GENERAL INTRODUCTION

The Massachusetts Bay Transportation Authority has found it both necessary and possible to concentrate attention on the complex needs of people. Programs to improve service must now include a new emphasis on the quality of the transportation experience. In effect, transportation engineering has been joined by human engineering and environmental design.

This manual provides a framework for the continued coordination of all those elements in the system that affect human comfort.

Many of the criteria involved are common to all environments, such as the control of light, noise, humidity, temperature, wind, and odors, or the need for orderliness, through clear and easy circulation and clean appearance. Other criteria that are more specific to the transportation environment are such needs as safety, traffic handling capability, spatial variety, consistently available information, and orientation.

The most important single criterion that has guided the preparation of this manual is the need for orientation. The rider must not only be physically comfortable, he must also know in the fullest sense where he is and where he is going.

Since to the layman a public transportation system is to a large extent an invisible skeleton of the city and metropolitan region, the comprehension of that structure generates an awareness and appreciation of the city itself, and an appreciation of travel through it.

There are many aspects to achieving this orientation. Circulation at all points must be direct and open. Spaces should relate visually to their surrounding environment, either through direct openings to adjacent spaces and structures, or in the case of platforms, by graphic reflection through photographic murals.

Above all, the need for orientation places great emphasis on maps and a consistent system of identification and directional signing. Graphics then emerges as a major factor in the design of each environment, a factor that must be given high priority in the early design phases of each project.

It is hoped that all participants in all programs will familiarize themselves with the entire manual, so that the implications of each decision can be understood in a system-wide context.

The standards and guidelines presented here are not inflexible rules. They are a framework for meaningful development and variety, and offer no restriction to the capacity of each participant to evolve better solutions to old or new problems.

As new solutions are developed and approved, revised and additional pages for the manual will be issued to all participants.
This Part of the Manual includes guidelines and standards for a wide variety of graphic elements occurring in diverse locations and media for the purposes of clear public information and Authority identification.

Each item has been developed in careful coordination with all other items, so that together they will operate as a system. It is essential, if this graphic system is to work effectively, that all participants give special attention not only to consistency of use of each element, but to consistency of quality as each item is reproduced or installed.

Consistent graphic quality contributes substantially to the Authority's public "image", and to achieve it will often require a concern for precision and for subtle visual relationships not required in other areas of the design program.

As the Graphics Program advances, many special conditions will arise that are not fully covered in this Manual. This will be true especially in the areas of printing and station signing. Some of these conditions will become standard items and will be described in new manual pages. Others should be developed individually, following manual guidelines as closely as possible.

Regarding station design, it should be noted, above all, that graphics must be given careful consideration at the earliest phases of design development. Signs, maps and photomurals have an impact on orientation and station environment at an architectural scale, and as such they must be integrated from the outset with structure and space rather than be merely added as afterthoughts.

For general application of graphic elements in stations, see Part I, Guidelines and Principles. For specific examples of locating major graphic elements in stations, see Part III, Station Modernization Program. For fabrication details of items such as signs, see Part IV, Components.

INTRODUCTION
PART V GRAPHICS

A. Authority Symbol and Name

1. General Description and Guidelines
2. Symbol, Diameter Larger than 4"
3. Symbol on a Square Panel, White
4. Authority Name
   (Pages 2.1, 3.1, 4.1, thru 6. deleted)

B. Color Coding

1. Explanation and Guidelines - General
   1.1 Explanation and Guidelines - Color Matching
2.1 T Standard Colors
   (Pages 1.2, 1.3, 2.2, thru 4.3, deleted)

C. Lettering

1. Explanation and Guidelines
   1.1 Explanation and Guidelines - General
2. Opaque Signs, Special Spacing Conditions
   2.1 Opaque Signs, Special Spacing Conditions
   2.2 Opaque Signs, Special Numeral Cases
4. Spacing Scale for Standard Cap Heights
5. Flush Left and Line Spacing Rules
6. Letter Height on Signband, Proportion Rule
6.1 Sign Band Heights - Stacked Sign
7. Arrow/Circle
   7.1 Arrow/Circle - Directional Conventions
8. Use of Arrow/Circle - Opaque Sign Bands
   8.2 Use of Arrow/Circle - Continuous Opaque Sign Bands
   8.3 Use of Arrow/Circle - Line/Direction Signs
   8.4 Use of Arrow-Circle - Directional Signs, Margin Rule
   8.5 Use of Arrow/Circle - Stacked Sign Bands
   8.6 Arrow/Circle - Incorrect Usage

   (Pages 3.0 to 3.2, 8.1, 9.0, 9.1, 10., 10.1, 10.2 deleted)
D. Maps

1. General Descriptions
   (Pages 2 thru 4.1 deleted)

E. Vehicle Painting
   (For MBTA Use Only)

F. Station Entering Signs

1. General Description
   1.1 Diagrammatic illustration - Sign types
   2. T Symbol - Backlit Street Sign
   2.1 T Symbol - Backlit Street Sign, Applications
   3. Station Name and Hours - Backlit Street Sign
   3.1 Station Name and Hours - Backlit Street Sign
   4. Maps/Lists of Stations - Non-directional Combinations
   4.1 Maps/Lists of Stations - Directional Combinations
   4.2 Maps/Lists of Stations - Platform Groups of Four
   4.3 Maps/Lists of Stations - Platform Groups of Three
   4.4 Maps/Lists of Stations - Platform Distribution
   5.0 Lists of Stations - Inbound
   5.1 Lists of Stations - Outbound
   5.2 Lists of Stations - All Trains
   6. Line/Direction Signs - Basic Units
   6.1 Line/Direction Signs - Variations and Details
   6.2 Line/Direction Signs - At Decision Points
   6.3 Line/Direction Signs - As Reinforcement
   7. Incorrect Uses and Combinations
   7.1 Special Sign and Map Units for Green Line Surface Platforms
   (Pages 3.2, 3.3, 4.0a, 4.1a, 5.3 deleted)

G. Station Exiting Signs

1. General Description
   1.1 Diagrammatic Illustration - Sign Types
   2. Name Bands/Station Name - Use
   2.1 Name Bands/Station Name - Spacing
   2.2 Name Bands/Station Name - Sample
   2.3 Name Bands - Linear Continuity
   2.5 Name Bands - Porcelain Enamel Joints
   3. Information Band - Basic Use
   3.1 Information Band - Spacing of Directional Signs
   3.2 Information Band - Necessary Interruptions
   3.3 Information Band - Line Transfer Use
   4. Directional Signs - Details
   4.1 Directional Signs - Backlit
   4.2 Directional Signs - Stacked
   4.3 Directional Signs - Perpendicular to Train, Backlit and Opaque Perpendicular/Backlit.
   5.1 Incorrect Uses and Combinations
   (Pages 2.4, 5.0 deleted)
H. Station Art and Platform Photomurals

1. General Description
2. Typical Example
3. Linear Continuity - Relationship to Train
3.1 Linear Continuity - Wall Construction

I. Miscellaneous Signs

1. General Description
2. Emergency Signs - "Emergency Exit" Backlit Sign
2.2 Emergency Signs - "Fire Hose"
3. Warning Signs - "Danger No Passing"
3.1 Warning Signs - "Keep Back of Yellow Line"
3.2 Warning Signs - Escalator
3.3 Warning Signs - "Danger Third Rail"
4.2 Advisory Signs - Toilet Rooms
4.4 Advisory Signs - Clock Face
5. Authority Facilities - "T Personnel Only"
5.1 Authority Facilities - Door Numbering
   (Pages 2.1,3.4,4.0, 4.1, 4.3, 4.5, 6.0 thru 6.3 deleted)

J. Roller Destination Signs
   (Not included in this edition)

K. Bus Stop Signs
   (Not included in this edition)

L. Revenue Advertising

1. General Description and Guidelines
1.1 General Description and Guidelines
   (Pages 2.1 thru 4.1 deleted)
5. Typ. Advertising Support Frame
5.1 Alternative Advertising Supports
5.2 2 Sheet Advertising Panel
5.3 6 Sheet Advertising Panel

M. Printing
   (Not included in this edition)

N. Drawings
   (Not included in this edition)
MANUAL OF GUIDELINES AND STANDARDS

PART I GUIDELINES AND PRINCIPLES
PART II STATION RECONNAISSANCE (Discontinued)
PART III STATION MODERNIZATION PROGRAM (Discontinued)
PART IV COMPONENTS
PART V GRAPHICS
PART VI LIGHTING
PART VII MATERIALS
PART VIII ACOUSTICS
PART IX SERVICE FACILITIES
PART X SITE PLANNING AND NEW STATIONS
PART XI VENTILATION
The symbol has been developed to identify the Authority's services; verbally as a name, and visually as an image.

Lettering for the Authority name has also been developed to act as secondary visual identification using a special carefully selected alphabet set in flush-left lines. The Symbol and Authority name will perform their visual functions most effectively if they are carefully and consistently used, and if they are never altered in any way.

For sample uses in specific situations, refer to Section M (Printing), and to Sections D, E, I, K, and N.

General Guidelines

1. The symbol should be used primarily in black on a white background. Additional uses include black on light grey backgrounds, and grey on white backgrounds.

2. For special purposes that will not confuse with rapid transit color coding, the symbol may also be used in white on backgrounds of solid saturated color. Do not print the symbol in black on deep colors. Do not print the symbol in pastel colors, and do not print the symbol on patterned backgrounds.

3. The symbol should never be crowded by other visual elements, or closely approached by lines or other forms. With the exception of the Authority Name, Line Names, Rapid Transit Lines, as shown on maps, no typography should be located in close adjacency to the symbol.

4. When the symbol and Authority name are used together, they should almost invariably combine with each other horizontally, as shown on sheet A5.0. If necessary for reasons of vertical format, they may be combined vertically, as shown on sheet A5.0.

5. The Authority name may also be used as a single horizontal line, as shown on sheet A5.2, but only in situations of limited space (such as passes), or where the name has a minimal function (such as the small identification line on wallet maps).

6. The symbol and Authority name should only be reproduced, enlarged or reduced by photographic means. Do not attempt to reproduce by hand, or to change size by proportional dimensions. Reproduce the symbol only from originals with sharp edges and square corners.
Enlarge or reduce photographically only. For diameter 4" and smaller, see Sheet A2.1.

**SYMBOL, DIAMETER LARGER THAN 4"**

<table>
<thead>
<tr>
<th>GRAPHICS</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTHORITY SYMBOL AND NAME</td>
<td>A2.0</td>
</tr>
</tbody>
</table>
The symbol must be in a 7:9 ratio with the background. See Sheet A1.0 for notes on usage. See Section K (Bus Stop Signs) for a typical application.

SYMBOL ON A SQUARE PANEL, WHITE

<table>
<thead>
<tr>
<th>GRAPHICS</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTHORITY SYMBOL AND NAME</td>
<td>A3.0</td>
</tr>
</tbody>
</table>
Use the Authority name exactly as it is shown on these pages. Change the size of the name by photographic process only. Artwork should be obtained from the Authority. Do not use these pages as artwork. They are examples for size only.

The Authority name must always appear in the Standard Alphabet - Helvetica Medium, and flush left as shown here. Line spacing remains the same at all sizes except 8 pt., 7 pt., and 6 pt. These are set solid because of their frequent use in restricted positions.

