Technology in Reserve Studies: AI, Drones, & Data

Robert M. Nordlund, PE, RS www.reservestudy.com

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Recap:

Adapting new technolgoies to Reserve planning is not new. In our almost-40 year history, we've embraced and adopted digital cameras, web-based software (to keep all 16 of our offices "on the same page"), site inspections using iPads, pdfs instead of sending physical documents, and online posting of results (password protected, of course). So in today's world of wondering if AI is "taking over" everything, we wanted to give you an update on how we are using technology to improve accuracy and control costs.

Inventory Development:

Here we are using satellite technology and related tools to prepare for the site inspection and develop expectations of measurements/quantities, which are quicky confirmed by our Project Managers with a few on-site measurements. Drones assist in mapping larger areas, or reaching hard-to-access areas. Smaller tools like laser measuring devices speed the measurement of clubhouse interiors and hallways. AI helps with interpreting the age and capabilities of equipment after we've taken a photo of the piece of equipment's "information tag".

The site is always "walked", as this is where we make our observations, take photos, and confirm satellite or drone measurements.

Financial Analysis:

This is actually where the least amount of "novel" technology is used. We use a custom web-based platform for our financial analysis, and it uses a proprietary routine to quickly create a multi-yr Funding Plan pursuing either a Full Funding Goal or a Baseline Funding Goal which is regularly edited by our experienced Project Managers based on the client's physical, financial, and political starting point. But the bottom line is that calculations are calculations. Project Managers still custom create (or tune) your recommended Funding Plan to your unique situation.

In addition to basic disclosures and calculations coming from national Reserve Study Standards, some new parameters you'll likely see are the "Deterioration Rate" (the cost/yr of deterioration of your common areas), and your upcoming 5-yr or 10-yr cost of Reserve projects (identifying the size of the "mountain of expenses" you'll be facing in the next few years). Our clients enjoy getting their fingers into the finished analysis by performing an unlimited number of "what-if" tests on our online Reserve calculator "uPlanIt", seeing "what happens when that happens" by testing changes to component cost or timing, funding plans, changes to interest and inflation, etc. You effectively get to see your Reserve Study "come alive"!

Report Drafting:

We enjoy spell-checking (doesn't everyone!), but our experienced Project Managers write your Report based on your components, your financial analysis, and often years of experience working with your association. They help you understand where you are, and where to go from here. No "jargon", just clear words, in short sentences, in 14-point font. We tell the story of the challenges facing your association, the financial resources at your disposal, and what you need to do to move forward safely and successfully. We take pride in taking something complicated and making it simple. We want you to understand and apply the information found in your Reserve Study, so you can "Fund Honestly, and Avoid a Crisis".

Summary:

It's all about making appropriate changes in our processes and systems to control our costs and improve the product we deliver to our clients, while still maximizing the "human factor" of customer service and professional expertise. Technology helps, but trained experts interpret and explain.

Want an experienced professional to prepare your next Reserve Study update, ensuring appropriate component selection, life estimates, pricing, and development of an appropriate Funding Plan *custom designed* for the needs of your association? Launch a free online proposal request by clicking here. See our network of regional offices across the country here, serving clients in all 50 states.

ASSOCIATION RESERVES®

"Technology in Reserve Studies: How AI, Drones, and Data Improve Planning"

Attendee Questions – 2026

General Reserve Questions

Q: How does technology improve the accuracy of a Reserve Study?

A: Technology helps us gather, organize, and analyze information more efficiently. Digital photographs, satellite and drone measurement tools (confirmed by on-site measurements), and sophisticated financial modeling all contribute to a more accurate Reserve Study. Another significant element is our systemwide Cost Database, where we've captured years of client data (project, date, scope, cost, location) that we use in anchoring cost estimates for relevant current clients.

Q: Can technology help reduce the cost of a Reserve Study?

A: Absolutely. Technology allows Reserve Study professionals to work more efficiently, arriving at a site inspection already halfway done. Our Project Managers work efficiently with digital cameras and iPads that will capture information, document condition, and facilitate a speedy transition to a written report.

Yet the goal is not a low-cost Reserve Study. The goal is for our Project Managers to work efficiently and not waste any time. In the process of preparing thousands of Reserve Studies per year, we maximize a trained Project Manager's time with effective use of technology and utilize newer, less-experienced staff in time-consuming data gathering (measuring a perimeter fence obscured from satellite imagery, counting light poles, etc.). The goal is always to cost-effectively get reliable decision-guiding information into our clients' hands.

Q: Will technology eventually replace the need for an on-site inspection?

A: No. There's too much to see on-site, too much that affects all the downstream decisions made by the Project Manager. These include things like how different faces of buildings are aging, the level of preventive maintenance, tree trimming, etc. I don't believe technology will completely replace the value of having a qualified professional physically evaluate your property.

Drones and satellite imagery help us gather information. They prepare us for a very efficient on-site inspection. But they often don't reveal current condition or hazards, and they can't answer questions like "If this looks like this on Building A, why does Building B look different?"

