CITY OF LOS ANGELES

CALIFORNIA

DEPARTMENT OF PUBLIC WORKS

BUREAU OF ENGINEERING

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August 12, 2025

The Honorable City Council
c/o Petty F. Santos
Interim City Clerk
Room 360, City Hall

COUNCIL FILE NO. 24-0041 – MICRO-TRENCHING / TRENCHLESS UTILITY INSTALLATIONS / NEW UTILITY INSTALLATION STANDARDS

SUMMARY

In response to a motion (Lee – Padilla), this report provides updates on Micro-Trenching, new Rapid Micro-Trenching, and other trenchless utility installation methods such as Horizontal Directional Drilling (HDD) and Pneumatic Piercing Method (PPM), in addition to permit procedures, challenges, and recommendations.

RECOMMENDATION

That the City Council REQUEST that the City Attorney prepare and present an ordinance authorizing the use of Rapid Micro-Trenching in accordance with requirements established by the City Engineer and requiring an SDRF payment matching that of regular Micro-Trenching.

BACKGROUND

The Bureau of Engineering (BOE) has been continuously looking into different trenchless technology and methods for the purpose of reducing the roadway impacts caused by construction. In conjunction with these efforts, BOE established several special orders and a standard plan and supported adoption of multiple ordinances by the City Council at different timelines, noted below:

November 18, 2002: BOE issued Special Order 015-1102 for Horizontal Directional Drilling Policy:
https://apps.engineering.lacity.gov/docs/sporders/2002/SO015-1102.pdf

November 15, 2019: City Council, Ordinance No. 18644, adopts changes to Los Angeles Municipal Code (LAMC) Section 62.00 and 62.03 to allow conduits to be installed at a shallower depth via Micro-Trenching and assessment of Street Damage Restoration Fee for the area that equals one foot times the length of the excavation cut.

June 2, 2020: BOE issues Standard Plan S-474-0 for installing telecommunication conduits with Micro-Trenching.

Jan 11, 2021: Standard Plan S-474-1 revised note to clarify minimum clearance between micro-trenches to gutter.
https://apps.engineering.lacity.gov/techdocs/stdplans/s-400/S-474-1_Signed_20210111_144508.pdf

October 8, 2021: The Broadband Deployment Acceleration Best Practices Act of 2021 (Senate Bill No. 378) requires a local agency to allow, except as provided, Micro-Trenching for the installation of underground fiber if the installation in the Micro-Trenching is limited to fiber. A Micro-Trench was defined as narrow open excavation trench that is less than or equal to 4 inches in width and not less than 12 inches in depth and not more than 26 inches in depth and that is created for the purpose of installing a subsurface pipe or conduit.

February 28, 2022: City Council, Ordinance No.187401, amends Section 62.06 (A)(1) of the Los Angeles Municipal Code to change the Street Damage Restoration Fee (SDRF) for small excavations. The additional 5 feet on all sides for calculating the area of an excavation in Subsection (A)(1) shall not apply to an excavation where no side exceeds 4 feet in length, or for any excavation for the purpose of repairing an existing sewer lateral.

June 24, 2022: BOE issued Special Order 05-0622 for Pneumatic Piercing Method:
https://apps.engineering.lacity.gov/docs/sporders/2022/SO05-0622_WCE_GLM_06-24-2022.pdf

June 27, 2022: BOE issued Special Order 06-0622 for Horizontal Directional Drilling for installation of conduits for Fiber Optic Cable:
https://apps.engineering.lacity.gov/docs/sporders/2022/SO06-0622_WCE.pdf

DISCUSSION

Micro-Trenching

Major telecommunication companies have been using Micro-Trenching to install fiber optic conduits in the City of Los Angeles. Micro-Trenching is a popular method for the installation of telecommunication conduits due to the following reasons:

- Cost-effective: Micro-Trenching typically requires less labor and equipment compared to traditional trenching methods, resulting in lower installation costs.
- Faster installation: Micro-Trenching is often quicker than traditional trenching, reducing disruption to traffic and minimizing inconvenience to residents and businesses.
- Minimal disruption: Micro-Trenching creates narrow, shallow trenches, causing less disturbance to the surrounding area.
- Enhanced safety: Micro-Trenching reduces the risk of accidents and injuries associated with deep trenching, as well as minimizing damage to underground utilities.

- Environmentally friendly: Micro-Trenching generates less waste and requires fewer materials, leading to a reduced environmental impact compared to traditional trenching methods.

