



# **Transit Signage System Design**

Theory & Practice



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# Part I.

## The Importance of Signage & Branding

**1**

INTRODUCTION

**2**

HISTORY

**3**

WHAT IS  
WAYFINDING

**4**

THE BENEFITS  
OF BRANDING  
TRANSIT



5

BRANDING  
PUBLIC  
TRANSIT

6

TRANSIT  
SIGNAGE  
DESIGN  
PROCESS

7

PRECEDENTS:  
PARIS  
LONDON  
NYC

8

CONCLUSIONS

Part II.

# Van Ness Bus Rapid Transit Signage System Design

**1**

INTRODUCTION

**2**

PROBLEM  
DESCRIPTION

**3**

METHODOLOGY

**4**

DATA ANALYSIS

5

VAN NESS  
BRT SIGNAGE  
SYSTEM  
DESIGN  
PROPOSAL

6

NEXT STEPS

# Part I. The Importance of Signage & Branding

# 1.

## Introduction

Signage system design and branding are the first elements of a transit system that users come in contact with. The signage design, information provided, branding, interactions with transit staff, and quality of service all make up a complete experience for the transit user. The impressions one has with any of these touchpoints can inspire one to continue using transit or prevent one from using it again.

In a time where air quality is poor, resources are scarce, and congestion is high, it is a transit agency's duty to provide high caliber public transportation options for the community. The best way to intrigue more users into choosing transit is to provide a quality experience for the user. The experience is not only the type of service provided by the transit system, but it is the way the transit system and its design make users feel.

When signage system design and branding are done right, users feel comfortable and safe, and their transit trip seems simple. Convenience and ease are some of the most significant influences that bring people out of the automobile and into the bus. Providing the right information at the right locations and displaying it in a readable way, makes transit decisions convenient and easy.

Part I of this report discusses the importance of signage system design and branding through research and precedent analysis. Lessons learned from the research are applied to San Francisco Municipal Transit Agency's incoming Van Ness Bus Rapid Transit corridor, in Part II of the report. Part II shows signage system design examples and illustrates how signage system design and branding could make Van Ness Bus Rapid Transit look and feel.



*Art Nouveau  
Paris Metro  
entrances with  
built in signage,  
designed by  
Guimard*

## 2. History

### 2.1 Signage Overview

The history of signage begins with buildings and commerce. Before public transportation was readily available to everyone, small-scale signage was used to indicate the purpose of a building. These signs were generally small sized placards on building frontages or hanging signs, projecting out from a business's walls over walkways. In America's early settlements, literacy was not widespread, and pictographs were used instead of language on signage. As literacy grew, words were used more and more on signage. (Treu, 2012)

While technology advanced in the world, transportation options grew in Europe and the United States. Horse drawn carriages evolved to horse drawn streetcars, and later electrification developed, as did electric streetcars, automobiles, railroads, and subway systems. By the Early 20th century, transportation system services were urban, regional, and long distance, with many different service providers for each distance and mode of travel. (Berger, 2009)

Signage for these many systems primarily existed exclusively in conjunction with their architecture. Station buildings hosted all

transit signage. Stations became more and more intricate with the growth of new systems (Berger, 2009). Clearly, the increased complexity of multimodal transportation options created a need for new types of signage and more specifically, wayfinding (Ovenden, 2009) (Berger, 2009).

In 1900, the Paris Expo Universelle marked a change in iconic aspects of the time, a shift from the products of industry to environmental marvels such as subways and escalators became the some of the most novel inventions of the time (Ovenden, 2009) (Berger, 2009). The shift from a general fascination with the product to marvels of the urban environment, presented a new paradigm in societies in Europe and the United States. This time period created a newfound need and care for environmental design and the need for more intentional signage and wayfinding (Berger, 2009) (Ovenden, 2009).

Signage fabrication styles evolved over time. Projecting signs were initially popular, but as mobility became pertinent to everyday life and streetcars and automobiles came to city centers, higher visibility signs were needed (Treu, 2012). Railroads made more



materials readily available on a broader market. Accessibility to new technologies in sign making influenced evolving signage styles around the country and abroad (Treu, 2012).

While there were movements influencing the junction of architecture and signage, there were others that disjointed the two. Many businesses adopted electrification, leading to a wide range of signage styles (Treu, 2012). The diversity of styles could be distracting and overwhelm some streets. In some instances, it became difficult to have a symbiosis between architectural design and signage. In others, architects embraced signage and incorporated it into their designs (Treu, 2012).

Some cities wanted to control what was acceptable in the public realm and created zoning and building codes, restricting certain architectural design and signage behaviors (Treu, 2012). In any case, transportation signage had to compete with the ever-growing business signage in order to stand out on the street (Ovenden, 2009).

Popular signage and wayfinding styles in transportation transcended from a basic necessity, installed by anonymous sign painters out of the normal duties of transit agencies, into a graphic art, designed by popular artists of the time. Many artistic movements

influenced signage. Internationally, Bauhaus, a German art school that melded function and design, helped signage become more widely incorporated into design (Whitford, 1994). The Bauhaus movement urged for architecture, furniture, signage, painting, murals, advertising, typography and more to be designed harmoniously (Berger, 2009).

The popular French art movement, Art Nouveau, also influenced signage in France and abroad (BBC, 2012). Art Nouveau, like Bauhaus, was an art form that took shape in various formats. It was used in jewelry design, architecture, and poster design. In Paris, the Art Nouveau Metro entrances developed by Hector Guimard incorporate signage in design and have become iconic symbols of the City (BBC, 2012).

In London, Harry Beck initially studied to be an engineer, veered from the path of engineering to design graphics for the London Underground. In 1933, he designed the most renowned transit map in history for the London Underground. He pushed transportation graphics into a new realm of legibility by using principles of engineering to guide his designs (Ovenden, 2009) (Berger, 2009).

Later, modern art styles, such as those executed by multi-dimensional designer,



*Left: The Bauhaus school incorporates signage in architecture*

*Right: Example of competing signage in history*



*Comprehensive environmental graphics for 1968 Olympics, designed by Lance Wyman*



Massimo Vignelli, pushed signage and wayfinding into a category of design that is both functional and artistic (Berger, 2009) (Shaw, 2011). Vignelli designed the transportation signage, graphics and transit map for the New York subway in 1966 (Vignelli Website). Beck and Vignelli masterfully elevated the techniques of transit map designs and public transportation graphics around the world.

By the 1970s, environmental graphics (a union of architecture and graphic design), wayfinding, and iconography were commonplace. (Berger, 2009) Environmental graphics emerged as a newer profession made up of many different people with differing backgrounds. Architects, industrial engineers, advertising professionals, product designers and more participate in the field (Berger, 2009).

By the mid 1980s, designing retail environments was becoming increasingly popular with businesses. Corporate entities saw the power branding through signage and environmental design (Berger, 2009). The field of environmental graphic design expanded from designing for public places to designing environments and signage for private firms. However, in some cases, public spaces doubled as retail environments, such as Times Square (Berger, 2009).

## **2.2 Transit Agencies & Graphic Design**

As signage and wayfinding graphics evolved, many transportation agencies grappled with the concept of implementing good graphic design. Graphic design is not usually in the job

description of those who operate transportation agencies. Providing reliable service is most important and engineers and planners usually manage that side of business (EMBARQ, 2011). Additionally, it is sometimes difficult for transit agencies to justify spending money on graphically designed signage systems.

However, transit agencies with well-designed systems are not only more attractive at face value, but good design has proved to have important co-benefits. Recognizable and informative design makes for safer transit systems. It can also increase ridership and the public's perception of public transportation systems (EMBARQ, 2011).

Many agencies have proven that creating a strong identity through branding their service with graphic design and marketing improves the perceived total customer experience and increases ridership, when coupled with well-managed service. (Siikonen, 2006) (Hess & Bitterman, 2008) Now an integral and valued piece of planning for some transit systems, graphic design enhances the service's visibility and popularity. (Siikonen, 2006) It also has the potential to draw customers from automobiles--a task that many cities wish to achieve. (Henke, 2007) (APTA, 2010)

More recent studies around branding public transit are centered on new Bus Rapid Transit options. Some of these studies suggest that branding and imaging can account for a 10-20% increase in ridership (APTA, 2010).

Paris, London, and New York are examples of cities having Transportation Agencies that have experienced the benefits of great graphical signage design and branding. Their methods and history are discussed in detail in Chapter 6, the precedents section of this report.



*Interpretive map,  
based on people's  
memory and  
understanding of  
familiar geography*

## 3.

**What is Wayfinding?****3.1 What Is Wayfinding**

Wayfinding is spatial problem solving within an environment to get from one place to another. Signs, personal travel behavior, and environmental cues such as architectural design and street furniture affect the perceived ease of wayfinding. The wayfinding process for a transit trip begins with a trip plan and leads to a path of travel made up of decision points. Obtaining trip information at the right time and place can be critical to correctly finding one's way. Signage and wayfinding system design provides this type of crucial information. (Transportation Research Board, 1996)

A transit trip is broken up into three behaviors: decision making, decision execution, and information processing. In the decision making phase, trips are broken down into trip segments and a cognitive map of each segment is made. Breaking a transit trip down into segments allows the user to better understand and remember the whole trip. (Transportation Research Board, 1996)

Cognitive mapping is a way in which a user can plan their journey and understand their trip segments to better prepare them for the transit trip. When a user maps a trip, they first

determine their own location within the transit setting. Next, a destination is determined and a plan of action from their location to the destination is decided upon. Without a predetermined cognitive map, users will need to rely on signage systems, environmental cues, mobile apps, and asking for directions. Even when a cognitive map is formed, users will still rely on external sources to support their decisions along the path of travel. (Transportation Research Board, 1996)

Decision execution transitions the mental maps of trip segments into travel behaviors. This is where actions are made to complete trip segments. It is in the decision execution process where signage systems and wayfinding cues in the environment help guide the user to effortlessly complete trip segments. (Transportation Research Board, 1996)

Information processing is an important part of the transit trip. Information processing occurs throughout trip planning and travel actions. This is where information is discovered and judged. Information processing has two forms in the transit trip. The first form of information processing is the perception of transit and environmental information through sight and

other senses. The next is cognition and the ability to translate the information into either coordinate mapping or sequential mapping.

Coordinate mapping is small scale mapping within a facility or boarding area. It is the process of understanding transit functions, such as where to purchase a ticket and where to board within a constrained location. Sequential mapping is the process of determining directions and distances between points. It is the comprehension of routes and trip segments. (Transportation Research Board, 1996)

### 3.2 Signage System Design

Signage system design is not merely an artistic concern. Signage system design is a physical and graphical system, which is designed from psychological patterns of human travel behaviors. It is intended to support travel behaviors within an environment. Travel behaviors should dictate how the transit environment takes shape.

The architecture and placement of platforms, stops, stations, farebox locations and other visual cues are the first part of a signage and wayfinding system. Once trip behaviors are understood and the site has been appropriately designed, signage and symbols can be planned for. The right type of transit information must be placed at the correct location for it to be helpful

to the user. (Transportation Research Board, 1996)

The goal of developing a transit signage and wayfinding system is to make the user experience friendly and helpful. A signage and wayfinding system should move riders between their origins and destinations efficiently, with minimal effort exerted from the user. A well planned system, should be intuitive and useful, without being oppressive. It should be easily understandable and graphically pleasing. (Transportation Research Board, 1996)

A transit signage system is developed using several tools. First, the user and the user's needs must be defined and understood. Next the Transit Trip Model is assessed to structure wayfinding. Signage system and wayfinding design is built upon a foundation of user travel behaviors and transit trip decision-making and execution processes, discussed in section 3.1 and in the Transit Trip Model (see facing page). (Transportation Research Board, 1996)

There are a variety of user types to identify and plan for in a transit system. Most common groups of users are (i) users familiar with the system and (ii) those who are unfamiliar with the system. In addition, designers must plan for the unimpaired and persons with disabilities such as sight, hearing, and mobility impairments.



*Signage system design in Schiphol Airport displays different information, using different color combinations and sizes (Uebele, 2007)*

All signage systems and wayfinding design must be in compliance with the Americans with Disabilities Act (ADA). (ADA sets standards for public infrastructure that make public serving facilities accessible to everyone.) Another user group to plan for are those with literacy impairments, these may be people who are unable to read and write, or those who do not understand or speak English.

