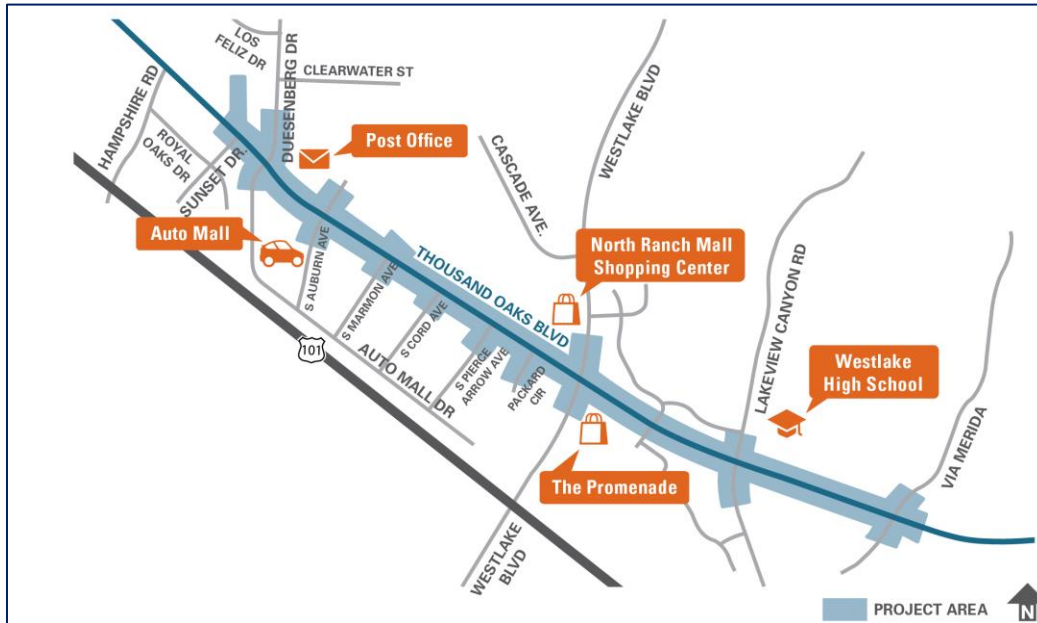




2018 -L.O.C.C Project of the Year Nomination

# Thousand Oaks Boulevard Utility Undergrounding Project (CI 5331)



Managing Agency:

**City of Thousand Oaks  
Public Works Department  
Capital Projects Division**



Project Partners:



## **PROJECT BACKGROUND**

The undergrounding of the substantial amount of overhead electrical and communication utilities on Thousand Oaks Boulevard has been a long-standing priority for both the residents and businesses of the City of Thousand Oaks. Over the past 35 years, most of the utilities on the City's primary/namesake Boulevard had been undergrounded; however, a 1.5-mile section starting from Duesenberg Drive and Auto Mall Drive out to the City's eastern limits remained burdened by Southern California Edison's (SCE) high-voltage 66kV transmission and 16kV distribution lines, as well as several telephone and communication lines from Spectrum and Crown Castle.

This final portion of overhead lines under consideration for undergrounding was constructed in its original overhead configuration in the early 1960's, even prior to the date of incorporation of the City in 1964. The undergrounding concept for this final portion was identified as a high priority initiative by the Thousand Oaks City Council in 1993, and subsequently received a majority of the necessary funding via sale of Redevelopment Agency (RDA) Bond Proceeds in the early 2000's. This use of the RDA funds was approved by the Thousand Oaks RDA Successor Agency Oversight Board on September 25, 2013 and the State Department of Finance on December 17, 2013 as an eligible RDA Bond proceeds project.



