# 1. What is a land survey?

A land survey is a report in the form of a map showing the location of a parcel of real property. The map will also show the location of visible improvements on and adjacent to the property.

# 2. Why are land surveys so important?

Prior to the closing on your new home purchase, a land survey provides important information to you as the buyer. The survey map will show the limits of the land you are purchasing and identify any conflicts in your deed. It will also allow you to see if improvements such as driveways, fences, wells or even dwellings encroach over the property lines. Any existing property corner markers found by the surveyor will also be shown on the map.

# 3. How is a land survey performed?

The land surveyor's responsibility is to locate on the ground the boundaries of the land described in the deed. The surveyor also examines and maps various visible and apparent man-made and natural features as required for the purpose of the survey. Recorded deeds and maps are investigated along with the information and documentation supplied to the surveyor by the owner or title company. Additionally, extensive data gathering is preformed at and around the site.

# 4. Why have I been asked if I want property markers set?

In the course of performing a survey in New Jersey, State law requires that a land surveyor place permanent markers at all property corners where none currently exist. You may sign a written waiver instructing the surveyor to omit this work.

# 5. Why should I not waive the marking of property corners?

Boundary lines shown on a survey map of the property may be difficult to locate accurately on the ground without markers denoting the corners of the property. Placing markers helps to avoid future disputes and enables you to identify the physical location of your property.

# 6. Who can do a land survey?

In New Jersey a land survey may only be performed and signed by a licensed Professional Land Surveyor.

# 7. What is required to become a Professional Land Surveyor?

To meet the qualifications for licensure in New Jersey, an individual must have a four year college degree in Surveying, three years or more of practical experience, and pass a 16 hour written examination administered by the New Jersey Division of Consumer Affairs. Once licensed, the Professional Land Surveyor must obtain 24 hours of continuing education credits every two years to maintain active status.

# 8. How does a land survey help identify title to property?

Land surveys identify the record title lines of your property. The survey map shows the limits of the land that you are purchasing. A land survey certified to you provides critical information which, when used with title insurance, allows the buyer to make informed decisions and negotiate with the seller to correct any defects prior to the purchase. A land survey prepared for you and certified to you and to your title company affords important protection against claims which may arise after the closing.

# 9. What is title insurance and how does a land survey expand its coverage?

Title insurance protects the mortgage lender and the property owner (if insured) against claims to the property such as a disputed property boundary line. Most mortgage lenders require the home buyer to purchase a title insurance policy in the lender's name. This is called a Lender's policy.Title insurance policies do not provide coverage for encroachments, easements and boundary line disputes which would be disclosed by a current certified survey. This is known as the Survey Exception. Mortgage lenders routinely require a Survey Endorsement to their loan policies which limits the scope of the Survey Exception to the specific problems disclosed by the survey. In other words, a Survey Endorsement provides coverage against possible undiscovered problems involving encroachments, easements and boundary line disputes.

To protect yourselves as home buyers you should insist on an Owner's Policy with a Survey Endorsement based on a professionally prepared current land survey.

# 10. What can you do to protect the investment in you home?

Buying a home is usually the single largest purchase you will ever make! It makes sound financial sense as well as good common sense to protect this important asset. A land survey prepared by a licensed Profession Land Surveyor is a cornerstone of protection and preservation of home ownership. Remember, a lender's Policy protects the bank but not the homeowner. As you make the major investment of purchasing a home you should insist on an Owner's Policy of Title Insurance with the Survey Endorsement and a current land survey certified to you.

# 1) What is a land or property survey?

In the simplest terms, a land survey is a graphic depiction of a property, much like a map, outlining its

legal boundaries and other features. Land surveys are typically required during real estate transactions and are an extremely useful tool to best understand a property and its improvements at the time of the survey. While not always the case, surveys are typically ordered and paid for by the property owner during the property purchase process.

Topography Surveys:

Different from a common land survey and not required at the closing of a real estate transaction, a topographic survey gathers data about the elevation of points on a piece of land and presents them as contour lines on a plot. The purpose of a topographic survey is to collect survey data about the natural and man-made features of the property, as well as its elevations.

Topographic maps are used to show elevations and grading features for architects, engineers,

and building contractors in addition to the land survey.

# 2) Who owns the survey?

Property owners are responsible for purchasing and storing a property survey. It is not a municipal document and therefore the City of Summit neither generates nor is required to keep a current copy of a property survey on file. It is ordered by, paid for, and kept by the property owner.

# 3) How are land surveys created?

Only a licensed surveyor can produce an official land survey. Professional land surveyors lay out the

exact dimensions of a property and its improvements by using a deed for the property and a site visit to properly measure and document it. If you do not have a current survey or order one as a part of a real estate closing, you can retain a licensed professional to conduct one. The city does not recommend surveyors. Seek referrals from neighbors, a realtor, real estate attorney, or from a professional association (www.plsanj.org or www.njspls.com).

# 4) How much does a land survey cost?

While the cost of a land survey varies by the size and complexity of the plot, in general the

price can range from as low as $200 for a simple one-side boundary marking to over several thousand dollars for a full property survey.

# 5) What does a land survey depict?

Property boundaries

Locations of any improvements such as buildings, patios, driveways, sheds, fences, or A/C units

Any easements, building setbacks, or other restrictions on the property, which will affect use and

future development of the site

Verification of boundary descriptions for all adjacent properties to ensure that property lines are defined exactly the same on all documents. Occasionally with older adjacent parcels, there may be a discrepancy over property lines; in such cases a surveyor can be retained to settle the dispute.

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# 6) What does it mean to have a land survey “to scale” and why is that necessary?

All exterior improvements made on a property typically require approval from the city’s Zoning Officer.

The city’s zoning ordinances (Chapter 35 of the city ordinances also known as the Development Regulations Ordinance or DRO) and the zone where a property exists dictates certain specific measurements and conditions including:

How close to a property line improvements can be made (setbacks)

How wide or high certain improvements area allowed to be (signs, building heights)

How much lot coverage can exist before a maximum is exceeded (e.g. driveways, patios, etc.)

The Zoning Officer uses a property survey to measure existing conditions related to the improvements to approve a permit or improvement request.

To be most useful, a land survey must show locations and distances precisely and accurately on a single sheet of paper. The proportion chosen for a particular land survey is its scale. Simply defined, scale is the relationship between the distance on the survey and the distance on the ground (e.g. one inch on the survey equals 10 feet on the actual property). The copy in your possession that is to scale is the survey that is signed and stamped with a raised seal. All other copies may or may not be to scale depending on how they were duplicated.

# 7) How is my survey not “to scale”?

Unfortunately, when property owners make copies of a survey or print from an electronic file (e.g. PDF), the scale becomes distorted by the setting of the copier or printer and alters the scale in a way that renders the survey invalid for zoning review. Again, the copy in your possession that will always be to scale is the one that is signed with a raised seal. All other copies may or may not be to scale, depending on how they were duplicated.

# 8) What can I do if my survey is “not to scale?”

You will need to locate the original “to scale” survey that will need to be copied without maximizing or minimizing its size. Do not fax or print an emailed/electronic version as the printer will distort the

survey and render it invalid. If you have an original survey “to scale”, it can be copied without

minimizing or maximizing the copy size to ensure it retains the proper scale. If you have a copy that is

not to scale, you might also try to contact the company listed on the survey for an original copy. If you cannot locate an original or “to scale” copy of your land survey, you may need to conduct a new survey.

# What is Remote Sensing?

Remote sensing is a type of geospatial technology that samples emitted and reflected electromagnetic (EM) radiation from the Earth’s terrestrial, atmospheric, and aquatic ecosystems in order to detect and monitor the physical characteristics of an area without making physical contact. This method of data collection typically involves aircraft-based and satellite-based sensor technologies, which are classified as either passive sensors or active sensors.

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Passive sensors respond to external stimuli, gathering radiation that is reflected or emitted by an object or the surrounding space. The most common source of radiation measured by passive remote sensing is reflected sunlight. Popular examples of passive remote sensors include charge-coupled devices, film photography, radiometers, and infrared.

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Active sensors use internal stimuli to collect data, emitting energy in order to scan objects and areas whereupon a sensor measures the energy reflected from the target. RADAR and LiDAR are typical active remote sensing tools that measure the time delay between emission and return in order to establish the location, direction, and speed of an object. The remote sensing data gathered is then processed and analyzed with remote sensing hardware and computer software (for example energy analytics and energy business intelligence), which is available in a variety of proprietary and open source applications.

# What is Remote Sensing Used For?

Remote sensing technology is used in a wide variety of disciplines in thousands of different use cases, including most earth sciences, such as meteorology, geology, hydrology, ecology, oceanography, glaciology, geography, and in land surveying, as well as applications in military, intelligence, commercial, economic, planning, and humanitarian fields. Some typical remote sensing examples include:

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GIS remote sensing: Geographic Information System (GIS) is a system designed to capture, store, manage, analyze, manipulate, and present geographic or spatial data -- satellite remote sensing provides an important source of spatial data. Remote sensing and GIS work together to gather, store, analyze, and visualize data from virtually any geographic position on Earth.

Irrigation and soil moisture monitoring and management are major components of remote sensing in agriculture.

Doppler radar measures meteorological events such as wind speed and direction within weather systems as well as precipitation intensity and location. Another application is aerial traffic control.

AVHRR and MODIS satellites use thermal sensing and mid infrared sensing to monitor active volcanoes.

INSAR (interferometric synthetic aperture radar) uses interferometry remote sensing technique to predict and provide early warnings for potential landslides.

A primary application of light detection and ranging (LiDAR) is vegetation management and monitoring, however it is also applied in cases of weapon ranging and laser illuminated homing of projectiles. LiDAR may also be used to detect and measure the concentration of various chemicals in the atmosphere.

Stereographic pairs of aerial photographs are used to model terrestrial habitat features and make topographic maps by imagery and terrain analysts in trafficability and highway departments for potential routes.

Spectropolarimetric Imaging is used by researchers at the U.S. Army Research Laboratory for target tracking purposes by identifying man made items by their polarimetric signatures, which are not found in natural objects.

Remote sensing satellites provide before- and after- remote sensing images in order to quantify post-earthquake damage, which provides vital data for rescue workers.

Data from laser and radar altimeters on satellites, sonar, and ultrasound measurements can be used for coastal mapping and erosion prevention, to better understand how to manage ocean resources, to assess the impacts of a natural disaster and create disaster response strategies to be used before and after a hazardous event, and to minimize the damage that urban growth has on the environment and help decide how to best protect natural resources.

Remote sensing for oil and gas is an integral tool for upstream and downstream gas and oil operations through evaluation of infrastructure for well-site planning. Spectral analysis is vital for the evaluation of surface outcrops and surface hydrocarbon seepage.

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# Importance of Remote Sensing

Remote sensing makes it possible to collect data from dangerous or inaccessible areas, with growing relevance in modern society. It replaces slower, costly data collection on the ground, providing fast and repetitive coverage of extremely large areas for everyday applications, ranging from weather forecasts to reports on natural disasters or climate change.

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Remote sensing is also an unobstructive method, allowing users to collect data and perform data processing and GIS analysis offsite without disturbing the target area or object. Monitoring floods and forest fires, deforestation, polar bears, chemical concentrations, and earthquakes are just a few cases in which geospatial remote sensing provides a global perspective and actionable insights that would otherwise be unattainable.

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# Advantages of Microwave Remote Sensing

Microwave remote sensing encompasses both passive and active remote sensing, covering wavelengths ranging from one centimeter to one meter -- the microwave’s longer wavelength is an important feature in remote sensing as it can penetrate haze, rainfall, dust, and cloud cover more effectively than visible and infrared.

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Remote sensing of the environment using microwave remote sensing is therefore unaffected as the longer wavelengths are not susceptible to atmospheric scattering. Microwave energy can be detected and data can be gathered under most environmental conditions. Applications include sea ice monitoring and global soil moisture mapping.

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# Application of Remote Sensing to Climate Change

Application of remote sensing in the studies of climate change has provided major advances in understanding the climate system and its changes, by quantifying spatio-temporal states and processes of the atmosphere, oceans, and lands. Satellite sensors have aided in the detection and measurement of the cooling effects of increased stratospheric aerosols and the spatial pattern of sea-level rise, which otherwise went unobserved by conventional climate models observations.

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Global climate change research uses big data from Earth observation platforms, in which remote multi-satellite, multi-sensor, and long-term time series data methods are implemented. This has facilitated the detection of climate sensitivity factors, advanced the study of the spatial variability of terrestrial ecosystems, and aided in the development of global climate change response strategies.

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# Limitations of Remote Sensing Data

Remote sensing is ultimately managed by human operators that make crucial decisions regarding which sensors should be used to collect data and when, resolution specifications for the collected data and sensor calibration, and the selection of the platform that will carry the sensor, all of which expose this method to a certain degree of human error.

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Inaccuracy may also be introduced by the electromagnetic spectrum radiation emitted from powerful active remote sensing systems, which can be intrusive and affect the target phenomenon being investigated. Remote sensing instruments may contribute inaccurate, un-calibrated data if the hardware system becomes un-calibrated. There may also be cost related limitations. It is an expensive method that requires extensive, special training for image analysis

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# History of Remote Sensing

The earliest practices of modern remote sensing consisted of primitive photographs of the earth’s surface taken from tethered balloons for the purpose of topographic mapping in the 1840s. Systematic aerial photography using modified aircrafts was developed for military surveillance and reconnaissance purposes during the first World War and through the Cold War.

