

VDL Futura FDD2 Intercity Public Transport





European intercity market with VDL Bus & Coach

At VDL Bus & Coach we have a clear vision of the future and we are constantly on the move to anticipate emerging trends.

Since 2013 the intercity coach market has experienced a metamorphosis at a European level. Since then, some of the most powerful economies in Europe decided to liberalize their long distance intercity coach lines, keeping the regional intercity market under the Public Transport authorities umbrella.

Together with this evolution, the Public Transport priorities have changed their priorities towards CO₂ reduction and passenger comfort, leading to subventions for CO₂ emissions by passenger and retributions for number of passengers instead of for km travelled.

On this regard, VDL has identified the FDD2 as the optimal vehicle for Public Transport intercity lines due to its large passenger capacity and its low fuel consumption.

The Futura Product Improvement Team has been focusing on developing the most desired features for this sort of operation: passenger flow, infotainment, interior luggage space, driving and handling and Reduced Mobility Passengers' solutions (RMP).

We never stop moving and are driven to make a difference for our customers, passengers and drivers every day. We make tomorrow's difference today.



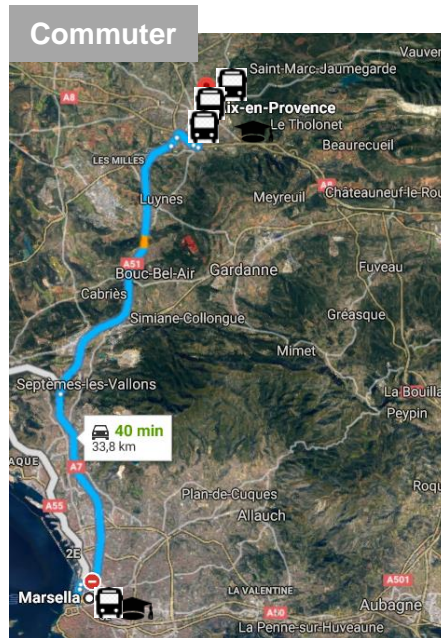
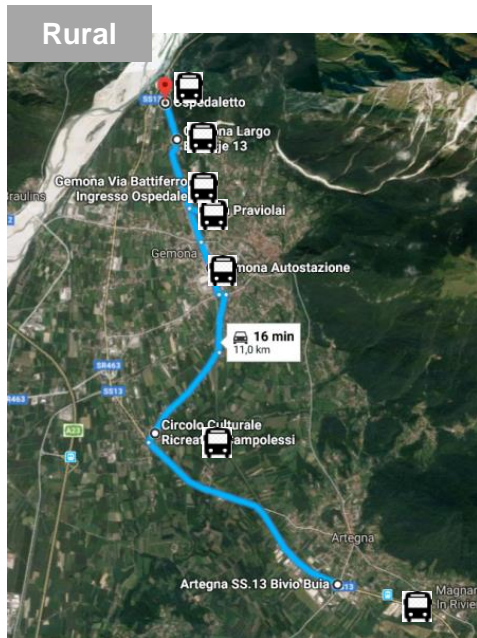
FDD2, the regional intercity vehicle

The FDD2 in its Public Transport execution is the most suitable vehicle for commuter and rural area lines.

The Futura double decker is in essence the most efficient, comfortable and environmentally friendly vehicle for this type of lines. Powerful engines and efficient drivelines combined with innovative lightweight construction, positions the FDD2 as the solution for intercity regional lines.

In addition, VDL Bus & Coach policy based on tailor-made solutions led us to develop every desired feature for our customers in the public sector.

Welcome to the FDD2 PT journey.

