



Public Transportation: Price levels in Europe

Public Transportation: Study of price levels in 12 European cities

September 2015

Forbrugerrådet
TænK **Passagerpuls**



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1. Summary

This paper is a study of the price levels in 12 European cities. In the study we have compared fare prices in the public transportation. The fare prices are all recalculated into EURO and adjusted according to local buying power. The study also gives an overview of the entire public transportation network of each of the 12 cities, and monitors how the prices are structured between the types of tickets, travel cards and travel passes in the cities.

We have consequently decided to make the comparisons based on 5 different passenger profiles to keep the study simple but still relevant.

1. Infrequent traveller making a short trip (5 km) in the centre of the city.
2. Infrequent traveller making a long trip in the entire network.
3. Commuter travelling a short distance (5 km) in the centre of the city.
4. Commuter travelling a long distance in the entire network.
5. Tourist wanting to get around in the centre of the city (one day).

Many other profiles exist, and had we chosen them instead it may have led to other prices and rankings.

In general, we only find little consistency between prices on single tickets and monthly passes, and the size of the city and the covered network.

Prague is in general an inexpensive city when it comes to public transportation if you only look at the charged prices in EURO, but when we recalculate for buying power it turns out that Brussels is the cheapest of the 12 cities monitored, and Prague only number 5.

Other relatively cheap cities adjusted for buying power are Berlin, Amsterdam and Hamburg.

London is relatively the most expensive city of the 12. Only when it comes to Tourist daypasses London is not among the most expensive but at the average. London has the largest network, and especially the monthly travel passes are relatively very expensive. Oslo seems to be the second-most expensive of the 12 cities.

The other cities take changing positions when we rank the relative prices of our 5 cases. This is likely to reflect historical reasons or is because of political decisions or decisions made by the local transport authority regarding the price structure.

Although you can see a general pattern in the 5 indexes adjusted for buying power, e.g.:

- Oslo and London is among the 4 most expensive cities in 5 out of 5 indexes. Stockholm is among the 3 most expensive cities in 3 out of 5 indexes.
- On the other hand Brussels, Berlin and Amsterdam is among the 3 cheapest cities in 3 out of 5 indexes.



- Copenhagen is total on the average of all indexes of the cities (100). 7 cities are below the average and 4 cities are above the average.
- Vienna is among the 3 cheapest cities in 2 out of 5 indexes, but at the same time the most expensive city in 1 of the 5 indexes. That fact makes Vienna among the 3 most expensive cities on average.

If we compare the index for prices on a 24 hour day pass in the 12 cities with the UBS Price of a city break (index of the 12 cities compared to the average price of the 12 cities) we find in general that the cities which has low tourist prices in general (City break prices) in general also have low prices on the 24 hour pass (see table 9).

2. Background, objective and methodology

The aim of the present study is to monitor and compare fare prices in public transportation in a number of cities around Europe together with a short description of the entire public transportation network of the city. We want to monitor the differences in price levels and the way the prices are structured between the types of tickets, travel cards and travel passes in the cities.

The study thus enables politicians and other decision makers to have an easy accessible overview of public transportation networks and fares in comparable cities which can be useful when deciding the future development in their respective city.

The report is not intended to be used as a guidebook to the public transportation networks and prices of the cities covered. For that purpose it is to general.

The idea for this study originated from a report produced by Cowi (consultancy company) for DSB (The Danish Railways) in 2009. The initial starting point was Copenhagen and as a consequence most of the cities in the study are located in the northern part of Europe.

We acknowledge the fact that every city and its public transportation network are unique and the variety of tickets/passes and prices are developed on the needs of that particular city and its inhabitants. For comparison reasons we have decided to try to streamline and harmonise the description of the public transportation network in each city and have chosen to only monitor a limited number of comparable prices.

We have had the following passengers in mind when describing the different public transport network.

- a) The inhabitant who is an infrequent traveller (single ticket)
- b) The inhabitant who is a commuter (seasonal/annual ticket)
- c) The young and/or senior citizens (special discounts)
- d) Tourists (special tickets)

Based on our experience we believe that the above passenger profiles cover



the majority of passengers in the various cities. We do however not have access to statistics to support this viewpoint further in depth.

When visiting the cities you may find other price offerings and tickets than the mentioned.

The aim is to update the study annually and increase the number of cities and information included from year to year. Especially we would like to include information on the 'size' of the public transport network in the cities (number of lines, annual driving hours etc.), and the area that it covers. We would also like to include information about the marketshare of public transport. Please feel free to email the authors with input and ideas for improvements.

Methodology

The information appearing in this report is gathered by the authors from websites published by the Public Transport Authorities in the cities with additional contributions from colleagues in some of the countries/cities in focus (Colleagues from the EPF (European Passengers Federation) and Consumers organizations).

We would like to thank all contributors to the study. We hope that you will all benefit from this project.

The information was collected and revised in May and June 2015.

Basis for the comparison of prices

When comparing the price levels of public transport in the cities we have recalculated all prices into EURO and made them comparable by adjusting them according to the local buying power based on 'UBS – Prices and Earnings, 2012 edition'¹. This we find is a fair and often used way of comparing the price levels in cities where buying power differs a lot.

That applies also to the price on tourist/24 hour tickets even though we know that foreign tourists may have a completely different buying power than the citizens of the city/country monitored. The reason behind this is that we have no information about the buying power of the tourists visiting each city, and every city has native tourists. Furthermore local buying power is likely to influence on tourist prices in general in the city (hotels, restaurants etc.), and therefore also will influence a tourist price index, that we otherwise would be likely to use as a means to recalculate the prices of public transportation.

We have however, when looking at prices of 24 hour daypasses (aimed at tourists) also made a comparison with the UBS Price of a city break Index

1

https://www.ubs.com/global/en/wealth_management/wealth_management_research/prices_earnings.html



(appears also in the above mentioned UBS report). This is to see if the price of a tourist ticket for public transportation is relatively more or less expensive than the tourist prices in general.

Inclusions and exclusions

Size of the area/region where the ticket/travel pass is valid

The regions around the cities where the ticket/travel pass is valid vary a lot in size. As a consequence the comparison may not always seem fair. We have however chosen not to include ticket prices on journeys outside the city-region as decided by the local Public Transport Authority. We are looking at prices from door to door using many different modes of public transportation (multimodal), as that will indicate the reality and the need for many passengers when they use bus, metro, tram and trains.

The different size of the regions will mostly influence on the picture when we look at prices for longer journeys within the region whereas prices for shorter trips within the centre of the city (including tourist tickets) will be more comparable.

We will comment on this when comparing the prices.

Number of zones

Some cities have only one zone or very few and others have more than a hundred, when prices are being calculated. We find that this fact is influencing on the price comparison between the cities. This is a general condition and a result of historical development and political (and other) decisions. It is influencing heavily on the prices and our comparisons.

Validity of tickets

The validity of the tickets differs from city to city. From flat rates valid for one short trip only to a validity of 30 minutes, 1 hour, 2 hours etc. All tickets allow you to (to some extend) change between metro, bus, tram etc. Some allows you to change direction, some do not.

Some may argue that a ticket valid for 1 hour with the possibility of making multiple short journeys is not the same product as flat rate short trip ticket only valid for 1 journey. They are of course right, but we have focus on the cheapest possible ticket taking you from A to B. No return. For a short trip and for a longer journey. We believe that it covers the needs of most passengers.

We will comment on this when comparing the prices.



Tickets for single journeys

We have chosen to show the available possibilities for each city but when comparing prices for single tickets we compare only the cheapest alternatives. In some cases that will be the price of a single journey when using an electronic travel card, in others the price of a journey when you have bought a pack 'carnet' of tickets (for 10 trips), and in a few cities the price of a single ticket.

Peak/off peak

Some cities offer special off-peak prices, but when comparing ticket prices we have chosen to show prices valid throughout the day and all weekdays. This is due to the fact that most journeys take place in the morning and afternoon peak hours, and as a consequence the off-peak prices are not likely to be relevant to all passenger segments.

Electronic Travel Cards

In the cases where the use of an electronic travel card is the cheapest solution we have chosen not to include any eventually costs of purchasing the physical (plastic) travel card in our calculation. Some cities charge an amount for this service others do not, and some give you a refund if and when you return the card. Since we do not know how often the card is being used by the traveller we cannot split the cost of the purchase on an exact number of journeys. And the traveller can keep the card in the drawer and use it in many years. Thus we have only used the actual fare in the price comparisons.



3. Cities included in the study

As previously stated the starting point was Copenhagen. Consequently we have chosen a number of cities comparable to Copenhagen when it comes to population and public transportation network. We have also chosen to include some major European cities often visited by tourists.

The cities are:

1. Amsterdam
2. Berlin
3. Brussels
4. Copenhagen
5. Hamburg
6. Helsinki
7. London
8. Oslo
9. Paris
10. Prague
11. Stockholm
12. Vienna

In the following chapter we will make a short presentation of the public transport network in the 12 cities, the services offered and the prices in local currency.

After the individual presentation we will recalculate the prices (chapter 4) and make a comparison between the public transport price setting in the cities in chapter 5.

We have chosen not to make a comparison on price reductions for senior citizens, students etc. as we have not been able to find adequate information from all cities to make this comparison.



3.1 Amsterdam

Description of public transportation network

The City Region of Amsterdam is responsible for the regional public transport. The most important operating contract is awarded to the city of Amsterdam owned GVB. The contract contains all bus, tram and metro services in Amsterdam. Furthermore there are different bus operating contracts to commuter regions around Amsterdam. The contracts are operated by EBS and Connexion (Transdec). Railway service around Amsterdam are part of the national railway franchise hold by state owned Netherlands Railways (NS).

Figure 1, The Amsterdam Area concessions (source reference: **CROW**)

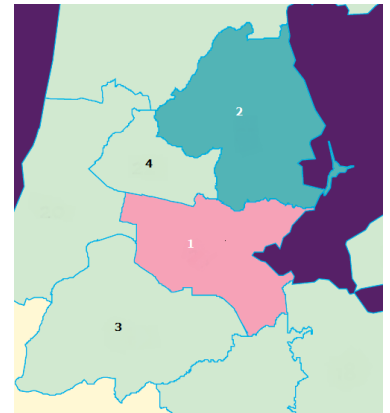


Figure 2



Source: iamsterdam.com

Tickets & Pricing

The Dutch public transport law allows public transport authorities to develop a regional ticket and pricing policy. Most operating contracts allow the public transport companies to create their own travel passes and pricing. Interoperability of tickets is therefore not self-evident. Even within contracts awarded by the same authority.

In this study only tickets issued by Amsterdam City transport company GVB will be used. Within the city the GVB is the main transportation company.

Tourist cards (Entire network in Amsterdam)	Price
24hours ticket	7.5 €
48hours tickets	12 €
72hours tickets	16.5 €

Single tickets

Most passengers use the 'pay as you go' smartcard (OV Chipkaart). Pricing is based on travel distances added with an entry fee. A 5 km journey will cost about €1.64 (0.88 entry fee, price per kilometer €0.151). Some transport companies offer travel passes which offers discount (in off peak hours) per kilometer.

Next to the smartcard it is possible to buy single tickets. These tickets allow 1 hour travel on GVB busses, trams and metros.