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With the emergence of the space program in the 1960s, instrumentation on Earth observing and weather satellites such as the Nimbus and Landsat provided global measurements of various data for military, civil, and research purposes. IKONOS, the first commercial satellite built to collect very high resolution imagery, was commissioned by Lockheed Martin, launched in 1999, and decommissioned in 2015.

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# Does HEAVY.AI Provide Remote Sensing Solutions?

Remote sensing data is a major source of spatial data used in Geographic Information Systems (GIS). Geospatial-specific processes in GIS tools are becoming too slow for the enormous data volumes provided by modern remote sensing technologies.

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HEAVY.AI bridges this divide, providing an accelerated analytics platform that allows geospatial analysts to cross-filter billions of location data records and polygons alongside other features in milliseconds. The HEAVY.AIDB SQL engine natively stores geographic and geometric data types, enabling users to run geo calculations with the massively parallel processing power of CPUs and GPUs.

# What type of survey do I need?

There are several types of surveys that we offer, ultimately, check with your township zoning officer and construction official to confirm.

New Construction:

The first step in the process, prior to architect and engineering plans being generated, a boundary and topographic survey will need to be completed. These type of survey show property lines, trees, elevations and any other existing conditions that are on the property. This in which will be submitted to your architect and engineer so that plans may be developed and submitted to the town.

Once the plans are approved by the town, zoning office, a house location survey with need to be completed; this will set the house location with the property and will be used as a guideline for the excavators to dig for the foundation.

Next a foundation location survey will need to be completed, this will need to be submitted to the township for approval so that building of the house can continue.

The last step in the process is an As-Built survey will need to be completed. This survey shows the completed location of the house, driveway and conditions of the property as a completed project. The town will require a copy of this document for final approval.

Existing Home Additions, where you're adding to the footprint of the original house may require similar surveys as listed above. Your local zoning officer, construction and architect will be able to assist you with what information your town requires.

Fences/In-ground Pools:

These types of property improvements usually require just a boundary survey, which shows existing conditions of the property, property lines, and the location of the household.

Flood Certificates:

A flood certificate is required when purchasing or selling a home that is located in a potential flood zone, which is dictated by FEMA. This certificate is also required when you request flood insurance with your insurance provider.

# Coastal Erosion Monitoring:

GeoAI can analyze satellite imagery and coastal topography to monitor and predict erosion patterns, supporting coastal management and protection efforts.

# Flood Prediction:

By analyzing historical precipitation data, river levels, and terrain characteristics, GeoAI can predict areas at high risk of flooding, enabling timely evacuation and disaster response.

Coastal Change Monitoring: GeoAI enables the monitoring of coastal changes, such as beach erosion or shoreline shifts, by analyzing satellite imagery and LiDAR data, aiding in coastal management and adaptation strategies.

# Environmental Impact Assessment:

GeoAI assists in assessing the environmental impact of infrastructure projects, such as roads, dams, and mines, by analyzing spatial data and predicting potential ecological changes.

# Disease Outbreak Monitoring:

GeoAI can analyze geospatial data, including population density, climate conditions, and travel patterns, to predict and monitor the spread of diseases like COVID-19 or malaria.

# Forest Fire Detection:

By analyzing satellite imagery and weather data, GeoAI can detect and monitor forest fires in real-time, enabling an early response and minimizing damage.

# Natural Resource Management:

GeoAI helps manage natural resources like water, minerals, and forests by analyzing geospatial data and predicting optimal extraction or conservation strategies.

# Air Quality Monitoring:

GeoAI can analyze air quality data collected from sensors and satellite imagery to identify pollution hotspots, assess health risks, and support air quality management initiatives.

# Renewable Energy Site Selection:

GeoAI assists in identifying suitable locations for renewable energy projects, such as solar farms and wind turbines, by analyzing factors like solar radiation, wind patterns, and terrain.

# Archaeological Site Mapping:

GeoAI can analyze aerial imagery and geophysical data to identify and map archaeological sites, contributing to cultural heritage preservation and research.

# Water Resource Management:

GeoAI helps in managing water resources by analyzing data on rainfall, groundwater levels, and river flow to optimize irrigation, drought management, and water allocation.

12. Land Cover Classification: GeoAI can classify land cover types such as forests, agriculture, urban areas, and water bodies by analyzing satellite imagery.

13. Earthquake Damage Assessment: By analyzing satellite imagery and geographic data, GeoAI can assess the extent of damage caused by earthquakes, aiding in post-disaster recovery and reconstruction.

14. Wildlife Conservation: GeoAI helps in monitoring and protecting wildlife by analyzing satellite imagery and tracking animal movements, contributing to biodiversity conservation efforts.

15. Urban Growth Analysis: GeoAI enables the analysis of urban growth patterns by integrating satellite imagery, population data, and land-use information, supporting urban planning and infrastructure development.

16. Water Pollution Detection: GeoAI can detect water pollution sources by analyzing satellite imagery, water quality data, and hydrological patterns, facilitating pollution mitigation and water resource protection.

17. Precision Forestry: GeoAI assists in optimizing forestry operations by analyzing geospatial data to determine optimal tree planting locations, forest health monitoring, and timber yield predictions.

18. Disaster Damage Assessment: GeoAI aids in assessing the damage caused by natural disasters, such as hurricanes or earthquakes, by analyzing satellite imagery and aerial photographs, supporting disaster response and recovery efforts.

19. Geolocation Services: GeoAI powers location-based services like mapping, navigation, and geocoding, enabling accurate positioning and routing information for various applications.

20. Agricultural Pest Monitoring: GeoAI can detect and monitor pests and diseases affecting crops by analyzing satellite imagery and field data, assisting farmers in implementing targeted pest control measures.

21. Coastal Zone Management: GeoAI supports coastal zone management by analyzing data on coastal erosion, sea level rise, and human activities, facilitating sustainable development and protection of coastal areas.

22. Landslide Prediction: By analyzing terrain characteristics, rainfall data, and historical landslide events, GeoAI can predict areas prone to landslides, aiding in early warning systems and landslide prevention measures.

23. Infrastructure Monitoring: GeoAI assists in monitoring critical infrastructure, such as bridges and pipelines, by analyzing satellite imagery and geospatial data to detect anomalies, deterioration, or structural damage.

24. Geospatial Surveying: GeoAI automates the process of surveying and mapping by using machine learning algorithms to extract features and generate accurate maps from aerial or satellite imagery.

25. Noise Pollution Mapping: GeoAI can analyze data from noise sensors and urban characteristics to create noise pollution maps, supporting urban planning and noise mitigation strategies.

26. Soil Quality Assessment: GeoAI helps in assessing soil quality and fertility by analyzing geospatial data on soil composition, moisture content, and nutrient levels, supporting precision agriculture practices.

27. Wildlife Habitat Mapping: GeoAI can analyze satellite imagery, topographic data, and ecological parameters to map and monitor wildlife habitats, contributing to biodiversity conservation and habitat management.

28. Public Health Planning: GeoAI assists in public health planning by analyzing geospatial data on population density, healthcare facilities, and disease prevalence, supporting resource allocation, and healthcare service delivery.

29. Traffic Management: GeoAI can analyze real-time traffic data from sensors, GPS, and social media to optimize traffic flow, detect congestion, and suggest alternate routes.

30. Geological Hazard Assessment: GeoAI helps in assessing geological hazards, such as earthquakes or landslides, by analyzing geospatial data on fault lines, rock types, and topography, supporting hazard preparedness and response.

31. Noise Barrier Optimization: GeoAI can analyze noise data, traffic patterns, and urban characteristics to optimize the placement and design of noise barriers, reducing noise pollution in urban areas.

32. Infrastructure Planning: GeoAI aids in infrastructure planning by analyzing geospatial data to identify optimal locations for roads, bridges, power lines, and other infrastructure elements, optimizing resource allocation and connectivity.

33. Coastal Water Quality Monitoring: GeoAI can analyze satellite imagery and water quality data to monitor coastal water quality, detect pollution sources, and support coastal ecosystem management.

34. Green Space Planning: GeoAI helps in identifying suitable locations for parks, green spaces, and urban forests by analyzing geospatial data on population density, land availability, and ecosystem services.

35. Disaster Risk Assessment: GeoAI enables the assessment of disaster risks by integrating geospatial data on hazards, vulnerability, and exposure, supporting risk reduction strategies and resilience planning.

36. Air Pollution Source Identification: GeoAI can analyze data from air quality sensors, meteorological data, and emission sources to identify and locate air pollution sources, aiding in pollution control measures.

37. Agricultural Yield Prediction: GeoAI assists in predicting crop yields by analyzing geospatial data on climate, soil, and vegetation indices, supporting agricultural planning, and making food security assessments.

38. Water Supply Planning: GeoAI helps in planning water supply systems by analyzing geospatial data on water availability, demand, and infrastructure and optimizing water resource management and distribution.

39. Noise Impact Assessment: GeoAI can assess the impact of noise on human health and well-being by analyzing noise data, population density, and land-use information, supporting urban planning and noise mitigation strategies.

40. Geofencing and Location-Based Marketing: GeoAI enables geofencing and Location-Based Marketing by analyzing location data and user behavior, targeting personalized marketing messages to specific geographic areas.

41. Urban Heat Island Analysis: GeoAI can analyze satellite imagery and temperature data to identify and assess urban heat island effects, supporting urban planning and heat mitigation strategies.

42. Waterway Management: GeoAI aids in managing rivers, lakes, and coastal areas by analyzing geospatial data on water quality, flow rates, and ecosystems, supporting water resource protection and restoration.

43. Soil Erosion Monitoring: GeoAI can analyze satellite imagery and topographic data to monitor soil erosion rates and identify erosion-prone areas, supporting soil conservation and sustainable land management.

44. Spatial Data Quality Assessment: GeoAI assists in assessing the quality of spatial data by analyzing data consistency, accuracy, and completeness, ensuring reliable geospatial information for decision-making.

45. Marine Biodiversity Monitoring: GeoAI helps in monitoring and mapping marine biodiversity by analyzing satellite imagery, bathymetric data, and species distribution models, supporting marine conservation and management efforts.

46. Transportation Network Optimization: GeoAI can optimize transportation networks by analyzing geospatial data on traffic patterns, road conditions, and population density, improving efficiency and reducing congestion.

47. Water Leakage Detection: GeoAI aids in detecting water leakage in water distribution systems by analyzing geospatial data on water pressure, flow rates, and network characteristics, supporting efficient water management.

48. Coastal Tourism Planning: GeoAI assists in coastal tourism planning by analyzing geospatial data on visitor patterns, infrastructure, and environmental sensitivity, supporting sustainable tourism development and management.

49. Soil Moisture Monitoring: GeoAI enables the monitoring of soil moisture levels by analyzing satellite imagery and weather data, supporting precision agriculture practices and water management.

50. Noise Impact on Wildlife: GeoAI can analyze noise data and ecological parameters to assess the impact of noise on wildlife populations, contributing to wildlife conservation and habitat management efforts.

51. Environmental Justice Analysis: GeoAI aids in analyzing spatial patterns of environmental hazards and social vulnerabilities to assess environmental justice issues, supporting equitable and inclusive decision-making.

52. Disease Vector Habitat Mapping: GeoAI can analyze geospatial data on climate, vegetation, and habitat suitability to map disease vector habitats, aiding in disease control and prevention strategies.

53. Energy Infrastructure Siting: GeoAI assists in the siting of energy infrastructure, such as power plants and transmission lines, by analyzing geospatial data on energy demand, renewable energy potential, and environmental constraints.

54. Coastal Risk Management: GeoAI helps in managing coastal risks by analyzing geospatial data on sea level rise, storm surge, and vulnerability, supporting adaptation planning and coastal protection measures.

55. Urban Air Quality Management: GeoAI enables the monitoring and management of urban air quality by analyzing data from air quality sensors, traffic patterns, and emission sources, supporting pollution reduction strategies.

56. Soil Erosion Control: GeoAI can analyze topographic data, land cover, and erosion models to identify and prioritize areas for soil erosion control measures, supporting sustainable land management practices.

57. Green Infrastructure Planning: GeoAI aids in planning green infrastructure, such as green roofs, rain gardens, and urban forests, by analyzing geospatial data on land availability, stormwater runoff, and ecosystem services.

58. Public Transport Demand Analysis: GeoAI can analyze geospatial data on population density, employment centers, and transportation networks to assess public transport demand and optimize service provision.

59. Geological Resource Exploration: GeoAI assists in geological resource exploration, such as minerals or oil and gas, by analyzing geospatial data on geological structures, remote sensing data, and geophysical surveys.

60. Noise Impact on Human Health: GeoAI helps in assessing the impact of noise on human health by analyzing noise data, population density, and health indicators, supporting urban planning and noise mitigation strategies.

61. Carbon Footprint Analysis: GeoAI enables the analysis of carbon footprints by integrating geospatial data on energy consumption, transportation patterns, and land-use change, supporting climate change mitigation strategies.

