



## New York's MTA: A Case Study in Applying Pictograms to Transportation

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### 3:30 PM

**MILES HORA:** Hi everyone. It's great to be here. It's my first trip to Toronto and it's a beautiful city. I'm particularly impressed by the architecture and how clean it is here. I'm from New York and it's really... My kudos also to Wayne, the airport is very impressive. It's such a pleasure to see well thought-out, careful graphics and an understated use of pictograms. You did a really beautiful job. When was that completed by the way?

**WAYNE MCCUTCHEON:** I guess the last phase of it opened three years ago. There were two different phases.

**MILES HORA:** That's really good design at work. It's easy to find things, to get around. I'm a symbol analyst and I do believe in the power of pictograms to get people where they're going, keep them safe, give them information they need. What we're dealing with, especially in New York - and the reason I'm showing this is particularly timely - because the MTA is just completing work on a new pictogram system. The Metropolitan Transportation Authority is comprised of four agencies. There is Bridges and Tunnels, two railroads (Metro North Railroad and Long Island Rail Road) and New York City Transit: the subway system and buses. So you're interacting with airports, buses, subways, trains, cabs - every possible way of moving a person through in a crowded metropolis. So it's a pretty complex problem. The other aspect about this, and I'll get into it

much more, is that all the signage is already in place. It's been up there for decades so I've had certain restraints to work with.

I do agree that there isn't a pictogram for any and every situation but they do help us with the language. So in combination with words, it makes things clearer. And in some cases it makes things faster. You don't have to read. If somebody has just stepped off a train or plane from another country, where you don't speak English or French, you can find your way around. Now it just so happens that my interest in symbols goes back to, as you said, early nineties when designers were switching to Macintosh and stopped using amberlith and ink to draw symbols. I realized that people were redrawing and drawing the same symbols over and over again and they came out differently each time. All of the studios were basically taking their own shot at creating the wheelchair symbol. So, I started collecting symbols and rendering them in digital form and creating this tool so that designers all have the same material. Now there are many, many versions of each kind of symbol you come across, but what my interest is in now is standardizing symbol systems so that we're all on the same page. I wanted to show you a page out of the book. This is the current road sign system for the U.S. and as you can see it's text based. So if you're coming from another country and you don't speak English - these are warning signs, they are very important signs that may cause you a problem if you don't understand what they mean. If you go to the next page, the page on the right is the UNCRT, which is the European system of road signs (if you been to Europe and you've seen that). I think that Canada and the U.S. are pretty closely related in terms of the road signs (there are some formalities) but in Europe and other countries, even the Caribbean, you'll find these pictograms, which for a road narrowing, they will show a road narrowing... don't really have to speak the language. I think that in general the U.S. is way behind Europe and other countries when it comes to communicating and getting people around.

Ken and Jenn mentioned semiology earlier and this is really pretty important for any designer. It's something that is, when you put up a picture of somebody or a symbol, what are people actually seeing? Semiology is the study of what they are seeing, what are they actually perceiving. Signs and symbols signal different things to different people. We heard a little bit about cross-culturalism and that's true. There are certain cultures where a symbol you would show might be offensive to someone in a different culture. There has to be that kind of care into what symbols are used. But I think we can all agree that there are certain symbols that do function. In this case, this is the symbol for American Sign Language put together by the Graphic Artist Guild in New York. I thought it was interesting - I actually redesigned it because it wasn't designed that well, and this is the one that I redesigned - there's a way to tell people what you're trying to communicate without saying American Sign Language. This isn't that well known yet but it will be.

If you go back to the second frame. This one was also done by the Graphic Artist Guild. This is for mobility impaired. There are certain cases where the 'person in a wheelchair' visual metaphor is really not appropriate because some people are impaired, but they can walk. Or their vision is impaired and they may need a stick, but they can still see. They just can't see well. I saw these symbols being used at the Metropolitan Museum because they now have the headphones that let you listen to the whole tour. Things might be blurry if you're vision impaired and you drop your glasses but there are ways of getting around. These symbols are to tell people, we're taking care of you here.

