

The PRT Project

Phase 1 Design & Engineering

Design for PRT

Design of vehicles, stations and guideways for the PRT at Fornebu.



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CONTENTS

1 SUMMARY 3

2 VEHICLES 4

3 STATIONS 6

4 GUIDEWAYS 11

1 Summary

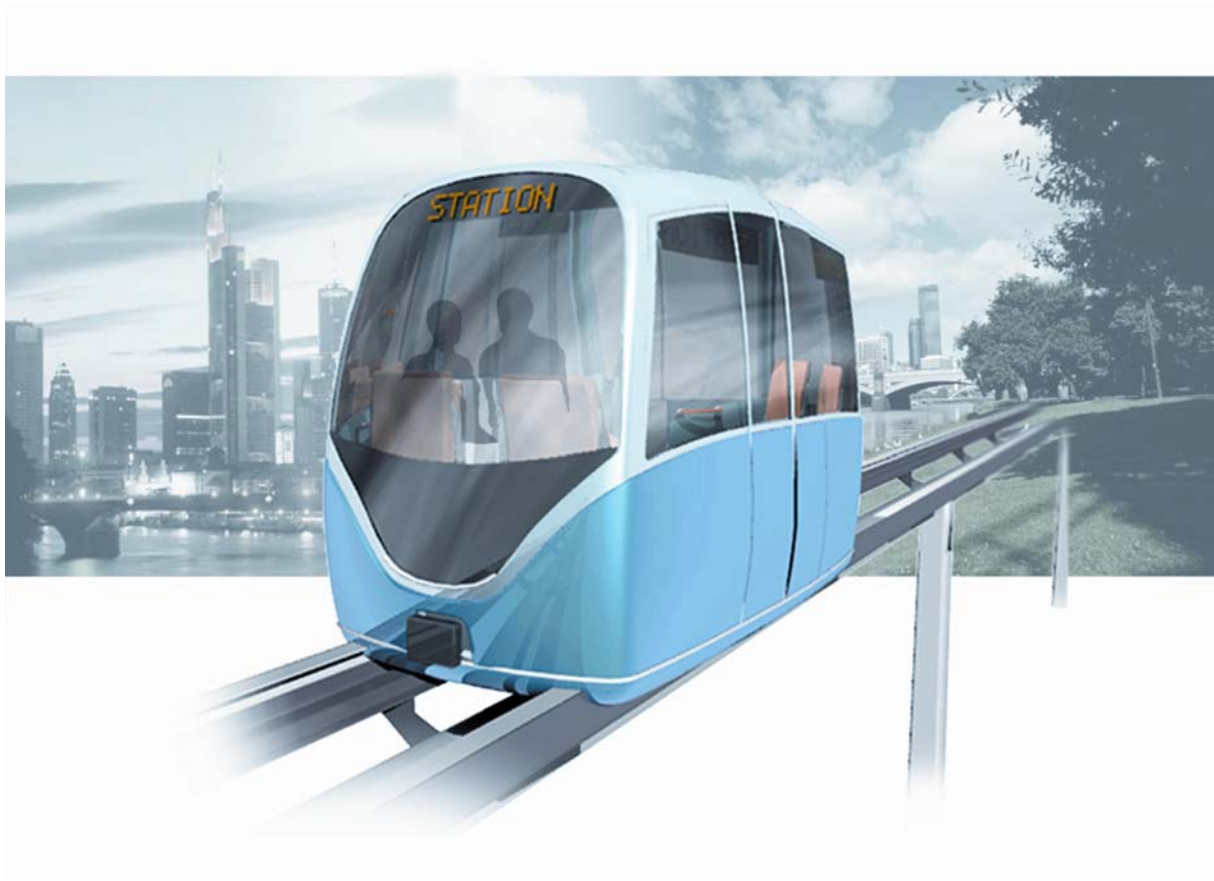
This report presents design sketches for the planned FlyBy project at Fornebu. The report presents suggested impressions and looks of vehicles, stations and guideway for the PRT.

