

= Oslo Metro =

The Oslo Metro (Norwegian : Oslo T @-@ bane or Oslo Tunnelbane or simply T @-@ banen) is the rapid transit system of Oslo , Norway , operated by Sporveien T @-@ banen on contract from the transit authority Ruter . The network consists of five lines that all run through the city centre , with a total length of 85 kilometres (53 mi) , serving 101 stations of which 17 are underground or indoors . In addition to serving 14 out of the 15 boroughs of Oslo (all except St. Hanshaugen) , two lines run to Bærum . In 2015 , the system had an annual ridership of 94 @.@ 4 million .

The first rapid transit line , the Holmenkoll Line , opened in 1898 , with the branch Røa Line opening in 1912 . It became the first Nordic underground railway in 1928 when the underground line to Nationaltheatret was opened . The Sognsvann Line opened in 1934 and the Kolsås Line in 1942 . The opening of the upgraded T @-@ bane system on the east side of town occurred in 1966 , after the conversion of the 1957 Østelsjø Line , followed by the new Lambertseter Line , the Grorud Line and the Furuset Line ; in 1993 trains ran under the city between the two networks in the Common Tunnel , followed by the 2006 opening of the Ring Line . All the trains are operated with MX3000 stock . These replaced the older T1000 stock between 2006 and 2010 .

= = History = =

= = = Suburban lines in the west = = =

Rail transport in Oslo started in 1854 , with the opening of Hoved Line to Eidsvoll , through Groruddalen . In 1872 , Drammen Line , going through Oslo West , and in 1879 , Østfold Line going through Nordstrand opened , offering a limited rail service to those parts of the city . By 1875 , Kristiania Sporveisselskab (KSS) opened the first horsecar trams . In 1894 electric trams were in service by Kristiania Elektriske Sporvei (KES) .

The first suburban tram line was the Holmenkoll Line that was opened by Holmenkolbanen in 1898 ; like all the later suburban tram line these were electric trams with a grade @-@ separated right @-@ of @-@ way and proper stations instead of tram stops , making it the first rapid transit in Oslo . Unlike the other suburban tram lines that were built later , the Holmenkollen Line was not extended into the city as a streetcar ? instead passengers had to change at Majorstuen to the streetcars , though the system did not take into use wider suburban stock (3 @.@ 1 metres (10 ft)) until 1909 . A branch line was opened in 1912 , to Smestad , and in 1916 the Holmenkollen Line was extended to Tryvann , with the last part from Frognerseieren single track and used for freight , and removed in 1939 .

In 1912 , the construction of the first underground railway in the Nordic Countries started , when A / S Holmenkolbanen started construction of an extension of their line from Majorstuen to Nationaltheatret ; the 2 @.@ 0 kilometres (1 @.@ 2 mi) line was opened in 1928 (and was then only the second underground railway to be opened in the Nordic countries after Boulevardtunnelen in Copenhagen which opened in July 1918) , with one intermediate station at Valkyrie Plass , giving the two suburban lines access to the central business district of Oslo .

The success of the suburban lines tempted KES to extend their streetcar service west from Skøyen as a suburban line ; the Lilleaker Line opened to Lilleaker in 1919 , to Avløs in 1924 and to Kolsås in 1930 . A new section from Jar to Sørbyhaugen opened in 1942 , connecting the line from Jar to Kolsås to Nationaltheatret , and making it a rapid transit and the replacement of stock with wide suburban standard . This service remained part of the municipal Oslo Sporveier , that had bought all the streetcar companies in 1924 .

Compensation for large amounts of damage to houses along the route during construction , along with higher construction costs than calculated was a heavy burden on the company , and in 1934 , the municipality of Aker took over the common stock , though the preferred stock remained listed on the Oslo Stock Exchange until 1975 , as Oslo Sporveier gradually took over the operation of the western suburban lines . Akersbanerne opened the connecting Sognsvann Line in 1934 .

== = Metro = = =

The first idea to launch a city @-@ wide rapid transit was launched in 1912 with the construction of the Ekeberg Line ; constructed with the same width profile as the Holmenkollen Line , the plan was to build a tunnel under the city center and run through trains , but large cost expenditures on the first section of the Common Tunnel ceased the plans . As part of the rebuilding after World War II a planning office for a T @-@ bane was established in 1949 , with the first plans launched in 1951 ; in 1954 , the city council decided to build the T @-@ bane network in Eastern Oslo with four branches . The system would feature improvements over the suburban lines in having a third rail power supply , cab signaling with Automatic Train Protection , stations long enough for six @-@ car trains and level crossings replaced by bridges and underpasses ? specifications christened metro standard .

