

Summary

BYTRANS: Changes in the metro system Adaptations, effects, and consequences

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The report presents results from investigations of how public transport passengers adapted to changes in the public transport system, and what effects and consequences they experienced. This was investigated in three cases: Closure of Østensjøbanen metro line for rehabilitation and reopening of the line with a higher station standard and frequency; opening of the new Løren metro station; and closure of bus line 57. We found that the majority of public transport passengers continued to travel by public transport after the changes. Eight percent of the passengers at the new Løren metro station used a car on similar journeys before. Many changed their trip-timing. Longer or shorter travel time was the effect most reported that they experienced, but also changes in frequencies, changes between modes, and walking distance to the stop. We found that changes in the public transport system can significantly affect commute satisfaction. A clear majority in all cases stated that they had received sufficient information about the change. The most important sources of information were information posters and letters on board and at stops.

Background

The research project BYTRANS has taken advantage of the unique opportunities large-scale and planned changes in the transport systems in Oslo in the period 2015-2019 provided to develop empirical knowledge that can be useful in the transition to the more efficient and environmentally friendly urban transport systems of the future. In this report, we present results from studies of how public transport passengers adapted to changes in the public transport system, and what effects and consequences it had for them. We have also investigated whether and how information about the changes reached public transport users. We are investigating this in three cases: Closure of the Østensjøbanen metro line for rehabilitation in 2015 and reopening with a better standard and higher frequency in 2016; opening of new Løren metro station in 2016; and closure of bus line 57 in 2016. The data sources were surveys to and interviews with users of the public transport system as well as analyses of passenger data from Ruter.

Closing and reopening of the Østensjøbanen metro line

The Brynseng-Mortensrud section on the Østensjø metro line was closed for rehabilitation in the period April 2015 to April 2016. The purpose was to facilitate a higher frequency on the line so that it could carry more passengers from the populous area it covers, and with a better standard, so that more people choose public transport instead of private car. During the period of rehabilitation, mitigating measures were put in place, primarily in the form of 'bus for metro'. In the pre-situation, the line had a frequency of four departures per hour. After reopening, it had eight departures per hour most of the operating day, and seven stations had been upgraded to metro standard. The reopening of the Østensjøbanen coincided with the interconnection of the Ringbanen and the Grorudbanen, a reorganization of the entire metro system in Oslo and changes in many bus and tram routes.

Three surveys were conducted in connection with changes on Østensjøbanen, to map the passengers' adaptations to the change and what effects and consequences they experienced. In March 2015, just before the line was closed, a recruitment survey was conducted among

passengers on Østensjøbanen. In June, while there was ‘bus for metro’, a survey was sent out to those who had been recruited in March to find out what adaptations they had made, and what effects and consequences they had experienced. In June 2016, after the Østensjøbanen was reopened, a new survey was sent out to map adaptations to, effects and consequences of the reopening. We have concentrated on answers related to commutes.

When it comes to adaptations, we found that the vast majority still commuted by public transport in the period when there was a bus for metro. This emerged both in the survey conducted in 2015 while there was a bus for metro (82 per cent stated that they still travelled by public transport) and after the reopening of the metro in 2016 (87 per cent answered that they had travelled by public transport when there was a bus for metro), see figure S1. Most stated that they had used the bus for metro, followed by other bus-lines metro-lines. Relatively few had switched to using a car or bicycle on the commute.