The designs are artists' impressions made by industrial designers, and are not based on construction drawings nor calculations.

Sources for the work are:

- Industrial designers from Kitron Development AS (vehicles, stations and guideway)
- Industrial design students from the Polytechnic University of Trondheim (stations & payment system, presented separately)
- Industrial design diploma student Marcus Furuholmen, intern at Fuore International, Barcelona, Spain (not ready until May 2003)

Some of the models are made in 3D, and are used in animations as well as a physical model.

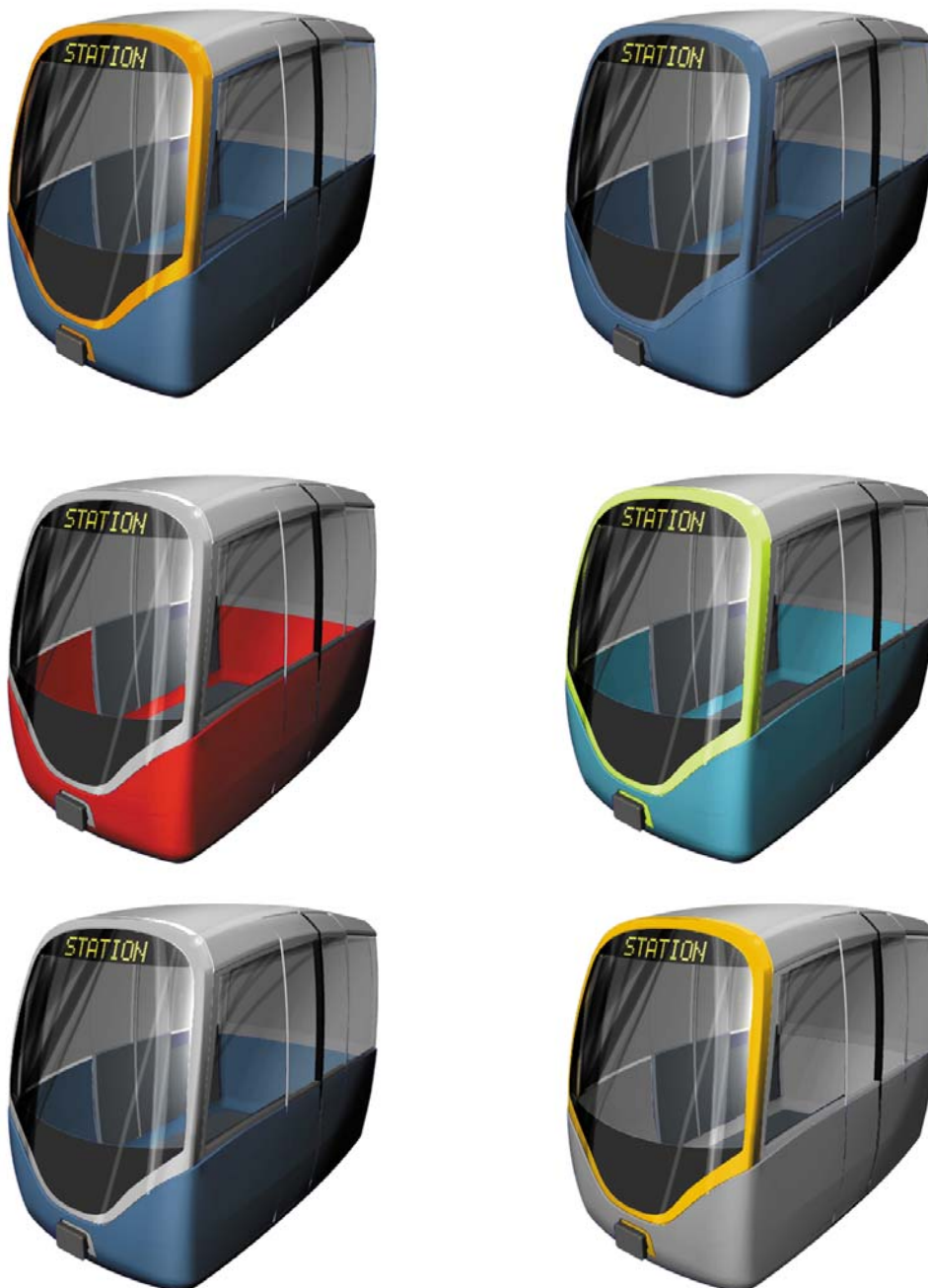


Vehicle on guideway in steel with beam in steel or pre-stressed concrete.

2 Vehicles

Vehicles are designed with cabins to be produced from a combination of metal frames and rotation moulded polyethylene - if regulations permit. Production as well as full life cycle of material is very environmental friendly, and economic even in small series. Production facilities for rotation moulding exist “everywhere”, so mould is moved, not vehicles. Assembly of vehicles may thus take place close to site, which is a political as well as an environmental advantage to long distance transportation of vehicles from central factory.

Assembly of vehicles should take place in “The Virtual PRT Factory” – an easy to transport assembly line that is moved to the site to avoid bulky transport.



Pictures present vehicles with various “skins”.



Vehicle interior – with room for wheelchair or Euro pallet



Vehicle interior – with air conditioning system

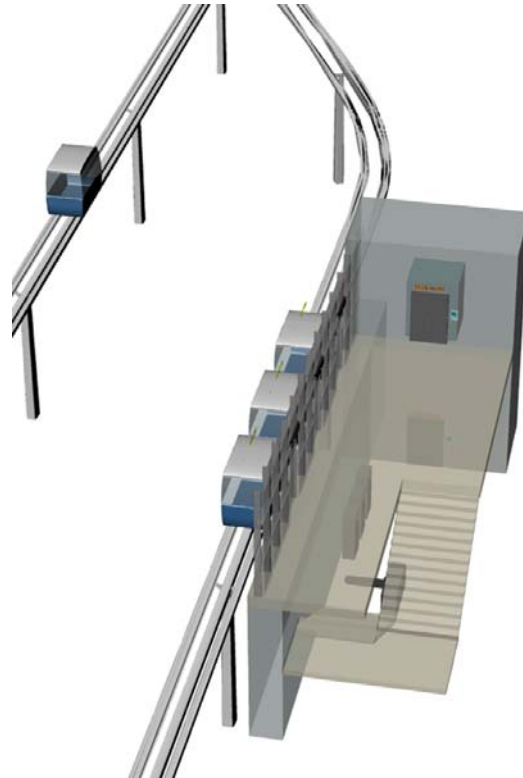
3 Stations

Stations must be designed for low wait times and high through put, according to the expected traffic loads at the station in question. Standard stations should be modularised, and expandable. A standard station will be short relative to subway or train stations, but placed at a sidetrack of substantial length.

