

Micro-trenching Provides DAS Construction Cost Savings

Traditionally, when a new communications line or fiber is needed in an urban setting such as a downtown area or business surrounded by parking lots, the cost of getting that service to the venue is often very prohibitive. The need for the service isn't any less, however, carriers need to weigh the revenue potential to see if the cost can even be recouped.

With traditional methods, that often is not the case. With the introduction of micro-trenching (along with advancements in microduct technologies, which we will discuss in a moment) carriers and vendors now have a cost effective fiber delivery method that not only provides the service, but with much less disruption.

The table below shows different methods and the steps required to provide the same level of service to a customer. When we discuss costs, they generally associated with these methods.

Installation Options	Trench Opening	Installation of products	Backfill	Restoral	Notes
Micro-Trenching	Single Saw cut 6-12 inches deep and 1 inch or less wide	Lay microduct/s into trench	Use either hot polymer or premium grout/Single pass	No extra restoral needed/ Vehicle traffic can cross the trench line immediately.	Minor interruption to pedestrian and vehicle traffic during trenching. Both vehicles and pedestrians can cross trench line during trenching activities
Traditional open trench	Requires 2 saw cuts a minimum of 12 inches apart to accommodate an excavator bucket. Typically the smallest width available is 12 inches wide.	After removal of soil and substrate to desired depth, these spoils must be removed from the job site. Then ducts can be lain in the trench and normally covered or "bedded with sand or some other refined fill material.	Backfill is usually a refined or filtered sand to remove large stones. Fill is placed over the bedding material then tamped firm, then covered with heavier material such as stone just prior to final restoral./Multiple passes	The back fill is covered with one or two layers of concrete or pavement. This is normally done in multiple applications and in the case of concrete, it must be allowed to cure before vehicle traffic can cross the trench line	Major interruption to both vehicle and pedestrian traffic. Requires total barricading of area or plating of trench with large steel plates to allow for traffic to cross excavation.

When looking at a traditional trenching method, note the number of steps required to get to the point of installing products. Each of these steps has an associated cost and can range from \$100 to thousands, depending on the length of the trench. Note that micro-trenching only requires one saw cut, and is very narrow compared to the open trench. The smallest bucket for an excavation is commonly 12 inches wide compared to a micro-trench of 1 inch wide. This step alone, in essence, doubles the cost. Using a 100 ft trench as a comparison, the traditional method requires 200 ft of saw cuts just to get started with the excavation while the micro-trench requires only one, and the product is ready to be installed as soon as the trench is cut.

Additionally, because of the width of the traditional method is 12 inches, steel plating or barriers must be used to protect from both vehicular and pedestrian traffic. These are extremely heavy and require a machine to put them into place where micro-trenching, because of its 1 inch or less width, requires none of these.

Because of the removal of substrate in large quantities with traditional trenching, premium backfill material and compaction is normally required as well. Again, this is not the case with the micro-trench. After the

product is installed, the micro-trench is typically backfilled with a hot polymer, much like tar or a free flowing grout material that resembles concrete. These types of fill materials allow the trench to be restored in one or possibly two passes vs 6-8 passes depending on the type of fill materials used in the traditional trench method.

As you can see, each step and its associated costs will help to determine if micro-trenching is a good option for a particular location. Typically the cost savings associated with a micro-trench is near 60% because of the elimination of trench passes (2 vs 8-10) and the amount of backfill material used as well as the disruption to the tenant.

Use costs from your local area to see if micro-trenching is right for your area.