

STREAMLINED SUBWAY: THE ARCHITECTURE AND DESIGN OF CHICAGO'S FIRST SUBWAY

By Graham C. Garfield

Chicago's subway stations, described at the time as of a "modern design," are sometimes dismissed as being simple and austere, even when they were new, compared to earlier subways in New York, London, Paris or other systems. While it is true that Chicago's subways were designed without the ornament and detail of those older systems, those earlier styles would have been seen as "old-fashioned" and outdated by the 1940s. Indeed, Chicago's subways were very much in the style and fashion of the period in which they were designed, and are a well-executed and unique representation of the Streamline Moderne style applied to an American subway system.

Chicago's road to subway construction – and the style and form it would take – was a long one, filled with false starts and changing design trends. A series of subway

plans were proposed over the years from 1916 to 1927 by three separate engineering groups, but it was not until 1930 that the Chicago City Council enacted an ordinance which officially approved specific plans for rapid transit improvement. The 1930 subway designs were the most modern for the time, but the Depression made any substantial investment in subway construction by the city or the transit companies unrealistic. By the time action was taken at the end of the 1930s, architectural styles and preferences had continued to develop...

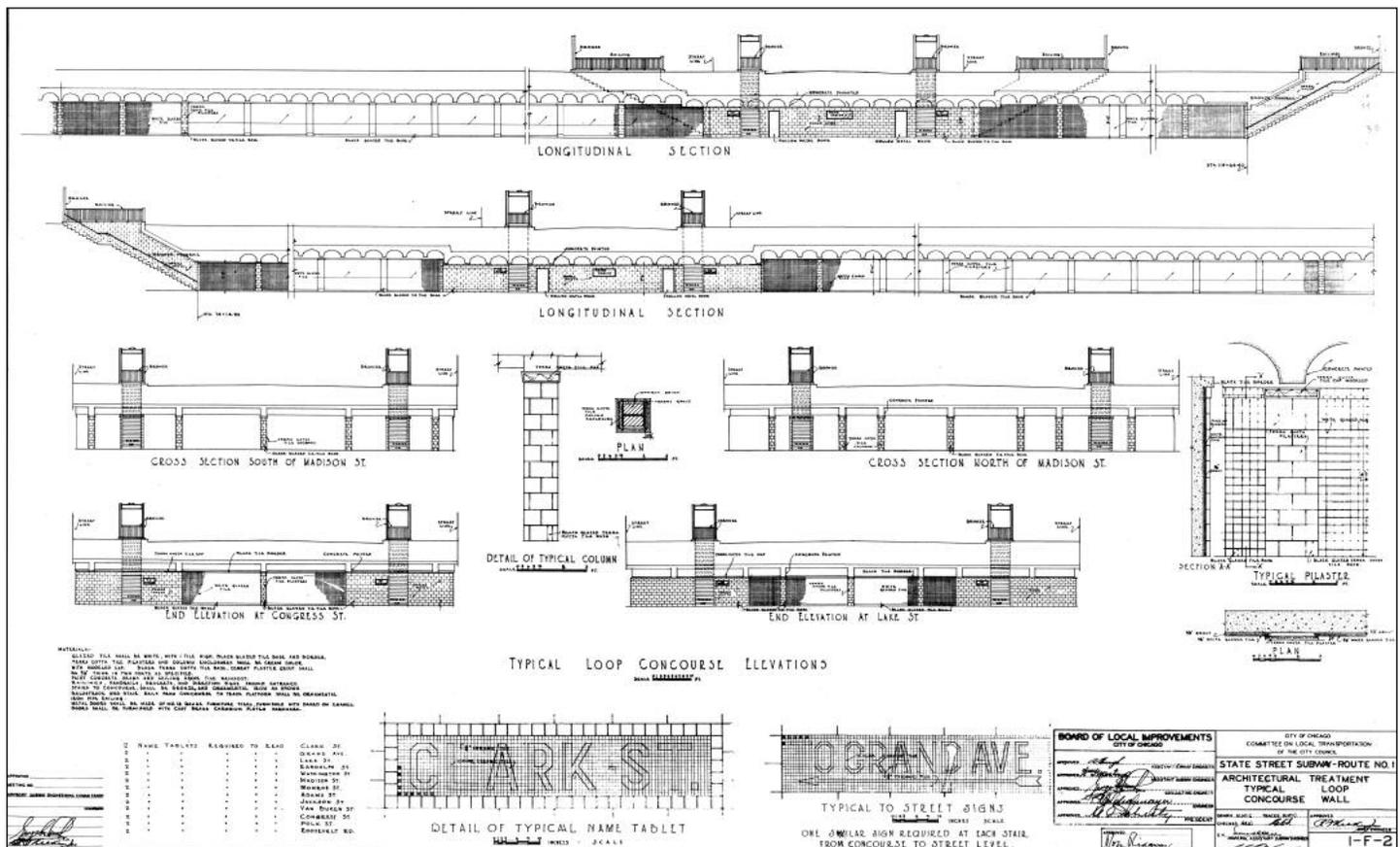
1930 PLAN AND IND SUBWAY

What would eventually be built as the State Street Subway can be traced back, in its most tangible form, to the *State Street Subway-Route No. 1* plan prepared by the Committee on Local Transportation of the

City Council and the Board of Local Improvements of the City of Chicago, and published in 1930.

While the plan would continue to develop and many details would change by the time the subway opened in 1943, it is in the 1930 plan that the subway Chicagoans would know began to take shape, including the general alignment under State Street and the station locations. It was this plan, once adopted by the city council, with gradual, evolutionary changes adopted by the council, which was the statutory basis of what was built.

The subway proposed in the 1930 plan was a four-track subway beginning around 18th Street on the south, where it tied into the South Side elevated, heading north under State Street to Chicago Avenue, turning west a few blocks to Franklin Street, then turning north again to tie into



▲ This architectural drawing from the 1930 subway plans shows what the stations would have looked like in the scheme as originally adopted by the City Council. The Loop is shown to have one long mezzanine stretching the length of downtown and the continuous platform. This arrangement, along with the series of ceiling coffers and the tile mosaic name tablets and directional signs depicted at the bottom, would have made the stations look very similar to the IND subway in New York City. —Graham Garfield Collection

the North Side elevated. Stations were to be at Roosevelt Road, Polk Street, a continuous platform between Congress and Lake streets with several entrances (a trademark feature of the subway as built, unique to Chicago), Grand Avenue and Clark Street—these station locations bear much in common with what was eventually built. This subway was to be about 35 feet under the road surface, with station mezzanines about 18 feet under the street, not far off from what was later built. There were also to be streetcar subways at an even lower depth, under the rapid transit subway, along Washington Street and Jackson Boulevard.

