



**SPECIAL REPORT ON DEPLOYING
TECHNOLOGY TO HASTEN THE PACE
OF CALIFORNIA INFRASTRUCTURE
DEVELOPMENT AND MAXIMIZE
FEDERAL INVESTMENT**

PLANNING AND DESIGN COMMITTEE
UNDERGROUND SAFETY BOARD

NOVEMBER 2023

FROM THE COMMITTEE

Chair Muñoz and Members of the Board,

We developed this special report following a review of recent initiatives from Governor Newsom to cut infrastructure deployment timelines, save California businesses and governments hundreds of millions of dollars, and effectively use federal Infrastructure Investment and Jobs Act and Inflation Reduction Act in the state. This brief document discusses how the Board’s planning and design efforts can support those efforts. We hope that it may serve as a resource to staff in furthering our recommendation to the Governor and Legislature to provide us with the authority to require utility operators to participate in a planning and design ticket process.

Sincerely,

William R. Johns

Bill Johns

Marshall Johnson

Marshall Johnson

INTRODUCTION

In its efforts to understand the causes of accidents, the Underground Safety Board has spent significant attention reviewing how failures in the planning and design of infrastructure projects imperil workers once they break ground. At the same time, Governor Newsom has worked to lower costs and reduce roadblocks to building the state’s infrastructure.¹ The problems we both address stem from a common source—a failure to achieve the operational excellence in infrastructure development that we as a state desire and are clearly capable of.

“Even for things like public works-infrastructure projects, the number of people that are needed to maintain cities in this unbelievably inefficient way...is too high.”

– ROGER EHRENBERG⁵

Silos that exist across government² exist across the private sector, too, and working in our common ground requires all operators of buried infrastructure—from public water agencies to broadband providers to gas and electric companies—to coordinate on both major and minor infrastructure projects. Failure to do so has high costs

and excessive delays, as Los Angeles Metropolitan Transportation Authority learned³ when it reviewed the “significant lessons learned” in its Sepulveda Pass project, whose costs ballooned 55% to \$1.6 billion in part due to a failure to “perform detailed underground utilities investigations and obtain utility cooperative agreements and rights prior to the award of a contract.”⁴

Government has a unique role in building infrastructure—both physical and digital. California has many great achievements in physical infrastructure, and now its homegrown technology industry has provided us with the tools we need to build a great digital one. The ways we communicate on large infrastructure projects—via email, through application forms, and snail mail design plans—create significant barriers to communication and impose significant costs in developing these projects.

¹ For instance, in [Executive Order N-8-23](#), May 19, 2023.

² California Forward. [Building a More Inclusive and Sustainable California](#), p. 29.

³ Laura J. Nelson, [“Lessons learned’: Metro will pay nearly \\$300 million more to company that widened the 405 Freeway.”](#) Los Angeles Times, November 28, 2016.

⁴ Los Angeles Metropolitan Transportation Authority, [Board Report](#), December 1, 2016.

⁵ From Gavin Newsom with Lisa Dickey, *Citizenville: How to Take the Town Square Digital and Reinvent Government*, Penguin, 2013, p. 95.



ELECTRONIC PLATFORM FOR DESIGN COORDINATION

Effective design work is crucial to ensuring a safe construction environment and minimizing cost overruns. In 2019, a contractor struck a gas main in San Francisco, causing an explosion that damaged several buildings and more than \$10 million in damages.⁶ The contractor had been instructed to place the new line in the same physical location that an existing gas main was located because the design work did not include any consideration of existing buried infrastructure.⁷

Utilities often supply plans of their infrastructure through large rolls of paper, printed out, and shipped through the mail, because file sizes are too large to send through email. This archaic workaround could be solved through creation of an online platform to exchange design plans. For fifty years, we have had 811 “one-call” centers that coordinate excavation notifications. We can do that for design plan exchange.

The Common Ground Alliance estimated that damages to buried infrastructure cost the country \$30 billion in 2019.⁸ Were we to estimate the annual cost of such maintaining a system in the single-digit millions of dollars, that cost would be paid back in savings from reduced damages within the first or second day of every year. This analysis doesn’t include the cost of delays caused by the discovery of unknown lines that do not cause damage—a situation far more common. The costs and savings may, however, be borne by different groups in the construction and utilities industries, and that imbalance would need to be reviewed.



⁶ National Transportation Safety Board. 2021. [Pacific Gas & Electric Third-Party Line Strike and Fire, San Francisco, California, February 6, 2019](#). NTSB/PAR-21/02. Washington, DC: NTSB.

⁷ Underground Safety Board. [Investigation Report 20SA01279](#), January 2, 2022, pp. 11-12.