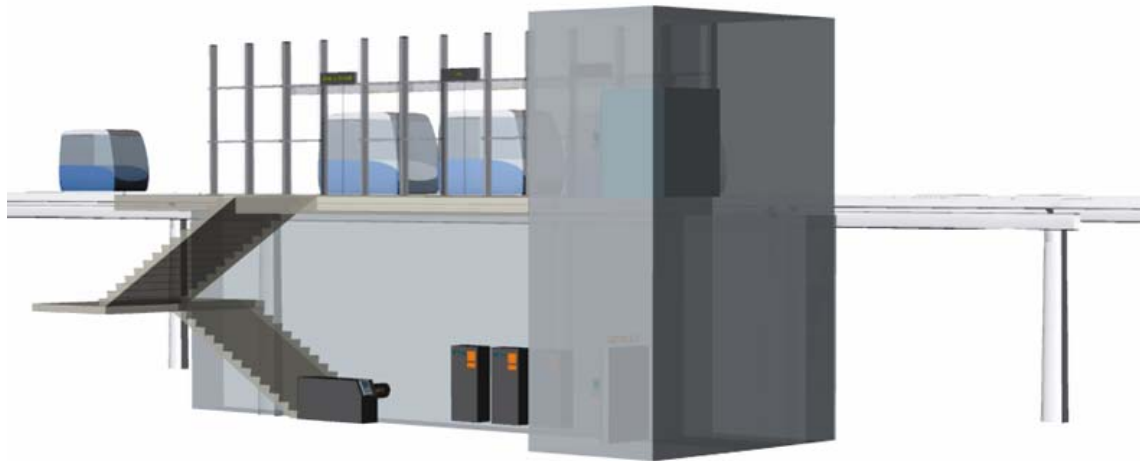
Stations are unmanned and above grade, which make them subject to specific safety requirements, like glass shields towards the tracks, and slide doors towards the vehicles. Stations must have admission control integrated with the ticketing system and the fleet management system. They must also provide for easy access for disabled persons.



Low capacity station: ticketing, admission control, elevator and stairs. Glass wall with sliding doors towards track



