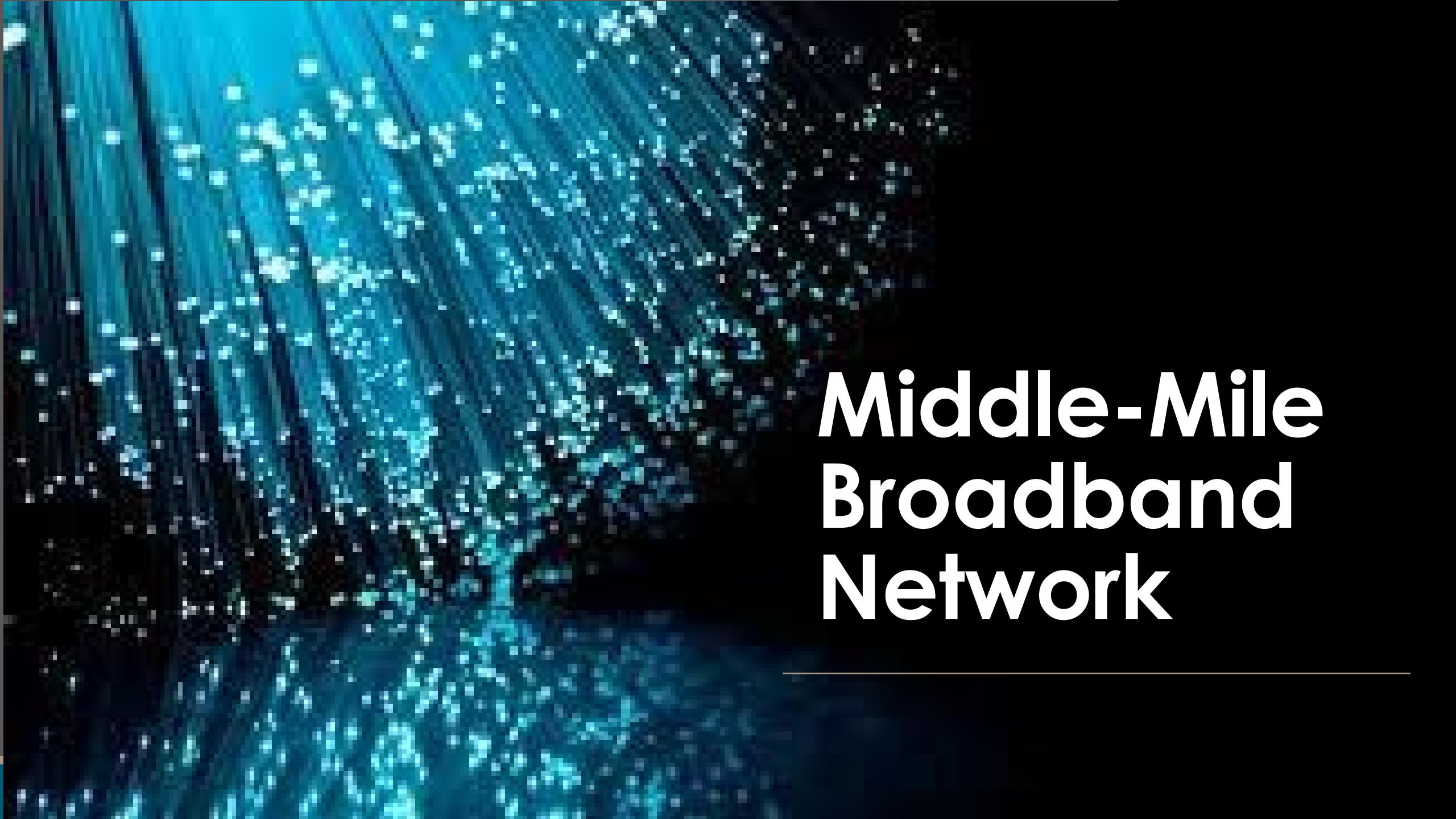

Middle-Mile Broadband Network

Overview

- Brief Background
- Project Location
- General Project Scope
- Installation Methods
- Delivery Schedule
- Questions

Brief Background

In July 2021, Governor Gavin Newsom signed into law Senate Bill 156 to create an open-access middle-mile network to bring equitable high-speed broadband service to all Californians.

