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# GENESEE RIVERWAY TRAIL



## Signage Standards Manual

January 2013



Thomas S. Richards, *Mayor*  
Rochester City Council  
City of Rochester, NY



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# GENESEE RIVERWAY TRAIL Signage Standards Manual

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## SECTION A OVERVIEW

In the context of an on-going effort to preserve, protect and enhance the Genesee Riverway Trail (GRT), the City of Rochester's Department of Environmental Services has completed this comprehensive Wayfinding Master Plan. This program includes an articulation of how the visiting public will be introduced to the GRT, and based on this perception, how orientation and direction-giving will be provided. It will facilitate user access to and circulation throughout the GRT system..

This Signage Standards Manual is a direct result of a Wayfinding Study coordinated by the Department of Environmental Services in 1999 that evaluated signage and wayfinding along the trail system. This effort followed several other studies over the previous five years that studied signage in the overall context of trail usage and possible renovation and expansion activities. The current design process involved the participation and input of several City of Rochester agencies as well as individuals representing surrounding neighborhoods and other local trail systems. The culmination of this process was the implementation of signage devices along a Demonstration Area between Genesee Valley Park and the South River Corridor Pedestrian Bridge. Wayfinding Program development was performed by a design team headed by Synegraphics.

The signage of the Wayfinding Master Plan includes a hierarchy of orientation, directional, identification and informational categories. These elements exhibit a high degree of visual continuity due to consistent forms, materials, colors, graphic layouts, and usage of the Riverway logo. Yet, despite their visibility, they do not compete with the natural beauty of the River and Trail.

The drawings and specifications which are assembled in this Manual aim to preserve the appearance of signage and the consistency of its application.



## SECTION B SIGNAGE DESCRIPTION

The signage categories that comprise this Standard are organized below by their functional usage intent.

Functional Grouping	Sign Category	Description
Introductory	A-1	Major Pedestrian Kiosk
	B-1	Minor Pedestrian Kiosk
Directional	C-1	Parking Lot Directional
	D-1	Major Trail Directional
	D-2	Minor Trail Directional
	D-3	R.O.W. Vehicular Directional
	D-4	R.O.W. Pedestrian Directional
	D-5	ROW Pedestrian Directional (Small)
Hazard/Warning	E-1	Major Hazard/ Warning
	E-2	Minor Hazard/ Warning
Trail Marker	F-1	Trail Marker
	F-2	Removable Trail Marker
	F-3	Directional Trail Marker
	F-4	Cast Medallion
	F-5	Thermoplastic Sidewalk Logo
Interpretive	G-1	Free-Standing Interpretive
	G-2	Wall-Mounted Interpretive
	G-3	Rail-Mounted Interpretive
Regulatory	H-1	Stop Sign
Miscellaneous	J-1	Bridge Identification

Following below is a description of the categories that comprise this standard along with their respective sizes, usage criteria and location rationale.

## Introductory Signage

Introductory devices will be used at major trail access points. In the most prominent of these access points a Type A-1 pedestrian kiosk with awning should be used. This category should be carefully located adjacent to the trail in a highly visible location, but not in the formal pedestrian, bicycle or wheelchair pathways. The kiosk shall be placed in a paved plaza providing unimpeded access to both sides and around the sign. 5' of clear space is preferred adjacent to either sign face and a minimum of 3' on sides of sign.

These devices will contain a large visible rendition of the Riverway logo, "Welcome to The GENESEE RIVERWAY" header panel, and appropriate directional signage on both faces. Also, a GRT map (with a "You Are Here" orientation), regional trail map, City of Rochester logo, local trail map, legends, trail description and accessibility information will be produced as modular (changeable) elements and distributed on the remaining areas of the two sides of the kiosk.

At less prominent access points, Type B-1 kiosks without awnings shall be used. The Type B-1 kiosk will incorporate the same graphics, maps, description and accessibility information as the Type A-1.

Map graphics will play an important role in introductory signage. The maps and graphics used for all sign applications have been designed with a high degree of graphic compatibility that will contribute to the overall order and uniformity of the signage system. The Department of Environmental Services will maintain the graphics files and be solely responsible for effecting any and all changes to the map graphics and for distribution of the electronic art to signage manufacturers. (See Section 3 for a description of the graphic formats to be employed for design, documentation and procurement for all future phase of signage implementation.

Category	Size	Location Criteria
A-1	10'-6" x 5'-2" x 2'-4" (Depth and width Includes canopy)	To be individually located in the field to optimize visibility and approachability at major trailheads and crossings
B-1	10'-6" x 3'-1-1/4" x 4"	To be individually located in the field to optimize visibility and approachability at secondary trailheads and crossings



## Parking Lot Directional Signage

Vehicular Directional signage will be employed as required within parking facilities adjacent to the GRT access points.

These devices will be oriented perpendicular to the approach paths and utilize the GRT logo, "GENESEE RIVERWAY TRAIL" copy and appropriate directional arrow.

Category	Size	Location Criteria
C-1	8'-1" x 3'-6" x 4"	Locate signs within 10'-0" of curbs but no closer than 2'-0". To be individually located in the field to optimize visibility on approach and avoid visual obstacles such as trees, shrubs, utility poles or street furniture.



**Type C-1  
Parking Lot Directional**

## Trail Directional Signage

Trail Directional Signage will be employed as required along the GRT. These categories will be utilized at and, in some cases, in advance of decision points (i.e. intersecting trails, trail merges with sidewalks, etc.) where it is necessary to reinforce circulation or sort traffic. The designation of Major Trail Directional (D-1) or Minor Trail Directional (D-2) formats will be made on the basis of copy and symbol requirements. The larger D-1 format should be limited to six destinations per sign face. This is the maximum quantity of information which may be presented given the need to keep signage in scale with the trail environment. Should additional destinations need to be represented at any particular decision point, a second directional element can be utilized. Trail Directional Signage will be oriented perpendicular to the approach paths and utilize the GRT logo, City of Rochester logo, destination nomenclature and appropriate directional arrows.

Category	Size	Location Criteria
D-1	6'-3" x 2'-8" x 4"	At or in advance of decision points, in areas of high visibility, within 4'-0" of trail*
D-2	5'-8" x 2'-8" x 4"	Same as above

\*Should tandem directional signs be required, they should be no closer to one another than 25'-0".



**Type D-1  
Trail Directional**

## R.O.W. Directional Signage

Right-of-Way Directional signage will be employed as required along streets leading to the GRT access points for vehicular and pedestrian usage.

These devices will be installed on utility and light poles, oriented perpendicular to the approach paths and utilize the GRT logo, "GENESEE RIVERWAY TRAIL" copy and appropriate directional arrow.

Category	Size	Location Criteria
D-3	3'-7" x 1'-11" x 2-1/2"	Center-mount signs on light or utility poles. To be individually located in the field to optimize visibility for vehicular traffic on approach and to avoid visual obstacles.
D-4	3'-7" x 1'-11" x 2-1/2"	Flag-mount signs on light or utility poles. To be individually located in the field to optimize visibility for pedestrian traffic on approach and to avoid visual obstacles.
D-5	24" x 14"	Center-mount signs on light or utility poles. To be individually located in the field to optimize visibility for pedestrian traffic on approach and to avoid visual obstacles. Application and use is similar to D-4 but designed for selective use in the dense Center City core.



