One proud and important aspect of the new Dortmund is the extensive network created by our Stadtbahn, Dortmund’s own Metro, which now acts as the backbone of our public transport system. Its gradual expansion since 1969 has set impressive standards and infused our city with a new quality of life.

None of this would have been possible without the combined efforts of the Stadtbahn experts at the Department of Planning, Urban Development & Infrastructure who have driven this futuristic project forward with great professionalism and great enthusiasm. I would like to take this opportunity of expressing my gratitude and my recognition of their achievements. The same goes to DSW21 – our Public Transport Authority – whose officers and workforce ensure that the systems entrusted to them by the City of Dortmund are kept up and running.

In doing so, they provide an attractive transport service that meets the needs of the daily passengers — not least for visitors to our city such as yourselves.

Dr Gerhard Langemeyer
Mayor of Dortmund

Welcome to Dortmund, a city on the move

Dortmund: On the Right Track into the Future
Dortmund: On the Right Track into the Future

A city for people needs transport facilities for people. A principle Dortmund recognised very early on. The starting signal for the construction of the Dortmund Metro was given in autumn 1969. Since then, the motto Of the Right Track into the Future has indicated which direction the expansion of public transport service should go in. From the very beginning, the idea was one of a public transport system running as unimpededly as possible. This was to be a service that enables people to travel about the city unhindered and conveniently. What was envisaged was a public transport system running as unimpededly as possible. In the built-up downtown part of the city, it travels underground but otherwise travels on its own overground. It very much draws on the advantages of the traditional underground. Efficient, fast and safe, it also permits a flexible and gradual system proceeding from the city tram.

And so the inner-city tracks were given their own tunnels in order to get away from the road traffic and create connections that were more direct and more speedy. Bus routes were coordinated with those of the underground and tram. The suburbs were integrated into the public transport network chiefly by overground track. By April 2008, the final inner city network was operating and had reached full capability.

With the city centre as the hub, the triangular structure of the municipal rail system makes for fast connections to the suburbs and the district centres. The three downtown interchange stations of Stadtgarten, Kampstrasse and Reinoldikirche ensure that, in the city centre, passengers only have to change once at the most – quickly, conveniently and safe from unpleasant weather – as they travel to any endpoint or any destination on the network.

At the same time, from the angles of urban development and public transport, the way was made free (i) for a re-alignment of the Hellweg axis to the west and east of the Wallring orbital and (ii) for the construction of the Neues Westentor at the Dortmund U, a designated arts centre, and of the city centre boulevard made up of Kampstrasse and Brüderweg.
Today, the Dortmund rail network has reached a length of 75 kilometres. Seventy-five kilometres of efficiency, convenience and congestion-free travel for the users of Dortmund city transport. By 2007, with grant-aid from the state of North Rhine-Westphalia and the federal government, the City of Dortmund had invested a total of 1.3 billion in the construction of a metro system with integrated infrastructure.

As the city transport operator, DSW21 sees the Stadtbahn as the key to general improvement in the public transport network.

Since 2002, modern high-floor metrorail carriages (B-carriages) have run on all the north-south sections. April 2008 saw the introduction of the new semi-low-floor metrorail carriages (NGT8s) on the east-west- and the Borsigplatz section, thus creating the right conditions for barrier-free access at all the stations and stopping points.

In Dortmund itself, die Stadtbahn is popularly known as die U-Bahn — i.e. Metro or “tube”. A not entirely accurate designation. Only a good third (20.5 km) goes underground; most of the track (54.5 km) is on the surface. With a few exceptions, the overground section is not impeded by other traffic, which makes for greater safety and smoother operations — essential features if the local citizens are to find the transport service attractive and convenient.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of passengers a year in millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>107</td>
</tr>
<tr>
<td>2001</td>
<td>111</td>
</tr>
<tr>
<td>2007</td>
<td>130</td>
</tr>
</tbody>
</table>
A big boost for a distinctive city centre

The far-sighted Metro strategy continues to open up new possibilities for the structural evolution and redevelopment of today’s Dortmund. This is especially noticeable in the city centre...

- Projects that transform the function and the structure of the town as a whole, private investments in particular, are being encouraged and integrated.
- Roads and squares can be redesigned and reconnected and historical buildings, churches and public spaces can take on new prominence.
- There is more room for new green spaces, artistic objects and fountains.

