The United States Metro Rail Concept

by Asher Teal

usmr...

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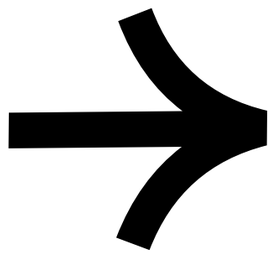

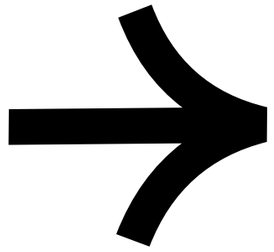

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Context

The United States stands out as an outlier among wealthy countries when it comes to access to clean, affordable, and highly reliable public transportation. By no means is the United States the only industrialized country without this resource, but in comparison to some countries in Europe and Asia it is clear that the United States is behind. It is worth mentioning that the US does have some functional metro trains across the east coast like in New York and the cities surrounding it. Outside of that region Chicago and San Francisco have train networks with decently high ridership. Despite this, all of these trains suffer from aging infrastructure and a lack of funding that can make them slightly unreliable when compared to the modern and consistent offerings abroad.

This is all because of the country's focus on car based infrastructure. Cars were not invented in the United States, but the country developed and adopted them at an incredibly fast rate. Existing transportation methods saw a decline in ridership as more people switched to cars. Rail gave way to paved roads and the infrastructure around it began to match. The privately owned street car networks of the early 20th century mostly disappeared by the 1950s; many street cars were converted to buses. This promoted cities to be sprawling and large, making public transport even less applicable.

Large corporations like General Motors and Standard Oil used their success to further push other transportation options out of business. Because billions were invested in highways and car based travel, there was no possibility for rails to find money. Interurban travel held on for a while longer but as affordable cars like Ford Model T and others hit the market, their use too saw decline then abandonment. Longer distance passenger rail lasted even longer, until the mid century when the Interstate Highway System saw its development and total adoption.

Three of Muni's first nine trolley coaches, built in 1941 by St. Louis Car Co., MSR Archive.

It was a snowball effect. The United States completely changed its main source of passenger transportation in the course of only half a century. This encouraged new city layouts which further incentivized the use of Cars. Zoning laws created spread out suburban areas that could really only be conveniently navigated through the use of cars.

Driving n the open road is culturally seen in America almost as a human right or a constitutional amendment. After World War II, the cultural opinion of Americans became tied to homeownership and the independence that came with driving. These things became tightly linked to automobility, which made public transit feel "un-American" or only for the poor. Any further development of alternative ways of transportation was seen as a threat to this ideal and its infrastructure like parking lots and roads.

Family of four holding hands facing a ranch-style house in 1965. A sale sign is posted in the front yard of the house. Getty Images

The importance of purchasing a house in American culture is also why trains are hard to develop. Many people have the long term goal of buying a house. It is seen as a very important investment that is necessary for anyone to make if they want a secure financial future. Because a house is supposed to be an appreciating asset that allows you to retire one day; people are generally cautious at any changes in their neighborhood that could impact this value. Introduction of new train stations could bring more people, business, and noise. Some would fear that one or more of these factors may negatively impact their house's value. This is also why it is generally a time consuming process to get anything approved for building in certain US cities. This behavior from residents is commonly labeled as "NIMBYism" standing for Not In My Backyard. People are generally positive of development and building, as long as it is out of their neighborhood.

There are a couple of other factors that make Americans shy about building and development. There is a common sentiment that if, for example, a train was being built publicly by the government, then it would be handled in an inefficient and costly manner. This also brings with it the fear of tax increases, another thing that Americans typically hold massive reservations towards regardless of any potential benefits. Finally the fragmented nature of the infrastructure control and planning in the US makes it challenging to get anything built in the first place, and easy for anyone opposed to denying its privilege.

Excluding these legislative barriers, what would a solution look like? How could a train be designed so that its existence is as unobtrusive and considerate as possible? How could something so expansive be built in a fast and organized way? How can the benefits of affordable and reliable public transportation be realized despite these cultural hurdles? All of these questions guided the designing process.