## Hazard / Warning Signage

These categories will warn trail users of such hazards as narrowing of the trail, blind corners, trail merges with sidewalks and steep grade sections. These signs will be located perpendicular to the trail and will include the GRT logo, the City of Rochester logo, Warning copy and appropriate pictographs.

Category	Size	Location Criteria
E-1	6'-3" x 2'-8" x 4"	In advance of hazards, in areas of high visibility, within 4'-0" of trail.
E-2		In advance of hazards, in areas of limited visibility, within 4'-0" of trail.



**Type E-1  
Hazard/Warning Sign**

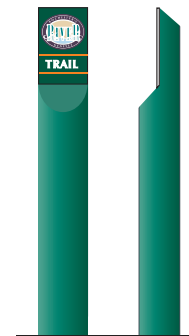


**Type E-2  
Hazard/Warning Sign**

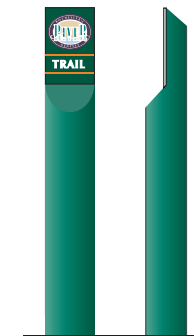
## Trail Marker Signage

These elements will reinforce to trail users that they are on the GRT and employ a single post that incorporates the GRT logo and in some cases, a directional arrow(s). The Type F-1 and F-2 formats act as either a reassurance marker on longer sections of the trail between other signs or as barriers to vehicular traffic when and where needed. As a reassurance element the marker shall be permanently installed while the barrier use shall be of removable mount. The Type F-3 format may be used where there is a merge or divergence with a sidewalk or other trail and it is necessary to provide additional assurance of the trail continuing and in what direction to proceed.

Category	Size	Location Criteria
F-1	4'-0" x 6"	In areas of high visibility, within 3'-0" of trail, or in the trail if used as a barrier.
F-2	4'-0" x 6"	Same as above except bollards may be removed from concrete anchors.
F-3	4'-0" x 6"	Uses Directional arrows. Same as F-1.



**Type F-1  
Trail Marker**



**Type F-2  
Removable Marker**



**Type F-3  
Directional Marker**

## Trail Marker Signage

This component will be used in areas of high pedestrian traffic where concrete or paver surfaces can accommodate a cast element. The F-4 should be placed in the center of the pedestrian right-of-way as much as possible and in open areas unobstructed by lamp poles, planters or other street furniture.

Category	Size	Location Criteria
F-4	18" x 16-7/8"	In areas of high visibility, centered in the pedestrian pathway.



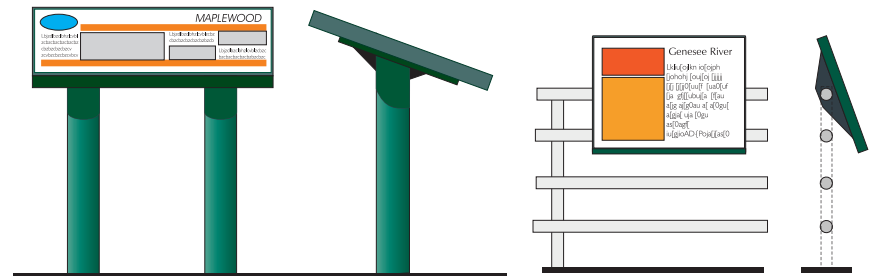
**Type F-4**  
Cast Medallion

## Interpretive Signage

These signs will incorporate photo images, graphics and text to communicate historical, geologic and other interesting information that relate to the Riverway and the surrounding environment. Interpretive Signage will incorporate a consistent layout grid and typographic standards in order to maintain a high degree of consistency within the category.

This category shall be carefully located adjacent to the trail in a highly visible location, but not in the formal path of movement. The interpretive sign shall be placed in a paved area, providing unimpeded access, and where the interpreted feature is clearly visible.

Category	Size	Location Criteria
G-1	3'-6" x 3'-1/2" x 2'-1/2"	Each sign will be located in the field.
G-2	1'-6-1/2" x 2'-1/2" x 1/2"	Each sign will be located in the field. Position sign at ADA mounting height (i.e. 60" from grade to center of sign) or as directed by the City.
G-3	2'-1/2" x 1'-10-1/2" x 1-1/2"	Each sign will be located in the field.



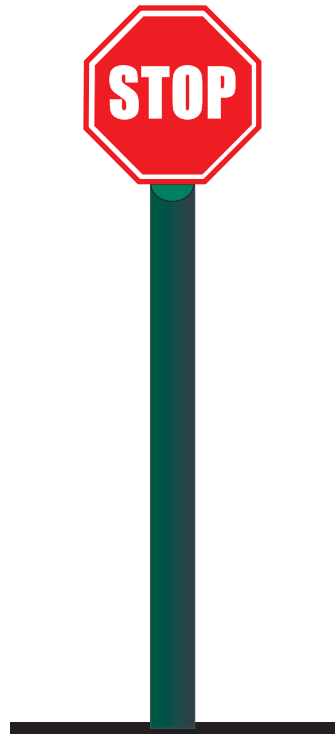
**Type G-1**  
Free-standing Interpretive Sign

**Type G-3**  
Rail-Mount Interpretive Sign

## Regulatory Signage

This component will be used to help regulate traffic along the trail at junctions, intersections and other areas of potential danger. The H-1 Stop Sign should be placed on the right hand side of the trail in the approach for which traffic will be obliged to stop. It will be located 3'-0" from the edge of the trail and between 6'-0" and 12'-0" in advance of the junction or intersection.

Category	Size	Location Criteria
F-4	4'-0" x 1'-0" x 3"	In areas of where visibility of cross traffic is limited.



Type H-1  
Stop Sign

## Miscellaneous Signage

These categories will communicate a variety of identification and instructions to trail users. The J-1 Bridge Identification sign will be mounted to the bridge structure a minimum of 8'-0" above the trail and identify the street overhead.

Category	Size	Location Criteria
J-1	11" x 2'-6" x 1/8"	Each sign will be located in the field.



Type j-1  
Bridge Identification Sign



## SECTION C GRAPHIC STANDARDS

As the Signage Program is applied to the full length of the Genesee Riverway Trail, several standards will apply to planning, programming and documenting all future signage and wayfinding applications. These standards will characterize both the information provided by the City to consultants and vendors as well as required formats for documentation submissions.

### Graphics Format

All fabrication and installation detail drawings will be generated and made available to potential vendors in CorelDraw (.cdr) format. This software will be used for all map graphics, symbols and pictographs as well as standard formats for Type A-1 and B-1 Pedestrian Kiosk changeable panels. Should any additional drawings or documentation be performed by other groups, all final drawings and art shall be converted to CorelDraw prior to final submission to the City.

Interpretive Signage developed by the City of Rochester will be in the same CorelDraw format. Should any Interpretive Signage be designed by other groups in other drawing formats, all final drawings and illustrations shall be converted to CorelDraw prior to final submission to the City.