Many and varied opportunities for play, going for a stroll and staging events are the outcome. The attractiveness of a city centre with all the best connections has increased enormously. The restyling of the city centre on the basis of the inner-city policy adopted by the City Council would not otherwise have been conceivable. It was this that made the reconstruction of many parts of town possible. At the beginning of 1985, traffic density on the then north-south axis of Kleppingstrasse to Kuckelke was as high as that of an urban motorway.

Once the through traffic had been banished from the city centre – and rerouted around the Wallring (the inner orbital) – the way was free for an inner-city pedestrians-only boulevard with alfresco cafes and restaurants. A scene without which the cityscape would be unimaginable today. While the Metro chauffeurs its passengers beneath the city centre, downtown Dortmund – now on reclaimed traffic-free territory – beckons with a mix of Mediterranean flair, places to linger and numerous events.

Meanwhile, managers at the large insurance companies, cultural facilities and retail stores (to name but a few) are discovering the city centre’s potential for business. An area which includes St Reinholdi’s Square, Friedensplatz (“Peace Square”), the City Hall, the City Gardens, the Königswall and the Central Railway Station Forecourt as well as the Hansaplatz, the combined Westenhellweg & Ostenhellweg main shopping precinct and, last but not least, the Kampstrasse/Brüderweg boulevard.

None of this redevelopment in Dortmund could have taken place without the construction of the Metro acting as the locomotive!
As the new Dortmund Metro expanded, new centres in the urban districts were to emerge. The individualised appearances of the stations and/or stopping points also drew attention to the suburbs.

**Eye-catching interchanges**

A true public transport network. At the most important interchange points in Dortmund, the Metro trains are designed to hook up to adjacent bus routes and local trains (die S-Bahn). The significance of each station is highlighted by special individual architecture.

On the surface, the location-led ideas of the architects and designers unfold their effect at the overground stopping points in the various districts. The slightly diagonal roof supports and lamp poles of the stopping points on the Hombruch line symbolise the mobility and dynamism of the Dortmund Metro. In Eving, the unitary design of the stopping points with their wavelike curved roofs elegantly reflects the different road gradients.
Thanks to the attractive architecture of the overground stopping points or platforms and, similarly, to the individual design of the underground stations, the Dortmund Metro is helping to improve the cityscape all round. Designed by a number of different architects, the structures make the face of Dortmund an imposing and unforgettable one. They turn the Metro stations and stopping points into top addresses. Indeed, the stations at Westfalenhallen, Stadtgarten, Reinoldikirche and Westentor (Westphalia Halls, City Gardens, St Reinholdi’s Church and Westgate respectively) are distinctive municipal features in their own right.

Each underground station in Dortmund has its own design and inimitable theme. Passengers in the east end of Dortmund know exactly where they are at any given time, since the designs of the stations along the east–west tunnel section thematise specific historical landmarks from Dortmund’s past. Ostentor Station, for example, recalls the city gates of medieval times. Lots of people are aware of the rebuilt Adlerturm in the Dortmund city centre. But who knows what the gateways of Schlangenturm, Schwanenturm, Hallenturm and Kuckelknot once looked like? No matter, the depictions along the inviting, brightly lit platforms at Ostentor Station reveal all. And not just to everyday passengers but to people who’ve signed up for a guided tour of the city.

The design of the Reinoldikirche Interchange Station, with its circular concourse, is based on the nearby church of the same name. Bright-coloured natural stone of different kinds was chosen as the flooring at all levels whereas the walls, made of a similar natural stone material, are reminiscent of the sandstone used in the original church building. Set in the walls are enamel panels that “shine” with artistic variations on motifs taken from St Reinholdi’s Church. And the central pylon above the station’s spiral staircase is itself a landmark, the base stretching down to the lowest railway level.
The concourse and subsurface level at Kampstrasse Interchange were commissioned in 1984. A further deep-level was co-built at the same time but only as a shell — to be woken from its “Sleeping Beauty” status 30 years later and converted for the east-west tunnel. Designed by the same architects and artists, the two platforms are different. However, if the top level is remarkable for its warm red brickwork with green metal inlays, the lower level has a more clear-cut scheme …

