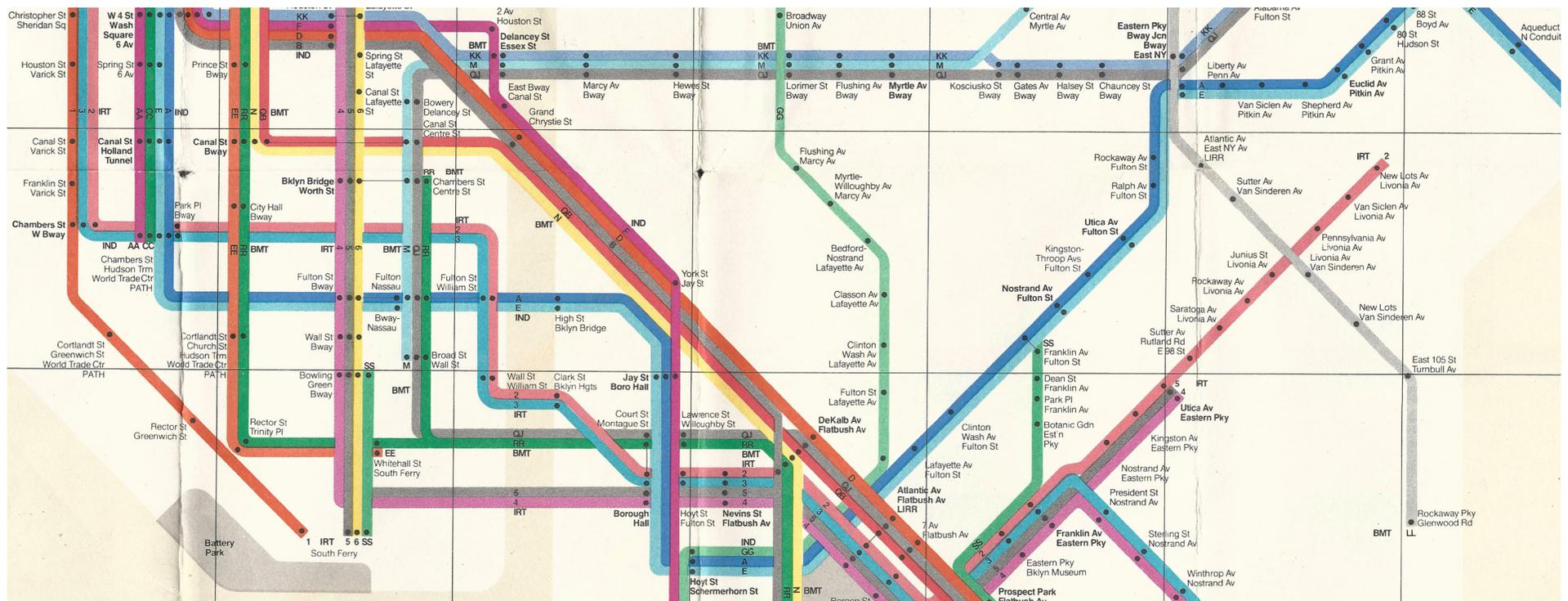


MAKE STRAIGHT THE WAY

A History of the New York City Subway Map *Volume 5*

Extract from draft Chapter 3 only

Peter B. Lloyd



0/0 Excerpt from the 1972 MTA map of the New York City Subway System, designed by the Unimark International, Inc. (Massimo Vignelli, Norbert Oehler, and Joan Charysyn).

Unimark | © 1972 MTA | Collection: author

Incomplete draft for limited private circulation.

August 4th, 2022

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Abbreviations in copyright notices:

“Unimark” = Unimark International, Inc.

“MTA” = Metropolitan Transportation Authority.

“NYTM” = New York Transit Museum, Brooklyn.

“Vignelli Center” = Vignelli Center for Design Studies, Rochester

Layout in InDesign, main text set in Minion Pro, banners in Bell Monotype.

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CHAPTER 3: GENESIS OF THE VIGNELLI MAP



3/0a The building where the Unimark office was situated when the subway map was developed, 410 East 62nd Street (white concrete building on the near right). It is not known which floor Unimark was on.

Photo: author, December 20, 2019



3. Genesis of the Vignelli subway map

3.1 Timeline

Almost all the original documents of the birth of the Vignelli map of the New York City subway have been lost. In the following pages, I look at the few extant fragments and see what they can tell us of the map's evolution. First, a little historical context.

1964: The New York Transit Authority (TA) held a Subway Map Contest to find a new design to accommodate the inter-working of the IND and BMT through the Chrystie Street Connection. One winner, Raleigh D'Adamo, proposed color-coding the lines by route (1,2,3, ..., A,B,C, ...) instead of by original operating company (IRT, BMT, IND). The TA accepted this.

1965: Unimark was formed, with Massimo Vignelli as one of its six founding partners (along with Bob Noorda, Ralph Eckerstrom, James Fogelman, Wally Gutches, and Larry Klein). Vignelli moved from his studio in Milan to Unimark's headquarters in Chicago—and, in December of that year, he moved to New York to direct the new branch office there.

1966: Mildred Constantine, Associate Curator of Architecture and Design at the Museum of Modern Art (MoMA), knew Vignelli's work in Milan (she met him in 1959), and knew the TA's attempt to improve wayfinding (she organised the MoMA exhibition *Signs in the Street* in 1954, and associated book in 1961). She introduced Vignelli to the TA. In 1966 (probably January), Unimark signed an initial contract to design a system of signage for the subway.

1967: Constantine organised a *Symposium on Transportation Graphics at MoMA*. A few weeks later, the Chrystie Street Connection opened, and the route-colored map launched. Although the Connection alleviated congestion, the signage and map were heavily criticised.

1968: A second contract was signed for Unimark to create a Graphics Standards Manual for the TA's new parent organisation, the MTA (Metropolitan Transportation Authority).

1969: Unimark hired Joan Charysyn. Among other projects, she worked on the Graphics Standards Manual and the individual station Signage Studies.

1970: Under Vignelli's design direction, Charysyn created a draft of midtown Manhattan. This was shown to the TA and, in July, a third contract was signed, to develop a new map. CoCoMAS (1975) stated: "Improvement of the map was started in 1969 by M. Vignelli of Unimark. [...] Under his direction a designer named Joan Charysyn completed it in 1973 [sic]." In an interview in 2011, I asked Vignelli what direction he gave to Charysyn. In response, he showed me how he made the initial sketches: see Figs. 3/1 to 3/4. Charysyn has disputed this, and has stated that the entire design was hers. Norbert Oehler also said *he* designed it!

1971: In May, Vignelli left Unimark and created Vignelli Associates. Charysyn continued on the map at Unimark. MTA Chair William Ronan asked his Chief of Inspection and Review, Raleigh D'Adamo, to check the map, via his counterpart in Unimark, Norbert Oehler. Charysyn made a number of changes requested. She also continued to liaise directly with Len Ingalls to keep the map up-to-date. A draft map was finished, and a black-and-white version appeared in the Signage Studies manuals, dated 1971. Very few changes occurred after this.

1972: Unimark closed its new York Office at the end of May. Vignelli Associates acquired the office and rehired Charysyn, who had not left the office. In August, the new map was published.



Figure 3/1 Vignelli reaches for his pencil
Photo: author, December 31, 2011



Figure 3/2 Vignelli begins to sketch
Photo: author, December 31, 2011

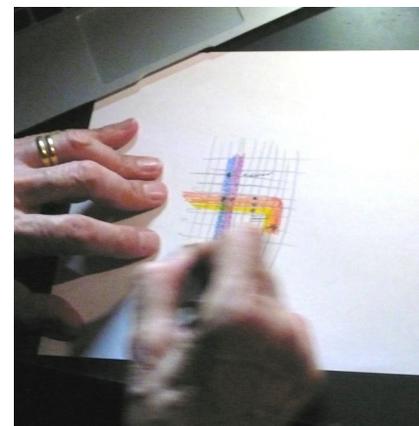


Figure 3/3 Vignelli sketches a map segment
Photo: author, December 31, 2011

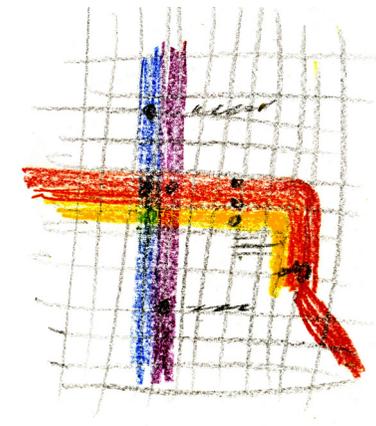


Figure 3/4 Vignelli's map sketch, December 31, 2011
Collection: author

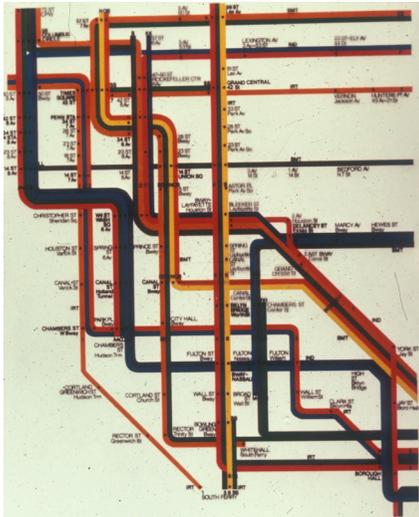


Figure 3/5 First known prototype of subway map, 1970: a 35 mm slide from the Unimark /Chicago office. Unimark / © 1970 MTA / Collection: Vignelli Center for Design Studies



Figure 3/6 Prototype of subway map as presented to the TA, circa July 1970 Unimark / © 1970 MTA / Collection: Joan Charysyn

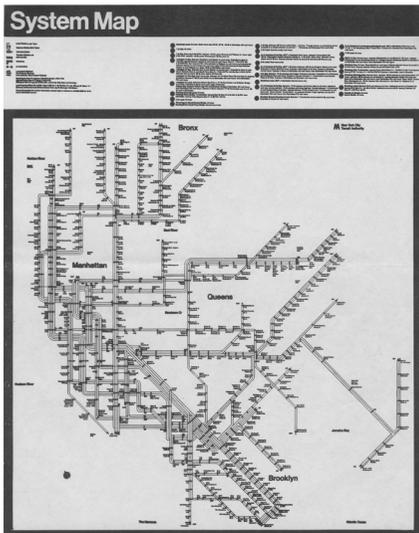


Figure 3/7 Black-and-white map from Dekalb Station Signage Study, 1971. Unimark / © 1971 MTA / Collection: Vignelli Center for Design Studies



Figure 3/8 Official MTA station map displayed on station walls from August 4th, 1972 Unimark / © 1972 MTA / Collection: Vignelli Center for Design Studies

3.2 Primary materials

We have four maps executed by Joan Charysyn for Unimark International, under the design direction of Massimo Vignelli. The dates range from circa July 1970 to August 1972, spanning the known development time of the map. As you can see, the structure of the map remained consistent throughout this time. There is little evidence of experimentation or iterations of development from an original concept. The Manhattan section of the map that was presented to a TA Commissioner (probably Daniel T. Scannell) in the summer of 1970 is almost identical to what was unveiled on August 4, 1972. The extension of that Manhattan design into the Bronx, Queens and Brooklyn followed the same visual grammar. This is consistent with what has been anecdotally reported of Vignelli's mode of working: he would begin with a complete vision of the final design, and then work out the detailed implementation. These four maps are:

- Fig. 3/5. Prototype of Midtown and Downtown Manhattan, captured in a 35 mm slide that was retained in the Unimark / Chicago office, and lodged (in 2011) at the archives of the Vignelli Center for Design Studies. Station names are printed in upper case, except for cross-streets, which are in mixed case (e.g. "HOUSTON ST | Varick St"). This was later changed to mixed case (Fig. 3/6), which persisted to the final version (Fig 3/8)
- Fig. 3/6. Prototype of Midtown and Downtown Manhattan, photograph of an original copy of the one that was sent to the TA Commissioner, and which is now in Charysyn's private collection. As in the first composition, the in-line route designations (1,2,3, ... A,B,D, ...) are always written horizontally, even when the route line runs north-south or diagonally. In the 1971 map onwards, the orientation of the in-line text is changed so that the route designations always run along the line of the route.
- Fig. 3/7. Black-and-white version of the map, included in the station Signage Study. This specimen is from the DeKalb Signage Study by Joan Charysyn and Virginia Macintosh (both designers at Unimark), held by the Vignelli Center for Design Studies. This is a burred photocopy, but we can tell a lot from it. It is significant as it is the earliest representation of the complete map.
- Fig. 3/8. The published station wall map of August 4th, 1972.