Breaking down what we see. Again, Jenn and Ken brought up the idea. What do we see? What does a child see? We might link this with poisonous, lethal, infectious, death. But a child might see it otherwise. This is an attempt on a container packaging to simplify that message without the crossed bones but it becomes almost a child's cartoon character. It's almost too playful and it's dangerous

because a child can get into something and literally in minutes hurt themselves This is from the Canadian Workplace Hazardous Materials Information System. They have seven or eight symbols. This is the one, and again it's still using the same metaphor. Essentially, it's a smiling entity. It's not exactly benevolent but it's not exactly the death scare either. Now this was designed for children. It's called Mr. Yuck and I came across when I was researching the book I published in 2005. It sort of points out the idea that you really have to, when designing a symbol system, you really have to know who you're designing it for. And obviously children's books, the authors know that because they're doing everything for their audience and in this case, putting this sticker on all the sprays and things you buy for a kitchen wouldn't be bad because the child looks at it - I asked my eight year old, "what does this mean to you?" And she said "bad, sad" and so on. She equated that. I showed her the other one and she didn't know what to make of it. All she saw was a pirate. And this can save lives. Symbols can save lives. Aside from getting you where you want to go, they can really help you out.

This is the International Standards Organization's version of that symbol so I thought I'd throw it in there. The International Standards Organization is a global body that takes information of symbols and tries to standardize them and then publish that so everybody can use the same symbols. I redesigned it. I decided to because I thought that it was rather weak, in my opinion, so I decided to redesign it. Now I took into account that problem with the children and although it's not as effective as Mr. Yuck with the children, you'll notice that I made more of a frown. It's not a smile on the teeth. It's also much easier to see farther away. And I'm using this in the MTA system.

Harmonization. (I'm moving rapidly because I have a lot of material to show and I know you're probably all ready to go). Harmonization is the bringing together of various standards and requirements so that symbol sets and standards are unified. So my goal is to have

the systems and standards that are used in Europe harmonized with the U.S. standards, which are again, behind Europe. In the book, what I've done is actually redesign a lot of American symbols and tried to harmonize them with the European symbols. Now this is the perfect example, right here. I don't know if you came across this when you were doing your research but Paul Mijksenaar has done a lot of airports in Europe. He noticed that in the United States we use the symbol of a question mark for information. That was done back in the seventies for the AIGA/DOT symbol set and that's what American's see when they need information. They walk to the question mark. In Europe and even here (I noticed in the airport) you use the lowercase letter "i". Mijksenaar decided to put the two together, so basically, you're covering the ground. Someone is going to know that's where to find information one way or another. That's an example of harmonization of two different standards.

This was an interesting situation. Before I first got involved with MTA, at the end of 2005, on the train station, there is sometimes a gap between the train guard and the platform and it can be almost a foot wide. And what happened is a nineteen year old was coming home late from a party and she literally fell into the one-foot gap and landed on the tracks. It didn't kill her but she crawled under the train to try to get out and she put her head out into the oncoming train and was immediately killed. And this created a huge, beyond huge, public relations issue because it was a safety issue. It was clear that people just weren't aware of these big gaps and it was very dangerous. An old woman fell through it also and broke her legs so it was a big deal. It's a good metaphor for using symbols to save lives. Close the awareness gap is what I'm saying. This is the symbol that they had when these accidents happened and it's easy to see that it's not all that affective. In-house designers decided to redesign that so that it would be more visually interesting. Next. When I was doing research on this symbol, I came across what the English have, which is "Mind the gap". It's the same, exact thing.

And there's the Japanese version there and so on. They're all very pictorial, very dense, very colorful but not that easy to really see, from far away especially. While they're visually arresting – they're red to try and get your attention – they're not very clear. It's just not clear what's really happening here. If you can't read the red or the black on red “mind the platform,” it's just a poorly designed graphic.