All new or additional supportive documentation and specifications produced by consultants shall be supplied to the City of Rochester in Corel Word Perfect or Microsoft Word.

### Key Code

All signage to be documented and procured will entail an alpha-numeric code to distinguish individual components. This code will reference signage both in the message schedule and location maps. The City Department of Environmental Services - Development Division will provide the appropriate key numbers for each sign type. Shown below is an example of the seven unit key code.

## A1.SW.001

The first two units will identify the Signage Category (Note the full listing of Signage Categories on Page 2 of the previous section). In the example shown above "A-1" is the category type.

The second two units indicate the location quadrant in the city and reference Northeast (north of Main Street, east of the river), Southeast (south of Main Street, east of the river), Northwest (north of Main Street, west of the river) and Southwest (south of Main Street, west of the river). The example above (SW) denotes the Southwest Quadrant.

The final three units identify the unique number for each sign and distinguishes it from all other signs in the quadrant.

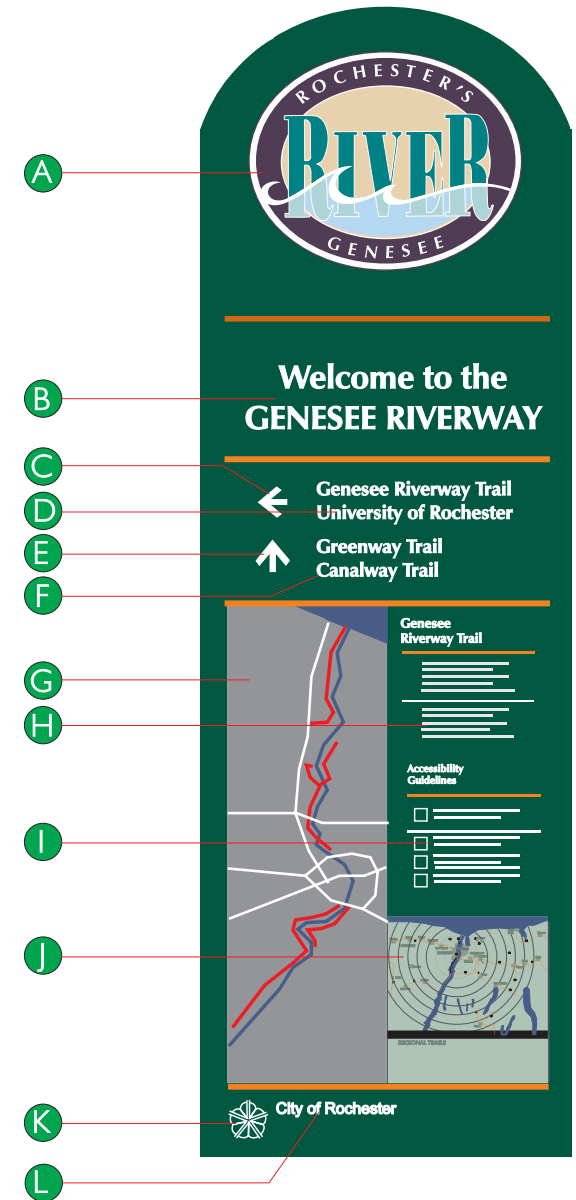


## Message Key Designations

Sign Copy is presented in the Message Column of the Sign Schedule (See example below). Information presented in parentheses denotes sign elevation description or logo usage and **does not** indicate sign copy.

Key Number	Message	Remarks
B1.SW.001	(NE Elevation) (GRT Logo) <b>A</b> Welcome to the GENESEE RIVERWAY <b>B</b> (Arrow left) <b>C</b> Genesee Riverway Trail University of Rochester <b>D</b> (Arrow up) <b>E</b> Greenway Trail Canalway Trail <b>F</b> (3'-0" x 1'-0" GRT Citywide Map) <b>G</b> (1'-0" x 1'-0" GRT Legend) <b>H</b> (1'-0" x 1'-0" Attractions and ADA) <b>I</b> (1'-0" x 1'-0" GRT Regional Trail Map) <b>J</b> (City of Rochester Logo) <b>K</b> City of Rochester <b>L</b>	(City of Rochester Personnel will locate sign in field and mark with stakes.)

Location This text will provide a brief description of the sign location.



## Typography and Font Description

The Optima family is the official letter style of the Genesee Riverway Trail Signage Program. It is readily available from manufacturers of signage and can be replicated on most computers as Optima, Zapf Humanist or Chettleford (each with a bold option). Optima Semibold is employed throughout sign messages, text and map graphics. Optima medium and Optima Medium Italic are preferable for specific applications on Interpretive Signage. Copy sizes are as shown on the detail drawings.

Among various manufacturers and letter-cutting equipment, there exists no total uniformity as to letter form. This is especially true of Optima where some manufacturers find it hard to distinguish between “Bold” and “Semibold” As such, it is recommended that typographic samples be submitted for each signage project and that they be compared to the samples shown in this Standard. This is especially important in the case of a new vendor.

The preferred letter spacing for most signage in this Standard is “Normal” and entails an average kerning of 3/4 of a stroke width (such as the stroke width of an “l” or an “n”) between vertical letter forms as shown below. All other letter spacing combinations should be proportional.

## Normal Letter Spacing

This is considered normal for most signs where natural or external lighting is available to view the sign. The only exception to this standard is the Type C-1 Vehicular Directional which, because it utilizes reflective graphics, should use an expanded letter spacing of 100% to 125% the vertical stroke width.

**ABCDEFGHIJKLMN**      **Optima Semibold**  
**OPQRSTUVWXYZ**  
**abcdefghijklmnopqr**  
**stuvwxyz.,:;!&?@\$**  
**1234567890**

ABCDEFGHIJKLMN      Optima Medium  
OPQRSTUVWXYZ  
abcdefghijklmnopqr  
stuvwxyz.,:;!&?@\$  
1234567890

*ABCDEFGHIJKLMN*      *Optima Medium Italic*  
*OPQRSTUVWXYZ*  
*abcdefghijklmnopqr*  
*stuvwxyz.,:;!&?@\$*  
*1234567890*

## Arrow and Symbol Reproduction

The directional arrow shown to the right is the only arrow that is to be used on directional signage. Its chiseled form is compatible with the Optima family. Its stroke width is comparable to a letterform of the same size. The proportional size of directional arrows and their placement on various signage categories are summarized below.







Sign Type	Location with Respect to Destination Copy	Size Proportional to Destination Copy
A-1	Flush left beside destination copy	2-1/2 times copy size
B-1	Flush left to beside destination copy	2-1/2 times copy size
C-1	Centered below destination copy	One-third larger than copy size
D-1	Flush left above copy block	One-third larger than copy size
D-2	Flush left above copy block	One-third larger than copy size
F-3	Centered below GRT logo	2-1/2" arrow in 3-3/4" colored circle

In addition to arrows, the Type A-1 and B-1 signs will employ pictographs, such as the “Picnic Area” symbol shown above. These will communicate services and amenities available in parks accessible to the Genesee Riverway Trail. These pictographs should be used consistently to identify these services on all future signage as well as any print or electronic graphics that will be produced in the context of GRT wayfinding. All applications of this family of images should originate from electronic art provided by the Department of Environmental Services.