Exigence and Concept

The United States has been thriving without metro trains in most of its cities for more than the past half a century. It would not be very productive to disassemble what has already been built. Instead, building alongside it should take priority. At the end of the day, many Americans deeply enjoy using cars and driving on the open road, and many have invested in this way of living in one way or another. The construction of a train in a metro city should serve as a service to help those who cannot or do not want to invest in this way of living. Giving another means of transportation to a city serves to help every resident regardless of their preference in transportation.

Many benefits come from trains in cities. According to the U.S. Energy Information Administration (EIA), in 2023 gas and diesel fuel in the transportation sector accounted for about 31% of US CO2 emissions. An electric train combined with the increase of electric cars being driven could help massively calm a major source of carbon emissions. Less people on the road also makes for less traffic and a better experience for those that do choose to drive. More people will get to their destinations faster.

Economically there are also many benefits to a train system. The train system itself would provide a large number of employment opportunities and construction jobs. Trainstops will also increase foot traffic near local businesses and restaurants. Despite all of the previous conversation about "NIMBYism", real estate demand and housing values would likely increase near these train stops as well. This would bring more money into the area, further stimulating the neighborhood and its development. This increase in development and commitment to city infrastructure encourages outside investment and security in the area. Development brings more businesses and jobs, and a train provides affordable transportation to these jobs that could have been unattainable to those without a car or driver's license.

The development of these types of neighborhoods would be walkable and compact by design. This is beneficial for a healthier lifestyle and a more diverse neighborhood. Walkable neighborhoods are also more community oriented and social. All this being said, it is important to keep in mind the preferences of the American people mentioned earlier. Some people are not interested in social neighborhoods and prefer quiet. So it is important to take into consideration where train stops are being constructed and how local communities may feel about this type of development.

The Concept

To meet the needs of the American City, a concept has been created titled "The United States Monorail" or the "USMR". The USMR solution serves as a train system that could be installed in any willing city, providing all the benefits that come with a metro service while attempting to not get in the way of those uninterested. The USMR titles and branding are encouraged to have some design changes based on the city's culture and preferences. One of the goals of the USMR is to be constructed as efficiently as possible. Care should be taken to have the design be as adaptable, cost effective, and sustainable as possible.

A monorail was chosen for a number of reasons. They are electric and efficient, able to carry a large number of riders while cutting back on carbon emissions. The nature of their track is infrastructurally smaller and cheaper in regards to construction. They also are quieter due to their use of rubber tires on the wheels.

Train Car

Looking at examples from across the world, it seems as though the design for metro train cars has been a solved game. A lot of thought has been given as to what factors of the train or track could be improved or innovated. Many ideas were drafted; some included detachable sections of train cars for express lines for example. Other ideas had a second section of the car that hangs off the track for better views and to fit more people. Ultimately these ideas got in the way of the main goal of the USMR concept, which is to be simple and cost effective. These additions would also be distracting; and this train design needs to be adaptable and as subtle as possible.