Bob Noorda just passed away a couple weeks ago. He was the one who introduced – he founded Unimark International with Massimo Vignelli back in the seventies – and he brought modernism to the subway system. He redesigned all the signs throughout the system so that they were all the same. There were many different subway lines and each one was different. Here's what he said, “don't bore the public with mysterious designs.” When I was doing my research for symbols, there's so many places that you just can't tell what the intent of the designer is. So, his position is well taken, I think. He was one of the masters, and as I said he just passed away a couple of weeks ago.

This is what the MTA in-house department came up with to remedy the safety problem they were having. As you can see, it's a pictorial version and they have the words with it and it's on reflected material so it will glow in the dark or low light but it's kind of complicated still. It's still not clear. It looks like a child walking. The way they chose to depict the information still takes way too long to figure out what's going on. If you don't read English, you don't know to watch the gap, you don't really know what this is referring to. So the MTA came to me, they realized they had a problem. They came to me and said, “Can you design something for us that would get across the idea more efficiently?” So this is what I designed and the crux of it is that on safety signs you have to tell people what the thing that you want to avoid is. On a saw, you want to show a person's hand or fingertip getting cut off. That warns the person, this is what you don't want to do. So what I'm showing you here is literally what happens if you don't ‘watch the gap’: you're legs are going to fall in

between the train or platform.

Of course, symbols work even better if there is language attached. I brought what the accepted standards are for safety signage, which is the banner in orange. It's a warning. The international sign for attention, which is a very important part of safety signage - and then "watch the gap" in upper and lower Helvetica, which is legible and visible. So that's the actual decal that is now posted all over the subway system and trains as well. As you can see they use it on platforms, they put them next to the doors on both sides, inside and outside of the train, they're on the doors so that if the door opens you can still see it. In some ways, we're going to look at it again because they've actually put it in too many places and it's getting a little bit over-signed, but fortunately there haven't been any accidents since the new sign started being used. They're even using it on the ticket machines. We, as designers, are here to educate our clients, whether it's a product or service, how to move somewhere (with transportation obviously, we're trying to move a lot of people) - but this is an educational campaign. There has to be clarity about what we're trying to transmit.

Next. This is another example of something I've seen regularly throughout New York. We have a lot of tall buildings and you do here too. This is a typical, "in case of fire, do not use elevator" sign. But what's wrong with this symbol? The guy is running into the fire. So, one of the things that you have to be aware of when you're designing and using symbols is, does it actually make sense for where you're talking about? With the context of the sign you're trying to use. It's just, we know, we're in tune with does this make sense. So literally, I just redesigned it and made the guy running away from the fire. Now the other problem is that this was in the basement, on the ground floor, platform level of a subway. You're not going to run down the stairway to get away from the fire. So I also designed one for them so if you're at the platform, you can move away from the fire by going up the stairs. People are looking for information

and sometimes they take it literally, like run down the stairs. If that's what the sign says, they must know what they're talking about. But they don't unless we make sure that we are. So next slide, I gave them a positive contrast for certain situations – just for high legibility. This is an example of how you actually have to take into account how people read and see and act on the kinds of signs we've got.

Next. It's agreed upon by people designing standards that the image content and image description is actually more important than the formalities of the artwork. That's true. So if each one of us were getting an assignment on a particular symbol, each one of us in this room might approach it differently and have a slightly different version. But the image description that you're given – a paragraph that says design a symbol for this particular subject – is the core element. You might do thick, thin. What's happening here is exactly that; you see all different versions. One guy has a foot, one doesn't. One is in blue and so on. The problem here is that these are all being used simultaneously in the MTA system.

Next. So what's happening, what I've been asked to do, is to simplify and systematize the visuals that are happening throughout the system. Obviously, it's advisable to do that – to have a consistent visual system. And it's not just one system at a time. Look at all of the symbols being used, which ones are effective and which ones are not?