Do not use other alphabets, no matter how similar they may seem. Do not alter the flush left margin. Do not alter the spacing between lines. Note that special relationships exist between letters within the words.

For flush-left margin rule see C5.0.

AUTHORITY NAME

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
The primary function of the Authority's color coding is to give clear identity and structure to the routes of the Rapid Transit Lines. When carried out consistently on a system-wide basis, on station signs and many other elements, color coding will help significantly in making the system legible.

The colors Red, Blue, Green, and Orange have been reserved for the Rapid Transit Lines, and Purple for Commuter Rail Lines, and Yellow for buses. The color Brown has also been reserved for a future additional line. To prevent confusion, these colors must not be used on signs for any purposes other than identification of the Rapid Transit Lines, except as noted in this Manual.

These colors, or shades of these colors, and other colors used for station finishes must not compete or conflict with the color coding system. Large areas of a line color may be used to emphasize the identification of a line, particularly in stations where two rapid transit lines connect.

The vehicle color scheme is an extension of the line color coding systems. Typically, the vehicles have light gray roof and skirts, a white band in the window area, and the line color band between floor and belt rail.

The color Yellow is also used for signal and warning purposes. Yellow is used for platform safety striping, service vehicles, and any other purposes that require maximum visibility for safety. It must not, however, be used as a background color for signs.
The Authority's standard colors are of necessity applied to a
wide variety of materials and surfaces, using many different
inks and paints. These include porcelain enamel on steel,
spray-painted aluminum, papers of all types, polyvinyl fluoride
films, back-illuminated acrylic plastics, plywood, and many
others.

In each case it is extremely important to achieve the best pos-
sible color match to the samples in this manual, and to proto-
types previously developed and approved. For example, on Red
Line and Orange Line signs, do not use any red and orange that
seem close when exact matches are possible, since confusion
between the two colors may result.

Note that the colors are called "RTL Red", "MBTA Grey #1", etc.
and that each is a specific shade and hue. These specific
colors must be used consistently throughout the system on all
signs, maps, printed materials, vehicle painting, station paint-
ing, etc.

EXPLANATION AND GUIDELINES - COLOR MATCHING
**Standard Colors**

<table>
<thead>
<tr>
<th>Color</th>
<th>Use</th>
<th>Chart No.</th>
<th>Code No.*</th>
<th>Code No.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Red Line</td>
<td>-</td>
<td>93-58209H</td>
<td>93-58209H</td>
</tr>
<tr>
<td>Blue</td>
<td>Blue Line</td>
<td>66</td>
<td>77257U</td>
<td>93-77257</td>
</tr>
<tr>
<td>Orange</td>
<td>Orange Line</td>
<td>14</td>
<td>60659U</td>
<td>93-60659H</td>
</tr>
<tr>
<td>Green</td>
<td>Green Line</td>
<td>94</td>
<td>5316U</td>
<td>93-5316</td>
</tr>
<tr>
<td>Yellow</td>
<td>Bus, Trackless</td>
<td>-</td>
<td>93-6808</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trolley</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chrome Yellow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dark Grey</td>
<td>System Wide</td>
<td>-</td>
<td></td>
<td>93-55322</td>
</tr>
<tr>
<td>Light Grey</td>
<td>&quot;</td>
<td>55</td>
<td>55137U</td>
<td>93-55137</td>
</tr>
<tr>
<td>White</td>
<td>&quot;</td>
<td>48</td>
<td>817U</td>
<td>93-21667</td>
</tr>
<tr>
<td>Beige</td>
<td>&quot;</td>
<td>44</td>
<td>4480U</td>
<td>93-96923</td>
</tr>
<tr>
<td>Purple</td>
<td>Commuter Rail</td>
<td>-</td>
<td>1976 UM</td>
<td>(Hyde)</td>
</tr>
<tr>
<td>Aqua</td>
<td>Handicapped</td>
<td>78</td>
<td>72218U</td>
<td>93-72218</td>
</tr>
<tr>
<td>Black</td>
<td>System Wide</td>
<td>59</td>
<td>99U</td>
<td>93-005</td>
</tr>
</tbody>
</table>

* On Dupont Dulux and Imron Transportation Finish Master Color Guide

The above colors have been designated as standard colors for the Authority. This does not constitute an endorsement of a particular brand, but is used for convenience due to the wide availability of color samples and paints. These particular colors are ones which can be most successfully matched in the porcelain enamel process. The Authority can provide porcelain enamel color samples to contractors as required.

**MBTA Standard Colors for Printed Material (Paper Stock):**

<table>
<thead>
<tr>
<th>Color</th>
<th>Use</th>
<th>Uncoated Stock</th>
<th>Coated Stock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Red Line</td>
<td>485*</td>
<td>485</td>
</tr>
<tr>
<td>Blue</td>
<td>Blue Line</td>
<td>293</td>
<td>285</td>
</tr>
<tr>
<td>Orange</td>
<td>Orange Line</td>
<td>144*</td>
<td>152</td>
</tr>
<tr>
<td>Green</td>
<td>Green Line</td>
<td>348*</td>
<td>348*</td>
</tr>
<tr>
<td>Yellow</td>
<td>Bus, Trackless</td>
<td>123</td>
<td>123</td>
</tr>
<tr>
<td></td>
<td>Trolley</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purple</td>
<td>Commuter Rail</td>
<td>241</td>
<td>249*</td>
</tr>
<tr>
<td>Aqua</td>
<td>Handicapped</td>
<td>334</td>
<td>334</td>
</tr>
</tbody>
</table>

* As these are not an exact match, they are the closest pantone has to offer.
The Authority's standard alphabet, called Helvetica Medium, has been chosen for maximum legibility at all sizes and availability in many media. Since the consistent use of one alphabet on all signs, maps and printed matter contributes substantially to the Authority's visual unity, no other alphabet should be substituted however similar it may appear to be.

Spacing rules from letter to letter and word to word are based on the optical weight of each letter shape. These should be followed exactly. Note that spacing rules for backlit signs are more open, to compensate for the optical expansion, or flare, of backlit letters and words.

For applications requiring a lighter type face, such as text (see Section M, Printing) a machine-set variation, called Helvetica (Light), is available. An extra bold variation, called Helvetica Bold, is used exclusively for terminal names on maps (see Section D). For diverse applications of the alphabet, see other Sections of this Manual.

General Guidelines

1. The spacing rules given on Sheets C2.0-C2.2 must be followed on all signs requiring lettering of 1" cap height or larger. Do not enlarge to these sizes photographically from smaller type-set copy, as spacing will be different and less legible.

2. For applications requiring lettering smaller than 1", copy may be set in type and ordered from most type compositors, either as printed reproduction proofs from lead type, or as photographic proofs from phototype negatives.

3. Do not attempt to reproduce lettering by hand at any size, or to cut silk screen stencils by hand. For large sizes, such as signs and vehicle markings, use die cut pressure sensitive film letters applied directly, or prepare silk screen stencils photographically from finished artwork that has been made up using compositor's proofs, die cut film letters, or transfer wax letters.

continued
4. Note that Helvetica Medium is available in wax transfer letters (by Letraset or equal) in a large variety of sizes from most artist supply stores. These wax letters are not durable, but can be used for temporary signs, for signs not subject to abrasion (such as office doors), for the preparation of artwork, and for lettering on architectural and engineering drawings. Do not attempt to compose lines of copy in very small sizes using these transfer letters, where compositor's proofs can be used with more precise results.

5. When a change of size is required from proofs or artwork, this should be done exclusively using photographic techniques (film negatives and glossy prints), or photostats (glossy negatives and glossy prints) so as to maintain dimensional accuracy, sharpness, and consistent lettering weight.

6. Note that the design of almost all items for the Authority using stacked lines of typography sets the lines either flush left or flush right. Do not center lines under each other, except as shown in Section M, and special cases noted as such in Sections F and G.
SPECIAL SPACING CONDITIONS – See E2.1

This alphabet is "Helvetica" medium. For applications requiring small sizes, type or proofs can be ordered from most compositors.

Alphabets also available in wax transfer letters by "Letraset" Co. from most artists' or architects' suppliers, and in pre-cut films for pressure sensitive exterior and interior applications.

OPAQUE SIGNS – ALPHABET AND SPACING RULES
SPECIAL SPACING CONDITIONS - OPAQUE SIGNS

Use these spacing units wherever these combinations occur.
Use these special spacing relationships when combining numerals with letters A.M. and P.M. to make opaque signs regarding times. Note that numeral-to-letter spacing is one-half the normal word spacing modified and adjusted to the Special Spacing Conditions.

**OPAQUE SIGNS, SPECIAL NUMERAL CASES**
SPACING SCALE FOR STANDARD CAP HEIGHT

GRAPHICS V

LETTERING C4.0
Note that
Angle letters extend over the margin by 3 units

Flush left
letters A,V,W,X,Y,T
numbers 1,4,7.

Flush right
letters A,K,T,V,W,X,Y
number 7.

1/2 height of straight letter

Height of straight letter

1/2 height of straight letter

Note that
curved letters extend over margin by 2 units

Flush left
letters C,G,O,Q,J

Flush right
letters C,D,O,Q
numbers 3,6,8,9,0.

These rules also apply to lists that are flush right. Line spacing only applies to lists with lettering all same size.

FLUSH LEFT RULE, LINE SPACING RULE
For all signing (except for special cases shown in following sections) lettering must relate to signband in a 2:3 ratio whether black letters on a white background, white letters on a black background, or white letters on a colored background. Examples are 4" letters on a 6" signband and 6" letters on a 9" signband.

NOTE: Cap height is always measured on a straight-edged letter.

LETTER HEIGHT ON SIGNBAND, PROPORTION RULE
Stacked white signbands are separated by a 1/4" black line. Line/Direction units use no line, since color background butts white background (See F6.0, 6.1).

Line/Direction units (entering and transferring signs) are separated from other directional signbands by a full 6" black band (See F6.4).

SIGN BAND HEIGHTS - STACKED SIGN
This arrow-circle unit is to be used on all directional signs, and only in the eight attitudes shown. For correct usage, see Sheet C7.1. Do not use the arrow without the circle, except as specified in this manual for special application.

ARROW/CIRCLE
These are the proper attitude positions for the Arrow/Circle decal. Use the Arrow/Circle either left or right. Do not use on both sides of a sign unless one end or the other is obscured by a column, wall, etc. from some viewing positions.

See C8.0 and C8.1 for relationships to the edge of the sign. See Sections F and G for use.

ARROW/CIRCLE - DIRECTIONAL CONVENTIONS
Straight letters occur at margin.

Angle letters overhang margin by 3 units.

Curve letters overhang margin by 2 units.

Lettering height relates to signband height in a 2:3 ratio, and to Arrow/Circle diameter in a 4:5 ratio. On a 6" signband, letters are 4" high and the Arrow/Circle diameter is 5". The outside edge of the Arrow/Circle is 3 1/2" from left edge of signband and 3 1/2" from lettering margin. Spacing remains the same with the Arrow/Circle and lettering on the right side of signs.

USE OF ARROW/CIRCLE - OPAQUE SIGN BANDS
Single floating directional sign

Two adjacent directional signs

USE OF ARROW/CIRCLE - CONTINUOUS OPAQUE SIGN BAND
On signbands that provide information together, as a pair, the arrow must only appear once, on the white band. For typical combinations of this kind, see Sections F and G.

