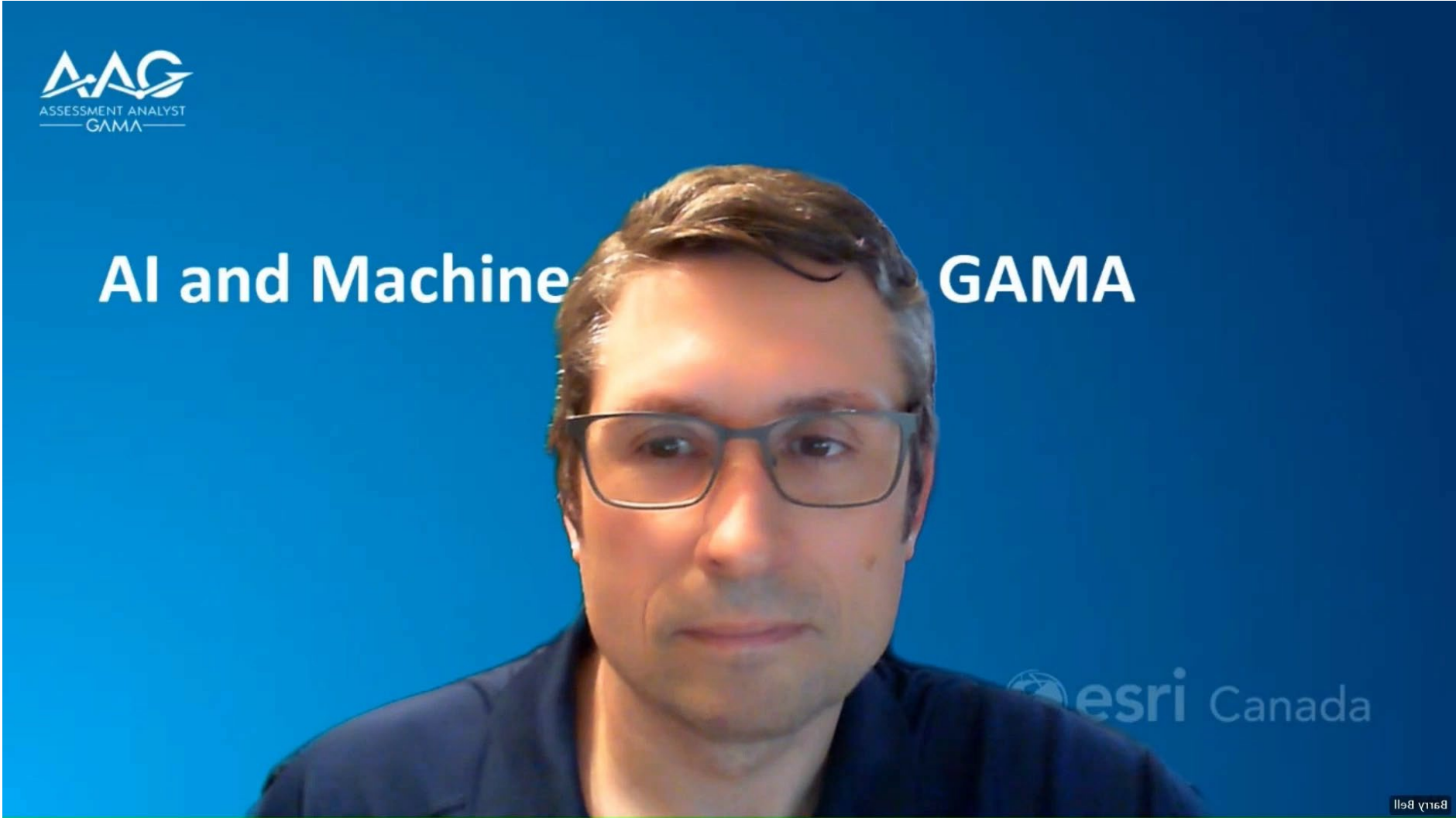
Critical Errors Warnings Information Validate

Last validated 2024-11-18 09:51:07 Last updated by Barry Bell 2024-11-18 09:45:25

# Where is the Roadmap for AI/ML Headed for Mass Appraisers?

- Automated Comparable Selections, even building Appeal Briefs with comparable adjustments
- Dynamic Valuation Models – Accept/Reject result, ASR/COD before & after accepting fix
- Automated Error Identification & Fixes
- Spawned Workflows for Appraiser/Assessor Review – before & after accepting fixes
- Identification of problem areas: Potential Tax Shifts, High Risk Appeal Areas, Data Conflicts etc.
- Integration of other data sets that are normally not in the Assessors Arsenal to validate & perfect values/codes/adjustments

# Roadmap for AI & ML headed for mass appraisal





# Thank you!

- If you have any additional questions about the content presented to you, feel free to contact:
- Michael Lomax, Managing Director – [mlomax@esri.ca](mailto:mlomax@esri.ca)
- Scan QR code and follow Assessment Analyst on LinkedIn



**Assessment Analyst® GAMA**  
A Smarter Way to Equitable & Uniform Valuations