There are a few errors in the two prototype compositions, for example, the route end-marker "7" is missing at Times Square on the second prototype. What I am interested in here, however, are the deliberate design changes that were made between 1970 and 1972. (After 1972, the map was controlled by the TA, not Unimark, and that is a different story.)

In addition to those maps, we have a series of ten sketches made by Raleigh D'Adamo, circa 1971, as part of the feedback given by the MTA to Unimark (Figs. 3/9 to 3/21). Some of these changes were implemented in the final map, some were not. In the following pages I will examine each one in detail, comparing it with the four cardinal maps described above. Unfortunately the sketches are undated, but I would assign a rough date of late summer 1971, as the Signage Study map (assumed late 1971) incorporates some features from the sketches.

The significance of these materials is that they give insights into Vignelli's visual grammar and the interconnectedness of different parts of the map.

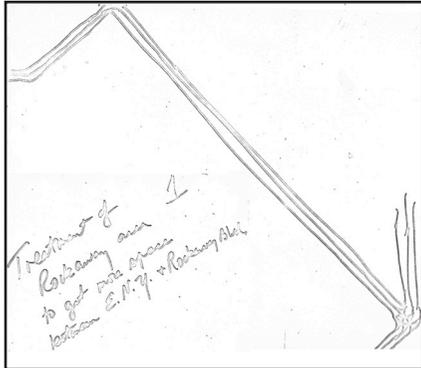


Figure 3/9 Sketch 1 by Raleigh D'Adamo: the Rockaways
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

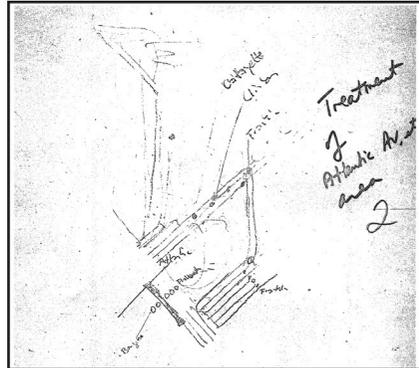


Figure 3/10 Sketch 2 by Raleigh D'Adamo: Coney Island —first alternate treatment
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

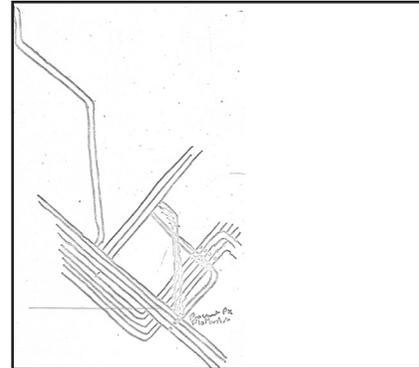


Figure 3/11 Sketch 2B by Raleigh D'Adamo: Coney Island —second alternate treatment
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

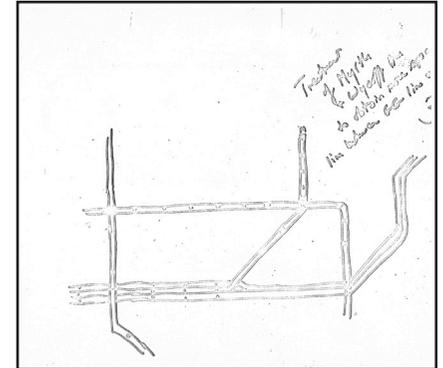


Figure 3/12 Sketch 3 by Raleigh D'Adamo: Myrtle and Wyckoff Avenues
Collection: Raleigh D'Adamo

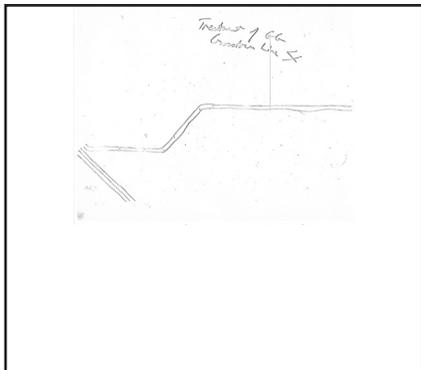


Figure 3/13 Sketch 4 by Raleigh D'Adamo: Crosstown Line
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

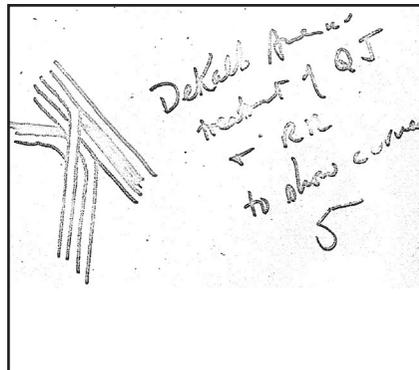


Figure 3/14 Sketch 5 by Raleigh D'Adamo: DeKalb Avenue
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

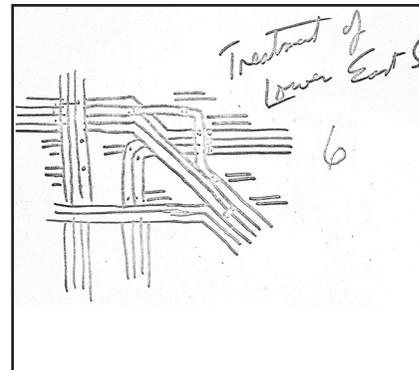


Figure 3/15 Sketch 6 by Raleigh D'Adamo: Lower East Side
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

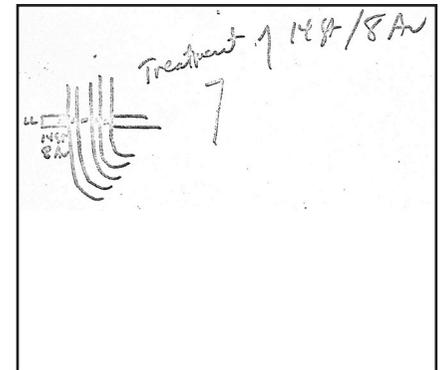


Figure 3/16 Sketch 7 by Raleigh D'Adamo: 14th St / 8th Av
Collection: Raleigh D'Adamo

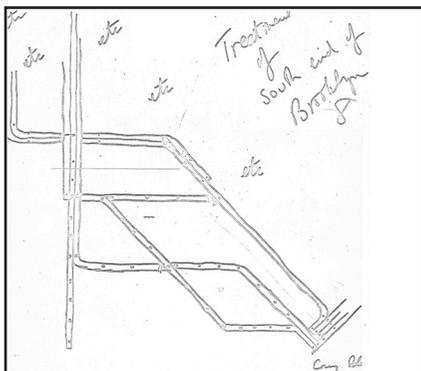


Figure 3/17 Sketch 8 by Raleigh D'Adamo: South end of Brooklyn
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

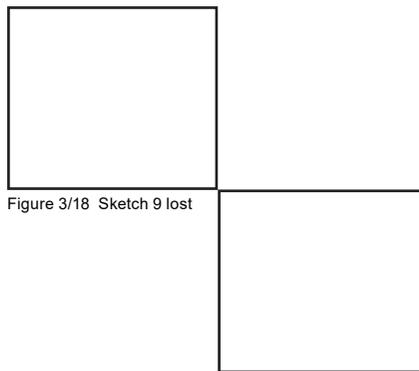


Figure 3/18 Sketch 9 lost

Figure 3/19 Sketch 10 lost

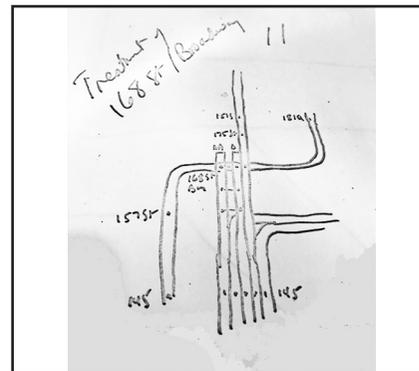


Figure 3/20 Sketch 11 by Raleigh D'Adamo: 168th St - Broadway
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

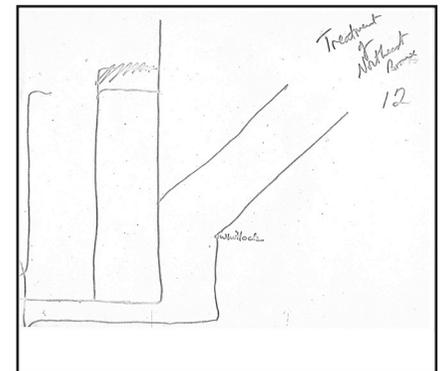


Figure 3/21 Sketch 12 by Raleigh D'Adamo: Northeast Bronx
Collection: Raleigh D'Adamo



Figure 3/22 Detail from black-and-white map from Dekalb Station Signage Study, 1971.
Unimark / © 1971 MTA / Collection: Vignelli Center

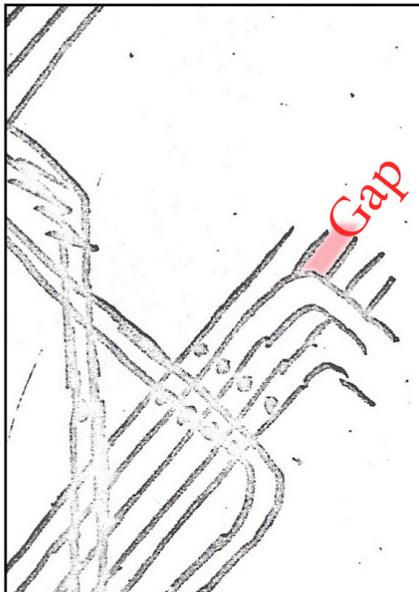


Figure 3/24 Detail from Sketch 2B by Raleigh D'Adamo.
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo



Figure 3/23 Detail from published MTA subway map, August 4, 1972
Unimark / © 1972 MTA / Collection: author

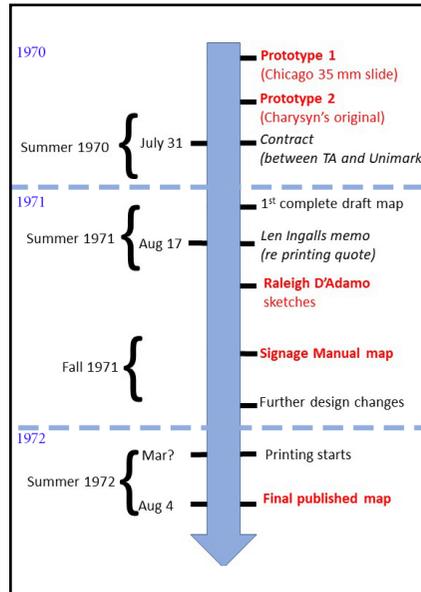


Figure 3/25 Timeline
Author

3.3 Dating and sequencing

As there are no written dates for D'Adamo's sketches nor any date more precise than '1971' for the DeKalb Signage Manual, any attempt to work out the sequence in which they were produced, let alone the specific dates, is fraught with uncertainty. We have to rely on reasonable inferences from these materials. There are two specific questions that we can pose:

- Was the 1971 map final? Or, were further design changes made after this?
- Were D'Adamo's sketches drawn before or after the map of the 1971 manual?

We are not interested here in corrections of mistakes, but in whether there was still deliberate design activity going on after the 1971 map was drawn. Given that the mechanical was a huge, complex structure of acetate sheets with manually applied lines, station dots, and text, is it surprising that a few random errors would creep in? (An example: the 1972 map has an unnamed ghost station on the GG line, just south of the station Fulton St - Lafayette. This is not present on the 1971 map, and was removed in the 1973 edition of the published map.)

You can see a clue in a junction south of the station Utica Avenue - Eastern Parkway (on the New Lots IRT Line), which is seen in Figs. 3/22 and 3/23. At this point, the #3 train (light blue) and a branch of the #4 train (purple) turn away from the New Lots Line toward the south-east, to form the Flatbush Line. In the 1971 map, this leaves a gap (Fig. 3/22). In the 1972 map, the gap is filled by bending the #2 train (red) inwards so that it hugs the New Lots Line (Fig. 3/23).

This shows that some design revisions were still being made at this late stage. As we should expect, D'Adamo's sketch also has this gap. We can see in Fig. 3/24 that the #2 train route does not bend, and so there is a gap in the New Lots Line in D'Adamo's sketch.