USE OF ARROW/CIRCLE - LINE/DIRECTION SIGNS
Maintain the left or right margin of a signing band in the adjacent bands. Do not allow the lettering of one line to run across the margin of one directly above or below it.

Note that lettering two lines away may violate the margin to gain copy-fitting space. See Sections F and G.

USE OF ARROW/CIRCLE - DIRECTIONAL SIGNS, MARGIN RULE
A. STACKED SIGN - SPLIT CIRCULATION

B. STACKED SIGN - BRANCH CIRCULATION

A. Orient copy on sign flush left or flush right depending on left or right circulation decision. If circulation is straight ahead or down, arrow may be left or right (left preferred).

B. If circulation branches to only the right (or left), position all the arrows on the right side of the sign (left side of the sign).

See Sections F and G for combinations of various sign types.

USE OF ARROW/CIRCLE - STACKED SIGN BANDS
a. Top band should be flush left, or middle band should be moved to top. Sign bands should not, without necessity, alternate left-right (See sheet C6.4).

Top band also violates directional signs margin rule (See sheet C8.4).

b. Arrow and copy should be shifted flush left. Arrow should never point toward copy.

c. Arrow and copy should be shifted flush left. Information should never be centered, except on continuous sign bands of indefinite length.

ARROW/CIRCLE - INCORRECT USAGE
The Authority's maps are designed to provide information in varying degrees of detail according to specific needs.

Transit information is often required by passengers in a hurry, as a quick reference. In response to this, the Strip Maps ("Line" Maps) within the rapid transit cars allow the sequence of stations and transfer points to be read at a glance. Similarly, the RTL Map gives schematic structure and clarity to the entire rapid transit system and is also designed to be read quickly. Unessential information is eliminated.

In each case, the maps are designed for maximum clarity and for consistency with their overall map family in type, color and symbols. Additional or revised maps that may be required from time to time must maintain this consistency within their map family.

In addition to the families of transit maps, a neighborhood map is to be provided in each station as a public service. Transit information such as connecting bus routes and the locations of bus stops are included where they occur, but the primary purpose of the maps is to provide detailed information about streets, address numbers and points of interest in the neighborhood surrounding the stations. A "You Are Here" decal, applied individually to each map, further helps to orient the passenger.

It should be noted that the coding system of the maps uses three major elements: Color for the Rapid Transit Lines, Letters for branches of the Rapid Transit Lines, and Numbers for the Bus Routes. These coordinate with roller destination signs and with bus stop signs as shown in Sections J and K.
Comprehension of the signing system, and of its application at stations, becomes clear if one traces all possible passenger routes and analyzes each decision point for the essential information required at that point.

This section of the Manual outlines the use of basic signing types encountered by the entering passenger (some of which are also encountered by the transferring passenger).

The entering sequence begins with the passenger's approach route to the station along city streets, and ends with his boarding the correct train for his destination.

There are basic criteria that should be remembered in signing each decision point: designation of all choices, maximum visibility and maximum simplicity. Unessential information should not be included, particularly in narrow circulation areas where a lingering passenger may block traffic flow. Reference items to be studied in detail, such as maps, should be located only at fare collection lobbies, platforms and wide passageways where traffic will not become blocked.

In stations where existing wall space at fare collection areas is inadequate for the requirements of proper signing, it is extremely important to increase that wall space. Minimum surface should be 16', both inside and outside fare collection, and this should be accomplished by revision of existing walls or construction of new free standing panels.

Note that revenue advertising, as described in Section L, is in effect the last graphic item in the entering sequence, seen by the waiting passenger before he boards his train.

GENERAL DESCRIPTION
SIGN TYPE KEY

1. T Symbol
   Street Sign
2. Station Name
   Street Sign
3. Line Identification
4. Maps/Lists of Stations
   Outside Fare Collection
   (Non-directional)
5. Maps/Lists of Stations
   Inside Fare Collection
   (Directional)
6. Line/Direction Sign
7. Inbound-Outbound Color Coding
   End Walls
8. Maps/List of Stations
   Platform

DIAGRAMMATIC ILLUSTRATION - SIGN TYPES
The basic T Symbol Backlit Street Sign is used to mark the location of RTL stations. See Part IV, Components, for dimensions, outline specifications and installation.

T SYMBOL - BACKLIT STREET SIGN
Use the Illuminated Symbol as a beacon to identify RTL stations at street or surface level (See I-H.6; IV-A8.0 - A8.4).

1. Pole Mount - standard application.
2. Side Mount - attach to nearby building or structure, where sidewalk is too narrow or crowded for pole.
3. Suspended Mount - hang symbol from major structure, where necessary to relate to visual environment.
4. Surface Mount - only where space prohibits either (1) or (2).

T SYMBOL - BACKLIT STREET SIGN - APPLICATIONS
The basic Station Name and Hours sign is used over the entrance to RTL stations.

The Station Name appears in white on a background of the RTL color of line of the station. Name and Hours signs generally fill the full width of the opening to the RTL station.

The hours of opening appear in black on white in varying sizes. See following pages for copy-fitting samples and examples of entrance information.

Note: all lettering is centered within the width of the sign. This is the only case of RTL station signing in which lettering is neither flush-left or flush-right, except for the centering of copy within structural bays of the station platform.

STATION NAME AND HOURS - BACKLIT STREET SIGN
BOWDOIN

THIS ENTRANCE WILL BE OPEN 5:15 A.M. - 1 A.M. DAILY

PARK STREET

PARK STREET

THIS IS AN EXIT ONLY. ENTRANCES OPEN 5:15 A.M. - 1 A.M. DAILY

HAYMARKET

HAYMARKET

THIS ENTRANCE WILL BE OPEN 5:15 A.M. - 1 A.M. DAILY
These combinations should be used at all stations and will usually occur outside fare collection.

Use Combination No. 1 in all fare collection areas, where available continuous wall surface permits. Note that this combination is organized segmentally from left to right for entering circulation that is moving from left to right. Where entering circulation moves from right to left, the sequence should be from right to left. See also F4.1.

Use Combination No. 2 where available wall space permits, and where entering circulation approaches symmetrically from both sides. Note that in this non-directional situation, the Lists of Stations are kept adjacent to each other, so that they can be read simultaneously.

Use Combination No. 3 where the maximum possible continuous wall space allows only four units. Locate the Neighborhood map separately on any nearby available wall or on a free standing panel.

Use Combination No. 4 at entrances and fare collection areas where the maximum possible continuous wall surface allows only three units. In this non-directional situation, the Lists of Stations have lowest priority and are therefore eliminated.

Use Combination No. 5 at entrances and fare collection areas where available continuous wall surface allows two separated triples.

Use Combination No. 6 only in those situations where available continuous wall surface is severely limited.

Note that in all combinations using Lists of Stations, the RTL map is adjacent. These units are designed to work together.
The combinations of maps and Lists of Stations occur at decision points, and therefore include directional arrows.

Use Combination No. 1 where available continuous wall space allows.

Use Combination No. 2 where maximum possible continuous wall space allows only four units. Locate the Neighborhood map on any nearby available wall or on a free standing panel.

Use Combination No. 3 where maximum possible continuous wall space allows only three units. System and Neighborhood maps should be located nearby.

MAPS/LISTS OF STATIONS - DIRECTIONAL COMBINATIONS

Use Combination No. 4 at decision points where no additional wall space is available, or where no additional map units are desirable, such as at stair landings where traffic could be obstructed by persons reading the maps.

Use Combination No. 5 at those rare points where directional movement is the same, and reinforcement of List of Station information is desirable. An alternate to this sign is the "All Trains" unit shown on F6.0.

At critical decision points where no wall space is available, free-standing walls should be constructed to accommodate the largest possible of the Maps/List of Stations combinations. Note that by using both sides of free-standing panels, all maps can be easily shown in a limited space.
In stations where the structural bay is greater than 15'-0" o.c., all four map units (LS, RTL, SY, and N) can be used together to make a 16'-0" map grouping. The photomurals which alternate with the map groupings may then be either 12'-0" (3 - 4'-0" pieces) or 16'-0" (4 - 4'-0" pieces). Room for adequate benching should be left between maps and photomurals.

If desired, the lower band can be used intermittently, occurring only at maps and photomurals. Where visibility of the upper band is adequate for persons on board trains, the lower band may be omitted.

MAPS/LISTS OF STATIONS - PLATFORM GROUPS OF FOUR
PLATFORM ELEVATION

This example is drawn to show a frequently encountered condition, a center loaded platform with 12' bays. It is not an accurate representation of a condition at Kendall Station.

Structural bays of approximately 12 feet dictate Maps/List of Stations in groups of three in order to relate to the architecture.

If desired, the lower band can be used intermittently, occurring only at maps and photomurals. Where visibility of the upper band is adequate for persons on board trains, the lower band may be omitted.

Note, however, that there are four basic units required at platforms: the appropriate LS for the platform, RTL map, SY map, and N map. This is true for both sides of the station.

Groups of three should be formed as follows: Keep the LS and RTL always together as a pair, and alternate the use of the N and SY as the third unit.

Locate the LS directly under the Station Name in the Identity Band. Where possible, arrange the maps so that they relate to the circulation pattern. The RTL map is most important to entering traffic and should be seen first as one approaches the train. The opposite is true for exiting traffic, and the N map should be seen first as one leaves the platform.

MAPS/LIST OF STATIONS - PLATFORM COMBINATIONS - GROUPS OF THREE
A. CENTRALLY-LOADED PLATFORM

B. END-LOADED PLATFORM

Map units should primarily be located near points of circulation to and from the platform, and secondarily, they should be distributed along the full length of the platform in rhythms alternating with the orientation photomurals. See also Section H.

MAPS/LISTS OF STATIONS - PLATFORM DISTRIBUTION
Sample Sign at Kendall Station Inbound

The purpose of these units is to allow a passenger to quickly determine the direction of trains to his destination so that he will know which platform to go to. As described on III-4.0 of the Manual, the Authority's system is basically radial, and the platforms are therefore designated inbound or outbound at all stations except at downtown stations where the lines cross.

Standard artwork used for all stations. Station names include the station where this sign is located and all stations to the terminal in a given direction. (Fabricator blanks out screen for omitted stations)

LISTS OF STATIONS - INBOUND
Sample Sign at Kendall Station Outbound

The List of Stations unit, when used at platforms, omits the 12" unit at the top. The 9" Identity Band carries the color of the Line, and the white 6" Information Band carries the 4" lettering of platform direction (Inbound, etc.) directly over the List of Stations.

At platforms an additional panel of white material, matching the sign and varying height is added to the bottom of the sign to fill in the full height between the upper and lower bands if lower band is used.

LIST OF STATIONS - OUTBOUND
This sign is used where there is insufficient wall space to accommodate separate signs for inbound and outbound, or where a passageway or stairway serves both directions.

A similar sign is used at Green Line surface stops where space and budget precludes the use of special signs for each stop or direction.

LISTS OF STATIONS - ALL TRAINS
Use this layout where space is wide enough.

Use this layout only when space is too narrow. When space is narrow and headroom is limited, the color band with line name may be omitted.

Locate these units at all decision points as shown on F6.2. Wherever possible, incorporate them with List of Station signs.