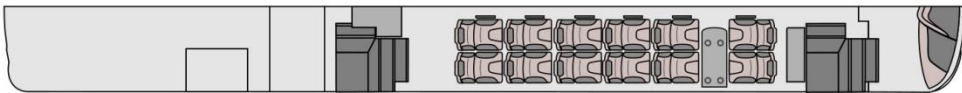
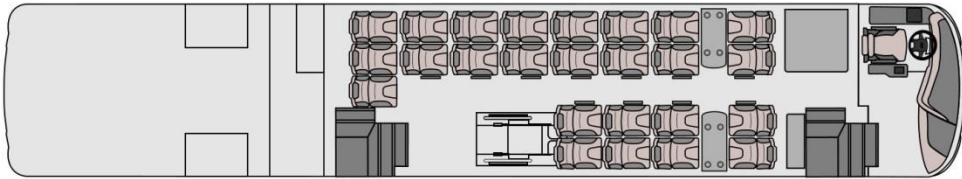
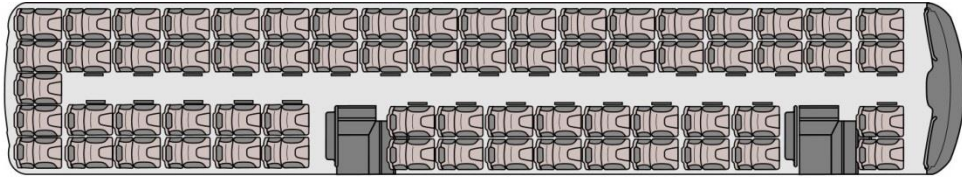


Lowest CO2 by passenger

Maximum passenger comfort

Desired intercity PT features

FDD2 PT use cases



The FDD2 is the lightest double decker in the market
Due to its innovative modular construction.

The roof and the middle floor are made of sandwich panels
Which reduces the weight in favour of maximum capacity.

The lightweight of the vehicle also contributes to turn the FDD2 into the most fuel efficient double decker coach

