the MILWAUKEE-DEARBORN-CONGRESS SUBWAY



Route No. 2 of Chicago's Initial System of Subways FEBRUARY, 1951

Symbols of a mighty city

The opening of the Milwaukee-Dearborn-Congress Subway is another expression of the "I WILL" spirit that creates the energy and driving force which has made Chicago great.

No city is greater than its transportation facilities. Transportation facilities are the prime factors in urban as well as national development.

Our city will attain its full stature only in the degree that it builds ultra modern, efficient, and safe avenues of local transportation.

Today we are forging ahead in the tremendous undertaking of developing and extending the traffic arteries of the City. Great sums have been spent on subways and highways. True, the costs are heavy but they are far outbalanced by the many benefits in the form of swift, safe and economical transportation for our own citizens as well as for the hosts of visitors who are an integral part of our city's travelling public.

Our pride in the new Milwaukee-Dearborn-Congress Subway is justifiable. It marks the completion of the initial phase of our subway building program. The State Street Subway, completed in 1943, was our first step. The Milwaukee-Dearborn-Congress route was begun almost simultaneously with the State Street project, but due to World War II and the demands for vital materials, we were forced to halt construction. In 1946 work was resumed and now the job is complete.

That the city means to spread these arteries of swift and safe transportation is evidenced by the fact that ordinance plans have been approved for the extension of the Milwaukee-Dearborn-Congress Subway to the West Side. Emerging from under Congress Street it will continue in the median strip of the great Congress Street Superhighway, flanked on each side by four lanes of modern roadway for fast through travel. This highway is under construction, and when finished, the combined motor highway and mass transit artery will be a model for the world and one of which Chicago may well be proud.

Years of arduous thought and labor have gone into the Milwaukee-Dearborn-Congress Subway. Deserving of high praise and public acknowledgement are such men as Commissioner V. E. Gunlock and his staff of able engineers; Alderman James F. Young, Chairman, and Members of the Committee on Local Transportation; Joshua D'Esposito and U. F. Turpin, Federal Project Engineers, together with the Staff members of the former Public Works Administration; the PWA Subway Commission; and the contractors, who by their skill, made possible the consummation of all plans. It is regrettable that Mayor Edward J. Kelly, Commissioner Philip Harrington, and others who were active in the formulation and initiation of this great civic improvement are not here to participate with us in this momentous occasion.

The Milwaukee-Dearborn-Congress Subway and the State Street Subway are enduring and fitting symbols of a mighty city.

MARTIN H. KENNELLY, Mayor



MARTIN H. KENNELLY, Mayor



V. E. GUNLOCK, Commissioner Department of Subways and Superhighways



WILLIAM H. SEXTON Special Assistant Corporation Counsel



DICK VAN GORP Chief Engineer



WALTER E. RASMUS Engineer of Subway Design

CITY ENGINEERS in charge

Alfred Butler	Structural Design
Maurice J. Glicken	Architectural Design
George L. Jackson	General Design
James R. McKenney	Right-of-Way
Clifford W. Post	
Walter E. Rasmus	Mechanical Design
Andrew N. Wardle	Contract Specifications
Andrew IN. wardle	Contract Specifications

HARRY J. BARTZ EARL G. BEARD C. A. BENOWICZ RALPH A. BONNELL HARRY CHRISTIANSEN O. H. DIGGES HERBERT ENSZ GEORGE A. FINN WILLIAM J. McGREGOR B. C. METROS WILBUR MILLARD RALPH B. PECK JOHN L. PIZZOTTI JOSEPH H. RICHMOND W. S. SCOTT (Deceased) JOSEPH A. SMEJKAL GEORGE J. TRINKAUS HAROLD A. WAKEFIELD

JOHN R. KYNER Chief Subway Accountant



GEORGE L. DE MENT Assistant Chief Engineer



J. WALTER GRIMM Engineer of Subway Construction



Right-Of-Way Counsel



RALPH F. GROSS, Engineer, Committee on Local Transportation



Alderman JAMES F. YOUNG, Chairman Committee on Local Transportation



Alderman GEORGE D. KELLS, Chairman Committee on Traffic and Public Safety



JESS LARSON General Services Administrator



PHILIP B. FLEMING Under Secretary for Transportation



Alderman CLARENCE P. WAGNER Chairman Committee on Finance, 1950-



Alderman WILLIAM J. LANCASTER Chairman, Council Sub-Committee on Subway and Superhighway matters