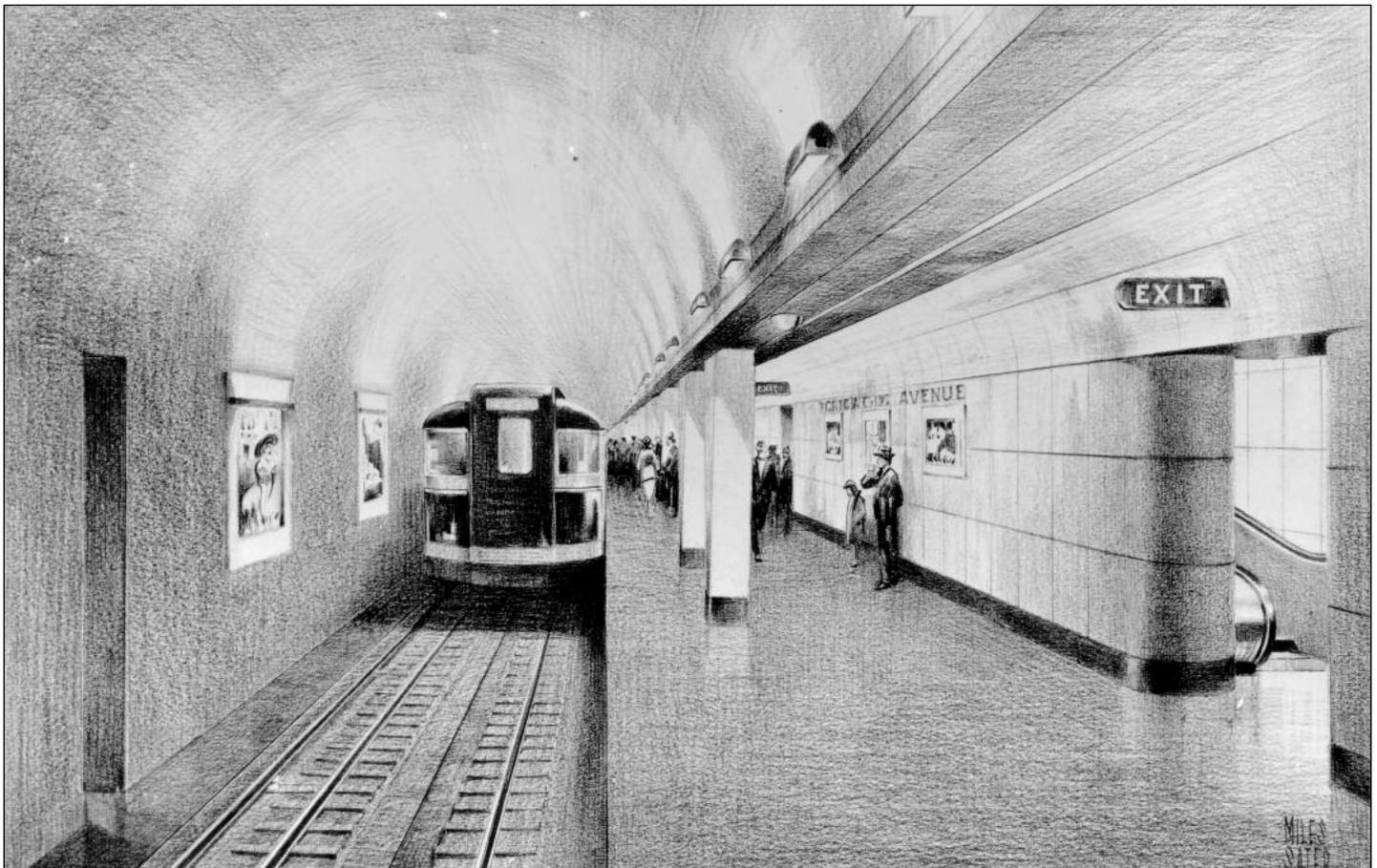
The 1930 plan rapid transit stations would have looked a good deal different than what Chicagoans were greeted with in 1943, however. In fact, what is striking about the architectural plans is how similar they would have looked to another subway – New York City's Independent

Subway System (referred to as the IND after the city unified the subways in 1940). This is, perhaps, unsurprising, given that the Independent Subway was under construction in 1930, and would have been considered the most modern at the time.

All stations were to have fare control mezzanines over the platforms, with several stairway connections from the street, usually placed at each corner of an intersection. However, the mezzanines would have been a block long at most stations, with access from two or more intersections; the continuous platform downtown was to have a continuous mezzanine as well, stretching all the way from Congress to Lake with several stairways at each intersection. These very long, open mezzanines were typical of the IND. All platforms were to be dual island type.

Station architectural treatments were specified to be white glazed tile walls, with black terra cotta base tile, cream terra

cotta-tiled columns and pilasters, and painted concrete ceilings. Walls were to be adorned with tile mosaic tablets, some with the name of the station and others with directional information such as to exits. These treatments are almost identical to the IND subway, and no doubt if built to these designs they would have looked to be cousins. The IND stations are often referred to as having a streamlined, "Machine Age" style, Machine Age design being a variant of Art Deco. The stations were generally streamlined in appearance but had few architectural flourishes; the Machine Age sensibilities were most acutely represented in the tile mosaic tablets, whose sans-serif fonts and solid colors were executed in highly regular shaped and sized tiles and installations, contrasting with the more irregular hand-cut and -set mosaics of the earlier IRT and BMT subways in New York, as well as Boston.



▲ An artist's rendering of a side platform station from about 1940 shows that the general design the subway would take had coalesced by then. Some aspects, like the arched ceilings, were the result of engineering decisions, reached in 1938, about how the subway would be dug. The Streamline Moderne style and specific approach to the architectural treatment was also already in place, though some details shown would continue to be developed—tiling would not extend to the ceiling over the platform, and lighting, signage and advertising took different forms. The column cladding depicted would be eliminated due to wartime rationing, neither the City nor the CRT had the money to purchase the Deco-styled Bluebird-type trains depicted in this and other renderings. —CTA Collection

CHANGES FROM THE 1930 PLAN

The 1930 plan for subways was substantially left intact in the *Comprehensive local transportation plan for the city of Chicago*, a plan submitted to the Committee on Local Transportation of the City Council of the City of Chicago on November 22, 1937, by Philip Harrington, traction engineer, City of Chicago; R. F. Kelker, Jr., engineer, Committee on Local Transportation; and Charles E. De Leuw, consulting engineer. The 1937 plan recommended a rapid transit subway under State Street from around 16th Street to Chicago Avenue, where it would've swung west and connected to the North Side elevated; it also still recommended two streetcar subways, under Washington and Jackson, ending in turning loops east of Michigan Avenue, at a depth lower than the State Street rapid transit subway.

But the 1937 plan made a few substantial changes—some of which would be carried through to completion, some of which would be reversed or abandoned, and a few of which would turn out to be points of contention with the City's eventual partner in building the tubes.

The 1937 plan, as a whole, is an interesting one for its smaller-scale rapid transit and streetcar expansion proposal, and proposal for the first time of a network of multi-lane highways (some even on repurposed "L" structures!). In this vein, the State Street Subway was reduced from a four-track route to two tracks.

While the alignment was not changed, its arrangement was. The City's revised plan raised the level of the subway, with the tracks being only about 25 feet under the street, to be built entirely by cut-and-cover construction. With higher tracks and platforms, gone from the plan were the station mezzanines. Instead, the fare controls would be at platform level, with separate controls for each side, as older New York subways had. Every station would have side platforms. Station locations were generally the same, but the Polk Street station was moved a block north to Harrison; there was still a continuous platform (actually two, since platforms were now of the side variety), but it now stretched from Harrison to Randolph, with an entrance and stairs on each block except Congress. It is difficult to ascertain much in the way of specific architectural style from the drawings in the

plan, but they would have likely maintained a streamlined look of some sort—the stations would have had arched coffered ceilings similar to those on the IND.

With plans in hand, the city was still unable to begin construction, lacking sufficient funds. Help would arrive in the form of one of the first federally funded transit projects. Although the Depression was dragging on, the availability of federal public works money from President Roosevelt's New Deal programs made construction of subways a real possibility for the first time, providing enough money in addition to the city's Traction Fund to allow work to begin.

The City of Chicago made an application to the Public Works Administration in 1937 for funds for the State Street Subway, as well as the east-west streetcar subways. The proposal was favorably received generally, but Secretary of the Interior Harold Ickes—a native Chicagoan who was also the PWA director—disliked the idea of the streetcar subways and insisted on the substitution of a second rapid transit subway, to and from the West Side, instead.