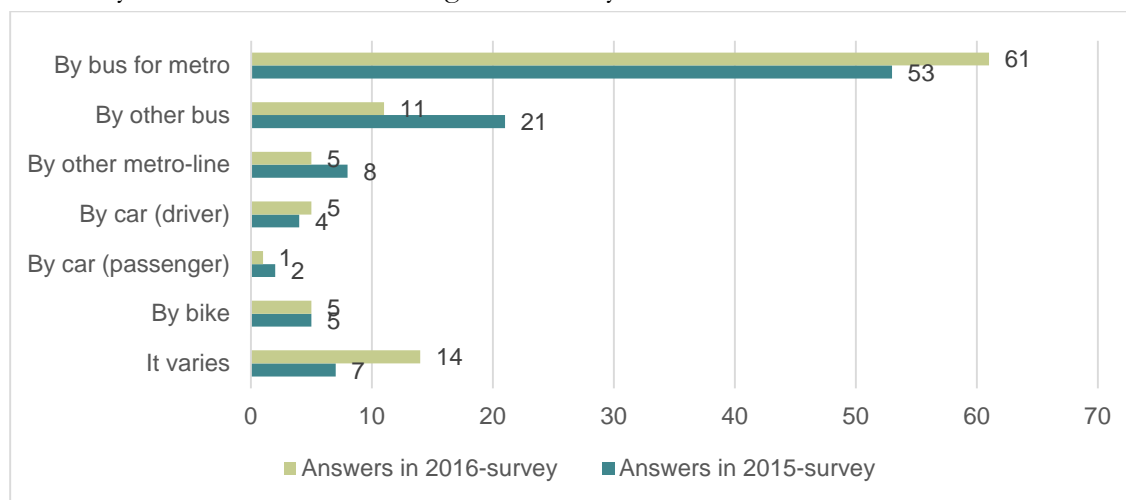


Figure S1: Responses questions in 2015 to 'Which means of transport do you use usually on your commute now when there is bus for metro on the Østensjøbanen?' and in 2016: 'Before the Østensjøbanen was reopened (when it was a bus for metro), which means of transport did you use usually on your commute?'. Stated in percent. N (2015) = 100, N (2016) = 86.

In the after-situation, when the metro-line was back in operation, we asked if the passengers now travelled differently than they had done when there was a bus for the train. 61 per cent answered that they now used the metro instead of tram or bus, and 15 per cent that they used the metro instead of car, bicycle or walking. When asked whether the passengers spent shorter or longer time on the commute when there was a bus for metro than they did before, 62 per cent answered that they spent longer (on average 19 minutes), 27 per cent that they spent the same amount of time and eight percent less time.

In the underway survey in 2015, we asked what improvements and disadvantages bus for metro had brought for the travellers. 20 percent stated that it had not given them any inconvenience. The others replied that they had experienced one or more inconveniences. Most answered (sorted descending according to how many have answered it) that the journey takes longer, that there is more crowding on board, that they have to make more changes, that the journey is more uncomfortable and that it is more cumbersome to switch between means of transport. 50 percent stated that they had not experienced any improvements. The improvements that were most frequently mentioned by the others were more departures, that the journey takes less time and that they got a shorter walk to the stop. Only nine per cent answered that the reopening of Østensjøbanen had not led to any improvements for them. The most stated improvements were more departures, better standards at the stations, a more comfortable journey and that the journey took less time.

67 percent answered that the reopening did not cause them any inconvenience. The most disadvantages stated (few mentions) were more mode changes and longer travel time.

This agreed well with the answers we received when we in the follow-up survey asked, 'What do you think are the most important improvements on Østensjøbanen, compared to the situation before the line was upgraded?'. The results clearly show that more departures were the improvement most experienced (64 per cent), followed by a better standard at the stations (27 per cent), less crowding (26 per cent) and shorter travel time (22 per cent). This means that the passengers appreciated the changes, with higher frequencies and upgrade of stations.

The passengers thus experienced that the bus for metro, and later the reopening of the track, gave various improvements and disadvantages. Overall, however, these had the consequence that commute satisfaction was significantly lower when there was bus for metro (31 per cent very satisfied or satisfied) compared to the situation after the subway had reopened (79 per cent very satisfied or satisfied), see figure S2.

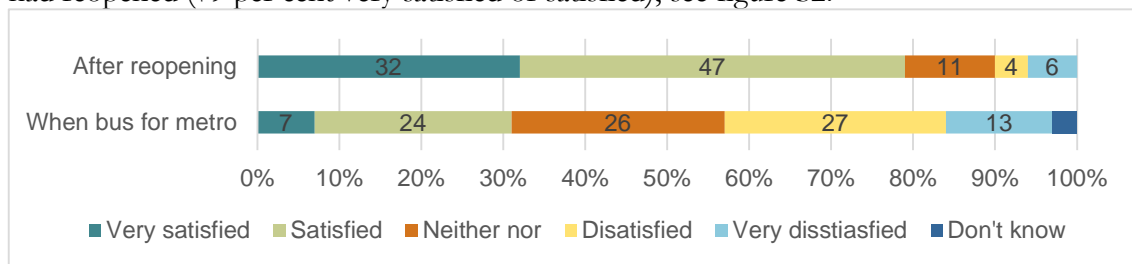


Figure S2: Commute satisfaction among users of the Østensjø line when there was 'bus for metro' (2015) and after the line was reopened with more departures and a higher standard at the stations (2016). Percentages.