*Figure 1 – A view of the intersection of Westlake Blvd and Thousand Oaks Blvd back in 1966*

**PROJECT BENEFITS**

The undergrounding of utility lines provides Citywide benefits in terms of enhanced aesthetic appeal, improved electrical network reliability, and improved public safety. Additionally, the project provides significant safety benefits to Westlake High School as it facilitates the long-desired expansion of the bleachers on the south side of the sports stadium currently precluded due to proximity to the overhead high-voltage electrical lines. Enhanced safety is also provided to hundreds of students, teachers, coaches, public, community groups, and other residents and citizens that use the multiple athletic fields adjacent to Thousand Oaks Blvd, as well as the numerous students that park underneath the utility lines on the Boulevard every day.

In addition to creating a more visually appealing streetscape, undergrounding of these overhead utilities provided the City with several diverse benefits such as reduced safety hazards, increased reliability of power delivery, minimized conflicts with street trees, vehicles and private property.



*Figure 2 - Summary of the Overall Project Benefits*

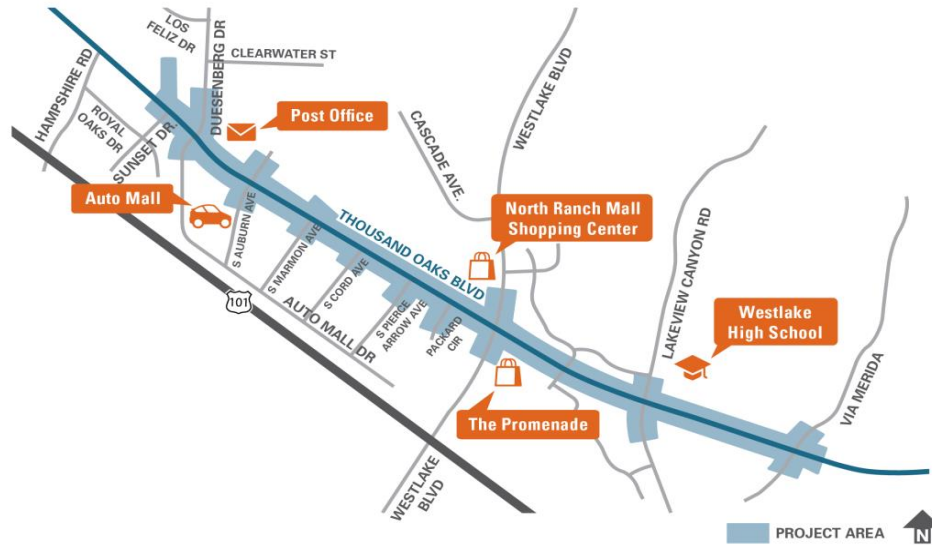
**Overall Project Schedule**



*Figure 3 - Summary of the Project's Design and Construction Timeline*

**PROJECT DESCRIPTION AND GOALS**

The City partnered with local utility companies Southern California Edison, Spectrum, and Crown Castle, as well as local property owners to greatly improve the City’s thoroughfare by removing approximately 1.5 miles of overhead electrical wires as well as 53 electrical poles, from Duesenberg Drive to Via Merida. Performing the undergrounding across such a large area all at once afforded the City with greater economies of scale and also enabled us to capture significant SCE Rule 20B credits.



*Figure 4 – Overall Project Area Map*

This project consisted of undergrounding all of SCE’s existing overhead 16kV distribution and 66kV transmission electrical lines, along with all communication lines from Spectrum (at the time, known as Time Warner Cable) and Crown Castle in two separate trenches across the entire 1.5 mile project limits, with the 2 trenches separated on opposite sides of the street. The project limits extended across several important landmarks such as the Post Office, the Auto Mall, and Westlake High School, as well as several of the City’s key retail and shopping districts. In addition, the City’s busiest intersection, at Westlake Blvd was located right at the center of the project.

Nearly all of the new conduits and cables for the project were installed in the street right-of-way, with a few limited exceptions for needed surface mounted equipment and terminations/risers on each end. All required easements for each of those limited areas were secured prior to the start of construction, and the City worked closely with SCE and Spectrum to place nearly all the new vaults and equipment underground.