Was D'Adamo working from the 1971 map or an earlier draft? As we shall see, of the suggestions D'Adamo made, all the ones that appear in the final 1972 map, are also in the 1971 map. Therefore he must have been working from an intermediate map, that has since been lost.

According to Len Ingalls' memo of Monday, August 16, 1971, the mechanicals were prepared and ready for inspection by prospective printers. He expected the printing contract to be awarded by August 23rd, and delivery four months later, on December 13th 1971. In fact, the map was launched seven months later still, on August 4th, 1972. What caused the seven-month delay? According to Charysyn, a complete map had been prepared a year after the start of the project (hence, summer 1971—consistent with Ingalls' memo), but the MTA insisted that this be subject to further review. The MTA was represented by D'Adamo, acting on instructions from the MTA Chairman, liaising with Unimark's Norbert Oehler. D'Adamo's suggestions were worked into the map and a new draft created in the Fall or Winter of 1971. *That* map was used in the signage manual. There was further delay until March 1972, when some further revisions were made. According to Ingalls, the printing and proofreading would take four months, which brings us to August 1972.

Vignelli left Unimark International at the end of April 1971, and worked through Vignelli Associates at a new office. He was no longer available on a daily basis to supervise design work, although he maintained active contact on continuing projects. Therefore D'Adamo's contribution to the Vignelli map came after Vignelli himself was no longer in the loop. Hence the decisions on actioning his proposed treatments would probably have been handled by Joan Charysyn as junior designer and executed by Norbert Oehler, at the Unimark office.

3.4 Sketch 1: The Rockaways

The first of D'Adamo's twelve sketches concerns a segment from Euclid Avenue to the Rockaways (Fig. 03/26). It was annotated "Treatment of Rockaway area to get more space between E.N.Y. and Rockaway Blvd." As we can see in the succeeding images of the 1971 Signage Study map (Fig. 03/27) and the 1972 final map (Fig. 03/28), D'Adamo's layout was adopted.

We do not, however, have the initial Vignelli map to compare. Nevertheless, we can make a reasonable guestimate. It seems that the layout of the 1969 map served as the starting point for Vignelli's map (compare Fig. 03/29 & 03/30). My supposition is therefore that Vignelli's initial version of the Rockaways looked like the '69 version (Fig. 3/31), with the inflection point at Beach 60 St, but after D'Adamo's suggestion, it was moved south to Beach 67 St (Fig. 3/28). This allowed the Rockaways to move east, creating more space in the overcrowded segment from Broadway - East N.Y. to Rockaway Boulevard, precisely as D'Adamo intended (Fig. 3/34).

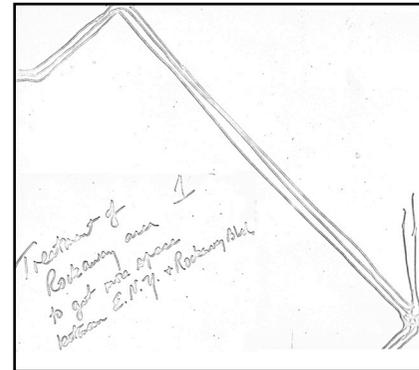


Figure 3/26 Sketch 1 by Raleigh D'Adamo.
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

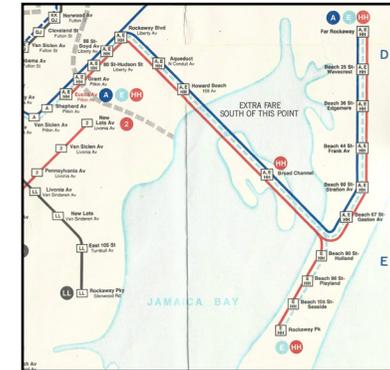


Figure 3/31 Detail from published TA subway map, November 26, 1967
D'Adamo, Goldstein, Adler, Calise / © 1967, 69 MTA / Collection: author



Figure 3/29 Detail from published TA subway map, November 26, 1967
D'Adamo, Goldstein, Adler, Calise / © 1967, 69 MTA / Collection: author



Figure 3/30 Detail from published MTA subway map, August 4, 1972
Unimark / © 1972 MTA / Collection: author

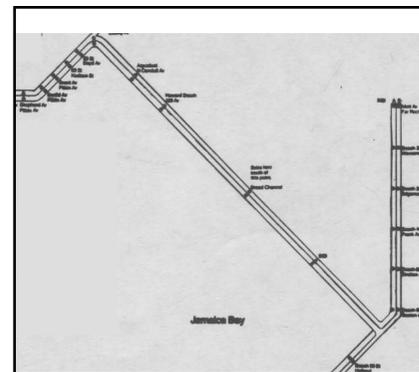


Figure 3/27 Detail from black-and-white map from Dekalb Station Signage Study, 1971.
Unimark / © 1971 MTA / Collection: Vignelli Center



Figure 3/32 Detail from published MTA subway map, December 1958 (just for contrast)
George Salomon / © 1958 MTA / Collection: author

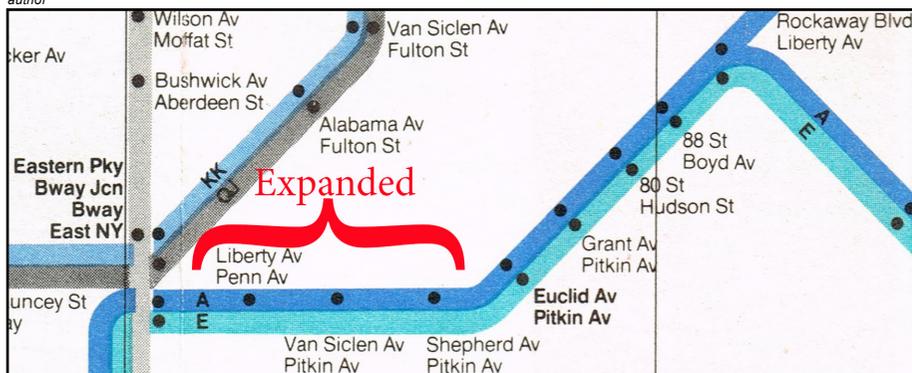


Figure 3/34 Detail from published MTA subway map, August 4, 1972: expansion from Eastern Parkway to Euclid Avenue.
Unimark / © 1972 MTA / Collection: author

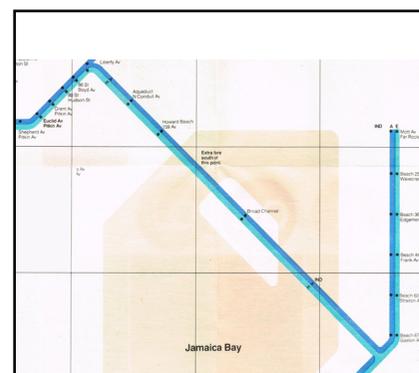


Figure 3/28 Detail from published MTA subway map, August 4, 1972
Unimark / © 1972 MTA / Collection: author

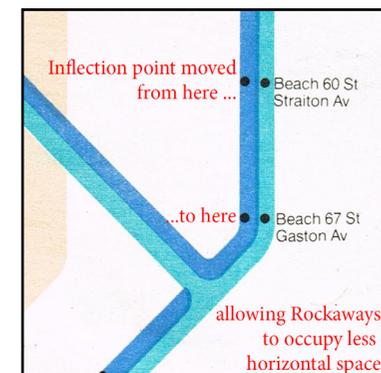


Figure 3/33 Detail from published MTA subway map, August 4, 1972
Unimark / © 1972 MTA / Collection: author

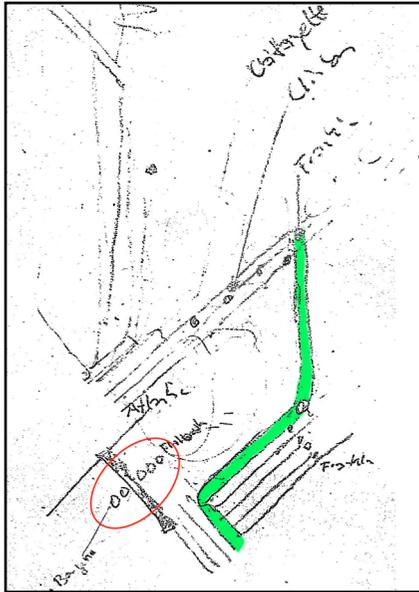


Figure 3/35 Sketch 2 by Raleigh D'Adamo.
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

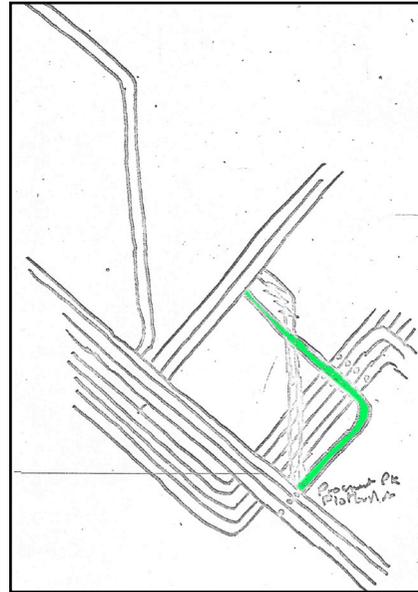


Figure 3/36 Sketch 2B by Raleigh D'Adamo.
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

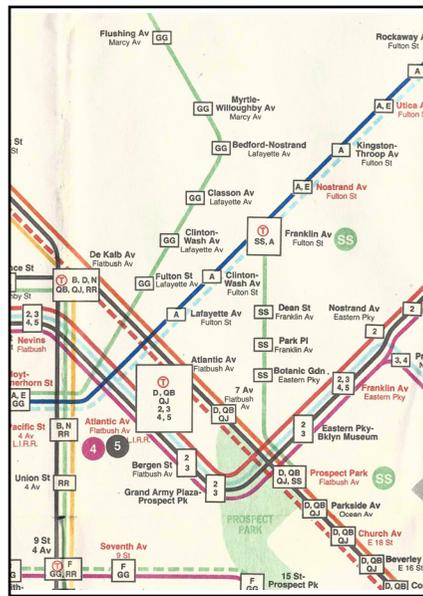


Figure 3/37 Detail from published TA subway map, 1969
D'Adamo, Goldstein, Adler, Calise / © 1967, 69 MTA / Collection: author



Figure 3/38 Detail from published MTA subway map, August 4, 1972
Unimark / © 1972 MTA / Collection: author

3.5 Sketches 2 & 2B: Botanic Garden

The next sketches (2 and 2B) concern the layout of subway routes around Atlantic Avenue, and especially the Franklin Avenue Shuttle. D'Adamo's annotation on sketch 2 is "Treatment of Atlantic Avenue area". Sketch 2B seems to be an afterthought, and proposes an alternative to the layout in Sketch 2. (See Figs. 3/35 and 3/36.)

As I mentioned earlier, the starting point for the design of the Vignelli map was evidently the '69 map. That map has the Franklin Shuttle running vertically up from the New Lots Line to the 8th Avenue line (as indeed Salomon's map had it before it, in 1958): see the green SS line in Fig 3/37. Therefore, I expect that the Unimark team (Vignelli, Oehler, Charysyn) would have drawn the new line in a similar manner, in that straight, vertical orientation. A side-effect of this vertical layout, however, is that the station Botanic Garden (on the Franklin Avenue Shuttle) would appear to be far removed from the station Franklin Ave - Eastern Parkway (on the New Lots Line), when in reality it was just one block away (Fig. 3/40). In fact, much later (in 1999), the two stations were merged into one complex, using a tunnel that was constructed in the 1920s. Vignelli and Charysyn, being newcomers to New York (having arrived in 1965 and 1969 respectively) probably did not know that these stations were neighbors. D'Adamo, however, was brought up in Brooklyn and knew the local subway network well. He realised that these two stations had an easy above-ground transfer (albeit not a free transfer). So, D'Adamo suggested two alternative layouts (3/35 and 3/36) to show the two stations close by.

The Unimark team adopted the first of these two layouts (hence 3/38 resembles 3/35 rather than 3/36 or 3/37) but neglected to move the station symbol for Botanic Garden into position, so it remained isolated. The resulting design is nonsense: the Franklin Shuttle hugs the New Lots Line as far as Franklin Ave - Eastern Pkwy for no reason. Without moving Botanic Garden into its proper place, this gesture serves no purpose.