Set in cool light natural stone, the artistic design of the platform outer walls relates to the nearby City & State Library and the theme of new media. A concept shown by means of the library's silhouette for the structure enclosing the media section. Collages comprising letters of the alphabet symbolise the printing industry while stylised switch symbols represent the electronic media available in the library. To create other contrasts, the pillars were given a cladding of blue glass mosaic. Meanwhile, aboveground, a large foyer marks the Neues Westentor at the Dortmund U (a designated arts centre) around the corner. The concept behind the design of the Unionstrasse Station underground is aimed at maximum transparency. Galleries and rotundas ensure that the underground platforms receive large swathes of daylight. That effect is brought out by the light colour tones of the ceiling, wall and floor covers. The mural paintings celebrate the revival of Dortmund’s historical entertainment venues — all of them connected by tram lines.

Unionstrasse Station is particularly impressive for its open hallways. The platform itself lies under a colliery-style arch with an excavated cross-section of 160 square metres. As such, the opening is larger than the fourth cylinder at Hamburg’s Elbe Tunnel. As you come into the concourse, you get a view of the entire platform area spread out before. Collages on the enamel walls, which are 90 metres long, evoke Dortmund’s former coalfields and steelworks. Themselves, each entranceway gets a distinct colour — with the stair entrances that lighting up in orange, blue, green and yellow. The lift system shimmers in red. Also, the consistent use of the colours within the station as a whole makes finding your way around child’s play. As you move through Unionstrasse, the floor, they accompany you through the station. LED lighting makes for changing moods.
130 million passengers were enjoying the benefits of public transport for their personal mobility. If they had covered the same distance in their cars, they would have clocked up 1.4 billion kilometres. And if we apply that amount to all the individual journeys on municipal territory, we get a most impressive result …

Passengers who take the bus or the Metro in Dortmund – and so avoid all those car kilometres – reduce their combined carbon footprint by 140,000 tonnes!

What is more, convenient connections to bus and German Rail stations, park+ride facilities and bike+ride racks at suitable stations and stopping points all go to make the environment-friendly integrated transport system a truly attractive alternative means of travel.

For passengers using Dortmund Metro – school students, commuters, shoppers, visitors, day-trippers and tourists alike – this means …

- less stress
- no hassle searching for a place to park
- no traffic jams
- reliable and punctual travel.

And, not to be ignored, taking the decision to go by public transport has a positive effect on your personal finances!

People who do most of their round-town travel via public transport pollute the environment less, significantly less, than those who take their own cars.

The ABC of energy calculations

When it comes to energy consumption, the Metro is ecologically much superior to individual car traffic. At least three times as energy efficient in the morning rush hour, for example, assuming that the car traffic is full, each passenger on the Metro generates 13 to 27 times less CO₂ than a car user.

If a metro carriage is only approximately full, then the energy consumption per person is still the equivalent of just one litre of petrol per 180 kilometres. If carriage capacity is full, the energy consumption per trip is reduced by 32 times per person. Translated, this means that while you travel by Metro, you only need a lemonade glass of petrol for a distance of 144 kilometres. Or with a little bottle of petrol, you could get from Dortmund to Berlin, but try that with a car! Even the most ecologically designed motorcars simply cannot compete when compared to the Metro. Thus, you can slow down, concentrate on the driving, leaving you free to read or relax.

Public Transport in Dortmund — an integral part of the solution

Hoping to find out the mobility patterns in Dortmund, DSW21 was able to calculate the reduction in CO₂ emissions that the public transport system in Dortmund achieves if compared to individual car use. By 2006, approximately 130 million passengers were enjoying the benefits of public transport for their personal mobility. If they had covered the same distance in their cars, they would have clocked up 1.4 billion kilometres. And if we apply that amount to all the individual journeys on municipal territory, we get a most impressive result …

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A swift and flexible response is the order of the day via supplementary fixes using pumps, props or steel boards. The air-sprayed concrete cladding also ensures that the tunnel remains stable during construction. For final status, however, a second steel-concrete shell is installed to ensure full waterproofing and tunnel permanence.

