

ANDREW R. CASSANO
Land Surveyor/Land Planner

JOHN E. BAKER
Engineering Designer

WILLIAM D. GREEN
Civil Engineer

DAN HOAGLAND
Civil Engineer

NEVADA CITY ENGINEERING, INC.

505 COYOTE STREET, SUITE B • P.O. BOX 1437
NEVADA CITY, CALIFORNIA 95959 • TELEPHONE (530) 265-6911 • FAX (530) 265-8058

Engineering • Surveying • Planning

The View from Andy's Desk

andy@nevadacityengineering.com

January 24, 2017-Andrew R. Cassano is a City/Regional Planner and Professional Land Surveyor with 47 years of experience in Northern California. He is CEO of Nevada City Engineering, Inc., a firm offering regional planning and permitting, land surveying, and civil engineering consulting to the private and public sector since 1978.

“Domo Arigato, Mr. Roboto” – Styx

We recently bought a new robot. It's just another example of how dramatically surveying has changed over my 47-year career. The math and purposes of surveying haven't changed, nor have the legal principles governing how boundaries are determined. But at its heart, land surveying is about measuring the earth and the methods of measuring have advanced incredibly.

For centuries, the tools of measurement were the transit and the steel chain or tape. A transit is basically a telescope with cross hairs carefully mounted on horizontal and vertical protractors to measure angles. When I started my career, transits had morphed into high precision, compact theodolites. Distance measurements were still made by an ultra-thin steel tape, a vast improvement over the actual chain used to survey our region after the Gold Rush. However, steel tapes still needed corrections for tension and temperature.

Our robot is a combination theodolite, electronic distance measurer, and surveying computer all in one. After it is manually set up, it tracks the rodman with no one standing behind it. The rodman is the party chief that controls it all and gathers info into the robot's data collector. The contents of the data collector are downloaded to an



AutoCAD computer and become instantly available for drafting, calculations, and engineering design.

Then there is Global Positioning Systems or GPS. We're used to having GPS in our phone and car, but surveying requires that GPS positioning be much more accurate, in the neighborhood of an inch or so. Survey GPS is limited by tree crowns in many areas of the Sierra, but still has many applications and we use it wherever it will save a client money.

As the cost of professional labor and general business overhead has increased over the years, this modern equipment saves time and money in a big way, assuring clients of the best possible efficiencies as we provide surveying, planning, and engineering work. We are happy to provide free estimate for all surveying, planning, and civil engineering services anytime.