The Transit Trip Model is based on the decision points of transit trip segments, discussed earlier. The typical transit trip is as follows:

*Transit Trip Model  
(Transportation Research  
Board, 1996)*

Trip Segment	Decision Point
S0	Trip Planning
S1	Origin to Transit Facility Entrance/Platform
S2	Transit Facility Entrance/Platform to Boarding Area
S3	Boarding Area to Vehicle
S4	Vehicle Enroute
S5	Vehicle to Boarding Area
S6	Boarding Area to Transit Facility Exit
S7	Exit to Destination
(S8)	(Boarding Area to Boarding Area—Transit transfer)

In reality, some users trips will make trips that repeat certain trip segments or that are more complex than what is listed, depending on the type of trip taken. For example, regional trips or trips with one or more transfer points will be more complicated. However, the Transit Trip Model is sufficient for the purpose of planning and designing a signage and wayfinding system. It is true that regional linkages and transfer points must be considered in the designs, but the majority of the signing and wayfinding program for public transit, such as a bus system will be developed around the Transit

Trip Model segments. (Transportation Research Board, 1996)

Once transit behavioral analysis is accomplished, a signing and wayfinding program can be designed. Sign typology and placement are chosen based on the behavioral needs of transit riders. Influencing sign typology and placement are the type of stop or station in the context of the greater system and regional systems and the particular segment of a transit trip a rider is expected to be in. Standardized design guidelines are required to support the signage program and maintain consistent terminology, colors, symbols, sizes, shapes, and sign placement throughout the system. Uniform signage solidifies a transit system's identity, making the signage system more readable and reliable to the user. (Transportation Research Board, 1996)

### 3.3 More Than Wayfinding: Reassurance

Among a world that is technologically advancing daily, so is design and the expectations people have of it (Berger, 2009). People have learned to expect good design and clear brand identity. Identity design is an important element of designing environmental graphics (Berger, 2009).

It is essential that transportation agencies use methodical graphics that clearly identify their service. Imposition is a tool is used in environmental graphics for services such as public transportation. Imposition allows signage to stand out against competing environmental factors. This process strengthens branding power but more importantly, it makes a user feel secure because the system is easily locatable (Calori, 2007).

Signage and wayfinding should effectively execute a consistent identity; this reinforces the agency's character and helps users to instantly orient themselves amongst the layers



of transportation systems found in metropolitan areas (Calori, 2007) (Berger, 2009).

To effectively execute a consistent identity, transportation agencies must actively plan and implement signage systems. Signage put up as an afterthought is ineffective (Berger, 2009). Transportation agencies should think of signage as successful corporations do. Corporations give users a positive experience through signage and messages. Signage and wayfinding should assist customers and provide them with a positive experience (EMBARQ, 2011). Signage goes beyond identifying a transit agency, it helps a user understand their environment and feel comforted by seeing a familiar transportation option. It is up to the transportation agency to craft a message about the transit system's culture and give the customer a good feeling about the transportation agency values (Berger, 2009).

Customer experience is more than instilling a brand that the customer can identify and relate to, it is also about planning facilities in a manner that serves the customer's needs and expectations (Berger, 2009). Customers want comfort in their choices, they want feel prepared, and they want to understand their journey. Good signage systems reassure the rider and help them anticipate their travel options (Berger, 2009).

The key to effective transportation signage and wayfinding is to help the user form a mental map of the service (Calori, 2007). Wayfinding studies show that persons who are unfamiliar with the environment in which they are attempting to navigate show higher perceived levels of anxiety than when familiar with the environment (Chang 2013). If directional signage can help a user form a mental map, they will be less anxious about wayfinding because they will feel more familiar with the environment.

Different users navigate environments in individual ways; user's past experiences in wayfinding, travel, and exploration play a big role in the level of comfort that users have with wayfinding. The more experience a user has in travel, especially to unfamiliar places, the less anxious they are about wayfinding (Chang 2013).

Some studies have shown that there are differences in wayfinding behaviors between genders and between age groups. Females have been shown to have a higher level of anxiety than males if they feel they may become unsafe or lost (Chang 2013). Other studies have shown that age vulnerabilities exist as well. Elderly people have been shown to be less likely to visit unfamiliar routes than younger people (Chang 2013).

Environmental signage must be tailored to a wide range of users in order to be effective in reducing user anxiety. Transit signage systems designed with the Transit Trip Model and that anticipate expected travel behaviors can make users with vulnerabilities feel safer and familiarize them with their route. Signage enhancements can make these transit users feel more assured and thus, more likely to take transit.

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*Transantiago Bus  
Rapid Transit station  
branding and signage  
makes use of color and  
pictograms for universal  
understanding*





*LA Metro's Opposites  
Campaign markets Metro  
and reinforces the brand*



## 4.

## The Benefits of Branding Transit

Wayfinding and signage design and graphics Signage system design is closely related to branding. Wayfinding and signage design are means of branding a system and informing the user (APTA, 2010). When planning a signage system, it is important not to dismiss the brand identity of a transportation system. If the system has weak branding, it may be a good time to assess the brand and improve brand elements before investing in a comprehensive signage and wayfinding program. Signage programs should support the system's brand and enhance its image (APTA, 2010). At the same time, wayfinding should not be neglected because a system does not yet have a strong brand.

Corporations study their users so they can tailor their products and brand to the needs and values of their customers; transit agencies could benefit from the same. Transit agencies tend to underemphasize the user experience. There is a tendency to simply plan the service routes for customer needs but omit planning the holistic experience around the customer (Siikonen, 2005). A quality experience should be planned for the multiple publics using transit, the familiar and unfamiliar users. The perceived quality of the system and service is a sum of

all the interactions a rider has with the system. From trip planning, to signage and wayfinding, to ingress, riding and egress, the experience should be easy and pleasing to all the senses. (Siikonen, 2005)

The quality of the experience should be enough to entice riders to want to use transit over other modes (Nordahl, 2012). There is a general assumption in US culture that people who take the bus need to take the bus and that they have no other option. Studies and reports have shown that this is not necessarily the case.

Many people would take transit if the experience were well designed and therefore, joyful (Nordahl, 2012). Like corporations attract new customers with user-centric branding and design, so should public transit agencies (Siikonen, 2005).

EMBARQ, a non-profit planning program of the World Resources Institute, dedicated to sustainable transportation solutions argues that transportation agencies should market their services and invest in branding. We live in a competitive marketplace (EMBARQ, 2011). Currently, the auto industry spends around \$20 billion a year on advertising; in 2009, GM spent \$3.2 billion. If a transportation agency spends

close to zero dollars on advertising, then it is not competing in the market.

Transportation agencies cannot afford to miss out on branding and marketing (EMBARQ, 2011). Public transit needs to make a better impression on the public and prove its importance (Siikonen, 2005). Proper branding is an essential catalyst to improve the common, negative perception of public transit (Siikonen, 2005).

To be truly successful, transportation agency communications teams need institutional structure and dedication (EMBARQ, 2011). The chapters in EMBARQ's *From Here to There: A Creative Guide To Making Public Transport The Way to Go*, explains the structure that transit communications departments need in order to be successfully competitive. The structure is as follows: a transportation agency should have a (i) brand and identity, (ii) internal communication, (iii) user education, (iv) user information systems, (v) marketing campaigns, (vi) public relations and external communications, (vii) user feedback systems, and (viii) online engagement. (EMBARQ, 2011) Without these basic cornerstones of great branding and marketing, public transportation agencies opt out of competing in the market they are inherently apart of.

EMBARQ makes a point to say that marketing is an investment in a stronger public image. A better image can attract new riders and retain current riders (EMBARQ, 2011). Increased ridership raises revenues and demand (EMBARQ, 2011). This demand is good for the future of public transit because it can lead to political and financial support, service expansion, and further investments in transit improvements (EMBARQ, 2011). In the US, branding transit can make certain projects candidates for the Federal Transit Administration's Small Starts Program (APTA, 2010).

The American Public Transportation Administration (APTA) recommends branding transit, specifically Bus Rapid Transit systems, for several reasons in addition to becoming eligible for funding. APTA states that branding helps differentiate one service over another, influencing riders to choose the well-branded service over other options (APTA, 2010).

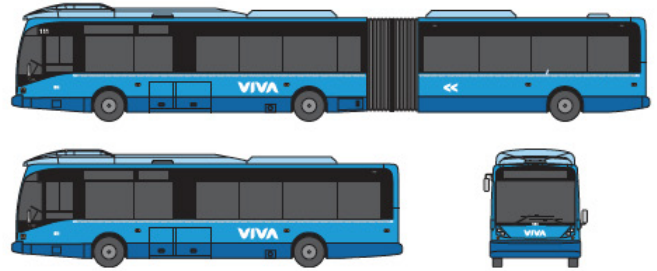
The nature of the branding process calls for improvements in outreach efforts and it involves the target audience more intentionally than usual, which can improve the public perception of transit and the relationships between the community and the transit agency (APTA, 2010). By implementing good branding techniques, a transit system can increase customer loyalty because the system will be easier to use and more identifiable (APTA, 2010). A well-branded system can also attract other economic activities to center around the service, enhancing the existing corridor (APTA, 2010).

VIVA Bus Rapid Transit  
brand design

VIVA™



YORK  
REGION  
TRANSIT



### A TOTAL BRAND SOLUTION

The VIVA BRT system in York Region, Canada created a powerful corporate brand and applied it throughout every aspect of the system from network maps and advertisements down to seat upholstery. Even the bus drivers' uniforms fell under brand guidelines: the drivers' vests used custom fabric on the back that was a hound's-tooth-style design using the VIVA logo.

(EMBARQ, 2011)



LA Metro brand



## 5.

**Branding Public Transit****5.1 Branding**

It is important that transit agencies see branding and marketing as a cyclic investment, not government propaganda. Enhancing public transit benefits the whole community, not solely the transit agency (EMBARQ, 2011). Increasing ridership with good graphical signage, marketing and branding has lasting effects on the community. Public transit users are generally healthier than auto users (Nordahl, 2012).

Public transit emits less pollution and uses less fuel per capita than automobiles, especially as technologies continue to advance (Nordahl, 2012). Using public transit is less expensive than using an automobile (Nordahl, 2012). These effects cause cost savings for the user, which can transmit to more spending in the local economy and lead to a more vibrant community. Well-branded transit corridors also increase developments along the corridor; and this adds to the economic benefits as well.

**5.2 Branding Public Transit**

Branding is a process used to attract users but more so, branding is a feeling one has about a product or a service (Neumeier, 2005). A brand is trusting and charismatic. A brand has three main functions: to navigate the customer

to choose its service, to reassure the user of that they have made the right choice, and to engage the customer, making them identify with the brand's unique and distinct imagery and language (Wheeler, 2009).

Successful brands must differentiate themselves from other services (Neumeier, 2005) (Wheeler, 2009). An important way of differentiating is to integrate the core values of the agency into all elements of the brand (EMBARQ, 2011). Another method of differentiating is to innovate, to be creative and stand out from the other services like yours (EMBARQ, 2011).

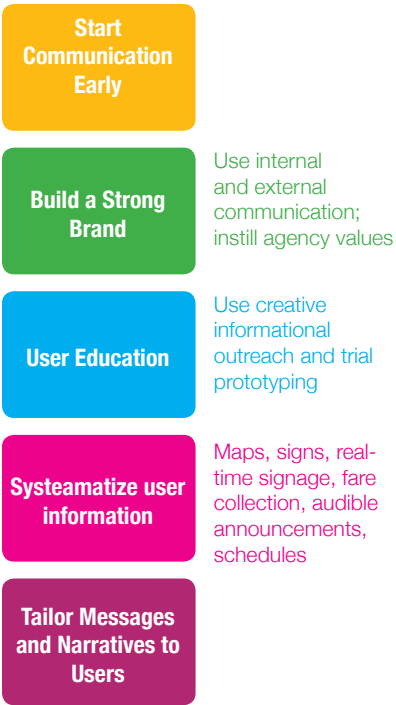
A transportation agency should identify their main values and learn about their service from the customer's point-of-view before they build a brand strategy (EMBARQ, 2011). It is necessary to know the audience in order to appeal to them (Wheeler, 2009). Furthermore, it is integral that an agency understand the complete customer experience to learn how to communicate effectively with their audience (Wheeler, 2009).