The GRT logo depicted above is used predominantly at the top of signage elements in different sizes, depending on the overall size of the signage element. Exact sizes and locations are shown on the Detail Drawings. Any rendition of this image should originate from electronic art provided by the Department of Environmental Services. The logo art should be accompanied by a spec sheet that depicts all colors in PMS notation. This reproduction methodology also applies to applications of graphic marks for the Genesee Greenway Trail, Canalway Trail and City of Rochester.

## Colors

Included below are the predominant colors to be used for this Signage Standard. Color submittals will be required for all future program extensions and will match the samples below.

Sample	Notation	Category Application
 Dark Green	PMS 343	Use as field color for all signage panels and posts. In the event a dark green is used in the composition of Type G-1 or G-2 Interpretive Signage Panels, it should match this color. The Manufacturer shall provide color samples of both post and panel sections to ensure proper match of colors.
 White	White	Use as copy and/or arrow color on all categories except Type C-1.
 Orange	PMS 165	Use as accent rule for all signage panels and changable modules. In the event orange is used in the composition of Type G-1 or G-2 Interpretive Signage Panels, it should match this color.
 Reflective White	Scotchlite High Intensity #3870	Use as copy and arrow colors on Type C-1 Vehicular Directionals. Screen GRT logo over High Intensity Scotchlite on Type C-1 with transparent screen-printing inks.

## SECTION D DESIGN AND SUBMITAL REQUIREMENTS

### Pre-Manufacture

Prior to commencing sign manufacture, the Design Consultant and/or Manufacturer shall be responsible for providing the City of Rochester with the following submittals for review and approval:

#### ***Graphic Submittals***

The Signage Manufacturer shall furnish three sets of shop drawings for all categories included in the contract. In the event the manufacturer has had prior experience in the fabrication of specific GRT Signage Standards, he may reference and resubmit previously approved shop drawings. The manufacturer will be responsible to provide new drawings for all categories for which he has had no prior experience.

In the event signage will be fabricated from digital graphics, the manufacturer will be responsible to furnish full-color proofs. Submittals for copy and arrow symbols need not be full-scale but must be readable. In the event digital maps are to be furnished, these must be submitted at full-scale and full-color.

#### ***Signage Schedule and Location Mapping***

The Design Consultant shall submit three copies of the sign schedule and location mapping plan to confirm an understanding of the signage copy requirements and locations. In the event copy revisions or location changes are made by the City of Rochester to the Project Documents prior to the Manufacturer / Installer's submission, these changes shall be noted in the Submittal Documents.

### Post-Installation Submittals

Upon completion of the installation, the Design Consultant shall provide the City of Rochester with the following Close-Out Documentation:

- As-built drawings (hard copy and CDR files on disk).
- Final Digital Graphics of any custom or special maps or artwork.
- Final Signage Schedule and Location Plans incorporating any and all changes occurring after the Pre-Manufacture Submittals.
- Written Guarantee as per specifications.
- Written instructions pertaining to procedures for accessing changeable signage components or moving installed signs including a listing of tools required.
- Any special tools required to access the tamper proof hardware.
- Any additional manufacturer's technical data or installation instructions.
- An outline describing how and when all signage elements should be serviced and/or cleaned.
- List of contacts with telephone numbers should any Warrantee issues or operational questions arise.

## SECTION E APPENDIX

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## ***APPENDIX I: Specifications***

These specifications have been developed specifically for the Genesee Riverway Trail Signage System and shall not be altered in any way without the approval of the City of Rochester Department of Environmental Services Development Division.

Note: Specifications are available in digital format from DES Development.

Genesee Riverway Trail  
Exterior Signage Specification  
Section 10400 - Post and Panel Signage

GENERAL

1. Quality Assurance
  - A. Manufacturers and Installers Qualifications
    - i. The signage manufacturer shall have a minimum of five consecutive years in the manufacturing of signage of the particular type specified and shall have been responsible for manufacturing signage for projects of similar scope.
    - ii. The signage installer shall have a minimum of three consecutive years of installing signage of similar types specified on projects of similar scope.
    - iii. The signage manufacturer shall submit three examples of relevant work completed within the last three years and provide a project schedule, scope, budget and reference (name, title and phone number) upon request by the City.
  - B. Reference Standards
    - i. American Society of Testing and Materials (ASTM)
      - a. ASTM B 221-75, Aluminum alloy extruded bars, rods, wires, shapes and tubes.
  - C. Submittals
    - i. Shop Drawings (2 copies)
      - a. Indicate details of fabrication and installation for all materials including colors, for all sign types.
    - ii. Product Data (2 copies)
      - a. Submit complete technical data for all sign materials for all sign types.
    - iii. Samples:

Submit samples of the following upon receipt of first order:

      - a. Type A-1, B-1, D-1, or D-2 Corner Section (1 copy) painted to match PMS 343 manufactured to the same standards as a full size frame. In the event more than one of these categories is ordered, furnish only one corner section.
      - b. Solid composite phenolic panel assembly section (1 copy) including a 1/8" graphics panel and a 1/8" backer panel. The phenolic panel will be a minimum of 3" x 3".
      - c. Digital graphics example in solid composite phenolic (2 copies), shall be 3" x 3" (minimum). Graphic panel shall be manufactured to the same standards as a full size panel.



- d. Full size samples of typography in style specified on Detail Drawings. Provide three blue-line prints from original drawings. Do not use alphanotype, leterset or similar typesetting methods.
- e. Sample of each color indicated in Color Code. Samples shall be on the material that they will be applied on the sign. A digital test file that includes all predominant colors will be provided by the Designer for the fabricator's usage in developing this submittal.
- f. Full-color prints of all graphic elements or artwork to be used on signage. Designs shall be optically correct and enlarged prior to submission. Graphics need not be full size but all elements shall be clearly visible and text readable.

If the City determines that the colors of the corner section and the graphic panel do not match, the manufacturer shall modify the frame paint and/or the panel color to the City's satisfaction and resubmit samples until the City approves of the color match.

Unless changes are made to the specifications, materials or methods of manufacture, the above submittals will not need to be resubmitted for future orders under this contract.

Submit samples of the following with each order:

- a. Full color paper prints of all graphic panels including the adhesive film sign faces. Samples need not be full size, only large enough for all graphics and text to be clearly legible.

#### IV. Contractor's Responsibilities

- a. Review Shop Drawings, product data, and samples prior to submission and stamp with approval.
- b. Submittals without Contractor's stamp of approval will not be considered and will be returned for resubmission.
- c. Verify:
  - (1) Field measurements
  - (2) Field construction criteria
  - (3) Catalog Numbers and similar data
  - (4) Quantities
- d. Coordinate each submittal with requirements of work and of Contract Documents.
- e. Contractor's responsibility for errors and omissions in submittals is not relieved by Designer's review of submittals.
- f. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Designer's review of submittals, unless Designer gives written acceptance of specific deviations.

g. Notify Designer, in writing at the time of submission, of deviations in submittals from requirements of Contract Documents.