A secondary function of the Line/Direction unit is to reinforce directional decisions already made, as for example in long corridors. Use these units repetitively at frequent intervals to provide reassurance. See F6.3.

LINE/DIRECTION SIGNS - BASIC UNITS

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
MANUAL OF GUIDELINES AND STANDARDS
REVISED 1977
TO HARVARD VIA WASHINGTON & PARK

Layout for flush right location

TO HARVARD

Layout with single line of small text

OUTBOUND

Layout when used with station identity band without List of Stations map.

Small text is 1 1/2" high, spaced 1" from top and bottom of 6" white band (flush with top and bottom of 4" text). Terminal name, "Harvard", is Helvetica Bold, all other text is Helvetica Medium.
Use the Line/Direction signs at circulation decision points, where the choice of R/L and direction has already been made on the basis of List of Stations/Map units at entry and transfer points.

The signs should be positioned and the arrows oriented so that the choices are clear and not ambiguous. Show continuing circulation destinations as well as the branch circulation.

LINE/DIRECTION SIGNS - AT DECISION POINTS

See F6.1 for varying organizations of this entering and transferring information.

Use this directive at all choices, and wherever confusion and disorientation might occur.

Where circulation space permits, include the Directional List of Stations, with the Line/Direction unit. The List has been omitted here because in the upper example a passenger stopping to read it at the head of the stairs could cause congestion, and because in the lower example there is not adequate headroom.
Use the Line/Direction sign to reinforce circulation.

In long passages and walkways, position the Line/Direction sign at close intervals (30' to 50') to reassure the passenger that he is going in the right direction, and to relieve the monotony of these spaces.

In devious passageways, with confusing changes in direction and/or many changes in level, use the Line/Direction sign to reinforce the circulation and to prevent disorientation.

For stacked combinations with exiting signs, performing the same reinforcement function in the reverse direction, see F6.1.

LINE/DIRECTION SIGNS - AS REINFORCEMENT
Do not use Line/Direction signs on top of List of Stations unit as a platform application (A). See F5.2. Do not use Line/Direction signs on platform walls (B). Transferring information should appear both in the Information Band (See G3.3) and perpendicular to platform (See G4.3).

Do not position Line/Direction signs separately from other directional information which is nearby (C & D). Position all direction-giving information into combined units, with Entering and Transferring information on the top, and Exiting information on the bottom (See F6.4).

INCORRECT USES AND COMBINATIONS
Type A - 12' unit with maps, schedule case, and emergency phone
Type B - 12' unit with maps only
Type C - 12' unit with 1'-3" identity band and bench
Type D - 12' unit with 1'-3" identity band only

Typical 8' unit with maps

Stop Location Sign

SPECIAL SIGN AND MAP UNITS FOR GREEN LINE SURFACE PLATFORMS
Comprehension of the signing system, and of its application at stations, becomes clear if one traces all possible passenger routes and analyzes each decision point for the essential information required at that point.

This section of the Manual outlines the use of basic signing types encountered by the exiting passenger (some of which are also encountered by the transferring passenger).

The exiting sequence begins with the passenger's view of the station platform from the decelerating train, and ends as he leaves the station.

The same criteria that apply to entering signs apply also to exiting signs: maximum visibility and maximum simplicity. Nonessential information should not be included, and reference maps should not be located in narrow circulation areas. Copy on directional signs should be as short and clear as possible.

The neighborhood map, a unit that is of special interest to the exiting passenger, should be located together with other maps at the platform, at wide passageways and at fare collection lobbies. For combinations of map units see Section F.

Note that orientation photomurals, described in Section H, are in effect major graphic items at the beginning of the exiting sequence, seen in combination with the station name band from the decelerating train.
SIGN TYPE KEY

1. Upper and Lower Name Bands - Station Name
2. Information Band - Directional Signs - Opaque
3. Maps at Platform
4. Directional Signs - Exit and Transfer - Backlit
5. Directional Signs - Exit and Transfer - Opaque or Backlit
6. Maps Inside Fare Collection
7. Maps Outside Fare Collection
8. Directional Signs - Exit and Transfer - Opaque or Backlit

Note: Backlit directional signs should be used at any major decision points where accent lighting for the sign cannot be adequately provided by other means.

DIAGRAMMATIC ILLUSTRATION - SIGN TYPES
Use the Upper Station Name Band at all stations. If desired, the lower band can be used intermittently occurring only at maps and photomurals. Where visibility of the upper band is adequate for persons onboard trains, the lower band may be omitted. The 9” name bands occur only on train and bus platforms.

At platforms where continuous wall surfaces do not exist, name bands may be intermittent, supported from the ceiling or by free standing structures. The station name must be visible from every car in a train.

Station name is centered in structural bays and occurs every bay or every other bay as shown in G2.1, 2.2. Locate the bands according to sightline criteria: 1-D8.0, D9.0. Do not obscure the station name on the Lower Band with benches, etc.

**NAME BAND/STATION NAME - USE**
CLOSELY SPACED COLUMNS ON PLATFORM - 8'-16' o.c.

WIDELY SPACED COLUMNS ON PLATFORM - 17'-24' o.c.

CLOSELY SPACED COLUMNS BETWEEN TRACKS - 8'-16' o.c.

WIDELY SPACED COLUMNS BETWEEN TRACKS - 17'-24' o.c.

Use the above rules to locate the station name on upper and lower bands. See G3.0 for coordination of other graphic elements.

NAME BANDS/STATION NAME - SPACING

In stations where the structural bays are apparent, such as those with flat side walls, space the station names at 24' - 0" or 32' - 0" o.c.
Station Name is 6" white lettering (see Section C for Authority Alphabet and Opaque Spacing Rules), on a 9" field of the color of the line (RTL Green, etc. See Section B).

Station Name is centered on the center-line of the structural bay. Use over photomurals and maps, when they occur. See G3.0.
One of the most important goals of modernization is to achieve consistent orientation in relation to the full length of the train. The exiting passenger, disembarking at any point along the full length of the platform, should be able to see immediately the station name, and read directional exiting information. If possible, and particularly in underground stations, he should at the same time be able to see a recognizable orientation photomural that reinforces the station's identity (See Section H).

Platforms that have long open areas without adequate graphic surface therefore need additional wall surface. New free-standing walls, floor to ceiling partitions and cheek walls next to stairs should be constructed as indicated in this example (See also Part I). Relate new walls to the structural system, in a manner similar to the station name spacing. See G2.1.

NAME BANDS - LINEAR CONTINUITY
Do not allow porcelain enamel joints, which are of necessity quite visible, to occur between letters or closer than 2 1/2" to either end of any sign unit. (See also G5.0).

For fabrication and installation details, see Section VII.

NAME BANDS - PORCELAIN ENAMEL JOINTS
Use the Information Band (the white part of the Upper Name Band) exclusively for directional information: direction over station lists ("Inbound"; "Outbound"; "Southbound"; etc. - See F4.2, 4.3, 4.4) and exiting and transferring instructions.

The Information Band should only be interrupted where necessary, such as over doorways. The colored part of the top Band should continue without interruptions wherever possible (See G3.2).

Signs within the Information Band must be centered between the Station Names. Do not place directional signs over photo-murals, unless absolutely necessary.

INFORMATION BAND – BASIC USE
Length of Copy Varies

Information Band is 6" white porcelain enamel or polyvinylfluoride with 4" black lettering. For alphabet, spacing rules, and uses of arrow, see Section C.

Directional signs are located midway between Station Names. Avoid locating Directional Signs under Station Names wherever possible.

As shown on G2.1, directional signs may occur halfway between closely spaced columns, or at the center line of widely spaced columns.

Keep copy of signs simple and brief for maximum clarity.

INFORMATION BAND - SPACING OF DIRECTIONAL SIGNS
The Information Band may be interrupted if necessary, for example over doorways or recesses where headroom may demand it. The colored part of the Upper Band, however, should continue at all times as shown above.

INFORMATION BAND - NECESSARY INTERRUPTIONS
If at a special location the Information Band must be used for a line transfer sign, because a 12" Line/Directional sign (see F6.0) cannot be located nearby, or in an adequately visible nearby position, the lettering must be black. Do not use colored lettering in the white field.

INFORMATION BAND - LINE TRANSFER USE
The above units are the basic modular components of all directional signs and are to be used at all decision points. They are used either singly, as shown above, or in stacked combinations, as shown on F6.1 and G4.2.

The four foot length is preferred, so as to coordinate with standard map units, but larger lengths of even one foot increments may be used when required for copy fitting. Note that sign copy must not be closer than 2½" to the ends of the signs. Signs of odd lengths should only be used where special architectural conditions dictate, such as suspended illuminated signs spanning exactly between walls.

Sign copy is laid out according to the Authority's alphabet and spacing rules (See Section C), with 4" black letters on a 6" white field.

DIRECTIONAL SIGNS - DETAILS
Even 1'-0" plus 1" increments, or special size determined at job.

**ESCALATOR**

STANDARD BACKLIT SIGN UNIT
(black lettering white background)

Use Backlit Directional Information signs to identify major circulation elements. Backlit signs follow standard height proportion rules of 2 to 3, lettering to background, and backlit copy fitting requirements. See Section C, especially C8.1. Note that the 6" white background is surrounded by a 1/2" black frame, increasing the standard dimensions by 1" in both directions.

Even 1'-0" increments, or job condition

**STATE ST. EXIT CLOSED**

SPECIAL BACKLIT SIGN - SWITCH-OFF SECTION
(white lettering black background)

This special sign is only to be used when the station layout and operation demands a separately switched section of the sign.

Note that the lettering for this sign is applied to the inside of the face, and that the front acrylic sheet for this sign face is tinted gray (approximately 20% light transmission) so that the word "CLOSED", when shut off, is almost invisible through the surface of the sign.

DIRECTIONAL SIGNS - BACKLIT

**STATION EXITING SIGNS**

G4.1
To combine two sign units, establish reference margin on whichever side of sign is required by the arrow conventions, and set lettering to it. See Section C. Separate sign units with 1/4" black stripe centered on the joint between them. Run the black stripe the full width of the sign.

Position reference margins so that no type overlaps the reference margin of the sign above or below it. See Section C.

Use 6" black band to separate Line/Direction Signs from other Directional Signs.

STACKED COMBINATIONS

Exiting Directional Signs often occur in combination with Entering and transferring information. In these cases the exiting signs must be located on the lower part of the sign, with entering signs given precedence on the top. See C7.0-9.1 for Arrow/Circle spacing, and directions.

Use exiting signs at all decision points and for reinforcing exiting circulation. See similar applications on F6.3 and 6.4. The same units along passageway walls that reinforce entering circulation should be used to reinforce exiting circulation.

DIRECTIONAL SIGNS - STACKED
These signs are the primary signs to the exiting sequence, designed to identify passageways, stairs, and escalators for the passenger who has just disembarked from the train.

Back-illumination will be required in almost all cases for accent purposes, since these signs are often two-sided, perpendicular to the linear platform lighting and therefore difficult to externally accent without creating dangerous glare. For fabrication details see IV-D5, D5.1.

**DIRECTIONAL SIGNS - PERPENDICULAR TO TRAIN - BACKLIT AND OPAQUE**

Note that the field height of these signs is always 6" or a combination of 6" strips exclusive of the frame dimension.