Although the change from the two streetcar subways to what would become the Milwaukee-Dearborn Subway was perhaps the biggest change and point of contention, Ickes also suggested several changes to the State Street Subway plan. Ickes and his engineers wanted the subway extended further north to bypass more of the North Side "L"'s curves to provide a faster route. They demanded the depth of the subway be lowered—the City placed the rapid transit subway closer to the surface because it would be more heavily-used than the streetcar subways. The PWA wanted it flipped the other way, calling for the State Street Subway being 35 feet below street level (lowered another five feet in January 1939 to about 40 feet) and any future streetcar subways (which the PWA was uninterested in, but the City continued to plan for) about 18 feet down. The PWA engineering board felt that digging the State Street Subway at the lower depth would be less costly, that the work could be carried on regardless of weather, and that the method would hasten construction and keep it within required time limits. With the lower depth of the subway, the fare control mezzanines returned to the plan, but as individual facilities rather

than the ones a block or longer proposed in 1930.

City engineers and Mayor Kelly bristled at the notion that Washington wanted to dictate the city's transit plan. Ickes was insistent, however, and most importantly held the purse strings. A stalemate ensued for a while, with negotiating and argument back and forth. But in the end, Ickes held most of the power and Kelly decided that the scheme Ickes wanted was better than none at all and eventually acquiesced.

The plan was tweaked again in mid-December 1938 when the location of the downtown station mezzanines was changed, relocated from the intersections to mid-block sites. The change resolved one of the city engineers' biggest objections to the PWA's plans, which was that the mezzanines would create a "Chinese wall," blocking the path of any east-west subways that might pass over the State and Dearborn tubes. In addition to making possible the east-west high-level streetcar subways, the change reduced the interference with utilities that crisscrossed at the intersections, and relieved pedestrian congestion that would have been exacerbated by the access stairways from the mezzanines. Col. Henry M. Waite, chairman of the PWA engineering commission overseeing the subway project, claimed it was the first time such a station arrangement had been followed in subway building.

GENERAL ARRANGEMENT OF STATIONS, AS BUILT

In the plan as finalized and built, the two-track State Street Subway was 4.9 miles long, stretching from a connection with the North Side elevated lines near Armitage and Sheffield Avenues, southwest in Clybourn Avenue, east in Division Street and south in State Street to a connection with the South Side elevated near 16th Street. Sometimes referred to as the Clybourn-Division-State Subway in materials at the time, it was also Route No. 1 of Chicago's Initial System of Subways (the Milwaukee-Dearborn Subway was Route No. 2).

There were nine station stops and sixteen station facilities in Route No. 1 when it originally opened, as counted by the City's Department of Subways and Superhighways, which oversaw the design and construction of the subway.

South of downtown, there were stops at Roosevelt and Harrison, with the former

having one mezzanine and the latter having two, a primary entrance at Harrison and an auxiliary exit at Polk. Both stations have island platforms.

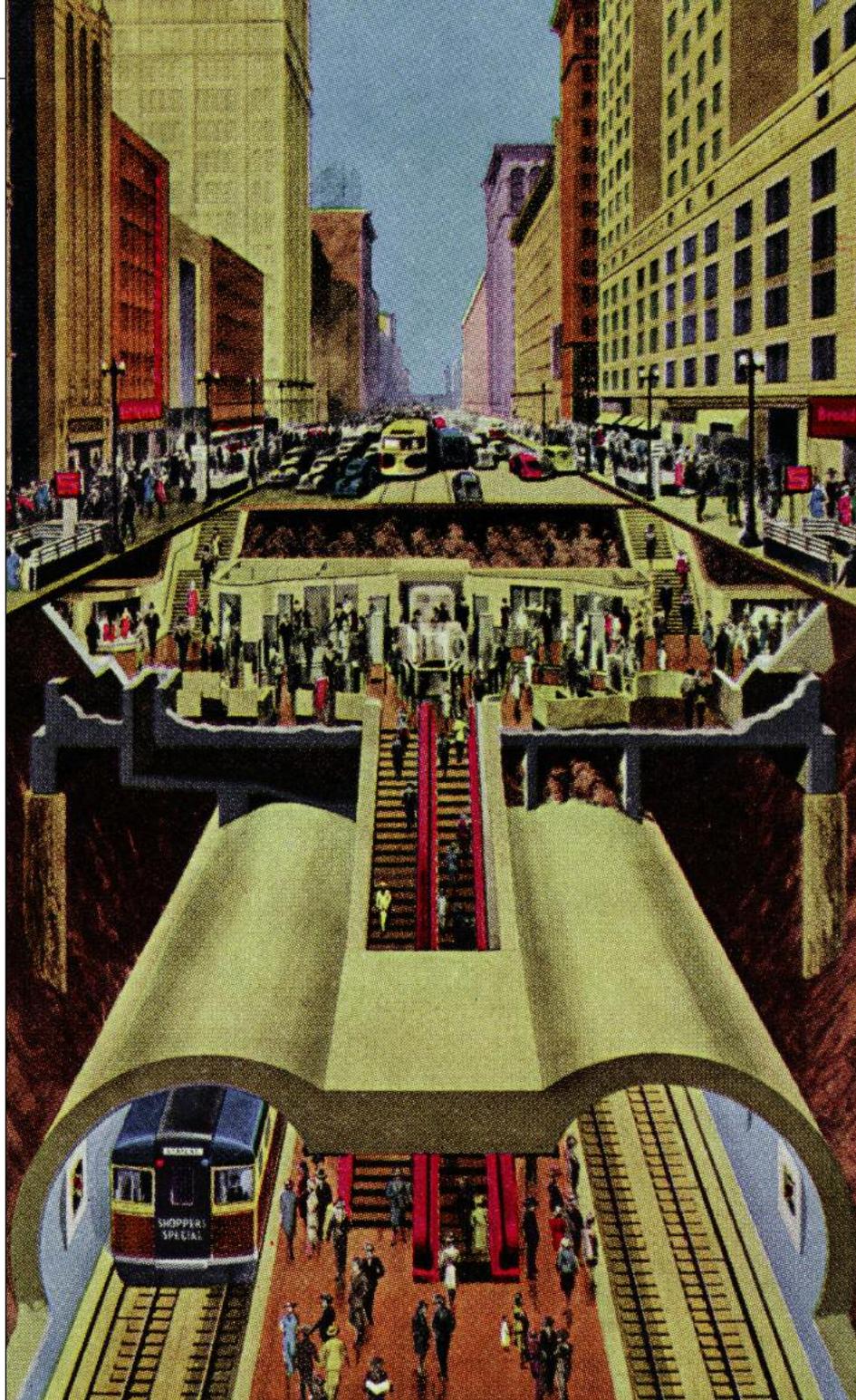
North of downtown, there were stops at Grand, Chicago, Clark/Division and North/Clybourn. These stations had a number of variations. Grand, Chicago and North/Clybourn have the subway's only side platforms, while Clark/Division has an island platform as most other stations do, albeit a narrower one. Grand, Chicago and Clark/Division have mezzanine fare control areas under their namesake intersections, while North/Clybourn has the subway's only above-ground stationhouse and fare controls, originally designed as a handsome Art Moderne facility with large picture windows, a curved east facade, and wedge-shaped in plan.

In the downtown area between Lake and Congress, there were eight mezzanine stations, each located in the middle of the block; these fed three station stops at Washington, Monroe and Jackson along a continuous island platform. Stretching 3,500 feet across the Loop from below Van Buren Street to near Lake Street, the City cited it as one of the longest subway train platforms in the world.