In geographic maps (by which I mean: the Hagstrom map, which was adopted by the TA as official from 1943 to 1956; and the Tauranac Committee's map from 1979), the station Botanic Garden is situated very close to the station Franklin Avenue - Eastern Parkway (later shortened to 'Franklin Avenue'). So, Botanic Garden was marooned for the twenty years of the 'Diagram Decades', although it could have been rescued in 1972 if D'Adamo's advice had been followed more fully.

There is another, unrelated change that is indicated in sketch 3. It concerns the stations 7 Av - Flatbush Av (on the Brighton Line) and Bergen Street - Flatbush Av (on the Broadway - 7th Avenue Line). As these are both on the same street, namely Flatbush Avenue, D'Adamo quite reasonably suggested aligning the station dots of these two stations. This is highlighted by the thin red ellipse in Fig. 3/35. His suggestion was rejected. Probably this was because, if the two rows of dots were lined up then it would have *looked* as if there were a transfer there, even though there is no transfer line drawn there.



Figure 3/39 Brooklyn Botanic Garden Station entrance, July 26, 2019
 Photo: © 2019 Lennox Wright - Shutterstock

Botanic Garden station: historical background

Which came first, the train service or the Botanic Garden? A rapid transit service first ran along Franklin Avenue in 1878 on an elevated line. In 1897, it was connected to the Fulton Street line to carry trains from Manhattan to Coney Island. The same year, land was laid out for the Botanic Garden, which opened in 1911. In 1913, the BRT (Brooklyn Rapid Transit Railroad) acquired the railroad and, in 1923, it was inherited by the BMT (Brooklyn Manhattan Transit). Through services from Manhattan ended in 1920, and services down to Coney Island ended in 1963 when the line was truncated to a Shuttle. Becoming a shuttle, of course, reduced the numbers of riders.

One of the stations on this line was originally called Consumers Park, but renamed Botanic Garden in 1924. This was not, however the present Botanic Garden station. The old Botanic Garden station was shut down in 1926, because it was too close to Prospect Park station, and a new station (with the same name) built further north. That is the Botanic Garden station we see now (Fig. 3/39).

The Franklin Avenue Shuttle fell on hard times, and was almost shut down, but riders protested. The line was saved, and then completely refurbished. In this refurbishment, the former BMT station Botanic Garden was connected to the nearby former IRT station Franklin Av—Eastern Parkway, through a disused 1920s foot tunnel (Fig. 3/40).

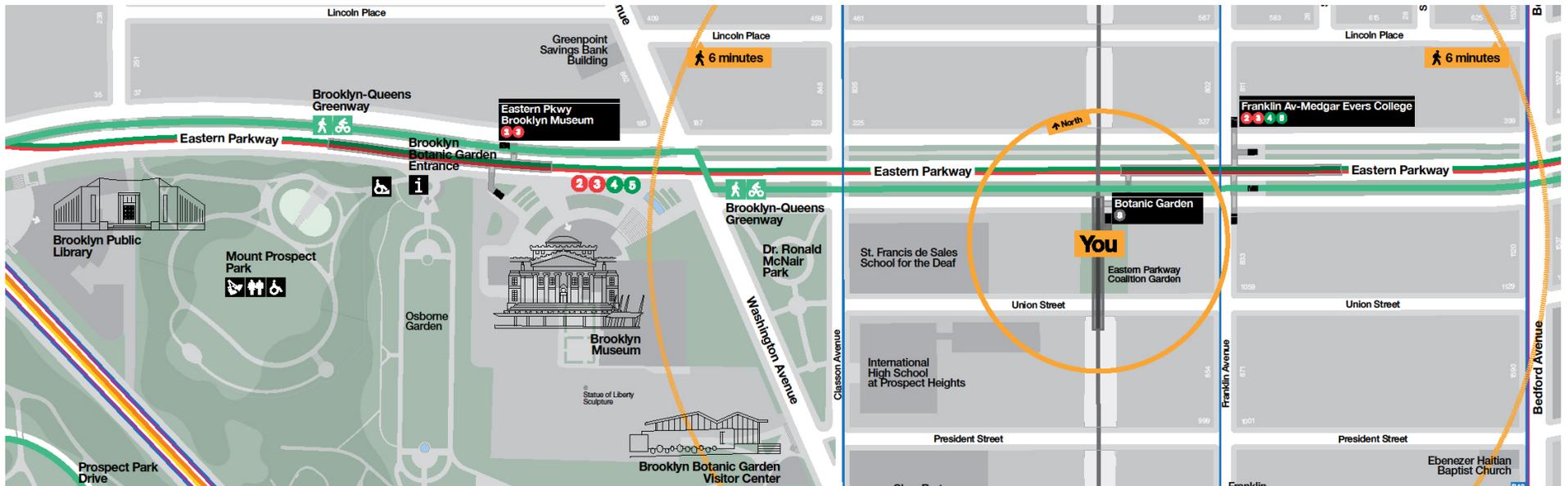


Figure 3/40 Local area map showing context of the two stations, Brooklyn Botanic Garden and Eastern Parkway - Brooklyn Museum
 MTA / © 2022 MTA / download from www.mta.info

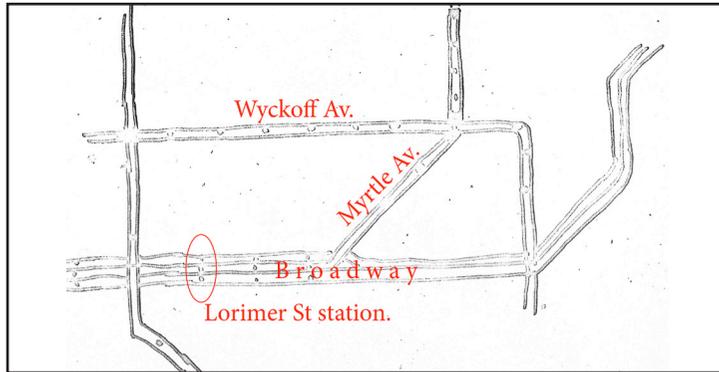


Figure 3/41 Sketch 3 by Raleigh D'Adamo, 1971: Lorimer St Station has been moved away from the Crosstown Line.
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

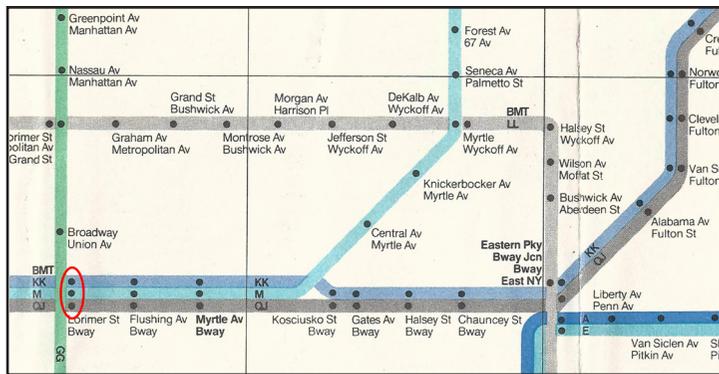


Figure 3/42 Detail from published MTA subway map, August 4, 1972: Lorimer St Station on the Broadway Line (KK,M,QJ; blue & gray) sits adjacent to the Crosstown Line (GG; green). The casual reader might mistakenly think there is a transfer from Broadway to Crosstown at that point.
Unimark / © 1972 MTA / Collection: author

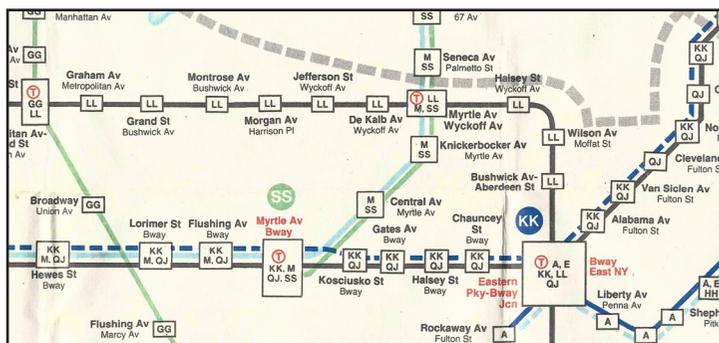


Figure 3/43 Detail from published MTA subway map, November 26, 1967: the geometry is essentially the same as in the Vignelli map
D'Adamo,Goldstein,Adler,Calise / © 1967,69 MTA / Collection: author

3.6 Sketch 3: Myrtle & Wyckoff Avenues

The third sketch from Raleigh D'Adamo covers the diagonal stretch of the M train along Myrtle Av from Lorimer Street to Metropolitan Avenue, in Queens (Fig. 3/41). D'Adamo's annotation is: "Treatment of Myrtle & Wyckoff Avs to obtain more space [...] line between GG line [...]". Unfortunately, the text runs off the margin of the photocopy.

It appears that D'Adamo's suggestion was to move the station symbol for Lorimer Street on Broadway eastwards, creating a gap between it and the Crosstown Line (GG; green). His thinking was that having the three dots of the station symbol so close to the Crosstown Line could mislead the rider into thinking that there was a transfer from Crosstown to the Broadway Line (KK M, QJ; dark blue, light blue, gray). Since there is really no possibility of an actual transfer there, the suggested move seems to be a reasonable clarification.

It was, however, rejected. The station symbol for Lorimer Street remained next to the Crosstown Line (Fig. 3/42, red highlight).

Why was this reasonable suggestion rejected? It would leave insufficient space on the Broadway Line for the group of route labels ("KK", "M", and "QJ") that are printed between the stations Myrtle Avenue and Kosciusko St, just before the Myrtle Avenue Line splits from the Broadway Line. In D'Adamo's sketch he draws in the three station symbols (Lorimer St, Flushing Av, and Myrtle Av) along this stretch of the Broadway Line, but he does not draw the three route labels, so it *looks* as if there is enough space for the move but in fact there isn't.

Why was it so important to have the route labels here? It was part of the visual grammar laid down by Vignelli, from the beginning of the design, that the route labels should be written wherever routes branched off from a trunk (as well as on long stretches where the rider's eye may wander). As Myrtle Avenue branches off Broadway at this point, the code of the visual grammar required that the markers be written here: see Fig. 3/44.

In the trade-off between clarifying a station symbol and following this rigid code, the code would always win. Although Vignelli said that designers should not follow rules "like blind men", he nevertheless insisted that rules of the visual grammar be taken seriously.

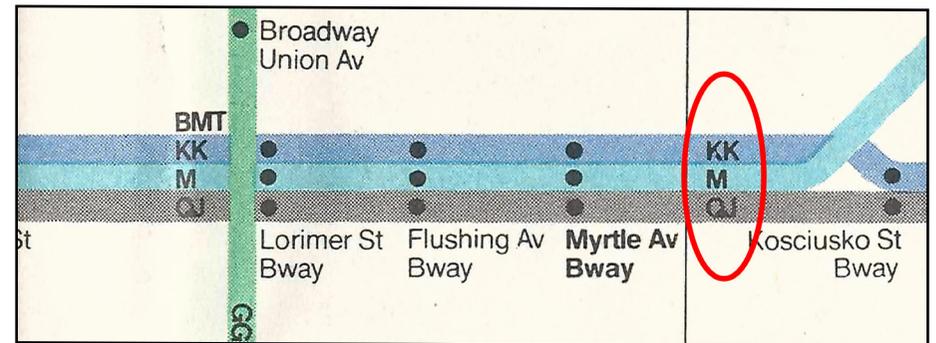


Figure 3/44 Detail from published MTA subway map, August 4, 1972, showing route labels (highlighted) on the Broadway Line, just before the Myrtle Avenue Line branches off.
Unimark / © 1972 MTA / Collection: author

3.7 Sketch 4: The Crosstown Line

Raleigh D'Adamo's fourth sketch just shows the Crosstown Line (GG, green) between the Fulton Av Line and the Broadway Line. His sketch (Fig. 3/45) differs only slightly from the final map (Fig. 3/46). So D'Adamo's suggestion was accepted by the Unimark team. But what was the likely form of the initial Unimark design? The usual starting point was the '69 map (Fig. 3/47) but here Goldstein drew the Crosstown line at a pair of 60° angles to make it 'more geographically accurate'. This would have been unacceptable to Vignelli, as his visual grammar demanded an 'octilinear' form comprising horizontal, vertical, and 45° lines. We can make a reasonable guess at the initial design: as the Crosstown emerges from the DeKalb, it cleaves to the Fulton Av Line (A and E trains, dark and light blue). So, the simplest design would be to continue that direction, and then turn north-east, as shown by the red dashed line (Fig. 3/46). This would have mirrored the shape of the curve in Salomon's (1959) diagram (Fig. 3/48).