At the time there were two suburban tramways on the east side , the Ekeberg Line (opened in 1919) and the Østensjø Line (1923) . Only the latter would be connected to the T @-@ bane ; the Ekeberg Line would remain a tramway , but three new lines were to be built ? the Grorud Line on the north side and the Furuset Line on the south side of Groruddalen and the Lambertseter Line on the east of Nordstrand . These areas were all chosen as new suburbs for Oslo , and would quickly need a good public transport system ; suburban lines would first be built out extending from the existing tramway , and later a final section with tunnel to the central station would be built . The Lambertseter Line was opened in 1957 , from Brynseng to Bergkrystallen while the Østensjø Line was extended to Bøler in 1958 .

The metro opened on 22 May 1966 , when the Common Tunnel opened from Brynseng to the new downtown station of Jernbanetorget , located beside the Oslo East Railway Station . In October the Grorud Line opened to Grorud while the Østensjø Line was connected to the system in 1967 when the line also was extended to Skullerud . In 1970 , the Furuset Line opened to Haugerud and extended to Trosterud in 1974 , at the same time as the Grorud Line was extended to Vestli . By 1981 , the Furuset Line had reached Ellingsrudåsen . The metro took delivery of T1000 rolling stock from Strømmens Værksted ; from 1964 to 1978 , 162 cars in three @-@ car configurations were delivered for the eastern network .

== = One tunnel = = =

The eastern network was extended from Jernbanetorget to Sentrum in 1977 . This station was forced to close in 1983 , due to water leakage , and when it opened again in 1987 , renamed Stortinget , the west network tunnel had also been extended there . Through services were not possible at the time because of incompatibility of signaling and power equipment . Not until 1993 did the first trains run through the station , after the Sognsvann Line had been rebuilt to " metro standard " ; the Røa Line followed in 1995 . The Holmenkoll and Kolsås Lines remained non @-@ metro , using dual mode trains that switch to overhead lines at Frøen and Montebello . The western network took delivery of 33 T1300 cars in 1978 ? 81 , with an additional 16 converted from T1000 . In 1994 twelve T2000 cars were delivered for the Holmenkollen Line .

In 2003 the Ring Line opened , connecting Ullevål stadion to Storo . The following year , construction work caused a tunnel to collapse on the Grorud Line ? the system 's busiest ? forcing a shutdown of the line until December , and creating a havoc of overcrowded replacement buses . In 2006 the ring was completed , to Carl Berners plass . At the same time the Kolsås Line was closed for upgrade to metro standard . In 2003 the section of the Kolsås Line in Bærum closed due to budget disagreements between the two counties ; after a year of unpopular replacement buses , the line was reopened , only to close again in 2006 for upgrade to metro standard . Disagreements between the two counties means the upgrade will be done separately on the two sides of the municipal boundary , with the Oslo side opening first . In 2006 the replacement of existing rolling stock with new MX3000 units commenced . The history of the metro and public transport in Oslo is celebrated at the Oslo Tramway Museum in Majorstuen .

== Network ==

The current route network was introduced on 3 April 2016 , with the opening of the connection tunnel from Økern to Sinsen and the new Løren station .

The Oslo Metro operates in all fifteen boroughs of Oslo , as well as reaching a bit inside the neighbouring municipality of Bærum . There are five lines , numbered 1 through 5 , each color @-@ coded . They all pass through the Common Tunnel , serving eight branch lines . In addition two lines operate to the Ring Line . Two branches are served by two lines each : the Grorud branch is served by both lines 4 and 5 , while the Lambertseter branch has full @-@ time service by line 4 and limited service by line 1 .

The Grorud and Furuset Line head northeast into Groruddalen , while the other two eastern branches head south into Nordstrand . On the west side , the Holmenkoll and Sognsvann Line cover the northern boroughs of Oslo , along with the Ring Line that connects the northeastern and northwestern parts of town . The Kolsås and Røa Line reach deep into the neighbouring municipality of Bærum . All the lines run through the Common Tunnel before reaching out to different lines , or into the Ring . All lines have a base service of four trains per hour while line 2 and the eastern section of line 3 have eight trains per hour weekdays 7 @-@ 19 . The eastern section of line 2 also has eight trains per hour Saturdays 10 @-@ 19 . A reduced half @-@ hourly service operates on all lines during early weekend mornings . Trains run from about 05 : 00 (06 : 00 at weekends) to 01 : 00 the next morning .

=== Lines ===

==== Line 1 ====

==== Line 2 ====

==== Line 3 ====

==== Line 4 ====

==== Line 5 ====

=== Stations ===

The system consists of 101 stations , of which 17 are underground or indoors . The only underground station on the pre @-@ metro western network was Nationaltheatret , and most of the underground station are in the common tunnel under the city center , or in shorter tunnel sections on the eastern network ; in particular the Furuset Line runs mainly underground , with all but Haugerud built in or at the opening of a tunnel .

Stations in the city center are located close to large employment centers as well as connection possibilities to other modes of transport , such as tram , rail and bus . All stations can be identified at ground level by signs with a blue T in a circle . Stations outside the center are unmanned since the 1995 , with ticket machines for fare purchase ; some stations feature kiosks . A system of turnstiles have been installed , but will never be activated due to security issues . All stations have step @-@ free accessibility through at least one entrance (except the inbound platform at Frøen) , and the platform height is aligned with the train cars .