Each downtown station, along with Grand, Chicago and Clark/Division, had four stairway entrances from the sidewalk leading to the mezzanine, while Harrison and Roosevelt had two—in each case, a set on each side of the street the tubes were running along. The entrances to the stairways were open wells without housing, enclosed with a railing and with a tall sign pylon calling attention to their location. Evidence suggests the entrance railings and pylon were painted dark green.

An escalator and stairway on each side of the mezzanine gave access to the loading platform below. Only two stations, where the tunnels are ascending to the elevated connection, are at a somewhat higher level – Roosevelt/State on Route No. 1 and Division/Milwaukee on Route No. 2 – and did not have escalators as built.

In general, duplicate fare-collecting facilities in the form of two ticket agent booths and multiple turnstiles were found in the mezzanines—these included two cashier-controlled and two coin-operated entrance turnstiles, four exit turnstiles and two emergency gates on each side of the station. Still, even with redundant fare



▲ While some minor details differ from the final build-out, this promotional postcard featuring a colorized cut-away rendering effectively illustrates the arrangement of the downtown section of the State Street Subway. Street-level stairway entrances lead to the fare control mezzanine about 18 feet under the street. From there, stairs and escalators lead to the 40-foot deep island boarding platform, whose curved track tunnels were excavated with digging shields sometimes called “bis-cuit cutters” at the time. —Graham Garfield Collection

control equipment as well as concessions, restrooms and other amenities, the mezzanines were compact, space-efficient affairs. In a November 1943 write-up about the new subway for the West Coast-based *Interurban News-Letter*, transit professional George Krambles noted that, “the stations

are modern, bright and yet not so excessively large as found in some subways, only to look unused later”—likely an inferred criticism of the IND subway stations in New York, all the more interesting since the early designs for Chicago’s subway station had followed this model.



▲ The North & Clybourn station was unique, the only stop to have its fare controls and other station facilities located in a street-level stationhouse. The wedge-shaped building, with its curved east facade treated as a glass wall with tall windows divided into panels by granite piers, perhaps embodied the characteristics most associated with Art Moderne architecture more than any other facility. The curved side faced a driveway for buses to transfer passengers and turn around; note the trolley bus wires suspended overhead.

▼ The southeast entrance stair at Clark & Division, seen circa 1950 still in its original, unmodified configuration, was typical of the State Street Subway's street-level stairway entrances. Designed without a canopy or kiosk, each stairway was surrounded by a tubular railing atop a red granite base. A tall pylon at the back of the railing, with Deco-styled rings at the top and a vertical sign reading "SUBWAY" with each letter being custom extruded plastic projecting out from the surface and lit, called attention to the stairs' location. Note the postwar PCC streetcar in the background, heading downtown on Clark Street on either the Clark-Wentworth or Broadway-State routes.
—Two photos CTA Collection



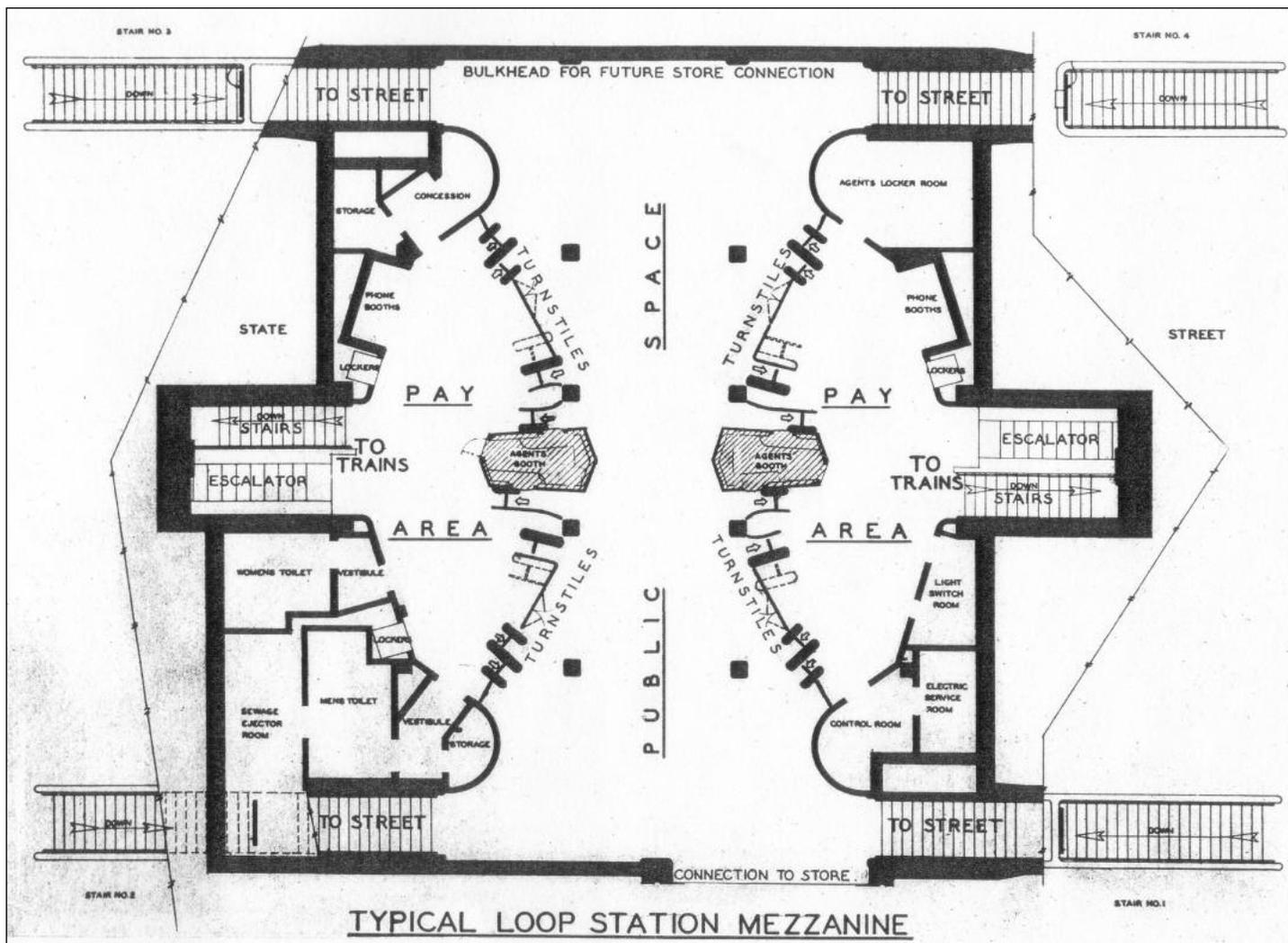
The downtown continuous platform is twenty-two feet wide, while center platforms at outlying stations are 18 feet wide; side platforms are 12 feet wide. Side platforms are 500 feet long, and were designed to accommodate a train of eight 60-ft. cars, which the city was contemplating for potential purchase. Platform edges were marked by white safety strips. The platforms are 40 feet below sidewalk level in the downtown area and from 40 to 44 feet at outlying stations.

Two pedestrian passageways at mezzanine level, one in Quincy Street and one in Court Place, connected the "unpaid" areas of the State Street and the Dearborn Street Adams-Jackson and Randolph-Washington stations, respectively, in each subway and were available for the free use of pedestrians other than passengers as well as permitting passengers riding on either subway to enter or exit on either State or Dearborn.

For the free transfer of passengers between the State and Dearborn routes, two transfer passageways were provided, one at Jackson and one at Washington. These passageways were at low level and connected the train platforms of the two subways so that no paper transfer or other control of transferring passengers was necessary.

The mezzanines were designed to allow connections to adjacent buildings, and in the downtown section of the subway 10 entrances from various mezzanines directly into adjoining department stores were planned. Completion of the connections was delayed by difficulties in obtaining critical materials due to the war.