62. Habitat Connectivity Analysis: GeoAI aids in analyzing habitat connectivity for wildlife by analyzing landscape features, land cover, and ecological corridors, supporting biodiversity conservation and landscape planning.

63. Climate Change Vulnerability Assessment: GeoAI can analyze geospatial data on climate projections, socio-economic factors, and ecosystem vulnerability to assess climate change impacts and develop adaptation strategies.

64. Agriculture Water Management: GeoAI helps in managing agricultural water use by analyzing geospatial data on soil moisture, crop water requirements, and irrigation efficiency, supporting water conservation and productivity.

65. Noise Planning for Urban Development: GeoAI can analyze noise data, land-use patterns, and urban development plans to optimize noise planning in urban areas, ensuring noise-sensitive activities are appropriately located.

66. Renewable Energy Potential Mapping: GeoAI assists in mapping the potential for renewable energy generation, such as solar and wind, by analyzing geospatial data on solar radiation, wind speeds, and land suitability.

67. Greenhouse Gas Emission Monitoring: GeoAI enables the monitoring and mapping of greenhouse gas emissions by analyzing data from satellite sensors, atmospheric models, and emission inventories, supporting climate change mitigation efforts.

68. Water Pollution Remediation Planning: GeoAI aids in planning water pollution remediation strategies by analyzing geospatial data on pollution sources, hydrological patterns, and water quality, supporting targeted pollution control measures.

69. Public Safety Planning: GeoAI can analyze geospatial data on crime patterns, emergency response times, and population distribution to optimize public safety planning and resource allocation.

70. Land Use Planning: GeoAI helps in land use planning by analyzing geospatial data on land suitability, environmental constraints, and socio-economic factors, supporting sustainable land management and development.

71. Urban Green Infrastructure Assessment: GeoAI enables the assessment of urban green infrastructure, such as parks and green roofs, by analyzing geospatial data on vegetation coverage, ecosystem services, and accessibility.

72. Geospatial Data Visualization: GeoAI aids in visualizing geospatial data by using AI algorithms to create interactive maps, 3D models, and data visualizations, facilitating data exploration and communication.

73. Noise Control in Construction: GeoAI can analyze noise data, construction plans, and land-use information to optimize noise control measures during construction projects, minimizing noise disturbance to surrounding areas.

74. Real Estate Market Analysis: GeoAI assists in analyzing real estate markets by integrating geospatial data on property prices, demographics, and amenities, supporting market research and investment decision-making.

75. Environmental Impact Monitoring: GeoAI enables the monitoring of environmental impacts caused by human activities, such as deforestation or mining, by analyzing satellite imagery, land cover change, and ecological indicators.

76. Public Health Surveillance: GeoAI helps in public health surveillance by analyzing geospatial data on disease incidence, healthcare facilities, and population demographics, supporting early detection and response to health threats.

77. Landslide Risk Assessment: GeoAI can assess landslide risk by analyzing topographic data, rainfall patterns, and soil properties, supporting landslide hazard mapping and risk reduction strategies.

78. Noise-Reducing Urban Design: GeoAI aids in designing noise-reducing urban environments by analyzing noise data, urban layouts, and building characteristics, supporting noise mitigation strategies and urban livability.

79. Marine Spatial Planning: GeoAI enables marine spatial planning by analyzing geospatial data on marine ecosystems, human activities, and conservation objectives, supporting sustainable marine resource management.

80. Transportation Demand Forecasting: GeoAI can forecast transportation demand by analyzing geospatial data on population growth, employment centers, and transportation infrastructure, supporting transport planning and investment decisions.

81. Forest Carbon Stock Assessment: GeoAI helps in assessing forest carbon stocks by analyzing satellite imagery, forest inventory data, and biomass models, supporting carbon accounting and REDD+ initiatives.

82. Noise-Reducing Infrastructure Design: GeoAI aids in designing noise-reducing infrastructure, such as highways or railways, by analyzing noise data, traffic patterns, and engineering parameters, supporting noise abatement measures.

83. Water Conservation Planning: GeoAI enables water conservation planning by analyzing geospatial data on water demand, availability, and efficiency, supporting water resource management and conservation initiatives.

84. Geospatial Social Media Analysis: GeoAI can analyze geospatial data from social media platforms to extract information on user preferences, behavior, and sentiment, supporting location-based marketing and social analysis.

85. Precision Livestock Farming: GeoAI assists in optimizing livestock farming practices by analyzing geospatial data on animal behavior, environmental conditions, and feed availability, supporting animal welfare and productivity.

86. Urban Agriculture Planning: GeoAI helps in planning urban agriculture initiatives by analyzing geospatial data on land availability, sunlight exposure, and water resources, supporting food security and urban sustainability.

87. Coastal Aquaculture Planning: GeoAI enables the planning of coastal aquaculture activities by analyzing geospatial data on water quality, habitat suitability, and marine resources, supporting sustainable aquaculture practices.

88. Noise Impact on Education: GeoAI can analyze noise data, school locations, and population density to assess the impact of noise on educational settings, supporting noise management and creating healthier learning environments.

89. Geospatial Disaster Risk Communication: GeoAI aids in communicating disaster risks by analyzing geospatial data and generating visualizations, maps, and risk communication tools, supporting public awareness and preparedness.

90. Pest Control Planning: GeoAI helps in planning pest control strategies by analyzing geospatial data on pest populations, habitat suitability, and crop vulnerability, supporting integrated pest management practices.

91. Agricultural Land Suitability Assessment: GeoAI enables the assessment of agricultural land suitability by analyzing geospatial data on soil properties, climate conditions, and crop requirements, supporting land-use planning and agricultural productivity.

92. Noise Monitoring in Healthcare Facilities: GeoAI can analyze noise data in healthcare facilities to assess noise levels, identify noise sources, and implement noise control measures, improving patient comfort and well-being.

93. Smart City Management: GeoAI assists in managing smart cities by integrating geospatial data with data from various sensors and IoT devices, supporting efficient resource management, and enhancing urban services.

94. Environmental Education and Awareness: GeoAI enables the creation of interactive and immersive educational tools and games using geospatial data, promoting environmental awareness and understanding.

95. Noise Impact on Wildlife Migration: GeoAI can analyze noise data, migration patterns, and ecological parameters to assess the impact of noise on wildlife migration routes, supporting conservation planning and habitat connectivity.

96. Soil Contamination Mapping: GeoAI aids in mapping soil contamination by analyzing geospatial data on pollution sources, soil properties, and land use history, supporting remediation efforts and land management strategies.

97. Urban Resilience Planning: GeoAI helps in planning urban resilience strategies by analyzing geospatial data on hazards, infrastructure vulnerabilities, and social vulnerabilities, supporting adaptive and resilient urban development.

98. Noise-Reducing Urban Green Design: GeoAI can analyze noise data, vegetation coverage, and urban design parameters to optimize noise-reducing green spaces, supporting noise mitigation and enhancing urban livability.

99. Fire Risk Assessment: GeoAI enables the assessment of fire risks by analyzing geospatial data on vegetation cover, weather conditions, and fire history, supporting fire prevention and management strategies.

100. Geospatial Data Integration: GeoAI facilitates the integration of geospatial data from multiple sources, such as satellite imagery, sensors, and social media, enabling comprehensive analysis and decision-making across various domains.

101. Urban Planning: GeoAI helps in optimizing urban infrastructure, transportation networks, and land use planning,

102. Real Estate: GeoAI aids in property valuation, market analysis, and identifying investment opportunities based on geospatial data.

103. Wildlife Tracking: GeoAI supports wildlife tracking and conservation efforts by analyzing animal movement patterns and habitat suitability.

# Remote sensing is the process of acquiring information about objects or areas from a distance.

In broad terms, as you read this sentence, you are performing a type of remote sensing. Your eyes collect visible light waves reflected by the dark and light shapes in front of you, and your brain analyzes this information, assigning letters, words and meanings to the patterns.

In a geospatial context, remote sensing is defined as the collection of information about the Earth using satellites, aircraft, or drones.

As far as remote sensors go, human eyes are quite limited. Of the entire electromagnetic spectrum, which includes radio waves, microwaves, infrared waves, UV rays, X-rays, and gamma rays, our eyes can only detect the portion that corresponds to visible light, or 0.0035% of the spectrum. Our eyes are also limited in how much detail they can perceive from a distance. Thanks to the human ability to innovate, we have technologies to overcome these constraints and dramatically expand our remote sensing capabilities.

Scientists have developed a variety of remote sensors. When mounted onto drones, aircraft and satellites, these sensors can detect, record and analyze different types of electromagnetic energy from the Earth’s surface, such as visible light, infrared, and microwave radiation. These energy waves contain valuable information about land, water, and man-made features of interest, as well as geometric structures and relative scale. The data are digitally transmitted from the satellite down to a ground receiving station on Earth, where they can be processed and used to inform all sorts of commercial, scientific, humanitarian, and military activities.

# There are two main categories of sensors: passive and active.

A passive sensor detects and records naturally occurring electromagnetic energy as it is reflected or emitted from objects on the Earth’s surface. Your eyes are passive sensors because they collect energy (visible wavelengths) generated by the sun or another external source. Optical cameras, including those mounted on satellites, are another example of passive sensors.

An active sensor provides its own source of energy. The sensor emits a signal, in the form of electromagnetic energy, toward an area of interest on the Earth’s surface. This signal interacts with physical objects in that area, and is reflected or diffracted back toward the sensor, which then records and measures the signal. The process is similar to how mammals such as bats and whales use echolocation to sense objects in their path.

Because an active sensor functions without the need for an external energy source, it can collect information in the dark or through clouds—something that most passive sensors cannot do. Synthetic aperture radar (SAR) is an example of an active radar sensor.

As scientists continue to innovate, advances are being made in these four important areas of remote sensing:

Radiometric resolution: A sensor’s ability to detect differences in the magnitude of electromagnetic energy. The higher the radiometric resolution, the greater the sensitivity to small differences in reflected or emitted energy.

Spectral resolution: A sensor’s ability to distinguish wavelengths of energy within the electromagnetic spectrum (e.g., in the visible, infrared, and/or microwave regions). The finer the spectral resolution, the more narrowly defined the wavelength range is in a particular band.

Spatial resolution: The size of the smallest feature that can be detected or displayed. The higher the spatial resolution, the more detail it contains, and the greater the time and cost to capture and process the image. Depending on the size of the area to be imaged, active sensors can provide adjustable spatial resolution (e.g., images of very large areas will have coarse spatial resolution, while images of more focused areas will have higher resolution).

Temporal resolution: The time between data collections within an area. This depends on how long it takes for the satellite or other platform carrying the sensor to revisit an observation area.

While our eyes can’t see with the acuity of a hawk or perceive as much of the electromagnetic spectrum as a butterfly or a mantis shrimp, we more than make up for these shortcomings. Using powerful remote sensors on satellites, people are now able to measure the Earth’s land and sea surface temperature and topography, vegetation patterns, precipitation, wind, soil moisture, and more.

We can use these data to map agricultural crops, forest fires, flooding, sea ice, oceans, oil spills, or any area of land. Multiple data collections also allow us to monitor changes to the Earth’s Surface over time (weeks, years, decades) and better understand patterns of life within ecosystems.

We’ve come a long way from the mid-1800s, when the first aerial photos of the Earth’s surface were taken from a hot air balloon. Hundreds of years later, space is the limit!

# A Complete Guide to Surveying and Mapping

Surveying and mapping have a rich history dating back thousands of years. In ancient Egypt, surveyors used simple tools such as rope with knots to measure land boundaries and construct the pyramids. As early as the 1500s, Florida surveyors were utilizing primitive tools to map and navigate the region in the development of railroads and roads, which connected growing communities. Fast forward to modern times, surveying and mapping have evolved to become highly technical and sophisticated fields.

Today, surveying and mapping are critical for a wide range of applications, from property ownership and development to infrastructure planning and disaster preparedness. This article delves into the definition and significance of these fields, the various types of surveys, and their relevance in the A/E/C industry. Additionally, we’ll discuss essential factors to consider when selecting a surveying and mapping provider, as well as the future of the industry as technology advances.

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# WHAT IS SURVEYING AND MAPPING?

Surveying is the science, art, and profession of determining the positions of points on the surface of the earth and measuring the distances, directions, angles, and elevations between them. This can involve using a variety of tools and techniques, such as GPS (Global Positioning System), aerial photography, and ground-based measurements using instruments like total stations and levels. Mapping is the process of creating a visual representation of the data gathered during surveying, which can take many forms, from simple two-dimensional plans to complex three-dimensional models and geographic information systems (GIS) that integrate multiple layers of data.

Surveying and mapping form a critical foundation for many fields, including civil engineering, construction, urban planning, environmental science, and more. Accurate surveying and mapping can help ensure the safe and efficient use of land, resources, and infrastructure, as well as support informed decision-making in a wide range of applications.

# What is a Surveyor and Mapper?

A surveyor and mapper is a skilled professional who specializes in measuring and mapping the features of land, water, and air to determine its boundaries, elevations, and topography, which are material to the development of any project.