JOSHUA D'ESPOSITO Project Engineer 1938-1948 and Member PWA Subway Commission



U. F. TURPIN Public Works Administration 1938-1950



County Commissioner JOHN J. DUFFY Chairman Committee on Finance, 1947-1950

City Council of 1950

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Charles W. Seymour, Principal Construction Engineer E. Brock, Mechanical Engineer Ralph P. Barnett, Supervising Engineer Arthur Laser, Project Auditor



The Milwaukee-Dearborn-Congress Subway

THE MILWAUKEE-DEARBORN-CONGRESS SUB-WAY extends a distance of 3.99 miles from a connection with the Logan Square elevated structure near Damen and Milwaukee Avenues, southeastward under Milwaukee to Lake Street, east under Lake to Dearborn, south to Congress, and west under Congress to a downtown terminal at LaSalle Street. A two-track subway, it is ultimately to emerge in the vicinity of Halsted Street and continue westward to a point near South Lotus Avenue (5432 West), as an "open cut" rapid transit line in the median strip of the Congress Street superhighway.

The new tube, built at a cost of approximately \$39,600, 000, is Route No. 2 of Chicago's Initial System of Subways. This figure represents the total cost of the completed subway, ready for revenue operation. Included are the basic construction of tubes, stations and structures, architectural finish, lighting, acquisition of right-of-way, engineering, as well as such operating equipment as track, signals, power, communication and emergency alarm systems. The operating equipment cost about \$4,790,000. The CTA is to reimburse the City for this expenditure.

Construction of Route No. 2 was started on March 15, 1939 and continued simultaneously with the State Street project until 1942 when work was halted because of material shortages arising out of World War II. Route No. 2 was 80 per cent completed at that time. With the war over, construction activities were resumed on March 25, 1946.

There are a total of twelve mezzanine stations in the new subway, nine in the downtown area and three outside the loop. Identified by varying colors, they are: Division-Ashland (Blue), Chicago-Ogden (Red), Grand-Halsted (Green), Lake Street Transfer – Entrances on Lake at Wells, LaSalle and Clark (Brown), Randolph-Washington and Washington-Madison (Blue), Madison-Monroe and Monroe-Adams (Red), Adams-Jackson and Jackson-Van Buren (Green), Congress Street Terminal (Red).

In the loop area an island platform extends continuously for 2,500 feet from Lake Street to Congress Street. Island platforms at stations outside the loop are 500 feet long.

In general, there are four sidewalk to mezzanine stairways—two on each side of the street—at each subway station. They are set back from street intersections to eliminate interference with cross traffic.

A total of 17 wide, modern escalators provide fast, effortless access for passengers between station platforms and the mezzanine level.



TUNNELING THROUGH Chicago's soft, watery subsoil was one of the problems faced and solved by the subway engineers. In the downtown area, where the water content of the soil is as high as 58 percent, and street and building loads are heavy, huge "shields" were driven into the clay. Outside the loop district where the soil is relatively free from water, tubes were mined by the "bench" method. The pictures show (1) a closeup of the shield being erected in the old LaSalle Street surface lines tunnel; (2) Upper portion of shield in position ready for operation; (3) Concrete lining being placed in shield-driven subway tube (concrete was "piped" in from surface level); (4) Mining operation at "Y" junction for future extension of Milwaukee-Dearborn-Congress Subway west in Lake Street from Canal Street; (5) "Bench" mining operation of single-tube subway tunnel.







Extensive "shoring" under columns supporting the train shed and tracks at LaSalle Street Station enabled suburban and interstate train service to operate without interruption, while subway tubes were being tunneled beneath this important railroad depot.

In some instances subway construction activities were carried on in a marine atmosphere. This picture, showing a cofferdam in the south branch of the Chicago River, was taken while an abandoned cable shaft and tunnel of the Commonwealth Edison Company in the path of the subway, beneath the river bed, was being sealed off and dewatered.

Under the balustrade of the sleek, smooth-operating escalators so familiar to Chicago subway riders is this mechanical maze of wheels and gears.







THREE STEPS in the construction of a station loading platform are shown in this series of pictures. Above (1) the concrete forms and reinforcing steel have been assembled; below (2) workmen pour concrete for the platform floor, and (3) the finish coat of colored concrete is applied.