The design, arrangement and efficient circulation of the subway was not only well-thought out but its integrity was also defended by the project team, at least as long as they had some control over the facilities. For instance, soon after assuming responsibly for operating the subway and inaugurating service, the Chicago Rapid Transit Company appealed to the City to allow them to install newsstands on the subway platforms. In a letter dated April 19, 1944, the City denied the request. The CRT appealed the decision and asked again; in June 1944, Chief Subway Engineer Virgil Gunlock responded to Col. Edward Blair, Chief Engineer for the Trustees of the CRT, reaffirming the City's denial of the request. Noting that he had conferred with Department of Subways and Superhighways Commissioner Harrington



▲ The floorplan of a typical downtown station mezzanine shows how the facilities were designed for efficient flow and high capacity. Two ticket agents' booths and fare arrays, plus the provision of exit-only turnstiles, allowed for a high level of through-put. The curved walls and angled turnstiles provided visual cues and efficient paths to promote good circulation. —Graham Garfield Collection

► The Washington-Madison mezzanine is representative of a typical downtown station mezzanine. Ticket agent booths on both sides of the mezzanine, along with several angled turnstiles, provide high capacity. Direct entrances to adjacent stores and buildings — in this case, to the State-Madison Building in the background — were common. While the facility was almost 20 years old in this March 15, 1963, view it was little changed from when it opened. —CTA photo





▲ The Washington station is representative of stops along the 3,500-foot continuous boarding platform downtown. The 22-foot wide platform provided sufficient room for waiting passengers. Prodigious use of fluorescent lighting, including in backlit signage, provided a good level of illumination, particularly relative to other subways at the time. The color-coding adopted for each station is represented in the blue-painted columns and lighted sign boxes. While little original design has been changed by this August 1961 view, the march of time is evident in the fashions as well as the addition of vending machines along the platform. —James Northcutt photo

and PWA Project Engineer D’Esposito on the matter, Gunlock stated that,

“planning for the concessions had been gone into quite thoroughly during the designing of the State Street subway and it was agreed by all at the time that these stands should be in the mezzanine rather than the platform level. We are still of the opinion that this decision is correct and believe you should abandon any plans for placing any newsstands on the loading platform level. While it is not our desire to deprive you of any revenue which you might be able to get from the installation of these newsstands on the platform level, we do believe that stands in this location would unnecessarily interfere with and congest traffic on the loading platforms, and therefore, cannot approve your request.”

It is worth noting that by the 1950s, there were not only newsstand kiosks on the downtown subway platforms, but all manner of other vending equipment including photo booths, coin-operated scales, soda machines and candy machines – no doubt, once the CTA took over full responsibility for operation and maintenance of the subway from the City and CRT, they simply moved ahead with their predecessor’s desire to place revenue-generating equipment where passengers would be lingering for periods of time.

In other cases, however, the Department of Subways and Superhighways and the subway’s engineers and designers were receptive to changes the CRT requested. For instance, soon after the subway opened, the CRT became concerned that the Roosevelt subway mezzanine and its single two-position agent’s booth could adequately handle the crowds the “L”

experienced after events at Solider Field. Note that, at the time, the elevated station’s entrance, a half block east, was a large open-front facility with several agents’ booths, clearly designed to handle large crowds. The CRT submitted a plan to the DS&S proposing to install two additional agents’ booths in the subway mezzanine, along with a list of some of the larger events at Soldier Field between August 1942 and November 1943 and the traffic counts through Roosevelt Road station (both leaving and returning/entering). Their request noted they had found it “impossible to handle the large crowds” in the subway mezzanine, resulting in “congestion and confusion.” The City approved the CRT’s plan, finding the booth proposal “satisfactory,” and noting no objection to their installation nor to rearranging the facilities in the mezzanine to suit the installation.



▲ Station mezzanines were designed to allow connections to adjacent buildings through the strategic placement of structural supports and bulkheads, allowing sections of wall to be more easily removed to make the connections. Each connection looked unique, however, evoking the style and design of the store or tenant. Sears' flagship store had a direct connection to the Van Buren-Congress mezzanine, seen in 1956. —CTA photo

CONSTRUCTION

Construction was authorized by the City Council on November 3, 1938. Ground was broken on December 17, 1938, at Chicago and State.

The mezzanine stations were constructed by the open cut method. This consisted of an excavation in the street in which the structure was built. Only one side of the street was shut off to traffic at a time. As soon as the depth of the excavation permitted, it was covered with heavy decking to carry the normal traffic of the street above with but a minimum of interference during the course of construction. Underneath the decking, work proceeded. Sub-surface facilities and streetcar tracks were relocated temporarily.

By early October 1940, construction of the downtown continuous station platforms was approximately one-third complete. By mid-December 1940, two of the 29 stations on both subway lines had been completely finished, 20 others were under construction, and contracts for five more had been approved by the city council. Plans for the remaining two, on the Congress Street extension of the Dearborn subway, were still being prepared.

Bids had been taken by September 1941 for trimming the 15 State Street stations



▲ The station mezzanines, as well as the ends of the subway tunnels where they approach the surface, were constructed by the “open cut” or “cut-and-cover” method, wherein the underground structure is excavated down from the surface, then decked over. Roosevelt station on the State Street Subway was close enough to the surface that its platform and track tunnels were also built cut-and-cover, resulting in box-shaped tunnels rather than the curved ones found elsewhere. Roosevelt's platform and track tunnels have been dug out and structural steel is being framed in on December 27, 1940—note the daylight visible at the top. —CTA Collection



▲ In early 1942, the Jackson-Van Buren mezzanine was outfitted with turnstiles, dummy plywood walls and pillars for experimentation and study by engineers and designers. Several types of exit turnstiles were studied. False walls were erected to emulate the draft architectural designs, down to drawing the outlines of telephone booths and concession windows and applying paper lettering on the walls. —CTA Collection

and equipping them with stair rails and escalators. The W.E. O’Neil Construction Company had the subway’s station finishes contract.

Progress on the stations continued in February 1942, when engineers and designers descended to the Jackson-Van Buren station to test and examine turnstiles, walls, posts, and the floors. The mezzanine was outfitted with turnstiles and dummy walls and pillars for experimentation and study by engineers and designers. Several types of exit turnstiles were studied.

Stations were sufficiently completed to allow for an “inspection trip” and tour to be run in April 1943, though it was little more than a promotional event for Mayor Kelly’s reelection. The State Street Subway opened on October 16, 1943 with a ribbon-cutting, special trains and celebrations; the subway officially opened for revenue service after midnight on October 17.

ARCHITECTURAL FINISHES

Built entirely from public funds but without taxes or special assessments, the new subway was at the time considered, both from engineering and architectural viewpoints, a distinct advance over recent projects in other cities. While few of its elements were revolutionary, its overall design and features were well designed and created a pleasing environment.

The stations were designed in the Art Moderne architectural style, sometimes termed Streamline Moderne, an architectural and graphic design style that emerged in the 1930s. An evolution of Art Deco, its architectural style emphasized curving forms, long horizontal lines and simplified detail, shedding the ornament found in Art Deco. Streamline Moderne was both a reaction to Art Deco and a reflection of austere economic times—sharp angles were replaced with simple, aerodynamic curves.

Architectural treatment of station areas

was designed with careful consideration of both aesthetic and practical operating features. Circulation was efficient and carefully considered in the designs. Pathways were wide and clearly labeled, while walls were designed in tangents and curves for easy flow.