Season tickets or travel passes, which are paid in advance and which allow (unlimited) use of a certain route or network, are also sold. Once again, the mentioned tickets only gives access to the GVB routes.

Standard tickets/zones	1 hour	Day Card	One zone	Total GVB network
Single ticket	2.90 €	7.50 €	-	-
Monthly travel pas	-	-	45 €	90 €
Year Travel Pass	-	-	-	900 €

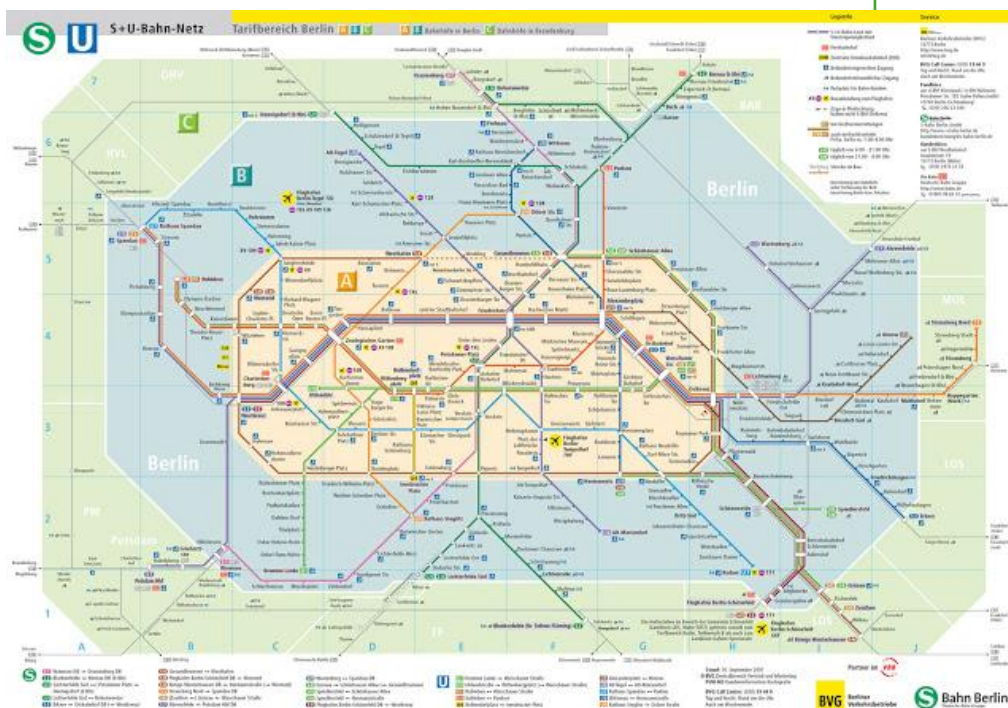
Students (4-18 years) and senior citizens (+65) are offered reduced price on monthly and annual travel passes.

Travel passes/zones	One zone	Total GVB network
Monthly travel pass	29.50 €	59.50 €
Annual Travel Pass	-	595 €

3.2 Berlin

Description of public transportation network

Berlin is divided into A-, B- and C-zones where A is the central Berlin encircled by the S-Bahn (urban rail) ring. The B-zone outside the S-Bahn ring up to the city boundary where Airport Berlin Tegel TXL is located- The C-zone is the greater Berlin area (approx. 15 km around the city of Berlin), including the City of Potsdam and Airport Berlin Schönefeld SFX. Berlin city transportation is managed by VBB (Verkehrsverbund Berlin Brandenburg), and a ticket give access and the option to change between S-Bahn, metro and bus.



Source: BVG.de

The biggest enterprise of transportation in Berlin is BVG (Berliner Verkehrsbetriebe). It is not possible to buy a ticket for one zone only, meaning that a ticket has to be bought in a combination (AB, BC e.g.). A single fare ticket is valid for one person and a two hour journey through the city.

Type of ticket/zones	AB	BC	ABC
Short-trip ticket		1.6 €	
Single ticket	2.7 €	3 €	3,3 €
Monthly travel pass	79.5 €	81 €	98.5
Annual travel pass (year/monthly)	740/61.6 €	782/65.1 €	947/78.9 €

VBB offer a short-trip ticket that is valid for 3 stops with either the metro and S-Bahn with changes or 6 stops with the busses or tramps without changes between lines. The short-trip ticket has a reduced price with the restriction that the validity only count for one trip meaning that the ticket can't be used as a return ticket.

Besides short-trip, single and monthly travel pass tickets, VBB offers reduced tickets for children at the age of 6 – 14 years and reduced price for senior citizens and students. Children under 6 years old travel for free. Senior citizens can buy an annual travel pass that gives unlimited access to public transport however, the ticket can only be bought for one year.

Reduced prices/zones	AB	BC	ABC
Senior citizen	-	-	-
Children (6-14)	1.7 €	2.1 €	2.4 €
Monthly travel pass (6-14)	55 €	59.8 €	72.5 €
Annual travel pass senior (+65)	-	-	581.8 €

VBB also offers special tickets for tourists that include 7-day-tickets, tickets with entrance to various amusement park and zoo's, 48hour- and 72hour tickets, CityTourCards and various group tickets.

With the tourist card and the monthly travel pass, the ticketholder is allowed to travel with three children for free (6-14 years) between Monday to Friday 8:00 pm until 3:00 am and Saturday to Sunday. For tourists and visitors BVG offers 48hour- and 72hour tickets and CityTourCards where the ticket price includes entrance to attractions, zoo and various amusement park and zoo's.

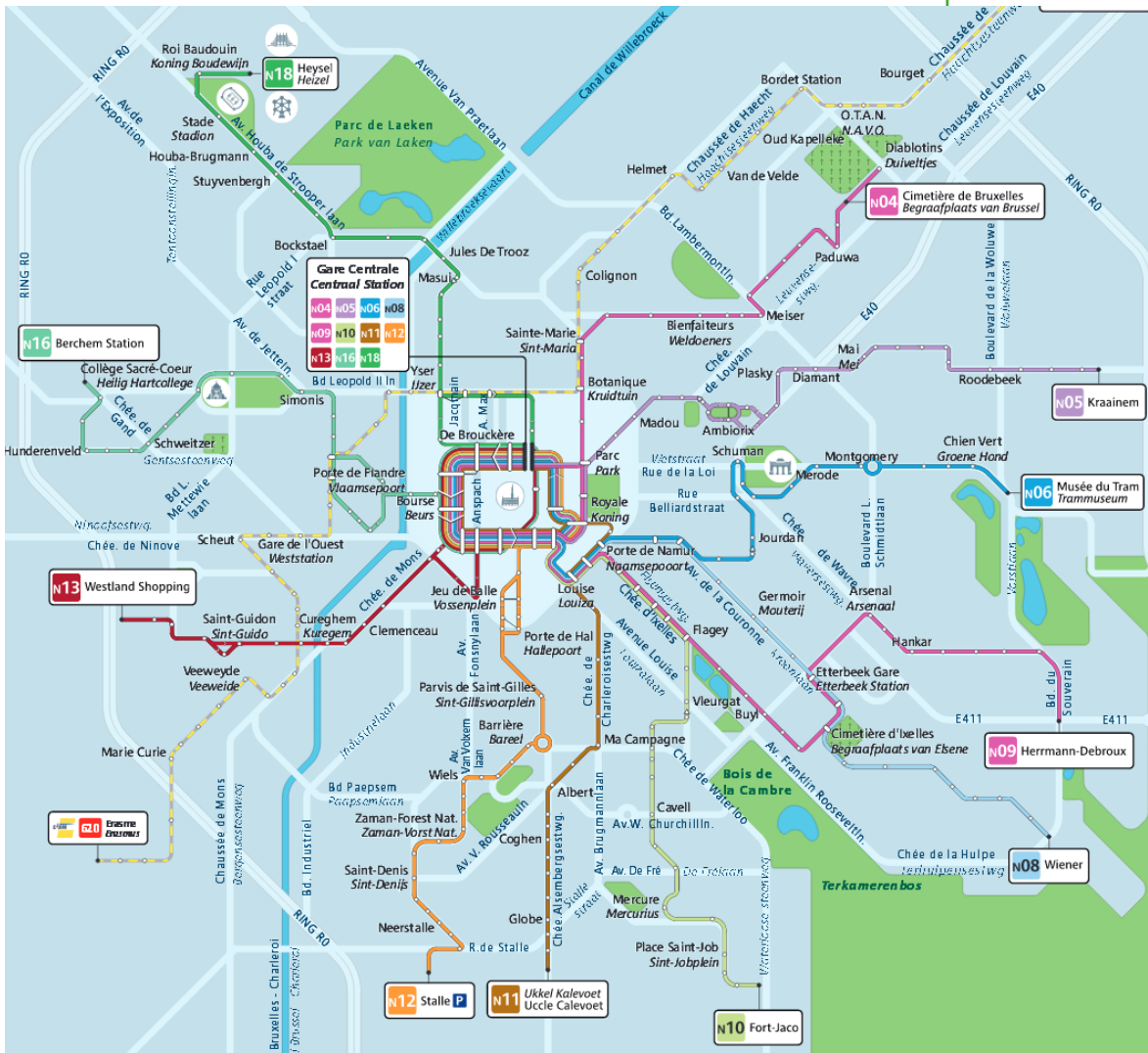
Berlin Welcome card/zones	ABC
48 hours	21.5 €
72 hours	28.7 €

Source: <https://shop.bvg.de/index.php/tickets>

3.3 Brussels

Description of public transportation network

The public transportation in Brussels is measured as one zone, where a ticket gives access to, and option to change between buses, train and metro however. The route from Brussels to the airport is separated from the city zone.



Source: stib.be

The public transportation of the city is managed by STIB but 3 other operators can be used for public transport within Brussels (Tariefzone MTB) as well:

- SNCB (rail operator), with many access points within Brussels city borders.
- De Lijn (bus operator for the Flanders Region) with many bus routes entering the capital area and responding to many local transports needs within Brussels.

- TEC (bus operator for the Wallonia region), same principle as for De Lijn.

The passenger can choose to buy a ticket at the entrance to the public transportation device (door ticket) or buy a ticket from a machine or shop. The ticket is called JUMP and is available as single tickets and in packs of 5 or 10 tickets. The ticket is valid for 1 hour and allows the traveller to change between buses, train and metro. STIB also offer a Travel Card – MOBIB – which eventually will out phase the paper ticket. With MOBIB the passenger will get a reduced price compared to the paper tickets. But the tickets are not valid for other transport operators.

Type of ticket/zones	STIB only	MTB area – bought in ticket machines etc	MTB area – on board price
Single ticket	2.00 €	2.10 €	2.5 €
Multitrip ticket (10) price per trip	1.25 €	1.40 €	-
One day ticket	7.00 €	7.00 €	-
MOBIB (travelcard)	-	-	2 €

For the region around the capital itself, there is no integration of fares at all: the four public transport operators all keep their own tariffs, which complicates trips from the suburban area into Brussels.