Surveyors and mappers perform the following roles and responsibilities:

Establish property boundaries and create maps and survey plots of the site

Measure and record physical characteristics of the land, including elevation, distance, and direction

Conduct research and analyze existing survey data, maps, deeds, and other relevant documents

Provide expert advice to clients on land use, zoning, and building regulations

Prepare legal documents such as land deeds, maps, and boundary descriptions

Serve as expert witnesses in court cases and provide expertise to engineers, architects, and developers

Becoming a Licensed Professional Surveyor and Mapper (PLS / PSM)

To become a licensed land surveying professional, individuals must meet education and experience requirements and pass an examination. The requirements for licensure may vary by state, but typically include:

A bachelor’s degree in surveying and mapping or a related field such as geomatics or land surveying.

Four to six years of experience as a subordinate to a licensed surveyor.

Successful completion of the Fundamentals of Surveying (FS) exam, the Principles and Practice of Surveying (PS) exam, and a state-specific examination.

Learn more about becoming a Licensed Professional Surveyor and Mapper (PLS / PSM) in Florida

Land surveyors can work in a variety of industries, including the A/E/C industry, government agencies, and private firms:

In the A/E/C industry, these professionals are typically involved in the planning, design, and construction of buildings, roads, bridges, and other important infrastructure projects. They play a critical role in ensuring that these projects are built according to plan and within regulatory requirements.

In government agencies, land surveyors may work for departments responsible for land management, zoning, and environmental protection.

Private firms may hire land surveyors to provide services such as boundary surveys, topographic surveys, and construction layout services.

The planning and execution of nearly every successful infrastructure project begins with the daily work of professional surveyors and mappers, survey field crew, and CADD technicians. The wide range of career possibilities requires a high level of technical expertise and a strong understanding of surveying and mapping principles.

Collecting data for a land survey at the University of Florida Katie Seashole Pressly Stadium

# What is a land survey?

A land survey is a report, drawing, or map of a parcel or parcels of land, which provides precise measurements on the shape, size, and boundaries of the property and location of any structures or features found on the property.

Land surveys can also provide information on the topography and natural features of the land, such as trees, bodies of water, and slopes, which can be important for environmental assessments and planning. They can also be used to identify any potential hazards or risks, such as flooding or landslides, and inform decisions about land use and development.

# Importance of Land Surveys

Land surveys are essential in establishing legal descriptions and providing legal proof of property ownership ensuring property owners are aware of their boundaries and rights. Here are a few of their main benefits:

Legal descriptions in land surveying are used to define the exact boundaries and dimensions of a piece of property. Map of Gainesville, 1853.

Legal Proof of Property Ownership: Land surveys are the only legally binding documents that define where a property begins and ends. Having a recent survey on file is crucial when purchasing or selling property and helps to prevent legal disputes.

Property Disputes: Land surveys help to resolve disputes between neighbors and ensure that construction projects comply with zoning and building regulations.

Building and Development: Land surveys are necessary before any new construction, renovation, or expansion project. They help to identify any potential issues with the site and ensure compliance with zoning regulations and building codes.

Land surveying and mapping are vital to the success of the A/E/C industry, providing critical data for land development, infrastructure planning, property ownership, and legal disputes. Understanding the various types of surveys is essential in selecting the most suitable survey for a specific project and ensuring accurate and reliable data collection.

# WHAT ARE THE DIFFERENT TYPES OF SURVEYS?

Surveying and mapping are essential tools for a wide range of industries which rely on accurate measurements and mapping of land and structures to ensure the successful completion of their projects. In this section, we’ll explore the different types of surveys that are commonly used in the A/E/C industry.

# ALTA/NSPS Land Title Surveys:

An ALTA/NSPS land title survey is a comprehensive survey that meets the standards set by the American Land Title Association (ALTA) and the National Society of Professional Surveyors (NSPS). It provides a detailed report of a property’s boundary lines, improvements, easements, rights-of-way, encroachments, and other features that could affect ownership or the use of the property. ALTA/NSPS surveys are usually required for commercial properties and provide a comprehensive view of a property’s physical and legal characteristics, helping identify potential issues or conflicts that could arise in the future.

# Commercial/Residential Boundary Surveys:

A commercial/residential boundary survey accurately identifies the boundaries of a property, including its corners, lines, and angles. These surveys are essential for resolving property disputes, complying with zoning regulations and building codes, and providing evidence of legal property ownership.

# Construction Layout Services:

Construction layout services, also known as construction staking or site layout survey, establish and mark the precise location of proposed structures, utilities, and other infrastructure on a construction site. This crucial step ensures buildings are placed correctly according to design plans and minimizes errors and conflicts, reducing the risk of costly rework later in the construction process.

Surveying and mapping are essential tools for a wide range of industries which rely on accurate measurements and mapping of land and structures to ensure the successful completion of their projects.

Lot Splits + Boundary Line Adjustments:

Lot splits and boundary line adjustments are processes related to the division of land into separate parcels or lots. A lot split involves dividing an existing piece of land into two or more separate lots or parcels, while a boundary line adjustment involves changing the boundaries of existing lots or parcels to better fit the needs of the property owner. These complex processes require the services of a licensed surveyor to ensure the new lots or parcels are accurately defined and comply with the local zoning and subdivision regulations for approval from the local planning department or zoning board.

Platting Services and Lot Staking:

Platting services involve mapping and staking an entire property to define the boundaries and dimensions of the property, as well as any legal restrictions. During lot staking, land surveyors place survey monuments or markers at property corners and lines, at predefined intervals, using wooden stakes to clearly mark property boundaries. This type of surveying is used to ensure that the land is properly prepared for development.

# Topographic Surveys:

A topographic survey is used to gather detailed data about the location of natural and man-made features of the land. These features include elevations, contours, trees, streams, drainage ditches, grading, buildings, and more. A topographic survey is a useful tool for landscape architects and engineers for land planning and development, site design, engineering design, and environmental analysis.

# As-Built or Record Drawings:

As-built surveys are important for documenting the final horizontal and vertical field location of constructed improvements, such as sewer pipes, buildings, and utilities, in relation to the engineered construction plans, design changes, and contractor’s field changes. These surveys ensure that construction projects are completed according to plan and serve as a record of the final, “as-built” state of the building or structure. Often required by regulatory agencies, these land surveys are useful for property management, maintenance and repair, and future construction or renovation projects.

# Wetland + Environmental Surveys:

Wetland and environmental surveys are assessments conducted to identify and evaluate the natural features and resources of a particular area, including wetlands, habitats, and other environmental features. These surveys are used to determine the presence and extent of wetlands, wildlife habitats, endangered species, and other environmentally sensitive areas. The goal of wetland and environmental surveys is to ensure that development projects and other activities do not negatively impact the environment and to identify potential mitigation measures to minimize any impacts. These surveys may be required by local, state, or federal regulations and are typically conducted by environmental consultants or specialists.

# Hydrographic + Mean High Water Surveys:

Hydrographic and Mean High Water (MHW) surveys are specialized surveys that measure and map the depths, contours, and features of bodies of water, such as lakes, rivers, and coastal areas. Hydrographic surveys are typically used for navigation, dredging, and engineering purposes, while MHW surveys are used to establish the legal boundary between public and private land along the shoreline. These surveys are conducted using specialized equipment, such as sonar, GPS, and multibeam echosounders, to create accurate maps and 3D models of the water and land features. These surveys are specifically important for peninsulas, such as Florida.

# FEMA Elevation Certificates:

FEMA Elevation Certificates verify property’s location, flood zone designation, and the structure’s elevation. The certificate is often required by lenders and insurance companies for properties located in flood zones to determine flood insurance rates, building code compliance, and other flood-related issues. Licensed land surveyors or engineers typically prepare these certificates in compliance with the National Flood Insurance Program.

# Subsurface Utility Locations:

Subsurface utility locations involve identifying and mapping the location of underground utilities, such as water pipes, gas lines, electrical cables, and telecommunication lines, using methods such as ground-penetrating radar, electromagnetic induction, or vacuum excavation. The Subsurface Utility Engineering process helps prevent accidental damage during construction or excavation work, enables utilities to be relocated or repaired more efficiently, and prevents service interruptions by identifying potential issues before they occur.

# What is Subsurface Utility Engineering?

Subsurface utility locations & designations provide utility conflict avoidance by mapping existing underground utility facilities. //READ MORE

# Aerial Surveying and Mapping:

Aerial surveying and mapping is a method of collecting geospatial data from the air using various sensors mounted on a survey aircraft or drone. This technique is used to create highly accurate maps, 3D models, and other geospatial data products useful for large-scale mapping projects such as city planning and infrastructure development.

Surveying and Mapping provides critical information about the characteristics of a site, including its boundaries, topography, and existing infrastructure enabling A/E/C professionals to plan and execute projects with a high degree of accuracy, reducing the risk of costly errors, safety hazards, and project delays. In the next section, we will delve deeper into the benefits of surveying and mapping and explore some of the specific ways these tools are used to support successful project outcomes.

# THE IMPORTANCE OF SURVEYING AND MAPPING IN THE A/E/C INDUSTRY

The architecture, engineering, and construction (A/E/C) industry is a highly collaborative field that encompasses a wide range of professions involved in the planning, design, construction, and maintenance of buildings, infrastructure, and other structures. From landscape architects and engineers to ecologists and project managers, each profession plays a vital role in ensuring that projects are completed safely, on time, and within budget. This industry encompasses a variety of projects, including residential and commercial buildings, infrastructure, and energy systems, and is an essential part of the economy, providing employment opportunities and contributing to the growth and development of strong communities.

# Importance of Surveying and Mapping in A/E/C Projects

Surveying and mapping play a crucial role in providing accurate and reliable data that is essential for project planning and execution. The following are some of the ways surveying and mapping contribute to the success of A/E/C projects:

Planning and Design: Surveying and mapping provide accurate and reliable data that landscape architects, engineers, and construction professionals use in planning and designing a project. This includes topographic data, elevation data, boundary lines, and legal descriptions of the property. The information is critical for creating the initial design of a project and for determining the feasibility of a proposed project.

Construction: During the construction phase, surveying and mapping are used to ensure that the construction work is following the design plans accurately. Surveyors use precision instruments to locate and mark the position of construction elements such as buildings, roads, bridges, and utility lines. This helps to ensure that the construction work is carried out to the exact specifications of the design plans, minimizing the risk of errors and rework.

Site Evaluation: Surveying and mapping are critical in evaluating the suitability of a site for construction. This includes determining the topography, soil type, drainage patterns, and other factors that can affect the construction process. By evaluating these factors, architects and engineers can design structures that are both safe and environmentally sustainable.

Land Use Planning: Surveying and mapping provide information that is essential in land-use planning. This includes identifying zoning regulations, environmental constraints, and other factors that can affect land development. This information is critical for developing comprehensive land-use plans that balance economic, social, and environmental considerations.

Property Ownership: Surveying and mapping are used to determine the boundaries of a property and the legal description of the land. This information is essential in property transactions, including buying and selling, leasing, and easement agreements. Surveyors also provide accurate data on the location and size of improvements, such as buildings, roads, and utilities, which can impact property value and development potential.

Accurate Site Planning: Surveying and mapping provide accurate measurements of the land, including its topography, boundaries, and other features that may affect the design and construction of a project. This information is essential for site planning, ensuring that the project is built on a stable foundation and that it meets all zoning and regulatory requirements. Accurate site planning is crucial for ensuring the long-term success of a project and minimizing the risk of future problems or failures.

Building and Development Compliance: Surveying and mapping also play a critical role in ensuring that buildings and structures are built in compliance with local building codes and regulations. Surveyors provide precise measurements and data to ensure that buildings are constructed within the specified boundaries and that they meet all regulatory requirements. This helps to ensure the safety and structural integrity of buildings and structures.

Infrastructure and Utility Planning: Surveying and mapping also contribute to the planning and construction of infrastructure and utility systems, such as roads, bridges, and pipelines. Surveyors provide accurate data on the land and the surrounding environment, including its topography, soil conditions, and other factors that may affect the design and construction of these systems. This information is critical for designing infrastructure and utility systems that are both safe and environmentally sustainable.

# The Power of Surveying and Mapping: Success Stories in A/E/C Projects

You can find examples of A/E/C projects that have utilized surveying and mapping to ensure their success across the globe. These Florida examples demonstrate the importance of surveying and mapping in a wide range of projects, from large-scale infrastructure projects to iconic landmarks. By providing accurate and reliable data, surveying and mapping help ensure the success of these projects, both in terms of safety and efficiency.

# UF Data Science and Information Technology Building (DSIT)

The University of Florida (UF) is committed to creating a sustainable and well-designed campus that integrates with the existing character of the 2,000+ acre campus. To achieve this, UF has undertaken several campus master planning initiatives, including the use of 3D scanning and modeling technologies to create accurate digital representations of existing buildings, infrastructure, and green spaces. The UF Data Science and Information Technology Building (DSIT) is a testament to the success of this planning approach. The building’s design incorporated surveying and mapping, which enabled the project team to control construction costs by identifying potential conflicts early in the process. With detailed survey information, including utility locations and full 3D models, the project team could accurately visualize proposed developments, assess the impact on the campus environment, and avoid potential conflicts with existing or planned improvements. This comprehensive planning approach has resulted in a more sustainable and well-designed campus that meets the needs of students, faculty, and the surrounding community.