The brand identity process can be summarized in 5 steps (Wheeler, 2009). 1. Conduct research, 2. Clarify the strategy, 3. Design the identity, 4. Create touchpoints, 5. Manage assets.

While the process seems straightforward, design excellence and tenacious management skills are vital components of the entire branding process and cannot be disregarded (Wheeler, 2009). If designed and managed well, the brand should infuse into every level of the business structure; it should be apart of the image, message and the feeling that staff and customers are proud to support (Wheeler, 2009).

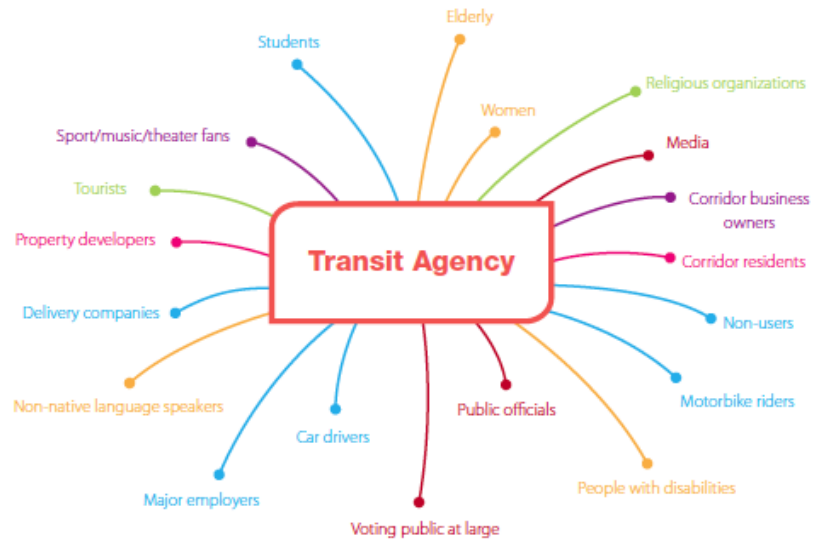
A good brand strategy does more than appeal to the customer--it inspires behaviors and employees (Wheeler, 2009). Brand strategies should be created in collaboration with the customer, the agency’s internal departments and staff, the director, and the designers or brand consultants (Wheeler, 2009). Brand strategy should align the agency’s vision and actions with the goals for the customer experience (Wheeler, 2009).

The brand strategy should lead to a big idea, something the transit agency stands for (Wheeler, 2009). All brand elements should lead to one focused message, from one voice (Wheeler, 2009). This big idea needs to be consistently supported by the customer experience for the entirety of the customer’s interaction with the service (Wheeler, 2009). It is vital that an agency stays on brand and on message to reinforce their presence and prove their importance as a transportation agency (EMBARQ, 2011).



*Tools to build a good customer experience and relationship between internal Agency staff members and between the Agency and the community (EMBARQ, 2011)*

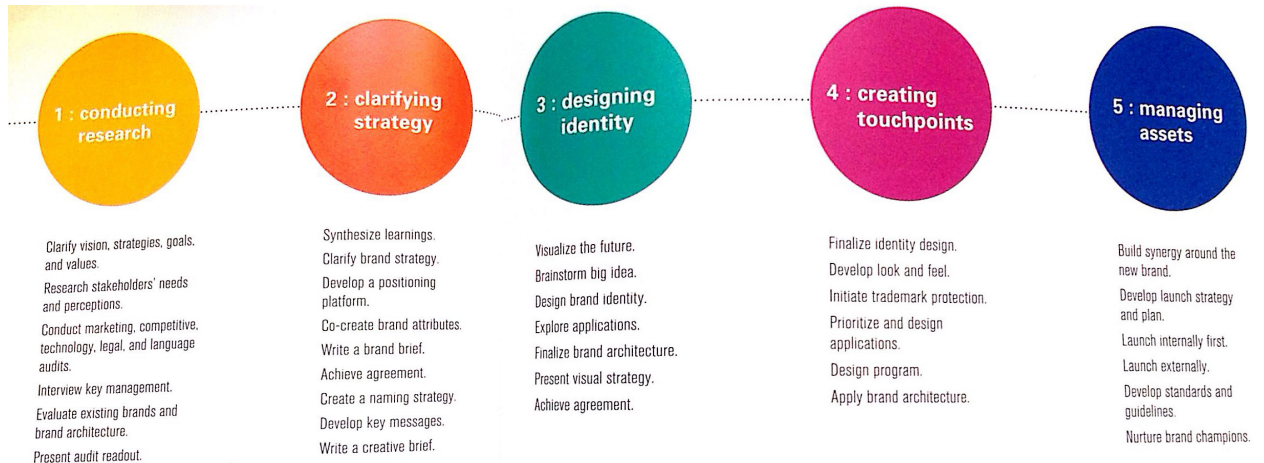
EMBARQ's messaging structure for communicating transit benefits to different publics (EMBARQ, 2011)

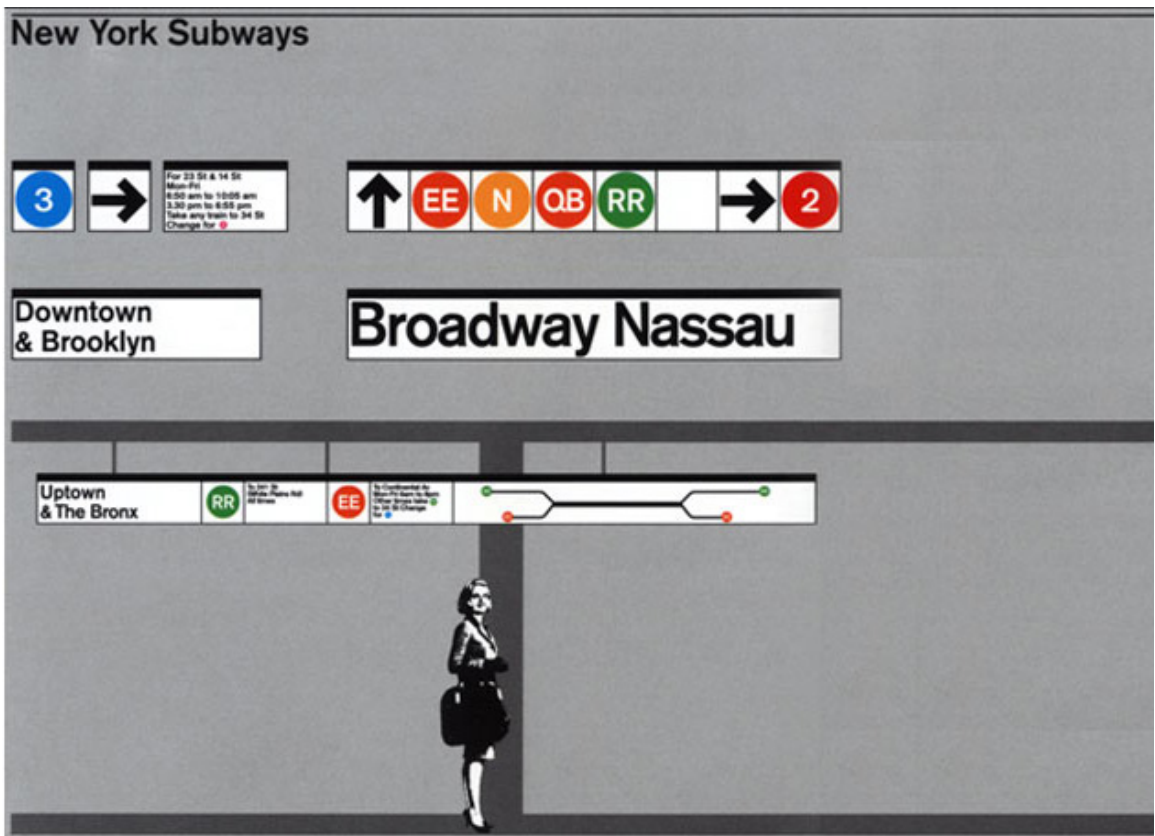


#### MESSAGES

- Jump on, jump off! It's the quickest commute.
- Worried about parking? Avoid the hassle.
- The city's economic lifeline.
- Accessible to all!
- The best spot to live is near the station.
- Your ticket to the hottest acts in town.

The Branding Process (Wheeler, 2009)





*Vignelli's first transit signage system design for the New York Subway*



## 6.

## Transit Signage Design Process

### 6.1 Contractual Relationship

In order to effectively plan a signage system, the designers must understand complexities and scale of the problem at hand. This is not possible without knowing the client, in this case, the transportation agency (Ubele, 2007). For the process to move smoothly and to develop a mutual understanding between the designer and agency, the designer must understand the business structure and have point of contact people to rely on (Baer, 2010). An agreement must be made ahead of planning between the designer and the Agency about the initial project definition, project magnitude, and the expectations of each party, as best to the parties knowledge at the early stages of partnership (Ubele, 2007) (Calori, 2007).

### 6.2 Data Collection

Environmental and information designers agree that wayfinding and signage design, like branding, must begin with research. To properly develop signage that speaks to the user, it is essential to get to know the audience (Gibson 2009). User interviews, focus groups, and user profiles are methods used to get to know the audience's needs, expectations, and affinities (Gibson, 2009) (Baer, 2010) (Calori, 2007).

Site visits must be conducted as a means of understanding the area and how people access it (Gibson, 2009). It is necessary to spend time observing and documenting circulation patterns (Gibson, 2009). This way, a designer can better learn the user patterns and needs at specific locations within the site (Gibson, 2009). During the site visit, the designer will mark locations that serve as key decision-making points, locations where general information may be required, and natural circulation routes (Gibson 2009). This map will act as a "sketch" for future signage placement and circulation route design.

### 6.3 Data Analysis

The site observations and the audience's responses will generate needs of the signage program that the designer will make into tasks that will be addressed in planning and design, and fulfilled upon implementation of the final signage program (Mollerup, 2007). The observational data collected at the site visit will create a task list of important typological signage needs and future placement (Mollerup, 2007). Analysis of the findings must be documented to support reasoning behind future decisions (Mollerup, 2007).

## 6.4 Planning

Once initial research and analysis is complete, the designer can adequately define the problem to be solved and begin a strategy in response (Gibson, 2009). With a better understanding of the project, the designer and Agency will revisit their contract. A lesson form private firms that could prove helpful to the development process is writing a creative brief, also known by some as a document of mutual understanding, to get the agency and the designer on the same page (Baer, 2010). It is necessary that the Agency understands the designer's workflow, timeline and goals for the project so as to achieve a symbiotic relationship with the designer (Baer, 2010) (Calori, 2007).

At this point, the wayfinding and signage designer should create a final map with key decision points, needed signage locations, and circulation patterns identified (Gibson, 2009). The type of signs most useful for all locations should be detailed on the map as well (Gibson, 2009). Generally for exterior signage, a designer will choose from identification, directional, and regulatory signage (Gibson, 2009) (Mollerup, 2007). In the case for transportation signage, orientation signs are also necessary. Oftentimes, cities have regulations for sign placement and station organization at transit stops. In this case, the city standards must be adhered to.

## 6.5 Signage and Wayfinding Strategy

Identification signage identifies a location, entrance, ticket booth, transit stop, monument, or building (Gibson, 2009). Directional signage does just what it states, it directs (Gibson, 2009). Examples include directing pedestrians through the use of arrows or other symbology, trailblazers, and vehicular directional signs; they can be an explanation of where an identifier is located (Mollerup, 2007). Regulatory signs represent restrictions and regulations for entrances, exits, and behaviors (Gibson, 2009). Orientation signage shows a floor plan or a map of a location to orient the user within the

surrounding context (Gibson, 2009). These are not the only types of signage but they are some of the most frequently used typologies.

In planning the site map and sign typologies, it is useful to understand what type of wayfinding strategy or combination of strategies is necessary for the site. Four major strategies exist for wayfinding (Gibson, 2009). There is district wayfinding, which divides locations by zones (Gibson, 2009). Street wayfinding identifies corridors within a greater network (Gibson, 2009). Landmark wayfinding uses major landmarks as nodes for wayfinding; and connector wayfinding connects all paths onto one central location (Gibson, 2009).