Q: How does technology help associations keep their Reserve Studies current?

A: One of the biggest advantages of technology is that it makes updating information easier.

Instead of starting from scratch every time, associations can maintain records of completed projects, updated costs, component conditions, and reserve balances electronically in searchable files (instead of a fat file folder of un-ordered receipts and specifications).

We provide clients with online access to their Reserve Study information through our online calculator "uPlanIt", where they can update changes to projects, their Reserve balance, and interest earning rate (among other things) in between professional updates.

Q: How can HOA boards use these technological improvements to make better financial decisions?

A: Technology gives boards the ability to evaluate their options before making expensive or irreversible decisions. Our uPlanIt online Reserve calculator allows clients to see what happens if they increase or decrease Reserve funding, if they postpone a project, or if costs change – before setting their budget and committing to that plan for a year. Our uPlanIt is set up with powerful but user-friendly tools for boards and managers to understand how those decisions affect future reserve balances and funding needs. No more guessing!

Q: Does your service include demonstrating how healthy association reserves can benefit homeowners through increased property values and improved marketability?

A: A Reserve Study helps the board maintain the property by ensuring the funds are available when needed, and by protecting owners from special assessments by having every owner pay their fair share over time.

These benefits show up in higher home values. In an analysis we performed in 2016, published and presented in 2017 (see more here), we found that condo home values were 12.6% higher (adjusted for square footage) in associations where the Reserves were strong (above 70% Funded).

A community with well-maintained common areas, adequate reserves, and a history of responsible financial planning is more attractive to prospective buyers and lenders.

Reserve Component Questions

Q: Our community doesn't have residential roofs to maintain, but we do have extensive drainage systems, retaining walls, pathways, and other components that many associations don't have. What experience does Association Reserves have evaluating these types of components?

A: Every association is different, and that's why a Reserve Study needs to be customized to the property. In the process of preparing thousands of Reserve Studies each year, we see all types of properties. At every one, we use the national Reserve Study Standards three-part test to evaluate which projects are appropriate for Reserve funding. You don't need roofs to need a Reserve Study. Drainage systems, retaining walls, concrete pathways, and other infrastructure systems can represent significant, predictable, common area projects. Our Project Managers see these types of assets regularly in our normal course of business. They know when to reach out to the association's service provider for further insights, and they know when to recommend the association commission a specialized evaluation to learn more.

A great Reserve Study isn't about checking boxes on a standard component list. It's about identifying the financial responsibilities of your particular association.

Q: Our reserve study drastically underfunded repainting of metal fences by about $35,000. How can technology help to avoid this again? Now we're concerned about other items not being adequately funded.

A: First, I'd want to understand why the estimate was off by $35,000, and if that was $35,000 out of a project originally estimated at $300,000, or $35,000 out of a project originally estimated at $50,000. Without knowing more, I'd say the most common reasons for a mismatch in project cost are inflation and deferred maintenance. If that is a five-year-old cost estimate, and if the association delayed performing the project for three or four years, it is easy to presume that now instead of just ironwork repainting there is a lot of expensive welding and replacement needed that was not in the original estimate. That could easily boost the price by $35,000. Often there is a significant "cost penalty" by waiting too long to perform a Reserve project.

Please discuss with your Reserve Study provider, and make sure the project cost is set appropriately in your upcoming Reserve Study so you have accurate estimates for future instances of this project. This is likely not a problem that could be solved with technology.

Reserve Funding Questions

Q: Are special assessments reflected in Reserve Studies? If so, how are they incorporated into the funding plan?

A: Yes. When special assessments are necessary (due to an upcoming project that leaves inadequate time to assemble sufficient funds via budgeted Reserve transfers), those special assessments are incorporated into the multi-year Reserve Funding Plan. Special assessments are fundamentally unfair, forcing current homeowners to pay the cost of deterioration that occurred gradually over many years. Therefore, we use special assessments as a recommendation of last resort. We make it clear to the reader what the situation is (a big, essential project needing to be done without enough cash or time to fund it through budgeted Reserve transfers), what they need to do (pass a special assessment), and how to fund their Reserves on an ongoing basis to avoid this happening again in the future.

Q: What does it mean for our association to be 70% Funded in the current year?

A: That's an important question because Percent Funded is the most useful measurement of reserve fund strength.

Percent Funded compares your actual reserve balance with the amount of deterioration of your Reserve components (your "Fully Funded Balance"). For example, if you have $300,000 in your Reserve Fund but have $1,000,000 of Reserve component deterioration, your Reserves are 30% Funded.

Generally speaking, consider associations below 30% Funded to be in the weak range because in that range special assessments are common (they regularly don't have enough cash to take care of themselves). In the 30%–70% "fair" range, special assessments are infrequent. And when the Reserves are at or above 70% (the "strong" range), special assessments and Reserve cash flow problems are rare.

Your Reserve Study will tell you where you are, and what your response should be (e.g., you need to fund your Reserves at $/yr in order to offset deterioration and prepare for your upcoming x, y, and z projects).