Inspiration

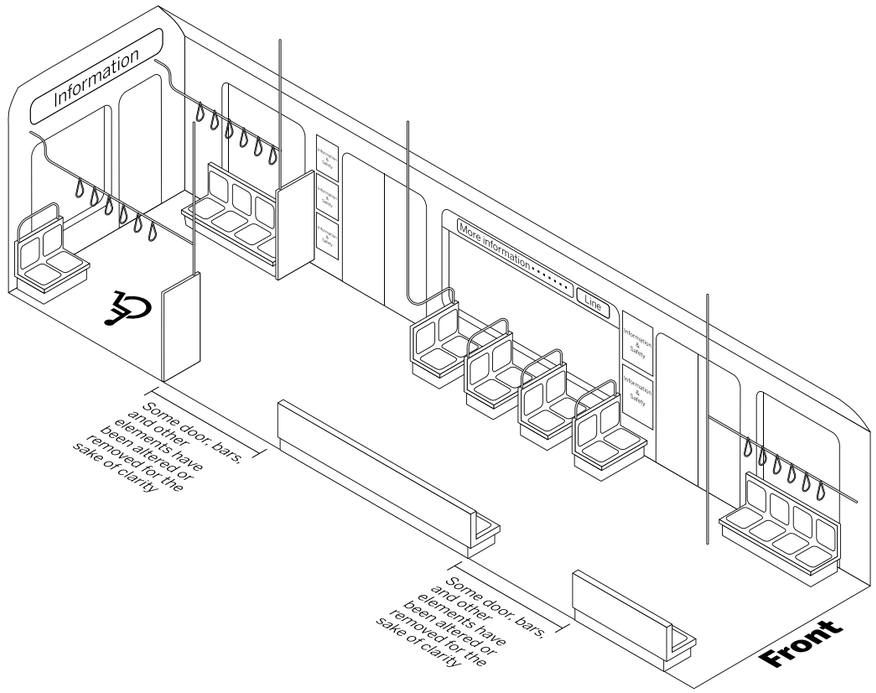
Chongqing Rail Transit Line 2

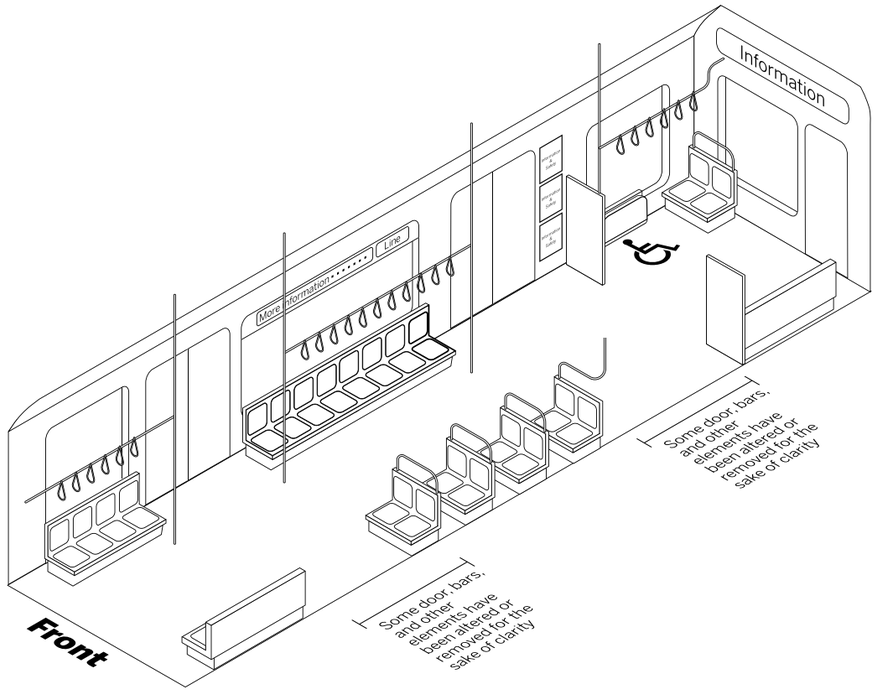
The Chongqing Rail Transit trains serve as the primary source of inspiration when it comes to the design of the track. The benefit of a monorail construction is that when no train is present the track has little visual weight. The use of rubber wheels also cuts back on noise when compared to traditional elevated metro trains.

It would also be negligible to not mention the immense inspiration that the Tokyo Metro 8000 series and 9000 series trains provided for their almost car-like appearance. The older designs specifically are simple and sharp. This comparison is likely due to Japan being a large automotive manufacturer. These trains specifically share similar design motifs with their cars created in the 80s and 90s, these trains each having started construction in those decades.

Numerous other metro transit designs from across the world served as inspiration as well and played their part in enhancing the visual language of the train car designs.

Tokyo 8000 series train (top)
and 9000 series train (bottom)





The train car itself is not anything unexpected. Each side of the car has different seating styles. One has the seats against the wall which is easily sat in no matter what the passenger is carrying or their size. This style of seating also provides more area for standing passengers; above these seats are the hanging handles that accommodate them. On the other side of the train are rows of seat pairs that face forwards. These seats tend to be preferred because of their more private nature, but the space in between rows may be inaccessible for riders with large bags or accessibility devices like crutches or canes. These seats have a metal bar on the top for standing passengers to grab on to. The front and back hold more “against the wall” style seating; with open space being allotted for passengers with wheelchairs. The handicapped sign would not be printed on the actual train and its use is simply to denote the empty space.

Other features of the train include electronic screens above the windows surrounding the perimeter of the train car. New advertisements do not have to be printed and installed and can instead be displayed. This also holds the opportunity for video ads and train maps that animate to clearly communicate to riders.