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a total of 36,850 new type rubber pads have been installed in the track assembly of the Milwaukee-Dearborn-Congress Subway. Since track construction in the subway is rigid (ties laid in concrete ballast), the primary function of the pads is to restore the resilient quality of stone ballasted track, and thereby reduce vibration which would otherwise be transmitted from the rail into the roadbed and adjacent structure. The rail rests on steel tie plates with the rubber pads installed between the steel plates and the wood ties as shown in picture (1) above. The pads are small blocks of rubber containing a series of moulded circular holes. (See inset picture.) Thermit welding of running rail joints (2) also contributes materially to smoother riding and reduction of operating noise. (3) A length of "third" rail is placed on insulator chairs. (4) Completed section of track showing running rail and power rail. (5) Subway passengers will enter and leave the Congress Street terminal through this diamond crossover which will be controlled from the interlocking room shown at the end of the station platform.

TO ASSURE SMOOTHER, QUIETER RIDING,

VIA













Some of the facilities built into the new subway for the safety, convenience and comfort of its users, are pictured on these and subsequent pages.

1. Station platforms are wide and have brilliant fluorescent lighting. Width of the platforms in the downtown area is 22 feet, and at locations outside the loop, 18 feet. Lights between columns are operated on direct current for emergency purposes.

2. Fire line (top and right of picture) for use with Fire Department pumping equipment.

3. Emergency alarm apparatus is located at the end of each subway loading platform.

4. Fire hydrant at loading platform level.

5. A typical automatic block signal installation with train stop mechanism in the track area. Walkway, railing and fluorescent lighting for passenger use between stations in emergencies are shown at the left.

6. Switchboard at Clark and Lake Streets for lighting purposes.7. Signal power room showing relays for track signals.

8. Drainage troughs are located in the center of the track section. They are designed also to provide emergency refuge should a pas-

senger fall from the station platform into the path of a train. 9. Breaker room at Clark and Lake Streets for traction power.

10. Wide walkway for passengers at Lake-Dearborn curve for use in emergencies.

11. Equipment at the Erie Street pump room will be used to drain off excess water in the subway. Six such pumping stations are provided for the disposal of water that may enter the tubes by stair wells, vent shafts, portals or other openings to the surface.



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1. An emergency alarm post. These alarm posts are located every 500 feet in the subway and are marked by a blue light above the alarm box.

2. One of the huge forced air exhaust ducts used to ventilate the subway.

3. Subway Route No. 2 is equipped with nineteen electrically operated fans of this type, capable of furnishing 1,000,000 cubic feet of fresh air per minute.

4. Subway entrances at street level are identified by distinctive signs and have wide stairways.

5. Emergency exits from the subway tubes are provided in numerous locations and are clearly identified by illuminated signs.

6. Pedestrian passageways, at mezzanine level, connect the new subway with the State Street tube at Quincy Street and Court Place.

7. Transfer passageways under Jackson Boulevard and Washington Street afford a direct link at loading platform level between the State Street and Dearborn Street tubes for passengers using both services.

8. With store entrances such as these located at mezzanine level, subway passengers may enjoy "sheltered shopping", out of the weather and free of street traffic.

9. Modern, sanitary toilet facilities are provided at the mezzanine level in all subway stations.

10. This wide stairway connects the loading platform with the mezzanine station at Division-Ashland-Milwaukee.









MODERN DESIGN AND FACILITIES RATE CHICAGO'S INITIAL SYSTEM OF SUBWAYS AMONG THE WORLD'S FINEST



SUBWAY facts, figures and features

Chicago's initial system of subways consists of the new Milwaukee-Dearborn-Congress route and the State Street Subway which has been providing fast transit service for thousands of Chicagoans since October, 1943.

SUBWAY FINANCING

The total cost of the initial system of subways is estimated at about \$75,000,000. Of this amount \$64,000,000 covers basic construction of tubes, stations and structures. The Federal Government contributed \$25,967,000 towards this cost. The remainder is being paid from the City's Traction and Transit fund, together with a small amount from the Subway Revenue Bond fund of 1950. No direct property taxes or special assessments have been levied for the construction of these two subways.

TRAIN PLATFORMS

Two of the longest subway train platforms in the world are located in Chicago's loop area. One extends 3,500 feet under State Street and the second runs continuously for 2,500 feet in the Dearborn Street portion of Subway Route No. 2. These continuous platforms are 22 feet wide. Outside the loop area, platforms are 18 feet wide.

TRACKS AND ROADBED

Exceptionally smooth riding qualities in Chicago's subways result from special track design. Half ties are imbedded in concrete, and the heavy steel rails (100 pounds to the yard), have welded joints and rest on rubber. There is no grade that exceeds 3 per cent, and the few curves can be run at close to top speed.

QUANTITIES OF MATERIALS

Construction of the initial system of subways required 150,000 tons of steel, 1,250,000 barrels of cement, 1,250,000 cubic yards of stone and sand, 300 miles of conduit, and large quantities of other materials. More than 2,500,000 cubic yards of clay were excavated in the tunnelling process.