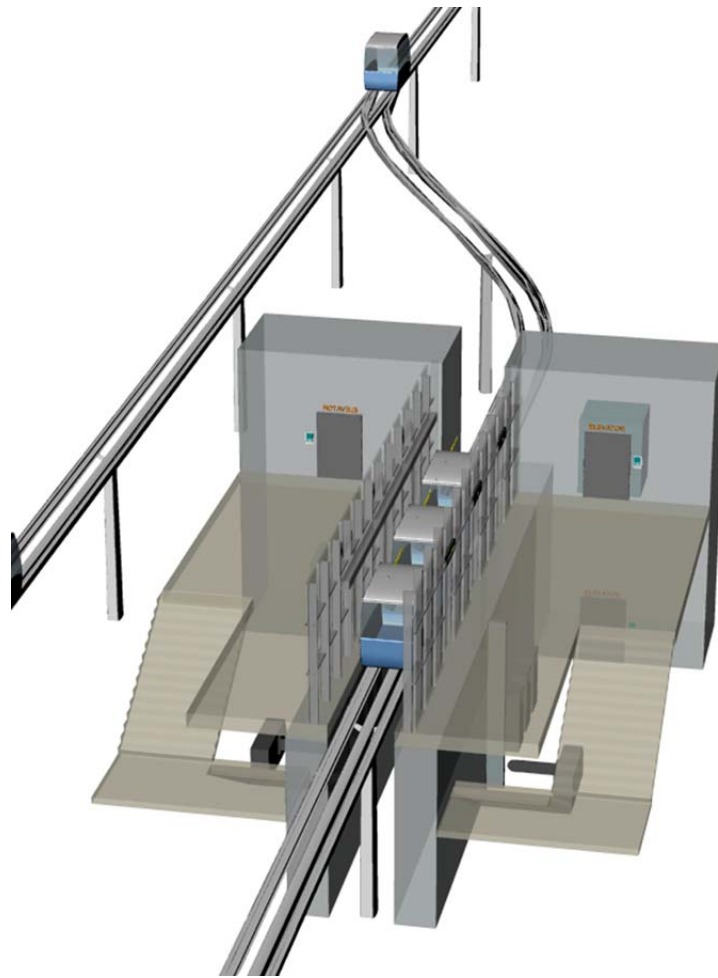
Bird's eye view on station



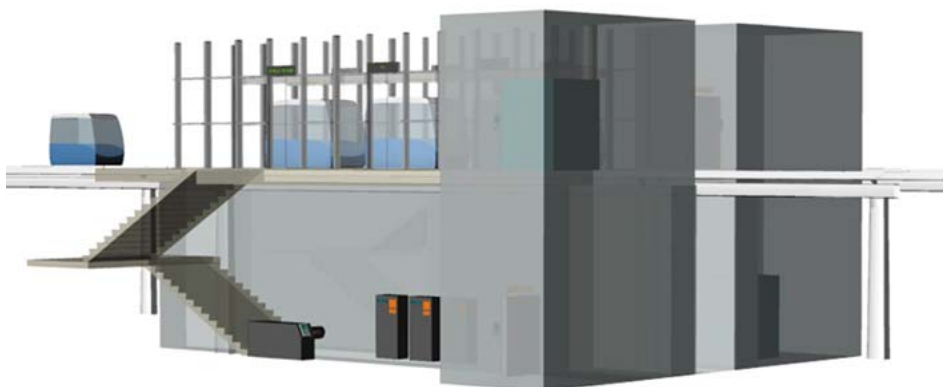
Low capacity station: embarking