The outside of the train is in a plain metal color that is typical for metro trains, similar to trains in New York or Chicago. This color of metal is dark enough to hide dirt but light enough to not absorb too much heat. The sides of the trains feature a strip of dark tinted siding, giving the illusion that the train has one large window across the side. The train has the opportunity to be wrapped in advertisements, art to highlight local artists, or decoration for special events.

The front features the “car-like” design language discussed earlier. The large windshield and two low placed headlights with a grill between them achieve this comparison. Lights for communication and a screen denoting the line are above. A door is placed left of center in case of emergency. Because the track is a thin monorail, there is nowhere to walk on the tracks from the side of the train if the operator had to leave the car for whatever reason.

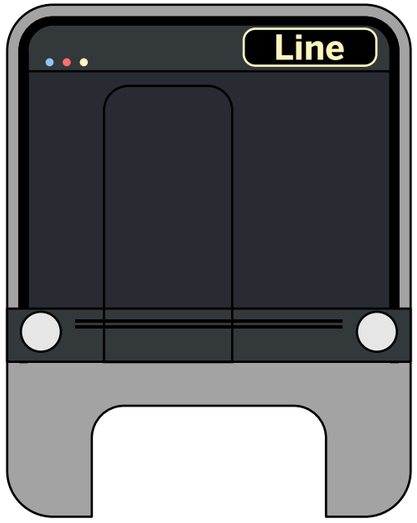
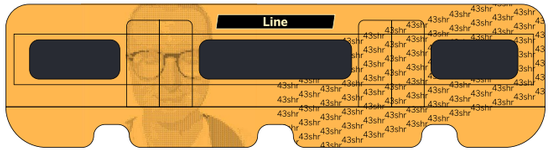
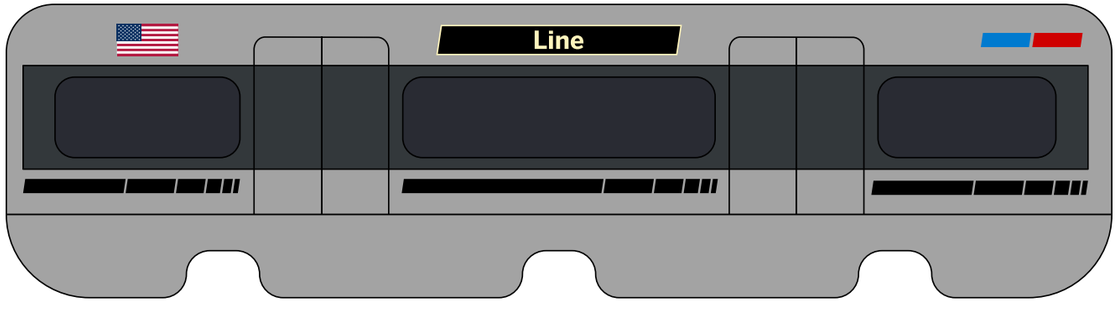


Photo via Walker art Center Skyline Mini Golf 2025. Concept for advertisement.



How different pictoral or artistic wraps could look on the traincar.

Side of the train when in series (above)



Track

Mentioned previously when discussing concept, monorails provide many benefits that suit the vision of the USMR solution. Their smaller tracks are less visually obstructive when compared to other elevated train systems. They also make use of rubber tires rather than grinding steel wheels which makes these trains quieter. Heavy use of concrete also cuts back on costs because of it being a cheaper material when compared to steel. There are some drawbacks when it comes to flexibility and efficiency, but concrete is also quieter to construct and can be very durable. Ultimately these benefits are important when it comes to being as unobtrusive as possible so as to not upset residence. The US is also very well versed when it comes to construction of concrete flyovers in the case of freeways.

Lots of thought was given as to whether the train would be above or below ground. Despite the visible and obtrusive construction, elevated tracks could be built at a faster rate. Track could also be built around structures and adapt to any given landscape so as to avoid demolition of existing buildings or infrastructure. Track also has the opportunity to simply follow existing freeway architecture, avoiding intrusive construction and noises.

Finally the use of elevated concrete track provides a lot of artistic opportunity. The large concrete supports are canvases where plants can hang, paintings can be illustrated, and designs can be cast. Cities could change the shape and mold of these concrete supports to fit their culture and tastes.