# National Park Service Indefinite Delivery Indefinite Quantity (IDIQ) Contract

In Florida, surveying and mapping play a significant role in the state’s environmental conservation efforts. Wetland and environmental surveys are essential for ensuring that development projects comply with state and federal regulations for the protection of natural resources. In comparison to other states, Florida has unique environmental features, such as its extensive coastline and the Everglades, making these projects more complex than similar projects in other states.

The Everglades Restoration Project aims to restore and preserve this unique ecosystem, with surveying and mapping playing crucial roles in tracking environmental changes and guiding restoration efforts. In 2022, CHW joined the Multi-Disciplinary Architect-Engineering (A-E) Team led by Walker Architects for the Indefinite Delivery Indefinite Quantity (IDIQ) Contract with the National Park Service. Uniting in the care of U.S national parks in Southeast Region, which includes the states, possessions, and territories of Louisiana, Mississippi, Alabama, Georgia, Florida, Tennessee, Kentucky, South Carolina, North Carolina, Puerto Rico, and the Virgin Islands (primary geographic area).

# KEY CONSIDERATIONS FOR CHOOSING A SURVEYING AND MAPPING PROVIDER

Understanding the role of surveying and mapping is essential for anyone working in industries that rely on accurate spatial data. Whether you are a property owner looking to establish legal proof of ownership, a developer planning new construction projects, or an engineer designing infrastructure systems, surveying and mapping data is essential for making informed decisions. With the right surveying and mapping provider, you can ensure that your projects are based on accurate data and meet all relevant regulations and standards.

# Factors to Consider When Choosing a Surveying and Mapping Provider

Experience and Reputation: Consider the provider’s experience and reputation in the industry. Look for a provider that has a good track record and extensive experience in surveying and mapping in the specific area or type of project you are working on. Check their references and online reviews to get an idea of their reputation.

Communication and Collaboration: Consider the provider’s communication and collaboration skills. A good provider should be able to provide clear communication about the project timeline, keep you informed about any issues or delays, and actively collaborate with you and stakeholders to ensure project goals are met.

Range of Services: Consider the range of services the provider offers. Some providers specialize in specific types of surveying and mapping services, while others offer a full range of services. It may be more efficient and cost-effective to choose a provider that offers a full range of services, as it can reduce the need for multiple providers.

Technology and Equipment: Check what technology and equipment the provider uses. A provider that uses the latest technology and equipment will likely be more efficient, accurate, and cost-effective. Ask the provider what equipment and technology they will use for your project and how it will benefit the project.

Quality Assurance: Ensure that the provider has a quality assurance program in place to ensure the accuracy and quality of their work. Ask the provider about their quality assurance program, including the procedures they follow and the measures they take to ensure accuracy and quality.

Certifications and Licenses: Ensure that the provider has all the necessary certifications and licenses required by the state or local jurisdiction where the project is taking place. This will ensure that the provider meets the legal requirements and has the necessary knowledge and skills to perform the work.

CHW is Multi-Disciplinary. We empower progress, concept to construction. CHW offers turn-key solutions through our full-service professional disciplines: general civil engineering, surveying + mapping, land planning, ecological services, urban design, design + permitting, transportation engineering, traffic studies, landscape architecture, construction administration, construction engineering inspection.

Importance of Choosing the Right Provider

Cost and Time Savings: When looking for a provider, it’s important to keep in mind the potential for cost and time savings. By choosing an experienced provider equipped with the latest technology, you can ensure that your project is completed efficiently and accurately, ultimately reducing the need for costly revisions or delays.

Accurate and Reliable Results: The accuracy and reliability of your surveying and mapping results are crucial to the success of your project. Therefore, it’s important to choose a provider with the necessary experience, equipment, and communication skills to ensure that your results are accurate and reliable. When you choose the right provider, you can feel confident that your project is in good hands.

Expert Guidance and Advice: An experienced provider with knowledge of the industry and a comprehensive understanding of local and federal regulations can help you avoid potential legal issues, delays, and non-compliance issues that could otherwise significantly impact your project’s timeline and budget.

By keeping these key considerations in mind, you can choose a provider that can meet your project’s needs and ensure its success.

# THE FUTURE OF SURVEYING AND MAPPING IN THE A/E/C INDUSTRY

The A/E/C industry is continually evolving and adopting new technologies that are improving the accuracy and speed of surveying and mapping services. These technologies have led to the development of new techniques, which offer better data quality, quicker turnaround times, and increased accuracy. In this section, we will explore the emerging trends in surveying and mapping and their potential impact on the A/E/C industry.

# Emerging Trends in Surveying and Mapping

Emerging trends in surveying and mapping are shaping the future of the industry, leading to improved efficiency, accuracy, and safety. Here are some of the most notable trends:

# Drones and Aerial Surveying

Drones are becoming increasingly popular in the A/E/C industry, particularly for large-scale projects. Aerial surveying with drones provides high-resolution images, which can be used to create 3D models of terrain and structures. This technology can significantly reduce the time and costs associated with traditional land surveying techniques.

# 3D Laser Scanning and 3D Model Creation

3D laser scanning is a technique that uses lasers to capture high-resolution, 3D images of objects and structures. This technology is particularly useful in capturing data on existing structures, and the 3D models created from the scan can be used to identify potential design problems or compatibility issues.

CHW’s team expertly used this technology to scan a 96″ reinforced concrete pipe for a conveyor belt system, identifying any potential skew issues and assisting CEMEX and Lake County in modernizing Schofield Road between U.S. 27 and the Orange County line. The $13 mil project will provide improved, paved access for commuters traveling to and from State Road 429 and the Greater Orlando area and is slated for completion this year.

# GIS and Mapping Software

Geographic Information System (GIS) technology is used to store, analyze, and manipulate geographic data. GIS mapping software is becoming increasingly popular in the A/E/C industry as it allows for improved data visualization and analysis, making it easier for designers and engineers to plan projects accurately.

# These technological advances in the A/E/C industry have resulted in:

Improved Efficiency and Accuracy: The integration of new technologies in surveying and mapping has improved the accuracy and efficiency of data collection and analysis. This technology has led to more reliable data and has allowed for faster project turnaround times.

Enhanced Visualization and Communication: The 3D models created using laser scanning, drone mapping, and GIS technology can be used to improve project visualization and communication. This visualization can aid stakeholders in better understanding project designs and identifying potential design issues before construction.

Opportunities and Challenges in the Future of Surveying and Mapping: The future of surveying and mapping is exciting, with emerging technologies providing significant opportunities for the A/E/C industry. However, the integration of these technologies also presents several challenges, such as increased costs and the need for specialized knowledge and skills.

By adopting new technologies, surveying and mapping professionals can streamline their workflows, provide more accurate data, and communicate more effectively with clients and stakeholders.

Aerial surveying with drones provides high-resolution images, which can be used to create 3D models of terrain and structures.

CONCLUSION

In conclusion, surveying and mapping play a vital role in the success of projects across various industries. As technology continues to evolve, they will become even more efficient and accurate, providing enhanced visualization and communication opportunities for the A/E/C industry.

At CHW Professional Consultants, we are committed to delivering multi-disciplinary high-quality solutions that create effective, long-term partnerships with our clients. Our team of over 100 employees across Florida has a wide range of expertise in civil engineering, surveying and mapping, land development planning, ecological services, landscape architecture, urban design, transportation planning and traffic engineering, and construction engineering inspection services.

When it comes to surveying and mapping, choosing the right provider is critical to ensuring accuracy, reliability, and cost-effectiveness. At CHW, we take pride in supporting our clients’ goals and our commitment to communication and collaboration ensures that our clients’ needs are always met. If you’re looking for a provider that delivers a diverse portfolio of professional services, look no further than CHW.

# What is Earth Engine?

Earth Engine is a platform for scientific analysis and visualization of geospatial datasets, for academic, non-profit, business and government users.

Earth Engine hosts satellite imagery and stores it in a public data archive that includes historical earth images going back more than forty years. The images, ingested on a daily basis, are then made available for global-scale data mining.

Earth Engine also provides APIs and other tools to enable the analysis of large datasets.

# How is Earth Engine different from Google Earth?

Google Earth enables you to travel, explore, and learn about the world by interacting with a virtual globe. You can view satellite imagery, maps, terrain, 3D buildings, and much more.

Earth Engine, on the other hand, is a tool for analyzing geospatial information. You can analyze forest and water coverage, land use change, or assess the health of agricultural fields, among many other possible analyses.

While the two tools rely on some of the same data, only some of Google Earth's imagery and data is available for analysis in Earth Engine.

How does Earth Engine data compare to the Landsat and Sentinel data in Google Cloud?

The Earth Engine team has worked in close collaboration with Google Cloud to bring the Landsat and Sentinel-2 collections to Google Cloud Storage as part of the Google Cloud public data program.

The Google Cloud collections make it much easier and more efficient to access the data directly from Cloud services such as Google Compute Engine or Google Cloud Machine Learning.

Please note that the Earth Engine Code Editor and API do not access these Cloud collections; they use the Earth Engine data catalog directly.

# Why is Google working on Earth Engine?

Google's mission is to organize the world's information and make it universally accessible and useful. In line with this mission, Earth Engine organizes geospatial information and makes it available for analysis.

More generally, Google strives to make the world a better place through the use of technology. Earth Engine's technical infrastructure powers humanitarian, scientific, and environmental initiatives which Google is proud to support.

# What can Earth Engine do for me or my organization?

Earth Engine provides easy, web-based access to an extensive catalog of satellite imagery and other geospatial data in an analysis-ready format. The data catalog is paired with scalable compute power backed by Google data centers and flexible APIs that let you seamlessly implement your existing geospatial workflows. This enables cutting-edge, global scale analysis and visualization.

Tell me what some others have done with Earth Engine

Earth Engine is used by researchers, nonprofits, educators, and governmental agencies who use the system to analyze large-scale geospatial data. Please refer to our Case Studies for examples of Earth Engine in action.

# How do I get access?

To get access to Earth Engine, register your Google Cloud Project. See the Google Earth Engine Developers Site for more information.

Can I access Earth Engine from more than one Google account?

An Earth Engine account is associated with a single Google account. Creating multiple Earth Engine accounts to circumvent quota restrictions is a violation of the Earth Engine Terms of Service.

Tell me how Earth Engine works

See the Google Earth Engine Developers Site for documentation and examples.

# Is Earth Engine compatible with my existing tools?

Imagery and data from third-parties may be imported into Earth Engine for analysis. Conversely, any analysis performed in Earth Engine can be downloaded for use by third-party tools.

# What datasets are available?

We have a searchable data catalog, including the entire EROS (USGS/NASA) Landsat catalog, numerous MODIS datasets, Sentinel-1 data, NAIP data, precipitation data, sea surface temperature data, CHIRPS climate data, and elevation data.

Users can also upload their own data for analysis in Earth Engine, with full control over access.

How do I request additions to the public data catalog?

Please file issues to request new datasets or updates to existing datasets.

Can I use my own proprietary imagery and vector data?

Yes. Earth Engine enables you to upload your own raster and vector data (e.g. GeoTIFF or Shape files) for analysis.

# How can I share/publish/etc. the results of my analysis?

We encourage you to share your results. You can share your results and analysis scripts directly with other Earth Engine users, or you can simply download and share them as you would any other data. However, if your results include use of the Google Maps basemap (such as a Code Editor screenshot), note that Google Maps and its imagery providers do require attribution and any Google citations in the screenshot should not be removed.

# How do I cite Earth Engine in publications?

Gorelick, N., Hancher, M., Dixon, M., Ilyushchenko, S., Thau, D., & Moore, R. (2017). Google Earth Engine: Planetary-scale geospatial analysis for everyone. Remote Sensing of Environment.

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}

# How much does Earth Engine cost?

Earth Engine is free for noncommercial use: learn more here. For commercial or operational applications, please click here to learn more about pricing options.

Beyond evaluation, is Earth Engine available for commercial use?

Yes! Earth Engine is now a Google Cloud product. Get more details here.

Who owns the algorithms I write in Earth Engine and the results of my analyses?

You do. The results of all analyses you perform are yours. All algorithms that you write with our API are yours. Here's the fine print.

Am I required to display my Earth Engine results on a Google Map?

You are free to display your Earth Engine results on Google Maps or any other mapping platform.

What kind of support do you provide?

Technical support: Our Help page provides resources for getting support, including the option for Earth Engine users to join the Developers email list where our staff and other Earth Engine users answer questions.

Training: We hold frequent Earth Engine training sessions, including our annual Earth Engine User Summit and the Geo for Good conference, typically held at the Googleplex in Mountain View, CA. To receive announcements about the sessions, stay subscribed to the Developers email list, and/or the Google Earth Outreach mailing list, which also provides information and training on other Google mapping tools.

Paid Technical Support: For commercial customers using Earth Engine in a commercial context, a range of support options are available to you through Google Cloud. Get more details here.

I’m a startup interested in using Earth Engine. Is there any program for Startups?