Use Backlit sign with blank-off option when stairway, entrance, etc. is sometimes closed. See IV-D5.3. Unlike all other signs, these signs must use white letters on a black field.

Use Backlit Directional Information sign perpendicular to circulation flow to identify major circulation elements and choices - escalator, trolley, transfer, etc. See IV-D5, D5.1.

**DIRECTIONAL INFORMATION - PERPENDICULAR/BACKLIT**
KENDALL

Do not put borders around the Station Name. Do not use the Identity Bands discontinuously where the platform wall continues.

ARLINGTON

Do not allow porcelain or film joints to fall within words. Where possible, do not allow joints to fall between words of a single sign.

ARLINGTON ON STREET

Do not change the size of the Identity Band. Do not use the 9" Identity Band for copy other than Station Name. Do not locate information other than Station Name or RTL Line Name within colored fields.

INCORRECT USES AND COMBINATIONS
Underground stations that lack open views to the neighborhood are particularly in need of a strong individual identity, which cannot be adequately given by Station Name bands or minor variations in architectural structure, finishes, or various details. It is necessary to give strong and meaningful variety to the transit system and establish for each station a "sense of place".

In the first stations modernized by the Authority, the photomural system has played a vital role in the station design and is particularly important in underground station platforms. This concept has been developed to establish or to reinforce the special identity of each station. The subject matter for each photomural has been drawn from the neighborhood surrounding the station in which it appears. Since their images are photographic and therefore recognizable reflections of each station's neighborhood, the photomurals are more than decorative. They visually tell the passengers, as they arrive by train at the station, where they are.

In a number of instances the neighborhood of the station was undergoing radical physical changes and it was necessary to substitute copies of old prints or other symbols to visually relate the station to its surroundings. An example is baseball tickets used at Kenmore.

Experience has shown that it is possible to establish the station identity for persons onboard the trains, as well as giving those waiting on the platforms a pleasanter environment, with the aid of more abstract forms of public art, including murals and sculpture.

Photomurals or drawings normally have been distributed linearly along the platform to maximize their impact. As trains move through the station, it is also possible to concentrate the work at one, or a few high impact locations. An example is the steel sculpture at the entering end of the Essex outbound platform.

The use of public art in other areas of the station is useful in establishing "landmarks" which help to orient the users, as well as improving their environment. An example is the train picture at North Station entry.
Photomurals should be distributed with linear continuity throughout each station. Note that a passenger sees the stations in succession from his constant location within the train. In order for each station to have a strong identity, every passenger should see a photomural, regardless of his seat position. The photomurals should therefore occur along the full length of the platform.

LINEAR CONTINUITY - RELATIONSHIP TO TRAIN
Platforms with minimal wall surface opposite arriving passengers require the construction of additional walls for maps and photomurals.

These walls should be so located that they do not block circulation or the visual openness of the station. The walls should also include upper and lower station name bands and cantilevered benching.

The walls must be distributed along the full length of the platform so that passengers alighting or viewing from all points along the length of the train will be exposed to them.

Linear Continuity - Wall Construction
This section describes a variety of signs and markings required at stations and on diverse equipment. Many of these signs are standard Authority units, and will be stockpiled for use in all stations. Miscellaneous signs not shown here will become repetitive standard units and be described in new manual pages. Other signs will be single units only, and should be worked out by architects or Authority staff using manual prototypes as guidelines.

Note that all signs tend to have these features in common:

a) Helvetica medium all caps.

b) Black lettering on white background. Special signs use white lettering on black background, yellow lettering (warning) and red lettering (emergency).

c) Photo silk screen reproduction from camera-ready artwork, or direct fabrication of signs using precut letters.

d) Minimum changes of lettering size within each sign.

e) Lines of copy set flush left.

f) No printed borders around signs. Note that background color always bleeds to the edges of the sign.

g) Minimum copy, for clarity and legibility.
EMERGENCY EXIT

SIGN - 1/16 FULL SIZE

Lettering size: 4"

Color: Red letters on white background.

Artwork: Standard Authority Unit

![EMERGENCY EXIT](image)

ELEVATION - DOOR

Application: Back-lit sign, mounted on wall above or beside door. Include Arrow/Circle if sign must be remote from door.

Material: See Part IV for sign details and materials.

Illumination: Must be on emergency circuits.

Use: Sign should be used with Emergency Exit doors whenever possible.

EMERGENCY SIGNS - "EMERGENCY EXIT" BACKLIT SIGN
FIRE HOSE
SIGN - 1/2 FULL SIZE

Lettering Size: 1"
Color: Black
Artwork: Standard Authority Unit

FIRE HOSE CABINET DOOR

Position: 2" from edge of opening (unhinged) side of door.
Application: Silk-screened directly onto stainless steel, painted steel, or bronze door front.
Material: Acrylic silk-screen ink.
Use: Sign appears on face of all fire-hose cabinets.

EMERGENCY SIGNS - "FIRE HOSE"
DANGER NO PASSING

SIGN - 1/4 FULL SIZE
Lettering size: 2"
Sign size: 1'-3" x 10"
Color: Black on white
Artwork: MBTA standard unit

ELEVATION - PLATFORM END WALL
Position: Flush with the end wall.
Application: Install holder and sign.
Material: Porcelain enamel.
Use: At the end of all RTL station platforms and bus loading areas.

WARNING SIGNS - "DANGER NO PASSING"
**KEEP BACK OF YELLOW LINE**

**SIGN - 1/8 FULL SIZE**

Lettering size: 2"

Color: Yellow on black or dark gray

Artwork: Standard Authority Unit

---

**FIGURE**

Lettering size: 2"

Color: Yellow on black or dark gray

Artwork: Standard Authority Unit

---

**ELEVATION - COLUMNS BETWEEN TRACKS**

Position: On Green Line barriers, and on walls and barriers across from bus loading areas.

Frequency: Along the full length of loading areas, one every structural bay, or every 20'.

Application: Silk-screened directly onto painted steel or concrete.

Material: Acrylic silk-screen ink.

Use: Between tracks and bus lanes.

---

**WARNING SIGN - "KEEP BACK OF YELLOW LINE"**
DO NOT PLACE UMBRELLAS, SUITCASES, OR OTHER ARTICLES ON THE ESCALATOR.

SIGN - 1/2 FULL SIZE

Sign Size: 5 1/2" x 7 1/2"
Color: Black letters on stainless steel.
Artwork: Standard Authority Unit

ELEVATION - ESCALATOR

Application: Bend to curve of newell, fasten with adhesive.
Material: Baked enamel letters on stainless steel, No. 4 finish.
Use: Sign appears at the entering end of all up and down escalators.

WARNING SIGNS - ESCALATOR

Massachusetts Bay Transportation Authority
Manual of Guidelines and Standards

<table>
<thead>
<tr>
<th>GRAPHICS</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>MISCELLANEOUS SIGNS</td>
<td>13.2</td>
</tr>
</tbody>
</table>
DANGER THIRD RAIL
SIGN - 1/8 FULL SIZE

Lettering size: 3"
Color: Yellow letters on black background
Artwork: Standard Authority Unit

STATION - PLATFORM AND TRACKS

Application: Silk screen directly to wall, or use decal of pressure sensitive polyvinyl-flouride film.
Material: Acrylic silk-screen ink.
Use: Along length of platform, once every structural bay, or every 20'.
MEN
WOMEN

SIGNS - 1/2 FULL SIZE

Lettering Size: 1"
Color: Black
Artwork: Standard Authority Unit

ELEVATION - TOILET ROOM DOOR - (OUTSIDE)

Position: Over push-plate, as shown, flush right to push plate outer edge, on doors with opposite swing relate signs flush left to push-plate edge.
Application: Silk-screened directly onto painted steel door face.
Material: Acrylic silk-screen ink.
Use: Sign denotes all public toilet rooms when on platforms and all Authority toilet rooms when within Authority-only circulation.

ADVISORY SIGNS - TOILET ROOMS
This clock face has been designed using Authority standard numerals and letter spacing for maximum legibility and clarity. It is for use on all clocks within the jurisdiction of the Authority. See Part IV for details and manufacture.
PERSONNEL ONLY

SIGN - 1/4 FULL SIZE

Lettering size: 1"

Color: Black or gray doors.

Artwork: Standard Authority lettering and symbol, and standard letter spacing, see sheet C2.0.

Application: Silk screen applied directly to surface of door.

Use: Identification of all Authority (non-public) doors and rooms within RTL stations.
SIGN: \( \frac{1}{2} \) FULL SIZE

Lettering size: 2" 
Color: Black on gray doors, white on black doors. 
Artwork: Standard Authority numerals and spacing. See C2.0. 

Application: Pressure-sensitive letters applied directly to door. 
Material: Pre-cut polyvinyl-flouride film. 
Use: Identification of all Authority (non-public) doors and rooms within RTL stations. 

AUTHORITY FACILITIES - DOOR NUMBERING
This section of the manual provides guidelines for the control and positive use of revenue advertising in stations.

In the past, advertising within stations was not coordinated with other elements, and as a result it became the most conspicuous negative factor in the station environment.

It is by no means the Authority's intention to eliminate advertising. On the contrary, many of the existing stations will have more advertising after modernization than they had before, and all new stations are to include it. Advertising becomes a positive element when its graphic impact is recognized as a major element in the overall station design. This happens when it is located not at random and in conflict with transit information; but in a clearly defined zone. Advertising then becomes an orderly changing exhibition, providing visual animation and pleasure to the Authority's passengers, as well as revenue to the Authority itself.

As has been noted in Section F, advertising panels are the final graphic element in the passenger's entering sequence, occurring at that one point where he may have time to enjoy them. Station advertising should normally be located across tracks opposite waiting passengers, who always stand or sit facing the track. When possible, advertising should be grouped opposite benches. With this arrangement, the advertising panels can be seen but not touched by the public, preventing vandalism. Advertising panels are normally not combined with directional signing.

In special cases, advertising may be placed in station lobbies or passageways if it does not interfere with information graphics, architecture elements, and can be protected from vandalism. At side platform stations where an inter-track structure for support of advertising panels is not possible, advertising may be combined with information graphics on common structures.

The advertising panels to be used consist of two sizes: 2 Sheet with a copy area of 3'8" x 4'10" and 6 Sheet with a copy area of 5'0" x 12'0". These panels can be used interchangeably in conjunction with a standard support system which incorporates hanging clips 3'-0" O.C. horizontal spacing and 3'-9½" O.C. vertical spacing. The supporting system which may be free standing, wall or column mounted, should provide a strong visual framework for the advertising panels, accommodating the two size panels at random. The smallest frame will support two, 2-Sheet panels or one, 6-Sheet panel. Frames may be longer, but must be in even multiples of 2-Sheet panels. In busy stations, the frame may form a continuous structure running all or most of the platform length. When located between tracks at a side platform station, gaps should be left to permit visibility of one platform from the other.

GENERAL DESCRIPTION AND GUIDELINES
For maximum visual impact, panels should be grouped in clusters rather than scattered along walls or spaced widely apart from each other. In subway or fully enclosed stations, advertising panels should have accent lighting. Remote spot or flood lighting is used but care must be taken that lighting does not annoy passengers waiting on the other side of the panels.

For additional general guidelines, see Part I, Guidelines and Principles.