The Street Damage Restoration Fee (SDRF) for Micro-Trenching Projects is in accordance with LAMC Section 62.03. The BOE's Utility Permit (U-Permit) application provides applicants with the ability to geocode the Micro-Trenching alignment using the designated Micro-Trench option, resulting in precise calculation of SDRF.

There are however some limitations associated with Micro-Trenching:

- Depth limitations: Micro-Trenching is typically shallow, which may not be suitable for all applications, especially in areas with high traffic or heavy loads.
- Limited utility size: Micro-Trenching does not accommodate conduits two inches and larger, restricting its use in certain infrastructure projects.
- Surface damage risk: Improper Micro-Trenching techniques or equipment can cause surface damage, such as cracks in pavement or sidewalks, leading to additional repair costs.
- Soil conditions: Micro-Trenching may be challenging in areas with difficult soil conditions, such as rocky soil, potentially affecting installation quality and longevity.
- Surface type: Micro-trenching is prohibited on concrete surfaces because concrete pavements function as structural slabs. Doweling is necessary between pavements to restore load transfer in the repaired slab but installing dowels in a micro-trench is impractical.
- Weather sensitivity: Micro-Trenching can be sensitive to weather conditions, such as heavy rain or extreme temperatures, which may affect installation timelines and quality.

Rapid Micro-Trenching

Rapid Micro-Trenching is the newest method of fiber installation introduced to the City of Los Angeles. The City of Los Angeles has granted temporary approval for the use of Rapid Micro-Trenching as part of pilot projects, offering this opportunity to utility companies that have demonstrated the capability to perform the method.

Rapid Micro-Trenching is now the fastest fiber conduit installation method with the least amount of surface disruption. This method allows the conduit to be installed at a depth as shallow as one inch in a trench as narrow as 0.375 inches, with immediate restoration time, very minimal community and traffic impacts, and extremely low recyclable waste and debris.

Based on a mutual agreement, the Street Damage Restoration Fee that would apply to Micro-Trenches has been also applied to Rapid Micro-Trenches pending a future ordinance change to address Rapid Micro-Trenching. We recommend establishing it at the same level.

Other Trenchless Technologies

Horizontal Directional Drilling (HDD)

Horizontal Directional Drilling (HDD) is a trenchless method used to install underground utilities such as pipelines, cables, and conduits without the need for traditional excavation. A drilling rig first creates a small, guided pilot hole along a predetermined path. The drill bit is steerable, allowing the operator to control the direction and depth of the drill as it progresses. Once the pilot hole is completed, it's gradually enlarged using a reamer, which is pulled back through the pilot hole. This step may need to be repeated several times to achieve the desired diameter, large enough to accommodate the utility line or pipe. After reaming, the final step involves pulling the pipe or conduit back through the enlarged hole. The pipe is usually prefabricated in sections and welded or connected on-site before being pulled through the borehole.

This method is mainly used by Southern California Gas Company (SCG) to install gas mainlines.

Pneumatic Piercing Method (PPM)

The Pneumatic Piercing Method (PPM), also known as the Impact Moling Method, is a trenchless method for the installation of small diameter pipes over relatively short distances along shallow depths. The specialized tool uses a compaction approach to create a bore hole which the permanent pipe is slipped through. Most tools are non-steerable and tip advancement is usually not tracked. The alignment is typically set using general sighting equipment and a basic launching cradle. While potential uses are limited, common installation practices make this method cost-effective and easy to implement.

Southern California Gas Company (SCG) and Department of Water and Power (DWP) mainly use PPM to install gas and water services.

Both HDD and PPM can save costs, including SDRF, by reducing surface disruption and restoration.