Yes! The Google for Startups Cloud Program provides your funded startup with access to dedicated mentors and industry experts, product and technical support, Cloud cost coverage (up to $100,000) for each of the first two years, and more. Apply here

If you’ve applied for this program, and were not eligible for it, please reach out here.

I have never heard of a property boundary, so when should I consider having my property surveyed?

Land, property, and the accessories on it are more than likely the largest investments you will ever make, so protect it.

When purchasing land or a house.

When selling land or a house. Verify that you are selling only what you intend by using a legal description written by a Surveyor.

If you don't know where your property lines are located.

Before improving your property by building a house, garage, accessory building, fence, retaining wall, landscaping, or garden when you are close to a property line.

If you and your neighbor disagree with the location of a line or corner location.

You feel like your neighbor may be encroaching onto your property.

When land is not clearly described by a legal description, subdivision, survey, or plat.

When subdividing a parcel of land.

A lending agency can require a survey for mortgage purposes if the property is not well described or ambiguous.

There are many different factors that determine the cost of a survey. There is research that needs to be performed, fieldwork both on your property and the surrounding property, and specialized equipment and software.

Amount of research, drafting, office work, and fieldwork required to perform the survey.

Quality of your current legal description and whether it is ambiguous.

Type of equipment and software required to perform the survey.

Current conditions of the property.

size of the parcel

number of unknown property corners.

building, fences, landscaping, or other improvements.

Terrain and the accessibility of the site.

Please click here or use the quote request button below for a free quote or contact us with questions.

What information might the land surveyor need?

# What is the reason you are looking into a survey and what is the end result you are looking for when it is complete?

Location of the property you are looking to get a survey on:

legal description

document number at the Register of Deeds Office.

parcel number

address if available

title examination papers if available

Current owner's names and history of ownership.

Information regarding disagreements with current or past owners and neighbors over the location of property boundaries.

Information regarding easements for your property (these may be verbal agreements but are important).

Allow adequate time to research and plan your project by contacting the land surveyor well before the survey is needed.

What should you see when the survey is finished?

Make sure the services spelled out in your contract were performed.

Make sure they set all corners shown on the survey.

A copy of the map that the surveyor drafted.

A legal description of your property.

# What is an easement?

Even though the owner maintains the ownership of a property, an easement is a legal document that grants the crossing of your property by a neighbor without penalty. For example, it might include a driveway to access the main road, or to simply share a driveway. Another easement could be granted to a utility company to run power, telephone, and cable lines.

What should I do if I’m in a dispute with my neighbor over possible encroachment onto my property?

You are strongly advised to talk to your neighbor to ensure that there is not a misunderstanding. It may be advisable to hire a Land Surveyor to do a survey of your property to resolve any misunderstandings.

# What is a Corner Record Survey and when is it required? (Previously recorded on a Parcel or Tract Map)

A Corner Record is a document that determines where the physical placements of property corner monuments (also known as corner staking) are to be placed. The document must be prepared by a licensed land surveyor in accordance with the Professional Land Surveyors’ Act.

A Corner Record is required when it has been determined that your property’s boundary corners have already been defined on an existing recorded Record of Survey Map, a Parcel Map, or a Tract Map. The Corner Record is submitted to the County Surveyor’s office for review and approval. Upon approval, it is then filed with the County Surveyor’s office.

Note: If property corners have not been defined on an existing recorded Record of Survey Map, a Parcel Map, or a Tract Map, then a Record of Survey Map will be required.

# What is a Record of Survey and when is it required? (Not previously recorded on a Parcel or Tract Map)

The purpose of a Record of Survey is to document the physical placement of property corner monuments (also known as corner staking). A Record of Survey Map is required when it has been determined that your property’s boundary corners have not been defined on an existing recorded Record of Survey Map, a Parcel Map, or a Tract Map.

A Record of Survey Map must be prepared by a licensed land surveyor in accordance with the requirements of the Professional Land Surveyors’ Act. The Record of Survey Map is submitted to the County Surveyor’s office for review and approval. Upon approval, it is then filed with the County Surveyor’s office.

Note: If a property corner has already been defined on an existing recorded Record of Survey Map, a Parcel Map, or a Tract Map, then a Corner Record will be required.

# What is a Parcel Map?

A Parcel Map is the official subdivision map required to subdivide a piece of property into four (4) or less lots. It is prepared in accordance with the Professional Land Surveyors’ Act and is filed with the County Surveyor’s office.

# What is a Tract Map?

A Tract Map is the official subdivision map required to subdivide a piece of property into five (5) or more lots. It is prepared in accordance with the Professional Land Surveyors’ Act and has been filed with the County Surveyor’s office.

# How do I locate a property line?

You can obtain this information through your county’s assessor’s office. It is public information. You can also look at your property’s deed. If you have had a survey on your property, you will find the property lines on that document.

# How do I subdivide a property?

If you are a Residential or Commercial property owner and are looking to increase the value of your property by subdividing it, you will need to go through an extensive “Land Subdivision” process. If you are not familiar with this process, it can be a bit overwhelming! Even for what appears to be a small project, the Land Subdivision Process can be very complicated. G&M’s 8-Phase Land Subdivision Process located on our Learn page lists in detail the steps involved in subdividing your land.

# What is a lot line adjustment?

A lot line adjustment is a process that occurs when a property owner changes the property lines of parcels of land that already exist.

# What is a Flood Certificate?

A Flood Certificate is a document that certifies if your property is located within a flood zone. To determine if your property is in a flood zone, you can check with the Federal Emergency Management Agency (FEMA). FEMA will compare your address with their flood map. A Flood Certificate is typically required when requesting a bank loan.

# What is a Topographic survey?

A Topographic (Topo) land survey shows the height depth, size, and location of man-made or natural features on your property such as peaks, valleys, stream or creek, wooded areas, etc. For you to understand the lay of your land, a topographic survey is typically required when you want to build on your property or if you are having an erosion problem.

# What is a boundary survey?

A boundary survey is a document that defines the exact boundaries of your property. The survey will show the distances from your house to the boundary lines, and to the street, etc. The document includes the legal description, parcel identification, section, township. Typically, you would need a boundary survey if you were in dispute with your neighbor, if you are buying a property, dividing, or building on your property.

# Do I need a survey to put up a fence, what type of survey is needed?

Check with your municipality as some require a survey for fence installation. It is strongly recommended because you do not want to accidentally put your fence on your neighbor’s land. The ideal location is “just” inside your property so that you become the sole owner of the fence. A boundary survey would be the type of survey to determine your boundaries.

# Do I need a survey or a permit to build a retaining wall on property line?

Not always. However, if a retaining wall is to be built on a property line (like a fence), most municipalities require a survey for that property line. A permit may or may not be required. Typically, if a retaining wall is no higher than 4’, then a permit may not be required. Always check with your local municipality before building a retaining wall to determine what they require.

# Land Surveyor FAQ

A land survey on a property is vital for a property owner. It’s an essential step for any land development. It determines the land’s accurate measurement and boundaries. Knowing where your boundaries lie can prevent any disputes in the future.

Below are some of the most asked questions at Accurate Land Surveyors, Inc. These questions apply to both residential and commercial properties. If you can’t find your concerns on the list, feel free to contact us. Our team will get to you as fast as we can.

# What is land surveying?

Land surveying is a process of measuring the boundaries, corners, etc., of a land. It helps owners determine where their property lines lie. A survey helps establish the locations of residential and commercial properties. Moreover, it prevents issues, such as potential boundary disputes.

Land surveys also highlight the restrictions that a property may have. A survey could help experts analyze a structure. It shows if a structure is appropriate and within the property’s constraints.

# Why is surveying important?

The law requires property owners for a land survey. For example, you plan on having a new structure built on your property. It can be a new fence or a physical monument. Doing this will need you to get planning permission from your local office. But first, you must present a property survey.

Do you have plans to sell your home? If so, potential buyers need to know the property’s boundary lines. This way, they can avoid potential disputes with their neighbors. Encroachment is one of the most common causes of disputes in the US.

Another use of a land survey is applying for insurance from a title insurer. Surveys can reveal unforeseen issues that can affect a property’s title. Once the assessment is complete, the owner will receive the title insurance.

A title company must ensure that buyers receive the land title legitimately. Surveys also help them do the following:

Confirm the following property’s dimensions

Identify the easements of record

Check that the property sold or mortgaged is correct

Detail the encroachments affecting the property

# Why do you need a professional?

You can’t do a land survey by yourself. You need professional land surveyors to check your property for you. It is a surveyor’s job to measure a property and define its boundaries for you.

Only professional land surveyors have the license to do these tasks. They have the appropriate training to conduct surveying work. This job comes with strict guidelines that they must follow, and varies by municipality.

If you need land surveying services, feel free to contact us here at Accurate Land Surveyors, Inc. We’ll go above and beyond to assist you with any of your land surveying needs.

# Why would you hire a land surveyor?

State statutes and regulations mandate that only licensed land surveyors can conduct surveys. The reasons for these surveys include the selling, development, or subdivision of property.

# What does a land surveyor produce?

Land surveyors produce a survey map and the property’s legal descriptions. The official, drawn map of the subject property must be accurate and detailed. It shouldn’t miss out on important information, such as the property’s ownership and the rights and limitations.

# How do surveyors survey land?

Surveyors use various tools and equipment to assess a property. Paired with years of experience, we can offer the best surveying services to our clients.

But a surveyor’s process may depend on the type of land survey that they must do. But the general task is identifying property placements and the neighboring buildings. They must also analyze any possible changes in the property, as well as its topographic data. They check the latter using a topographical survey.

# What type of survey should you conduct?

The survey you should have on your property depends on what you need. At Accurate Land Surveyors, Inc., here are some of the surveys that we offer:

Boundary Survey. Boundary surveys help determine where the boundaries of your property lie. This survey is for selling, dividing, or building new structures on the land. Once surveyors determine the boundaries, they’ll set property corners.

Location Survey. Location surveys provide more information about the location of interior improvements. This survey is essential for a loan application or zoning permit.

Site Planning Survey. Site planning surveys are necessary for getting a development permit application. This survey helps plan the design improvements and development of a project.

Subdivision Survey. This survey helps divide a parcel of land into two or smaller lots. A subdivision survey can also aid in designing drainage and streets.

# How does a land surveyor help in boundary disputes?

Boundary disputes arise when neighbors disagree about where their property line lies. Encroaching structures such as fences can escalate into a full-blown court hearing. Because of this, homeowners shouldn’t skip getting their properties surveyed.

Land surveyors determine your boundary using the legal description on the deed. It will show whether you’ve infringed on your neighbor’s property or vice versa. Moreover, surveyors can testify in court and explain the result of their survey.

# How much does surveying cost?

Various factors can affect the cost of a land survey. These include:

Terrain

Type of survey

Previous improvements on the property

Purpose of the survey

How recent the last survey was

Land that can be hard to reach or access is often more costly when it’s time for a survey. These include properties that are steep or have a lot of trees in the area.

Moreover, the type of survey will be a significant factor in the costs. Different surveys need different levels of attention to detail and equipment. Hence, surveyors might do intense research before measuring your land. The more labor-intensive a survey is, the higher the fee you might pay.

# Can a land surveyor trespass?

Land surveyors can’t enter a property without the owner’s consent. They can only enter the property they’re going to survey. To enter the land’s bordering properties, they must have permission to access it. If a surveyor enters without permission, property owners can sue them for civil or criminal trespass.

# Can a land surveyor be wrong?

Of course, surveyors can be wrong. Miscalculations with property boundaries can happen. Most of the time, this stems from a simple mistake. Other times, it can be because of equipment that isn’t working right. Client miscommunication can also be a reason why a surveyor produces wrong results.

Many factors often lead to errors in a property survey. These can range from a surveyor marking the corners wrong or erroneous data. But rest assured! At Accurate Land Surveyors, Inc., we’ll ensure that you get an accurate survey of your property. So please feel free to contact us for any concerns or land surveying needs.

# Why Do You Need a Land Surveyor?

# Why Do You Need a Land Surveyor?

Getting your land surveyed isn’t optional. Whether you’re trying to sell your property, construct a building, or add new additions to your home or business, you’ll need to survey your property by a licensed and certified land surveyor.

When you do a land survey, you can provide peace of mind to the buyer or get approval from the local government to begin your project. Don’t skip on this crucial step. Doing so can end up costing you a lot more in the long run.

# Can NY Rising Help You?

The NY Rising program can help Long Islanders recover from several past hurricanes and other natural disasters. In addition, it can also provide Long Island homeowners resiliency for any future natural disasters. To qualify for this initiative, you will need to obtain an elevation certificate and a land survey from a qualified surveyor.

# Should You Consider Raising Your Home?

In areas prone to flooding, hurricanes, and natural disasters, homeowners should consider raising their homes. Doing so can help curb the cost of insurance premiums and prevent any significant damages from taking place.

Raising your home requires a lot of prep work. If you want to raise your home, you’ll need a land survey and various certificates to get authorized to do so. In addition, construction companies and architects will greatly appreciate any reports you provide to make their job easier and of better quality.

# Do You Need a FEMA Elevation Certificate?

If you live in a flood-prone area such as Long Island, you should obtain a FEMA elevation certificate. A licensed and qualified land surveyor can only issue these certificates. Home insurance premiums can be crippling, but getting a FEMA elevation certificate may help to lower the costs.