## 6.6 Design

Designing the physical signage and sign content is a major step in the planning process. The design development is a creative process and must be flexible (Calori, 2007). All signs should include innovative and consistent brand image in their design, and thoughtful company messaging and tone in the content of the signs (EMBARQ, 2011). That being said, designing is a process that should not be stifled by too many restrictions (Calori, 2007).

Designing signage should start with idea generation and sketching and should amount to many options to choose from (Calori, 2007). The designer must also consider mounting hardware, sign function, how their audience reads signs, and viewing distances in the designs (Calori, 2007) (Baer, 2010). Informal pin-up sessions of the best options should be held for many people to discuss; this is the time to become critical and assess the options. After deciding upon the best designs, messaging, hierarchy and vocabulary can be discussed and carefully chosen (Calori, 2007). After the creative design phase, economical considerations and performance of mounting hardware and materials should be assessed in detail (Calori, 2007) (Ubele, 2007). Because the design stage

is flexible, a non-linear process that revisits previous steps in this process is expected during the creative phase.

### 6.7 Programming

The designer and agency should test the product after designs are complete. Prototyping the signage to test effectiveness and beauty should be done before a final design is determined (Gibson, 2009) (Ubele, 2007).

While it may seem costly at first to prototype, it is much more cost-effective to be certain of the signage before all signs are ordered and implemented (Gibson, 2009). It is also important to test the final materials in the true context of the site to observe how it preforms in the surrounding environment (Ubele, 2007). Before final materials are selected and ordered, it is necessary to assess installation and maintenance requirements and cost (Ubele, 2007). Easy to install and maintain materials will be more cost effective as long as the materials are able to withstand daily wear and tear without frequent maintenance.

The site map will most likely go through several iterations. The final map should act as a program for implementation, therefore it must be extremely detailed (Gibson, 2009). Typically known as sign-programming documents, the final map will be complimented by a list of all the sign types used in the wayfinding program (Calori, 2007) (Gibson, 2009). This inventory of signs should include the location of each sign within the site and the message of the sign (Calori, 2007). Each sign on the map will have a unique identification number that relates to the sign list and placement location so it is clear what type of sign it will be, and so that it is individually traceable for inventory (Calori, 2007) (Gibson, 2009). Scaled, elevation diagrams of the specific signage types should also be included for illustrative purposes (Calori, 2007) (Gibson, 2009).



Paris transit maps adhere to strict branding and graphic standards. (Ovenden, 2009)



Transport for London's advertisements for destinations in London, accessible by transit. Designs follow strict guidelines and brand style. (Ovenden, 2013)

## 7.

**Precedents****Precedent I: Paris Metro**

Paris Metro graphic design, signage and wayfinding began in a piecemeal fashion. Over the years different styles came and went. A few times in the history, efforts to streamline and unify styles were attempted, though not always entirely successful. After many design unification struggles, now RATP (Régie Autonome des Transports Parisiens, in English: Autonomous Operator of Parisian Transports) the operator of transit in Paris intentionally works to make signage and graphics consistent across the system and are cognoscente of the importance of effective branding. Their recent push for implementing thoughtful design has been a success and makes their transit system intelligible. (Ovenden, 2009)

The Paris metro system started small and grew rapidly. This growth made cohesion in design challenging in a time when manufacturing technologies weren't as strong as today and graphic design was not yet in the forefront of product and system design. (Ovenden, 2009)

In the late 1800s and early 1900s Henri Guimard was hired to make subway station entrances for the Métropolitain (later shortened to Metro). He included the title of the system

in his designs, which was first instance of environmental graphics for the system. The entrances were made of decadent, organic shapes from the Art Nouveau style. The lettering that Guimard created for the entrances became popular for Metro signage. The lettering is so iconic that even to this day, people identify it with Paris Metro. (Ovenden, 2009)

Soon, signage changed to a more legible style with white, sans serif lettering on blue background. The new signs were made of enamel, later replaced for ceramic. 120 Metro stations opened within the first 10 years of operation. Different stations and directions received variations for station décor, signage and lettering. By the 1920s all stations had a candelabra with the word Metro on it to distinguish them on the streets at night. (Ovenden, 2009)

Interestingly, Metro Maps were primarily printed by department stores and used as advertising for the store. Usually the first maps were street maps with routes printed on top of the streets. Soon map designers experimented with colors, line weights and diagramming representations of the Metro lines rather than incorporating them into a geographic map. It was not until 1934





that the transit agency began diagramming and printing their own maps. (Ovenden, 2009)

Signage styles varied from station to station and year to year. The Metro and agency logos also varied over time. Some efforts to unify the system were made but maintaining all of the stations across the huge network of Metro routes and stations proved to be a daunting task. Attempts to modernize the system were made in the 1950s, but nothing really stuck until the 1960s. (Ovenden, 2009)

Given the lengthy names of some stations, Frutiger, a font designer, developed Univers Condensed to help longer names fit on one line. By the 60s, the system adopted Universe font for all signage, maintaining the blue background and white lettering as a nod to the Metro's history. Signage replacement was incremental. Usually broken or damaged signs would be replaced with the new standards but there was not an overhaul to replace all signage. (Ovenden, 2009)

The system continued to expand and spread, becoming increasingly complex with more and more information that needed to be graphically portrayed. Not only did the Metro grow, but the train system that connects to the Metro known as the RER, also added a significant amount of service. By the 70s Massimo Vignelli was contracted to rebrand the train system and improve graphic communications. He hired



Left: Informational maps are large and easy to read

Right: Simple, graphical stop lists with transfers help users find their way

Rudy Mayer to make the RER maps, which have not changed much since their creation. (Ovenden, 2009)

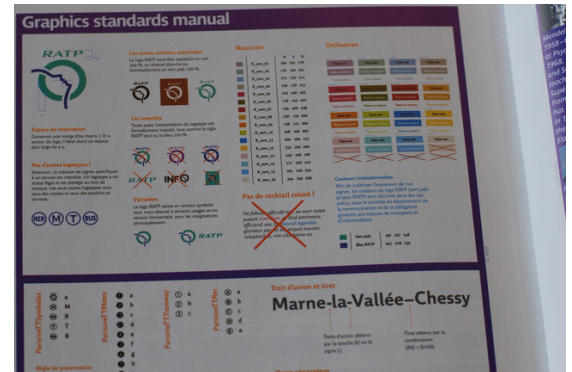
Metro signage and maps needed improvements as well. A new team, Patrice Rouxel and Yo Kaminagai worked on stylizing the map. They had settled on a new, highly legible map design, with a new font, Neue Helvetica. By 1989, the agency called for restructuring. Kaminagai became head designer and the agency adopted another logo. (Ovenden, 2009)

In the 1990s and 2000s signage systems and branding improved. The map was redeveloped once again, now the most legible of all. Kaminagai and Rouxel made the new map more compact and even more legible than before. Now they were reproducing the map in pocket size, medium format, large format, and as a tourist map--with more details of geography. They also created maps for late night service. (Ovenden, 2009)

It wasn't until the 90s that consistent unified graphic design and signage was put up across the system. Previously, lists of routes at platforms and hard to read line maps existed until recent brand changes took place. Now even platform route lists are diagrammatic and show transfer points. Local area maps with backlighting were installed outside of stations to inform riders of their immediate location around the station entrance. Online maps, mobile

Left: Next stop line maps are consistent with the graphic style and illuminate next stops

Right: RATP's Graphics Standards Manual for graphics on signage



applications, and real-time arrival systems are also in place for riders to use. Enhanced station architecture and customer amenities and infrastructure are also explicitly designed for. (Ovenden, 2009)

RATP has shown that over the last two decades, they have designed for the holistic customer experience from trip planning to destination. Since the 90s, RATP has developed a graphic standard manual, which dictates the “dos” and “don’ts” of their signage design and branding style. The new signage, wayfinding and graphic design standards are a success and received an Honorable Mention at the 2008 Design Management Europe Awards for the non-profit section (DME, 2008). (Ovenden, 2009)

## Precedent II: London Underground

Since the beginning in 1863, London Underground saw the importance of comprehensive signage systems and designed their transit system with purpose and craft. Architecture, lighting, maps and signage were planned for and implemented. During this time, the London Underground was known as the Met (for Metropolitan). (Ovenden, 2013)

In its early days and even in the mid 19th century, the Met acted as a company like any other, competitive in its marketplace. Ahead of its time, it intentionally used branding, wayfinding, information graphics and signage—

and did it better than any other transit system. The elements of design put forth by London Underground set precedence for systems like Paris Metro and the New York Subway. (Ovenden, 2013)

In the mid 1800s, the London Underground signage system was basic but it had most of the elements signage designers should achieve: consistent lighting, station name signage aboveground and belowground, and intentional architecture for entrances and stations. However, interagency joint ventures and private operators impeded the progress of planned transit signage system design. Some stations, owned by private operators, disjointed architectural styles and graphic unification. (Ovenden, 2013)

Between 1870-1890, signage and advertising were becoming increasingly important in the world. The London Underground adopted larger, more recognizable signage systems that stood out amongst a crowded street. The agency made maps as promotional tokens to highlight their service above other transit service providers in the City. This form of marketing pushed publicity and map design to be increasingly important. Maps became a successful tool to attract new customers and promote new and existing lines. (Ovenden, 2013)

In the late 1800s, there were three competing railways in London, the Met, the District and the Central London Railway (CLR). The competing railways pressured each other to design better systems in order to outcompete. Vehicle design, subway station interior decor, aboveground architecture, map design, and signage system design were among some of the elements to improve from this marketplace competition. (Ovenden, 2013)

In the early 1900s, the London Subway had finally achieved one consistent look. Wayfinding signage cues were installed and one brand identity and station “look” on the street down to the subway existed. Architectural materials, colors and signage became unified. A name and logo was chosen, one “message” was becoming apparent for the subway. An “Underground” logo was being used, and the term “Tube” (meaning subway) was decided upon as standard terminology for the agency signage. A corporate identity emerged. (Ovenden, 2013)

By the mid 1900s, trials and errors lead to many iterations of branding languages and graphic signage styles. Different operators continued to compete in the world of marketing, branding, and signage system design. Simplified maps with clear, colored lines became commonplace, as did the red and blue circular logo of the Underground. (Ovenden, 2013)

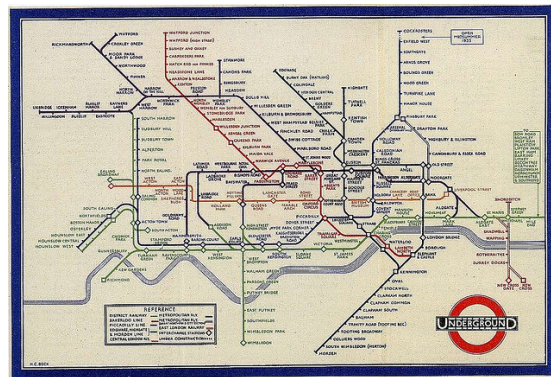
The Underground began planning the signage system around passenger travel flows. Signage systems were important more than ever before. Cartography and signage were redesigned so that they could provide the needed information, be easily legible, and graphically consistent. In 1933, Harry Beck created a map based on 45-degree angles and color-coded lines, which became one of the most famous maps in history. (Ovenden, 2013)



Top: Clear signage and strong branding, clearly designates subway entrances.

Middle: Beck's 1933 graphical transit map, already with brand identity. This map revolutionized transit map design.

Bottom: Transport for London's brand identity and messaging are so successful, they sell souvenirs.