There are three main goals of the open-access middle-mile network:

1. Provide affordable, open-access, middle-mile broadband infrastructure to enable last-mile networks throughout the state.
2. Leverage existing networks and construction projects to build networks, when possible.
3. Prioritize connectivity to unserved and underserved communities.

Statewide Network

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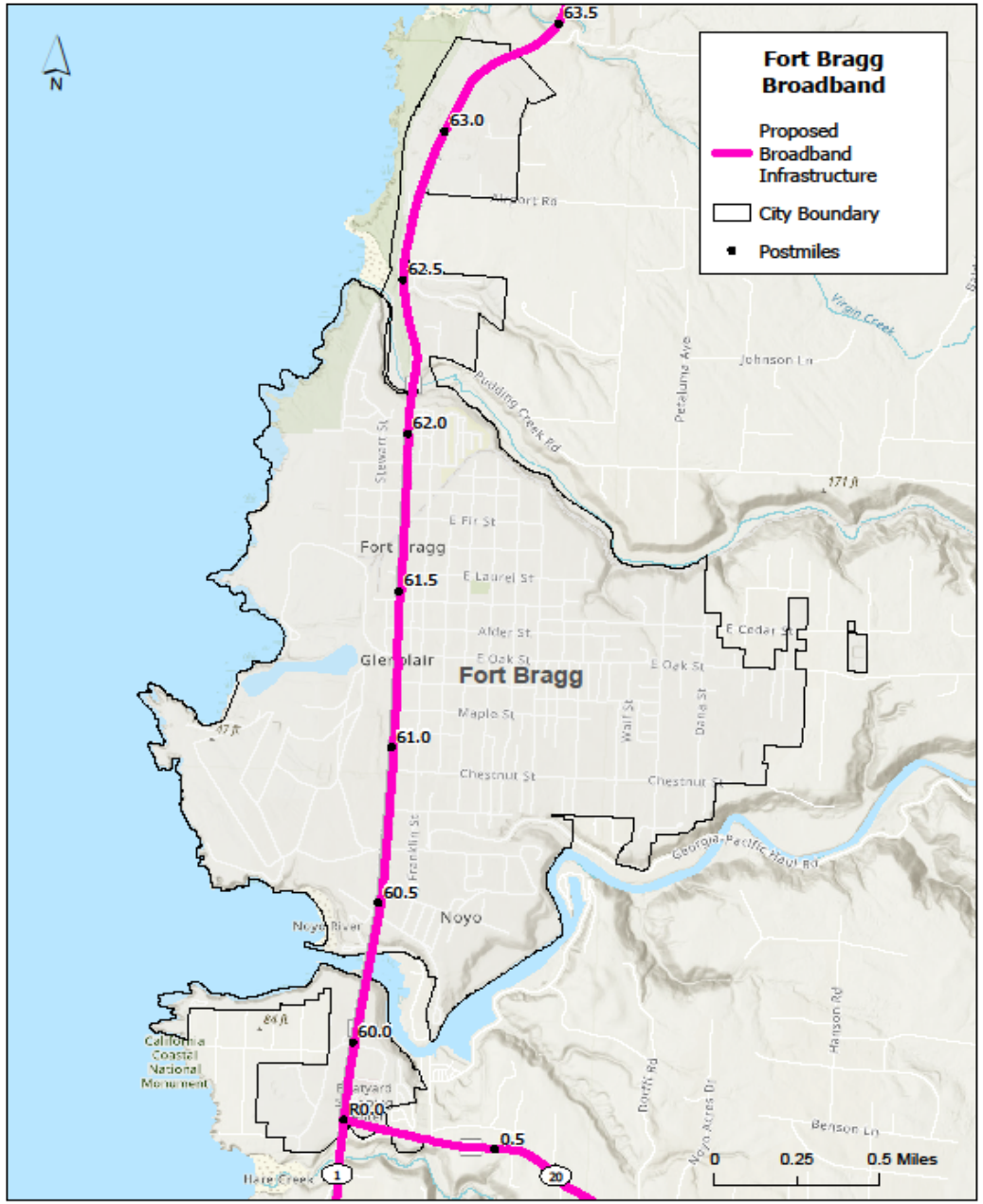
City of Fort Bragg