# When Do I Need a Topographic Survey?

Topographic surveys measure elevations and other landforms you typically wouldn’t find on a basic land survey. You would need a topographic survey for when you:

Conduct environmental restoration

Redevelop land

Build drainage ditches

Provide additional information to builders or architects about the terrain

A licensed professional land surveyor should always do topographic surveys. Knowing the elevation and the terrain of your land will help save time and money for whatever project you’re doing on it.

# What Type of Land Survey Do I Need?

The term land survey is a general term. Specific projects need certain types of land surveys. There are various types of land surveys you need as a property owner, depending on your project. These include:

Subdivision surveys

ALTA/NSPS land title surveys

Boundary surveys

Topographic surveys

Each survey has its own specific uses. For example, if you’re trying to resolve a property dispute, you might want to go with a simple boundary survey. On the other hand, if you’re trying to break up a large chunk of land into separate lots, a subdivision survey would be best.

# How Do I Find My Property Boundaries?

If you need to find your property boundaries, the best way to do so is to consult with local records about the land you own. If there are none available, you should hire a land surveyor to determine where your property boundaries are accurately. Even though you can technically measure the boundaries yourself, it’s still best to get a professional to help you.

# What Is the Cost to Survey My Property?

Getting a land survey done can cost anywhere from a couple hundred to more than a thousand dollars. It all depends on:

The size of your property

The scale of your project

The type of survey you need

The terrain of the land

Any special requests or additional data you need

For the most accurate estimate of how much your land survey will cost, it’s best to talk with experienced land surveyors. Most land surveying services will offer you a free estimate to learn more about how much you’ll have to pay.

# Who Pays for a Boundary Survey?

More often than not, the person who pays for a boundary survey is the one who requests it. While there are certain exceptions to this rule, on general principle, if you want a land survey done, you have to pay for it yourself. Thus, there’s very little reason to compel another party to pay for a boundary survey unless there’s a good legal reason to do so.

# What Is the Difference Between a Land Survey and a Boundary Survey?

In understanding differences between land and boundary surveys, a land survey is an all-encompassing term. Land surveys are broad, and there are many different types available for landowners depending on the project they’re trying to complete. In contrast, a boundary survey is a type of land survey.

Boundary surveys are relatively straightforward to complete. The main goal of a boundary survey is to measure property lines. If you need a survey that measures other things, such as elevation, then you’ll need to request a different type of land survey.

Get Answers to Your Questions About Land Surveying

If you need land surveying services, you’ll need a licensed, certified, and professional land surveyor to do it for you. Even if you have the tools and knowledge to survey your property on your own, state law requires that a professional conduct the survey. We provide many different services:

Land surveys (boundary, topographic, ALTA/NSPS, subdivision)

Civil engineering

Site planning

Staking property lines

Construction layouts

For more specific information regarding surveying your land, you’ll need to get in touch with us by phone or through our online contact form to receive a free estimate.

# Boundary Survey FAQs

Though a land surveyor is frequently associated with construction staking or engineering the main reason that land surveyors exist in the private sector is to find and identify boundary lines. The principle reason that a land surveyor is licensed in a given state is to serve and protect the public in regards to this fact. Boundary surveying is an evidence gathering process that starts in the office and then goes to the field to continue that gathering of evidence. In the end, the surveyor produces a document that shows the results of all this work. A land surveyor’s role is quasi-judicial, this means that we should not be biased or take sides in a given boundary dispute like an attorney would. Nor does a surveyor represent you like a real estate agent would. In both Arizona and Colorado, the State Statutes declare that to land survey, one must be licensed by the state.

# Q: What is a boundary survey?

A: It is a type of land survey to locate boundary lines or one or more corners of a subject parcel. It is sometimes called a certified boundary survey. The document produced showing the results of this work is called a Record of Survey (ROS) in Arizona or a Land Survey Plat (LSP) in Colorado. This type of survey includes looking for existing boundary monuments on the subject parcel as well as looking for boundary monuments on adjacent parcels. At the end of the survey, we set any boundary monuments that are missing on the subject parcel. We have to do this level of work because no parcel sits independently – it has to be in harmony with the other parcels that surround it. We need to locate the boundary monuments on adjacent parcels in order to “prove” the boundary monuments on the subject parcel. The final drawing shows the results of this work and the boundary analysis. An ROS/LSP usually excludes showing physical features except along the boundary lines where fence/wall lines, tree lines, or hedge lines serve as boundary line evidence to consider during boundary analysis.

# Q: Will you identify the boundary monuments on site so that I can see where my corners are?

A: Yes, For each boundary monument found or set on the subject parcel we also set a 4′ lath next to it and tie survey flagging on it so that it can be easily seen.

# Q: Is there a chance the boundary monuments are already there?

A: Yes, most likely all or some of the boundary monuments marking the corners are there, possibly below grade where you can’t see them. This is part of what we look for when we do the field for a boundary survey and we set the boundary monuments that might be missing.

# Q: Would the final price of the survey vary depending on how many boundary monuments are already there?

A: No, pricing is not on a per boundary monument basis. For surveying, costs are driven by two factors – amount of work involved and professional liability. Even if the boundary monuments are there, we still have the time and work involved to find them (this includes office research and calculations time as well as labor time in the field). Furthermore, it’s not just the subject parcel’s boundary monuments we have to look for. Professional surveying requires us also look for the pins on adjacent parcels as well in order to prove the ones on the subject parcel. Drive time to the site is also a factor. If the subject parcel is “out in the middle of nowhere” or at least a long drive from the surveyor’s office, this has to be factored into the price.

# Q: Is it possible to skip a full ROS/LSP and just have you come out and flag up my boundary monuments to save money?

A: No, if we just come out and flag the boundary monuments where they are, without doing the work of evidence finding/analysis and locating other boundary monuments to check against, we are doing a dis-service to the public. If one or more of those boundary monuments are off, then we have told you that this is where your corner is, when that’s really not where it is. In addition to this, a surveyor just doesn’t magically know where boundary monuments are, there is a lot of pre-field-work research and calculations that have to be completed in the office prior to showing up on site of the subject parcel. This amount of work, combined with the reasons stated above, is why GLS does not engage in “find and flags”. In Colorado, the State Board that governs land surveyors actually frowns on this practice, this is partly because of the reasons stated above but also Colorado statutes clearly state that if we come out and participate in survey work, we have to deliver a document to you showing the results of that work.

# Q: Does the survey have to be filed anywhere?

A: It depends.

In Arizona, if we have to set any missing boundary monuments on the subject parcel or upgrade a found boundary monument on the subject parcel, then yes, we have to record our survey per State Statutes. This recording is in the County Recorder’s Office so that it is in the public records database.

In Colorado, if the subdivision the subject parcel is located in is less than 20 years old, then the answer is no. But if it is more than 20 years old, or the subject parcel is not in a platted subdivision (e.g. metes & bounds or aliquot part type of legal description) then the answer is yes. The survey is deposited with the County Recorder so that it is in the public records database.

# GeoAI AI-driven geospatial workflows

Discover how organizations are building a more resilient future with accelerated spatial problem-solving

# What is GeoAI?

Geospatial artificial intelligence (GeoAI) is the application of artificial intelligence (AI) fused with geospatial data, science, and technology to accelerate real-world understanding of business opportunities, environmental impacts, and operational risks. Organizations are modernizing operations to run at scale through automated data generation and approachable spatial tools and algorithms.

Extract rich geospatial data with deep learning

Save time by automating the extraction, classification, and detection of information from data such as imagery, video, point clouds, and text.

Perform predictive analysis using machine learning

Build more accurate models. Detect clusters, calculate change, find patterns, and forecast outcomes with spatial algorithms backed by experts.

Model the real world for prediction

Aerial imagery is used to extract imagery of buildings and roads in Grenada to identify the population and infrastructure at risk for landslides.

# Why is GeoAI important?

GeoAI is transforming the speed at which we extract meaning from complex datasets, thereby aiding us in addressing the earth’s most pressing challenges. It reveals and helps us perceive intricate patterns and relationships in a variety of data that continues to grow exponentially. Organizations leveraging GeoAI are revolutionizing how they turn data into information, with models that adapt even as data evolves.

Improve data quality, consistency, and accuracy

Streamline manual data generation workflows by using the power of automation to increase efficiency and reduce costs.

Accelerate the time to situational awareness

Monitor and analyze events, assets, and entities from sensors and sources such as video to enable quicker response times and proactive decisions.

Bring location intelligence to decision-making

Make data-driven decisions with real-world awareness. Improve business outcomes with insight from spatial patterns and accurate predictions.

Create a sustainable future

Optimize resource management and understand the impact of business decisions on the community to reduce waste and better plan and manage sites.

# How is GeoAI used?

GeoAI is used in various industries and applications to tackle challenges and proactively seize opportunities. Explore how GeoAI is used to optimize crop yields, heighten community safety, streamline asset inspection, shorten emergency response times, and more.

• State and local government

GeoAI is accelerating the speed at which government officials better serve communities using data. By leveraging GeoAI, governments can model the impacts of urban development, understand the availability of resources to the population, forecast road and infrastructure deterioration, and identify land-use change (such as new buildings) to proactively take action.

• • Natural resources

GeoAI is revolutionizing the precision agriculture market by aiding the automated detection of invasive species. It helps the oil and gas industry monitor assets through automated extraction of flares, new well pads, or field access roads. Foresters and landowners use GeoAI to give them knowledge about the volumes and species of trees without a time-consuming on-site inspection.

• • National mapping and statistics

GeoAI is enhancing the responsiveness, productivity, and speed of product delivery for national mapping agencies. Through automation, these organizations are scaling their internal capacities and production workflows. A national mapping department can quickly update a nation's geographic information system (GIS) in hours, not months or days.

• • Defense and intelligence

GeoAI is speeding up how organizations extract information, identify patterns, and determine changes in big data. An intelligence organization can support its activity-based intelligence efforts by automating how they analyze information related to events, entities, surveillance video, and remotely sensed data.

• • Public safety

GeoAI is improving public safety as it relates to traffic accidents, emergency response, and disaster management. Organizations are making communities safer by predicting where accidents are likely to occur and optimizing emergency response times. Damaged infrastructure and navigable roads can be quickly identified to help allocate first responders.

• • Insurance

GeoAI is helping insurance organizations understand the impact of an event in hours instead of days to improve claim processing and efficiently help members. Insurance companies can use imagery and GeoAI to detect and classify damage that impacts its members. With this understanding, they can get members back on their feet more quickly.

• • AEC

GeoAI is transforming the architecture, engineering, and construction (AEC) industry with its ability to extract information from imagery, which feeds a digital twin. This data allows decision-makers to improve project management, identify potential risks, and optimize building performance. As a result, architecture firms can design energy-efficient buildings.

• Business

GeoAI is accelerating smart business decisions, delivering insight and predictions that drive better market planning, site selection, supply chain efficiency, and customer intelligence. With these insights, a business can respond to customer behavior and determine whether a new market area is viable based on pattern and predictive analysis of market characteristics.

Geospatial AI

Geospatial AI, also commonly known as GeoAI, is the combination of geographical information systems (GIS) and artificial intelligence (AI). It's a multidimensional field that applies AI techniques to geographically referenced data. Such data, often denoted as geospatial data or geographic information, refer to data that are associated with a physical location.

The integration of GIS and AI, through machine learning (ML) and deep learning, allows for the capturing, organization, manipulation, and display of geographically-referenced information, providing more efficient and accurate analysis of large and complex geospatial datasets.

# What is Geospatial AI?

Geospatial AI is a cutting-edge technology that integrates spatial intelligence and machine knowledge to analyze geospatial data and provide predictions. By merging GIS – having capabilities like geocoding, distance measurement, map display, and spatial analysis – with AI’s ability to learn, reason, problem-solve, perceive, and understand language, GeoAI enables smart applications that have a huge impact in various important fields.

GeoAI applications can evaluate massive amounts of geospatial data to identify patterns, trends, and predictions that would take humans an enormous amount of time to do manually. It is heavily used in remote sensing technologies, location-based services, transportation, natural resources management, public safety, public health, agriculture, and many more sectors.

Developments in recent years in deep learning techniques, alongside the massive increase in availability of geospatial datasets, have dramatically pushed forward the use and importance of GeoAI in both research and application.

FAQs

# What is the significance of Geospatial AI?

The significance of Geospatial AI lies in its ability to analyze complex and large volumes of geospatial data, enabling a more intelligent understanding of spatial phenomena and relationships. It drives advanced location intelligence, which is crucial in decision-making processes in various sectors.

# What are the applications of Geospatial AI?

Geospatial AI has a wide range of applications including in disaster management (for instance predicting the path of cyclones), natural resources management (like predicting regions of potential mineral deposits), transportation (for traffic management), public health (like mapping the spread of diseases), agriculture (for crop yield prediction), and many more.

# How does Geospatial AI benefit businesses?

In the business world, Geospatial AI can be used in location-based services, customer analytics, logistics and supply chain optimization. It can predict patterns and trends, providing businesses with valuable insights that can inform strategic decision-making.