We also investigated whether the situation had led to consequences in the form of changes in responsibilities and routines in the household with regard to pick up and bring children, make purchases or who uses a car. In 2015, 33 per cent of the respondents stated that the situation had led to such changes. Among those who stated that they had children in the household, 27 per cent answered that it had led to changes in routines for picking up and delivering children. After the subway was reopened, 17 percent of the respondents stated that this had led to some of the stated types of changes in responsibilities and routines in the household.

We wanted to compare passenger numbers on the metro line in the pre- and post-situation. For several reasons, it was difficult to obtain comparable figures, and we had to give this up. According to Ruter's data, there were just over 70,000 passengers per day on Østensjøbanen.

A clear majority reported that they had received sufficient information about the changes in advance, both when Østensjøbanen was closed and when it was reopened. The most important sources of information were information posters on board and at stops, as well as Ruter's website and the RuterReise app.

The new Løren metro station

The new Løren metro station opened on in April 2016. Løren is a large area in Oslo, which is being developed as an extension of the inner city. In order for Oslo to be able to achieve the goal of reduced car traffic, it is crucial that such areas are served well with competitive public transport services with a high standard and capacity, and it was therefore important to be able to connect this area well to the metro system. Construction of the Løren metro station was part of a major change in the metro system, where the lines through Groruddalen were connected to the Ringbanen. This contributed to greater capacity and

flexibility in the system. At the same time as Løren station was opened, large parts of the Metro system in Oslo were changed, and a number of bus lines were adjusted accordingly.

In surveys among passengers at Løren Metro Station (June 2016), most (80 per cent) stated that they had used other public transport services on similar journeys before Løren Metro Station was opened. 36 per cent stated that they had previously used another metro line or station, and 44 per cent that they had previously used a bus. Eight per cent stated that they drove a car early (as a driver) or were passengers in a car (three per cent), three per cent that they walked, no one that they cycled and seven per cent that it varied.

The passengers stated a number of improvements to their journey as a result of Løren Metro Station opening, especially in terms of travel time, access to a stop, a more comfortable journey and fewer changes. 37 per cent stated that they had had reduced travel time (on average 12 minutes), while 15 per cent stated that they had had longer travel time (on average 15 minutes). 79 per cent stated that they were (very) satisfied with their trips.

Analyses of passenger statistics from Ruter, where weeks 10 and 11 in resp. 2017 and 2018 were compared, showed a large growth in the number of boarding (26 per cent) and disembarking (23 per cent) passengers at Løren metro station. The growth was significantly greater than in the entire metro network, which was seven per cent. Sinsen Metro Station also experienced great growth during this period, at resp. 11 and 14 per cent boarding and disembarking passengers.

In the survey, 29 per cent stated that they were very satisfied with their trip, 46 per cent satisfied, 10 per cent neither or, four per cent dissatisfied and seven per cent very dissatisfied. This result is almost identical to the results of the survey conducted after Østsjøbanen was reopened. We also asked those who travelled from Løren station if the opening of the station had led to changes in responsibilities and routines in the household. Here, 84 per cent answered no, which indicates that it had led to changes for 16 per cent of the respondents.

A clear majority reported that they had received sufficient information about opening the station in advance. The most important sources of information were information at stops and on Ruter's website, and newspaper advertisements and editorial coverage in the media.

Closing of bus line no. 57

At the same time as Løren Metro Station was opened, bus line 57, which had been set up as a feed bus to the Metro stations, was closed. The route took eight minutes between end stops, and it departed every 15 minutes for most of the operating day. Most respondents (58 per cent) stated that they used the metro as a replacement for bus 57, while only eight per cent checked the alternative 'Løren metro station replaced my need for the 57 bus'. Almost 50 per cent stated that they used Løren station several days a week.

The disadvantages of the closure most pointed out were increased travel time, access to stop, and more cumbersome changes. The most frequently mentioned improvements were fewer switches between means of transport and shorter travel time. Satisfaction with the trip was significantly higher in the pre-situation (93 per cent satisfied or very satisfied) compared with the situation after closure (48 per cent). Yet, no more than 22 per cent stated they were dissatisfied or very dissatisfied in the situation immediately after the bus line was closed. As many as 23 per cent answered that the closure of the 57 bus had led to changes in responsibilities and routines in the household, especially doing 'other errands'.

A clear majority reported that they had received sufficient information about the closing of the bus line in advance. The most important sources of information were information on board and at stops