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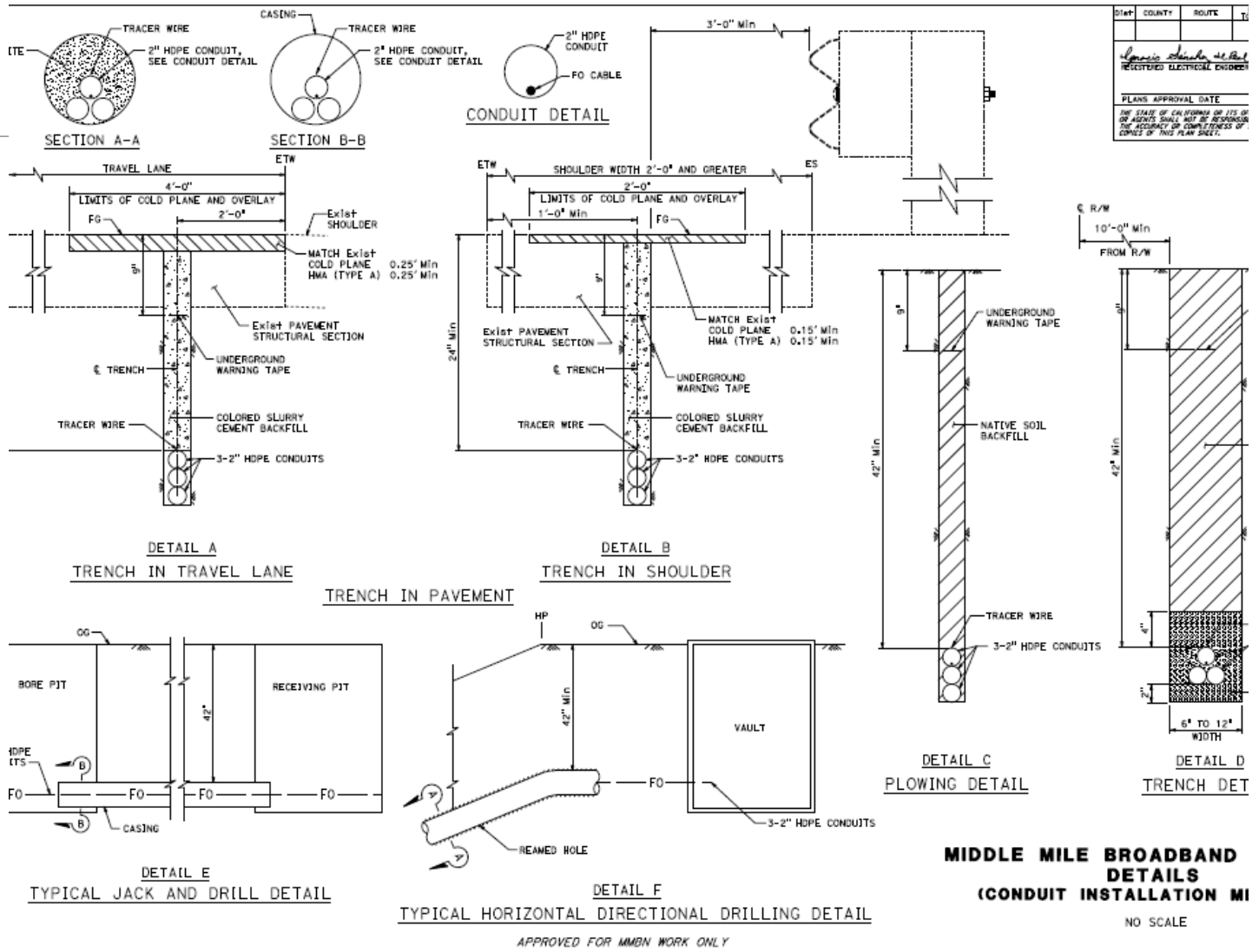
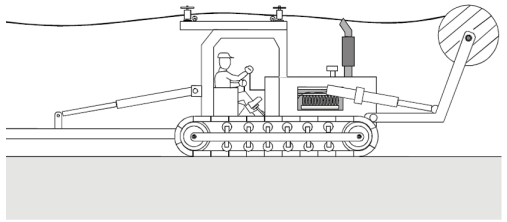
Design Details

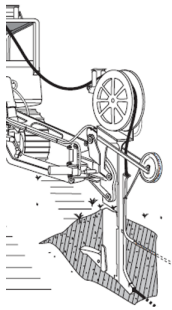
- Conduit Installation.
- Vault Installation.
- Network Hub Installation.



