



## Proposal 2

**Title:** Long term vision on tunnels in the Netherlands – how to contribute to resilient cities

**Theme:** Smart city how can underground space contribute

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**Abstract:**

The position of tunnels in their immediate environment and their network is changing, the issue of sustainability is coming to the fore and increasingly higher demands are placed on the reliability, availability and disturbance limitation of tunnels throughout their entire life cycle. We are faced with a huge renovation task. In addition, developments in the tunnel sector are determined by a broad social and technological context. We will have to make choices and decide what we want and must influence, what developments we want to help shape and what developments we consider as given. Through this long-term vision, the COB wants to support and challenge all stakeholders, namely the government, market, science and society. The objectives are:

**1. Sketch, challenge and inspire a future.**

The future of the sector, now just a dot on the horizon, mobilizes us and gives us a common objective.

**2. Determine a (knowledge) position.**

The long-term vision must help us shape the changing positioning of underground construction in the (academic) world. Apart from technical and civil construction issues, we are becoming increasingly closely involved in integrated tasks in the fields of safety, spatial integration, value creation, design, reliability, maintainability, availability and durability. The position of The Netherlands may be quantitatively modest, but qualitatively The Netherlands has achieved a prominent position in terms of demonstrable safety, immersed tunnels, project management and the environment. However, the broad subject of tunnels does not have an academic foundation anywhere in The Netherlands or elsewhere in the world, which opens it up to new opportunities worldwide. Through this long-term vision, we want to achieve a position based on knowledge and innovations, to implement the best applications in The Netherlands and to create opportunities for companies to export such applications.

**3. Apply focus to the joint tasks surrounding tunnels.**

The complexity of all the issues surrounding the subject of tunnels presents a certain challenge and, at the same time, there is a risk in taking joint action. Many developments are beyond our influence and, although we could get involved in many developments, we cannot afford to take a shotgun approach. With this vision, we want to define our objective as clearly as possible and propose how to achieve it together as effectively as possible.

In 2016 and 2017 the 3 objectives were put into paper and formed into roadmaps. Key words are: adaptivity and a mind shift from tunnels as an object towards tunnels as part of a system. Technical solutions are found in working towards digital twin tunnels., plug and play installations and fast and adaptive civil engineering. Now is the time to share these roadmaps with the international network to see if we can join forces.