TESTING AND INSPECTION

All materials that went into the construction of the Subway were subjected to the most rigid tests at the source of supply, in the field, in the Subway Department laboratory, or in commercial laboratories. Materials that failed to meet Department specifications, and Federal Government requirements, were permanently rejected. By these tests and inspections, and constant engineering supervision, the high quality of the finished job was assured.

NOTABLE FEATURES

Here are some of the outstanding features that combine to make Chicago's initial system of subways among the finest in the world today:

1. Ventilation: The ventilating system in Chicago's subways harnesses the air force created by the "piston action" of trains operating through the single track tubes. Since the trains occupy about one-half of the cross-sectional area of the tubes, they push large volumes of air before them and draw equally substantial amounts of air in their wake. Vent shafts extending from the tubes to surface level provide the

2. Illumination: Chicago's subways are pioneers in the use of fluorescent lighting. This modern type of illumination is not only cooler, easier on the eyes, and vastly more efficient than conventional incandescent lighting systems, but it is

3. Escalators and Turnstiles: Wide, smooth-operating escalators, connecting loading platforms with mezzanine stations, save steps for thousands of subway riders every day. Beautifully finished with balustrades of stainless and porcelain enamelled steel, the escalators embody every known feature for the safety of passengers.

4. Signal and Interlocking System: The most modern signal and interlocking system available safeguards the operation of trains in Chicago's subways. The tubes are divided into a series of "blocks" with signals standing guard at

5. Drainage Pumping System: Pumping stations, each containing a large pit or sump for the collection of drainage, together with a pair of pumps of large capacity, provide for the disposal of water that may enter the subways via stair means through which air pushed or drawn by moving trains may enter or leave the subways. The "piston action" of moving trains at peak traffic periods will move about 3,500,000 cubic feet of air per minute through the two subways. In addition, huge electrically-operated fans capable of furnishing another two million cubic feet of fresh air per minute have been installed in the subway system.

substantially more economical to operate. A second lighting system, operating on direct current, is built into the subways for use in the event of a power failure which might black out the principal source of light.

Compact, efficient turnstiles at mezzanine stations effect substantial time savings for large numbers of riders by providing a speedy auxiliary system of fare collections, which eliminates the necessity of waiting in line during rush hours to pay fares at the agents' booths.

the entrance to each block. "Tripping" devices in the track area will automatically stop a train should the motorman proceed against the lights.

wells, vent shafts, portals or other openings to the surface. Float switches automatically start the pumps when water in the sumps rises to a predetermined level. Each pumping station is served by two independent sources of power.

THE STATE STREET SUBWAY

Construction work on the State Street tube was started in December, 1938. It is a two-track subway and is 4.9 miles in length, extending from a connection with the North Side elevated structure near Armitage and Sheffield Avenues, southeast in Clybourn Avenue, east in Division Street and south in State Street to a connection with the South Side "L" near 16th Street.

Operated by the Chicago Transit Authority, the State Street Subway carries through North-South rapid transit trains. It has sixteen stations, each identified by its own color scheme, located as follows:

North AveClybourn-	La
HalstedBlue	R
Clark and DivisionRed	W
Chicago AvenueGreen	M
Grand AvenueBrown	Μ
Ohio Street (Auxiliary)Brown	A

Lake-RandolphBlue Randolph-WashingtonBlue Washington-MadisonBlue Madison-MonroeRed Monroe-AdamsRed Adams-JacksonGreen

Jackson-Van Buren	Green
Van Buren-Congress	Green
Harrison and State	Brown
Polk and State	Brown
Roosevelt Road	Blue

Total cost of the State Street Subway, ready for operation, was approximately \$34,000,000, including \$3,850,000, for fixed equipment. The CTA is reimbursing the City for this latter expenditure.

FUTURE SUBWAYS

Plans of the City of Chicago call for the construction of additional subways as extensions of this initial system as early as international conditions and financing problems will permit.