Four color schemes were adopted at the station stops for easier recognition by habitual riders. The basic colors—blue, red, green and brown—were rotated and used in the directional signs, steel columns and terra cotta trim. The colors were rotated among the stops as follows:

North and Clybourn	Blue
Clark and Division	Red
Chicago Avenue	Green
Grand Avenue	Brown
Ohio Street (Auxiliary)	Brown
Lake-Randolph	Blue
Randolph-Washington	Blue
Washington-Madison	Blue
Madison-Monroe	Red
Monroe-Adams	Red

Adams-Jackson	Green
Jackson-Van Buren	Green
Van Buren-Congress	Green
Harrison and State	Brown
Polk and State (Auxiliary)	Brown
Roosevelt Road	Blue

The architectural finish of the stations included a great variety of materials and methods of application. Four principal types of wall treatment were used in the mezzanines and stairways to the streets and platforms: tan glazed tile on the stairways from the street to the mezzanine, light gray tile in the passageways, gray structural glass on mezzanine station walls and radio black marble on the walls of the stairwells from mezzanines to platforms. Steel columns in the mezzanine areas were also encased in concrete and finished with radio black marble.

Light gray terra cotta laid in large blocks was used on the side walls of the platforms on the three side platform stations, as well as on the walls surrounding the stairs and escalators and at the end of the island platforms.

The tan and light gray glazed tile was 1-inch by 2-inch in size. Units were delivered with the finished face glued to heavy paper so that an area of 12-inches by 18-inches was erected at one time. The glazed tile was erected on plaster, which in turn was placed over a split tile.

Pigmented structural glass was a sleek glass tile developed in 1900 but popular in architecture in the 1920s and 30s that epitomized the ultramodern look characterized by Streamline architectural style. Also known as Vitrolite – originally a trademarked brand of pigmented structural glass that eventually became a generic name for it – it was an inexpensive alternative to marble or ceramic tile. Structural glass had a number of practical advantages in addition to its aesthetic appeal—unlike masonry, it does not craze, swell or warp, it is stain-resistant and colorfast, and is impervious to moisture. However, it is still glass, which makes it vulnerable to breakage from impact. While at the time of the subway's opening *The Architectural Forum* said the subway's "vitreous walls are... indestructible" and transit expert George Krambles called it "non-defaceable," neither of these turned out to be true. When work resumed on Subway Route No. 2 after the end of the war, it is notable that light gray terra cotta blocks were substituted for structural glass in the station mezzanines.

The structural glass was delivered in pieces 18-inches by 31-inches and one



▲ This April 14, 1943, view of the Adams-Jackson mezzanine shows most of the architectural finishes characteristic of the State Street Subway stations—light gray structural glass walls with white band trim, radio black marble-encased columns and stairway wall in the background, tan tile wall on the stair to the street on the left, and pale green-painted concrete ceiling and red concrete floor scored in a tile-like pattern. Other features visible are the lozenge-shaped agent's booth with stone lower walls and full surround windows, stainless steel-trimmed turnstiles, fluorescent lights, and signage inset in the wall finishes.

▼ This is the Adams-Jackson mezzanine... during construction? Not quite—it's a few days after opening, October 19, 1943, and in the Dearborn Subway. This and the Randolph-Washington mezzanine were completed and opened as part of the State Street Subway contracts. This allowed the upper-level passageways under Quincy Street and Court Place to be opened, and act as weather-protected access to the State Street stations from Dearborn. But because they did not need to function as stations, the two Dearborn mezzanines were not completed—no agents' booths or fare controls, restrooms, concessions or other amenities. It also created an aberration where these two Dearborn mezzanines were finished like the State Street stations, in structural glass and black marble, rather than the light gray terra cotta used when the rest of the Dearborn mezzanines were completed after the war. —Two photos CTA Collection



quarter of an inch thick. The terra cotta was delivered in pieces 11-inches by 22-inches and laid in a manner similar to that described for structural glass.

The marble for the stairwell walls was delivered in pieces 24-inches square and was fastened to the concrete wall by means of wire anchors hooked to the marble and imbedded in grout holes drilled in the marble slab and in the concrete wall.

The mezzanine ceilings and platform arches were plywood-formed concrete and painted a pale green to reflect light and provide a bright, airy environment. The steel columns and steel soffit on the platforms were flame cleaned, painted one prime coat, filler applied, then painted with two finish coats.

The mezzanine and platform floors and the stairs were red concrete. The red shale finish was composed of cement, sand and granite chips with alundum to produce a non-slip wearing surface. This colored finish course was placed over the reinforced concrete structural slab. The finish mixture on the floors was floated with mechanical rotary floats to a smooth, dense surface. The red composition floors were mechanically scored in a 3-foot square tile-like pattern – today these scorings have mostly been worn away by decades of foot traffic, but can still be seen in unused parts of the continuous platform or areas rarely tread on such as around columns. The stairs were all placed, tamped and formed by hand. Stair treads are fitted with abrasive tile embedded in the finish to prevent slipping. Two lines of the tile extend across in front of the bottom stair tread for safety.

A structural steel platform edge was planned for the support and protection of a white concrete safety strip, but a wooden platform edge with a white non-slip tile cemented to the wood edging was substituted instead. It has often been said that this wooden edge was used so that it could be easily removed if the City or CRT decided to buy wider Bluebird cars for the subway, but the wood was actually substituted for the metal because of a steel shortage caused by the war.

FIVE STAR FEATURES, FARE CONTROLS AND OTHER EQUIPMENT

The subway included a number of systems and amenities that the City was proud of, proclaiming that, “in safety and convenience for the public the new Chicago



▲ Masons work to install structural glass panels in a downtown station mezzanine on July 30, 1942. The 18-inches by 31-inches structural glass panels were delivered clipped to a concrete block backing by means of zinc clips extending completely around the perimeter of the glass block. The edges of the glass were beveled so that the zinc clips would hold the glass to the concrete blocks more firmly. These blocks were laid much as a bricklayer lays bricks but with greater accuracy. —CTA Collection



▲ Grand & State, seen in 1964, is a representative example of a side platform station on the State Street Subway. Like the island platform stations, the platform has an arched vault overhead, but the second track and colonnade of I-beams is replaced by a solid wall. Rather than the structural glass used for the walls at mezzanine level, the platforms used light gray terra cotta block wall finishes. A top course along the ceramic wall tiling, as well as the painted columns and signage, reflect the station’s color code, in this case, brown. —James Northcutt photo

Subway ranks foremost among the subways of the world.” Five of these features were touted in promotional materials at the time of its opening as the subway’s “Five Star Features”—ventilation, signals, drainage, illumination and escalators.

The subway was equipped with a ventilation system second to none, according to the City when the subway opened. The signal system was the most modern product of one of the nation’s leading manufacturers of signal equipment. The drainage

system was extensive and its proper operation at all times was assured by the installation of large capacity automatic pumps in pairs with two independent sources of power.

The other two “Five Star Features” were found in stations. Illumination was markedly improved compared with older subways through the use of fluorescent lighting, the first use of such lighting in a subway according to the City. With the cooperation of lamp and glass manufactur-

ers a new type of fixture was designed to meet the subway's rigorous requirements. The new type of fluorescent lighting was more pleasant, cooler, easier on the eyes and vastly more efficient than any other light for general use invented up to that time. Another projected advantage was considerable power – and thus cost – savings, with the lighting expected to use less than one-half what they would have had a conventional incandescent lighting system been used.

The City claimed that lighting experts were amazed at the results achieved in the subway and commented favorably on the uniform intensity of illumination and the absence of shadows and glare. The following is quoted from the report of a group of lighting experts from one of the largest electrical companies that made a technical investigation of the completed system:

“The results indicate a definite improvement in the general illumination of the new State Street Subway in Chicago when comparison is made with standards existing in other subways throughout the country. The increase in the amount of light, as well as the excellent uniformity of distribution and reduction of brightness, make this on outstanding lighting installation in subway projects.”