## PROJECT COMPLETION GOALS

- UNDER BUDGET
- ON TIME
- MINIMAL COMMUNITY IMPACT

### PROJECT DESIGN AND ENGINEERING

To reduce potential impacts during the construction phase of the project, the City performed a thorough engineering analysis to define and locate the existing subsurface utilities to plan the route and depth of the new utility trenches. Stantec and ECG (Encompass Consultant Group) were originally retained to perform the initial consolidated utility design and engineering services for the project due to their specific expertise and experience with electrical infrastructure design. In addition, Stantec and ECG provided value engineering and electrical undergrounding technical support during the preliminary design phase, and then for master planning, engineering and design services during final design. The resultant final design turned out to be more accurate to minimize field changes and possible construction delays to the greatest extent possible.

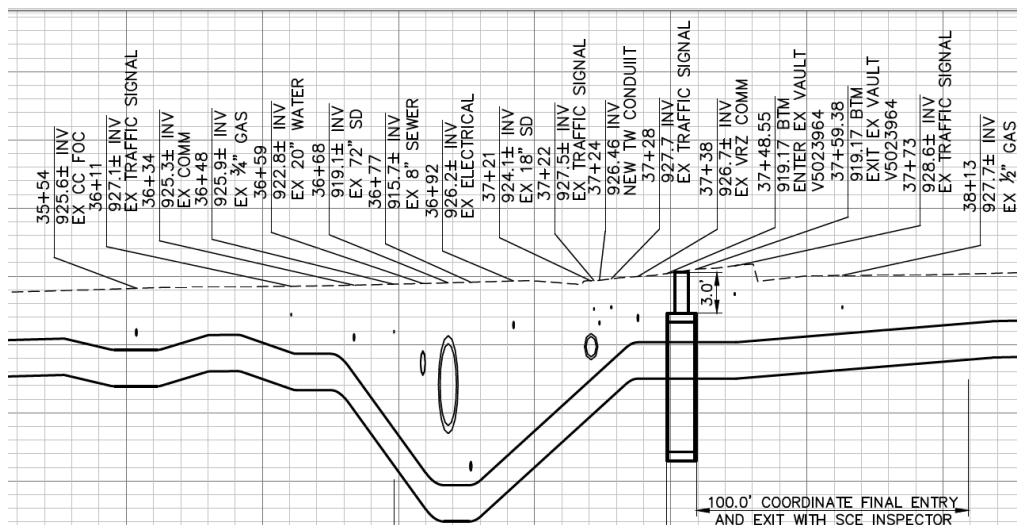




Figure 5 - Profile view of the new ductbank where multiple utility crossings took place

**PUBLIC OUTREACH & COMMUNITY RELATIONS**

In addition to the substantial up-front design and engineering efforts that took place, the City recognized the magnitude of the potential impacts that this project would have to local businesses, the Auto Mall, Westlake High School, the Post Office, the several retail and office districts, as well as our residents during the forecasted 18-months of construction. As such, the City placed a major emphasis on public outreach and community relations, and to this end, sought out the expertise of Circlepoint Inc. to provide professional public outreach services to help continuously inform the residents and all stakeholders on the project.

The City developed a comprehensive public outreach campaign for the project. This robust outreach effort was initiated during the design phase of the project, to prepare the public for the potential impacts of the project. The information was provided to the public via a dedicated project webpage and email, as well as made available via the project telephone hotline. In addition, the City provided multiple notifications to the community via utility bill inserts, direct face to face communication with all businesses along the project corridor, direct meetings with affected HOA's, and use of social media to communicate the project to residents and businesses. The City also worked closely and met directly with Conejo Valley Unified School District, Westlake High School, Ventura County Fire Department, Thousand Oaks Police Department, the Thousand Oaks Auto Mall Association, Thousand Oaks Boulevard Association and the Chamber of Commerce to minimize the project impacts on these important community partners.