For the frequent traveller STIB offer both monthly and annual travel passes. Buying an annual travel card saves the passenger € 7 per month. Since the city transportation is divided between STIB and De Lijn the passenger can choose between two types of travel pass. Consider the comparability between the EU-cities the indicated price for travel pass is MTB-ticket where train, bus and metro can be used. Additional the passenger can choose to buy travel pass to STIB only – in this case the monthly travel pass cost € 49.

Travel pass/zones	STIB only	MTB area
Monthly travel pass	49 €	55.5 €
Annual travel pass (year/monthly)	499/41.5€	583/48.5 €

Senior citizens who live in the Brussels region and Wallonia region can buy an annual travel pass worth € 50. Public transportation has been free for senior citizens (+65) living in Flemish region and with subsistence level of income, but as of September 1st they will also have to pay € 50 for an annual travel pass. Children under age of 6 travels for free when accompanied with an adult. Children with the age of 6-14 can travel for free in the STIB region with a special travel pass.

Tourist and visitors can buy a day pass which gives unlimited travel on that. Furthermore STIB offer return-tickets, 5 and 10 trips, 24hour- 48hour- and 72hour tickets valid on all vehicles within the MTB area.

Day pass	MTB area
Day pass	7.50 €
24hours *)	7.50 €
48 hours *)	14.00 €
72hours *)	18.00 €

*) Requires a MOBIB card

A one day ticket for STIB only, is valid 24 hours, whereas a one day ticket for all operators is valid for the day of stamping – a slight difference. For the region around the capital itself, there is no integration of fares at all: the 4 public transport operators all keep their own tariffs, which complicates trips from the suburban area into Brussels.

Source: https://www.stib-mivb.be/abon_tickets.html?l=en



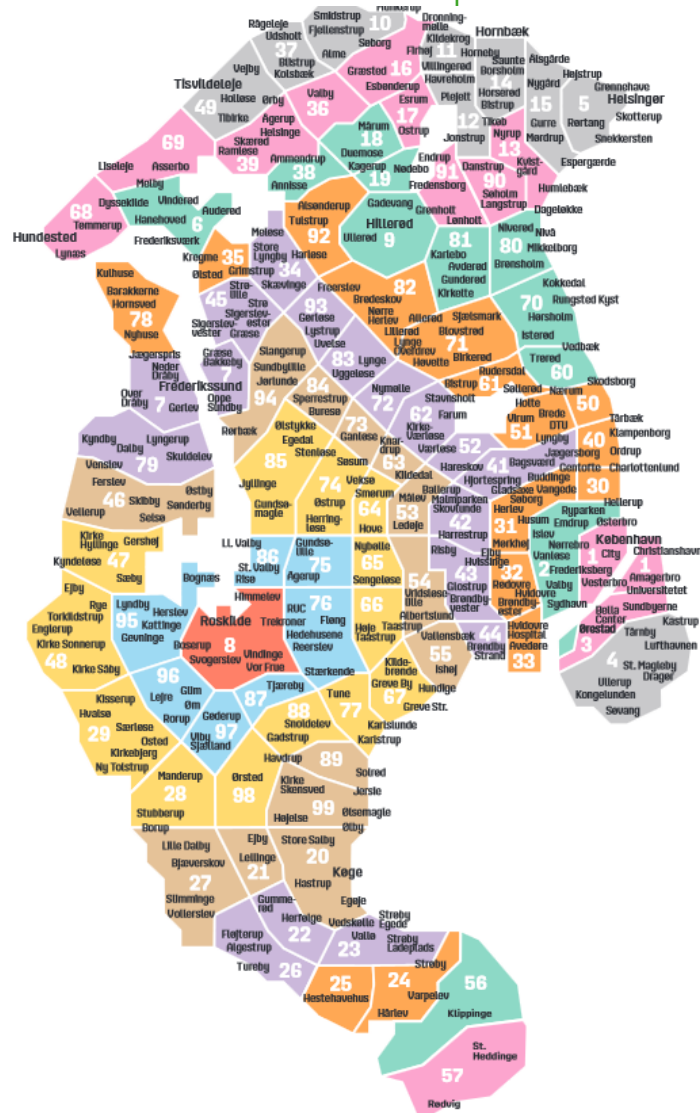
3.4 Copenhagen

Description of public transportation network

The public city transportation of Copenhagen and the surrounding area is divided into 97 zones that are managed by a corporation between DSB (trains), Movia (busses) and Metro. A ticket gives access to the bus, train and metro system and option to changes between the lines. A 2 zone-ticket (Centrum) is valid for one hour however, the validity increase with the number of bought zones, meaning that a 6 zone-ticket (Centrum) is valid for 2 hours e.g.

From 8th of February 2015 ticket coupon has been phased out and replaced by the Travel Card (Rejsekortet). The Travel Card allows for the length, age and frequency of the traveller and uses the information to calculate the ticket price, meaning that the price will rely on which conditions the card owner fulfils. A potential reduction in price will automatically be done while using the card.

The listed prices for Travel Card are indicative price and can vary according to the specific owner of the card.



Source: DSB.dk

Type of ticket/zones	2	3	4	5	6	7	8	All zones
Single ticket	24 kr	36 kr	48 kr	60 kr	72 kr	84 kr	96 kr	108 kr
Travel Card	15 kr	20 kr	25 kr	30.5 kr	36.5 kr	41.5 kr	47 kr	49 kr
Monthly travel pass	365 kr	510 kr	655 kr	795 kr	940 kr	1075 kr	1195 kr	1335 kr

Children under 16 get a price reduction of 50 % on the above prices. Senior citizens can buy a monthly travel pass covering either 3 or all zones in Copenhagen at a price reduction of 70-85 %. Furthermore young travelers (16-19) and students can buy a monthly travel pass valid in all zones at reduced price.

Reduced prices/zones	3	All zones
Senior citizen (3 months)	445 kr	575 kr
Youth travelpass (16-19)	-	606.60 kr

Beside paper tickets and Travel Card, Copenhagen city-transportation offer City pass, 24- and 72hour-tickets, flex card, mobile tickets and reduced tickets to students and senior citizen.

A city pass is valid either for all zones or for central Copenhagen (zones 1-4) including Copenhagen Airport.

With a city pass an adult can bring two children under the age of 12 along for free. Children under the age of 16 can buy a city pass at half price.

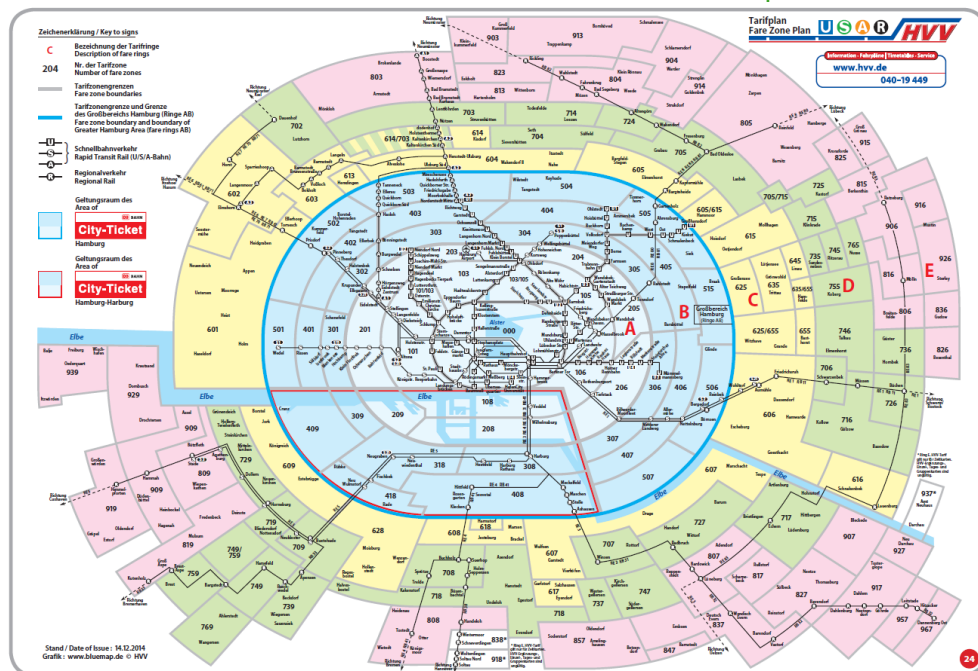
City pass/zone	Zone 1-4	All zones
24 hours	80 kr	130 kr
48 hours	-	-
72 hours	200 kr	-

Source: <http://www.dsb.dk/om-dsb/in-english/city-passes/copenhagen/>

3.5 Hamburg

Description of public transportation network

Hamburg and the surrounding area is defined as HHV-area, counting Lauenburg, Pinneberg, Segeberg, Stormarn, Harburg, Lüneburg and Stade.



Source: HHV.de

HHV is managed by Hamburger Verkehrsverbund and a ticket gives access to, and option to change between train, bus, metro and ferry.

HHV is divided into both zone systems and a ring-system, which benefit for the frequent and rare user of public transportation.

The ring-system is for the rare or 'casual' users who need occasional access to public transportation. Opposite, the zone system is for the commuter or frequent user, where the zone system allows the passenger to customise the ticket by choosing specific zones.

Likewise BVG (Berlin), Hamburger Verkehrsverbund offers a short trip inside the area for greater Hamburg, which only counts for ring 1 and 2. The ticket price is € 1.5. It's possible to buy a local journey ticket that is valid inside a certain area. The price of this ticket is € 2.1.

Type of ticket/rings	1 and 2	3	4	All rings
Single ticket	3.1 €	5 €	6.9 €	8.4 €
Short trip		1.5 €		

The frequent passenger can buy either a monthly or annual travel card. The indicated price for an annual travel pass is listed per month. The monthly travel pass goes for senior citizens as well.

Travel pass/zones	1-2	3	4	5	6	7	All
Monthly travel pass	35.4 €	40.4 €	59.1 €	-	81.3 €	-	98 €
Annual travel pass (monthly)	29 €	33.4 €	48.5 €	-	66.7 €	-	80.4 €

HHV also offer arrangement as flex card for one day or for a week, and reduced prices children.

Reduced prices	1 and 2	3	4	All rings
Children age 6-14	1.1 €	-	-	2.2 €

For tourists and visitors Hamburger Verkehrsverbund offers day tickets and a Hamburg-card that reduces ticket prices and allows entrance to attractions. With the day ticket, the pass holder can take three children (6-14) along for free. The card is only valid inside ring 1-2.

Day tickets/zones	1-2
24 hours	9.5 €
48 hours	18.5 €
72 hours	24.5 €

Source: <http://www.hvv.de/en/tickets/>

3.6 Helsinki

Description of public transportation network

The city and the surrounding area is managed by *Helsinki Region Public Transportation* and a ticket gives access to, and option to change between bus, train, metro and ferry. It's also possible to buy a ticket only valid for train.



Source: *hsl.fi*

However, it's assumed that the ticket with option to change between bus, train and metro is more attractive for the passengers why the price of this ticket is shown in the box. The time validity of the ticket starts at one hour and increases according to the length of the travel.

The area is divided into three zones:

- **Zone 1** Helsinki.
- **Zone 1** Espoo–Kauniainen, Vantaa, Kerava–Sipoo or Kirkkonummi.
- **Regional zone** counts Helsinki, Espoo, Kauniainen and Vantaa and count **2 extended** regional tickets to Espoo, Kauniainen, Vantaa, Kerava, Sipoo or Kirkkonummi.
- **Zone 3** counts Helsinki, Espoo, Kauniainen, Vantaa, Kerava, Sipoo and Kirkkonummi.