Maximum seat capacity

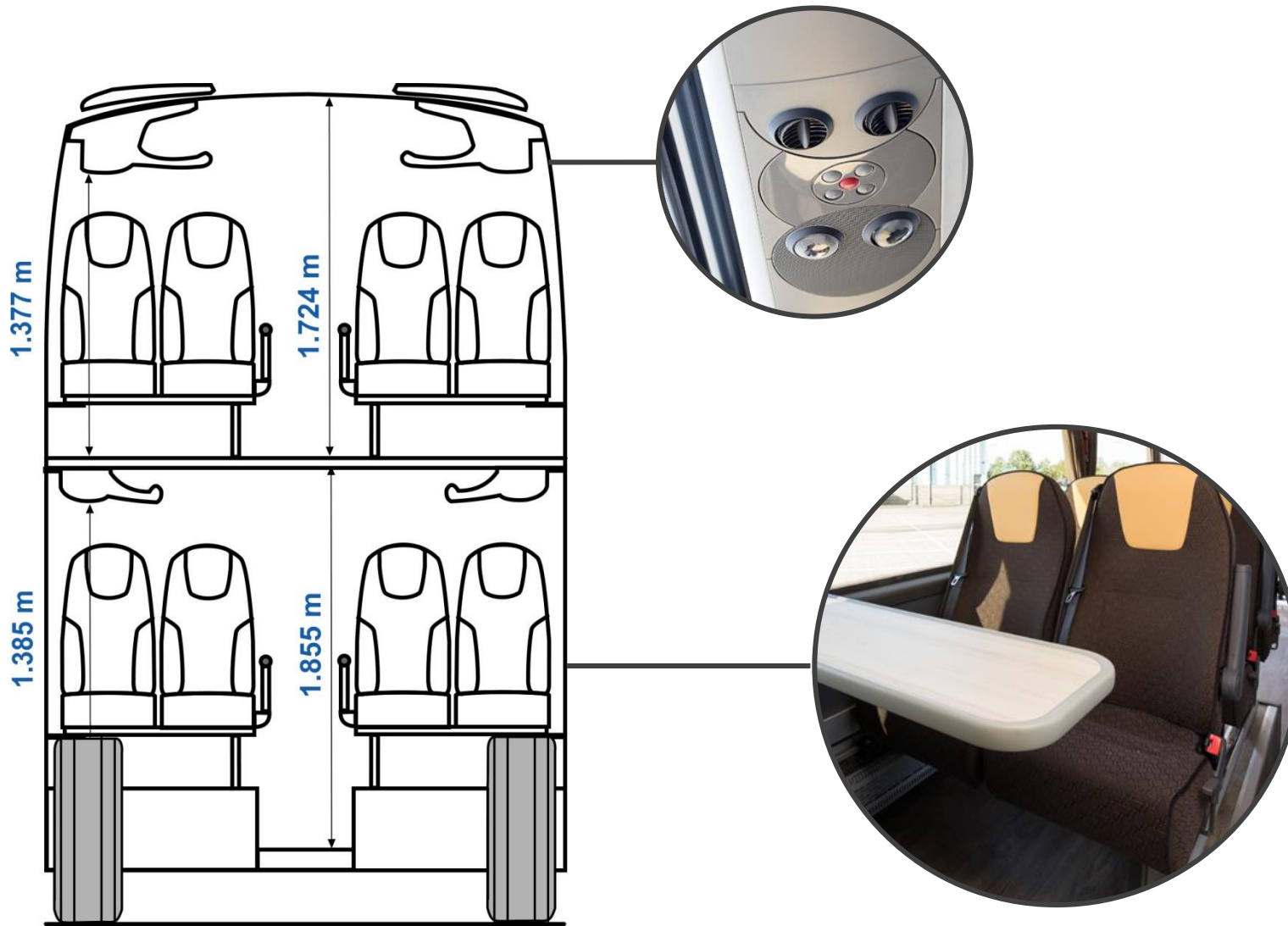
FDD2 141: 96 / 92 + 1 + wheelchair

FDD2 130: 78 + 1 + wheelchair + 11 standees

Lowest consumption

Up to 5% reduction with the new driveline: less than 27 l / 100 km.





Best in class standing heights all along both floors

Comfortable seats

VDL Class range seats.
Possibility of corporate upholstery.

Vis-à-vis tables

2 different table widths. Possibility of cup holders.

Fully equipped PSU's

With stop buttons, ventilation and reading lights.

The FDD2 meets every regional intercity lines' request

Commuter and rural lines are usually busy expeditions specially during rush hours.

The relatively short distance of these lines, their high frequency and their Public Transport nature demand specific features.

Passenger flow, infotainment, interior luggage space, driving and handling, Reduced Mobility Passengers (RMP) and Public Transport solutions are the main qualities of the FDD2.

Passenger flow

RMP solutions

Infotainment

PT solutions

Luggage space

Driving and handling



Passenger flow

Regional intercity lines are high passenger flow routes. VDL has developed solutions for easy entrance and exit and regarding the mobility inside the vehicle.

Complete flat floor on the lower deck

Passenger transit along both decks.

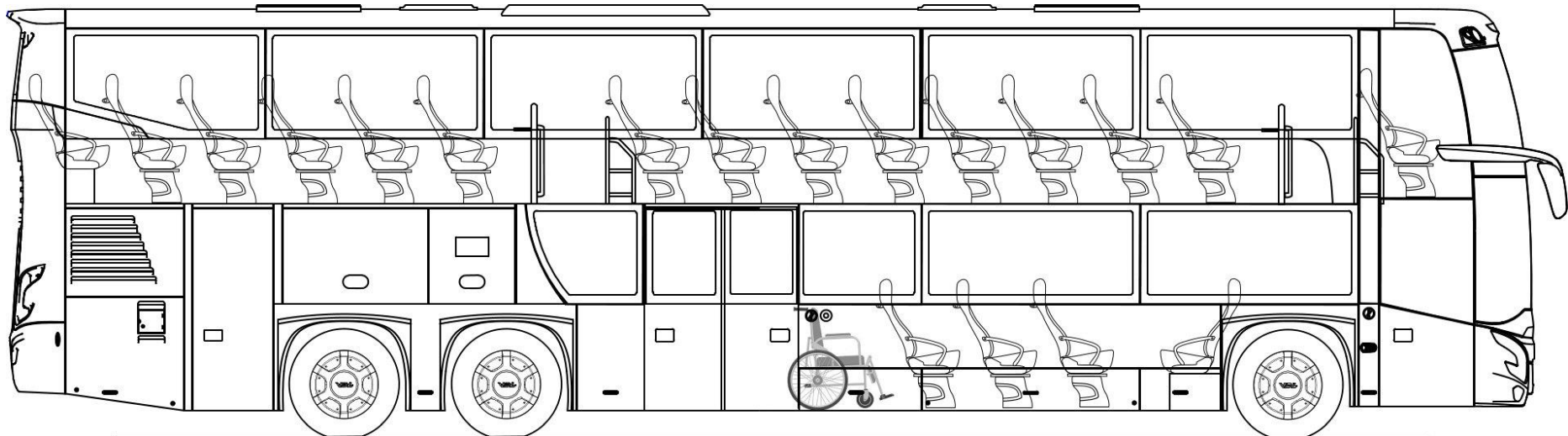
Possibility of more than 2 priority seats.