Since the 1980s, there has been a change in the construction of underground railway systems as the closed-cut method of building came to establish itself. In contrast to the early open-cut building method, the tunnel tubes are now constructed using coal-mining technology — i.e. up on the surface you would not notice the building site under your feet. Only at the start and at the end of the tunnel section does an access or service shaft become necessary for the transportation of building materials. These shafts are usually located in such a way that they subsequently form the basis of access ways to the stations and platforms.

Still, surface proximity makes the construction of a tunnel based on deep-level coal-mining technology a particularly challenging task. Geologically speaking, it presupposes a solid rock mass. And the marlstone here provides the Dortmund Metro with a solid two to ten metres thick stratum between the tunnel and the surface.

As soon as the tunnel boring machine or special excavator has cut a cavity through the earth or stone, this then has to be jacked up in short sections by means of steel arches, mesh reinforcement and air-sprayed concrete. Thanks to the outer shell that so emerges, it is possible to counteract any loosening of the rock and/or actual rockfall. In other words, the rock remains stable.

Although the geology of the area is always thoroughly explored beforehand, tunnel engineers can never be totally immune to surprise — unexpected flooding, for instance, or divergent underground formations. That being so, a swift and flexible response is the order of the day via supplementary fixes using pumps, props or steel boards.

The air-sprayed concrete cladding also ensures that the tunnel remains stable during construction. For final status, however, a second steel-concrete shell is installed to ensure full waterproofing and tunnel permanence.

Tunnel construction in the coal-mining tradition
The future development of the Metro will depend on the requirements placed on an attractive and modern public transport service. A service which will grow with its passengers, for its passengers. A service which, with further expansion and adaptation, will react flexibly to changing needs.

The Dortmund Metro runs more or less independently of other traffic flows and enjoys right of way at the overground junctions. This is essential when it comes to providing a speedy and safe public transport system with short travel times and reliable connections. After all, passengers place great value on technical and personal safety as well as on service and comfort.

Which is fair enough: everyone likes to feel at ease in “their” train.

These demands on comfort are met by modern and people-friendly carriages on the north-south routes with 100-cm floor height (high-floor). Since April 2008, trains with 40-cm floor height (semi-low floor) have been deployed on the east-west and the Borsigplatz line.

Also comfortable and convenient are the stylish weatherproof stopping points and door-level platforms. In other words, barrier-free access for wheelchair users and disabled people and senior citizens and parents with pushchairs. Modern bus platforms, staircases, escalators and see-through lifts permit easy access and promote mobility for all.

High-tech systems give life to the whole service concept. The passengers on the platforms are kept updated at all times by the large electronic info boards, helping them to make that all-important connection. And via the loudspeakers so installed, we can back-up e-information with appropriate announcements.

Convenience, service and safety
are any number of technical services in place:

- substations for a reliable supply of power to the trains and to stations
- power supply installations operating on a redundant basis to eliminate outages
- train control technology for safe reliable operations
- IT and operative components such as clocks, PA and video equipment as well as mobile phones and radio systems
- machinery and power for the HVAC (heating, ventilation and air-conditioning), lifts and sanitary facilities as well as fire protection devices and roller shutter doors at the stations. These sophisticated systems are all linked by means of copper and optical fibre conductors.

On a 24/7 basis, the specialists from DSW21 control the operating systems and monitor safety on all sections of track. In addition to the operating technology, automatic plant management and track safety control, the Control Centre is also responsible for video surveillance.

Passengers can contact Control Centre staff direct via the emergency phones installed for that purpose. In the event of acute danger, passengers can use the emergency brake to prevent a train driving into a station area. Info display boards, loudspeakers, cameras, emergency phones and emergency brakes are the only technical components that the passengers ever really see.

Technology and people working in the background ... all at your service!

Similarly, if individual advice is required, DSW21 officers are on hand at the customer service points in the city-centre stations. The user-friendly automatic ticket machines are also a boon.

Behind the scenes, it is the operations control centre at Stadtgarten Station that is the nerve centre of all this activity. All the information and data from the network merge here. And, invisible to the passengers, there...
A highly developed public transport system well-connected to the regional and European railway networks has found acceptance in Dortmund. Such a network is also a huge location bonus. The high efficiency of the Dortmund Metro as part of the public transport system is an argument that weighs well with any decision makers.