Besides the paper tickets HSL offer a Value Ticket which functions as a Travel Card. With the use of a Value ticket the ticket price will be reduced. HSL plan to change the zone system like Copenhagen, where Helsinki will be the zone center. This change is estimated to 2016. Tourists can buy day tickets where children under 14 years get a price reduction at 50%.

Type of ticket/zones	Helsinki	Zone 1	Regional	Zone 3
Single ticket (pre-bought)	2.5 €	3 €	5 €	7.5 €
Single ticket (door ticket)	3 €	-	-	-
Value ticket	2 €	2 €	3.88 €	5.96 €
Monthly travel pass	37.1 €	37.1 €	74 €	110 €
Day ticket	8 €	8 €	12 €	18 €

Additionally, HSL offer reduced price to students, children, senior citizens, disabled people with a subsistence level of income, and companion pass for disabled and children.

Reduced tickets/zones	Helsinki	Zone 1	Regional	Zone 3
Single ticket, child (7-16)	1.5 €	1.5 €	2.5 €	3.8 €
Single ticket (door ticket)	1.3 €	-	-	-
Value ticket	1 €	1 €	1.94 €	2.98 €
Monthly travel pass	24.8 €	24.8 €	49.3 €	73.3 €

Day tickets/zones	Helsinki	Zone 1	Regional	Zone 3
24 hour	8	8	12	18
48 hour	12	12	18	27
72 hour	16	16	24	36

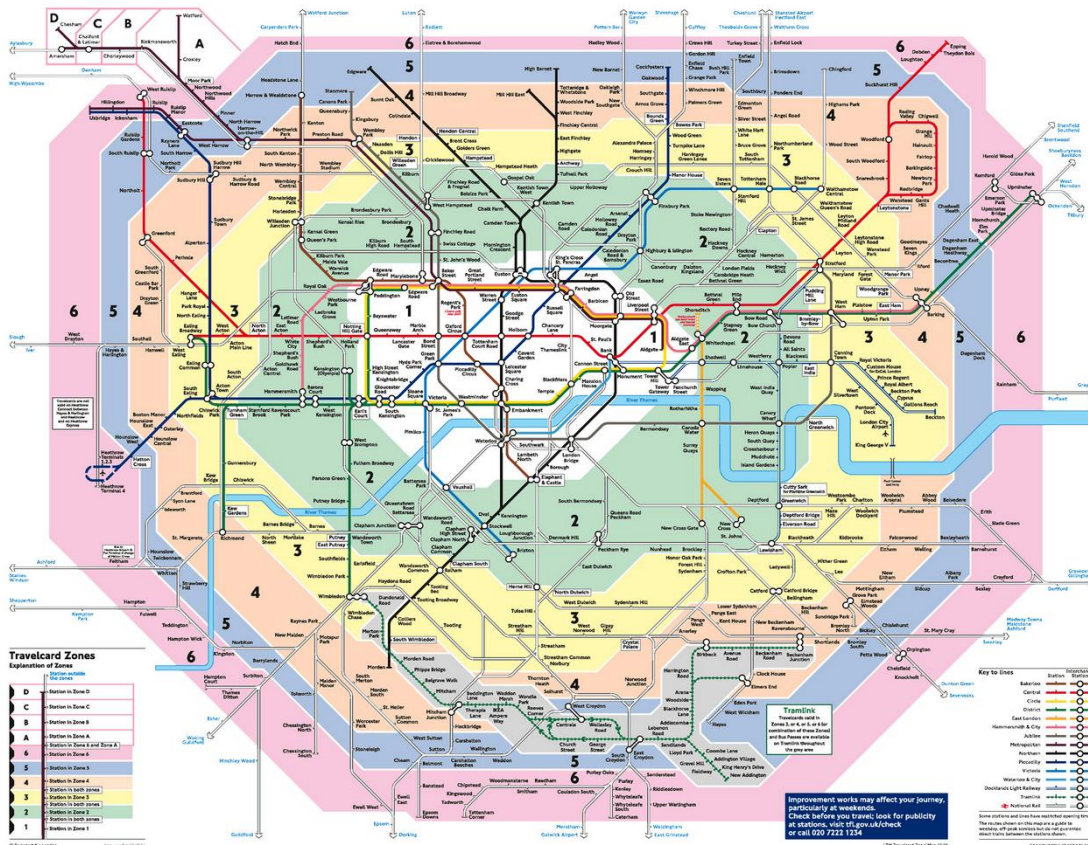
Source:

https://www.hsl.fi/sites/default/files/uploads/hsl_ticket_fares_2015.pdf

3.7 London

Description of public transportation network

The London railway network is divided into nine different zones and is managed by Transport for London. In comparison to other cities in this study a single ticket does not necessary allow a passenger to change between different modes of transportation without incurring an additional charge.



MAYOR OF LONDON

Information 020 7222 1234

Website tfl.gov.uk

Telephone 020 7918 3015

Transport for London



Source: Transport for London

Single tickets can be bought at machines and at ticket offices whilst Oyster / Contactless cards (pay as you go) function as a Travel Card, by means of a guaranteed cap on the total cost of travel for each day or over a seven day period. The Oyster/Contactless card allows for peak and off peak periods and reduces the price according to the time at the day the travel is being made. Peak is scheduled between 6.30-9:30 in the morning (all journeys) and 16:00-19:00 in the afternoon on Mondays to Fridays for journeys starting or travelling through zone 1. The prices in the box show the peak-prices.

With Oyster card, Transport for London offer reduced prices for seven day and monthly travel pass for students and children, and reduced prices for holders of National Railcards (such as young persons 16-25, seniors 60+,

disabled persons, and holders of annual season tickets (Goldcards)) in offpeak periods. There are also arrangements to offer group discounts.

Type of ticket/zone	1	2	3	4	5	6	7	8	9
Single (Cash) ticket for TfL rail services	4.8 £	4.8 £	4.8 £	5.8 £	5.8 £	5.8 £	7.2 £	8.4 £	8.4 £
Pay as you go (peak)	2.3 £	2.9 £	3.3 £	3.9 £	4.7 £	5.1 £	5.6 £	6.9 £	6.9 £
Pay as you go (off-peak)	2.3 £	2.3 £	2.8 £	2.8 £	3.1 £	3.1 £	4 £	4 £	4 £

For the frequent passenger Transport for London offers a monthly and annual Travel pass. The table lists the saved price for an annual travel pass per month.

Tourists and visitors are recommended to buy either a Travelcard or Oyster Card. Travelcard is valid for either a single day or seven days, and is available for certain combinations of travel zones and valid on all public transport on the TfL network.

Travel pass/zones	1	2	3	4	5	6	7	8	9
Monthly Travel card	123.3 £	123.3 £	144.8 £	177.1 £	210.1 £	225.1 £	244.2 £	288.8 £	320.3 £
Annual travel pass (year/month)	1284/ 107 £	1284/ 107 £	1508/ 125.6 £	1844/ 153.6 £	2188/ 182.3 £	2344/ 195.3 £	2544/ 212 £	3008/ 250.6 £	3336/ 278 £

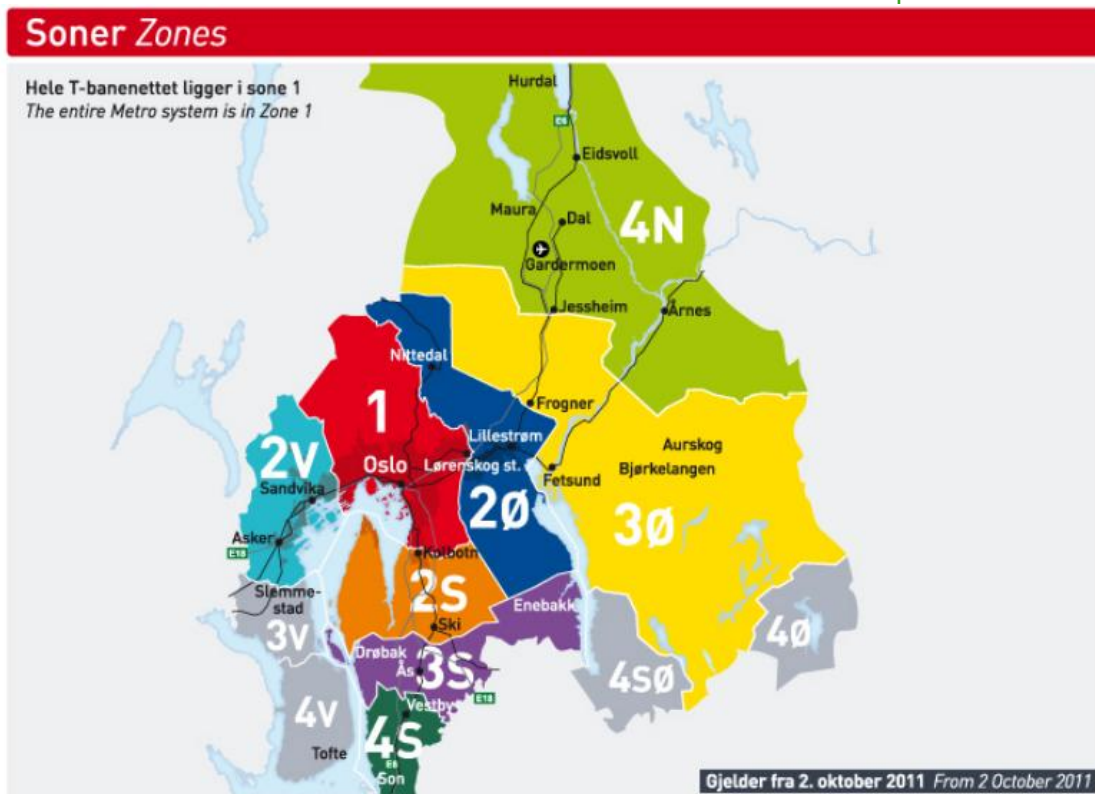
Which card the passenger should choose depends on the length of the stay in London and how frequently the public transport is planned to be used.

Source: <https://www.tfl.gov.uk/cdn/static/cms/documents/tube-dlr-lo-adult-fares.pdf>

3.8 Oslo

Description of public transportation network

Oslo is outlined as one zone, where two separate zones encircle the city. The transportation system is managed by Ruter and a ticket gives access to, and option to change between bus, train, metro, ferry and light rail. The validity of the ticket is one hour and the price of the ticket varies according to where



Source: ruter.no

the paper ticket is bought. The passenger can choose to buy a ticket at the entrance to the bus or train however; this is more expensive compared to a ticket bought at a machine or shop.

Type of ticket/zones	1	2	3	4	All zones
Single ticket (door)	50 NOK	70 NOK	90 NOK	110 NOK	130 NOK
Paper ticket (machine)	30 NOK	50 NOK	70 NOK	90 NOK	110 NOK

For the frequent traveller Ruter offers travel passes as well. The table lists the price per month when buying an annual travel pass.