- (1) If Submittals deviate from the Contract Documents and Designer is not notified in writing of such deviation, then review is invalid.
- (2) When work is directly related and involves more than one trade, Shop Drawings shall be coordinated by the Contractor and submitted under one cover.
- (3) After a Shop Drawing base has been submitted for review, no changes may be made to that Drawing other than changes resulting from corrections made by the Designer unless such changes are clearly identified and circled before being resubmitted to the Designer. Any failure to comply with this requirement shall nullify and invalidate the Designer's review.

v. Submission Requirements:

a. Quantity:

- (1) Shop Drawings: 3 copies
- (2) Product Data: 2 copies
- (3) Samples: 2 each unless otherwise indicated in Specification Sections

b. Accompany submittals with transmittal letter, in duplicate, containing:

- (1) Date
- (2) Project Title and Number
- (3) Contractor's Name and Address
- (4) The number of each Shop Drawing, product data, and sample submitted
- (5) Notification of deviations from Contract Documents
- (6) Other pertinent data

c. Submittals shall include:

- (1) Date and Revision Dates
- (2) Project Title and Number
- (3) The Names of Designer, Contractor, Subcontractor, Supplier, and Manufacturer
- (4) Identification of Product or Material
- (5) Relation to Adjacent Structure or Materials

- (6) Field Dimensions, clearly identified as such
- (7) Specification Section Number
- (8) Applicable standards, such as ASTM number or Federal Specification
- (9) A blank space, 4" x 4" for the Designer's stamp
- (10) Identification of Deviations from Contract Documents
- (11) Contractor's stamp, initialed or signed, certifying review of submittal, verification of field measurements, and compliance with Contract Documents

vi. Review Procedure:

- a. Stamped "No Exception Taken".
  - (1) No corrections or resubmissions required, fabrication may proceed.
- b. Stamped "Make Corrections Noted".
  - (1) If Contractor complies with noted corrections, fabrication may proceed. Submit corrected print for final review.
  - (2) If for any reason the Contractor cannot comply with the noted corrections, fabrication shall not proceed and Contractor shall resubmit, following procedures outlined hereinbefore.
- c. Stamped "Revise and Resubmit" or "Rejected"
  - (1) Contractor shall revise and resubmit for review, fabrication shall not proceed.

vii. Resubmission Requirements:

- a. Shop Drawings
  - (1) Revise initial drawings as required and resubmit as specified for initial submittal.
  - (2) Indicate on Drawings any changes which have been made.
- b. Product Data and Samples:
  - (1) Submit new data and samples as required for initial submittal.

viii. Distribution of Submittals after Review by Contractor:

- a. Distribute copies of Shop Drawings and product data which carry Designer's stamp, to:

- (1) Contractor's File
- (2) Job-Site File (Record Copy)
- (3) Other Contractors
- (4) Subcontractors
- (5) Supplier

b. Distribute Samples as Directed

- (1) Shop drawings, product data, and samples which do not have the Designer's stamp "No Exceptions Taken" or "Make Corrections Noted" will not be permitted on the project site.

ix. Designer's Duties:

a. Review submittals with reasonable promptness.

b. Review for:

- (1) Design concept of project.
- (2) Information given in Contract Documents.

c. Review of separate item does not constitute review of an assembly in which item functions.

d. Affix stamp and initials or signature certifying review of submittal.

e. Return submittals to Contractor for distribution.

x. Delivery, Storage, and Handling

a. Exterior signage components, to be installed by the manufacturer, will be accepted under the following conditions:

- (1) Deliver materials with manufacturers tags and labels intact. Store in original packaging, off the ground, and under protective covers.

- (2) Handle so as to prevent damage.

- (3) Contractor shall be responsible for storage and safety of all signage materials until installation is complete.

- (4) The City reserves the right to inspect all materials upon delivery to installation site and to reject any materials that are damaged, defective, or do not

meet these specifications. Rejected signs shall be promptly removed from the project site. The manufacturer shall correct noted deficiencies and notify City of repair and re-delivery schedule.

b. Exterior signage components, to be delivered to the City and installed by someone other than the manufacturer, will be accepted under the following conditions:

(1) Deliver materials completely assembled and ready for installation with manufacturer's tags and labels intact. Shall be delivered in protective packaging (boxed, shrink-wrapped, cardboard guards, etc.), palletized, and under protective covers to prevent damage during shipping.

(2) Invoices shall list all parts delivered and be broken down by pallet and/or container.

(3) Invoices shall be cross referenced to the pallets and containers for ease of item location.

(4) The City reserves the right to reject any materials that are damaged, defective, or do not meet the above requirements. If rejected, the City shall immediately notify the manufacturer of reason(s) for rejection. Rejected materials shall be promptly removed from the delivery site. The manufacturer shall correct noted deficiencies and notify City of repair and delivery schedule.

xi. Job Conditions

a. Examination of Base Surfaces

(1) Examine the base surfaces and conditions under which their materials are to be installed and verify all dimensions in the field.

(2) Notify the General Contractor in writing, with copy to Designer, if conditions are detrimental to the proper and timely completion of the work. Do not proceed with work until unsatisfactory conditions have been corrected. Commencement of installation constitutes acceptance of base surfaces and the cost of any corrective work due to faulty base surfaces shall be born by the Contractor.

b. Protection

(1) Preserve and protect all existing site features, including by not limited to pavements, curbs, lawn, plantings. Preserve and protect all portions of the existing building(s).

(2) The trail shall remain open and passable at all times unless otherwise approved by the City. "Caution Construction Ahead" or similar signs shall be placed on either approach to the installation site as ordered by the City.

c. Restoration

(1) If damage is caused to existing site features or buildings as a result of the work under this Contract, it shall be corrected to the satisfaction of the Designer at the expense of the Contractor. Correction shall be by restoration or replacement, as determined by the Designer at no additional cost to the City.

(2) Paved or lawn areas disturbed by the Contractors activities during the execution of the contract shall be restored to the lines and grades existing prior to disruption, unless otherwise noted in the contract, and as directed by the Project Manager. This will include reseeding of lawn areas.

(3) Excavated materials shall be removed from the installation site at the end of each work day and properly disposed of by the contractor. Materials shall not be broadcast on site.

D. Guarantee

i. Provide a one-year guarantee, from the date of acceptance of the complete installation. The guarantee shall apply to the following sign system characteristics:

ii. There shall be no:

- a. Evidence of cupping, warping, or dishing in excess of the requirements stipulated in the Specifications.
- b. Evidence of delamination of any of the parts of signs or of any lettering from the sign face.
- c. Evidence of bubbling, crazing, chalking, rusting, yellowing or other disintegration of the sign face, messages, message inserts, or edge finish of sign panels.
- d. Evidence of corrosion beneath point surfaces of the support systems.
- e. Evidence of corrosion of the fastenings.
- f. Evidence of signs out of plumb on their foundations.
- g. Evidence of color fading when matched against a sample of the original color and material.
- h. Evidence of seam separation of frame joints.

iii. Provide a twenty-year guarantee, from the date of acceptance of the complete installation, on the color retention of all digital graphics.