Companies from the small business, retail, service and manufacturing sectors all need a reliable and punctual public transport system for their employees and their customers. The retail trade and the gastronomic sector depend on the convenience of a public transport system so that customers and guests can get to them without fuss.

The organisers of cultural and sports events, trade fairs and conferences are totally reliant on underground and/or metrorail services, since it is only their efficiency that can move masses of people around effectively. As demonstrated in champion-like style during the World Cup football matches held 2006 in Dortmund. In the future too, the public transport system as a unitary whole will help persuade innovative firms to come and set up business at new locations such as the Stadtkrone Enterprise Park, the Phoenix Regeneration Area and the Technology Park. The latter, by the way, can also be reached from the Technical University of Dortmund by the unbelievably reliable suspension monorail service.

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A smooth-running pleasant public transport system is a hugely important location factor for people working in all kinds of sectors: research & development, industry, retail, gastronomy and the arts & culture. A principle Dortmund recognised very early on. If, in the old days, trams ferried the workers to the steel plants, breweries and collieries, today the Dortmund Metro whisks visitors and customers into the city centre as well as providing the employees at the numerous service provider firms with a convenient ride to work.

What’s more: the Metro ensures that the parks and the green landscapes are quick and easy to reach, as are the latest cultural highlights and the various fascinating memorials to Dortmund’s industrial past.
The Dortmund Metro: a bright outlook for future generations

The Metro is an important stone in the mosaic that is the new fast-paced city. As for the long-term outlook for future generations— milestones in the history of the Dortmund Metro

1984 June
Metro station Aplerbeek has opened.

1984 December
Dortmund City Council gives green light for the construction of a metrorail backbone, especially in the city centre. But we are not going to sit back on our laurels yet: there is still a lot to be done by way of decongesting the suburbs and plugging some gaps in the network system. Accessibility is being improved step by step. As of 2006, 75% of all stopping points were linked by pedestrian and cyclist access. In 2008, in its document entitled Metro Development Dortmund, the Dortmund City Council has provided for some further modest additions and some economically viable track extensions, all of which are of a vital importance in terms of urban development. The Dortmund Metro: a bright outlook for future generations

1985 August
Direction Hörde: 2.7 km with the stations of Märkische Strasse, Rüttendeichstrasse, Döpperspree, Königswall pedestrian precinct just south of the Central Railway Station.

1985 March
First deployment of the 2.65-metre-wide metrorail carriages (B-carriages) between Hörde and Fredenbaum.

1986 August
Direction Falmbach on the 2.8-kilometre-wide metrorail corridor (8 carriages) between Hörde and Fredenbaum.

1987 March
First deployment of the 2.8-kilometre-wide metrorail corridor (8 carriages) between Hörde and Fredenbaum.

1990 June
Metro station Aplerbeek.

1990 December
Metro station Aplerbeek.

1991 January
Hafen starting point

1991 December
Council has provided for some further modest additions and some economically viable track extensions, all of which are of a vital importance in terms of urban development. As for the long-term outlook for future generations— milestones in the history of the Dortmund Metro

1992 May
Metro station Aplerbeek.

1992 December
Metro station Aplerbeek.

1993 January
Metro station Aplerbeek.

1993 March
Metro station Aplerbeek.

1994 December
Metro station Aplerbeek.

1995 June
Metro stations between Stadtgarten and Falmbach opened.

1996 November
Metro stations between Unionstrasse and Westentor opened.

1997 March
Metro station Aplerbeek.

1998 March
Metro station Aplerbeek.

1999 January
Metro station Aplerbeek.

1999 March
Metro station Aplerbeek.

2000 August
Development of 8 carriages on the Opladen line.

2001 August
Metro station Aplerbeek.

2001 December
Metro station Aplerbeek.

2002 March
Metro station Aplerbeek.

2002 September
Metro station Aplerbeek.

2003 December
Metro station Aplerbeek.

2004 March
Metro station Aplerbeek.

2005 March
Metro station Aplerbeek.

2006 March
Metro station Aplerbeek.

2007 March
Metro station Aplerbeek.

2008 March
Metro station Aplerbeek.

2009 March
Metro station Aplerbeek.

2010 March
Metro station Aplerbeek.

2011 March
Metro station Aplerbeek.

2012 March
Metro station Aplerbeek.