New stations and lines were adopting the unified style of the Underground. One typeface was chosen and standards were set for signage, logos, lighting and other architectural wayfinding cues. The Underground sought to be clean, crisp and modern. A graphics standards manual was designed and implemented to systematize the signage and wayfinding design process. (Ovenden, 2013)

The graphic standards manual is updated regularly and remains as important today as it ever was. It encompasses all forms of transport governed by Transport for London: underground, “overground,” and busses; it also incorporates general wayfinding signage. The graphics of the London Underground are recognized internationally as great design and a model for transit signage systems. The graphic style fosters a sense of pride from passengers about their system. The system branding is so successful that Transport for London even sells their logo and signage designs on apparel and trinkets to locals and tourists alike. (Ovenden, 2013)

### **Precedent III: New York Subway**

In the late 1800s and into the 1900s, New York City had an array of transit signage. Most signage was made of tiles and several typefaces were present. As with many transit systems, too many sign systems existed and the user information became confusing. In 1957 a designer, George Salomon approached the New York City Transit Authority (known as the TA) and urged them to improve signage system design. He even provided design ideas and suggestions to the Authority. (Shaw, 2011)

In 1958 the TA published their first official map per Salomon’s recommendations. He designed the map based on Harry Beck’s map for the London Underground. An attempt to improve general transit signage was made around this time as well. Unfortunately, the signs

were not implemented correctly. The TA also had problems with the underground signage systems being inadequate. (Shaw, 2011)

Some signage was developed for Boston in the mid 1900s to improve the confusion in the subways. At that time the 1964/65 World’s Fair pressured the TA to advance its signage system and environmental design. The TA held a competition for a new map and commissioned a new logo. The head of the Planning Commission judged the contest; he declared that the maps were too complex for the public. The contest was not a success and finally, the TA hired Unimark International (co-founded by Massimo Vignelli) to guide the new maps and signage system. (Shaw, 2011)

Unimark created a basic, modular signage system with uniform typefaces and type sizes. The TA did not have the funds to pay Unimark for more than the basic signage designs. Therefore Unimark did not oversee implementation and the TA did not acquire graphic standards manual from Unimark. Instead the TA took the advice from Unimark and proceeded to attempt implementing the designs through their own sign shop. The result was that sign shop misread the designs and did not automate the signage fabrication process. The signage system turned out messy and not as intended by Unimark. (Shaw, 2011)

The new signage system was not supported fully throughout the whole subway system and some vehicles had not been updated to match the new subway lettering, leading to more rider confusion. The lack of a fully implemented signage system caused trouble. While the signage system was designed to provide wayfinding cues throughout the user’s trip, some signs were missing. The TA failed to implement a unified and coordinated signage system as recommended by Unimark. (Shaw, 2011)

By 1968, Unimark was rehired. This time Unimark was allowed to design a complete Graphics Standards Manual, which set standards for the new signage system. They were also allowed to oversee fabrication and implementation. (Shaw, 2011)

In 1980 the TA completed an informal update to the 1970s Graphics Standards Manual. At this time, the diagrammatic map, initially designed by Vignelli was determined not to be geographically correct enough for public use. Additional changes were made to reflect service hours of routes on maps and signage. The original signage with black type on white backgrounds was reversed to white type on black backgrounds to reduce the need of frequent maintenance. In 1984 the TA hired Hertz Associates to complete a formal update to the Manual. (Shaw, 2011)

In 1989 another manual-- the Sign Manual, developed by the New York MTA (Metropolitan Transportation Authority,) created standards for signage for the TA, Long Island Railroad, and Metro-North Commuter Rail. This manual took elements from past standards and interjected some new standards such as a change to Helvetica from Standard typeface, new sign sizes, adding colored bands to signs, and dropping the modular system. (Shaw, 2011)

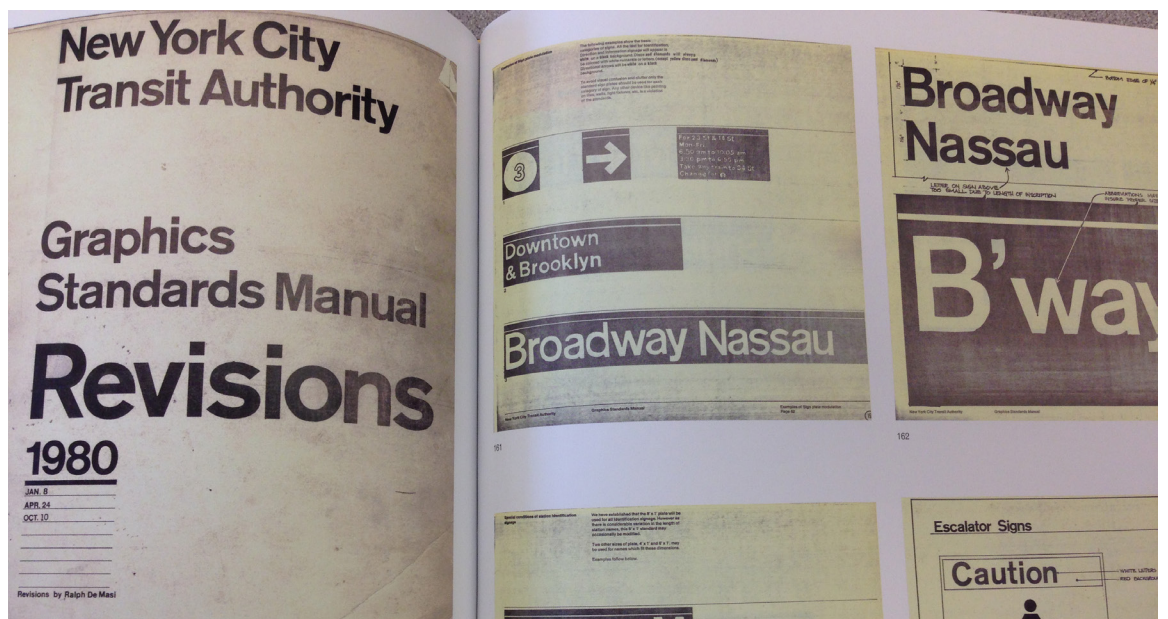
In 1994, the MTA received a new logo to symbolize the unification of multi-modal transit. Electronic fare cards were introduced and with them came a revision to the Sign Manual. Not only was the manual revised but also a new in-house communications document titled Service Identity Manual was created to include guidelines for MetroCards, stationary, maps, kiosks, booths and vehicles. (Shaw, 2011)

The signs of New York transit continue to become more and more unified as station renovations occur. However, some inconsistencies still plague the unified signage

system. Temporary signs are often made to fix short-term problems, these signs usually are not taken down in a timely manner and clutter the existing system. Matching the technologies of LCD and LED signs to the graphic standards set up for the system has also been a challenge. The signage manuals have been helpful when stations and transit modes undergo renovations and improvements. (Shaw, 2011)

Top: New York City Subway signage has a unified and recognizable identity. The white letters stand-out against the noise of the subway activities.

Bottom: Unimark's revisions to the first Graphics Standards Manual. (Shaw, 2011)







*Transport for London's style is unified and identifiable. Special advertisement boxes make Transport for London's own advertisements stand-out over the paid advertisements.*

## 8

## Lessons Learned & Best Practices

### 8.1 Lessons Learned

#### 8.1.a Paris

Paris was a system that went from incremental fixes to holistic changes. At first, changes were small and not unified throughout the system. It wasn't until the 1990's that Paris' system became all-encompassing. The signage, maps, and brand became stylized in a unified way. Paris hired a team of experienced designers to lead the transition from piecemeal fixes to a comprehensive signage and branding program. They now follow a graphic standards manual for new signage. They continue to redesign and improve upon the existing signage system. The signage system is well-designed, organized, and legible.

#### 8.1.b London

Since the beginning, London's underground has been a leader in signage and transit branding. They have a unified signage style, a strong and identifiable brand, and they even market their transit. They have worked with a graphics standards manual since the early days and continue to improve upon the manual. The manual is extensive, covering multiple modes of transit signage. They consistently improve upon the manual, making additions and revisions to it. Transport for London has a team of designers

dedicated to making the transit legible, stylistic, and unified.

#### 8.1.c New York

When New York first decided to hire a group to improve signage design and legibility, they did not have the funding or staff to support the changes or follow-through with proper implementation and monitoring. Design improvements were incremental until they finally had the ability to hire consultants to design, make revisions, and oversee implementation. A signage standards manual was developed to assist the process and guide future signage. While, signage is fairly unified, graphically pleasing, and legible, the system still faces some piecemeal fixes. Different municipalities govern different transit modes and passenger information, leading to less unification than the preceding systems.

### 8.2 Best Practices

A signage system must be **planned for the transit trip user and their travel behaviors**.

A signage system should be **planned comprehensively** and include all types of passenger information that will be present in the future.



A signage system and the environmental design of the transit infrastructure should **make users feel safe and comfortable**.

A signage system should be **identifiable, attractive, unified, and readable**.

A transit mode and its signage system should have a **recognizable and value-driven brand**.

A transit agency should have the **institutional organization to plan, design, implement, monitor, and update the signage system** or employ those who can complete these tasks for them.





# Part II. Van Ness Bus Rapid Transit Signage System Design Proposal

# 1.

## Introduction

Part I introduced findings from literature about the importance of designing signage systems with purpose and for the benefit of the user. The findings will inform the planning and design process presented in Part II. Part II develops example strategies for a signage system for the proposed Van Ness Bus Rapid Transit route in San Francisco, California, using the principles discussed in Part I.

The Van Ness Bus Rapid Transit (Van Ness BRT) route will span a 2.2-mile stretch on Van Ness Avenue between Mission Street and Lombard Street. Van Ness Avenue is a major thoroughfare in San Francisco; it is part of the US 101 regional highway system and it is an important leg of San Francisco's transit network. The transit system in San Francisco is commonly known as Muni (for Municipal Railway,) a name that took hold well before the San Francisco Municipal Transit Agency (SFMTA) was formed. Muni is operated and maintained by the SFMTA. Muni is composed of bus, subway, light-rail, and historic streetcar and cable car services. (SFCTA, 2013)

The signage system design proposed in Part II would service the future Van Ness BRT Corridor. The Van Ness BRT route will be the first BRT system to be implemented in San Francisco.

This is a perfect opportunity for San Francisco to showcase a holistically designed signage system and new branding strategies. This senior project is meant to present an example of the opportunity available to make Van Ness BRT a model in transit signage system design and transit branding.

The Van Ness BRT signage system could also serve as a pilot program for the entire Muni system. The Van Ness BRT signage system could eventually be implemented across the remainder of the system, especially any future BRT projects. If the signage system design and branding proposal is well received, it would be recommended to develop a comprehensive signage and branding design standards manual for San Francisco's BRT and eventually for the entire Muni system. This would create unity among information, signage design, and branding and ultimately improve the user experience.

Chapter 2 in Part II describes the methods for data collection. Chapter 3 analyzes the data. Chapter 4 explains the Muni system signage context. Chapter 5 shows Van Ness BRT signage system designs. Chapter 6 explains the next steps for Van Ness BRT design implementation.





*SFMTA's transit shelter is attractive and identifiable, however, the system map is difficult to read because it presents too much information on one map*



## 2.

**Problem Description**

SFMTA operates the Muni system, which serves about 222 million riders a year. The SFMTA manages a fleet of about 1,000 vehicles, many of which they will be replacing in the next few years. SFMTA maintains approximately 3,500 on-street Muni stops and 4-Muni-only subway stations and share 9 stations with Bay Area Rapid Transit (BART.)

It has been a challenge for the SFMTA to update all vehicles, bus stops, platform stops, and stations with the newest Muni signage style. It has also been difficult to keep up with basic Muni system wear and tear. The newest Muni signage has populated much of the system but there are still many old, outdated signs present in the system as well. Thus far, the Agency does not have a way of tracking the age, location, or types of signs within the system.

Maintaining and updating the Muni stock is a challenge for budgetary and staffing reasons. The Agency prioritizes making capital improvements and service enhancements with the budget, as they should. However, with the new Bus Rapid Transit (BRT) mode being introduced, San Francisco has the opportunity to apply for new funding sources that could

allow for assistance with signage and branding design. BRT is a rapid service similar to a subway, except it uses buses and designated bus lanes for its service rather than trains and tunnels. New funding sources that come with projects like these could be used to create a complete Signage Standards Manual, a signage maintenance program, rebranding, and some signage fabrication. Allocating a team of staff members to oversee and manage this type of overhaul would be an added cost. The project would require ample staff time to complete properly.