Another improvement made was overcoming the poor performance of fluorescent lighting at cold temperatures, common at the time. The lighting system was equipped with the latest design of auxiliaries insuring successful operation at all temperatures.

The installation included some 3,000 totally enclosed fluorescent fixtures equipped with 48-inch lamps. A leading glass manufacturer produced especially for this project an attractive glass shield of new and unique design.

A standby system of direct current lighting was also provided, including approximately 1,200 incandescent lighting fixtures in the station areas, to make certain that the subway would not be plunged into darkness in

▶ Another amenity featured in the “Five Star Features” series of postcards were the sound-proof telephone booths included in each station fare control area. Despite the lack of doors or even partitions down to the floor, through the use of perforated acoustical paneling and other design features they truly were nearly soundproof—most outside noises were muffled, and someone standing outside the booth could barely hear the words of someone inside. The back of the postcard noted that the booths provide “the same privacy as when telephoning from your home,” and “give that touch of personal consideration so much appreciated.” —Graham Garfield Collection

▶ Another feature that made the subway stations more convenient and comfortable were concession spaces in each staffed station. Typically housed in the curved bump-out in one of the four quadrants of the downtown mezzanines, some were entirely enclosed shops accessible from a door in the paid area, while others included a window or counter open to the unpaid area. The Washington & Randolph Subway Flower Shop, seen here in the 1950s, was one of the more elaborate setups. —CTA Collection



▲ A series of six photo-based postcards were issued promoting the new subway's “Five Star Features,” a phrase used in other promotional materials issued by the City to tout features they were proud of. This postcard promoted the subway's “accident-proof” escalators, a convenient feature to help passengers ascend from the deep platforms, designed to “conserve strength and vitality.” Each was designed to handle over 8,000 passengers an hour. While they incorporated every then-known safety feature, the claim of being accident-proof no doubt was a measure of booster-inspired hyperbole. —Graham Garfield Collection



the event of a power failure in the main lighting system.

The escalators, another Five Star Feature, were also of special design and construction for the very severe service that would be imposed upon them in subway operation. Special consideration was given to safety and every then-known feature for the safety of passengers was incorporated.

The 23 escalators in the State Street Subway were finished with balustrades composed of panels of stainless steel and porcelain enameled steel trimmed with white metal.

The escalators operated at 90 feet per minute and were reversible; an illuminated directional marker indicated their direction of travel.

Aside from the touted Five Star Features, the subway included a number of other features included for the personal comfort of patrons. In fact, in many ways, the Initial System of Subways stations were the high point of Chicago rapid transit station design in terms of amenities and conveniences for passengers, with the stations not meant to be strictly utilitarian, transient spaces. Soundproofed telephone booths were provided at each staffed mezzanine—outside noises are so effectively minimized by these special telephone booths that privacy is assured without the use of doors. Restrooms were provided for both men and women, each with a small anteroom and multiple stalls and sinks. Parcel checking lockers and drinking fountains were also found in each staffed station, along with an attractive concession space, many of which housed newsstands and some of which were even enclosed stores.

The agents' booths were largely of glass with an interior arrangement that was carefully planned for utility and appearance. The booths were made of stone walls and glass windows on all four sides, allowing for maximum visibility of the mezzanine for the station agents. The booths in stations south of the river were lozenge-shaped, angled Deco-style enclosures, while the four stations north of downtown had square-shaped booths.

The turnstiles were compact, efficient units, the most modern type available at the time. The mechanism housing and pedestal were combined in a trim, streamlined cabinet of heavy steel finished in a grey enamel to match the station color scheme, with attractive bands of stainless steel, topped by a satin finished cover. The arms were rust-

proof plated tubing. There were three arms instead of the four more conventional for the time, making for easy passage.

The staffed fare control areas had a combination of cashier-controlled entrance turnstiles, coin-operated entrance turnstiles to allow passengers to bypass the agent, and exit-only turnstiles to allow egress without conflict with entering customers—all designed to promote efficient circulation and increase capacity.

In addition to the main passenger stations, there were three unattended mezzanine level stations at Dayton Street (North/Clybourn), Ohio Street (Grand) and Polk Street (Harrison). These were originally intended to provide exit and coin-operated auxiliary entrance facilities, and as late as 1942 materials claimed they would be fitted with unstaffed coin-operated turnstiles. However, when the subway opened in 1943, these facilities were exit-only, equipped with high rotogate exit turnstiles. Architectural drawings for these facilities note that a coin-operated high-barrier gate could be installed in the future, if desired.

It is notable that both the escalators and the turnstiles were acquired by the Department of Subways and Superhighways long before Pearl Harbor, as this equipment was virtually unobtainable under the war time economy.

SIGNAGE

Another element of the stations that was holistically and carefully designed was its signage. Although Chicago's subway lacks the elaborate, ornate tilework and mosaic tablets found in earlier American subways, much of the signage was designed into the tilework. There were also illuminated signs and signs on substrate, originally intended to be steel.

There were approximately 160 illuminated signs, with 24-inch, 36-inch and 48-inch fluorescent tubes as required by various lengths of signs. Ceramic glass was used with white letters and colored background to match the station color scheme.

Where lettering was molded into structural glass panels, the lettering was black; where it was molded into terra cotta blocks, the lettering matched the station color scheme.

At platform level, signs on the columns were made of glass, with white lettering on a background colored to match that station's assigned color, mounted in a frame but not illuminated. All other unlit signs,



▲ This view looking west at the passageway under Quincy Street connecting the Adams-Jackson mezzanines illustrates not only what the upper-level transfer tunnels looked like, finished in 1" x 2" light gray tiles, but also two of the three types of signage lettering employed in the subway. The backlit sign over the passageway utilizes the regular or "book" form of the special geometric sans-serif typeface specially designed for the subway. This lettering can also be found molded into some structural glass and terra cotta wall finishes and on metal and wood signs. The walls on either side of the passageway feature the second lettering type, a condensed version of the subway typeface. This lettering was used almost exclusively for directional signs to exits like these, molded into structural glass panels. —CTA Collection

▼ The third type of lettering, coloring all or part of the light gray 1" x 2" tiles black to form block-like letters, was found only in passageways where these types of tiles were used. This lettering is demonstrated here at the North/Clybourn station, shown on November 4, 2001. Note that the lettering pointing to the abandoned Dayton St. auxiliary exit has been lightened to try to make it "disappear" but is still readable. —Graham Garfield photo



including those on the tunnel walls, as well as those in mezzanines and at the street-level entrances, were originally painted wall board rather than steel to save on metal, with lettering typically brown or black (though occasionally in the station's color) on a white background.

These were replaced with permanent enameled metal signs after the war (though some wall board ones survived well into the CTA era), possibly in conjunction with the outfitting of the Dearborn Subway as most of the new signs had white letters on a gray background matching that subway's signage.

The subway designers created three unique typefaces for the subway's signs. The primary lettering is a geometric sans-serif typeface similar to Futura but with some differences when compared side-by-side. This type was used most widely, used on structural glass and terra cotta wall panels, the illuminated signs, and on metal and wood signs. A condensed version of this typeface was also created, used primarily for exit wayfinding to specific streets, molded into structural glass pilasters in the mezzanines. Finally, some signage was created in the 2-inch by 1-inch gray tile walls by coloring certain tiles black (sometimes only half a tile, even halved at a 45-degree angle, to make the necessary character curves), making for a block-type lettering in that tilework—this type was found most commonly in passageways.

