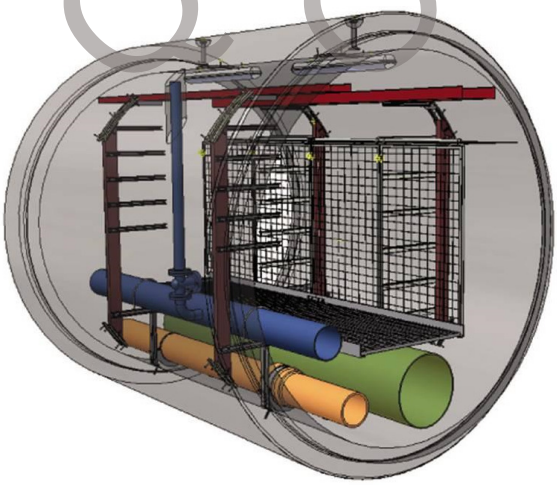
Due to the high construction cost of utility tunnels, their application is restricted to cases where either no other options are possible or where there is intensive cooperation between many different SAUP that leads to a significant benefit of scale. The growing scarcity of available space and associated rising cost of land, has forced utility providers and authorities to consider the use of joint or shared utilisation of the right of way to reduce utility space consumption and improve the accessibility for maintenance of utilities through the city.

The three main types of utility tunnels include:

1. Dry utility tunnels that accommodate utilities such electricity and telecommunications cables.
2. Wet utility tunnels accommodate utilities such as water mains, irrigation mains, and pressurized sewage mains.
3. Combined utilities tunnels accommodate both dry and wet utilities.

Utility tunnels provide a means to achieve joint utilisation and thus provide a solution to the problem of congested right of ways. Figure 33provides a schematic illustration of the utility tunnel concept.

Figure 33: Schematic Illustration of the Concept of a Utility Tunnel



The advantages of utility tunnels include:

1. The elimination of road cuts and possible damage to other utilities.
2. The elimination of interference with traffic.
3. Reduction in street noise.
4. Easy access to the utilities within the tunnel and thus easy operation and maintenance of utilities.
5. Reduction in space allocation for utilities within the right of way i.e. land saving.
6. Easy access to utilities within the tunnel.
7. Flexibility in terms of network expansion and allows for future upgrades at a reduced cost.