According to the BRT Standard (a rating system for Bus Rapid Transit routes,) signage systems, branding, and station design all gain BRT routes points towards the rating. The ultimate goal of the BRT Standard is to set international best practices for BRT design and to compare BRT systems with one measure. The Standard rates them as gold, silver, bronze, or basic based on the points earned. The BRT Standard advocates for well-designed BRT systems and encourages comprehensive signage systems and branding for BRT. If SFMTA follows the standards, Van Ness BRT could be an exemplary model for BRT in the nation.

Each vehicle, stop, and station communicates a message to Muni riders. The overall look and feel of the system sends a message about Muni's service, as does the types of information displayed. When information is confusing or missing, as is the case with some Muni signage, users get a negative impression of the system. It is important that Muni riders can easily understand how and where to ride in the vast, multi-modal system and that they can quickly locate themselves within the system. Understanding these basic components helps riders feel comfortable and makes them more likely to return to public transportation in the future.

In addition to the general transit system, SFMTA is introducing a completely new form of transit to San Francisco with Van Ness BRT. The system design for Van Ness BRT should be planned as a unique rapid route within the larger Muni system but it should also look and feel like it is still apart of the larger system. With strong signage system planning, ahead of route construction, it is possible to make Van Ness BRT a starting place for a systemwide transit signage design standard and maintenance program.



Unlike London, Paris, and New York, SFMTA's transit signage is not unified. Many differing styles exist in the system. The signage does not present one, strong identity.



*The yellow bands do not look like typical transit signage, they do not relate to Muni colors, nor are they easy to locate.*





## 3. Methodology

### 3.1 Strategy

Understanding the users' opinions about the transit system and how they interact with the system, are arguably the most important pieces of data to collect. Because of the sensitive nature of this project in San Francisco and the Agency's recent dedication to high profile changes, a complete assessment of user opinions and assessment of real-user needs was not met by this senior project. In the future, it is highly recommended that the SFMTA preform a full public outreach campaign during the planning process and before deciding upon final signage and infrastructure designs.

For the purpose of this stage in the design process and in the SFMTA's endeavors, only two methods were used to collect user data. Ideally, when a full outreach strategy would be planned, triangulation would be used to collect information about Muni users and their preferences. Triangulation is the process of using multiple methods of collecting information (Iacofano, 1991).

Triangulation helps a designer understand the user more holistically because they are using multiple approaches as opposed to one. Triangulation is an integrated strategy that gives

more credibility to the information collected because it neutralizes the weaknesses of any one method by combining the strengths of multiple research methods (Iacofano, 1991).

### 3.2 Methods & Instruments

#### 3.2.a Online Survey

Online surveying is a method used to achieve responses to desired questions. As with all methods, there are strengths and weaknesses of the online survey. It is a useful tool for gathering anonymous responses at the leisure of the respondent. The potential disadvantage is that users must know how to operate a computer, have connection to the Internet and be willing to respond. Distributing surveys to the correct target audience can be challenge because the surveyor must have access to the respondent's e-mail addresses or be able to catch the respondent's attention by strategically placing a survey online.

An online survey was conducted to gather a general sense of the types of transit signage users prioritized and which types they found to be most helpful. The survey was distributed twice by e-mail to the City and Regional Planning Department at Cal Poly. The e-mail list was easy to obtain. Other efforts to acquire



e-mail lists were unsuccessful. Unfortunately, the results are skewed to a certain type of user rather than the general transit user, who would have many levels of understanding of urban environments.

The survey showed images of different types of on-street and in-vehicle transit signage. It asked users to rate the usefulness of the signage and then to rank similar types of signage in order of importance.

This allowed the respondent to determine whether a sign was useful and then to rank the usefulness of the signs by prioritizing them. Asking the respondent to prioritize signage put the respondent in the signage system designer's role by allowing them to make the decisions a designer would need to make when choosing sign types. The benefit of having a respondent decide priority is that unlike a designer, they are choosing in terms of pure usefulness and not influenced by monetary or feasibility contexts.

### **3.2.b Behavior Mapping**

Behavior mapping is a method of systematically observing user behaviors and their interactions with transit signage. Different stops along Van Ness were observed during peak times. Peak times were chosen for the high ridership times, so as to provide the observer with more subjects for observation in a short amount of time.

Both northbound and southbound stops were observed. Choosing varying stops along the corridor is meant to maximize the types of users that would be affected by future bus stop changes. Ideally in the future, a more expansive data collection would occur, stretching the time period for collecting data over different weeks and months to gather as much data from differing weather conditions, work schedules, and other factors that could impact user behaviors. However, due to time constraints, behavior mapping was only practiced on several

peak hour evenings over the course of a week between December 27th and January 3rd.

Trip making decisions are influenced by the information presented at transit stops. Behavior mapping is a way of documenting the user's actions. Users who on-boarded a bus were recorded as well as users who left before a bus's arrival. The information collected shows which signs are most useful to a user's trip based on the percentage of user's who viewed the signs and those who changed their trip behaviors after looking at those signs. The data collected from observing user behaviors will influence signage types, sign information, and sign placement for future stops on the Van Ness BRT corridor.

*Tally sheet used  
to record user  
behaviors*

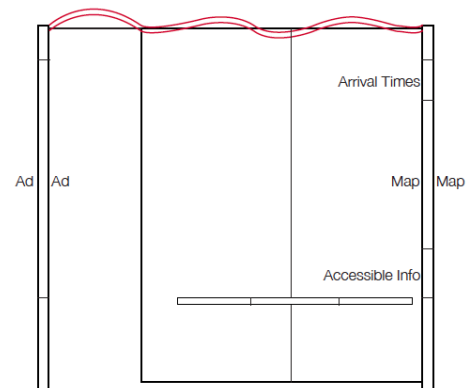
## Behavior Mapping Tally Sheet

Date: \_\_\_\_\_

Time: \_\_\_\_:\_\_\_\_ - \_\_\_\_:\_\_\_\_

Location & Direction: \_\_\_\_\_

Legend	
○	Person standing
⊗	Person looking on phone
⊙	Person sitting @ shelter
⊗	Person reading Muni sign
⊙⊙	Group of people socializing
—	Path of travel
?	Person questioning trip info
#.##	Approximate wait time
LBA	Left before bus arrival





## 4.

## Data Analysis

### 4.1 Online Survey

The online survey yielded 55 responses. Because of the limits to access to a wide range of respondents, the respondents are primarily young and familiar with transit. About 53% of respondents were between the ages of 18-24 and 42% were between the ages of 25-34 years old. 67% claimed they take transit often; and 27% take transit occasionally, the remainders take transit very rarely.

When asked to prioritize which types of on-street signage respondents thought were most useful, digital real-time arrival signs ranked highest. The second highest were stops with static city maps showing transit routes, route numbers and the stop name signs. The static route map and stop name rank last.

This shows that riders feel that up-to-date, digital information is most useful. After which, obtaining the most information available through signage without the use digital options, were found most useful—as in a city map showing routes and. The signage with the least amount of static information was ranked last.

When ranked, route line maps and local area walking maps both ranked about the same position with an average ranking of 1.51 for

route line maps and 1.49 for local walking maps. This shows that both maps are helpful, and contextual trip information will ultimately be the deciding factor for which is most necessary, or whether both are useful at one stop.

Respondents preferred digital in-vehicle signage, showing the next stops on the route over the static sign with the transfer points printed at each stop. One respondent suggested in the comments section to provide transfer information on the digital next-stop route sign to make up for the lost information from the printed sign.

It is important to note that not all transit stops need all the information possible. The amount of information needed is dependent on the trip segment, trip behavior, and the environment of the stop location within a path of travel. For instance, at a stop where no transferring routes exist and where there are only very local amenities nearby, much less information is needed than at a stop where many decisions may be made, as with a regional transit and local transit junction. The responses from the survey will aid in deciding on sign types at areas where more transit information is required.

## 4.2 Behavior Mapping

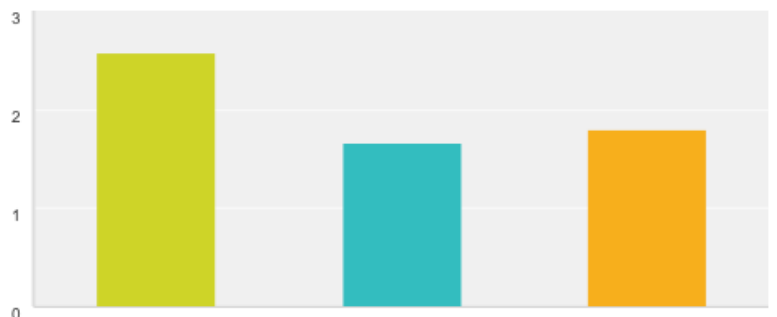
A total of 173 people were observed during the behavior mapping observations. While observations were completed during evening peak periods, they were also completed around winter holidays; therefore, the sample size is expected to be smaller than what may occur during a typical workweek. The data from this group of people shows the behavior of Muni transit riders at stops along the Van Ness corridor. The locations where data was collected were: Van Ness and Market, Van Ness and Grove, Van Ness and McAllister, and Van Ness and Eddy.

The most significant trend with the peak period users was users checking the digital real-time arrival display. In general, about half (49%) of all Muni users used the digital real-time arrival display to inform their trip behavior. In some instances, Muni riders left the stop before the bus arrived, after checking the digital display. This indicates that the user decided to alter their intended travel route based on the displayed arrival times. In most cases, Muni riders remained to wait for the bus even after checking the digital display.

Only two groups of Muni riders, totaling 7 people checked the static printed Muni system route map of the total 173 observed. The small proportion of people checking the printed map is expected because of the nature of peak period travel being mostly comprised of users who are very familiar with the route they are taking. Therefore, familiar riders do not need added information that systemwide maps provide.

## Example Questions with Responses From the Online Survey

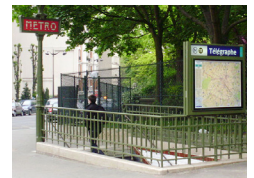
**On-street experience: Please prioritize the usefulness of each type of on-street information from most (1) to least (3) important.**



Real-time arrival signs without stop name



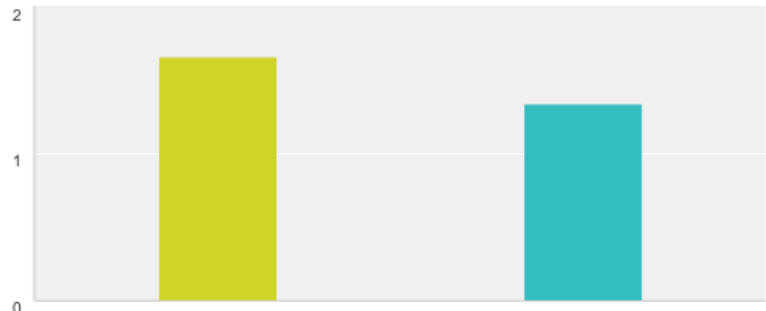
Static route map and stop name



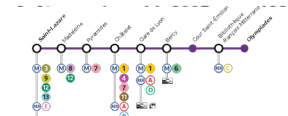
Static city map with route map and stop name



**In vehicle experience: Please prioritize the usefulness of in-vehicle trip information from most (1) to least (2) important.**

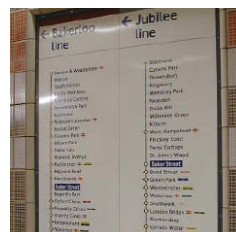
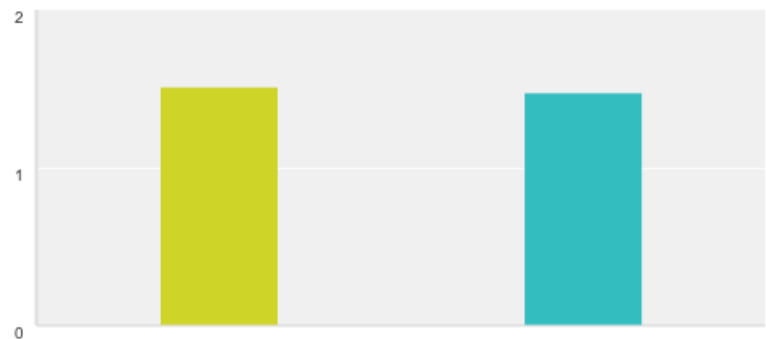


Digital route maps that show the next stops

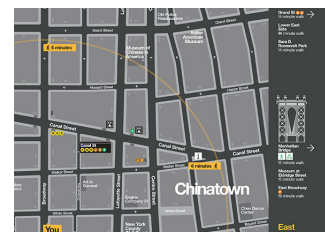


Printed line maps that show transfer points

**Please prioritize the usefulness of each map from most (1) to least (2) important.**



Route line map with destination information



City walking map with stop locations and route information



## 5.

## Van Ness BRT Signage System Design Proposal

### 5.1 Introduction

The Van Ness BRT Signage System Design will provide example signage systems and branding styles, which could be used to influence a Van Ness BRT or systemwide Muni design standards manual. It provides the types of signage system design discussed in Part I and from the Data Analysis section. It will provide an example programming list, which could be used for an implementation and maintenance program.

