



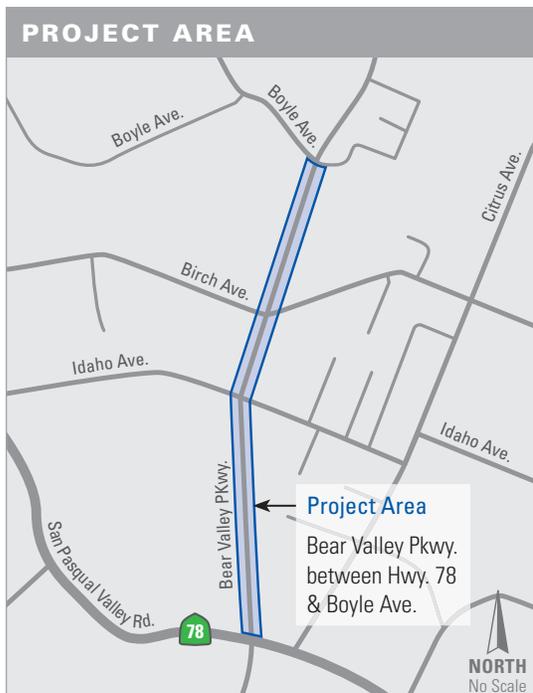
Surveying the Lay of the Land

You may have noticed wooden stakes or flag markers along the project and may wonder what they are marking. These tools are part of an activity called construction surveying, which includes identifying and measuring slopes, elevation, and other topographic features that could impact roadway design and construction.

All of the plans developed for the Bear Valley Parkway improvement project are based on engineering and geographical data first collected by construction surveyors. They use special surveying tools to turn a windy, hilly road into a mathematically-precise set of points and angles that are the foundation for construction plans. Surveyors are responsible for measuring existing conditions for a project site and then monitoring construction throughout the project. Tasks include the following:

- ▶ **Establishing existing conditions:** Surveyors study the project site in depth and identify structures, property boundaries, and challenges - or "red flags" - to be addressed in the design phase of development.
- ▶ **Identifying property lines:** Surveyors identify the zoning and designation of property lines along the project site, which defines the roadway boundaries for the expansion.
- ▶ **Measuring topography:** By measuring the levels and curvature of the land, surveyors can provide the best information possible to engineers so they can design the roadway accordingly.
- ▶ **Documenting underground infrastructure:** Surveyors study utility plans and analyze the project site to identify underground structures, utility lines, and historical artifacts.

Surveyors combine all the measurements and data they collect into a complex framework for visualizing the parts of a project that need to be accounted for by planners, designers, and construction crews. The comprehensive analysis of all this information ensures the safety, stability, and efficiency of development on Bear Valley Parkway.



Project Update: Current Construction Activities

This month, construction crews are working on:

- › **Traffic signal poles:** Crews are installing foundations for traffic and light poles on Bear Valley Parkway. Next, crews will install the traffic poles and light poles in the foundations.
- › **Boyle Avenue retaining wall:** Crews are installing the second of two retaining walls on the project site

on the east side of Boyle Avenue. This retaining wall will expand the roadway and reinforce the hillside adjacent to Bear Valley Parkway.

- › **Irrigation main line:** Crews are installing the main irrigation line down Bear Valley Parkway, which will deliver water for landscaping to the project site and provide lateral connections for homes and businesses.
- › **Utility relocation:** Crews are continuing to relocate utilities throughout the project.



Crews installing landscape irrigation

Meet the Team

Senior Land Surveyor, Brian Siebens

Q What is your role on the project?

A I am the Senior Land Surveyor in charge of preliminary design and construction surveying for Capital Improvement Projects.



Senior Land Surveyor, Brian Siebens

Q What are some other projects you have worked on prior to the Bear Valley Parkway project?

A We are currently overseeing the construction survey staking of the San Vicente Road Improvement Project, Woodside Avenue Drainage Project, and Buckman Springs Road Intersection Project.

Q What is the purpose of construction surveying on Bear Valley Parkway?

A The purpose of construction surveying is to layout the future improvements on the ground for the contractor to build. This includes the location of features such as future slopes, driveways, utilities, roadways, drainage structures, bridges, right of way, and easements, as shown on the proposed improvement plans.

Q What types of challenges are uncovered during the surveying process?

A The largest survey challenge is ensuring that accurate and timely information is provided to the contractor and Resident Engineer to prevent delays. We're fortunate to work with very experienced and professional staff on this project which gives this team the ability to identify any issues or potential delays early on.

Q When is the construction surveying process complete?

A Surveyors are usually on the project site for the duration of the project, and do a final survey of the land after all improvements have been made. This includes double-checking measurements that may have been impacted by construction.

Q What do you like to do in your spare time?

A I like to spend some of my summer weekends boating along the Colorado River with my wife and daughter.

Land surveying can be traced back to over 3,000 years ago in ancient Egypt. Egyptian land surveyors were highly respected professionals because they were responsible for re-establishing property lines after the annual flooding of the Nile, which would change the shape of the land on the banks of the river. Surveyors would measure and identify property lines each year to avoid disputes between neighbors. Today, surveyors are still used to measure high tide lines along rivers and plan developments to adapt to changes in natural flowing waterways. These techniques are also useful in planning storm water infrastructure on Bear Valley Parkway.

Did
You
Know