Travel pass/zones	1	2	3	4	All zones
Monthly travel pass	680 NOK	1210 NOK	1740 NOK	1740 NOK	1740 NOK
Annual travel pass (year/month)	6800/ 566.6NOK	12100/ 1008.3NOK	17400/ 1450 NOK	17400/ 1450 NOK	17400/ 1450 NOK

Senior citizens (+67), children (4-15) and students can buy reduced tickets to the public transportation however, students only got this option for month and annual travel passes.

Through Ruter is it possible to buy monthly and annual travel passes for children, students and senior citizens as well. The annual price does not vary according to age.

Reduced tickets/zones	1	2	3	4	All zones
Children (door/pre bought).	15/25 NOK	25/35 NOK	35/45 NOK	45/55 NOK	55/65 NOK
Senior citizens (door/pre bought)	15/25 NOK	25/35 NOK	35/45 NOK	45/55 NOK	55/65 NOK
Children, monthly travel pass	340 NOK	440 NOK	540 NOK	540 NOK	540 NOK
Student, monthly travel pass	410	730	1050	1050	1050 NOK
Senior citizens, monthly travel pass	340 NOK	605 NOK	870 NOK	870 NOK	870 NOK
Concessionary, annual travel pass	3400 NOK	6050 NOK	8700 NOK	8700 NOK	8700 NOK

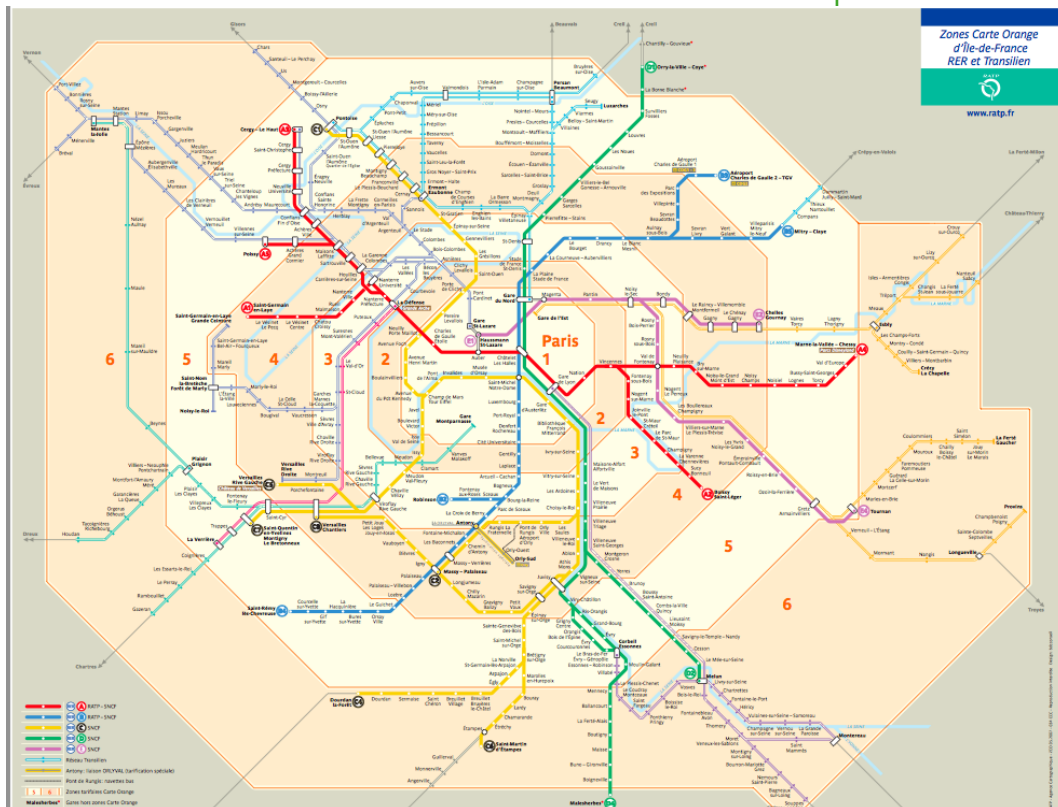
Tourists can buy a 24 hour ticket that gives access to unlimited travelling in either zone 1 with a ticket price at 90 NOK for adults or 2 zones to 140 NOK. Children are half price.

Source: <https://ruter.no/en/tickets/>

3.9 Paris

Description of public transportation network

Paris is divided into 5 zones, where zone 1-3 outline the center of the city. The Syndicat des transports d'Île-de-France (STIF) is the transport organization authority that controls the Paris public transport network and coordinates the different transport companies operating in Île-de-France, mainly the RATP, the SNCF and Optile.



Source: ratp.fr

The commuter trains, run by the national rail system, connect the suburbs to central Paris and also provide a fast way to get around the city and get to and from the airports.

The traveler can use Métro T+ ticket to ride both the RER (regional trains) and Métro within Paris. Most basic tickets cover zones 1 and 2. The T + ticket is also valid for busses however, the traveler cannot transfer from a Métro to a bus or vice versa. This means that it is not possible to make metro/bus, metro/tram, RER/bus and RER/tram connections using the same t+ ticket.

Bus-to-bus transfers can be made with one ticket for 90 minutes after the ticket is stamped (validated) with the time on the first bus. When traveling farther outside the main city limits and past zones 1 and 2 into the other 6 zones, the cost depends on the distance of the travel. These 8 zones are spread out in concentric rings around Paris, which is Zone 1.

The t+ ticket is designed for occasional travelers and visitors within Paris only, who do not wish to use the Paris Visite travel card. The t+ ticket gives access to all Metro lines, RER-lines (zone 1), Ile-de-France busses (except Orlybuss and Roissybuss) and tram. However, t+ tickets allow changes between different lines of Metro and trams but not busses.

Type of ticket/zones	1
T+ ticket (single ticket)	1.8 €
T+ticket (door)	2 €
Ticket coupon (10)	14.4 €

A single metro ticket cost €1.80, and can be used for one journey, including all connections. White-coloured tickets can be purchased singly or in a book of 10 (“carnet”) for €14.40, at the ticket offices or machines in metro stations, and also in some tobacconists. This ticket, valid for zones 1 and 2, allows you to travel anywhere in Paris, and even beyond, since it will take the traveler to the end of each metro line, even if it is located in zone 3 (as for example La Défense on line 1).

On the buses, the travelers use the same tickets as in the metro, with no limit of distance (including suburbs), except on the Balabus, Noctilien and routes 221, 297, 299, 350 and 351. It is possible to buy ticket at the door, where the bus driver can sell single tickets. On the bus, the ticket is only valid for a single journey, with no connections. There will be need of another ticket to change to a different bus route or connect with another form of public transport.

Travel pass/zones	1-2	1-3	1-4	1-5
Monthly travel pass	70 €	89.2 €	107.8 €	116.5 €
Annual travel pass (year/month)	731.5/ 60.95 €	927.3/ 77.27 €	1125.3/ 93.77 €	1204.5/ 100.3 €

As well as the book of 10 tickets (“carnet”), giving you 10 trips at a reduced rate, several travel cards allow you unlimited travel for 1 or more days, a week, a month or even a year, over the whole public transport network (metro, RER, bus, tram, suburban train, Montmartre funicular), corresponding to the different fare zones. Transport is free for children under 4 and half price for children between 4 and 11 years old.

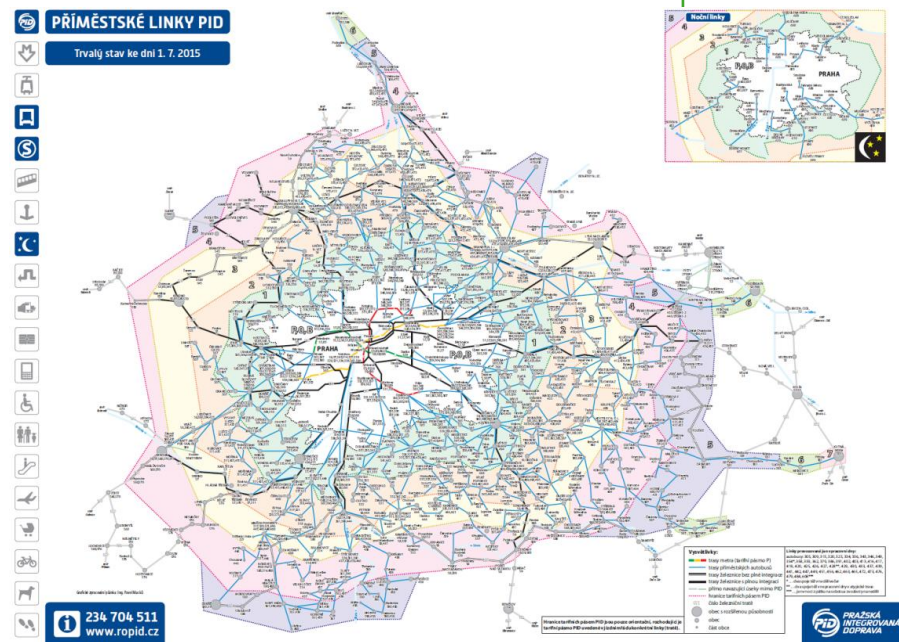
Tourists can buy a ‘Paris A La Carte’ (International Visitors Card) that gives free access to the transportation system for one, two or three days.

Day tickets/zones	1-3	1-5
24 hour	11.15 €	23.5 €
48 hour	18.15 €	35.7 €
72 hour	24.5 €	50.05 €

3.10 Prague

Description of public transportation network

The center of Prague is divided into a P-zone and a O-zone, where two surrounding zones give a total of four zones. The two surrounding zones are furthermore divided into 7 sub-zones. The city transportation is managed by Prague public transportation, where a ticket to zone P gives access to train, metro and bus and two sub-zones. The P-zone ticket is only valid for travelling inside Prague Centrum, where the o-zone ticket gives access to trains heading to the surrounding zones.



Source: dpp.cz

Prague public transportation offer tickets valid for 30 or 90 minutes, where the ticket valid for 90 minutes is listed in the box (32 CZK). A ticket valid for 30 min cost 24 CZK.

Type of ticket/zone	P
Single ticket	32 CZK
Monthly travel pass	550 CZK
5 months	2450 CZK
Annual travel pass (year/month)	4750/ 395.8 CZK

Reduced tickets (only zone P)/validity	90 min	30 min	Monthly	5 months
Senior citizen (+65)	16	12	250	1100
Student	32	24	260	1200
Children (Between 6-15)	16	12	260	1200

Passengers with travel luggage have to buy a ticket worth 16 CZK. Prague public transportation offer reduced prices to children and senior citizens and reduced prices on monthly and annual travel pass for juniors and student.

The following tables list the price travelling outside of Prauge.

Type of ticket/zones	2	3	4	5	6	7	8	9	10	11
Single ticket	18	24	32	40	46	54	62	68	76	84
Monthly travel pass	300	460	700	920	1130	1350	1560	1780	-	-

Reduced tickets/zones	1	2	3	4	5	6	7	8	9
Student	9	13	18	24	30	34	40	46	51
Child	4	6	9	12	15	17	20	23	25
Student/monthly	225	345	525	690	845	1010	1170	1335	-
Child/monthly	110	170	260	345	420	500	585	665	-
Student 5months	1020	1590	2395	3180	3945	4725	5490	6270	-
Child 5 months	510	795	1195	1590	1970	2360	2745	3135	-

Tourists can buy either a 24hours or 72hours travel pass for the centre of Prague.