Easier flow for passengers with a wheelchair.

Double door

Easy hop on hop off.

Desired feature for vehicles executed for standees.





Infotainment

Commuter lines usually connect work or study centers. In this case infotainment solutions are highly appreciated by passengers.

USB charging ports

On the back of the seats or in the sidewall.

220 V sockets on the side wall

Tip up tables with tablet / smart phone slot

Interior route information

Via monitors and route panels.

Wi-Fi preparation and installation



Luggage storage

Commuter and rural lines are short distance intercity lines
> 20 km < 100 km.

Therefore besides the exterior luggage compartment, interior storage is one of the most desired characteristics.

9.6 m³ exterior luggage compartment

Easy to access.

Low loading height.

Luggage racks on both floors

Optional lockable luggage racks.

Bigger luggage racks due to flat floors.

Luggage compartment in the interior

Driving and handling

Visibility and driving and handling are very important for the driver, one of the most decisive stakeholders within public transport operators

FDD2, the best visibility of the market

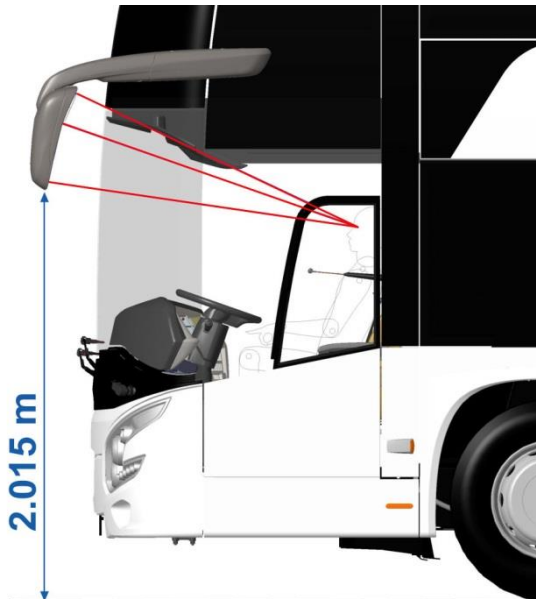
Driver's upward viewing angle has been improved by sloping the floor of the upper deck upwards at the windscreen.

Foldable mirrors

Placed at a safe distance from the road level.

Ergonomic and spacious drivers' cabin

Multiple storage compartments.



Fully automatic gearbox available

Optimal gear change ratio, smooth driving and more durable for regional operation.

Powerful engines

DAF MX-11 330 kW 450 hp / 2,300 Nm i.c.w ZF Ecolife, fully automatic gearbox.

DAF MX-13 390 kW 530 hp / 2,600 Nm i.c.w ZF Traxon, automated gearbox.

Driving systems

Autonomous Emergency Braking System (AEBS)

Adaptive Cruise Control (ACC)

Driver Drowsiness Detection System (DDDS)

Predictive Power Control (PPC)



Intercity Public Transport features

Flexibility is one of the values of VDL Bus & Coach.

The FDD2 can be equipped with security systems, track and trace and payment devices from third parties.

Surveillance cameras

Preparation and installation.

Paying systems

Preparation and installation.

Exterior route information panels

Additional stop buttons

In addition of the PSU's ones.

Fleet Management System

Preparation.





Reduced Mobility Passengers (RMP) solutions

A wheelchair place and at least 2 priority seats are mandatory in European Public Transport lines.

The FDD2 goes further beyond standard RMP solutions focusing on comfort and flow of all passengers.

Wide door

Single blade door 1.075 m width.