From Luke Starkenburg on YouTube. These screenshots show how an elevated monorail track could look against a road. The concrete supports are decorated with foliage.

Typography

For transportation, type should be clear and legible. Most transit systems across the world use some kind of sans serif font when writing with the latin alphabet. In the United States, New York iconically uses Helvetica to great effect, but for this design an American made typeface may be more thematically appropriate.

Benton sans is a digital typeface that was created in 1995 by Tobias Frere-Jones. It is based on Benton Gothic and News Gothic created by Morris Fuller Benton. It was originally created for Martha Stewart Living Magazine and Website, fittingly titled “MSL Gothic”. The typeface was later adjusted for a retail version and given its current name. The font family originally came in 26 fonts with 8 weights and 4 widths each. As time went on the typeface was dramatically expanded.

This typeface was selected for its readability and its deeply American history in design. In fact, it’s the font you’re looking at right now (Benton Sans, 10pt, book to be exact). All designs shown in this book make use of this typeface exclusively.

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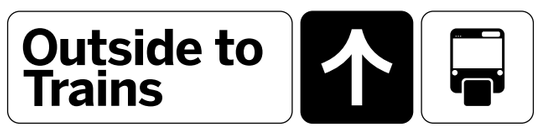


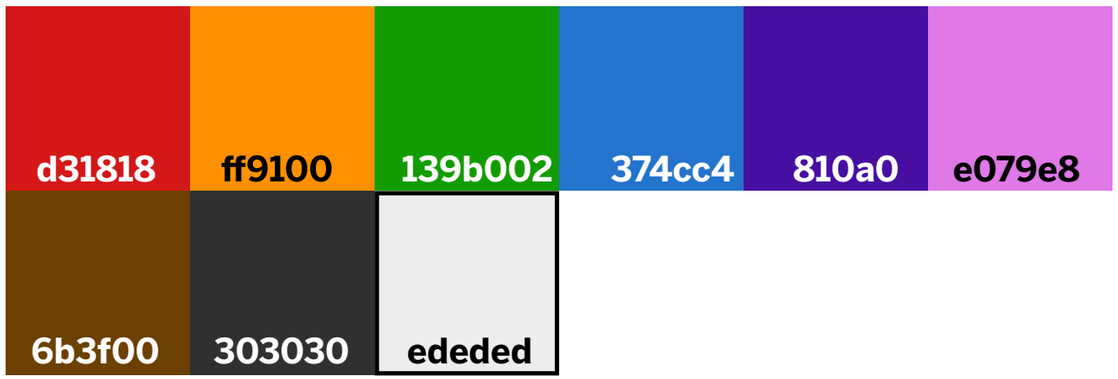
Colors

The color scheme is mostly black and white because of the high contrast and the ease at which cities could change the colors if they see it fit. The signage should work for any city in the country on its own due to the lack of cultural connotation from black and white. It could have easily been navy blue and red for example, but black and white felt more objective and new. If any city feels alienated by these colors it is encouraged that they change them. As mentioned earlier the USMR is simply a template for whatever a city would like to do with it in terms of design.

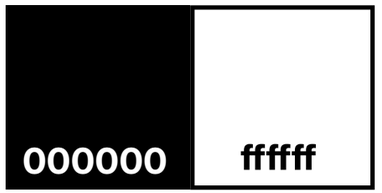
It is also worth mentioning that typically in digital design it is advised to avoid pure black and pure white because of how harsh they are. Because these materials are intended to be printed/made and placed into a physical space, this advice was ignored. Designs should be as accessible as possible so care was taken into this decision.

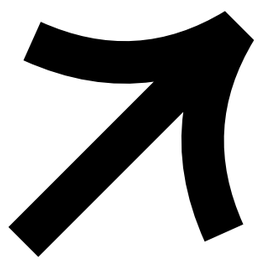
It was planned for red and blue to take their obvious place as secondary colors for the branding, but ultimately their use found little practicality. Creating scenarios just so some colors could have their place when they are not needed goes against the guiding principles of the USMR. Red and blue get their moments on material like train tickets and passes.

