

**Summary:**

# **Passengers' valuation of measures for universal design of public transport**

The benefits arising from measures to improve accessibility of passengers with special needs are not limited to such passenger groups. Low-floor buses which allow for wheelchair access, for example, enable faster and easier boarding and alighting for all passengers. A number of other measures that are primarily designed for passengers with special needs provide benefits and ease of use for all passengers in a similar fashion.

Although few efforts have been made to quantify such benefits, it is obvious that they are important components of any cost benefit analysis (CBA). By enabling the inclusions of such measures into a CBA framework, it is possible to prioritise, rank and compare them with other investments in the transport sector.

We have conducted a study with two main foci. Firstly, we document the impact of public transport measures for universal design on all passengers as well as on passengers with special needs. Included here are the appreciation of such measures, and their effects on patronage. The evidence is based on focus groups and on-board interviews with passengers in three different Norwegian cities where public transport services have been upgraded considerably towards accessibility for all (universal design). We document that measures for universal design are broadly regarded as quality enhancements, and contribute to patronage growth.

Secondly, we quantify and monetise passenger benefits accruing from such measures. These valuations are representative for all passengers, and not only those with special needs. As such, the valuations are readily applicable for cost-benefit analysis. A full scale stated preference survey among passengers in the same three cities has been undertaken. Special care is made to present attributes and their levels in a way that enable respondents to make trade-offs as realistically as possible in the choice experiment, i.a. by extensive use of graphic illustrations. As a final exercise we obtain respondents' willingness to pay for the "package" of full accessibility for all, from door to door, using contingent valuation, and compare this with the sum of values for individual measures.

Our study provides - for the first time in Norway and probably also internationally - a robust set of valuation of measures for improved accessibility for all in public transport.

A summary of recommended values is presented in Table S.1. All values are June 2009-values and in NOK. Average exchange rates in June 2009 were 1 Euro = NOK8.95; 1 GBP = NOK10.45; and 1 USD = NOK6.39. Note that

purchasing power parities (PPP) would be a better measure. PPPs for 2009 are not, however, available at time of writing.

Table S.1: Summary of recommended valuations. NOKs per trip.

Values based on choice experiments	Value
<b>Information at stops</b>	
Local map	0.43
Speaker with info of changes, disruptions	0.69
Screen with real-time information	4.05
All three information devices: map, speaker and RTI	4.62
<b>Information on board</b>	
Next stop via speaker	3.62
Next stop via screen	3.67
Both: next stop via speaker and screen	4.20
<b>Improved boarding and alighting</b>	
Low-floor vehicle	1.67
Low-floor vehicle and adjusted (elevated) curb at the stop	2.07
<b>Shelter at stops</b>	
Shelter without seating	3.12
Shelter with seating	5.10
<b>Cleaning and ice/snow removal at stops</b>	
Satisfactory cleaning	3.62
Satisfactory snow and ice removal	4.97
<b>Values based on contingent valuation</b>	
Light at stops	2.82
End to end trip universally designed	3.83
Stops and vehicle universally designed	4.35

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Annex 5 to this report is written in English and documents stated preference design and analysis.