Next. These are the symbols from the park service that Don Meeker did. There's a shower for someone in a wheelchair, there's a ramp (in some cases), there's a phone. In some cases there is no ramp and no accessibility and you have to tell people that too. There is room to change meaning, as long as it's done in a consistent style, it can be done.

Next. The MTA, I've already given you some background – they asked me to come in and just study the problem, kind of like what Bob Noorda did forty years ago. So I rode the subways, I got on

the buses, I went from JFK Airport into the city and then I took the Long Island Railroad into Manhattan and I took the subway, and so on. It was amazing how many – there are four agencies and there are four different sign systems. They are related but not exactly the same. So, in any case, there were only half a dozen pictograms in use in the Metropolitan Transportation Authority. You're talking about a system that has a million people a day using all of these different modes of transportation. It's called intermodal – going from one type of transport to another. And it was amazing to me that the only one that was really consistent was this one ADA symbol, which really means elevator. In this case he's trying to get up and down. So I spent several months just photographing what I saw. This is a typical example here, which influenced my assessment, which was that everything is in English. You have a city that is sometimes considered the centre of the world. You have 180 languages being spoken, you have people coming in all of the time from other countries that have never spoken the language and it's almost impossible to move around. The obvious answer for me was to recommend that they add pictograms to the language. I'm not saying use language alone but look at the language, see if we can simplify it and redo the signs using a combination of pictograms and the English language. So that was the basic overview of the project.

So, my recommendations were that they needed to improve the non-text based communications and signage. Very straight forward. It's getting only more multi-lingual and non-English speaking. I'm sure you've noticed this here in Toronto too. It's a very international city; people speaking Arabic and so on, on the street. It's clearly where all the major cities are going. We're all selling things to everyone in other parts of the world. Packaging; it's all becoming signage-based. The iPhone is all icons. If you look at your little menu there, you have thirty icons and each one has a meaning. You can pick up what the meaning is, what product or service and so on. We're becoming more and more symbol-oriented as time goes by.

We have less and less time to read. We're reading less, we're reacting to things much more quickly. It's a new era. Since 9/11, if a plane hits your building and you need to find the exit, you don't want to read evacuation signs or procedures, you want to know where that exit is and you want to know fast. It has to be the same for you if you come from another country or you've been living here for twenty years. It's the same as going to the bathroom. If you want to go to the bathroom you want to find that little man or woman somewhere in the hallway. You're not going to read signs and try and figure it out. And what it involves is directional (finding your way around), regulatory (what to do and what not to do), informational (the service you're looking for) and emergency messages, which are most important, especially in a transportation context.

So, I put together my recommendations two years later. I came up with a system of ninety pictograms that I felt could be useful in their system. And you might say, "Gee, isn't that too many for a system like this? Aren't we trying to say too many different things." The answer is that there are four agencies, there are people driving their cars over bridges where you're not allowed to use cameras or videos so there has to be a simple plan. You're in there with buses, so there are safety considerations getting out of the bus. The point is, in no place are you seeing more than a few of these pictograms. Plus, you're seeing the English language with it. So this is what was done for the Department of Transportation Symbols back in the seventies (maybe a little less than this) but I used a lot of things that were in existence and just added some new specialized messages.

The first one is a positive contrast version. I've given the MTA three different versions of this. This is the native contrast version because they have black signs and they have white signs so you have to have both. I've given them three different versions of each symbol so that they can apply it the proper way. I'm also working with them on their manual of specifications that will tell them how to apply it. It's pretty complex. I've applied this immediately, the most impor-

tant thing they wanted to know, was get these symbols working on emergency instructions for evacuation. There are instances already when something happens and the train stops in the middle of a tunnel and people think, “Am I supposed to get out?” “Am I supposed to run?” “Am I supposed to call somebody?” The emergency on-board instructions are really important so if you go to the next slide, I used the symbol set that I had clarified as much as possible. I removed some of the language and simplified messages. I also created a symbol hierarchy so that, the one on the left, you have eight symbols or so that are all the same size. And you're not sure which one to look at first. You panic and your eye wanders around. There's also too much language, too much to read and its very hard to read and too small. So what I did do was break it down into simpler terms, as we all do everyday, as designers we try and simplify.