Other colors needed to be introduced for more clearly denoting different train lines. Colors were selected to be vibrant and diverse while looking as though they came from the same family.



Alternatives to black and white (left)





Logo

Metro system logos serve purely as a mark for their services and exist little outside of that. As a public service that does not need to win devotion, logos are more straightforward and utilitarian. Sans serif type is dominant for lettering and for use in Wordmarks. Interestingly enough circles are an incredibly common motif across transit logos. Arrows, points, and slanted lines are also commonly used to give the feeling of forward movement.

Despite the very simple and obvious direction for the logo, minor adjustments were poured over and every detail was considered.

The logo was typed in lowercase using Benton Sans Bold, then sheared 8.57 degrees to give an italic look. This conveys the movement discussed earlier. Some of the tougher edges were curved for visual appeal. Finally a line is added at the end of the word and separated into shorter and shorter sections. This also conveys movement and adds something visually interesting. This visual motif has potential to be used in situations like app icons or social media profile photos.

Metro logos across the world. Margarit Ralev 2008.

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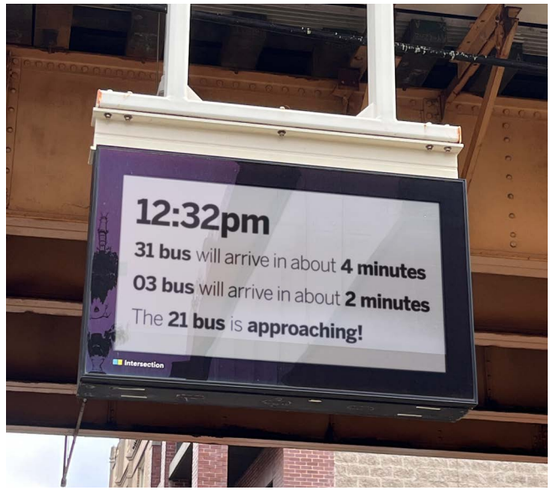
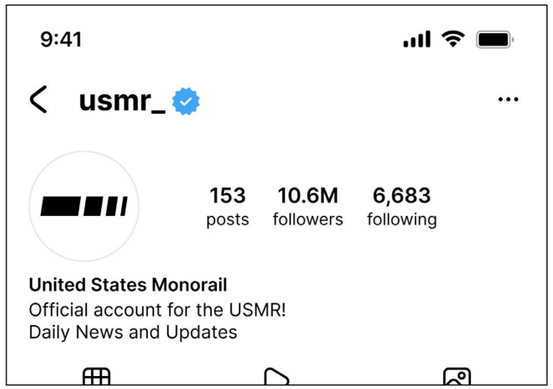
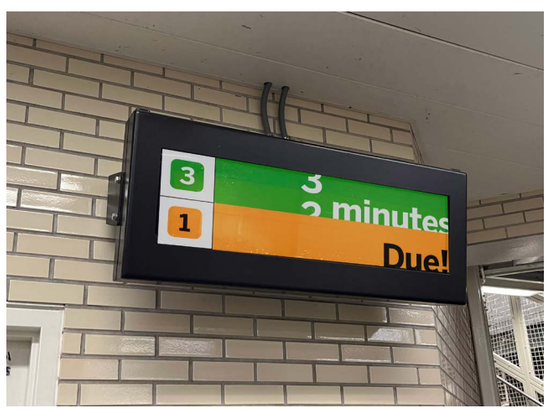
Final logo (Left)

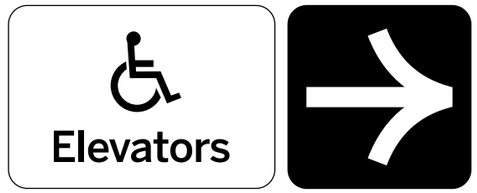


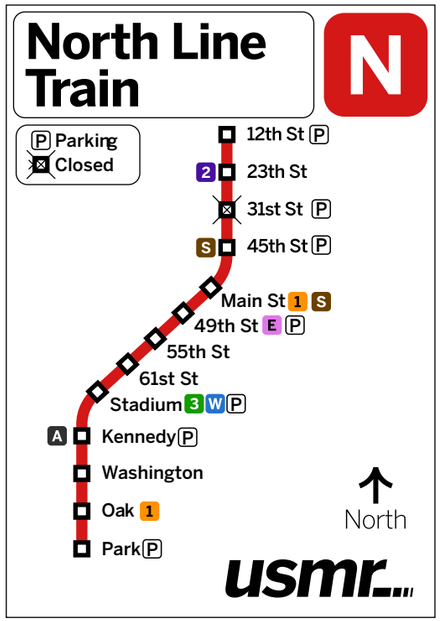
How train and bus arrival designs could look on real metro screens.