and disembarking from same side



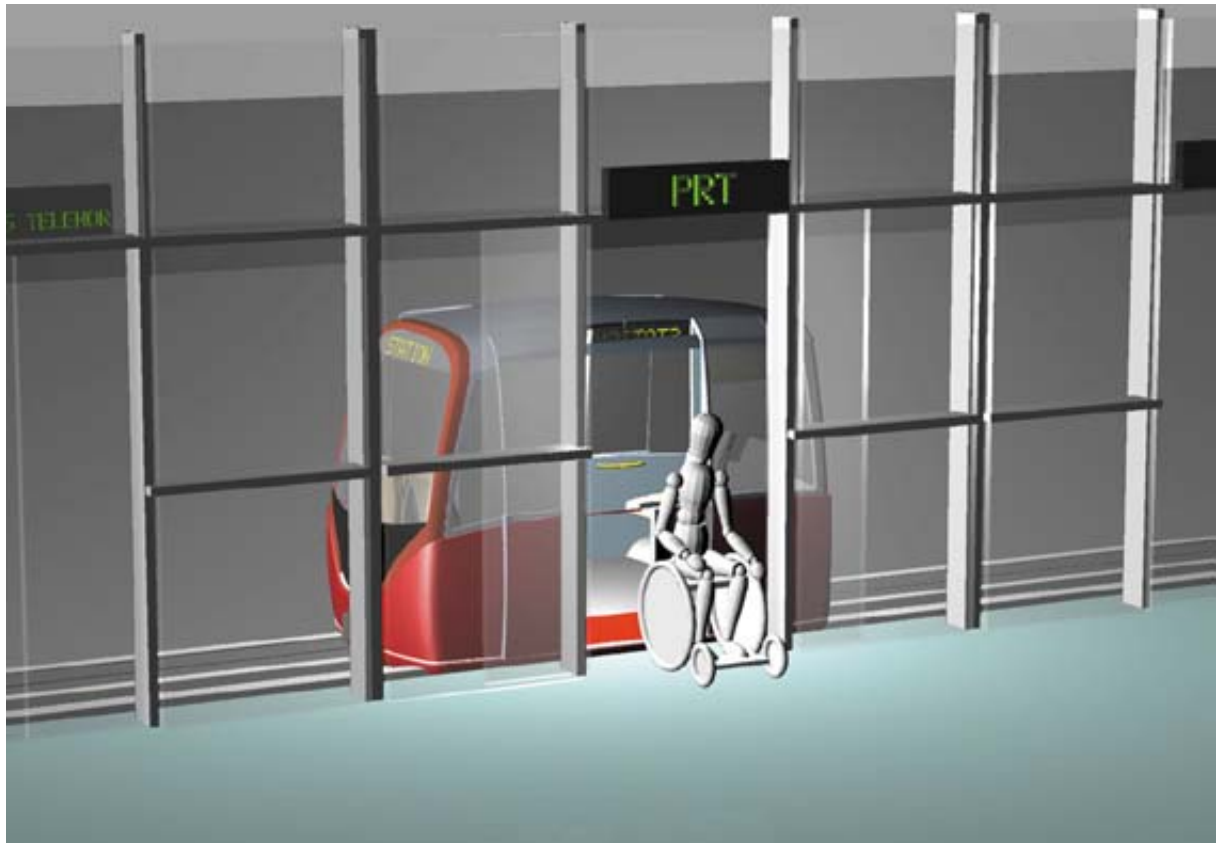
Low capacity station: embarking and disembarking from same side