Day ticket/zone	P
24hours	110
72hours	310

Source: <http://czech-transport.com/index.php?id=39>

3.11 Stockholm

Description of public transportation network

Stockholm is divided in A-, B- and C-zones which can be combined according to the need of the passenger. Central Stockholm and the entire subway system is in zone A.

The city transportation is managed by SL, and a ticket gives access to, and the option to change between bus, train and metro inside the chosen zone. The validity of the ticket is one hour that increases with the number of chosen zones. Instead of ticket coupon SL offers a SL-Access-card, which reduces ticket prices compared to paper tickets.

The passenger can choose between two tickets: Zone tickets and SL- Access-card. Zone tickets are for the occasional journey where a ticket can be bought at a machine or at the barrier.

The SL- Access-card system is for the commuter. First time using the card there is an administration fee at 20 SEK which can be refunded by returning the Card. There are no difference between a pre-bought ticket and the Access-card according to price however; the SL- Access-card has incorporated a price reduction for the frequent user.

If the passenger choose to make the SL-card personal with credit this will give an automatic price reduction that relies on how many zones you will travel in.



Source: SL.se

Type of ticket/zones	A	B	C	AB	BC	ABC
Single ticket	44 SEK	44 SEK	44 SEK	66 SEK	66 SEK	88 SEK
Automat/mobile ticket	36 SEK	36 SEK	36 SEK	54 SEK	54 SEK	72 SEK
SL-acces-card	25 SEK	25 SEK	25 SEK	37.5SEK	37.5 SEK	50 SEK

The monthly travel pass gives access to both A, B and C zones. The table lists the price for an annual travel pass per month.

Travel pass/zone	ABC
Monthly	790 SEK
Annual (year/month)	8300/691.6 SEK

Beside paper tickets and Travel Card, Stockholm city transportation offer reduced prices to children, students and senior citizen. The reduced price is for students under the age of 20 and senior citizens +65.

Reduced tickets/zones	A	AB	ABC
Automatbillett	20 SEK	30 SEK	40 SEK
Door ticket	28 SEK	42 SEK	56 SEK
Monthly travel pass	490 SEK		
Annual travel pass	4990 SEK		

Tourists can buy special travelcards for 24 hours or 72 hours which gives free access to the public transportation system in zone A.

Day tickets / zone	A
24 hours	115 SEK
72 hours	230 SEK

Source: <http://sl.se/en/fares--tickets/>

3.12 Vienna

Description of public transportation network

The city Centrum of Vienna is outlined as one zone, where the surrounding area is divided into different zones. Each zone cost € 2.2 and can be bought single or in combination with other zone. The maximum price is 8 zones (€ 17.60)The public transportation is managed by Verkehrsverbund Ost-Region (VOR) that is a corporation between the traffic organizations in- and outside of Wien. Therefore a ticket is valid for train, bus and metro with the option for change between lines. That validity of a ticket is one hour.



Source: vor.at

Type of ticket/ zones	Centre	1	2	3	4	5	6	7	All surr. zones	All zones
Single ticket	2,2 €									
Monthly travel pass	48.2 €	39.9 €	64.1 €	84.6 €	101.8 €	118.2 €	122.5€	127 €	130.4 €	175.2 €
Annual travel pass	365 €	405 €	651 €	85 €	1028 €	1175 €	1216 €	1237 €	1266 €	1592 €

Besides single tickets and monthly travel pass, Verkehrsverbund Ost-Region offer half price tickets for children, 2-journey tickets for senior citizens, 24hour, 48hour and 72hour tickets, Vienna Card, 8 days ticket, weekly travel pass and annual travel pass.

Reduced prices/zone	Centrum
Children	1.1 €
Senior citizens	2.8 €

The reduced ticket price for children give the same access opportunities as an adult ticket. A senior ticket gives access to two trips with the same ticket – within the same zone. Tourists can buy various kinds of cards that give unlimited travel pass in the city Centrum. Furthermore the Vienna card give the holder discount to several attractions in the city.

Day ticket/zone	Centre
24 hour	7.6 €
48 hour	13.3 €
72 hour	16.5 €
Vienna card	21.9 €

Source:

<http://homepage.univie.ac.at/horst.prillinger/ubahn/english/fares.html>

4. Recalculation of prices

The recalculation of the local prices into EURO has been done based on exchange rates from the Danish National Bank on July 28th. On that day the exchange rates was as follows:

Country/currency	Exchange rate (100 EURO)
Austria/EURO	100
Belgium/EURO	100
Czech Republic/CZK	2702.46
Denmark/DKK	746.15
England/GBP	70.74
Finland/EURO	100
France/EURO	100
Germany/EURO	100
Netherlands/EURO	100
Norway/NOK	902.13
Sweden/SEK	945.33

In order to get a fair comparison of the previous shown prices we have recalculated the prices into EURO and adjusted the prices according to local buying power.

The adjustment for local buying power is based on 'UBS – Prices and Earnings, 2012 edition'. This report is issued every three years since 1970 and is based on interviews with citizens in 72 cities around the world. It gives a comprehensive comparison of prices, salaries, taxes, social security deductions, working hours and vacation days. A ranking of the relative buying power is deducted from these data.

The buying power is based on net hourly pay after taxes and social security deductions. The buying power expresses the amount of goods and services that can be bought from an average income in the relevant city.

City	Buying Power Index (Net hourly pay divided with cost of basket of goods excluding rent) New York = 100
Amsterdam	90.1
Berlin	97.0
Brussels	78.6
Copenhagen	92.5
Hamburg *)	92.4
Helsinki	85.8
London	86.2
Oslo	84.0
Paris	87.7
Prague	46.2
Stockholm	84.9
Vienna	87.1

*) Hamburg does not appear in the UBS report. We have used an average based on the index from Berlin, Frankfurt and Munich.

When looking at prices of 24 hour daypasses (aimed at tourists) we have also made a comparison with the UBS Price of a city break Index (appears also in the above mentioned UBS report from 2012). This is to see if the price of a tourist ticket for public transportation is relatively more or less expensive than the tourist prices in general.

The UBS Price of a city break Index is based on the cost of a city break for two people, including two evening meals with wine, an overnight hotel stay for two people, the cost of a hire car (100 kilometers), public transport and taxi and miscellaneous minor expenses (telephone call, paperback book, etc.).

UBS AG is a global service company within the financial sector with headquarters in Basel and in Zurich. It is the world largest manager of private funds and the second largest bank in Europe.

5. Comparison of fare prices in EURO and adjusted for buying power

Comparing prices across the 12 European cities is influenced by the fact that each city has its own different ticketing systems. In other words, we cannot just compare a ticket/price from one city with that of another, since that ticket may not exist. We have consequently decided to make the comparison based on 5 different passenger profiles to keep the study simple but still relevant.

1. Infrequent traveller making a short trip (5 km) in the centre of the city.
2. Infrequent traveller making a long trip in the entire network.
3. Commuter travelling a short distance (5 km) in the centre of the city.
4. Commuter travelling a long distance in the entire network.
5. Tourist wanting to get around in the centre of the city (one day).

Many other profiles exist, and had we chosen them instead it may have lead to other prices and rankings.

Inclusions and exclusions

As mentioned before, we have made some inclusions and exclusions in our methodology. Please notice the considerations in Chapter 2 regarding:

- *Size of the area/region where the ticket/travel pass is valid*
- *Number of zones*
- *Tickets for single journeys*
- *Peak/off peak*
- *Electronic Travel Cards*

General findings

We find only little consistency between prices on single tickets and monthly passes, and the size of the city and the covered network. Prague is in general an inexpensive city when it comes to public transportation if you only look at the charged prices in Euro. However, when we recalculate for buying power it turns out that Brussels is the cheapest of the 12 cities monitored, and Prague only number 5. This is partly due to the fact that the public transport network area around the city of Brussels is relatively small and partly because the whole area is one zone so the price remains the same no matter if you need to take a short or a longer trip.

Other relatively cheap cities are Berlin, Amsterdam and Hamburg. Berlin and Hamburg offer flat rates on short single trips and Amsterdam is only one zone with a fixed price. The 4 relatively cheapest cities all offer monthly travel passes covering the whole network at a very reasonable price, and with a discount if you have an annual subscription.

London is relatively the most expensive city of the 12. Only when it comes to Tourist daypasses London is not among the most expensive but at the average of the 12 cities. London has the largest network, and especially the monthly travel passes are relatively very expensive. Oslo seems to be the second-most expensive of the 12 cities.

The other cities take changing positions when we rank the relative prices of our 5 cases. This is likely to reflect historical reasons or due to political decisions or decisions made by the local PTA regarding the price structure.

Nevertheless you can see a general pattern in the 5 indexes adjusted for buying power compared to the ranking of the cities, e.g.:

- Oslo and London is among the most 4 expensive cities in 5 out of 5 indexes. Stockholm is among the 3 most expensive cities in 3 out of 5 indexes.
- On the other hand Brussels, Berlin and Amsterdam is among the 3 cheapest cities in 3 out of 5 indexes.
- Copenhagen is total on the average of all indexes of the cities (100). 7 cities are below the average and 4 cities are above the average.
- Vienna is among the 3 cheapest cities in 2 out of 5 indexes, but at the same time the most expensive city in 1 of the 5 indexes. That fact is making Vienna among the 3 most expensive cities on average.

If we compare the index for prices of a 24 hour day pass in the 12 cities with the UBS Price of a city break (index of the 12 cities compared to the average price of the 12 cities) we find in the general that the cities which has low tourist prices in general (City break prices) in general also have low prices on the 24 hour pass (see table 9).

5.1 Prices/ranking based on an infrequent traveller making a short trip in the centre of the city

Recalculating single fare tickets into Euro we find that a short trip is by far cheapest in Prague (see table 1). It is only €0.89. The ticket is however only valid for 30 minutes. London is the most expensive city when buying a single ticket for a short trip (€6.79) but most Londoners use the electronic Oyster travel card, and then the price comes down to €3.25. It is however still 3.7 times the price in Prague.

Taking the local buying power into consideration we find, that Hamburg's 'short-trip' ticket offers the relatively cheapest ticket for a short trip using public transportation. Closely followed by Paris (Carnet) and Berlin ('short-trip' ticket). The relative price index in these 3 cities is 30% below the average of the 12 cities monitored.

It is interesting to see that one of the reasons for the top-4 cities to be relatively cheap is that they offer either short-trip tickets or 'carnets' of 10 single tickets. The price in Amsterdam is based on the use of the OV Chip Card, which requires that you have purchased a card. These 5 cities also only have one or a few large zones/rings, so you can actually travel 5 km without crossing a border to the next zone, which in some cases would have made the journey more expensive.

Oslo and London are the relatively most expensive cities when it comes to making a single short trip using public transportation. These cities are relatively 60% to 68% more expensive than the average of the 12 cities. And this requires the use of the Oyster travel card in London. Without the Oystercard the journey in London would have been more than double the price. Stockholm is the 3rd most expensive city with app. 30% above average when the prices are adjusted for buying power.