Plowing



s It Work?



Depending on the size and numbe of conduit or fiber cables used fo placing in a single pass, this methoc is very productive with less materi al handling. One or more reels are mounted on the plow and are guidec safely over the plow tractor and fec directly into the plow chute. Wher the end of the reel or reels is reached the tails are brought up and eventu ally coupled or joined to the startin ends of the next reel or reels.

Description

- Vibratory plow using vibratory blades.
- Narrow slit in soil as plow moves quickly.
- Minimal soil disturbance.
- Minimal soil handling.

Application

- Fast installation in soil surface.
- Cost-effective installation method.
- Tight schedule.
- Long-haul work in open areas.
- Uneven, wet or dry terrain.
- Single pass.
- Not applicable to roadway or concrete surfaces.

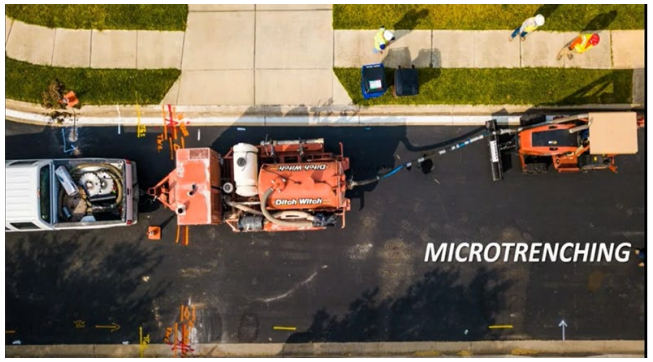
Trenching

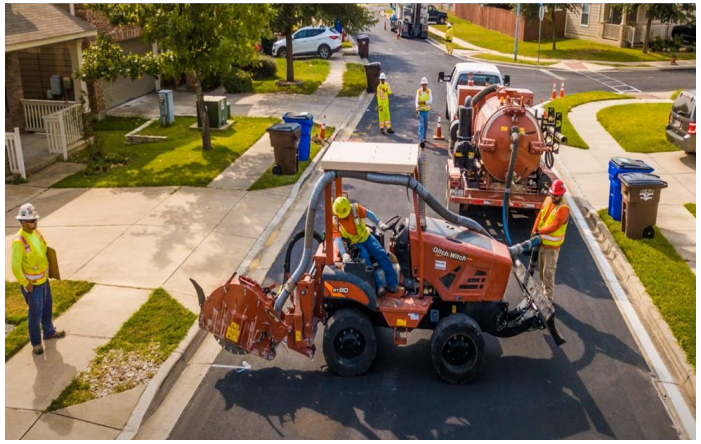
Trenching (Traditional)

- Common for long, cross-country installations.
- May effect traffic movement.
- Slower than plowing.
- More controlled cable installation.

Trenching in Pavement

- Narrow trenches (3” to 6”) in pavement.
- Suitable for locations with significant environmental and right-of way restrictions.





Micro-trenching

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Horizontal Directional Drilling

Application

- Most terrains
- Rocky ground conditions
- Overpass, embankments, side hill, river crossings

