

The World's Longest Bike Tunnel and a New Light Rail Route

Effects on Travel Behaviour and Perceptions

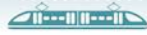
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- Cycling infrastructure has a significant impact on behaviour: The Fyllingsdalen Tunnel and the cycle highway have reduced travel time and physical barriers for cyclists, leading to a measurable increase in cycling. We measured a 3–5 percentage point rise in cycling among groups with the greatest time savings.
- Limited effect of the light rail on travel behaviour: The extension of the light rail to Fyllingsdalen has not led to a clear increase in public transport use or a reduction in car use among those living closest to the line. A high baseline level of public transport use may explain this outcome.
- Stability in attitudes, but increased acceptance: Attitudes towards cycling have remained stable, while support for the implemented measures and social norms related to public transport have increased over time.
- Communication alone has no measurable effect: An experiment involving targeted information showed no changes in either attitudes or behaviour.
- Structural measures are most effective: Physical improvements to infrastructure are more important for changing behaviour than communication initiatives.

Summary

This report documents the results of a comprehensive study on how new mobility initiatives in Bergen have influenced travel behaviour, perceived accessibility, and attitudes towards transport. The study was conducted in connection with two major infrastructure projects: the construction of a new light rail line from the city centre to Fyllingsdalen, and the establishment of new cycling infrastructure, including the Fyllingsdalen Tunnel (the world's longest pedestrian and cycle tunnel), the Kronstad Tunnel, and an associated cycle highway. The objective of these initiatives has been to improve accessibility, reduce car use, and promote more sustainable modes of transport.

The data foundation consists of four rounds of surveys carried out from November 2022 to April 2024, supplemented by accessibility analyses and traffic data from automated bicycle counters. Taken together, these sources provide a robust platform for analysing changes before and after the interventions. The summary follows the four main research questions addressed in the report.



What effects have the measures had on accessibility to key destinations?

Both initiatives have had significant effects on physical accessibility, albeit with different geographical and functional profiles. For cyclists, the Fyllingsdalen Tunnel and the new cycle highway have clearly reduced travel times to Haukeland Hospital, with savings of over 15 minutes reported by some respondents. Accessibility analyses show that these improvements are particularly relevant for residents in the central and southern parts of Fyllingsdalen. For journeys to the city centre, the benefits are more limited, as the tunnel is somewhat off-route for residents in the northern parts of the district.

Accessibility effects of the light rail were not directly studied, but experience suggests that it has provided a new public transport service in areas previously served by relatively good bus connections. Overall, the cycling measures appear to be far more transformative in terms of improving accessibility than the light rail extension.

What effects have the measures had on modal choice and travel behaviour?

The clearest effects on modal choice are related to cycling. Individuals reporting a reduction in cycling time to Haukeland of 5–15 minutes increased their cycling share by 5 percentage points, while those saving over 15 minutes increased by 3 percentage points. These are substantial changes in a context where cycling initially accounted for less than 5% of daily trips. Automated count data support this finding: bicycle traffic through the Kronstad Tunnel increased by 67% from 2023 to 2024, while traffic through the Fyllingsdalen Tunnel rose by 5%, during a period when overall cycle traffic in Bergen declined by 5%.

The effects of the light rail on actual travel behaviour are less clear. No evident increase in public transport use was observed in the studied areas. The analysis does not indicate any overall reduction in car use attributable to the opening of the light rail, even among light rail users. This suggests that changes in physical public transport infrastructure alone may not be sufficient to alter travel patterns if a reasonably good service already exists.

An ancillary benefit of the scheme is that Bergen has, in effect, acquired a new sports hall. The high level of comfort in the Fyllingsdal Tunnel—most notably the use of a tartan surface rather than asphalt—has led many people to use it for training during the winter. The effect is substantial: pedestrian counts are roughly three times higher in winter than in summer.

What effects have the measures had on perceived accessibility and attitudes?

The cycling-related initiatives have led to a clear improvement in perceived accessibility. Respondents highlighted safety, comfort, and aesthetic design as key factors making cycling more attractive. Several indicated that it now “feels possible” to cycle, even if they do not do so daily. The cycle tunnel reduces exposure to rain and traffic and removes a significant elevation difference between districts.

Regarding attitudes, only marginal changes were observed over time. Attitudes towards cycling and public transport were already positive prior to the interventions and remained stable. The survey suggests that behaviour change occurred primarily through improved conditions – not through shifts in attitudes. This underscores the point that people change behaviour when the environment enables it, not necessarily because their beliefs change.



Has targeted communication had any effect?

An experiment involving targeted communication was conducted during the final survey in spring 2024. Selected respondents received messages designed to encourage behavioural change or reinforce existing environmentally friendly choices. The results showed no measurable effects on actual travel behaviour, intentions, or attitudes. This aligns with research indicating that information measures alone have limited impact, especially when physical conditions or habits do not support the message. The experiment confirms that structural measures have greater potential for change than communication alone.

Conclusion

This study demonstrates that initiatives aimed at improving cycling infrastructure have produced significant effects on both accessibility and actual use. The tunnels and cycle highway remove tangible barriers and make cycling easier and more attractive, resulting in measurable behavioural changes. In comparison, the expansion of the light rail has had less impact on actual travel behaviour, despite some increased satisfaction among users.

The findings underscore the importance of comprehensive physical infrastructure in achieving behavioural change. Communication alone has proven insufficient to influence modal choice. Future transport policy should prioritise measures that eliminate real barriers and enhance perceptions of safety, comfort, and efficiency – rather than relying on information campaigns. For best results, such measures should be integrated with the existing infrastructure and tailored to local travel needs.