The data shows that passengers would like the maximum amount of information when given the choice, and above all, they respond very well to digital real-time-arrival display signs. While the maximum information is not always necessary, it is recommended to provide ample information at junctions and on rapid routes. APTA, EMBARQ, and the BRT Standard all recommend maximizing information at BRT stops. Maximizing information will also ease the transition from the use of local buses to the new form of rapid transit in San Francisco.

The passenger information recommended for Van Ness BRT, is real-time arrival displays at all stops, systemwide maps showing one's location within the system, and BRT route

maps. At stops where there are multiple transfers towards many directions, a local walking map with all transit stop locations and route information is recommended.

#### 5.1.a Informational Signage System

The passenger information recommended for Van Ness BRT, is real-time arrival displays at all stops, systemwide maps showing one's location within the system, and Van Ness BRT route maps. At stops where there are multiple transfers towards many directions, a local area walking map with all transit stop locations and route information is recommended in addition to the system signage.

### 5.2 Overall Considerations

The overall signage system uses the Corridor Wayfinding Strategy. All signage and environmental design is planned around the Van Ness BRT corridor. Identity and orientation sign typologies are used to identify the stops and to orient the user. Orientation signs are primarily designed to inform the user about the Van Ness BRT corridor. Orienting the user within the Muni system as a whole is secondary to the Van Ness BRT corridor orientation signage.

The same red that is presented in the SFMTA logo (C:0, M:87, Y:80, K:0) was chosen to represent Muni. Muni already uses red as a defining color. Choosing the same red would make it easy for SFMTA to show that Muni is part of their holistic brand, which also serves other modes of transit. The bright red gives Muni a bolder brand identity and provides context within a bigger brand at the same time.

Muni uses the Univers font family. Univers is a readable sans-serif font that is common among transportation signage. Maintaining the same font family is perfectly acceptable for Muni. However, mixing two fonts or choosing a font that is less common among transportation systems could develop a more unique brand identity for Muni.

### 5.2.a Flag Sign

The flag sign is an identification sign typology. It is developed to provide the user with a description of the service provider, the location of the stop, and the routes served by the stop with their destinations. The design was intended to simplify and streamline the amount of information presented in a small space.

In the example flag signs, two font families were used. In one, Univers Condensed was continued throughout the whole sign for its narrow features, keeping the sign free of excess clutter. In the second, Avenir was used for route numbers, as it is a wider and simpler font, making the numbers stand out while Univers was maintained for the informational text.

Two options were provided for the Muni logo to show the comparison between a distinctly rapid identity and a general Muni identity. The BRT Standard and APTA recommend branding BRT systems with a BRT-only brand. In the case of Muni, Van Ness BRT will continue to be integrated within the Muni system and will not be a completely separate BRT system as is such with some agencies. Therefore, it could

have its own Rapid brand logo or acquire the overall system brand. However, the station design, and if possible, the bus livery, should provide a unique environmental identity for Van Ness BRT that differentiates the BRT corridor from the general Muni system.

Left: Newest Muni signs. Vertical organization of route numbers can feel overwhelming to the user when many routes are shown. Muni logo can be difficult to read when made small and is being viewed from a distance.

Right: Old Muni Metro identification sign style, still used today.

These styles are two of the most prominent Muni branding styles that are on-streets today. Others exist. Multiple visible brands create confusion about which service is Muni service.



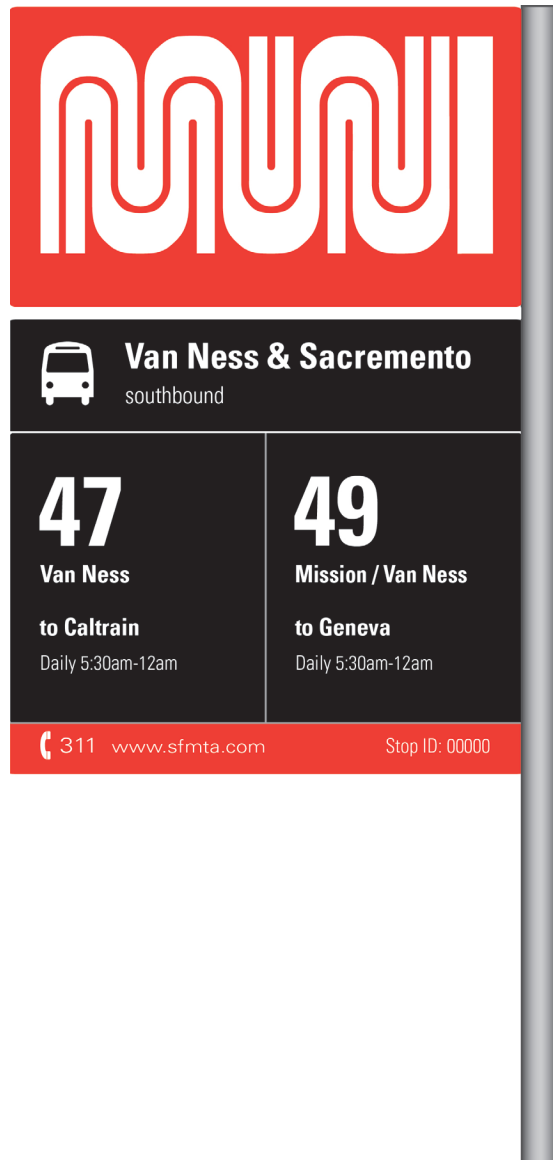


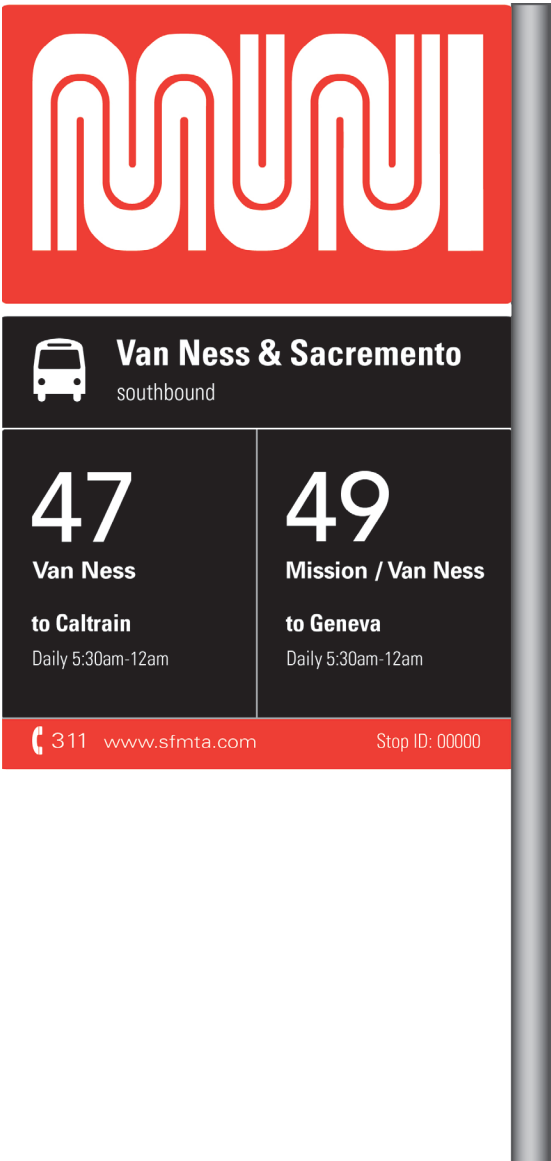
*Left: A standard Muni sign, using all Univers Condensed typeface. Modular sign for easy replacement of any one sign segment.*

*Middle: A Standard Muni sign with Avenir route numbers and Univers Condensed for the body.*

*Right: A Van Ness BRT sign with a BRT branded logo and Avenir typeface throughout.*

*The signs provide examples of what a strong Muni brand could look like. The designs are not final, elements could be mixed and matched.*





### **5.2.b Route Map**

The route map simplifies the route and provides transfer information to synthesize the most important passenger information and make it more directly readable than a system map. It is used for abstract orientation, orienting the user to the Van Ness BRT corridor context, rather than the systemwide context.

### **5.2.c Local Area Map**

The Local Area Map orients the user within the context of a small walkable area, including transfer points to additional transit options. The local area map is especially recommended for the Van Ness and Market station. This station has the most transfer options along the route and many stops nearby are not located in the same place. The example map for Van Ness and Market shows all transit routes and the boarding location for each form of transit.

### **5.2.d Digital Displays**

The existing LED digital displays at Muni stops could be used for Van Ness BRT shelters. In the Behavior Mapping observations, it was noted that users had to make an added effort to view the displays because they are located within the shelter; one must walk inside or near the inside to view the display. This is not ideal for the Van Ness BRT platforms, which will be located in the center roadway. Thus, it is recommended that displays be located on the inside and on the backside of the shelters to allow for viewing from the crosswalk or sidewalk.

*This local area map focuses on transfer points to other transit lines at Market Street. It clarifies to the user where transit stops are located.*



## Local Area Transit Map

Van Ness & Market



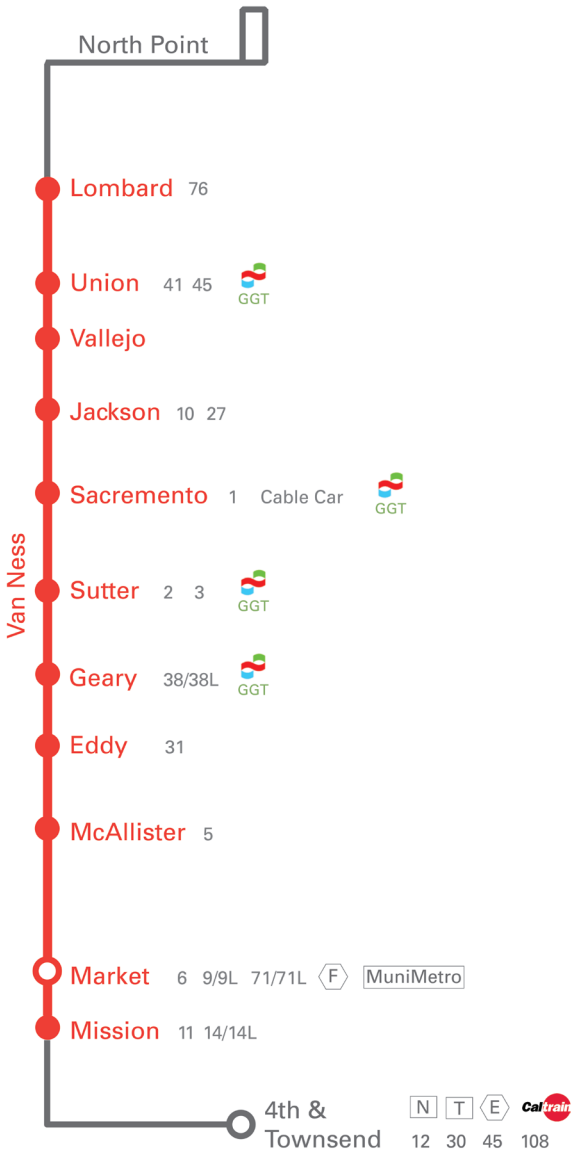


# 47 Van Ness Rapid

## Van Ness & Sacramento

Left: Route 47 Van Ness BRT rapid line map, showing the rapid route integration into the local route service and transfer points along rapid segment.

Right: Route 49 Van Ness BRT rapid line map, showing the rapid route integration into the local route service and transfer points along rapid segment.