For sample layouts of posters at individual stations, see Part III, Station Modernization Program.

For details of frames and panels, see Pages L5.0 to L5.3 in this section.
CLIP SPACING MODULE

1'-10" 3'-0" O.C. 3'-0" O.C. 3'-0" O.C. 1'-10"

6 Sheet Advertising Panel

2 Sheet Advertising Panel

Steel Tee

12'-8" Minimum Between Legs
For Recessed Mounting of Panels

NOTES:

Frames may be used in multiples up to any length.

In subway - horizontal rails may be wall or column mounted.

Center of advertising panel should be near eye level of person standing on platform.

All 2 and 6 sheet advertising panels are interchangeable.

Frame to be painted black - Semi Gloss.
NOTE: Adv. Panels Mounted On Face of Frame

ADVERTISING COMBINED WITH PLATFORM GRAPHICS

ADVERTISING IN NICHE

Min. Depth of Niche = ¾"
Mounted Poster 3'-10" x 5'-0"
View Area 3'-8" x 4'-10"
Trim 1/4"

1/8" x 1" Steel Strip Galv.

1/8" Alum. Trim

3/4" Plywood

LEFT EDGE

HANGER CLIP

RIGHT EDGE

Top Trim Piece

Slot Vert. Spacing 1'-0"

3/4" 1 1/2"

3/4"

3/4" 1/2"

NOTES:

- Aluminum Frame to be anodized black
- Plywood to be finished both sides (exterior grade)
- All fasteners to be rust-proof

ELEVATION

DETAILS

REVENUE ADVERTISING L5.2
FRONT ELEVATION

12'-0" Overall

Hanger Clip:
1" High x 1/8"
Thick
Steel Strip - Galv.

Framing Plan

1" x 1" x 1/8" St. Tube Galv.

SECTION A-A

Panel Face
Trim 22 Ga.
Galv. Steel

NOTES:

Painting - Trim and back of panel - Black - Semi Gloss
Fasteners - No screws or rivets allowed on front face of panel or trim
Wind Load - 20 lbs./Sq. Foot
Advertising Copy Size - Six Sheet - 5'-0" x 12'-0"

REVENUE ADVERTISING L5.3
MANUAL OF GUIDELINES AND STANDARDS

PART I GUIDELINES AND PRINCIPLES
PART II STATION RECONNAISSANCE
PART III STATION MODERNIZATION PROGRAM
PART IV COMPONENTS
PART V GRAPHICS
PART VI LIGHTING
PART VII MATERIALS
PART VIII ACOUSTICS
PART IX SERVICE FACILITIES
PART X SITE PLANNING AND NEW STATIONS
PART XI VENTILATION
Part VI of the Manual describes the basic design goals for station lighting. It diagrams typical station lighting situations, and fixture types to accommodate them.

Each Station Architect is responsible for a lighting layout designed in conformance with the Basic Goals, and utilizing, insofar as practicable and unless directed otherwise, the standardized fixture types.
PART VI LIGHTING

A. STATION LIGHTING

1 Interior Lighting Standards
1.1 Interior Lighting Standards
1.2 Interior Lighting Concept
2 Exterior Lighting Standards
2.1 Exterior Lighting Concept
3 Distribution System
4 Pit & Service Area Lighting

B. FIXTURE TYPES AND TYPICAL USE

1 Fixture Types and Typical Use
2 Lighting Fixture Standards
2.1 Lighting Fixture Standards
3 Standard Fluorescent Fixture
3.1 High Platform Station
3.2 Low Platform Station
3.3 Passageway
3.4 Fare Collection Area
3.5 Wall Mounted Graphics
3.6 Exterior Entry Stair
4 Misc. Fixture Details
4.1 Misc. Fixture Details
Adequate lighting denotes well being. It is perhaps the single most important element in the revitalization of the subway. Low lighting levels, without appreciable variation or contrast, and mazes of unorganized conduit and unrelated fixtures are characteristic of many existing stations. The following basic goals have been adopted for the lighting design of new and modernized stations.

1. **General Illumination**

   Minimum lighting level in public areas should be twenty (20) footcandles, maintained at floor level.

   General illumination should not be designed on the basis of a uniform level throughout the station, but rather with variations in level as may be required by the particular station layout.

2. **High Lighting of Danger/Decision Areas**

   High levels of directed light should occur at potential danger areas (stairs, escalators, platform edges, hidden corners), and at decision areas (fare collection equipment, information graphics).

3. **Spatial Definition**

   Many stations have a basic clarity of form that can be emphasized by properly designed lighting.

4. **Exterior/Interior Transition**

   Abrupt differences in lighting levels between exterior and interior should be eliminated.

5. **Orientation**

   In general, maximum contact with surface features should be carried into the station, in order to maintain orientation to the above ground world. In many cases, it will be possible to open up portions of the overhead to bring natural light into stairways, mezzanines, or even platform levels. Where skylight shafts are used, night time illumination should be provided to substitute for daylight.

**INTERIOR LIGHTING STANDARDS**
Differences in lighting levels can be used to improve orientation within the station proper. Intense levels will draw the patron and forewarn him of decisions to be made.

6. Special Emphasis

Certain orientation features, such as color coded walls, or graphic elements, such as murals or advertising, should in most cases be given special accent lighting.

7. Elimination of Clutter

Lighting installations should be designed with layout appearance as well as simple coverage in mind, and conduit should be concealed. In existing stations where this is impossible, fixtures should be designed to incorporate raceways wherever practicable. Exposed conduit runs should be held to a minimum, and definitely located by the Station Architect.

8. Emergency Lighting

Emergency lighting will be required in all stations, located to provide a general level of illumination of 4 footcandles, with concentrations at danger areas.

Existing subway stations should utilize existing D.C. sources, incandescent lamps five in series on 600 volts D.C. and normally energized.

New stations should be provided with a natural gas driven engine/generator for emergency power. Emergency lights shall be fed from panels normally fed from normal power source with transfer to generator on normal power failure.
The type of lighting and the light intensity will be determined by the function of the area.

Lighting for the pedestrian should be in scale to the human figure. Rows of lights may be used to indicate direction or define paths. Lighting in parking areas should be of a quality and intensity, preferably high pressure sodium, to impart a sense of safety. Self-parking areas and paths require one footcandle of illumination. Large parking areas should be 2-3 foot candles.

Direction and information signs may be brightly backlit for contrast. Surface illuminated sign boards need fifty footcandles on dark surfaces. Backlit signs should be used whenever possible as they are more easily seen at night than surface illuminated signs. Care in placement, color selection, and intensity of light will be necessary to avoid washing out colors and graphics.

Light fixtures should be as vandal resistant as possible, with polycarbonate or high impact acrylic diffusers, particularly those which might be within reach of pedestrians.

Poles should be heavy gauge, extremely rigid, with hand hole and fixed base.

All wiring for exterior lighting fixtures should be buried in plastic coated rigid steel conduit. Overhead wiring will not be permitted.

For large areas, parking, train and bus storage, etc., serious consideration should be given to high mast lighting to minimize number of poles and luminaires. High mast installations should be of type that permits lowering of the luminaire assembly to ground level for servicing.

Maximum mounting height of fixed luminaires shall be forty (40) feet to permit servicing by bucket truck, where truck access is available.

Ease of maintenance of all fixtures is of prime concern.

EXTERIOR LIGHTING STANDARDS
HIGH MAST LIGHTING
(LARGE AREAS)

LIGHT TO INDICATE DIRECTION

14' +

25'-30'

LIGHT TO INDICATE DIRECTION

40' MAXIMUM

HIGH INTENSITY HIGH LEVEL

EXTERIOR LIGHTING CONCEPT

STATION LIGHTING

MASSACHUSETTS
BAY
TRANSPORTATION
AUTHORITY
MANUAL OF GUIDELINES AND STANDARDS
REVISED 1974

LIGHTING VI

A2.1
1. Present distribution system

All station lighting at present is supplied from the Authority's 600 volt direct current lines, run on the tunnel walls. There is one power cable and one light cable in each direction, i.e.: North Bound Power, North Bound Light, South Bound Power, South Bound Light. In event of a power cable failure, the load can be transferred manually. In event of a complete D.C. failure, the light cables are transferred to 550 volt AC at substations to provide emergency lighting. All lighting is incandescent, generally 101 watt, 151 watt and 201 watt street railway lamps, wired five in series. Lamps on any one circuit are distributed about the station and circuits are apportioned between power and light cable panelboards so that either circuit failures or cable failures will not darken any one area. This distribution feature constitutes the present emergency system.

2. New distribution system

After a review of present power and re-lamping costs, the Authority has determined that new and modernized stations shall have new service entrances, from the public utility, or traction substation, and that all normal lighting will be on alternating current. In some cases groups of stations will be served by one entrance, and transformers installed to step voltage up and down for distribution within the tunnel between stations.

At new surface stations provide emergency power by natural gas engine-generator sets or other methods; however the difficulty in venting engines and the time lag in shifting over to such an emergency system prohibits its use in underground stations. For the time being, an emergency system separate from the AC normal system will have to be provided, consisting of five-lamp 600 volt DC series circuits as at present. Separate conduit must be provided for AC and DC wiring. Emergency lighting will normally be energized to provide visual indication that D.C. system is operational.
1. Pit Lighting

In existing rapid transit stations, there are lights mounted beneath the platform overhang. Lights are incandescent, mounted about 15' on center, wired five-in-series on DC, and are normally ON. This lighting is used by work crews and in emergencies and should be renewed as part of the Station Modernization.

New rapid transit station pits should be illuminated by four foot H/O, gasketed fluorescent fixtures, single lamp, mounted under platform overhang on twenty foot centers. Pit lights should be fed from emergency panel boards and should be normally ON.

2. Lighting of Service Areas

Lighting for other than public areas, public toilets, and built-in collection booths shall be selected for economy and suitability for the area to be lighted. Most service areas will require both normal and emergency lighting.
The Fixture Use Diagrams illustrate lighting situations frequently encountered in new and existing stations, and show schematic sections of the fixture types which have been selected to meet such situations.

The basic fixture types shown on the Fixture Use Diagrams are commercially available fixtures, modified as may be necessary to meet the criteria for fixtures. Finish is typically baked enamel, matte black color.
INTERIOR LIGHTING

1. In general, lighting fixtures in new and existing stations should be located to minimize their number and bulk. General lighting should be fluorescent. Accent lighting should be High Intensity Discharge (H.I.D.).

2. Accent lighting should occur only at graphics, danger and decision areas, and other special emphasis elements.

3. In both new and existing stations, certain lighting can be controlled by time switches for use only during peak hours or can be controlled by photo-electric devices when daylight falls below minimum levels.

4. It is expected that certain less-busy existing stations will receive little or no new lighting treatment. In these stations the existing normal and emergency DC lighting system will remain, with perhaps new fixtures substituted for old.

5. Fluorescent fixtures in public areas shall use "warm white" lamps.

6. Incandescent fixtures shall be kept to an absolute minimum.

7. In high ceiling areas fixtures must be mounted at height that will permit servicing and relamping without scaffolds or stagings.

EXTERIOR LIGHTING

1. All exterior lighting should utilize H.I.D. lamps, preferably high pressure sodium, wherever possible, for most efficient energy use.