In Copenhagen the electronic travelcard has been introduced recently a.o. replacing a 10 trip punchcard. The distribution of the travelcard has still not reached its full potential, and as a consequence a rather high proportion of the journeys are still based on the regular single ticket price, which is relatively high compared to that of the other cities. The regular single trip ticket is 60% more expensive than the reduced price offered when you use the travelcard.

Table 1

Cities	City centre - short (5 km) trip				Adjusted for buying Power	Index	Comment
	EUR						
	Single ticket	Multi single	Travel card	Cheapest alternative			
Hamburg	1.50 ^{*)} /3.10			1.50	1.62	69	^{*)} Short-trip ticket
Paris	1.80	1.44 ^{*)}		1.44	1.64	70	^{*)} 10 single tickets
Berlin	1.60 ^{*)} /2.70			1.60	1.65	70	^{*)} Short-trip ticket
Brussels	2.10	1.40 ^{*)}	2.00	1.40	1.78	75	^{*)} 10 single tickets
Amsterdam	2.90		1.64 ^{*)}	1.64	1.82	77	^{*)} For a single trip of 5 km
Prague	0.89			0.89	1.93	82	^{*)} valid for 30 min
Copenhagen	3.21		2.01 ^{*)}	2.01	2.17	92	^{*)} Peak prices
Helsinki	2.50		2.00	2.00	2.33	99	
Vienna	2.20			2.20	2.53	107	
Stockholm	3.81		2.64	2.64	3.11	132	
London	6.78		3.25 ^{*)}	3.25	3.78	160	^{*)} Peak prices
Oslo	3.33			3.33	3.96	168	
Average					2.36	100	

5.2 Prices/ranking based on an infrequent traveller making a long trip across the entire network of the city

Recalculating single fare tickets into Euro we find that a long trip is cheapest in Brussels (See table 2). This is caused by the fact that Brussels has one fixed fare for a single ticket no matter the length of the journey. This makes Brussels relatively expensive if we look at a short trip but at the same time cheap when we look at the price of at long trip. The fare is €2.10 but if you hold an electronic travel card the price goes down to € 2.00, and € 1.40 if you buy a 10-trip Jump ticket. One should remember that the region around Brussels is the smallest of the 12 city-regions monitored so a long journey is relatively shorter than that of the other cities.

Adjusting the prices for buying power we find that Brussels, Amsterdam and Berlin are the least expensive cities when it comes to a long single trip. Approximately 60% to 80% below the average. This is caused by the fact that the cities have only few zones and a flat rate ticket. In Berlin the ticket is valid for 2 hours, in Amsterdam and Brussels only 1 hour.

Vienna is by far the most expensive city-region when it comes to a single long trip. Approximately 140% above the average. This is caused by the fact that Vienna has a number of zones surrounding the centre zone, and that the price is calculated based on a cost of € 2.20 per zone with a maximum of € 17.60.

London and Oslo are also more expensive when looking at the relative adjusted price of a single long journey. The remaining 6 cities are close to the average with Stockholm being the relatively cheapest with an index of 77. This caused by the fact that Stockholm has only 3 zones despite the size of the region, and that the passengers using the SL-Access Card is granted a discount compared to the regular single tickets.

In Copenhagen the electronic travelcard has been introduced recently a.o. replacing a 10 trip punchcard. The distribution of the travelcard has still not reached its full potential, and as a consequence a rather high proportion of the journeys are still based on the regular single ticket price, which is relatively high compared to that of the other cities. The regular single trip ticket is 120% more expensive then the reduced price offered when you use the travelcard. In fact the regular single trip price is only exceeded by that of Vienna.

Table 2

	Entire network (longest trip)						
	EUR				Adjusted for buying Power	Index	Comment
City	Single ticket	Multi single	Travel card	Cheapest alternative			
Brussels	2.10	1.40 *)	2.00	1.40	1.78	21	*) 10 single tickets
Amsterdam	2.90			2.90	3.22	39	
Berlin	3.30			3.30	3.40	41	
Stockholm	7.62		5.29	5.29	6.23	75	
Prague	3.11			3.11	6.73	81	
Helsinki	7.50		5.96	5.96	6.95	83	
Copenhagen	14.47		6.57*)	6.57	7.10	85	*) Peak prices
Hamburg	8.15*)			8.15	8.82	106	*) Online purchase
Paris	8.40			8.40	9.58	115	
London	11.87		9.75*)	9.75	11.31	136	*) Peak prices
Oslo	12.19			12.19	14.51	174	
Vienna	17.60			17.60	20.20	243	
Average					8.32	100	

5.3 Prices/ranking based on a commuter travelling a short daily distance in the city centre

Prague offers the cheapest price for a travel pass of €14.65 per month if you have an annual subscription to a travel pass in the P-zone. When we take the local buying power into consideration the travel pass in Hamburg is slightly more affordable, despite the fact that the monthly price in Hamburg is € 29.00. Both cities are index 47 when adjusted for buying power compared to the average.

Vienna is also relatively inexpensive if you have an annual subscription to a travel pass in the centre zone. The monthly cost is only € 30.42 (index 52 when adjusted for buying power), because Vienna offers the highest discount of 37% on the annual subscription. Otherwise the price would have been € 48.20.

Helsinki (index 64) and Copenhagen (index 78 when adjusted for buying power) seems more competitive when it comes to a monthly short distance travel pass than on single trip tickets despite the fact that neither of the cities offers the possibility of an annual subscription with an attached discount. This on the other hand means that the relatively competitive price is available to all commuters even if they do not need the travel pass all year.

London (€ 151.26 after discount/index 260 when adjusted for buying power) is by far the most expensive city if you want to have a seasonal travel pass. Stockholm as the second-most expensive is less than half the price. The reason for Stockholm being so relatively expensive is that Stockholm only offer a travel pass covering all 3 zones in the Stockholm-region, and not just the centre zone.

Amsterdam (index 124) and Brussels (index 92), which are among the cheapest cities when it comes to single tickets, is relatively more expensive when it comes to monthly/annual travel passes. Amsterdam moves from 5th position to number 10, and Brussels from 4th position to number 6. Vienna on the other hand moves from 9th position to number 3, and Prague from number 6 to being 2nd cheapest.

Table 3

City	Travel passes (city centre)				Saving percent	Adjusted for buying power (Annual per month)	Index (Annual per Month)
	EUR			Cost reduction vs. Monthly pass			
	Monthly pass	Annual pass	Annual subscription per month				
Hamburg	35.40	348.00	29.00	6.40	18%	31.40	47
Prague	20.35	175.77	14.65	5.70	28%	31.70	47
Vienna	48.20	365.00	30.42	17.78	37%	34.92	52
Helsinki	37.10	445.20	37.10	0.00	0%	43.24	64
Copenhagen	48.92	587.01	48.92	0.00	0%	52.88	78
Brussels	55.50	583.00	48.58	6.91	12%	61.81	92
Berlin	79.50	740.00	61.67	17.83	22%	63.57	94
Paris	70.00	731.50	60.95	9.04	13%	69.50	103
Oslo	75.37	753.77	62.81	12.56	17%	74.80	111
Amsterdam	90.00	900.00	75.00	15.00	17%	83.24	124
Stockholm	83.57	878.00	73.16	10.40	12%	86.17	128
London	174.30	1815.10	151.25	23.04	13%	175.47	260
Average					16%	67.39	100
Average excl. Helsinki and Copenhagen					19%		

We notice the 10 of the 12 cities offers the possibility of an annual subscription with an attached discount. Only Helsinki and Copenhagen does not offer this. The discounts vary from 12% in Brussels and Stockholm to 37% in Vienna with the majority around 17% - 18%. The average discount in the 10 cities is 19%.

Single ticket or travel pass?

Many commuters do not need to travel every day. They may have part time jobs or a working space at home. For them it is often a question if it is worth while buying a travel pass, or if they should buy single tickets or get an electronic travel card (Oyster, SL-Access, Rejsekortet a.o.) that entitles them to some sort of discount.

Table 4 shows that in Helsinki – if you make more than 19 short single trips per month – you are better off with a monthly travel pass. In Vienna, Oslo, Prague, Hamburg and Copenhagen the break even lies from 22 to 24 trips per month. In the other end of the scale we find Paris, Berlin, London and Amsterdam where you have to make 49-55 short trips per month before the monthly travel pass is a better deal. In Amsterdam, Paris and Berlin it is partly due to the fact that the single ticket is relatively cheap but that is not the case for London.

Table 4

City centre - short (5 km) trip				
City	EUR			How many single tickets on a monthly pass
	Monthly pass	Single ticket	Cheapest single ticket	
Helsinki	37.10	2.50	2.00	19
Vienna	48.20	2.20	2.20	22
Oslo	75.38	3.32	3.33	23
Prague	20.35	0.88	0.89	23
Hamburg	35.40	1.50*)/3.10	1.50	24
Copenhagen	48.92	3.22	2.01	24
Stockholm	83.56	3.81	2.64	32
Brussels	55.50	2.10	1.40	40
Paris	70.00	1.80	1.44	49
Berlin	79.50	1.60*)/2.70	1.60	50
London	174.30	6.79	3.25	54
Amsterdam	90.00	2.90	1.64	55



5.4 Prices/ranking based on a commuter travelling a long daily distance in the entire network.

The price of monthly travel passes that cover the entire network also differs a lot (see table 5). Brussels has a relatively small network and everything is in one zone. The price is therefore the same as for the short trip monthly travel pass (€ 48.60/index 42 when adjusted for buying power). Stockholm as previously mentioned is only offering one option regarding monthly passes, and that is a pass that covers the entire network. This means that Stockholm is among the cheapest cities (€ 73.20/index 58 when adjusted for buying power) when it comes to monthly travel passes for the entire network.

Prague is also offering an inexpensive travel pass but when we adjust for buying power Prague is only mid-field close to the average (€ 65.9/index 96 adjusted for buying power).

Again London is very expensive. The monthly cost is € 393.00/index 308 adjusted for buying power despite the fact that London offer a 13% discount if you subscribe to the travel pass on an annual basis. Of course it should be taken into consideration that the network and area in which you are allowed to travel around London is much bigger than that of Brussels, Berlin and Amsterdam. Paris is index 77 adjusted for buying power, just to compare.

The discounts offered if you subscribe to a travel pass covering the whole network of the city differs from 12% to 24%, while Helsinki, Copenhagen and Prague are offering 0% in discount. The average discount excluding these 3 cities is 16 %, which is interesting because the average discount when subscribing to a travel pass just for the centre of the cities was 19%. (Amsterdam, Stockholm and Brussels being unchanged.) You would expect that the longer the journey and the larger the area/network, the bigger would the discount be. But it seems not to be the case.

Vienna, offering expensive single tickets for a long trip in the region is close to the average price of the travel passes. Among others because Vienna is offering a 24% discount on the annual pass.