- a. The digital graphic panels shall be guaranteed for a period of five years, from the date of acceptance of the complete installation, against delamination (of the panel itself and from the aluminum backer), bubbling, crazing, chalking, rusting, yellowing or other degradation of the sign face. In the event of any such panel failure the contractor shall supply and install new graphic panels complete with aluminum backers at no cost to the City.

2. Products

- A. Acceptable Manufacturers
  - i. Architectural Graphics, Inc.  
2655 International Parkway, Virginia Beach, Virginia 23452 (800-877-7868)
  - ii. ASI Sign Systems  
2957 Alt Boulevard, Grand Island, New York 14072  
(716-775-0104)
  - iii. Fossil Graphics  
44 Jeffyn Blvd., Deer Park, New York 11729 (800-244-9809)
  - iv. Park Place, Inc.  
401 South Maple, Hannibal, Missouri 63401  
(800) 650-7275
  - v. Eastern Metal/USA Sign  
1430 Sullivan Street, Elmira, New York 14901  
(800) 872-7446
  - vi. The Plastic Lumber Company  
115 West Bartges Street, Akron, Ohio 44311  
(303) 762-8989 x208
- 3. Materials
  - A. Post and Panel Signs
    - Materials shall meet the following requirements:
      - i. Sign Panels to be fabricated from 5052H38 sheet aluminum around aluminum framing to form smooth non-lipped finish. Aluminum panels will be degreased, immersed in a chromate conversion solution and hot water rinse.
      - ii. Posts to be .125" wall thickness and 4" in diameter as specified on the Detail Drawings.
      - iii. Awning to be .125 thick aluminum formed and attached to sign panel has shown on Detail S-1D.
      - iv. Graphic panels will utilize .125" (3mm) thick solid composite phenolic graphics panels with a subsurface graphic image as manufactured by Fossil Graphics. Graphic panels shall meet the following requirements:
        - a. Graphic panels unless otherwise noted shall be solid composite phenolic panels with fire retardent, graffiti proof and UV resistant properties. The panels shall also be resistant to humidity, frost, heat, corrosion, mildew, fungus and impact.
        - b. These panels shall be utilized on A-1 and B-1 kiosks, D-1 and D-2 directionals, E-1 hazard warning signs, F-1 and F-3 trail markers, and G-1 and G-2 interpretive signs.
        - c. Graphics on all solid composite phenolic panels to be digitally printed. All map art and logos will be furnished by the Owner.



d. The solid composite phenolic graphic panels shall meet the following technical specifications:

- Thickness: 1/8" (0.125" / 3mm)
- Approx. Weight/SF: 0.91 lbs.
- Surface Finish: Textured semi-matte or semi-gloss outdoor finish
- Compressive Strength: M.D. 193,064 Kpa (31,000 PSI)  
C.D. 172,378 Kpa (25,000 PSI)
- Tensile Strength: M.D. 151,693 Kpa (22,000 PSI)  
C.D. 110,322 Kpa (16,000 PSI)
- Flexural Strength: M.D. 158,588 Kpa (23,000 PSI)  
C.D. 103,427 Kpa (15,000 PSI)
- Impact (Edgewise): M.D. 0.6 FT/LBS/IN  
C.D. 0.5 FT/LBS/IN
- Rockwell Hardness M Scale: 95 to 115
- Flammability ASTM E-162: Flame propagation index of 10
- Radiant Panel: to 15 without drip of flame; 1/10" to 1/2" thickness
- Water Absorption: 1/4":0.9% - 1/2":-0.6% - 1":0.35%
- Toxicity Test: LC50 Pittsburgh Protocol Toxicity test. Equal to and no more toxic than wood or paper.
- UV Resistance: Exterior Grade with 20 year warranty: based on ASTM G26/A, no changes after 3000 hrs.
- Frost Resistance: No change after 15 cycles (16 hrs ice at -20o C and 8 hrs thawing in air)
- Pollution Resistance: DIN 50018 No change after 20 cycles
- Coefficient of Thermal Expansion:  
DIN 51045 (-20oC to +80oC temp. Range) Longitudinal 9x10-6 per oC Transverse 16x10-6 per oC

v. Types VD Vehicular Directional, PD Pedestrian Directional and C-1 Vehicular Directional to employ fabricated aluminum panels with applied reflective SCOTCHLITE vinyl graphics.

vi. The minimum thickness of all sign faces, posts, corners and edges will be a minimum .125" throughout.

vii. Size, finish, color and typeface will be as shown on Detail Drawings.

B. Concrete  
Concrete for footers and sidewalk repairs shall be class K conforming to Section R504 of the City of Rochester Standard Specifications.

4. Fabrication

A. Panel Assembly

i. Aluminum panels to be attached to aluminum framing with VERSILOK brand structural adhesive to form a box shape. Panels to receive end extrusion for attachment to posts.

ii. Graphic panels to be employed in Types A-1 and B-1 kiosks and the D-1 and D-2 directional signs



will be a composite of a .125" digitally-printed solid composite phenolic graphics panel and .125" aluminum backer panel. The backer panel shall be bonded to the graphics panel with .020" thick 3M Brand VHB adhesive. Backer panels will meet the dimensional requirements as depicted on the detail drawings.

- iii. All seams will be filled, ground smooth and painted.
- iv. Panel fabrication shall include 3/4" diameter weep holes at the bottom surface of the panels on each side to permit evacuation of condensation buildup. Weep holes will receive screens attached to inside surface of panel to prevent insect entry.
- v. Use 1" long aluminum cylinder connector between post and panel side. The connector shall be machined to conform to the contour of the post and shall fit snugly between the post and panel with a maximum of a 3/32" gap total both sides.

B. Sign Post and Framework Painting

- i. Prime with Grip-Guard Wash Primer as manufactured by Akzo Nobel Decorative Coatings Ltd. or equal.
- ii. Paint panels with two-part acrylic urethane enamel as manufactured by Akzo Nobel or equal.
  - a. Paint to have semi-gloss finish.

C. Graphics Application

- i. Graphics on all solid composite phenolic panels to be digitally printed. All map art and logos will be furnished by the Owner as a graphics file in a CDR or EPS format.

D. Graphics Specifications

- i. Typography to be Optima Semi Bold unless otherwise specified. Logotype art will be furnished by Owner. Letter spacing to be equal to approximately 80% stroke width between straight vertical such as "n" or "i". All other letter spacing combinations should be visually proportional.
- ii. Line spacing will be as shown on the detail drawings.
- iii. The City shall provide the required sign text on a Signage Schedule provided with each order.

- iv. The City shall supply all graphic files in CorelDraw format, version 7 through version 12. It shall be the responsibility of the manufacturer to accommodate these file types.