2. Poles for walkway lighting shall be fixed base type with handholes and shall be of heavy gauge and rigidity to withstand extreme vandalism.

3. Fixed poles for large areas, parking, train or bus storage, etc., shall have a maximum luminaire mounting height of forty feet, for servicing by bucket truck, where truck access is available.

   Serious consideration should be given to high mast lighting for large areas to minimize number of poles and luminaires. High mast installations should be of the type that permits lowering of luminaire assembly to ground level for servicing.

LIGHTING FIXTURE STANDARDS
In general, lighting fixtures for use within the Authority's environment should satisfy the following criteria.

1. Fixtures shall function as effective lighting units for a minimum life of 20 years under arduous conditions of weather, vandalism and vibration.

2. Fixtures shall be enclosed and gasketed, wherever possible, to operate effectively in an atmosphere containing sticky abrasive brakeshoe dust, which tends to foul lampholder contacts and makes cleaning of fixtures and their reflective surfaces difficult without scratching, and at a temperature range of -20° to 90°F.

3. The support and installation of fixtures in long continuous runs shall allow for expansion and contraction in an ambient temperature range of -20° to 90°F.

4. In general, through wiring shall be carried in raceways external to the fixture, permitting fixture removal without cutting of wires.

5. Methods of installation should be thoughtfully prepared to accommodate a wide variety of job conditions such as irregularities of wall and ceiling surface, and to minimize errors by untrained personnel.

6. Parts, lamp types, and lengths should be standardized to the greatest extent possible.

7. Non-corroding metal should be used, with adequate protection against galvanic action between dissimilar metals.

8. Replacement of lamps and ballasts should be easily accomplished.

9. Where open cylindrical fixtures are used, they must be vented at top for heat dissipation.

10. Use of incandescent fixtures shall be kept to the absolute minimum.

11. Fluorescent fixtures should be tightly gasketed to prevent dust infiltration.
NOTES:

1. Door assemblies shall be interchangeable.

2. Select threads as required.

3. Mounting holes in fixture housing shall be outlined and tapered as directed by installation contractor.

4. Single lamp fixture shall be similar to Fig. 1 as shown, with all parts later exchangeable. Except lamp shall be mounted along reflector center and fuse shall be offset to reflector.

5. Fixture dimensions are approximate. Exact dimensions shall be submitted for engineer approval.

TYPICAL LIGHTING FIXTURE

(STANDARD FLUORESCENT FIXTURE)

SIDE VIEW

END VIEW

TYPICAL LIGHTING FIXTURE

(NO SCALE)
Fluorescent pit lights, optional location determined by other equipment installed under overhang.

CONTINUOUS FLUORESCENT STRIP

Continuous or intermittent ceiling mounted fluorescent strip, cutoff at platform edge by use of asymmetrical lens. Emergency lights integral with fluorescent strip.

FLUORESCENT PIT LIGHT

4 foot single lamp H/O, enclosed and gasketed fluorescent fixtures mounted 20 ft. on centers

HIGH PLATFORM STATION
CONTINUOUS FLUORESCENT STRIP

Continuous suspended fluorescent strip, with cutoff at platform edge. Integral emergency lights.

LOW PLATFORM STATION
Continuous Fluorescent Fixture

Symmetrical fixture for area lighting.
Asymmetrical fixture for wall wash.

PASSAGeway

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MANUAL OF GUIDELINES AND STANDARDS
REVISED 1974

LIGHTING VI

FIXTURE TYPES B3.3
Raceway - supported High Intensity Discharge downlights.
Raceway - supported High Intensity Discharge wall washer.
Blanked out reflectors as required.
Combined illuminated sign and fluorescent stair fixture.
Integral emergency lights.
EXTERIOR ENTRY STAIR
Station Identification Sign

Sign interior is schematic. In dimensions and appearance, this sign lighting fixture is a standard component with no variations permitted.

Fluorescent: 800 ma, full width of sign
Incandescent (emergency, D.C.): 2 - 151 watt, 600 volts, wired 5-in-series. (Existing Stations)

MISC. FIXTURE DETAILS

scale 1\( \frac{1}{8} \)" = 1' - 0"
T Sign Anchor Detail

Caulk

1/4" x 18" x 18" Plate

Leveling Plate

Conduit, Stubbed Up

1/2" Grout

4-3/4" Dia. x 1'3" Anchor Bolts with 4" Hook

2'0" x 2'0" Concrete footing able to restrain applied moment of 2580 Ft. Lbs.

Electrical Service

2 - #12 Wires, 1 - #12 Ground Wire, or larger, depending on length of run.

60 Hertz - A.C. Voltage as required.

T Sign Base

Misc. Fixture Details
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
GUIDELINES AND STANDARDS PART VII MATERIALS REVISED 1977
MANUAL OF GUIDELINES AND STANDARDS

PART I GUIDELINES AND PRINCIPLES
PART II STATION RECONNAISSANCE (Discontinued)
PART III STATION MODERNIZATION PROGRAM (Discontinued)
PART IV COMPONENTS
PART V GRAPHICS
PART VI LIGHTING
PART VII MATERIALS
PART VIII ACOUSTICS
PART IX SERVICE FACILITIES
PART X SITE PLANNING AND NEW STATIONS
PART XI VENTILATION
GENERAL INTRODUCTION

The Massachusetts Bay Transportation Authority has found it both necessary and possible to concentrate attention on the complex needs of people. Programs to improve service must now include a new emphasis on the quality of the transportation experience. In effect, transportation engineering has been joined by human engineering and environmental design.

This manual provides a framework for the continued coordination of all those elements in the system that affect human comfort.

Many of the criteria involved are common to all environments, such as the control of light, noise, humidity, temperature, wind, and odors, or the need for orderliness, through clear and easy circulation and clean appearance. Other criteria that are more specific to the transportation environment are such needs as safety, traffic handling capability, spatial variety, consistently available information, and orientation.

The most important single criterion that has guided the preparation of this manual is the need for orientation. The rider must not only be physically comfortable, he must also know in the fullest sense where he is and where he is going.

Since to the layman a public transportation system is to a large extent an invisible skeleton of the city and metropolitan region, the comprehension of that structure generates an awareness and appreciation of the city itself, and an appreciation of travel through it.

There are many aspects to achieving this orientation. Circulation at all points must be direct and open. Spaces should relate visually to their surrounding environment, either through direct openings to adjacent spaces and structures, or in the case of platforms, by graphic reflection through photographic murals.

Above all, the need for orientation places great emphasis on maps and a consistent system of identification and directional signing. Graphics then emerges as a major factor in the design of each environment, a factor that must be given high priority in the early design phases of each project.

It is hoped that all participants in all programs will familiarize themselves with the entire manual, so that the implications of each decision can be understood in a system-wide context.

The standards and guidelines presented here are not inflexible rules. They are a framework for meaningful development and variety, and offer no restriction to the capacity of each participant to evolve better solutions to old or new problems.

As new solutions are developed and approved, revised and additional pages for the manual will be issued to all participants.
Part VII of the Manual establishes standards by which materials and finishes proposed for use in the System will be judged. It lists a number of materials and finishes which have been already approved, subject to review by the Director of exact specifications and area of intended installation.

This part provides information on materials and details in use for standardized wall elevations, built-in graphics and other repetitive elements, and includes design standards for the printing of modernized and yet-to-be modernized stations.

For detailed layout requirements of graphic elements, refer to Part V, Graphics. For information regarding acoustic materials, refer to Part VIII, Acoustics. For laterals requirement in specific non-public rooms, refer to Part IX, Service Facilities.
PART VII MATERIALS

A. Approved Materials

1. Criteria For Materials
   1.1 Criteria For Materials
   1.2 Criteria For Materials
2. Existing Stations - Special Conditions
3. Review of Unlisted Materials
4. Approved Materials - Floors, interior
   4.1 Approved Materials - Floors, exterior
   4.2 Approved Materials - Walls, interior
   4.3 Approved Materials - Walls, exterior
   4.4 Approved Materials - Ceiling
   4.5 Approved Materials - Miscellaneous

B. Use of Materials

1. Typical Wall at Platform
   1.2 Typical Wall - Other Than Platform
2. Safety Strip at Platform
   2.1 Safety Strip at Platform
3. Doors and Frames
   (Page 1.1 Deleted)

C. Painting

1. General Principles
2. Major Surfaces
   2.1 Major Surfaces
   2.2 Major Surfaces
3. Structural Members
4. Components
   (Page 2.3 Deleted)

See also Part, Graphics, Section 0:
Fabrication and Installation
It is the intent of the Authority to utilize materials and finishes throughout the System that will satisfy necessary standards of safety, durability, maintainability, and economy, while at the same time contribute substantially to a station environment that is, in fact and in appearance, clean, dry, odorless, well-lit, physically safe, as quiet and as comfortable as is reasonable consistent with station function, and above all, that affords a basic clarity of station form and user orientation.

The following criteria pertain to materials and finishes used in public areas only, including public lavatories, built-in collection booths, and service rooms into which the public can normally see. Materials and finishes for service areas not normally exposed to public view shall be judged solely on the basis of economy, and suitability for the use intended. See Part IX for functional requirements of lavatories and other service facilities.

Criteria

1) Safety

In general all materials and finishes used in the system shall be incombustible, although certain minor elements may be of wood, rubber, or plastic. Plastic or rubber materials used over any significant area shall be of a composition that does not support its own combustion, when in place.

All materials and their attachments shall be designed to adequately withstand normal operational vibration, the effects of aging, and especially the extreme demands placed on Authority property by theft and vandalism.

Materials and finishes shall be selected that provide adequate slip-resistance, glare-resistance, and other qualities that recognize the frequent presence of crowds, and of the handicapped and infirm.

2) Durability

Materials and finishes shall be used that provide long useful life, without decay, corrosion, weakening, decline in appearance, or other failure under normal conditions of use.

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CRITERIA FOR MATERIALS
3) Maintainability

Specification of materials and finishes shall recognize that frequent high quality maintenance cannot be depended upon; and therefore materials with impervious surfaces that resist soiling, and, having been soiled, that tend to hide the soil, will go far to counteract deficiencies in maintenance. By the same token, materials and details that complicate cleaning operation, or which provide unnecessary surfaces to collect dirt, must be avoided. Joints between units shall be minimized, and made of the most durable materials.

Specific soiling conditions include:

Airborne dirt
Tracked-in water and dirt
Tracked-in salt (in winter)
Greasy brakeshoe dust from train
Water brought in by wet trains
Materials discarded by subway users
Many varieties of Vandalism

Materials should be specified which, in event of damage, can be repaired or replaced without untoward disruption of station function, and without calling attention to repaired areas.

4) Environmental Effects

Materials and finishes shall be selected for environmental effect as seems most appropriate to the Station Architect, subject only to the following two requirements:

a) All colors shall be compatible with the Authority standard color coded graphics.

Walls and ceilings shall, in general, be light in tone, in order to decrease lighting costs by increasing reflectivity.

b) Certain repetitive station elements are required to be of particular materials or colors, in order to lend unity to the System as a whole, to solve particular functional problems, and to permit large scale purchasing. These elements are described under this Part Seven, and include the following:

CRITERIA FOR MATERIALS

MATERIALS VII

APPROVED MATERIALS A1.1
1. Platform safety strip (Sheets C - 2 and C-2.1)
2. Doors and frames (Sheet C - 3)

For other standardized elements, see Part Four: Components and Part Five: Graphics.