Operation

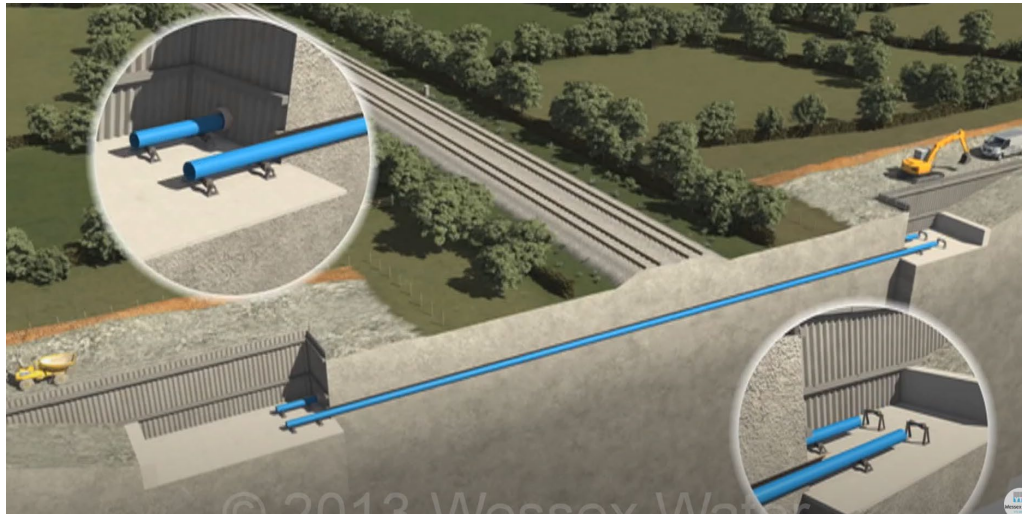
- Entrance pit
- Exit pit
- Pilot hole pass
- Reaming pass

Site Pre-Planning

- Entry site
- Exit site
- Staging Site

Directional Drill

DIRECTIONAL DRILLING VIDEO



Jack and Drill

Application

- Cross roadways and railroads when casing is required
- Horizontal Directional Drilling not feasible

Operation

- Entrance pit
- Exit pit
- Pilot hole pass
- Reaming pass
- Pipe Casing

Site Pre-Planning

- Entry site
- Exit site
- Staging Site

Jack and Drill

JACK AND DRILL VIDEO

Vault Installation

- One 30-inch-wide by 48-inch-long by 36-inch-deep pull vault would be installed approximately every 2,500 feet (maximum spacing).
- Every 5th vault would be a 48-inch-wide x 48-inch-long x 48-inch-deep splice vault.
- Vaults may be installed above surrounding grade or flush with surrounding grade.
- If conduit is installed in bridge structures, vaults would be installed at both ends of the bridge to aid conduit installation and maintenance access.

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Hub Installation

- Network hubs would be installed on concrete pads to provide transmission and reamplify signals.
- Hubs would be located a maximum of 50 miles apart and be located in proximity to power as electrical hook-ups would be required.
- Perimeter fencing and standby propane or diesel generators with fuel tanks would be installed at hub locations.
- Typical network hub dimensions would be 50 feet wide by 50 feet long.

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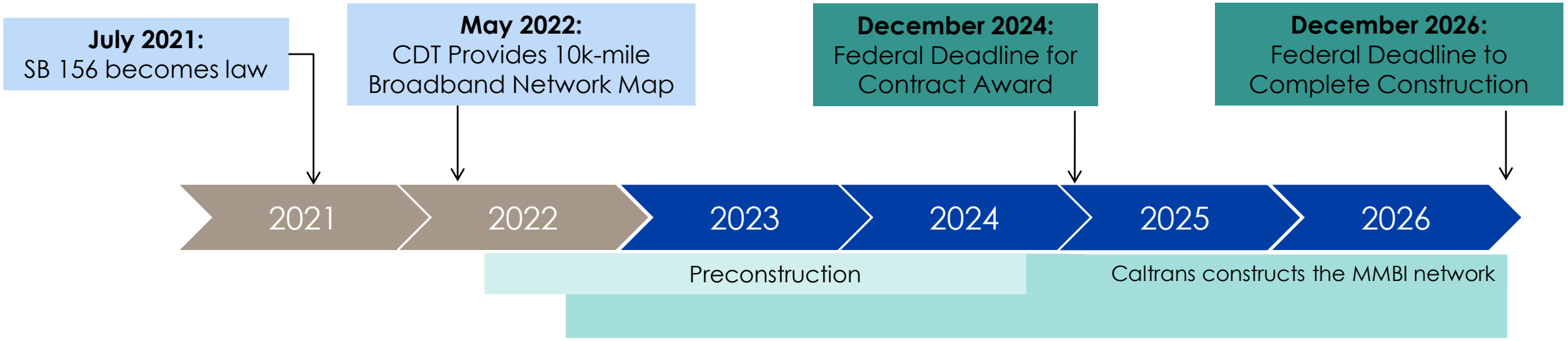
Hub Rendering

Delivery Timeline



US Army Corps
of Engineers.

Questions?

Thank you for your time!