E. Wind Load Requirements

- i. Fabricate signs to withstand a wind load of 35 pounds per square foot or a direct wind force of 110 miles per hour.
- ii. Manufacturer shall supply the galvanized steel bolts for each sign as determined by the above wind load requirements and the contract details, regardless of who is to install the sign(s).

- F. Proof-Reading
  - i. Fabricator will be responsible for proof-reading all completed signs for message accuracy.

## EXECUTION

- 1. Installation
  - A. General
    - i. The City shall provide the Contractor with location mapping for all signs ordered for installation at the time of the order and shall place stakes in the field at the appropriate locations.
      - ii. All signage elements will be mounted a minimum of 3'-0" from the edge of the trail to permit safe passage of trail users.
      - ii. The Contractor shall not install any signage in the field until the City Project Manager verifies the exact location of the installation and approves of the alignment of the sign face to the adjacent trail.
      - iii. The contractor is to ensure that the correct sign face faces the appropriate direction. Verification with City Project Manager is recommended.
      - iv. The locations of existing utilities (if shown) in the plans are approximate only. They are not guaranteed to be accurate or complete. All utilities were plotted from field surface survey data and in conjunction with record mapping supplied by the respective utility company. It is the responsibility of the Contractor to verify the location of all utilities located within the work area, to the Contractors' satisfaction. The Contractor is to request a utility stake out a minimum of 2 working days in advance of commencing any work, by calling the Underground Facilities Protective Organization (UFPPO) at 1-800-962-7962.
      - v. For signs to be installed by those other than the manufacturer:
        - a. Signs for installation shall be delivered to a location within the Rochester metropolitan area chosen by the City. The manufacturer will deliver the signs completely assembled and ready for installation.
        - b. It will be the responsibility of the installation Contractor to arrange for the pick-up of the signage from the City storage location. At the time of pick-up, the Contractor shall verify that all items listed on the manufacturer's invoice are present and accounted for and in sound, undamaged condition. Any discrepancies between the invoice and the materials present shall be immediately reported to the City Project Manager. Any items found missing or damaged after pick-up by the installation contractor shall be the sole responsibility of said contractor.
        - c. The City will provide the Contractor with all shop drawings and manufacturers installation instructions upon award of contract.

## B. Manufacturers Directions

- i. All work will be installed in accordance with manufacturer's printed instructions and the approved shop drawings.
- ii. All manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned, as directed by the manufacturer, unless otherwise specified.

C. Mounting

- i. Types A-1 and B-1 post and panel signs will be mounted onto removable baseplates located at grade on concrete foundations to a depth of 3'-6".
  - ii. Types C-1, D-1, D-2 and E-1 post and panel signs will be directly buried into concrete foundations to a depth of 3'-6".
  - iii. Type F-1, F-3 and H-1 post and panel signs will be installed in concrete anchors to a depth of 3'-6".
  - iv. Type F-2 bollard to include flange mounting to permit removal of sign at grade as per detail S-6A.
  - iv. Concrete for footers shall be class K conforming to Section R504 of the City of Rochester Standard Specifications
  - v. Mount Type PD and VD directionals on existing light poles with mounting brackets as manufactured by Palco Inc. or equal and BAND-IT Brand  $\frac{3}{4}$ " wide VALUSTRAP stainless steel strapping and VALUCLIPS.
  - vi. All work will be installed plumb, level and in true alignment.
  - vii. All components will be securely attached.
  - viii. All above-grade connections of separate or moveable components will be water-tight.
2. Permits
- A. Sign Permits
    - i. Sign Permits for all components in this program will be obtained by the Owner and handed over to the Fabricator/ installer during the Field Verification visit
    - ii. The installer will be responsible to obtain any registrations, licenses or permits necessary to install signage.

Genesee Riverway Trail  
Exterior Signage Specification  
Section 10406 - Adhesive Film Graphics

PRODUCTS

1. Acceptable Manufacturers: See Section 10400
2. Materials
  - A. Machine-cut Vinyl Letters
    - i. Graphics to be cut from semi-gloss and/ or reflective vinyl sheeting as indicated in Detail Drawings.
    - ii. Graphics will be capable of removal, without damage to surfaces on which they are applied, by means of suitable liquid solvent
    - iii. The maximum thickness for non-reflective vinyl graphics will be 0.003".
    - iv. Sign types C-1, H-1, PD and VD will receive 3M Brand reflective Scotchlite. The Genesee Riverway Trail logo will be screen-printed with transparent ink on a reflective SCOTCHPRINT 2 decal on 3M white 680 SCOTCHLITE.
    - v. Vinyl graphics adhesive quality will be a minimum 55 ounces per inch width, after curing 24 hours, to break the adhesive bond.
    - vi. Maximum shrinkage will be 0.10% when measured after cooling to 70 degrees F. following subjection to 150 degrees F. for 48 hours.
    - vii. Tensile strength to be 2000 pounds per square inch minimum.
    - viii. Tear strength to be 0.15 pounds per 0.001" thickness.
    - ix. Size, color and typeface to be as shown on detail drawings.
  - B. Graphics Application
    - i. Graphics to be cut with MY-CUT MC-3005 Vinyl Cutting Equipment as manufactured by Mimaki Industries or equal.
    - ii. Graphics to be pre-spaced and pre-aligned on a carrier.
    - iii. Execute cutting in such a manner that all edges and corners of graphics and letterforms are true and clean. Round, positive or negative corners will not be acceptable.

EXECUTION

1. Installation
  - A. Manufacturers Directions: See Section 10400.
  - B. Mounting
    - i. Clean application surfaces with Xylol or similar solvent. Follow with water rinse and dry thoroughly.
    - ii. All graphics shall be burnished to eliminate all air pockets.
    - iii. All graphics shall be installed plumb, level and in true alignment.

## ITEM 685.15 25 ACRYLIC PAVEMENT MARKINGS PAINT

**DESCRIPTION:**

This work consists of furnishing and applying acrylic waterborne pavement marking paint at the locations and in accordance with the patterns indicated on the Plans, or as ordered by the Engineer, and in conformance with the New York State Manual of Uniform Traffic Control Devices and these specifications.

The acrylic waterborne pavement marking paint shall be used for pavement marking on asphalt and Portland cement concrete pavement surfaces. Following curing, it shall produce an adherent logo of specified thickness and width capable of resisting wear from common sidewalk traffic.

**MATERIALS:**

**Acrylic Waterborne Pavement Marking Paint:**

Shall be 'Selfast' acrylic waterborne pavement marking paint as manufactured by Sherwin-Williams, Inc. or approved equal specifically intended for use in roadway, and on road pavement surfaces.

The paint shall be well mixed in the manufacturing process and shall be free from defects and imperfections that may adversely affect the serviceability of the finished product. The paint shall not liver, thicken, curdle gel, settle excessively, or otherwise display any objectionable properties after storage. Individual components shall not require mixing prior to use when stored for a maximum of 12 months.

Tinting of colors to match those required for the project (orange, white, light blue, dark green) shall be done to the degree possible by the manufacturer or the manufacturer's representative. The contractor shall provide to the owner a description of the tinting ingredients required for each color specified and color samples of all colors to be used. The contractor shall deliver to the owner all remaining paint containers for the owner's use and one full 5-gallon container of each color required for the project.