**Gallery: Thousand Oaks brings utilities infrastructure underground**

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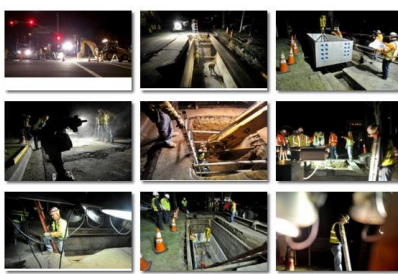
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On the second week of a yearlong project, workers in Thousand Oaks began installing large underground vaults as part of an extensive utility system that will be largely unseen. The \$15 million infrastructure project will bring overhead poles and wires on 1.5 miles of Thousand Oaks Boulevard below ground. Motorists will see lane closures on the boulevard from Duesenberg Drive to Via Merida near Westlake High School.



*Figure 6 – Favorable media coverage during construction of the project*

The greater community's support before, during, and after the project was positive, with overall public opinion being favorable towards the successful completion of the project.

## **PROJECT AWARD AND CONSTRUCTION**

Due to the specialized skills and experience required to perform the construction of the underground infrastructure, as well as, due to the sensitive nature of construction activities on Thousand Oaks Blvd, the City elected to pre-qualify general engineering contractors that would be allowed to bid on the project. The pre-qualification process was utilized to ensure bidders on the projects were qualified and had the experience to successfully complete the work.

Northwest Excavating, Inc., from Northridge, CA was the lowest bidder, and was therefore awarded the construction contract in the amount of \$4,810,295. Northwest was one of the eight pre-qualified contractors for the project and was one of SCE's preferred contractors; having constructed similar projects in other cities and for SCE.

The bid package engineering plans for the project were developed by Stantec and ECG, therefore they were selected to provide the construction phase design support services. Moreover, Stantec provided monitoring and reporting for the state required stormwater pollution prevention plan to effectively complete the construction phase.

Oak and Landmark Tree Permits will be obtained prior to the start of construction, to accommodate a total of 68 protected Oak Trees and nine protected Landmark Trees that were identified in the Oak and Landmark Tree report adjacent to the construction zone. Permit review and construction phase monitoring of the identified Oak and Landmark Trees from potential impacts from construction operations were provided by Richard W. Campbell, ASLA.

### **Phase 1 – Civil Package (Installation of Ducts and Structures)**

Phase 1 of the project, which was awarded and authorized by City Council in February 2016 for award to Northwest Excavating, began field operations in March 2016 and was successfully completed in November 2016, on time and under budget. This portion of the project consisted of a brand new underground infrastructure system for Southern California Edison (SCE), Spectrum (formerly Time Warner Cable), Crown Castle and the City's traffic signal conduit system.

Phase 1 of construction consisted of installing 18 subsurface vaults and over 100,000 feet of conduit on both sides of Thousand Oaks Blvd. Northwest Excavating had to excavate and backfill over 240,000 cubic feet of soil to install the underground infrastructure, as well as, had to place over 1,500 tons of new asphalt to restore the boulevard back to pre-construction conditions. This involved up to 30 workers per day.



*Figure 7 - Examples of Phase 1 construction activities*

Construction management of project and inspection of construction activities was self-performed by City staff by the team of Jorge Munoz, EIT - Project Engineer/Manager, Nader Heydari, PE, CCM - Division/Program Manager and Jeff Berry - Construction Inspector. This allowed for better coordination efforts between third party utility companies, property owners, outreach firm, and the Northwest Excavation, the City's Phase 1 contractor. This approach was successful as the construction costs came in under the contracted price, with no delays carried over to over phases of construction.



*Figure 8 - Additional examples of Phase 1 construction activities*

## Phase 2

The second phase of construction on the project entailed having all utility companies (SCE 66kV, SCE 16kV, Spectrum, and Crown Castle) pull in their new wires, fiber optic lines and cables through the new underground conduit system, followed by the removal of their pre-existing overhead wires. The total cost of this phase of the project was over \$8 Million. This work began in October 2016 and was completed in March 2017, when all telecom utility companies and SCE had energized their new underground systems and were completely removed from the existing overhead poles. Once the overhead utilities were removed, SCE began the removal of the 53 existing poles of the project. The "Last Pole" ceremony took place on March 16, 2017.