== Intermodality ==

The metro is integrated into the public transport system of Oslo and Akershus through the agency Ruter , allowing tickets to also be valid on the Oslo Tramway , city buses , ferries , and the Oslo Commuter Rail operated by Norwegian State Railways . A new , wireless ticketing system , Reisekort , has in the recent years been implemented . From 31 January 2016 a single ticket for one zone (the entire metro system is in zone 1) cost NOK 32 for adults (NOK 50 if purchased onboard) , for 30 @-@ day ticket , it costs NOK 690 for adults . This includes all means of public transport within the zone where the ticket is first activated (again , for the metro , zone 1) . There is a fine of NOK 950 , or NOK 1150 , for not having a valid ticket , depending on if the fine is paid on location or not .

Oslo maintains a street tram system with six lines , of which two are suburban lines . The street trams operate mostly within the borders of the Ring Line , providing a frequent service in the city centre , with lower average speeds but with more stops . There are major transfer points to the tramway at Majorstuen , Jernbanetorget , Jar , Storo and Forskningsparken .

The commuter train serves suburbs further away from Oslo , though some of the commuter rail services remind of a rapid transit service , in particular line 400 and line 500 , to Lillestrøm , Asker and Ski , with higher service frequency through the continual populated area of Oslo . Transfer to railway services is available at Jernbanetorget (to Oslo S) and Nationaltheatret , the latter with a considerably shorter walk .

Bus services are provided to numerous stations . Most bus services provide feeding to the metro system where possible , and then do not continue into town . However , since the metro operates solely into town , instead of across it , many buses operate between stations on different lines , or provide alternative routes across town .

== Future expansion ==

Between 2006 and 2014 the Kolsås Line was upgraded to metro standard .

As part of the political compromise Oslo Package 3 a number of changes have been proposed for the Oslo Metro. Expansion of the Furuset Line to Lørenskog with stations at Skårer , Lørenskog Centre and a new terminus at Akershus University Hospital , with travel time to Jernbanetorget of 27 minutes .

The frequency on the eastern lines will be increased . Grorudbanen , Lambertseterbanen , Østensjøbanen and Furusetbanen will get eight departures per hour , with half (B @-@ routes) terminating at Majorstuen for Lambertseterbanen and Furusetbanen . This will reduce the capacity in the Common Tunnel .

The construction of the Løren Line will connect the Ring Line with the Grorud Line , allowing trains to run from Grorudbanen directly to the Ring . In addition a new station at Løren would be built . This will not increase the load on the Common Tunnel since it is an extension of the current line that terminates at Storo , and will also make way for eight departures per hour on the Østensjø line . This will also give all stations except Hasle and Løren eight departures per hour .

A new station , Homansbyen , on the Common Tunnel between Majorstuen and National Theatre .

Although not part of Oslo Package 3 , the Fornebu Line , which has been variously proposed as a light rail , metro and an automated train line since 1997 , is planned to run from Majorstuen to the old airport area at Fornebu .

== Rolling stock ==

The trains on the Oslo metro are currently exclusively the MX3000 , ordered in 2003 to replace the oldest T1000 stock . Delivery started in 2006 , and unlike older stock the MX3000 units are painted white instead of red . 83 three @-@ car units were ordered in 2006 ; a further 32 were ordered in December 2010 .

A number of versions of the T1000 stock have earlier been used on the Oslo metro . This includes 146 cars of the types T1 through T4 , that have third @-@ rail only operation , and thus did not run on the Holmenkollen and Kolsås lines . These ran usually in units of three or six (sometimes four or five) cars . Types T5 to T8 , 49 in total , delivered with both third @-@ rail and overhead wire equipment , normally ran on the Holmenkollen line (two cars) and Kolsås line (three cars) .

When the Holmenkollen Line was connected to the T @-@ bane it was still using old teak cars ; to allow through services the T2000 , capable of dual @-@ system running , was delivered in 1993 . They were not particularly successful and only 12 units were delivered , operating in pairs on the Holmenkollen line sometimes connecting with the Lambertseter line , and scrapped in 2010 .

= = Depots and facilities = =

Avløs Depot ? located near Avløs station on the Kolsås Line , it has been closed for refurbishment since 2011 and is expected to reopen in May 2015 .

Etterstad Depot ? located on the shared section of the Østensjø Line , Furuset Line and the Lambertseter Line before Brynseng station , it is used as the main operations centre for the Oslo Metro and has a yard for maintenance of way equipment .

Majorstuen Depot ? a small yard used mainly for storing trains , located just beside the Oslo Tramway Museum .

Ryen Depot ? the main storage and maintenance yard for all Oslo Metro trains , located on the Lambertseter Line near Ryen station .

= = = Inline references = = =