But why? The three stations on the new vertical (Fulton St - Lafayette Av through Classon Av - Lafayette Av) are physically close to stations on the Fulton Av Line: for example, Fulton St - Lafayette Av and Lafayette Av - Fulton St are just a minute's walk away (Figs. 3/49 & 3/50). Why show them as distant? The reason is deep in the logic of Vignelli's visual grammar: to make a transfer between the Crosstown Line and the Fulton Av Line, the most efficient plan is to ride downtown to Hoyt - Schermerhorn and make a free transfer there. Making the transfer uptown involves the fuss of getting in and out of the stations, and would cost a token.

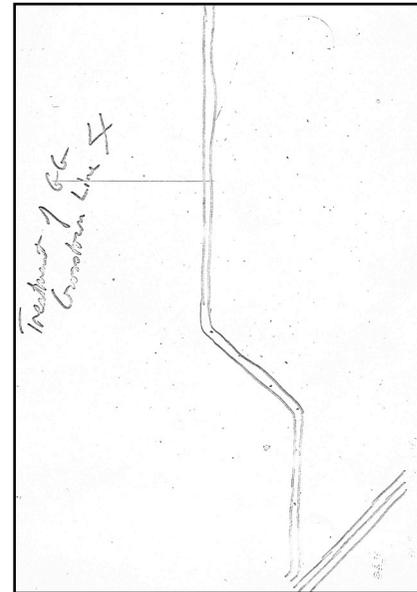


Figure 3/45 Sketch 4 by Raleigh D'Adamo.
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

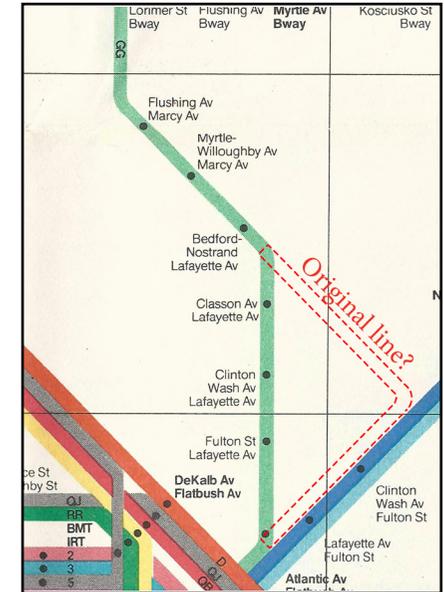


Figure 3/46 Detail from published MTA subway map,
August 4, 1972
Unimark / © 1972 MTA / Collection: author

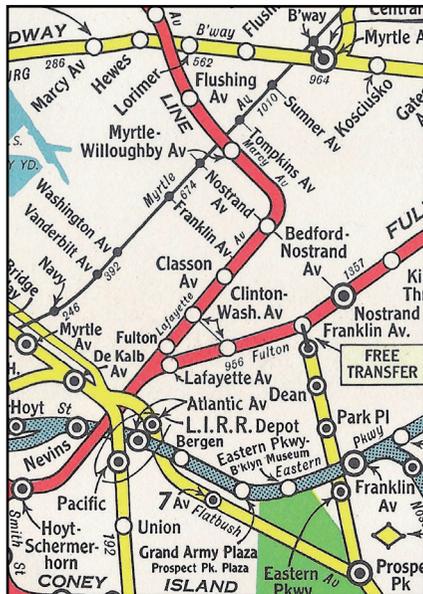


Figure 3/50 Detail from published Board of
Transportation map, 1956: showing proximity of
Crosstown and Fulton Street Lines
Andrew Hagstrom / © 1956 Hagstrom Map Co. / Collection: author



Figure 3/49 Detail from published MTA subway map,
June 1979
Tauranac Committee / © 1979 MTA / Collection: author

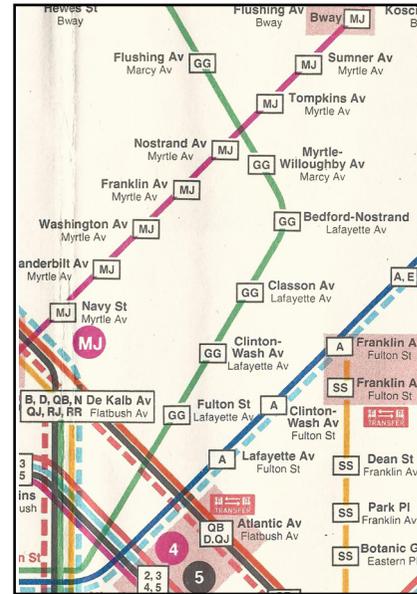


Figure 3/47 Detail from published MTA subway map,
November 26, 1967
D'Adamo, Goldstein, Adler, Calise / © 1967, 69 MTA / Collection:
author

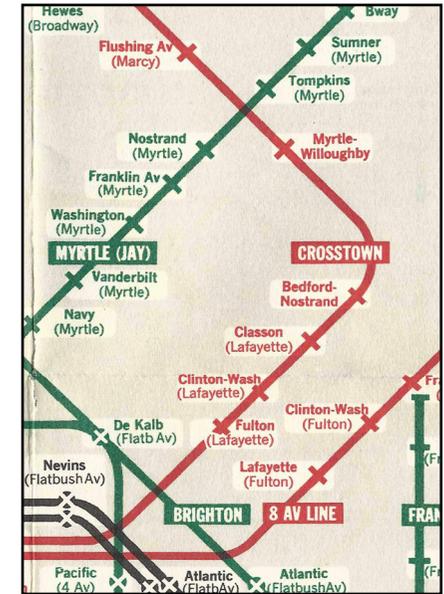


Figure 3/48 Detail from published TA subway map,
December, 1958
George Salomon / © 1958 MTA / Collection: author

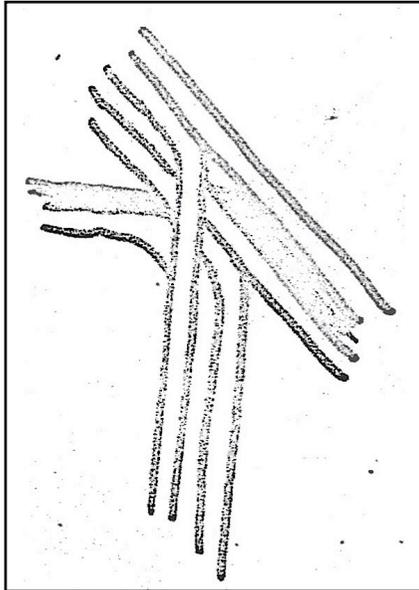


Figure 3/51 Sketch 3 by Raleigh D'Adamo, 1971.
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

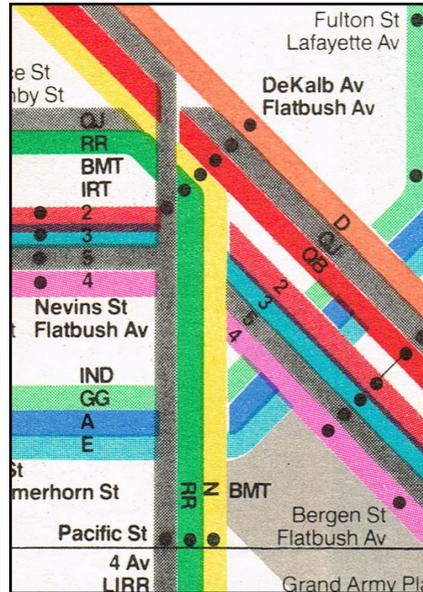


Figure 3/52 Detail from published MTA subway map,
August 4, 1972
Unimark / © 1972 MTA / Collection: author

3.8 Sketch 5: DeKalb Av - Flatbush Av

The fifth sketch from Raleigh D'Adamo concerns the dense knot of lines at the station DeKalb Av - Flatbush Av (Fig. 3/51). He annotated this sketch with "DeKalb Avenue - treatment of QJ and RR to show curves." This time, his suggestion was not taken up by the Unimark team, as the sharp corners that D'Adamo wanted to turn into gentle curves were still there in the final 1972 map. In fact, the problem was not corrected until Vignelli reworked the design in 2008.

Comparing the 1972 map (Fig. 3/52) with the 1969 map (Fig. 3/53) we see the topology unaltered: N and B swerve out of the Brighton trunk, joining the 4th Av trunk running due south. Meanwhile, the QJ (gray) does the opposite manoeuvre, by swerving out of the 4th Av trunk and joining the Brighton trunk. B passes over N and RR, while QJ passes under N, QB, and B. This is the same movement in 1972 as in 1969. D'Adamo's suggestion also leaves this geometry unchanged: it concerns only the conversion of sharp corners into gentle curves.

Fig. 3/54 shows the three sharp corners highlighted with red ovals. Sometimes the Unimark team used curves and sometimes not, as we can see in another region, near Jay Street (Fig. 3/55). It seems that they were trying to avoid 'islands' of white space.

You can see two examples of such islands in the right-angle turn at 59 St - Columbus Circle (Fig. 3/56). This reluctance to allow islands of white space could explain two of the sharp bends at the De Kalb transfer, namely the RR (green) and N (yellow) routes. But the sharp corner in the QJ (gray) route seems to have no rationale!

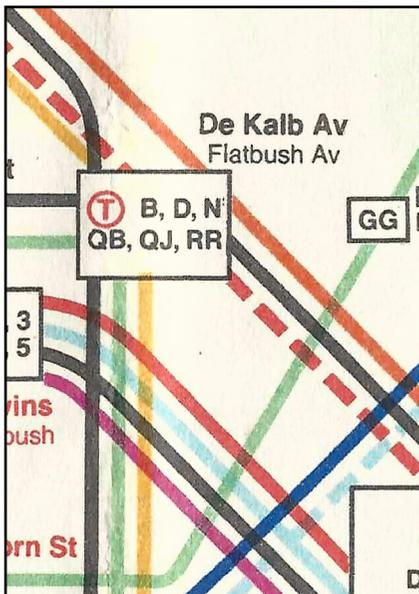


Figure 3/53 Detail from published MTA subway map,
November 26, 1967
D'Adamo, Goldstein, Adler, Calise / © 1967, 69 MTA / Collection:
author

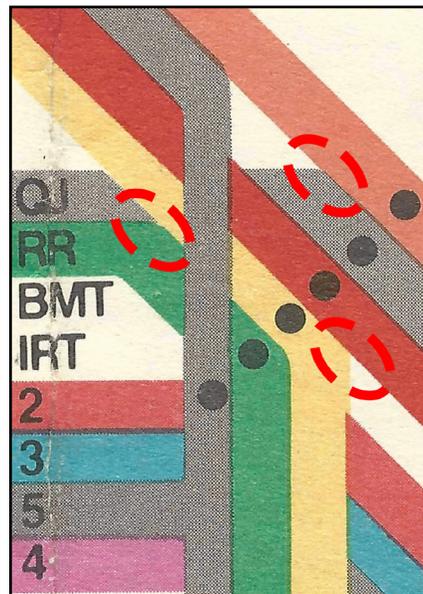


Figure 3/54 Detail from published MTA subway map,
August 4, 1972
Unimark / © 1972 MTA / Collection: author

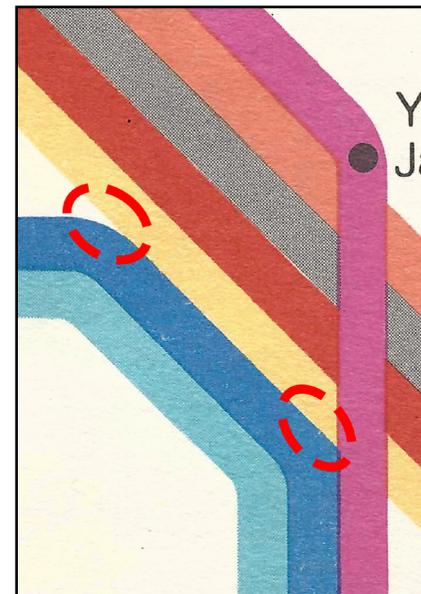


Figure 3/55 Detail from published MTA subway map,
August 4, 1972
Unimark / © 1972 MTA / Collection: author

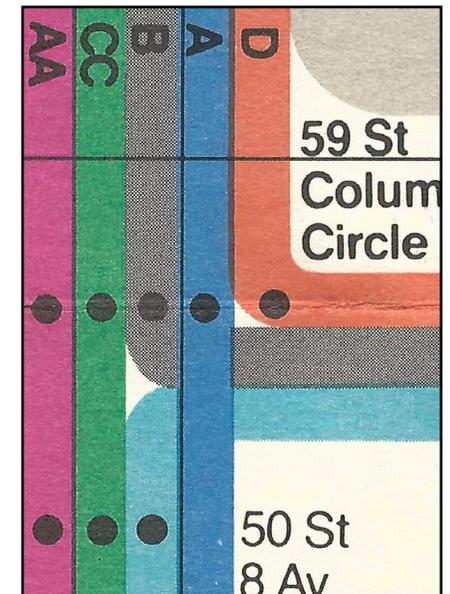


Figure 3/56 Detail from published MTA subway map,
August 4, 1972: example of white islands
Unimark / © 1972 MTA / Collection: author

3.9 Sketch 6: Lower East Side

D'Adamo's sixth sketch was annotated simply, "Treatment of Lower East Side", without saying what the specific changes were. Comparing his sketch (Fig. 3/57) with the final map (Fig. 3/58), reveals three changes: three station labels have been moved (marked red); a station symbol has been moved (blue), and three segments brought forward (yellow).