*Figure 9 - Examples of Phase 2 Construction Activities*

Phase 3

The third and final phase of construction included all of the final sidewalk, curb and gutter restoration activities on the project at all 53 locations where the existing steel poles, wood poles, and guy stub poles that were removed by SCE during the Phase 2 construction. The scope of work consisted of demolishing the disturbed sidewalk, replenishing the existing subgrade if necessary, and constructing new sidewalk, curb and gutter as required to match the existing conditions.

In addition, as part of the Phase 1 construction, the City installed its own conduits to extend our existing traffic signal fiber optic system on Thousand Oaks Blvd. Therefore, Phase 3 also included in the installation of 11,000 feet of fiber optic cable. The total cost for Phase 3 of the project was \$300,000.



*Figure 10 - Examples of Phase 3 Construction Activities*

## **SOME KEY CONSTRUCTION MANAGEMENT FACTORS FOR PROJECT SUCCESS**

### **i. Public Outreach**

- a. Building a robust civic engagement and outreach plan very early on in the project.
- b. Matching the timing and intensity of the outreach program to the needs of the project
- c. Ensuring personal/direct public interface with a dedicated project team leader
- d. Use of a project logo and branding to build awareness
- e. Evaluating impacts to the specific project limits as well as citywide impacts
- f. Using new methods (social media, project hotline, dedicated email, project website)
- g. Timing construction to minimize impact to key parties such as High School, etc.

### **ii. Leveraging Use of Technology**

- a. Making full usage of the following emergent industry tools and technologies:
  - 1) GIS / AutoCAD / Bluebeam
  - 2) Tablets for mobile field data collection + reporting (including geotagged photos)
  - 3) 3D Printing
  - 4) Use of a construction monitoring camera

### **iii. Advanced utility research & engineering**

- a. Utilize a single lead engineer to coordinate the entire process
- b. Extensive potholing and underground utility research (do it extensively before and during the design phase, don't just rely on doing it before construction)
- c. Use of GIS and CAD to map and record locations of existing utilities
- d. Do not solely rely on drawings from utility agencies (verify in the field and force utilities to mark their lines to check against old record drawings)
- e. Coordinate and consolidate designs from different utility firms onto 1 master utility plan (including building a plan and profile based on all existing utility data).

### **iv. Collaboration**

- a. Perform heavy amount of communication and collaboration
- b. Involve both internal and external stakeholders throughout the project
- c. Reach out to individual businesses as well as shopping center owners and chamber
- d. Build a culture of trust and information sharing with all parties throughout the project
- e. Make the contractor feel like a true part of the team, in order to get his best work

### **v. Innovative Contracting strategies**

- a. Pre-Qualification of General Contractor (to ensure experience and expertise)
- b. Having the City take the lead role on the project, instead of SCE (traditional method)
- c. City self performing all Design and Construction Management efforts
- d. City staff performing Inspection services (including up to 21 hrs/day)
- e. Only using specialty consultants when needed (outreach)

- f. Risk Management & Insurance
- g. Timing of construction phase



*Figure 11 – 2 Separate Views of Thousand Oaks Blvd (before and after the undergrounding project)*

### **ADDITIONAL INFORMATION**

To learn more about the project, feel free to visit the following web pages:

Project Highlights Video:

<https://www.youtube.com/watch?v=yz2PD9xLzEE>

Project Website:

<http://www.toaks.org/departments/public-works/construction/undergrounding>

Additional Project Photos:

<http://www.toaks.org/home/showdocument?id=8812>

<http://www.toaks.org/home/showdocument?id=8810>

*Thank you for your consideration for this nomination.*

*Sincerely,*

**Nader Heydari, PE, CCM, LEED AP, QSD &  
Jorge Munoz, PE, QSD  
City of Thousand Oaks  
Public Works Department**