MILWAUKEE - DEARBORN - CONGRESS SUBWAY

General Contractors

M. J. Boyle & Company
S. A. Healy Company
Thos. F. Hornaday, Inc.
Intrusion-Prepakt
I.T.E. Circuit Breaker Company
Kenny Construction Company
Kil-Bar Electric Company
Kil-Bar Electric Company
Knott & Mielly, Inc.
Koppers Company-Wood Preserving Division
Carnegie-Illinois Steel Company
Leininger Construction Company
Geo. E. Mathis & Son
Metal Craft Constructors, Inc.
American Bridge Company Otis Elevator Company Schick-Johnson Company Union Switch & Signal Company Wadeford Electric Company Westinghouse Electric Corporation Westinghouse Electric Elevator Company Peter Kiewit Sons' Company John C. Tully Company Paschen Contractors John Marsch Michael Pontarelli & Sons Joseph J. Duffy J. L. Manta, Inc. Minder Construction Corporation

Testing and Inspection

Subway Department Laboratory City of Chicago Purchasing Agent Testing Service Walter H. Flood and Company Robert W. Hunt Company

Acknowledgment

The Department of Subways and Superhighways hereby extends its deep appreciation for the full cooperation from the privately-owned public utilities, whose facilities were relocated during subway construction. The utilities included:

Chicago Postal Pneumatic Tube Chicago Rapid Transit Company Chicago Surface Lines Chicago Tunnel Company City Press Association Commonwealth Edison Company Illinois Bell Telephone Company Illinois Maintenance Company Peoples Gas Light and Coke Company Postal Telegraph and Cable Company

Western Union Telegraph Company

The Department also received much helpful assistance from many other sources too extensive to enumerate here and for which it is deeply grateful. They include civic, business and commercial leaders and organizations, other city departments and the individual property owners along the route of the subway.

Subway Photographs by Peter Fish Studios



RALPH BUDD Chairman, Chicago Transit Board



GUY A. RICHARDSON Vice Chairman, Chicago Transit Board



WILLIAM W. McKENNA Secretary, Chicago Transit Board





IRVIN L. PORTER (Deceased) Treasurer, Chicago Transit Board



PHILIP W. COLLINS Member, Chicago Transit Board



JOHN S. MILLER Member, Chicago Transit Board

SUBWAY OPERATION ... a function of Chicago Transit Authority

When the Milwaukee-Dearborn-Congress Subway formally begins serving the people of Chicago at 12:01 a.m., Sunday, February 25, 1951, it will become an integral part of the Chicago Transit Authority system—one of the largest local transit operations in the world today.

CTA's Logan Square elevated trains will operate in the new subway. The former Logan Square route to the loop, via Paulina Street and West Side "L" structures, will be discontinued. Here's what this new rapid transit service offers to Northwest Chicago:

1. The nation's newest subway, completely equipped with the most modern, streamlined rapid transit cars in the country.

2. A straight diagonal run-the shortest distance between Logan Square and down-town Chicago.

3. Only 15 minutes riding time between Logan Square and the center of the loop.

4. Time savings of 13 minutes per ride-26 minutes per round trip-between Logan Square and the loop.

5. Time savings of as much as 5, 10 or 15 minutes for other thousands of local transit riders north of Logan Square and west of Milwaukee Avenue, using CTA surface routes as feeders to the new subway.

6. Substantial time savings, too, between the near northwest side and the loop.



JAMES R. QUINN Member, Chicago Transit Board



WALTER J. McCARTER General Manager, Chicago Transit Authority



All-Express Service

To assure maximum speed during periods of heaviest travel, all-express service will be operated in the new subway in morning and evening rush hours, Mondays through Fridays.

During those periods, "A" express trains will serve stations designated as "A" stops; "B" express trains will stop at "B" stations. Both classes of trains will serve "All-Stop" stations.

Station stops on the route will be designated as follows:

"A" STATIONS

California (elevated) Division-Ashland Grand-Halsted

"B" STATIONS Western (elevated) Chicago-Ogden

"ALL-STOP" STATIONS

Logan Square (elevated) Damen (elevated) Lake St. Transfer (entrances on Lake at La Salle, Wells and Clark) Washington-Dearborn Monroe-Dearborn Jackson-Dearborn Congress Street Terminal

Feeder Service

Milwaukee Avenue streetcars, Kedzie-Homan buses and N. Kimball buses will serve as regular, direct feeder lines to the new subway route at Logan Square Station.

Humboldt Park shuttle "L" trains will connect directly with the new subway service at Damen Avenue "L" Station.

Loopbound passengers on such major CTA east-west lines as Montrose, Irving Park, Belmont, Diversey, Fullerton, Armitage, North, Division, Chicago and Grand, will save time by using those routes as feeders to the new subway.

Other west and northwest side riders served by CTA lines on Higgins Road, Northwest Highway, Elston Avenue, Narragansett, Austin, Central, Cicero, Pulaski, Kedzie-California, Western, Damen, Ashland and Halsted, may also enjoy faster transportation to and from the downtown district by using the new subway for part of their trips.