D'Adamo moved the two station labels for Spring St and Canal St to the left of Lexington Av ("A"). This created an empty space ("B") between Lexington Av and the Broadway line where he placed "Bowery - Delancey St", making the area less cramped. This suggestion was declined by the Unimark team, because it would put the first two stations too far from their station symbols (the dots)—see the mock-up in Figure 3/59. Vignelli's visual grammar requires that station labels must be as close as possible to station symbols

He also moved the station symbol for Canal St - Centre St upward (blue highlight). The Unimark team declined this suggestion as well, apparently because they wanted the thin line that represents the foot passage to run on the trunk line that physically sits under Canal Street (Fig. 3/60). D'Adamo's suggestion would have clarified by separating the foot tunnel from the subway route. Vignelli eventually adopted this suggestion in the revival of the map in 2008.

Finally, D'Adamo suggested bringing three segments (highlighted in yellow) forward to pass over other trunks instead of passing under them. The Unimark team rejected this, as Vignelli's visual grammar requires a subtle balance of overpasses and underpasses. For example, F passes over KK at Delancey, so it wants to pass under it at Houston, not over it as D'Adamo drew it.

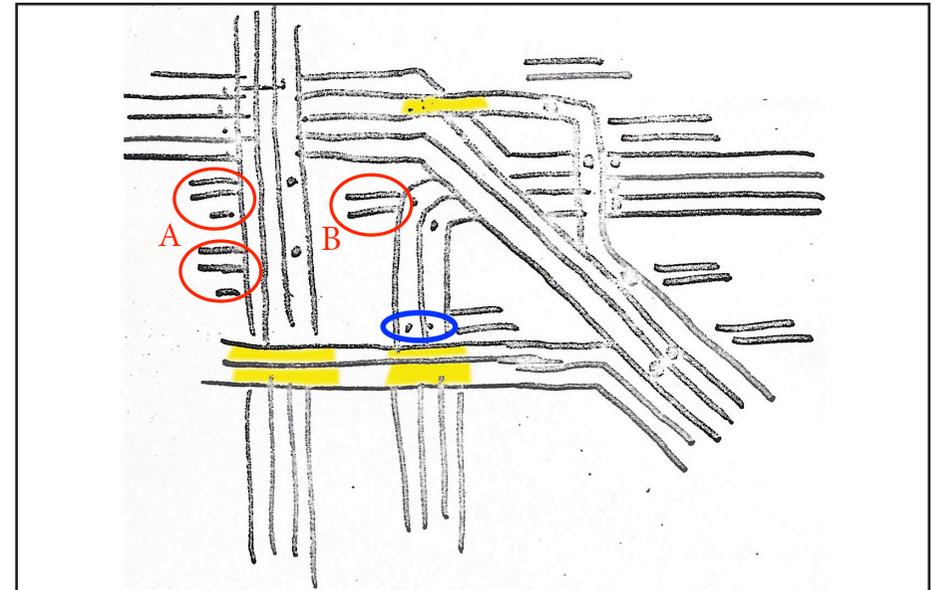


Figure 3/57 Sketch 3 by Raleigh D'Adamo, 1971.
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

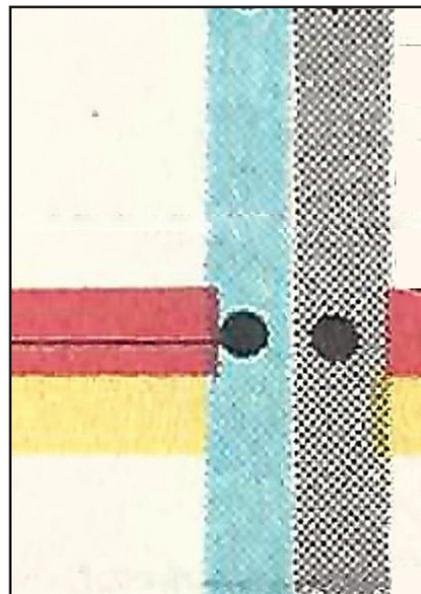


Figure 3/60 Detail from published MTA subway map, August 4, 1972
Unimark / © 1972 MTA / Collection: author

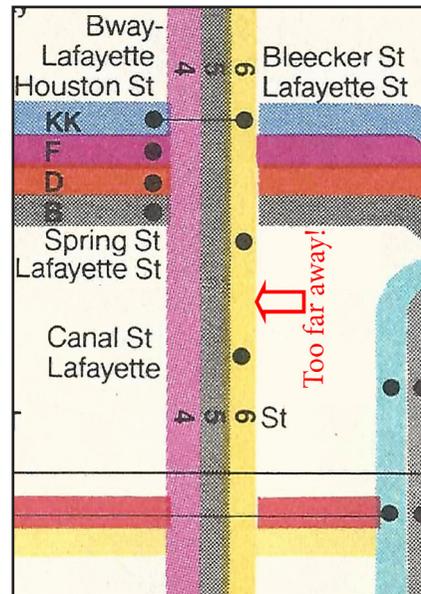


Figure 3/59 Detail from published MTA subway map, August 4, 1972
Unimark / © 1972 MTA / Collection: author

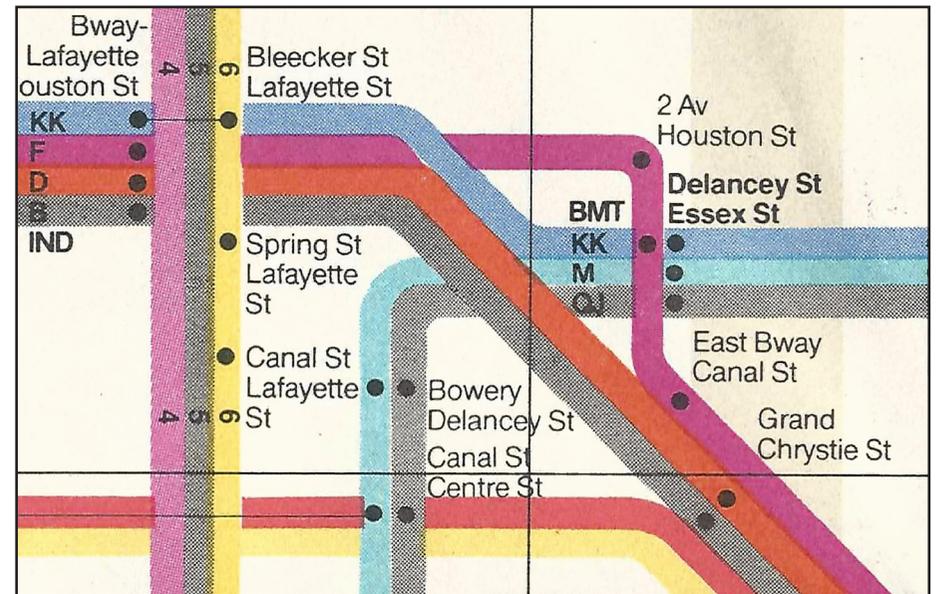


Figure 3/58 Detail from published MTA subway map, August 4, 1972
Unimark / © 1972 MTA / Collection: author

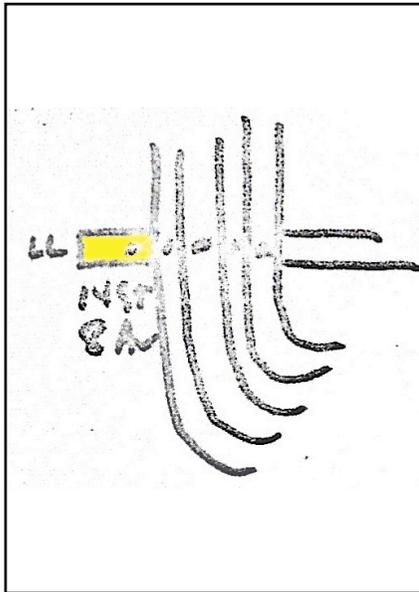


Figure 3/61 Sketch by Raleigh D'Adamo, 1971.
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

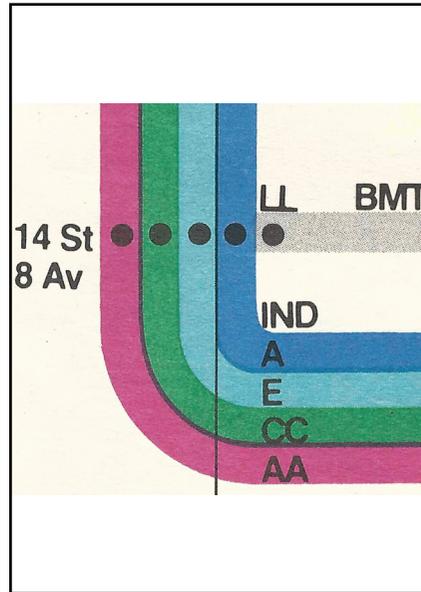


Figure 3/62 Detail from published MTA subway map,
August 4, 1972
Unimark / © 1972 MTA / Collection: author

3.10 Sketch 7: 14th Street / 8th Avenue

D'Adamo's seventh sketch (Figure 3/61) was annotated "Treatment of 14 St / 8 Av". He extended the 14th Av Line leftwards, so that it 'overshoots' beyond the 8th Av trunk, and placed the station dot and the terminal route marker, "LL", on this stump. The Unimark team declined this suggestion, and proceeded without it (Figure 3/62). D'Adamo's suggestion breaches a core rule of Vignelli's visual grammar, namely minimalism. The overshoot of the 14th Av Line does not provide additional information, nor does it clarify the transfer.

D'Adamo's suggestion *looks* consistent with other passages in the map (e.g. Figs. 3/63, 3/64, 3/65). In these six cases, a route 'overshoots' over or under another trunk just before it terminates, similarly to D'Adamo's proposal for the 14th Av Line (LL). On the other hand, there is one instance where a route does the opposite (Fig. 3/66), and terminates without overshoot.

In fact, each of those six overshoots is done for a specific reason that overrides the basic rule of minimalism. (a) A route can overshoot in order to show an alternate route. (Fig. 3/63: B only sometimes terminates at 57 St. Fig. 3/64: 5 only sometimes terminates at South Ferry.) (b) A route can overshoot in order to clarify a transfer with the overshoot trunk (Fig. 3/63: N and QB transfer with EE. Fig. 3/65: AA and B transfer with #1.) (c) A route can overshoot if it has a transfer with another route that overshoots for reason (a). (Fig. 3/63: KK transfers to the overshooting B.) (d) A route can overshoot for geographic realism. (Fig. 3/64: Whitehall St - South Ferry is east of Lexington Av trunk.)

