

WHITE PAPER

Large-Scale Sketch Modification from Measurable Imagery

Clark County, Nevada | 163,000+ Property Sketches Corrected

EXECUTIVE SUMMARY

Identifying a discrepancy during aerial imagery verification is only the beginning of the property modernization process. Once a county confirms that an existing property sketch no longer represents current site conditions, the building changes must be accurately reconstructed, incorporated into the assessment sketch, validated, and returned as a reliable digital property record.

As part of the Clark County, Nevada property modernization program, more than 163,000 property sketches were corrected using measurable imagery. At this scale, conventional manual sketch correction followed by repeated visual QC would have created a significant production challenge. Every modification had to be accurately drawn while measurements, area information, sketch structure, and correspondence with current imagery also had to be validated.

To address this, our teams implemented a technology-assisted Draw from Imagery workflow combining measurable 3D imagery, specialized sketching tools, internally developed plug-ins, database-driven workflow controls, automated QC, GIS footprint generation, and final verification against current aerial imagery.

The result was not simply a sketch-correction process, but a closed-loop quality system designed to continuously identify and return discrepancies for correction until the completed sketch satisfied the required quality standards.

FROM VERIFICATION TO SKETCH MODIFICATION

The process begins after imagery-based sketch verification identifies a difference between the existing property record and observable site conditions. Potential discrepancies are reported for review, and properties approved for modification enter the Draw from Imagery production workflow.

Using measurable imagery, technicians reconstruct approved building additions, modifications, or other required changes. Rather than depending entirely on manual measurements and visual interpretation, the sketching environment is supported by an internally developed plug-in designed specifically around the production process.

"Correct the sketch once, capture the evidence used to make that correction, and progressively verify the result throughout the workflow."

A TECHNOLOGY-ASSISTED MODIFICATION WORKFLOW

1 Sketch Loading & Controlled Editing

The existing property sketch is loaded into the sketching application together with our specialized plug-in. As the technician modifies the building, the plug-in assists with the sketching process and captures information associated with the improvements. Relevant modification information is stored within the production database, creating a structured record of the work performed. This establishes the first level of control before the sketch reaches formal quality assurance.

2 Measurable Imagery Validation

Building modifications are derived from measurable 3D imagery, allowing technicians to determine dimensions and geometry from the available imagery rather than relying solely on visual estimation. The measurements used during correction are captured as part of the workflow. QC technicians subsequently review and verify the imagery measurements for potential errors.

This creates an important separation between drawing the modification and validating the measurements used to create it. Once the correction and associated measurements satisfy the required checks, the sketch receives approval to progress to the next stage.

3 Automated Sketch QC

Approved sketches are then passed through an automated quality-control process. Instead of requiring QC personnel to manually reproduce every check performed during production, software evaluates the completed sketch against defined sketching and project rules. Records that do not satisfy the required conditions can be identified for further investigation.

This automated layer is particularly important when dealing with 163,000+ modified sketches, where relying exclusively on repetitive manual QC would significantly affect both production capacity and project schedules.

GIS-BASED FINAL VERIFICATION

Passing sketch-level QC does not complete the process. The corrected sketches are subsequently converted into shapefiles, from which a GIS building-footprint layer is generated. This allows the completed sketch geometry to return to the geographic environment where it can be independently compared with the actual property. The generated building footprint is checked against the latest aerial imagery.

“Does the corrected digital sketch now accurately represent the building visible in the latest imagery?”

If the footprint and imagery correspond within the project's required standards, the record can proceed toward final approval. If a discrepancy remains, the sketch is rejected and returned to the correction workflow. The technician makes the necessary changes, the measurements and sketch are validated again, automated QC is repeated, a revised GIS footprint is generated, and the property is once again compared with current aerial imagery. The cycle continues until the sketch successfully satisfies the required quality checks.

A CLOSED-LOOP QUALITY PROCESS

The Clark County workflow can therefore be represented as:

PRIMARY PATH



IF MISMATCH



The significance of this approach is the feedback loop. Quality assurance is not treated as a single inspection at the end of production. Different aspects of the completed record are checked at different stages, and a sketch that fails a subsequent validation is automatically returned to the appropriate correction process.

WHY TECHNOLOGY MATTERS AT COUNTY SCALE

Manually correcting several properties is fundamentally different from correcting more than 163,000 sketches. At this scale, repeatedly opening imagery, checking measurements, reviewing sketch structure, reproducing calculations, generating footprints, and visually comparing every production decision can create an enormous QC workload.

Our internal technology was developed to reduce this repetitive work while retaining human review where professional judgement is required. The sketching plug-in assists and records the modification process. The database maintains workflow information. Automated QC evaluates defined sketch requirements. GIS conversion provides an independent spatial representation of the completed sketch. Current aerial imagery then provides the final geographic reference against which the corrected building can be evaluated. Each technology performs a different role, but together they create a continuous quality-control environment.

CLARK COUNTY, NEVADA — 163,000+ SKETCHES CORRECTED

The Clark County program demonstrated that Draw from Imagery can be implemented as a large-scale production discipline, rather than simply as an individual sketching technique.

More than 163,000 property sketches progressed through the modification process, combining skilled technicians, measurable imagery, specialized software, automated validation, GIS building-footprint generation, and imagery-based final verification.

The project also demonstrated the value of connecting the different stages of property modernization:

- ◆ Verification identified the change.
- ◆ County review determined what required action.
- ◆ Measurable imagery provided the information required for correction.
- ◆ Technology-assisted QC validated the sketch.
- ◆ GIS and current imagery independently verified the final result.

This closed-loop methodology enabled large volumes of property records to be systematically corrected while maintaining the quality controls necessary for assessment data and supporting demanding project delivery schedules.

163K+

Property sketches corrected using measurable imagery

1

Integrated system — production, imagery, software, GIS & QA operating as one

FROM IDENTIFIED CHANGE TO VERIFIED DIGITAL RECORD

The purpose of Draw from Imagery is ultimately not simply to redraw a building. It is to transform an identified property discrepancy into a corrected, quality-controlled and geographically verified digital assessment record.

“The Clark County project demonstrated this process at significant scale — turning more than 163,000 approved property changes into updated sketches through a repeatable workflow where production, imagery, software, GIS, and quality assurance operate as one integrated system.”

LOCATION

Clark County, Nevada

SKETCHES CORRECTED

163,000+

METHOD

Draw from Imagery