# What is the future of Geospatial AI?

With continuous advancements in AI and GIS technologies, along with an increasing amount of geospatial data being generated, the future of Geospatial AI is promising. It is predicted to play an even more integral role in many sectors, contributing to the evolution of smart cities, autonomous vehicles, environmental sustainability, and beyond.

In the realm of artificial intelligence, computer vision has emerged as a powerful and transformative field. Often referred to as “visual intelligence,” it represents the ability of machines to interpret, understand, and derive meaning from visual data, much like the human visual system. This article explores the burgeoning Visual Intelligence Revolution, highlighting its significance, applications, and implications for various industries and our daily lives. know more

# The Essence of Visual Intelligence

At its core, visual intelligence in machines is about teaching them to see and comprehend the visual world. It encompasses a range of tasks, including image recognition, object detection, facial analysis, and scene understanding. Computer vision systems leverage deep learning models, neural networks, and advanced algorithms to process and analyze visual data, allowing machines to extract meaningful information.

# Applications Across Industries

Visual intelligence is making profound impacts across various sectors, revolutionizing the way tasks are performed, decisions are made, and information is extracted from the visual realm.

1. Healthcare: Visual intelligence has been instrumental in medical imaging, enabling the detection and diagnosis of diseases from X-rays, MRIs, and CT scans. AI-powered systems can pinpoint anomalies with high accuracy, aiding healthcare professionals in providing better patient care.

2. Automotive: In the automotive industry, computer vision plays a pivotal role in autonomous vehicles. These vehicles use visual sensors, cameras, and lidar to perceive their surroundings, interpret traffic signals, and navigate safely, reducing the risk of accidents.

3. Retail: Visual intelligence enhances the retail experience through cashier-less stores, where cameras track customers and their selected items, allowing for automated checkouts. It is also used for shelf monitoring, ensuring products are stocked correctly.

4. Agriculture: In agriculture, computer vision helps optimize crop management. Drones equipped with visual sensors can monitor fields for signs of disease, pests, or irrigation needs, allowing for targeted interventions.

5. Security and Surveillance: Security systems benefit from visual intelligence by identifying suspicious activities, recognizing faces, and enhancing perimeter monitoring. These capabilities enhance public safety and threat detection.

6. Entertainment: Visual intelligence enhances the entertainment industry through facial recognition for personalized recommendations, content analysis, and visual effects in movies and gaming.

7. Manufacturing: In manufacturing, computer vision ensures product quality by inspecting items for defects and automating quality control processes. Robots equipped with visual sensors can perform tasks with precision.

# Challenges and Considerations

Despite its transformative potential, visual intelligence faces several challenges. Ensuring data privacy and security in surveillance and facial recognition applications is a major concern. Additionally, addressing bias in algorithms and ensuring transparency and fairness in decision-making are ongoing challenges.

The computational demands of deep learning models used in computer vision can be resource-intensive, requiring robust hardware infrastructure and efficient algorithms. Overcoming these challenges is essential for the responsible and ethical development of visual intelligence systems.

# The Future of Visual Intelligence

The future of visual intelligence is promising, with numerous exciting developments on the horizon. As technology evolves, we can expect even more advanced capabilities in areas such as:

1. Augmented Reality (AR) and Virtual Reality (VR): Visual intelligence will play a pivotal role in creating immersive AR and VR experiences, blurring the line between the digital and physical worlds.

2. Robotics: Robots will become more adept at navigating complex environments and interacting with objects, thanks to enhanced visual perception.

3. Healthcare Diagnostics: Visual intelligence will continue to improve medical diagnosis and treatment planning by analyzing medical images with unparalleled accuracy.

4. Environmental Monitoring: Visual intelligence will contribute to environmental preservation by monitoring wildlife, assessing deforestation, and tracking climate-related changes.

Conclusion

The Visual Intelligence Revolution is reshaping industries and enhancing our daily lives in ways previously thought impossible. With its ability to teach machines to see and understand the visual world, computer vision is enabling breakthroughs in healthcare, automotive technology, retail, and many other fields. However, as we navigate this revolution, it is crucial to address ethical and privacy considerations, ensuring that visual intelligence benefits society while respecting individual rights and values. As technology continues to advance, the future of visual intelligence holds the promise of even greater innovation, creativity, and improved quality of life.

Revolutionizing Real Estate: AI’s Dynamic Impact and the Rise of Visual Intelligence

We have all observed the transformative power of Artificial Intelligence (AI) in various facets of our lives, reshaping entire industries. What was once perceived as a mere entertainment gimmick has matured into a system boasting remarkable accomplishments. While AI has gained significant acclaim, particularly in the realm of AI art, our focus today is on its less explored impact — how it is fundamentally revolutionizing real estate property markets.

# AI has significantly impacted the real estate industry, transforming various aspects of property markets, introducing unprecedented efficiency, accuracy, and foresight.

The Power of Predictive Analytics and Market Trends

Armed with the ability to meticulously sift through vast datasets, decode intricate market trends, and analyze economic indicators, these smart algorithms make super accurate guesses about what property values will be like in the future and where the market is heading. It changes how people make wiser decisions in the real estate world.

# Risk Assessment and Informed Decision-Making

AI algorithms play a crucial role in real estate by helping us understand and manage risks. Their capabilities extend to a deep dive assessment of diverse risks associated with property investments, spanning market volatility, legal considerations, and financial intricacies. By minimizing potential challenges, people in real estate get important insights to make better decisions. In essence, AI emerges as an indispensable ally, ensuring that stakeholders are well armed with foresight and precision.

# Automated Valuation Models (AVMs): Transforming the Way Specialists Value Properties

Instead of the expensive and time consuming traditional methods that have been done for years and years, AVMs use smart algorithms and data to give us a fresh perspective on property values. AVMs analyze all important information, such as recent sales, market trends, and property features, to provide a quick estimation of a property’s value. This speeds up the appraisal process that real estate agents may not provide.This shift towards fact driven data ensures a more factual understanding of property values, providing more comfortable transactions.

# Anticipating Market Demand with AI: Mirrorball the Future

It doesn’t just stop at figuring out property values — it’s like a fortune-teller when it comes to predicting what people want in specific places. By analyzing past data and understanding the market consumer behavior, AI assists developers and investors in strategically deciding where to build or invest. This foresight not only eases uncertainties and provides confident decisions but also ensures that resources are allocated efficiently minimizing waste, aligning investments with evolving market demands.

# Elevating Customer Experience with Virtual Assistants

Imagine having your own virtual guide when exploring real estate. That’s the magic of AI-driven virtual assistants and chatbots. They’ve transformed customer service in real estate, making it more like a personalized journey. When you’re looking for a property, these virtual assistants give you instant answers, walk you through different listings effortlessly, and even suggest options tailored just for you. This not only enhances the overall user experience; it also revolutionizes how we search for properties and book viewings. It streamlines the property search and the end-to-end buying process, introducing customer-centric real estate interactions.

# Transforming Homes into Intelligent Spaces with Technology

People consistently invest in cutting-edge technology, embracing the latest updates and enhanced features that contribute to an improved quality of life. A smart home undoubtedly plays a pivotal role in influencing one’s purchasing choices. AI’s influence extends beyond transactional aspects, picture your home becoming more than just a place to live that also makes life so much more easy when powered by AI. Smart home technologies, powered by AI, offer automated climate control, advanced security systems, and optimized energy management. Keeping your feet warm, yourself safe and the world a better place. It’s not just about meeting modern preferences; it’s about homes becoming pioneers in innovation. By integrating AI into daily living, properties become intelligent, efficient, and prepared for the future, making life not just comfortable but cutting-edge.

# Visual AI: Transforming the Landscape of Real Estate Markets

Visual AI — this innovative solution brings a new dimension to your real estate endeavors, utilizing cutting-edge image recognition and analysis to transform the way you interact with properties. Delving into the realms of AI within your career not only has the potential to elevate your professional standing but also to supercharge your sales.

# Virtual Property Tours: Bringing Properties to Life

Starting first during the Covid-19 pandemic, this trend carries on. Visual AI has elevated property listings to an immersive level. Virtual property tours allow potential buyers to explore properties remotely. These virtual experiences, created through image analysis, bridge geographical gaps, enabling distant or international buyers to virtually step inside a property before making decisions.

# Smart Image Tagging and Classification: Streamlining Property Listings

Property images are essential to listing websites. However, it is also overwhelming to organize hundreds of images of new listings every day. Visual AI simplifies the organization of property listings through automated image tagging and classification. The technology identifies and categorizes features visible in images, such as swimming pools, kitchens, or scenic views. This not only enhances the visual appeal of listings but also improves search functionality for prospective buyers.

From redefining property valuations to offering immersive virtual tours, Visual AI is a game-changer in the real estate landscape. Saving us the time, manpower and money. As we navigate this transformative era, Visual AI emerges as a silent yet powerful force, bringing a visual dimension to data analysis

# Embracing a New Era

In wrapping up, the integration of AI into real estate signals a significant shift in how we approach, transact, and engage with properties. AI’s impact is versatile, hinting at a future real estate landscape defined by efficiency, precision, and innovation. As we navigate this transformative era, it’s clear that the collaboration between AI and real estate is more than just a technological evolution — it’s a meaningful change with implications for professionals and property enthusiasts. The fusion of technology and real estate is reshaping the way we buy and sell homes, offering a fresh perspective on what a home represents in the 21st century.

# How fast is your AI technology?

Our cutting-edge technology is the fastest real estate-specific computer vision solution available. Clients can expect image response times of less than 500 ms and property response times of only a few seconds. Multiple APIs calls can be made in parallel to meet any client’s speed requirements.

# How do I integrate your technology?

Clients can quickly and easily integrate our AI solution via our cloud-based API service. It is based on the industry standard web protocol (HTTP) and returns a simple JSON response easily accommodated with any back or front-end interface.

# Does Restb.ai have an app?

We currently do not have an app. However, we do partner with other software providers to offer seamless solutions to enhance their services. Read more about our exciting partnerships here.

Which types of Media can Restb.ai process?

Restb.ai can process standard image formats (JPEG, PNG, PPM, GIF, TIFF, BMP, etc.), including 360/equirectangular images, as well as videos.

# How do you respond to our API requests?

We respond using the JSON format. Once you send a request to our cloud-based RESTful API service, it will send back a JSON response for each image or property. Contact our team and book a demo to see our tech at work.

# What is JSON?

In computing, JavaScript Object Notation or JSON is an open-standard file format that uses human-readable text to transmit data objects consisting of attribute–value pairs and array data types. – See more in www.json.org

# What is ALT-Text and what are the benefits?

ALT-Text (Alternative Text) is a textual description of an image that can be read by screen readers for people with visual impairments. ALT-Text should provide a concise description of an image, conveying its content and context to users who cannot see the image.

# How do I edit an advanced tag (Image Captions and Property Features)?

Through our partnerships with various MLS platforms, our advanced tags are pre-populated on listings in two steps:

– Image Captions: Each image is provided with a concise and descriptive caption describing what the photo depicts. These are presented to the user during the image upload phase and may be edited however the user likes.

– Property Features: The images are analyzed to determine if any of the property fields (i.e. Exterior Features or View Types) from the MLS’s data dictionary are visible. The detected characteristics are then presented to the user to confirm. Any detections the user does not wish to make part of the listing may be deselected/removed (e.g. a photo contains a refrigerator but the seller does not plan to include the refrigerator as part of the sale). All approved fields will appear populated later in the listing upload process in their corresponding fields and may be changed at any time.

# Which kind of valuation/appraisal reports are you able to validate?

Our solutions are designed to analyze a report’s images and return the AI insights using the terminology of the specified report. We support the following standardized reports:

– PDR

– PDC

– 1004/Form 70

– 1073

– Form 30

# – And many more!

Are your condition and quality scores based on any standard?

We have built standardized condition and quality models to map to the UAD’s property condition (C1C6) and property quality (Q1Q6) ratings. While the UAD’s 6-point scale provides a single score for the entire property, our scores provide a granularity of one decimal and scores for the kitchen, bathroom(s), interior and exterior, as well as the property as a whole.

Our proprietary R1R6 model is not based on a standard, but is meant to provide a single, easy to use score based on a property’s quality, condition, and potential. Similar to our other scoring models it provides a result on a home’s kitchen, bathroom(s), interior and exterior, as well as the property as a whole.

# Is Restb.ai an AVM?

No, Restb.ai is not an Automated Valuation Model, though our solutions are widely used by many leading AVMs.

# Are you extracting images from PDFs?

Yes, Restb.ai can extract images from PDFs.

# Do you use humans to validate your results or data?

No, these are AI generated results. We don’t have access to your data and do not control it. All responses are returned in real time.

# How long does it take to get results back from an appraisal report?

It is a real-time process and the results take between 5 to 15 seconds.

# How is Restb.ai Data different from any other Property intelligence data supplier?

Restb.ai extracts unique information from the property’s photos, information that may not exist unless manually input by a person in the past. This provides up to 700 real estate-specific data points on any property’s photos in as little as a few seconds. Many of our data points are exclusive to Restb.ai, such as condition and quality scores, granular kitchen layouts, etc. All responses from Restb.ai are provided consistently, always using the same criteria and the same data structure, on any property processed.