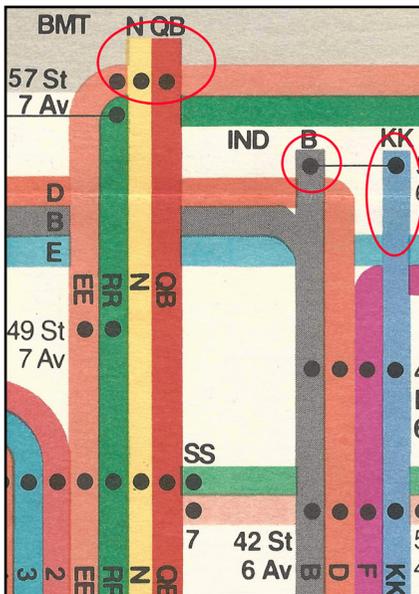


Figure 3/63 Detail from published MTA subway map,
August 4, 1972
Unimark / © 1972 MTA / Collection: author



Figure 3/64 Detail from published MTA subway map,
August 4, 1972
Unimark / © 1972 MTA / Collection: author

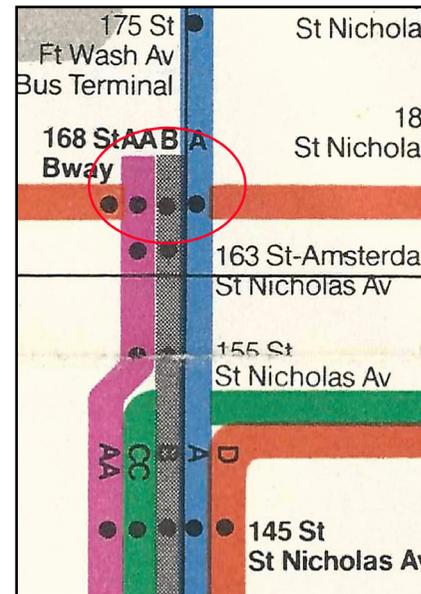


Figure 3/65 Detail from published MTA subway map,
August 4, 1972
Unimark / © 1972 MTA / Collection: author

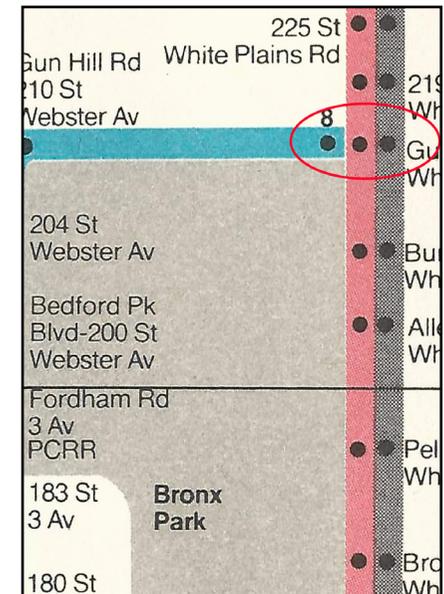


Figure 3/66 Detail from published MTA subway map,
August 4, 1972
Unimark / © 1972 MTA / Collection: author

3.11 Sketch 8: Coney Island

D'Adamo's eighth sketch (Figure 3/67) was annotated "Treatment of south end of Brooklyn". Comparison with the final map (Fig. 3/68) reveals that D'Adamo suggested a rationalization of the geometry at Coney Island - Stillwell Av (see Fig. 3/69). The Unimark design seems to violate minimalism by adding a seemingly gratuitous twist to the West End Line (B, colored gray) and the Sea Beach Line (N, yellow) to make them align with the other routes entering Coney Island Station from the right. D'Adamo's suggestion (top half of Fig. 3/69) restores the minimalism. Yet even in the 2008 resurrection of the map, Vignelli insisted on twisting the West End and Sea Beach lines. This is because of Vignelli's adherence to a certain rule of his visual grammar, namely: where a number of routes run together, the graphical depictions of the routes must align, even if it is only for a single station. Undoubtedly the way this was done in the 1972 map lacks grace: the tiny twist in the West End Line (B, gray), in particular, is inelegant, and Vignelli rectified it in 2008 by giving all the routes an extended run through Coney Island. It is hard to imagine Vignelli agreeing to this detail of the 1972 map, which supports the belief that he was involved little or not at all after he left the Unimark office in April 1971.

Coney Island occupies only a corner of D'Adamo's sketch. If that was his only suggestion here, he would not have sketched the whole area. Looking at the 1969 map (the starting point for the 1972 design), we see in Fig. 3/70 two unnecessary bends in the Sea Beach Line (N, yellow), which D'Adamo removed, and the Unimark team accepted for the final map.

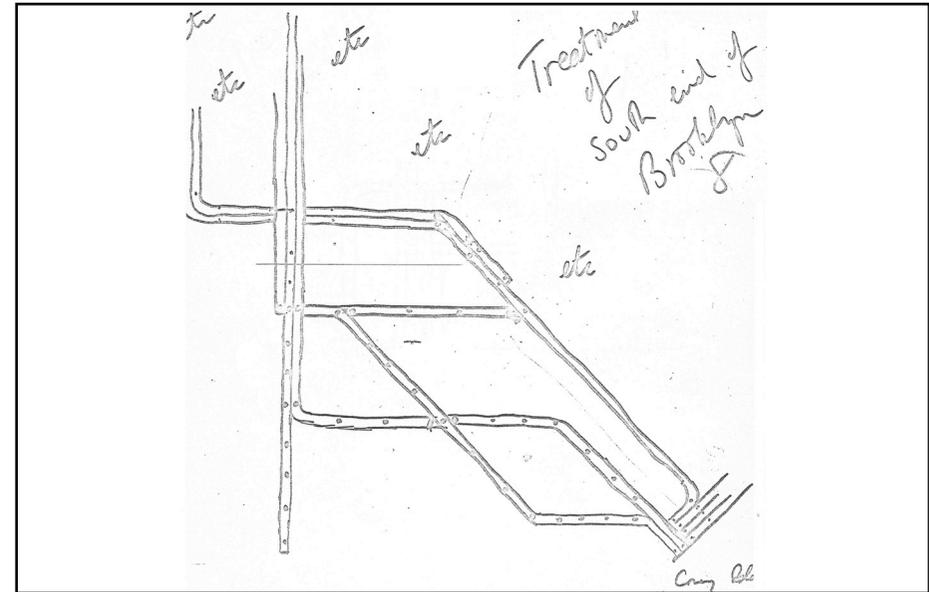
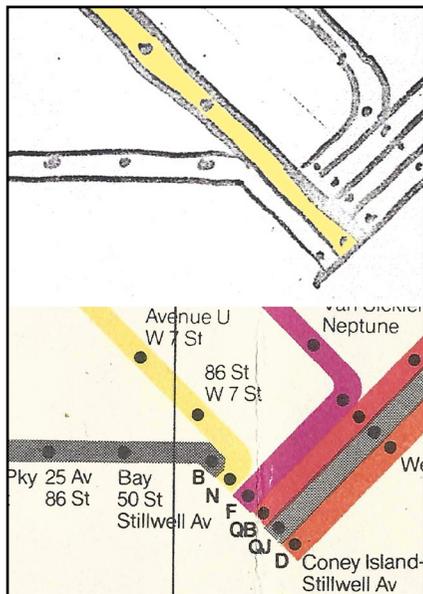
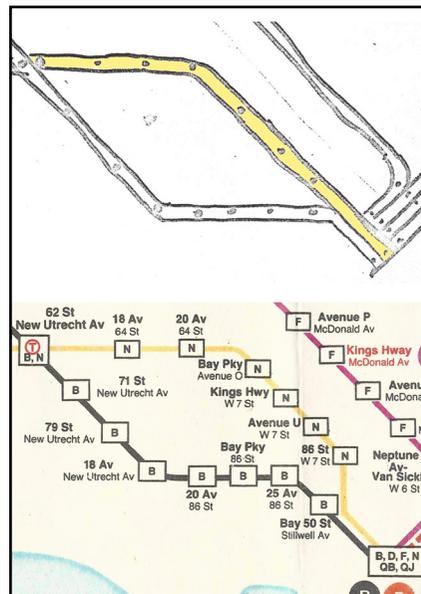


Figure 3/67 Sketch 8 by Raleigh D'Adamo, 1971.
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo



Details of Coney Island from Sketch 7 by Raleigh D'Adamo, 1971, and published MTA subway map, August 4, 1972
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo
Unimark / © 1972 MTA / Collection: author



Details of southern Brooklyn from Sketch 7 by Raleigh D'Adamo, 1971, and published MTA subway map, 1969; note the gratuitous bends in the latter
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo
D'Adamo, Goldstein, Adler, Calise / © 1967, 69 MTA / Collection: author

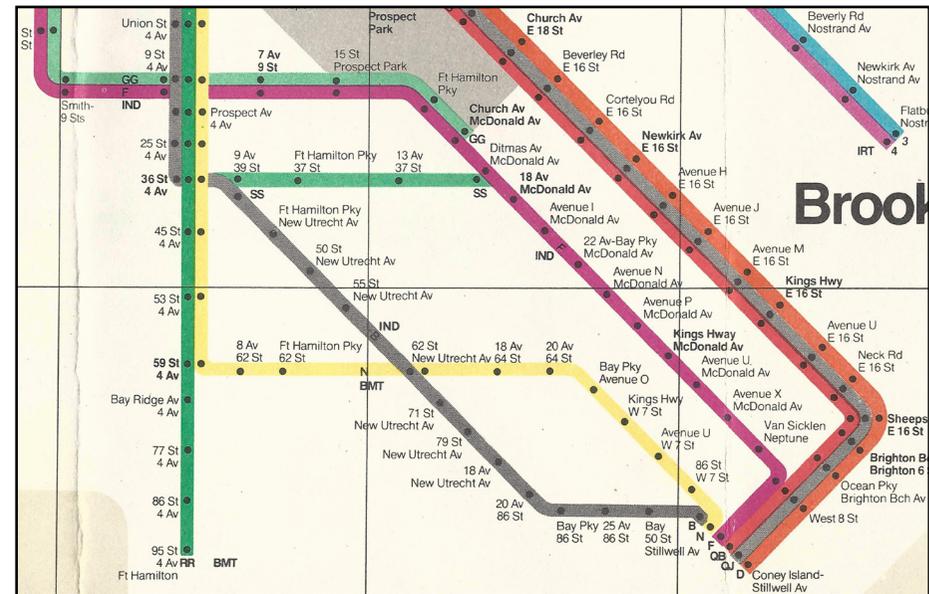


Figure 3/68 Detail from published MTA subway map, August 4, 1972: compare with D'Adamo's sketch above
Unimark / © 1972 MTA / Collection: author

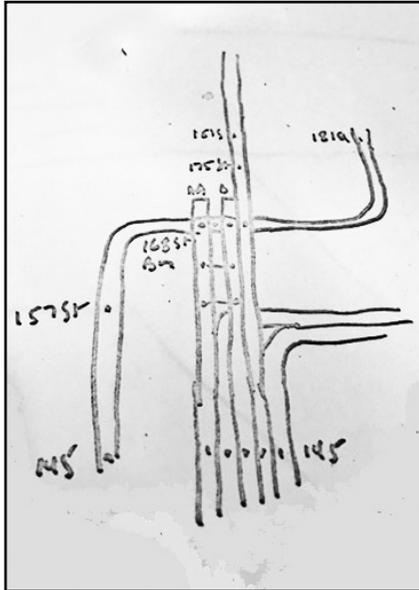


Figure 3/69 Sketch 11 by Raleigh D'Adamo, 1971.
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

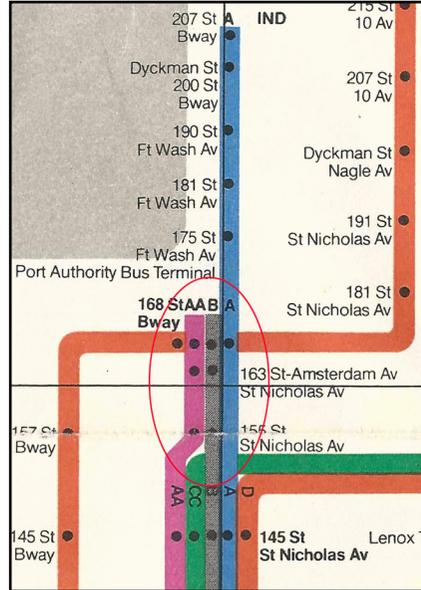


Figure 3/70 Detail from published MTA subway map,
August 4, 1972
Unimark / © 1972 MTA / Collection: author



Figure 3/71 Detail from sketch 11 by Raleigh D'Adamo,
1971. Color added by author
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

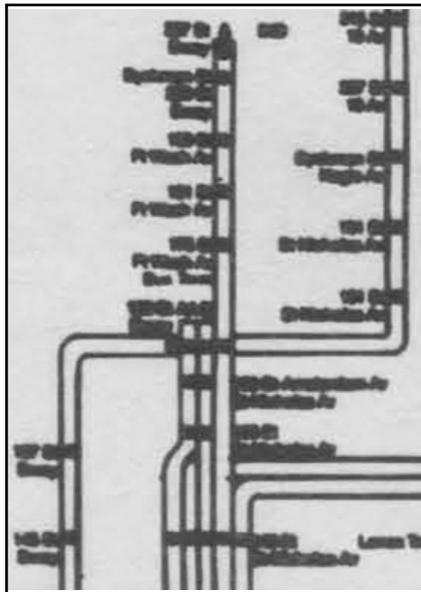


Figure 3/72 Detail from black-and-white map from
Dekalb Station Signage Study, 1971.
Unimark / © 1971 MTA / Collection: Vignelli Center

3.12 Sketch 11: 168 St / Broadway

D'Adamo's eleventh sketch (Figure 3/71) was annotated "Treatment of 168 St / Broadway". It concerns the handling of two routes of the 7th Av trunk, namely AA (purple) and B (gray), as they pass north of 145 St. The problem here is that, from 59 St to 145 St, the AA and B routes sandwich the CC route (green). Just north of 145th St, however, CC swerves right, leaving a gap between AA and B. D'Adamo, as he did in other suggestions, recommends a minimalist treatment, in which AA and B continue north in straight lines (Fig. 3/73). The Unimark team, however, bent AA slightly to the right, so that it hugs B (Fig. 3/72, red highlight). (By 2008, the CC train no longer existed, so Vignelli did not face this problem in his resurrection of the map.)