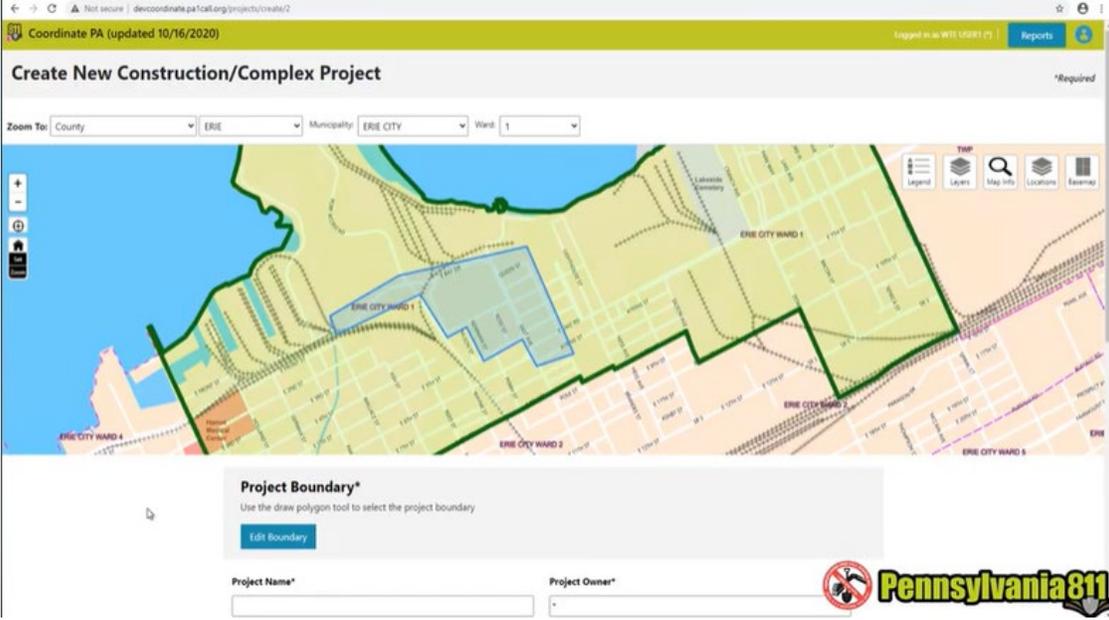
⁸ Common Ground Alliance, [DIRT Report for 2019](#), p. 56.

DEVELOP A VIRTUAL SPACE FOR UTILITY COORDINATING COUNCILS

Coordination should be integrated into the project design process so that it can be performed effectively without state and local officials actively pushing project designers and utility operators to do so. Platform-based approaches can accomplish this independently of permit processes, which may occur in parallel.⁹

San Francisco and Los Angeles have had utility coordinating councils for many years. These councils exist to coordinate the timing of utility installation to reduce the impact of street closures on their residents. Utility coordinating councils are common in many other states, such as Pennsylvania, but few California municipalities have them.

With the widespread adoption of geographical information systems (GIS) and the rise of widespread building information management (BIM), California is in a position to develop virtual coordination platforms for utilities and project designers to use. Pennsylvania recently deployed “Coordinate PA,” a platform that allows designers to upload project information and automatically notifies utilities in the area of the proposed project, allowing for early coordination.¹⁰ A California platform would allow municipalities to actively manage this coordination, as San Francisco and Los Angeles do, or allow project designers and utilities to coordinate without the need for public official involvement.



Screenshot from Coordinate PA.

⁹ See *Citizenville*, Chapter 5 (“It’s the Platform, Stupid”)

¹⁰ [Coordinate PA](#)

QUICKLY AND EFFICIENTLY FACILITATE TRIBAL ENGAGEMENT

California’s tribes are sensitive to the destruction of culturally sensitive lands; their ability to know when excavation occurs on them is limited. In 2018, a developer bulldozed a Native burial site in West Sacramento (and allegedly hid the fact).¹¹ While California law requires lead agencies to consult with tribes during the California Environmental Quality Act (CEQA) process, not all excavations are covered under CEQA.

Tribal representatives state that existing laws protecting tribal burial and non-burial sites of cultural importance are not well enforced and that both developers and law enforcement have a significant learning curve¹² in protecting these sites. Providing tribes direct notification of excavation activities will allow them to monitor excavations on these sites without having to depend on the effectiveness of government-to-government communications.

A design platform would allow Native American tribes to be notified without depending on state and local officials remembering to conduct tribal consultation and speed up the notification process from a matter of weeks to seconds.¹³

CONCLUSION

The safety and effectiveness of California’s buried infrastructure depends on how effectively we manage the processes of planning, building, and maintaining it. A planning and design platform would encourage much needed coordination to enhance safety and reduce the costs of all three.



¹¹ CBS Sacramento, “[DA: Developers Bulldozed Native American Burial Grounds in West Sacramento, Tried to Cover It Up](#),” July 13, 2018.

¹² Manola Secaira, “[How one California tribe protects the history of its land](#),” Capitol Public Radio, May 9, 2022. <https://www.capradio.org/articles/2022/05/09/how-one-california-tribe-protects-the-history-of-its-land/>

¹³ The Office of Planning and Research’s [Tribal Consultation Guidelines](#) (p. 13) provide the Native American Heritage Commission 30 days to provide a list of affected tribes to a local government.