MATERIALS SUBSTITUTIONS

The bombing of Pearl Harbor on December 7, 1941, and the United States' subsequent entry into World War II resulted in strict material rationing that affected the materials and architectural finishes used in the subway. However, as war production had actually begun long before the US's formal entry into the war, the Department of Subways and Superhighways had voluntarily revised its original plans and specifications long before Pearl Harbor to provide for the use of substitutes wherever possible.

A considerable quantity of stainless and chromium steel, bronze, copper and aluminum – critical war production materials – was eliminated. Changes in the original design for the subway eliminated 2,732,000 pounds, or 21 per cent, of the critical war materials formerly specified for the project. Twelve war materials were involved in the reductions. Heading the list was steel, of which 1,330,000 pounds were eliminated largely through substitution of other noncritical materials. Through the substitution of paint or marble for station columns and decorative work in the tunnel, 490,000 pounds of aluminum and 350,000 pounds of stainless steel were eliminated. Rust-proofed steel was substituted for bronze in hardware and lighting fixtures. Marble replaced aluminum for panels on the escalators. Copper was eliminated wherever it was possible to make substitutions. The turnstiles were purchased long before Pearl Harbor or obtaining them might have been problematic.

Although at the time the armament drive and limitations on war materials was described as causing “architectural problems” and “crimp[ing] the stylistic effects of the stations,” and more recently the war rationing has been cited as the cause of the austere aesthetics of subway's subways, the reality is that the style and look of Chicago's subways was far more a result of the preferred architectural style of the time and was well-set before the war intervened.

DESIGN DOWN UNDER:

The Streamline Moderne architectural style and design details of the State Street Subway can be attributed to two groups of designers and their respective leads: the staff architects of the City of Chicago's Department of Subways and Superhighways led by Emanuel V. Buchsbaum, and the consulting architectural firm of Shaw, Naess, & Murphy.

Buchsbaum is credited for the subway's architectural design by dedication plaques for Initial System of Subways Route No. 1, as well as in promotional literature. However, from early on, Alfred Shaw, a principal of the firm Shaw, Naess, & Murphy, clearly had involvement in the subway's design approach. In 1938, a group from Chicago, including Shaw, traveled to New York City to inspect the brand-new IND Sixth Avenue subway line to “gather data” and inform their plans and direction for Chicago's new subway. It is unclear if at this point Shaw was officially serving as a project contractor, or just a recognized expert being consulted.

Whatever the case, early design drawings from 1939 list both architectural firm Shaw Naess & Murphy (with Alfred Shaw signing for the firm) and a Department of Subways and Superhighways “Assistant Subway Designer.” While documentation found to date doesn't explicitly spell out the relationship between the two, it is likely that the two functioned not dissimilarly to how many CTA station design projects work today, with a consultant doing much of the design work,

and an in-house project lead managing this consultant, making or approving design decisions, and performing design tasks as needed.

In 1941, Buchsbaum became the City's Subway Architectural Designer. Precisely how much and which aspects of the station's style and particular design details are attributable to each party is hard to discern. However, considering that Shaw Naess & Murphy, though relatively new, was a firm that came with a respected pedigree, it seems likely that they had a significant influence on the general direction of the designs.



▲ Alfred Shaw, circa the 1950s, while with Shaw Metz & Dolio. —Fran Byrne, photographer. Alfred P. and Patrick Shaw Collection, Ryerson and Burnham Archives, The Art Institute of Chicago. Digital file# 198407_180702-001.

Alfred Phillips Shaw (1895–1970) was born in Dorchester, Massachusetts and was of Welsh ancestry. He studied architecture at the Boston Architectural Club Atelier and worked for several architecture firms in Boston and New York before coming to Chicago. In 1922, he joined the

ARCHITECTS OF THE STATE STREET SUBWAY

well-known Chicago firm of Graham, Anderson, Probst & White (GAP&W) – known for designing iconic buildings such as the Wrigley Building, Merchandise Mart, Field Museum, Shedd Aquarium and Civic Opera House among many others. Shaw became a junior partner in 1929; he married Rue Winterbotham four years later.

Shaw was largely responsible, with Sigurd Naess, for moving GAP&W from Beaux-Arts Classicism (the firm was a successor to Daniel Burnham’s architecture firm) to more modern Deco and Streamline styles, as exemplified by the Merchandise Mart. Shaw was fired from the firm in 1936 following the death of partner Ernest Graham; in 1937, he partnered with Naess and Charles Murphy to form the firm of Shaw, Naess and Murphy. Besides the State Street Subway, significant works by Shaw, Naess and Murphy included the Prudential Building and the Sun-Times Building.

In 1947, the firm became Naess & Murphy, with Shaw departing to form Shaw Metz Dolio—this and his later partnerships, Shaw Metz, and Alfred Shaw and Associates, were among the most prolific firms in Chicago during the 1960s and ‘70s. Shaw and his later firms did not do any other Chicago transit commissions, however. (On the other hand, the successor to Naess & Murphy, Murphy/Jahn Inc. with German architect Helmut Jahn, would go on to design the O’Hare CTA station along with the airport’s Terminal 1 and the State of Illinois Center, later James R. Thompson Center, which includes a major downtown ‘L’ hub.)

When Shaw passed away in 1970 at age 75, he was considered a leading Chicago architect and was a former director of the American Institute of Architects.



▲ Emanuel Buchsbaum, around the time of his subway design work. —*Courtesy of Buchsbaum family*

Emanuel Valentine Buchsbaum (1907–1995) was born in Chicago and studied architecture at the Armour Institute (now the Illinois Institute of Technology); while there, he received the Hutchinson Medal for the Highest Average in Design. He worked for Chicago architect R. Harold Zook for five years; in 1930, the South Park Commission hired Buchsbaum as an architectural draftsman. Four years later, the city’s independent park commissions were consolidated into the Chicago Park District, and Buchsbaum received the title of architectural designer.

In this role, Buchsbaum had complete oversight of all building design for the city’s parks and facilities, including developing concepts, budgets and working drawings, and supervising construction. Works credited to Buchsbaum familiar to generations of Chicagoans, some of which are landmarked, include Lincoln Park’s Wilson Avenue Stone Comfort Station, the 1939 North Avenue Beach House (demolished in 1999 and replaced by a new, similar

building), the rainbow footbridge known as the Passerelle, and the zoo’s iconic red barn in the Farm-in-the-Zoo; and the towered pavilion on Promontory Point at the south end of Burnham Park.

Buchsbaum was very likely brought over to the subway project by Ralph H. Burke. Burke was chief engineer for the Park District from the time of its creation in 1934 until 1946, but from 1939 to 1941 he took a leave of absence from the CPD to supervise construction of the Initial System of Subways. It is likely that Burke recruited Buchsbaum, as the two had worked closely together at the Park District. Burke’s 1956 obituary in the *Chicago Tribune* described him as being “on loan” to the subway project from the Park District, then returning to the CPD (he later went into private practice); Buchsbaum seems to have had a similar arrangement, resuming working for the Park District in 1943, where he worked until his retirement in the late 1970s. (By the time work resumed on the Dearborn Subway in 1946, architectural work was overseen by architect Maurice J. Glicken, probably not coincidentally also from the Park District.) He remained with the Park District as a consultant for approximately another ten years after retiring and was involved with the renovation of the Art Institute in this capacity. He also continued to do private architectural work, primarily residential commissions.

Buchsbaum married Margaret Smith, with whom he had a son and three daughters. He was a 33-year resident of Flossmoor, then lived the last five years in Kettering, OH, where he passed away.

Thanks to historian and former Chicago Park District planning supervisor Julia S. Bachrach for assisting with biographical and background information on E.V. Buchsbaum.