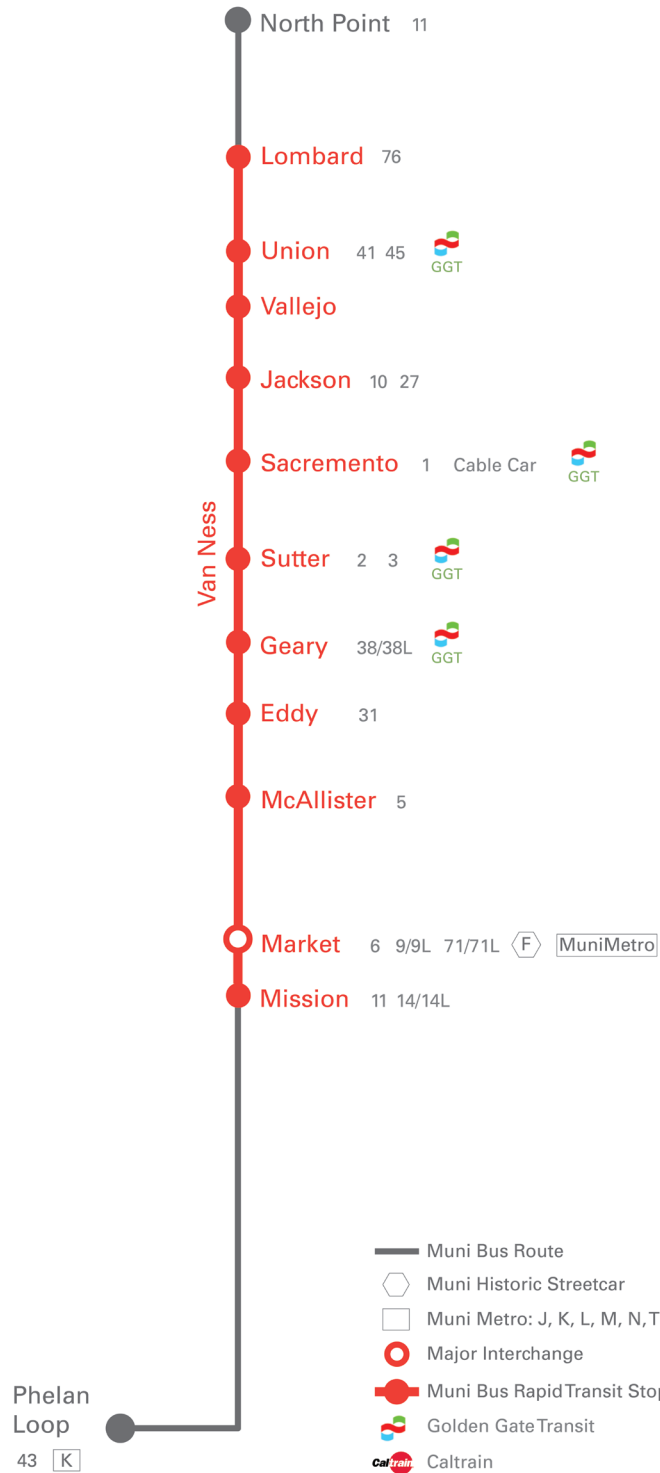
- Muni Bus Route
- Muni Historic Streetcar
- Muni Metro: J, K, L, M, N, T
- Major Interchange
- Muni Bus Rapid Transit Stop
- Golden Gate Transit
- Caltrain





## 49 Van Ness / Mission Rapid

### Van Ness & Sacramento



### 5.2.e Station and Vehicle Branding

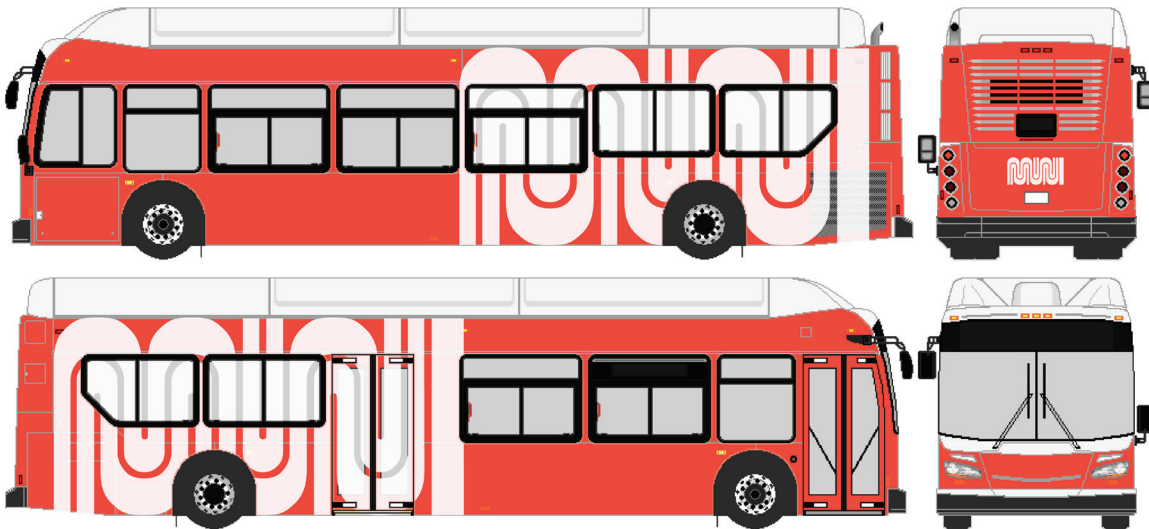
Three options were designed to showcase prominent branding through architecture and environmental design. The shelters and barriers were designed to give a sense of movement or moving forward, a feeling that should be associated with rapid transit such as at Van Ness BRT. The bright Muni red embellishes the shelters and colorizes the barriers, connecting the BRT platforms to the style of the existing Muni shelters. The flag sign, real-time displays, systemwide map, and route map are shown in context of the boarding platform in the designs.



*Muni transit shelters are identifiable and have an interesting design.*

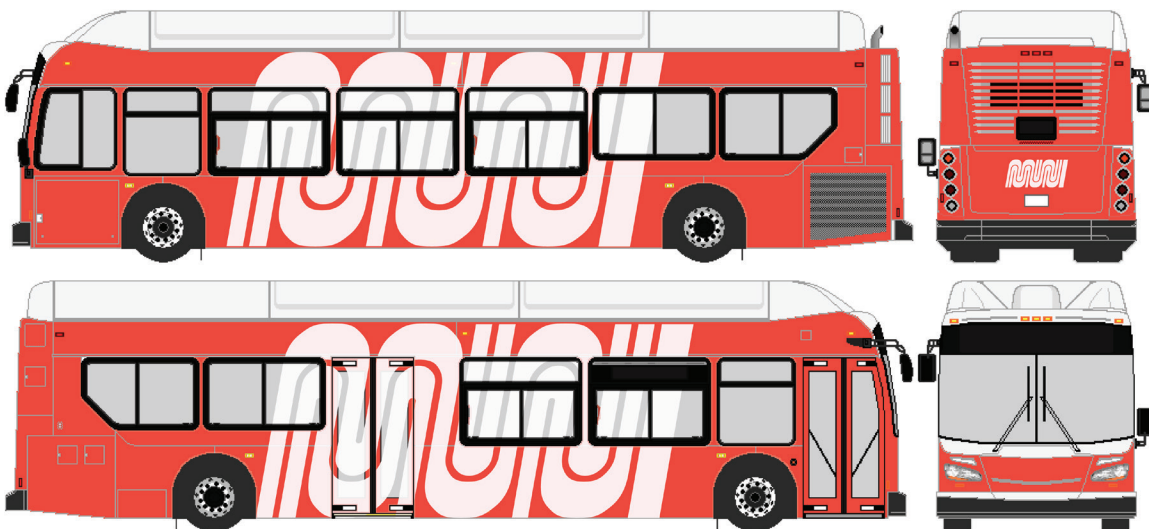
*Muni buses have a unique look, however the Muni logo is small and it is difficult to identify who the service provider is.*

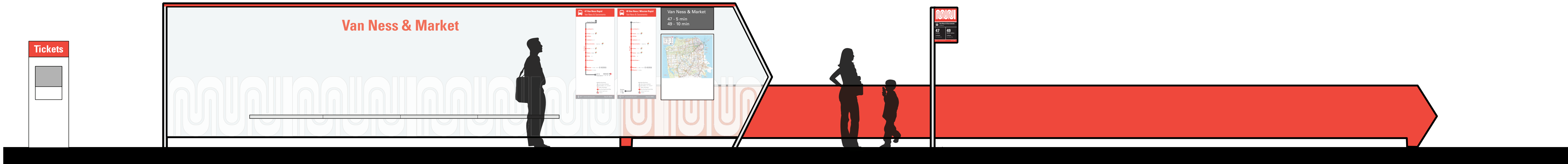




*Top: Muni bus branded to make Muni's service stand out. Could be used for systemwide Muni bus service or BRT service only.*

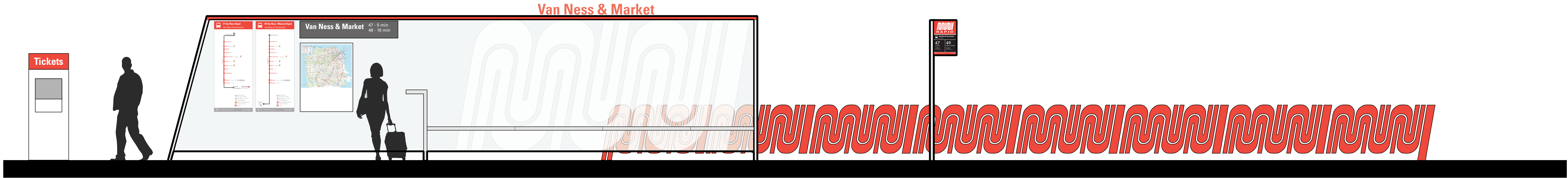
*Bottom: Muni bus branded for Van Ness BRT with a slanted logo, to give the Muni logo more movement.*















Van Ness & Market

Van Ness & Market  
47 - 5 min  
49 - 10 min

**47 Van Ness Rapid**  
Van Ness & Sacramento

**49 Van Ness / Mission Rapid**  
Van Ness & Sacramento

**Muni**  
**RAPID**

47  
49







# 6.

## Next Steps

While Muni does have some well-designed signage, stops and vehicles, it does not have one identifiable and unified system or brand. To achieve the goal of creating a bold and recognizable system like London, Paris or New York, extra actions would need to be taken.

First, added data collection should be expanded to include a large sample size of Muni users. The data would further inform the types of passenger information that best suit Muni users. Data should also be gathered from Muni users to help the Agency create a brand that speaks directly to Muni users and that stands out among the other transit agencies serving San Francisco.

A Graphics Standards Manual would have to be crafted. A group of staff members would need to gather to list all types of signage and passenger information, including pamphlets, fact sheets, and temporary signage. Ideally, the same group would oversee the design and planning process for the signage and branding system. One standard should be developed and documented that regulates layout, color scheme, typeface or group of typefaces, spacing and type sizes, vocabulary, logos, and the like.

An overall Muni or Muni BRT brand should be created as well. Along with this process, internal and external stakeholder outreach and education would need to be accomplished. Creative messaging with friendly tones should be written for reoccurring signage, such as announcements for construction work, service delays, temporary stop closure, temporary re-routing, and more. Advertisements such as portable pocket maps or posters, advertising destinations by Muni, could also be developed during this stage. Finally, all language and imagery must support the Agency values and speak to the Muni user.

The final signage designs should be prototyped with the proposed materials for assurance that the designs are appropriate for the true materials. Any decided alterations should be made and tested again.

A programming list, designating each sign, its typology, and exact location within the signage system should be made. This should be processed in a database, accessible by the staff overseeing the signage implementation and evaluation. Installation dates and expected maintenance schedules should be attached to each sign in the programming list to streamline

post-installation monitoring. The designers and Muni staff should oversee implementation to ensure signage is being fabricated and installed properly.

Finally, all signage should be evaluated after installation for user effectiveness and physical quality. This step should be well documented and revisions to the Graphics Standards Manual should be addressed as a result of the findings.





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