I also decided, after looking at this system for quite a while, that the ADA symbol should appear in blue. It often, as I said before, denotes the use of an elevator and I also recommend that they use both the ADA and elevator pictos together so that there is clarity about what you're actually leading a person toward. What does it mean to have a man in a wheelchair? Well there are different ways of getting around with the most important being this one. The other thing about blue is color coding. It has better visibility. Let's say you're eyesight impaired and you're in a wheelchair, if you scan across a platform and you're trying to find your way in or out, you can see that little blue spot and it gives you a little hint. It helps with communication. I told them to get rid of the black and white ones and the little stick figures and use this very one, designed by Roger Whitehouse by the way, quite a while ago, and use this in blue throughout the system. We're going to start applying decals to buses, trains and so on. We can't do all the signs and one time because there are thousands and thousands of signs so it's going to be a matter of transition, but little by little we'll start to get into this system here.

So that's the lead in to this. I've concentrated the slides I have on this case study. Jamaica Station is an AirTrain station out in Queens where you can take the JFK train to the plane and you can go here and then catch the Long Island Rail Road or subway. It's relatively new, designed within the last ten years. It has a lot of possibilities. And they already had signs in place but they obviously hadn't thought through, or spent the time, to think through what to do with it. So I'm going to show you a couple of things here.

This is literally a sign that's attached to the outside of the Jamaica Station building, which is a historic building. So, this is my case study PhotoShopped version of that. The signs aren't in place yet but it starts to show you how - I basically wanted to see if I applied pictograms to almost every sign, every communication, to see if it would work. So this is my case study. I'm going to show you a few different signs. These are before and after shots. That's approaching an elevator and there it is again. That sign is hanging outside. Once again, this is inside. There's the new one. Before and after. Elevators leading up and down the tracks. This one you can see how those black and white stick figures are operating. That's an indication that if you're in a wheelchair, this is where you go, to the left or right. As you can see, it's very hard to see. I didn't even see it when I first looked at the sign. So the next slide shows you what I did, which is basically, that color coding. It's clear. I'm using the contrast images also so when you see a symbol, it's in a black field with white information on it. This is interesting. This is at the end of a platform, where you can walk onto the platform and get electrocuted basically. I found this to be the case in subways, trains and so on and this is what I did. I made a classic safety sign and put it up. This is again, how do you get to the platform and the elevators and so on. It's pretty straight forward, you know. It's common sense. Same thing here. There's a lot of stuff going on here. Transportation, Here's how you get down there. These are the elevators that were totally unmarked. Without information, you can't even tell it's an elevator.

They were really beautiful and they were designed by the Port Authority . They look interesting, but if you're trying to find your way around, why not just tell people where it is? Next. Same thing, if you get off the train and look down the aisle you can't tell where to go. Again, the sign is above a person's height so it won't get obliterated by someone standing in front of it. This is near the end. This is telling you where to go.

As a result of the study, we realized the pictograms were a little small. There are real constraints there. The height of that sign is fixed. They make it in that height and they can't retool them to different heights. I had to develop a hierarchy to emphasize the important things. Now in this case on the left, I'm emphasizing the ADA standard, before I get to the elevator tracks and there's the subway. On the right, same thing, taking you to the ticket lobby and then showing you what services are there. Same thing here, with limited space. Next. Here's an example when there was more space. I did enlarge some of the symbols here. These are now four and a quarter inches instead of three. My emphasis has been trying to make them as large as possible with constraints on how.

And that is pretty much it. So, I don't know if there are any questions but thank you.