Instagram mockup (top right)









Train line map concept (left)

Station sign concept in the default black and white color scheme (above).

Alternative colored signes

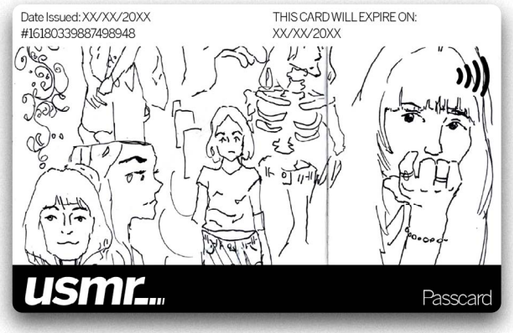
Passes and Tickets

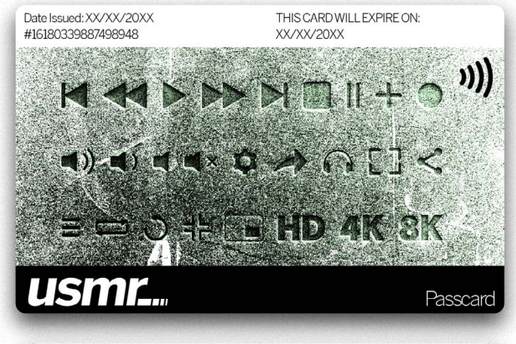
Paper tickets for 1 day (active for 24 hours) and 7 days (active for 168 hours) have been designed. Reloadable plastic card passes have also been thought of.

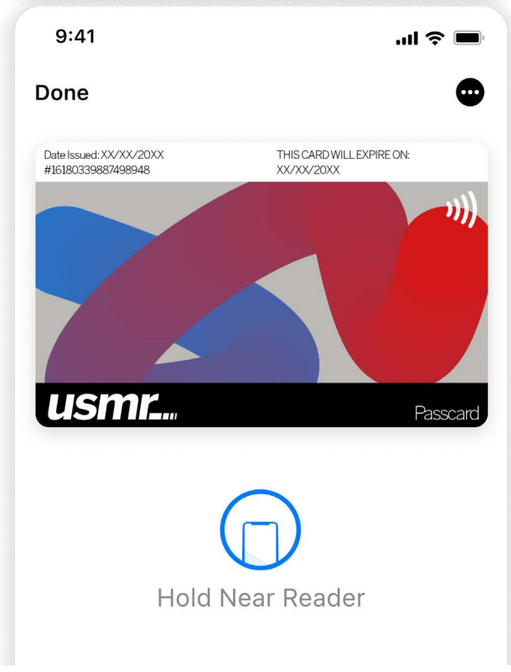
The paper tickets are basic and are designed with USMR typography and the basic black on white color scheme. There are some other red and blue shapes in the background for more visual interest. The seven day ticket is instead white on black to differentiate the two.

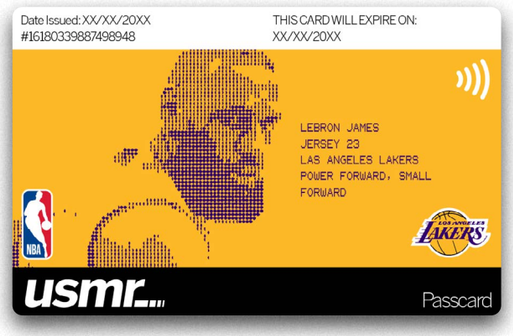
The plastic cards are designed horizontally. There are sections on the top and bottom that show information and then a window in the center for any design. The black bar at the bottom is supposed to be reminiscent of the magnetic swipe on passes when cards were swiped rather than tapped. The white on the top takes inspiration from New York's MTA pass; where the reverse side has printed information on the top.