High capacity station: embarking and disembarking from different sides



High capacity station: external view



Easy access for wheel chair users

4 Guideways

Guideways should be designed to be aesthetically attractive, as well as to cater for:

- Low weight, to be mounted on building walls
- Low visibility, i.e. have low visual intrusion
- Little noise
- Appropriate strength
- Low maintenance costs
- Long spans, to reduce costs and create few hindrances from guideway at grade

Most probable materials for beams are:

- Steel beam or truss
- Pre-stressed concrete beam
- Laminated wood beam or truss
- Carbon fibre beam

Guideways could be part of any artistic structure, like this bridge designed by Calatrava:



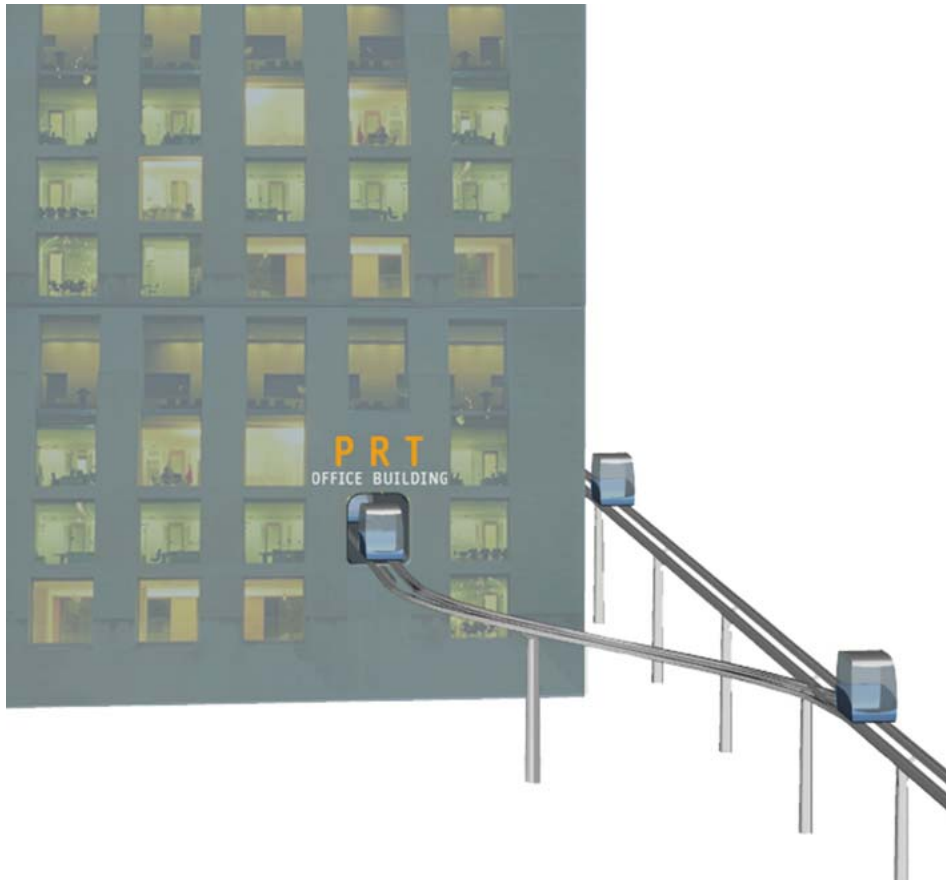
Or be supported by laminated wood structures, like this bridge built according to Leonardo da Vinci's drawings, built outside Oslo:





Vehicle on guideway – artist's impression





Station inside a building



Designed for 24 hours service