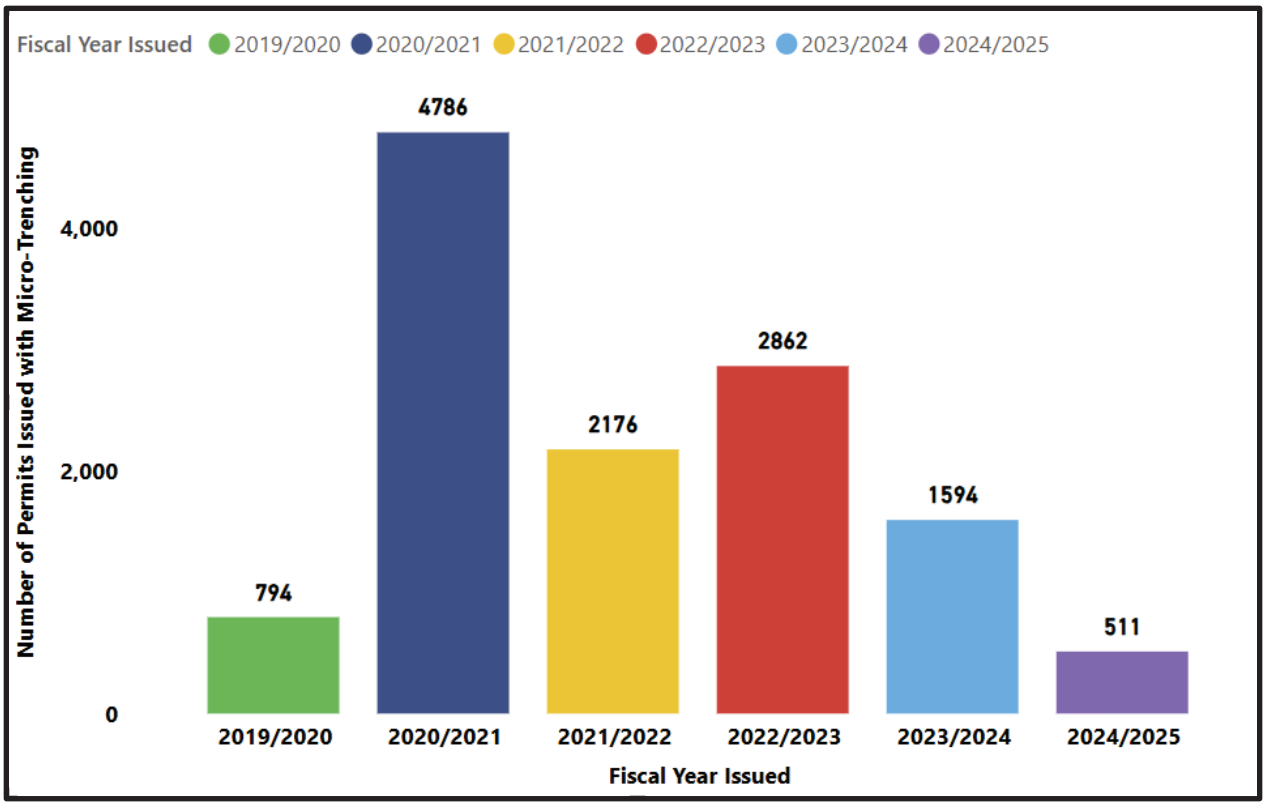
Additionally, most of the required open excavations for these trenchless methods involve small access shafts, with no excavation dimension exceeding 4 feet. Therefore, they are eligible for a reduction in SDRF calculations based on the Ordinance No. 18740.

Potential risks of these methods include damage to existing utilities (cross-bore damage), misalignment, as well as soil heaving and/or ground settlement. As a result, specific requirements as part of the Bureau of Engineering’s Special Orders 015-1102, 06-0622 and 05-0622 were established to minimize these risks and to ensure public safety and to protect public and private property.

Some of the issues that the City of Los Angeles has encountered include non-compliant methods of backfill and surface restoration, as well as unpermitted excavation that was not approved during the review process.

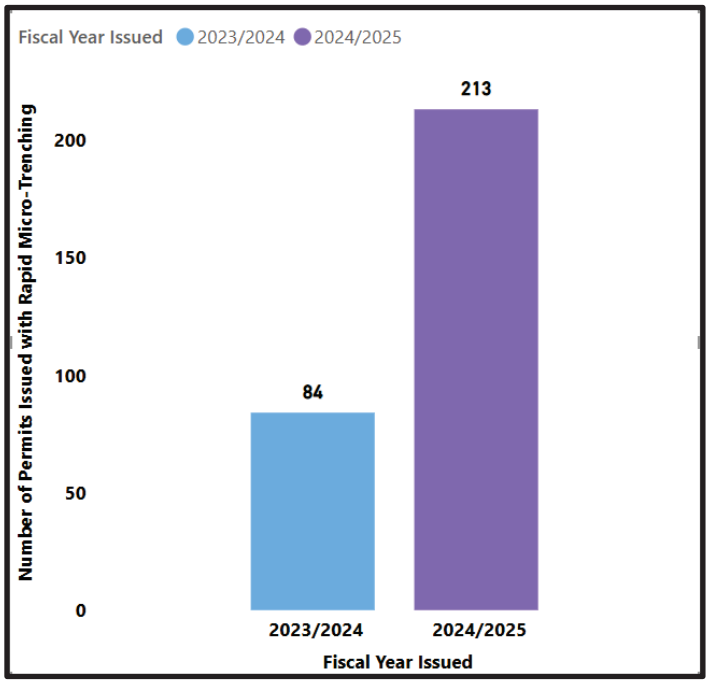
BOE is actively monitoring and investigating these methods to determine whether additional special measures are needed to ensure compliance and proper restoration practices.