The overall paint composition shall be left to the discretion of the manufacturer, but shall meet the following requirements:

<b>Composition: Component Percent by Weight</b>	
Total Solids:	56% minimum by volume 73% minimum by weight
Pigment Weight Percent:	56% minimum
Vehicle Type:	100% Acrylic Emulsion Polymer Latex

<b>Recommended Spreading Rate per Coat:</b>	
Approximately 320 lineal feet of standard 4" stripe per gallon.	
Wet mils:	15.0
Dry mils:	8.5
Coverage:	110 sq. ft./gal., approximate
Drying Schedule @ 15.0 mils wet @ 50% RH @77 degrees F	
To touch	45 minutes
No traffic pickup after:	45 minutes

<b>Performance Characteristics</b>	
Abrasion Resistance	ASTM D969
Bead Adhesion	ASTM D969
Bleed Resistance	ASTM D968
Bleed Ratio	TT-P-1952E
Dry-No-Pickup	ASTM D711
Flash Point	ASTM D3278
Flexibility	TT-P-1952E
Freeze-Thaw Resistance	ASTM D2243
Scrub Resistance	ASTM D2486
Viscosity	ASTM D562
Volatile Organic Compounds	ASTM D3960



**Packaging and Shipment Requirements:**

Pavement marking materials shall be shipped to the job site in strong substantial containers. Individual containers shall be plainly marked with the following information:

- A. Name of Product
- B. Lot Number
- C. Batch Number
- D. Test Number
- E. Date of Manufacture
- F. Date of expiration of acceptance (6 months from date of manufacture)
- G. Application information, Temperature and Instructions
- H. Quantity
- I. Application Thickness: Wet and Dry
- J. Safety Information
- K. Manufacturer's Name and Address

**Stencil Materials:**

Shall be plastic, 20 mil thickness minimum and prepared by a qualified sign manufacturer. The contractor shall provide a total of 4 complete sets of templates to the City, not including what is needed for the completion of the contractor's work on this project.

**CONSTRUCTION DETAILS:**

**General:** All pavement markings shall be placed as shown on the Plans. Before any pavement markings work is begun, a schedule of operations shall be submitted for the approval of the Engineer. Final logo locations shall be confirmed in the field by the City Project Manager prior to installation. At least five (5) days prior to starting application of pavement markings the Contractor shall provide the Engineer with the manufacturer's written instructions for use. These instructions shall include but not be limited to: application rates & temperatures, and recommendations for use of spray devices and other application methods.

The Contractor shall be responsible for removing, to the satisfaction of the Engineer, tracking marks, spilled markings applied in unauthorized areas.

**Atmospheric Conditions:** Acrylic pavement markings shall only be applied during conditions of dry weather and on substantially dry pavement surfaces. At the time of installation the pavement surface temperature shall be a minimum of 50°F, 100°F maximum, air, surface, and material, at least 5°F above dew point. The relative humidity shall be 85% maximum. The Engineer shall be the sole determiner as to when atmospheric conditions and pavement surface conditions are such to produce satisfactory results.

**Surface Preparation:** Locate proposed crosswalks and obtain approval of all locations from the City Project Manager. Upon approval, the Contractor shall clean the pavement or existing pavement markings to the satisfaction of the Engineer. Surface cleaning and preparation work shall be performed only in the area of the acrylic pavement markings application. The contractor shall then apply black coating over all existing crosswalk markings in all areas where new markings will be applied within the designated proposed width of the crosswalk.

At the time of application **all** pavement surfaces and existing durable markings shall be free of oil, dirt, dust, grease and similar foreign materials. The cost of cleaning these contaminants shall be included in the bid price of this item. Also, the item shall include the cost of removal of stray marks and over-spray of the markings application. If concrete curing compounds on new Portland cement concrete surfaces have been used, waterblasting will not be permitted for removal.

**Acrylic Applying Equipment:** Applying equipment for the placement of acrylic pavement markings shall be approved by the City, prior to the start of work. At any time throughout the duration of the project, the Contractor shall provide free access to his acrylic applying equipment for inspection by the City or their authorized representative. In general, the applying equipment shall be specifically designed to apply acrylic waterborne pavement marking materials in continuous patterns. The applying equipment shall be maneuverable to the extent that straight lines can be followed and normal curves can be made in a true arc.

**Application of Acrylic Pavement Markings:** Black and other color acrylic pavement markings shall be placed in the areas designated on the Contract Plans. Markings operations shall not begin until applicable surface preparation work is completed, and approved by the Engineer. Acrylic pavement markings shall be applied at a minimum uniform thickness of 15 mils wet on all concrete and asphalt concrete.

Any markings which, after application and curing, are determined by the Engineer to be defective and not in

conformance with the specification, shall be repaired or replaced at no additional cost to the Authority. Defective markings include, but are not limited to, insufficient film thickness and area coverage; and insufficient bond to existing surface.

**BASIS OF PAYMENT**

The cost of fabricating and supplying paint and stencils as well as painting logos in the field as indicated in the contract documents and furnishing all labor, material and equipment necessary to complete the work shall be included in the LUMP SUM price bid for the contract.

**END SECTION**



## SECTION S690 - PAVEMENT PATTERNING

### **S690-1 DESCRIPTION**

Work consists of patterning of pavement surfaces as required in Contract Documents and as directed by Project Manager.

### **S690-2 MATERIALS**

#### **S690-2.01 General**

Pattern, colors and materials to be used for patterning pavement surface will be as required in Contract Documents.

Individual components used to form completed system used to pattern pavement surface are to be congruous, and supplied by same manufacturer, and designed to withstand AASHTO HS-20-44 Wheel Loading.

#### **S690-2.02 Decorative Overlay Thermoplastic Pavement Marking System**

Decorative overlay thermoplastic pavement marking system to be used for displaying preformed logo or symbol on asphalt surface is to consist of highly durable, crack, fade, skid and slip resistant reflective thermoplastic material specifically designed to adhere to hot mix asphalt pavement.

The thermoplastic material shall have a thickness of 90 mils, and consist of color pigmented plastic film with imbedded reflective glass spheres, uniformly distributed throughout their entire cross-sectional area.

Decorative overlay thermoplastic pavement marking material is to be LogoTherm as manufactured by Integrated Paving Concepts Inc, or approved equivalent.

### **S690-3 CONSTRUCTION DETAILS**

Preparation of pavement surface, equipment, materials, and method of application of the decorative overlay thermoplastic pavement markings will be as required by manufacturer.

The contractor doing this work shall be an authorized applicator/installer as licensed and/or approved by the manufacturer, and shall have at least one crew member on site who has successfully completed an accreditation training program.

### **S690-4 BASIS OF PAYMENT**

The installation of all decorative overlay thermoplastic pavement markings including the cost of all labor, materials and equipment necessary to complete the work, shall be included in the LUMP SUM bid price for the contract.

**END SECTION**