Double door

Double blade door 1.200 m width.

Folding ramp

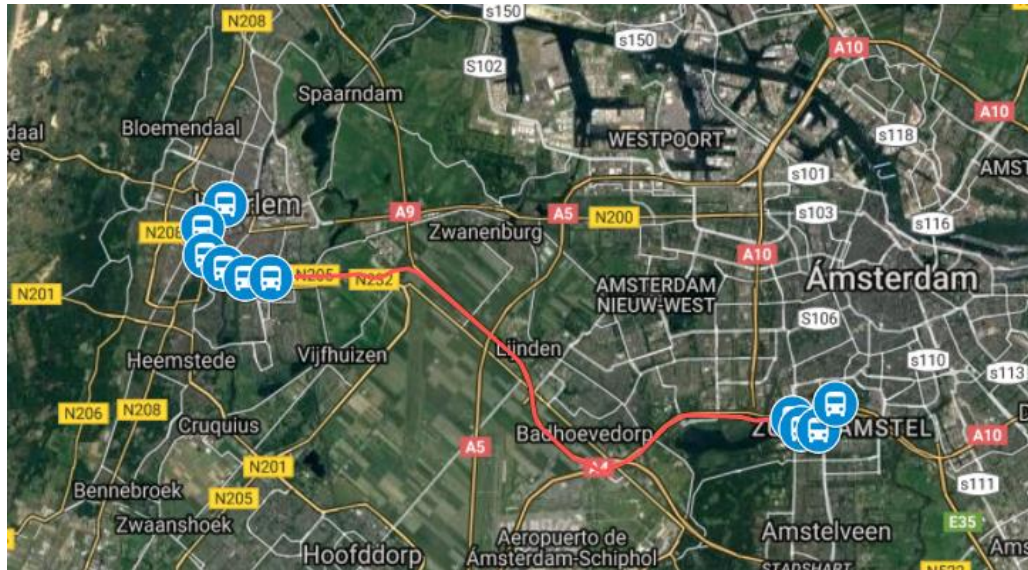
Priority seats

Possibility of half or complete flat floor for more than 2 priority seats.

RMP places

Equipped with handgrips and additional stop buttons.

USE CASE 1



RNET Transdev - CONNEXXION

Line known as commuter

One of the stops is a hospital, more than 2 priority seats were needed.

Vehicle allowed to drive up until 100 km/h

18 vehicles delivered

Half of the floor is flat to ensure passenger flow for 1 wheelchair and 6 priority seats

Seats

- 86 VDL + wheelchair spot + driver
- 6 priority seats
- Wide center door: 1.075 m (construction) / 0.94 m net door space
- Class 90 seats with RNET corporate upholstery

Commuter line features

- Destination displays
- Route information via monitors
- Additional interior luggage space in front of priority seats
- Stop buttons reachable by all passengers
- Visible handgrips for priority seats, wheelchair and exit gangway
- Synchronized interior LED lamps over both access doors
- Luggage racks
- Fleet Management System preparation
- Coat hanger
- Wi-Fi
- USB
- 220 V sockets

Public Transport features

- Fleet Management System
- Preparation for payment table and payment devices
- Passengers' counter
- Visible handgrips for priority seats, wheelchair and exit gangway
- Security cameras
- Emergency switch connected to operators



USE CASE 2



RDT13 / Aix en Marseille Metropole

Line known as commuter

Connecting 2 university campuses.

Vehicle allowed to drive up until 100 km/h

10 vehicles delivered

Seats

- 92 VDL Class 90 seats + wheelchair
- 2 priority seats
- Wide centre door: 1.075 m

Commuter line features

- Stop buttons reachable by all passengers
- Destination displays
- Interior illuminated signs
- Luggage racks
- Interior storage cabinet with 2 doors behind the driver
- Wi-Fi preparation
- USB's on the side walls
- Tip-up table on the back of the seats
- 2 vis-à-vis tables
- Storage space in the drivers' cabin
- Track and trace preparation

Public Transport features:

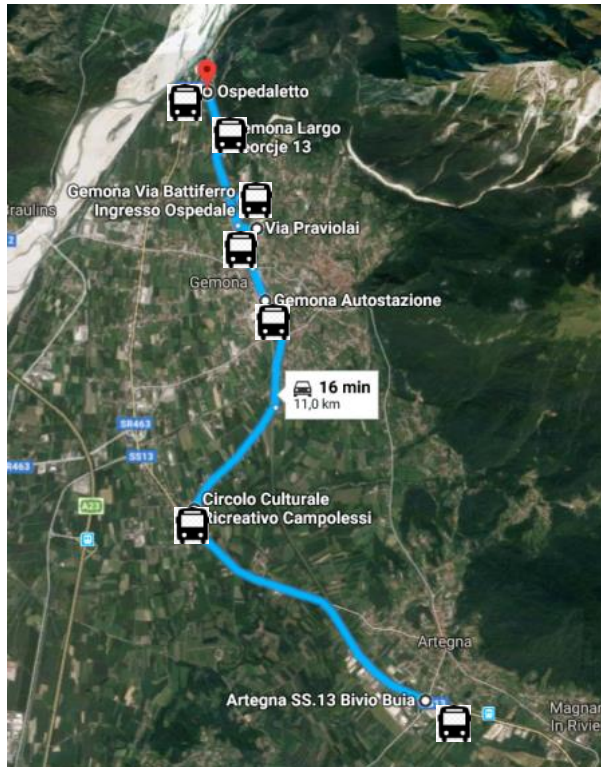
- Security cameras
- Anti-slip floor
- Interior sidewalls covered with plastic panels
- Preparation for payment table and payment devices

Other features

- Extra mirrors on the driver's side
- Start-stop
- Tyre pressure indicator in the drivers' cabin
- GPS clock



USE CASE 3



SAF UDINE / Arriva Group

Connects remote rural areas

Roads limited to 80 km/h, prepared for standees

13 m total length for easier manoeuvrability

5 vehicles delivered

Driveline

- Engine: DAF MX-11 330 kW / 450 hp

Seats

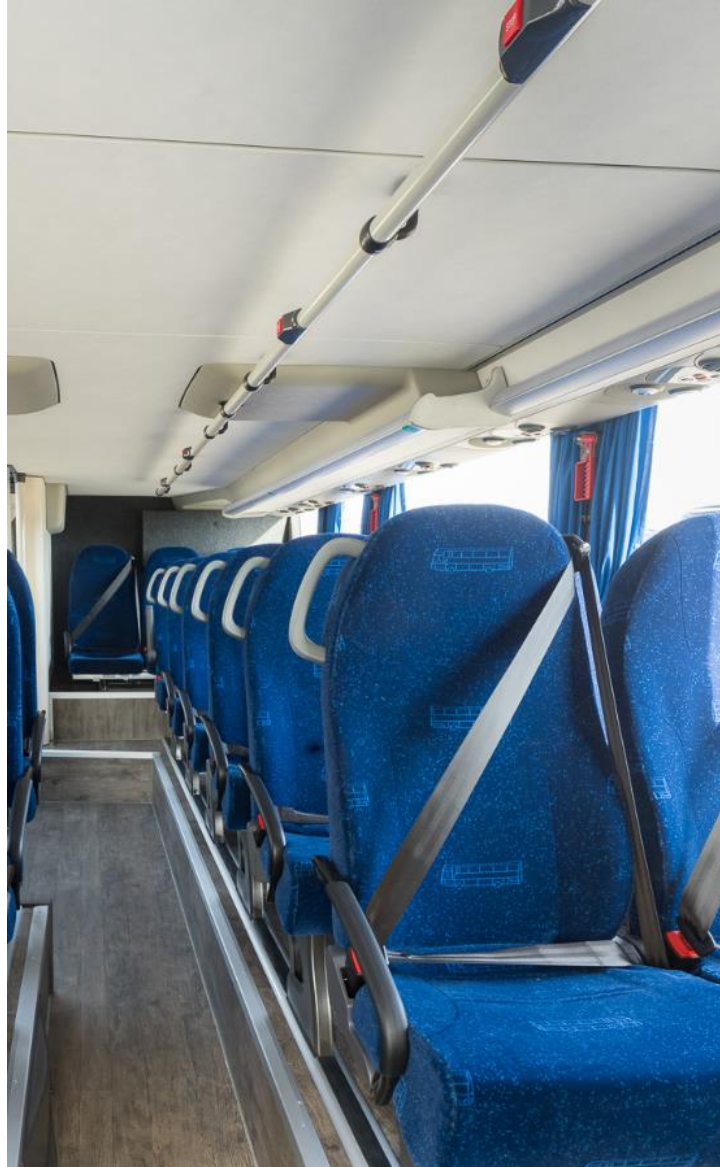
- 80 VDL Class 90 seats + wheelchair
- 19 standees
- 2 priority seats
- Wide centre door: 1.075 m