The following chart indicates the total number of permits that were issued during Fiscal Year 2019/2020 through the Fiscal Year 2024/2025 that included Micro-Trenching. More than 12,000 permits were issued during this time period.

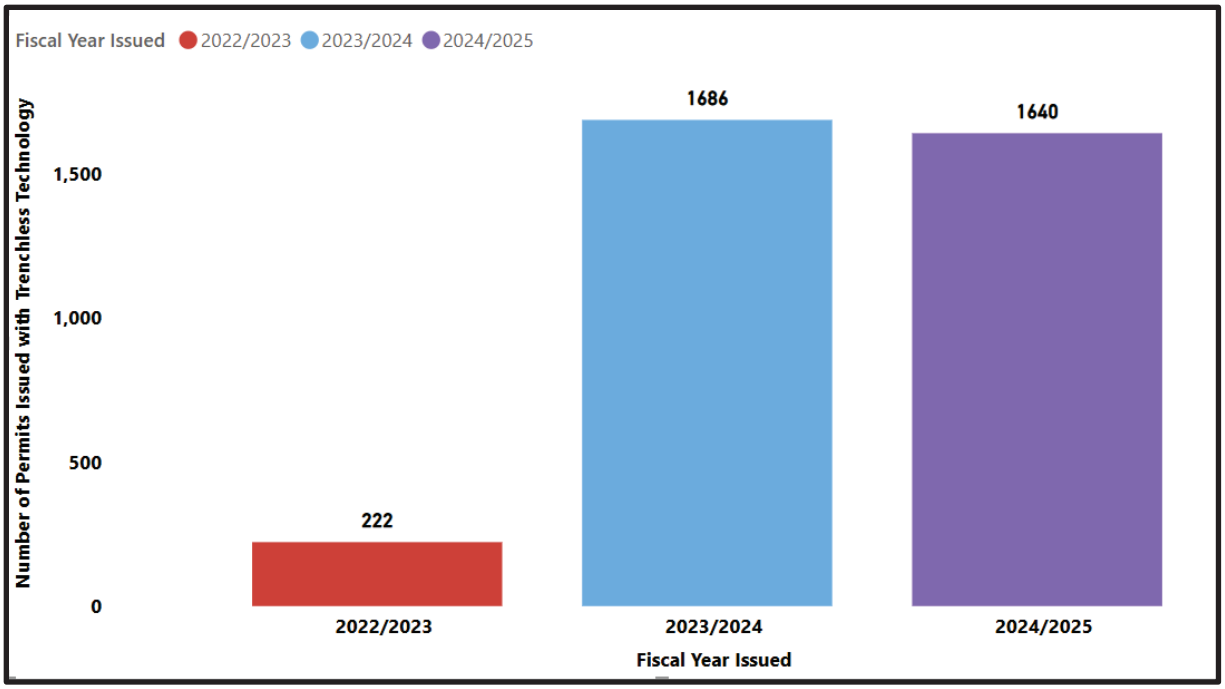


The initial surge shown for the Fiscal Year 2020/2021 was due to a backlog of open trench installations that would have incurred larger SDRF that were instead submitted using Micro-Trenching. In addition, the decreasing trend of Micro-Trenching permits shown is due to the increase of Rapid Micro-Trenching projects which replaced most Micro-Trenching projects.

The following chart indicates the total number of permits that were issued during Fiscal Years 2023/2024 and 2024/2025 that included Rapid Micro-Trenching. More than 200 permits were issued during this time period.



The following chart indicates the total number of permits that were issued during Fiscal Year 2023/2024 and Fiscal Year 2024/2025 that included other trenchless technologies such as HDD and PPM. More than 3000 permits were issued during this time period.



BOE supports innovative methods to reduce construction impacts, costs, and disruption and will continue to evaluate new technologies, including Micro-Trenching, Rapid Micro-Trenching, and other approved trenchless methods, for the installation of utilities. BOE will continue to accept and review permits for these innovative approaches, actively monitoring the progress of ongoing projects. By addressing any issues that may arise, BOE ensures the effective implementation of trenchless methods throughout the City.

FISCAL IMPACT

The recommendations in this report have no fiscal impact as it would codify fees that are currently charged for applicable permits.

Respectfully submitted,

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Interim City Engineer

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cc: Randall Winston, Office of the Mayor
Andrea Greene, Office of the Mayor
Steve S. Kang, Board of Public Works