

# Successful Delivery of Bored Tunnel Projects

## Examples of Tunnel Excavation in Urban Areas

1. Fourth Elbe River Tunnel (Germany): Successfully excavated a single bore with a length of about 2 miles and a 46.6-foot diameter.
2. Lefortovo Tunnel (Russia): Rebuilt Elbe TBM successfully excavated 2 bores, each more than 1 mile long, with a 46.6-foot diameter.
3. Madrid M30 (Spain): Successfully excavated bores with a length of about 5 miles and a 49.9-foot diameter. M30 diameter was about 10 feet larger than previous TBMs (~50% greater face area).
4. Shanghai Yangtze River (China): Successfully excavated 2 bores, each about 5 miles long, with a 50.6-foot diameter. This TBM is the current record holder for diameter. Tunnel completed about a year ahead of original schedule.

## Pending Record Holder

Moscow Road/Rail Tunnel: A 62-ft-diameter Mixshield has been ordered. This diameter is 11-ft larger than Shanghai TBM, the current record holder.

Elbe Tunnel Slurry Machine



Madrid Calle M30



Seven tunnel boring machines will be used in the Madrid Calle 30 project