Table 5

City	Travel passes (entire network)				Saving percent	Adjusted for buying power (Annual per month)	Index (Annual per Month)
	EUR						
	Monthly	Annual	Annual/month	Cost reduction			
Brussels	55.50	583.00	48.58	6.91	12%	61.81	42
Berlin	98.50	947.00	78.91	19.58	20%	81.35	55
Amsterdam	90.00	900.00	75.00	15.00	17%	83.24	56
Stockholm	83.56	878.00	73.16	10.40	12%	86.17	58
Hamburg	98.00	964.80	80.40	17.60	18%	87.01	59
Paris	116.50	1204.50	100.37	16.12	14%	114.45	77
Helsinki	110.00	1320.00	110.00	0	0%	128.20	87
Prague	65.86	790.40	65.86	0	0%	142.56	96
Vienna	175.20	1592.00	132.66	42.53	24%	152.31	103
Oslo	192.87	1928.8	160.73	32.14	17%	191.34	129
Copenhagen	178.91	2147.02	178.91	0	0%	193.42	131
London	452.78	4715.86	392.98	59.79	13%	455.90	308
Average					12%	148.15	100
Average excl. Helsinki, Prague and Copenhagen					16%		

Single ticket or travel pass?

As seen previously there is a big difference between the cities when it comes to when it is attractive to use single tickets and carnet or electronic travel card, and when it is preferable to subscribe to a travel pass.

Table 6 shows that in Vienna region you only have to make long 10 trips per month (8 zones or more) before you are better off with a monthly travel pass. That is less than 3 trips per week. In Hamburg and Paris you only have to make 12 and 14 journeys respectively before the travel pass is a good bargain.

Again London and Brussels are the cities where you have to travel the most before you reach the tipping point. In London you have to make 23 roundtrips (46 single trips) per month before the travel pass is the cheapest solution.

In Copenhagen (27), Berlin (30) and Amsterdam (31) you have to make 14-15 roundtrips per month before a travel pass is attractive.

Table 6

Longest journey - entire network				
City	EUR			How many single tickets on a monthly pass
	Monthly pass	Single ticket	Cheapest single ticket	
Vienna	175.2	17.60	17.60	10
Hamburg	98.00	8.15	8.15	12
Paris	116.50	8.40	8.40	14
Stockholm	83.56	7.61	5.28	16
Oslo	192.87	12.19	12.19	16
Helsinki	110.00	7.50	5.96	18
Prague	65.86	3.10	3.10	21
Copenhagen	178.91	14.47	6.57	27
Berlin	98.50	3.30	3.30	30
Amsterdam	90.00	2.90	2.90	31
Brussels	55.50	2.10	1.40	40
London	452.78	11.87	9.75	46

5.5 Prices/ranking based on a tourist wanting to get around in the centre of the city.

It is obvious from table 7 that the prices for tourist passes are not calculated the same way as the regular fares. Prague is still offering the cheapest 24 hour pass (€ 4.07) but London is in the middle of the field this time with a price of € 9.05. Copenhagen, Oslo, Paris and Stockholm a.o. are more expensive when we are recalculating into Euro.

In general the prices seem less spread out. 9 of 12 cities lie within index 81 to 115 adjusted for buying power. It is easy to come to the conclusion that the price of public transportation for tourists is a parameter when a city is trying to sell itself to the tourists, so for the sake of competition the prices are kept low. The people living in the city or its suburbs don't have the same privilege of being able to choose where to go and which public transportation to use, so they have to accept the prices offered to them.

If we adjust for local buying power Brussels seems to be offering the cheapest day pass for tourists. All day passes cover the central part of the cities and their public transport networks. As such the service offerings and prices are fairly comparable, still taking into consideration, that London and Paris and perhaps Berlin are the bigger networks.

Table 7

City	Daypasses (for tourists)					
	EUR			Adjusted for buying Power (24 h pass)	Index (24 h pass)	Comment
	24 hours	48 hours	72 hours			
Brussels	5.00		15.00	6.36	62	
Amsterdam	7.50	12.00	16.50	8.32	81	
Vienna	7.60	13.30	16.50	8.72	84	Central Vienna zone
Prague	4.07		11.31	8.81	85	Central Prague Zone P
Helsinki	8.00	12.00	16.00	9.32	90	Helsinki area
Hamburg	9.50	18.50	24.50	10.28	100	
London	9.04	12.80	19.20	10.49	102	Central London Zones 1-2
Berlin	10.75 *)	21.50	28.70	11.08	107	*) Based on 48 h price
Copenhagen	10.72		26.82	11.59	112	Central Copenhagen Zones 1-4
Oslo	9.97			11.87	115	Oslo area zone 1
Paris	11.15	18.15	24.50	12.71	123	Central Paris Zone 1-3
Stockholm	12.16		25.03	14.32	139	Central Stockholm Zone A
Average				10.32	100	

*) 24 h pass does not exist in Berlin. The price is based on the 48 h price divided by 2.

5.6 Comparison of price indexes across tickets and travel passes

If we take a look across the 5 passenger profiles/cases that we have set up we get an impression of the general price levels of public transportation in the 12 cities.

Table 8 shows the price indexes previously shown and an average of the 5 indexes adjusted for buying power. Please note that the single ticket prices (collum 1 and 2) is based on the cheapest alternative price for a single journey, usually a travel card price, and the price for travel passes (collum 3 and 4) is based on a price including discounts for annual subscription where applicable.

Brussels turns out to be on average the cheapest of the 12 cities, mainly because the whole network of the city is one zone/tariff and that the area/network is among the smallest of the 12.

London on the other hand is in general the most expensive city but also covers the biggest network/area and offers the most services. Oslo is second-most expensive despite the size of the city and network.

Stockholm is noticeable because it seems that fares only covering central Stockholm are relatively expensive whereas commuters get relatively lower prices (entire network ticket and travel pass). The same goes for Brussels and Amsterdam, but that is because the areas are being treated as one zone.

Some other inconsistencies appears which demonstrates the fact that price setting is a local decision and often involve political approval and a close look at what is possible. The Vienna region is one example (expensive single ticket-long distance and cheap travel pass in the centre of the city with a high discount).

Although you can see a general pattern in the 5 indexes adjusted for buying power:

- Oslo and London is among the most 4 expensive cities in 5 out of 5 indexes. Stockholm is among the most 3 expensive cities in 3 out of 5 indexes.
- Copenhagen and Paris is both among the most 3 expensive cities in 1 out of 5 indexes.
- On the other hand Brussels, Berlin and Amsterdam is among the 3 cheapest cities in 3 out of 5 indexes.
- Hamburg is among the 3 cheapest cities in 2 out of 5 indexes.
- Paris and Prague is both among the 3 cheapest cities in 1 out of 5 indexes.
- Copenhagen is total on the average of all indexes of the cities (100). 7 cities are below the average and 4 cities are above the average.

- Vienna is among the 3 cheapest cities in 2 out of 5 indexes, but at the same time the most expensive city in 1 of the 5 indexes. That fact is making Vienna among the 3 most expensive cities on average.

Table 8

City	Indexes					
	Single ticket City centre - short (5 km) trip	Single ticket Entire network (longest trip)	Travel passes (city centre)	Travel passes (entire network)	Daypasses (for tourists)	Average
Brussels	75	21	92	42	62	58
Berlin	70	41	94	55	107	73
Amsterdam	77	39	124	56	81	75
Hamburg	69	106	47	59	100	76
Prague	82	81	47	96	85	78
Helsinki	99	83	64	87	90	85
Paris	70	115	103	77	123	98
Copenhagen	92	85	78	131	112	100
Stockholm	132	75	128	58	139	106
Vienna	107	243	52	103	84	118
Oslo	168	174	111	129	115	139
London	160	136	260	308	102	193

Red: Among the 3 most expensive cities in the indexes

Green: Among the 3 cheapest cities in the indexes

If we compare (Table 9) the index for prices of a 24 hour day pass in the 12 cities with the UBS Price of a city break (index of the 12 cities compared to the average price of the 12 cities) we find that the cities which has low tourist prices in general (City break prices) in general also have low prices on the 24 hour pass (Table 9).

The most obvious outlier is Berlin which is among the 3 cheapest cities for a city break but at the same time among the 3 most expensive cities for a 24 hour pass. The same can be said about Stockholm which is relatively cheap for a city break but at the same time the most expensive city for a 24 hour pass.

Table 9

City	24 hour daypass		UBS Price of a city break	
	EUR	Index (Avg = 100)	US\$	Index (Avg = 100)
Prague	4.07	46	740	85
Brussels	5.00	57	730	84
Amsterdam	7.50	85	720	82
Vienna	7.60	86	830	95
Helsinki	8.00	91	960	110
London	9.04	103	930	107
Hamburg	9.50	108	823 **)	94
Oslo	9.97	113	1000	115
Copenhagen	10.72	122	1060	122
Berlin	10.75 *)	122	720	82
Paris	11.15	127	1100	126
Stockholm	12.16	138	810	93
Average	8.79	100	869	100

*) 24 h pass does not exist in Berlin. The price is based on the 48 h price divided by 2.

**) Hamburg does not appear in the UBS report. We have used an average based on the index from Berlin, Frankfurt and Munich.

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8. About The Passenger Pulse

The Passenger Pulse is the Passenger Watchdog at the Danish Consumer Council. The goal of the organisation is a better public transportation system for the passengers in Denmark.

Field of work

The Passenger Pulse is the new consumer watchdog in connection with the use of bus, train and metro and runs as a part of the Danish Consumer Council.

Our aim is to represent interest of the passengers in public transport in all areas of Denmark.

Background

The Passenger Pulse was launched in October, 2014, and is the first of its kind in Denmark to represent all users and interest groups within the area of public transport.

Over the years, The Danish Consumer Council has intensified the work of creating the best conditions for the users of public transport. With the making of the Passenger Pulse, the potential for pressing towards better conditions for the users of public transport has been increased.

The Passenger Pulse intends to gain access to know-how about the passengers' habits and preferences according to public transportation and push forward that these will be taken into account with the authorities and transport operators.

The Passenger Pulse is founded by the Danish Consumer Council and sponsored by the Danish Ministry of Transport and is independent from the transport operators

What we do

Our aim is to represent the passengers at several levels according to the use of public transportation. Therefore we gather as much information about the passengers needs as possible.

The national passenger-satisfaction survey

We conduct national surveys of passenger satisfaction according to the use of bus, metro and train as a combined trip.

The Passenger panel

The Passenger panel is a web based survey group, with the aim of examining the users of public transport according to their habits and satisfaction with bus, train and metro. We aim to gather a Passenger panel at the size of 10.000 respondents.

Passenger agents

The Passenger Pulse has established a team of 200 volunteer Passenger agents who will be our eyes and ears in the field. They will conduct and document their experiences with public transport all over the country.

Forum of interest group

The Forum of interest group consists of commuters and interest groups will function in cooperation with the Passenger Pulse. Together, we have the common aim of creating a higher level of satisfaction among the users of public transport.

Our focus points

- Is in an ongoing dialog and cooperation with the passengers, traffic operators and decision-makers.
- Safeguard the interests of all passengers including commuters, students, the elderly, disabled etc.
- Provide evidence-based knowledge about the experience, level of satisfaction, requests, and needs according to the users of public transport.
- Put all our knowledge at your disposal
- Will focus at the passengers' combined trips without regards to the kind of transport being used.
- Foster a potential for a development in the public transport system from the passengers' point of view.
- Benchmark (nationally and internationally) according to best practice: Value for money.