This appears to be another instance of the rule of Vignelli's visual grammar, that routes that physically run together should be shown aligned.

It is interesting to compare this passage with a similar one, where the Flatbush Line branches off from the New Lots Line, which we looked at earlier (reproduced here in Figures 3/75 and 3/76). Geometrically, it is a similar situation to that at 181 St: a route branches off of the trunk, leaving a gap. In this case, however, see even that as late as 1971 in the Station Signage map, the gap was shown (and hence D'Adamo did not have to suggest putting the gap in). Thus, the 1971 Signage Study inconsistently shows a gap at Utica Av (Fig. 3/75) but not at 181 St (Fig. 3/74).

In the 2008 map, the area around the split between the New Lots Line and the Flatbush Line is completely redrawn, and obviates the inelegant 1972 manoeuvre to avoid the gap.

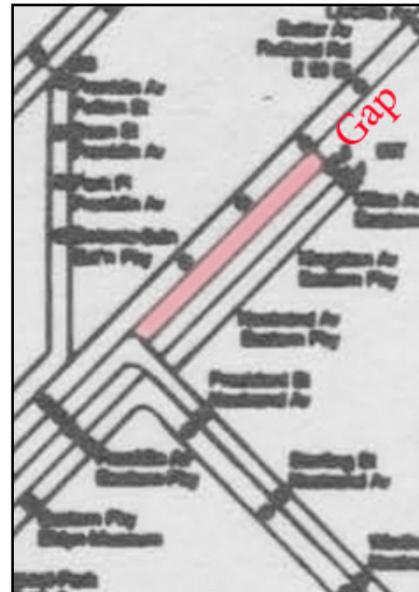


Figure 3/73 Detail from black-and-white map from
Dekalb Station Signage Study, 1971.
Unimark / © 1971 MTA / Collection: Vignelli Center

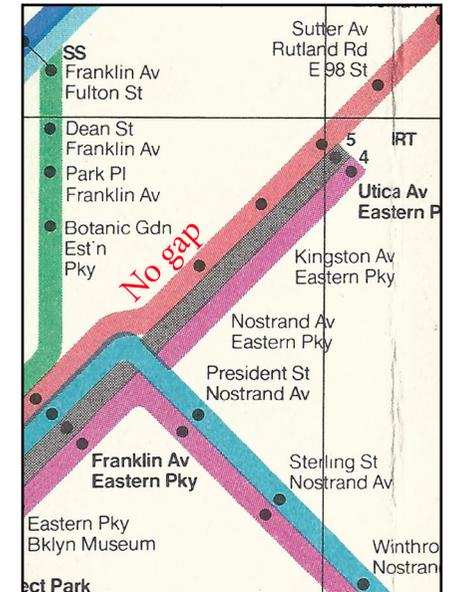


Figure 3/74 Detail from published MTA subway map,
August 4, 1972
Unimark / © 1972 MTA / Collection: author

3.13 Sketch 12: North-East Bronx

D'Adamo's twelfth sketch (Figure 3/77) was annotated "Treatment of North-East Bronx". There seem to be two separate suggestions here. First, the position of the horizontal section of the #8 route. Second, the inflection point of the Pelham Bay Line. These are marked in red in Fig. 3/77.

If we refer back to the 1969 map (Fig. 3/79), which was the starting point for the 1972 design, we see that the horizontal section of the D route (orange) was slightly south of the horizontal section of the #9 route (blue). D'Adamo's sketch (Fig. 3/77) lined up those two horizontal segments, and this proposal was accepted by the Unimark team, who produced that alignment in the final map (Fig. 3/78).

D'Adamo labeled only one station in his sketch, namely Whitlock Av on the Pelham Bay Line, and he drew the inflection point of that line immediately north of that station. The 1972 map, however, still followed the 1969 precedent in having the inflection point at Morrison Av, two stations north of Whitlock Av. In fact, the physical tracks make a 90 ° bend towards the east immediately north of Whitlock Av, and then run straight through Morrison Av and on to Castle Hill Av. Why the inflection point was ever drawn at Morrison Av is a puzzle. It looks like a mistake made in 1967 that was perpetuated by the Unimark team. In 2008, when Vignelli resurrected the map, he placed the bend in the Pelham Bay Line precisely where D'Adamo said, namely immediately north of Whitlock Av.

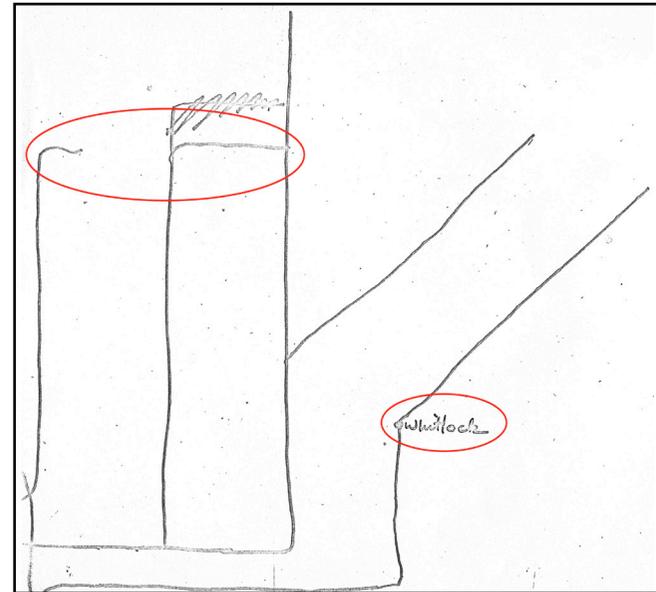


Figure 3/75 Sketch 12 by Raleigh D'Adamo, 1971.
Raleigh D'Adamo / © 1971 MTA / Collection: Raleigh D'Adamo

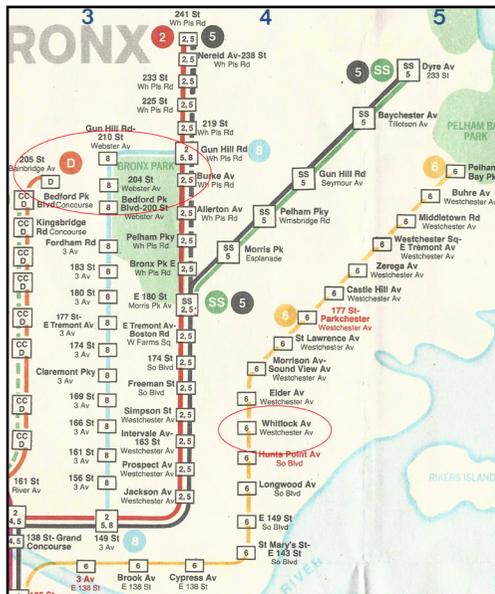


Figure 3/77 Detail from published TA subway map, November 26, 1967
D'Adamo, Goldstein, Adler, Calise / © 1967, 69 MTA / Collection: author

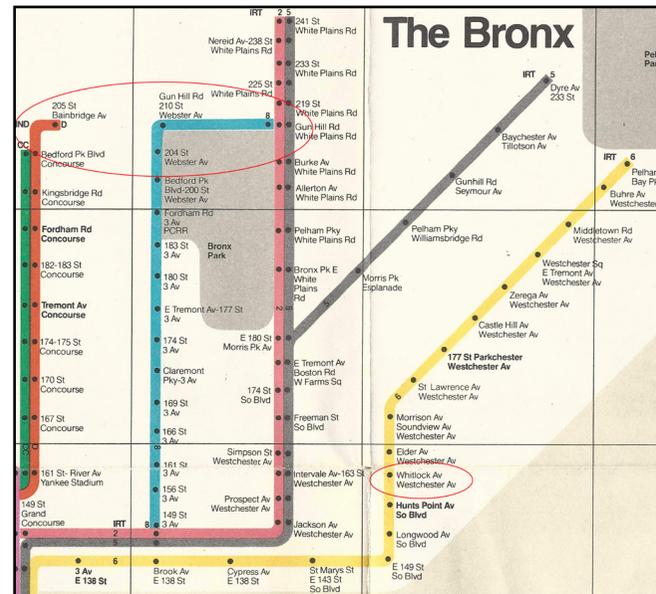


Figure 3/76 Detail from published MTA subway map, August 4, 1972
Unimark / © 1972 MTA / Collection: author

3.14 Summary

In the preceding pages, we have examined in detail the ten sketches (or eleven, if you count 2 and 2B separately) that Raleigh D'Adamo provided, probably late summer 1971, to the Unimark team (comprising at that time Norbert Oehler and Joan Charysyn, and probably not Massimo Vignelli himself). He create these sketches in his capacity as MTA Chief of Inspection and Review, on behalf of MTA chairman William Ronan. These are probably only some of the corrections and suggestions that D'Adamo made, as Charysyn has said that the MTA's revisions delayed the map by a year. They are, however, the only ones for which we have any documentation. Some of D'Adamo's suggestions were accepted by the Unimark team, and some not. Where the suggestions were not accepted, we can discern the rules of Vignelli's visual grammar at work. Even though Vignelli was not present in the office on a daily basis at this time, his concept of the map's visual grammar still held sway. Two suggestions declined by the Unimark team in 1971 were eventually adopted by Vignelli in the 2008 revival of the map.

Sk.	Area of map	Comment
1	Rockaways: Compress the Rockaways horizontally, creating more space for the segment from Eastern Parkway to Euclid Av.	Accepted
2	Botanic Garden: (a) Change layout of Franklin Av Shuttle. (b) Move Botanic Garden Station closer to Franklin Av Station.	(a) Accepted (b) Declined
2B	Botanic Garden: Alternate layout to Sketch 2.	Declined
3	Broadway & Crosstown Lines: Move Lorimer St (on Broadway) rightwards so that it does not appear to transfer to Crosstown.	Declined
4	Crosstown Line: Simplify geometry.	Accepted
5	DeKalb Av - Flatbush Av: Replace sharp corners with gentle curves.	Declined
6	Lower East Side: (a) Move station labels. (b) Move Canal St \ Station symbol. (c) Bring some line segments forward.	Declined but (b) adopted in 2008
7	14 St - 8th Av: Extend 14th Av Line west of 8th Av.	Declined
8	Coney Island: Reorganise the geometry of the station to preserve minimalism.	Declined
9	Missing.	N/A
10	Missing.	N/A
11	168 St - Broadway: Keep AA and B routes straight north of 168 St.	Declined
12	Bronx: (a) Harmonise geometries of #8 and #9 trains. (b) Bend Pelham Bay Line at Whitlock Av Station.	(a) Accepted (b) Declined but adopted in 2008

References

- CoCoMAS (1976), *Public Transportation Systems: Volume A2 of Design Systems for Corporations*, written and edited by the CoCoMAS Committee (director Motoo Nakanishi), published by the Publications Department of the Sanno Institute for Business Administration and Management (産業能率大学), Tokyo.
- Ingalls, Len (1971), Memo regarding Bid No. 1537, August 17, 1971. NYTM Archives.
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