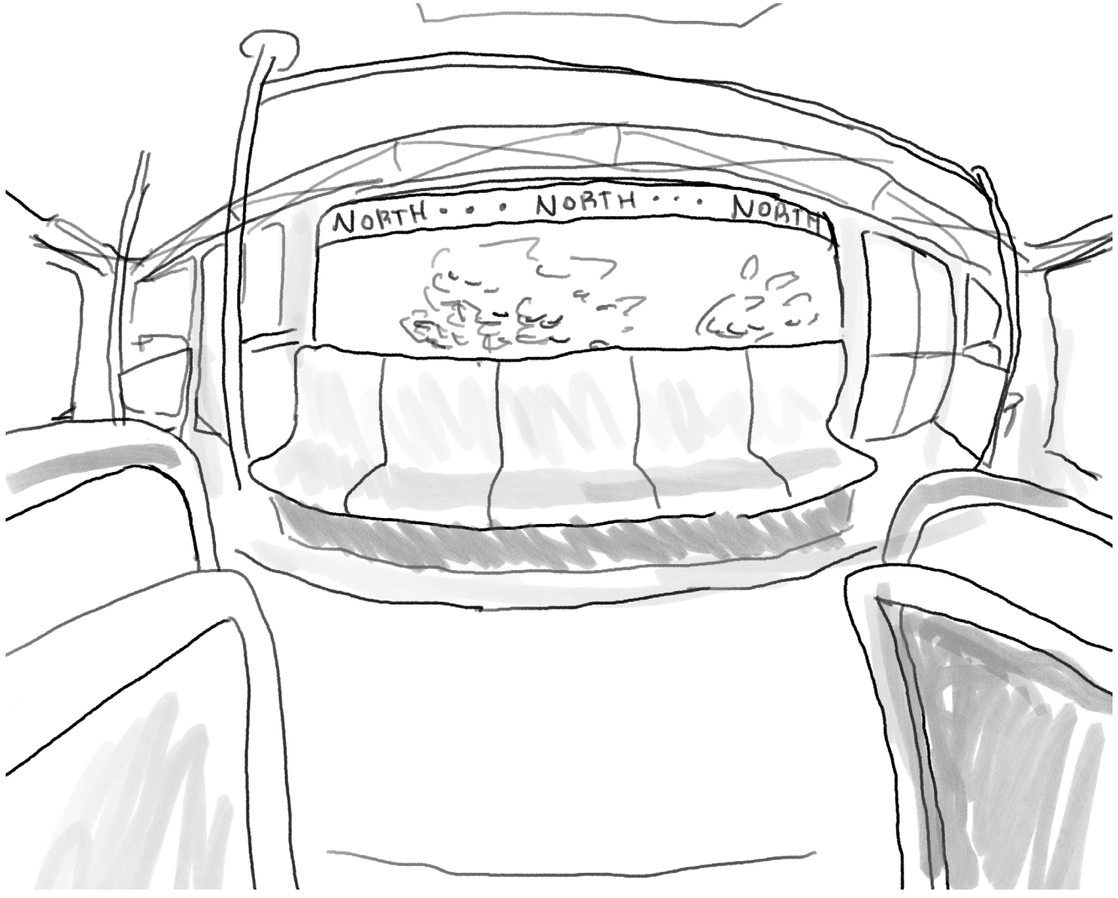
Plastic cards are the opportunity for a lot of visual expression. You could highlight local landmarks, resident artists, famous American athletes, and more.







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Conclusion

Designing a train system requires a full understanding of many different moving parts and systems. Ultimately a vision as large as this needs as many talented and driven people as possible, working together and sharing their strengths. This specific design requires a lot of construction knowledge and forward thinking. Planning on where the train runs in each major city requires in-depth urban planning skills and forward thinking prowess.

This vision is a singular idea based on very little real science or understanding of the planning necessary for a system like this. This design requires some suspension of disbelief. Material was neglected and concepts were ignored because the vision for them did not exist. maybe you could fill in the gaps.

At this current time public transit and train systems sit in a weird position in the United States. Joe Biden's infrastructure plan provided more federal funding, but on the state and local level some train systems still face budget cuts.

I hope more cities in the United States get access to affordable, green, and accessible transportation.

Thank you for reading my book.

Designed by Asher Teal
2025