Regional rural intercity features

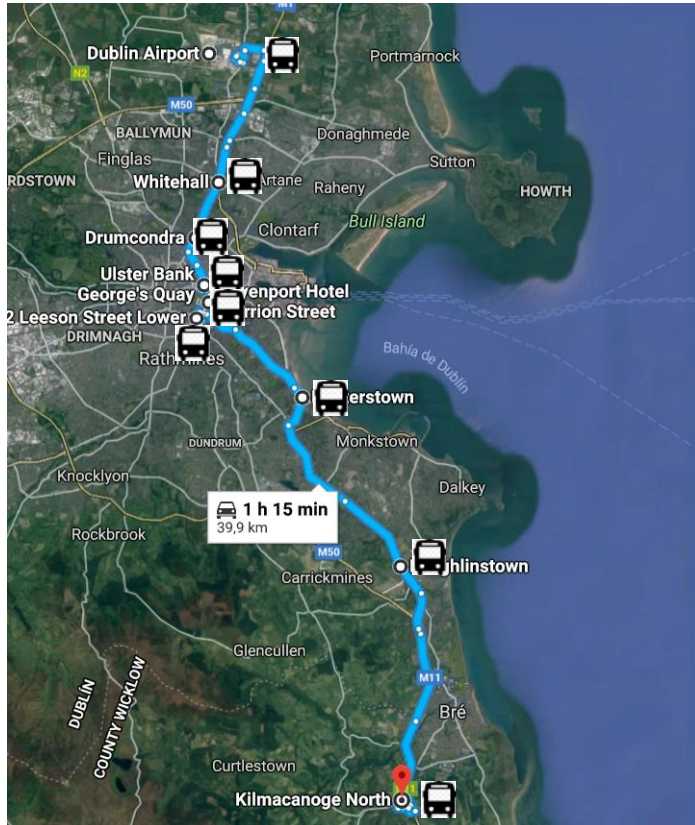
- Stop buttons reachable by all passengers
- Destination displays
- Preparation for payment table and payment devices
- Handgrips for standing places
- Anti-slip floor
- Interior sidewalls covered with plastic panels
- Luggage racks
- Security cameras:
 - On the front and back of the upper deck
 - Over the middle door looking at the stairs of the lower deck
- Interior storage cabinet with 2 doors behind the driver
- Storage space in the drivers' cabin
- Coat hanger
- Wi-Fi preparation

Other features:

- Tree guards
- Anti-theft fuel system



USE CASE 4



Bus Éireann

Combination between commuter and city to airport line

Vehicle allowed to drive up until 100 km/h

25 vehicles delivered

Right Hand Driving (RHD)

Seats

- 82 VDL Class 300 seats + replaceable wheelchair
- 2 priority seats
- Wide centre door: 1.075 m

Commuter line features

- PSU with stop buttons
- Destination displays
- Route information via monitors
- Luggage racks
- Additional interior luggage space in front of the central door
- Wi-Fi preparation
- USB's on the side walls
- 2 vis-à-vis tables
- Fleet management System preparation and installation

Public Transportation features

- Security cameras
- Interior sidewalls covered with plastic panels
- Installation for payment table and payment devices
- Staircase behind the driver
- Decency screen on the driver's side
- Emergency engine stop
- Low bridge warning

Other features

- Anti-theft fuel system
- Extra mirrors on the driver side
- Automatic luggage flaps
- Tree guards
- GPS clock