5) Economy

Each material and finish proposed for use shall be subject to an informal cost benefit analysis, which will equate its advantages in light of criteria 1-4 above, with its initial and long term costs.
The criteria listed for materials and finishes pertain to both new stations and to modernized existing stations; however, conditions in existing stations may preclude use of certain of the approved materials.

1) Space limitations: In many cases, existing corridors, stairways, and platforms will be found to be too narrow to accommodate new facing materials of any significant thickness. The height of platform above top of rail at existing stations being remodeled must be held as close as possible to the Authority standards. This restricts selection of floor finishes in cases where platform structure or track elevation cannot be altered.

2) Seepage: In some existing stations, uncontrollable seepage through walls and/or ceilings may necessitate the use of new cavity walls, built in drains, waterproofing treatments or other special materials or details. Correction and prevention of seepage is of primary importance. In new stations, seepage can be expected at certain locations, such as expansion joints, so drip pans and other methods of handling water should be built into the station.

3) Void areas: If large areas of furred or closed-off space are required, these must be adequately vented and drained to prevent build up of leaking gas, water seepage and condensation. Furred ceilings must be capable of withstanding the positive pressure induced by passing trains.

4) Continuing operations: The necessity that existing stations be kept in operation during modernization will require that setting times of materials, and required protection be considered. In order to minimize overtime costs, prefabrication should be seriously explored.

5) Budgetary limitations: In certain less-busy stations, modernization will necessarily involve only improved graphics, lighting circulation and fare collection equipment, together with a minimum of surface repair and renewal. Limited budgets for these stations will require that the most economical acceptable materials be used.

EXISTING STATIONS – Special Conditions
The Station Architect may propose unlisted materials and finishes, submitting samples and technical information as may be required. These will be reviewed by the Authority for safety, durability, maintainability, economy, and environmental effect, as well as conformance to the system of standardized elements.

No strength tests for vandal resistance have been adopted, the serviceability of a given material being related to its particular situation. Proposed materials and finishes shall, in general, show no permanent discoloration when tested with methylene blue, lipstick, mercurochrome, or flet-tipped markers. Scratching with a jack knife should be very difficult, and not noticeably reduce resistance to discoloration.
The following types of materials are approved for use in the system, subject to the restrictions noted, and subject to Authority approval for each specific installation.

**monolithic**

Concrete granolithic topping  
Bituminous concrete (track area only)

**unit materials**

Quarry tile  
Paver brick  
Slate  
Heavy-duty rubber sheet or tile flooring  
Unglazed ceramic tile (lavatories only)

(unit materials used in lavatories shall have joints of chemical-resistant grout)

**APPROVED MATERIALS** - Floors, Interior
The following types of materials are approved for use in the system, subject to the restrictions noted, and, subject to Authority approval for each specific installation.

monolithic
Concrete - broom finish,
Heavy duty synthetic resin toppings
Bituminous concrete

unit materials
Paver brick
Slate
Granite Setts
Asphalt block
Precast concrete pavers

APPROVED MATERIALS - Floors, Exterior
The following types of materials are approved for use in the system, subject to the restrictions noted, and subject to the Director's approval for each specific installation.

monolithic

Concrete - smooth forms only (above vandal height only)

unit materials

Brick
Structural glazed tile
Glazed ceramic tile
Architectural terra cotta
Natural stone - smooth faced, polished
Glazed brick
Procelain enamel
Non-corroding metals
Portland Cement plaster (above vandal height only)
Overlaid plywood (supervised areas only)
High pressure plastic laminates (supervised areas only)

(unit materials used in toilets must have joints of a chemical-resistant material)

surface finishes

Heavy-duty epoxy coatings
Inorganic glazed coatings
Heavy-duty standard paints (above vandal height only)

APPROVED MATERIALS - Walls, Interior
The following types of materials are approved for use in the system, subject to the restrictions noted, and subject to Authority approval for each specific installation.

monolithic
Concrete - no restriction on forms

unit materials
Brick
Structural glazed tile - frostproof
Glazed ceramic tile - frostproof
Architectural terra cotta
Natural stone
Heavy-duty glass
Porcelain enamel
Non-corroding metals
Acrylic or polycarbonate plastic (above vandal height only)
Pre-cast concrete
Weathering steel - use with caution
The following types of materials are approved for use in the system, subject to the restrictions noted, and subject to Authority approval for each specific installation.

monolithic
Concrete - smooth finish, unpainted preferred
Portland cement plaster - smooth finish, painted
Gypsum plaster - smooth finish, painted

unit materials
Prefab concrete
Wood fiber panels - painted
Panels of non-corroding metals

APPROVED MATERIALS - Ceilings
The following types of materials are approved for use in the system, subject to the restrictions noted, and subject to the Director's approval for each specific installation.

1. Wall base
   Concrete - smooth finish, painted
   Terrazzo
   Rubber flooring coved to form base
   Glazed wall material (if of dark color)
   Troweled-on cement plaster
   Same material as wall or floor finish, such as brick, quarry tile

2. Stair treads
   Rubber bonded to stainless steel with safety yellow edge for interior stairs
   Concrete, stone, for exterior stairs

3. Stair bases and risers
   Concrete - smooth finish, painted
   Sheet rubber

4. Hollow metal, Miscellaneous Iron and Steel
   Heavy-duty epoxy or nitrocellulose coatings
   Heavy-duty standard paints
   Baked-on enamel

5. Non-corroding metals
   Aluminum - visible parts shall be anodized, one half hour minimum
   Stainless steel - course brushed finish

6. Safety strip at Platform Edge
   Troweled on abrasive coatings
   Heavy-duty floor paint
   Sheet rubber

7. Wood
   Heavy-duty paint
   Clear polyurethane varnish
   Stain - exterior locations

8. Caulking
   Polysulfide or silicone types where exposed to vandals.

9. Hardware
   Chrome, stainless steel, anodized aluminum - all in brushed finishes

APPROVED MATERIALS - Miscellaneous Materials and Finishes
PAINTED PLASTER

D C E

IDENTITY BAND

A WALL MATERIAL

B BASE

PORCELAIN ENAMEL

PORCELAIN ENAMEL MURAL

D E

DIMENSION A: Determined by placement of identity bands. Omit wall material behind murals and maps.

DIMENSION B: Where platform pitches along station axis, set base height to fall between 4" minimum and 15" maximum. Failing that, step base at doors or changes in plane to conceal stepping as much as possible.

DIMENSION C: Will vary with station.

DIMENSION D: 12' minimum, 16' optimum, See Part V.

DIMENSION E: Will vary with station, See Part V.

TYPICAL WALL AT PLATFORM

MATERIALS VII

USE OF MATERIALS B1
WALL MATERIAL

DIMENSION A: Varies, in low ceiling areas carry wall material over entire surface.

DIMENSION B: In general, keep base at constant height above floor, throughout any one space. If pitch or coursing forbids, treat base as at platform walls. Wall or floor material may also be used instead of a separate base material.

TYPICAL WALL (OTHER THAN PLATFORM)
Safety Strip
Material: Heavy-duty abrasive coating
Heavy-duty paint, sheet rubber
Color: Safety yellow

Note that surface texture of yellow safety strip should contrast with the platform finish to aid the blind.

SAFETY STRIP AT PLATFORM
Streetcar lines
SAFETY STRIP AT PLATFORM
Rapid Transit Lines

Material: Heavy-duty abrasive coating
         Heavy-duty paint, sheet rubber

Color:   Safety yellow
In unit masonry or tile, set frame to course.

1-3/4" thick hollow metal door - black

Louver, if required.
Undercut, if required.
1" maximum

D.O. 6'8" minimum

D.O. as req.
3'6" maximum

Set frame flush with new finish

Caulk

Where sheet flooring occurs carry to inside edge of frame and set within metal channel.

Jamb Detail

Refer to Part IX for door requirements for each room. Master keying and required make of cylinder will be established by the Director for each station.

DOORS AND FRAMES - Service Rooms
In general, surfaces exposed to public contact are presently caked in some sort of heavy-duty glazed material that resists marking and damage, and permits easy maintenance. It is anticipated that such existing surfaces will be retained or replaced in kind and that new stations will be constructed of similar heavy duty materials. Acceptable materials are listed under Section A of this Part VII.

However, certain existing stations have public contact surfaces of painted plaster or concrete. Budgetary limitations may require that some of these stations not receive new glazed wall surfacings, but simply be repainted. There are also stations for which final plans cannot yet be made, and which will be repainted in the interim. Finally, all stations will require a certain amount of painting of walls, ceilings, and structure above public contact areas. This Section C establishes guidelines for use in all three of these cases.

The guidelines are based on four principles:

1. Major surfaces, structural members, and components should be painted colors -- which are compatible with the Authority standard color coded graphics.

2. Major surfaces, structural members, and components should not be cut into parts by color changes, except where absolutely necessary as at bases, or as otherwise noted hereafter.

3. Minor surface elements, such as conduit runs, etc., should be painted out with the surface. This treatment should be used, however, only where they cannot be removed, or relocated.

4. Visible dirt-catching elements which are inaccessible for cleaning should be painted dark to minimize the effects of soiling.

GENERAL PRINCIPLES
All ceilings are to be painted white or light color.

All walls exposed to public contact are to be painted with heavy duty paint or approved synthetic coating.

1. Color change occurs at intersection of two planes. Doors to service rooms are to be painted black.
2. Wall color stops at spring line.
3. Wall color continues between wide-spaced beams.
4. Wall color stops at underside of closely-spaced beams.
All exposed walls on stairways are to be painted with heavy duty paint or approved synthetic coating.

1. Wall color terminates at exterior finish materials.
2. At very high walls above stairways, the wall color can be held down to a high wainscot running parallel to the stair slope. Wainscot height will be determined by actual conditions, but must extend above normal public contact.

MAJOR SURFACES
All walls above normal public contact are to be painted a light color.

1. At trackpits the wall color is to extend down to the level of the platform. Below this line the wall, including niches, is to be dark gray.

2. At extremely high walls, the wall color is to terminate at a line above normal public contact, and a light color used above this line. The particular station configuration will determine the exact location of this line.
1. Columns are to be painted with wall color full height including capital.
2. Exception: when column is partially sheathed, the part above the sheath is to be painted another color.
3. Tie rods are to be painted wall color.
4. Members with horizontal dirt catching surfaces within public view are to be painted wall color.

STRUCTURAL MEMBERS
1. Where practicable, existing wood benches and existing handrails may be sanded down, and re-finished in heavy duty varnish.

2. All components are to be painted black. Where they are exposed to public contact, the paint shall be a heavy duty type, or an approved synthetic coating.

For painting purposes, the following are to be regarded as components.

- Free-standing collection booths (types presently in use, only)
- Turnstiles (types presently in use, only)
- Exit gates (types presently in use, only)
- Rotary Coinpassers (types presently in use, only)
- Fences and Guardrails
- Commercial facilities, not including factory finished telephone booths and lockers
- Advertising frames
- Exposed switch boxes and panel board enclosures
- Exposed fire hose cabinets
- Exposed sand and salt boxes
- Metal stairs
- Bases of existing benches

COMPONENTS

MATERIALS

PAINTING