

Creating outdoor trail signage

Part 2: Fabrication and installation

by Ellen Miller and Aaron Novodvorsky

Part 1 of this Tech Talk took you through the planning, development and design of outdoor trail signs (see the Interpreter, May-June 2008). Now it's time to have your trail signage produced.

Choose the material that's best for your site

You have five choices of material for your outdoor signs: cast aluminum, fiberglass, phenolic resin, porcelain enamel and vinyl on aluminum. Weigh the pluses and minuses of each against the requirements of your site.

- **Cast aluminum markers** are popular for their association with locations of historical interest. Their characteristic look, with light or gold lettering against a dark background, makes them readily recognizable. Durable and heavy, cast aluminum is a good choice for low- or no-maintenance locations such as roadside rests. These panels stand up well to adverse weather conditions. One drawback: they cannot be used for color photographs. Cast aluminum markers generally require a production timetable of 8 to 10 weeks and are moderate to high in price.
- **Fiberglass panels** imbed a digitally produced paper graphic in acrylic-modified polyester resin on a woven mesh backing. Easy to maintain and clean, they can be treated like a fiberglass automobile body. However, they have a relatively short lifespan (5 to 8 years). Though the material filters some ultraviolet light, these signs will fade and become brittle over time; once scarred or cut, the panels will begin to oxidize and fail along the edges of the scar. But because fiberglass signs are moderate to low in price, multiples of the same sign can be produced at one time and simply replaced as needed. That makes this type of panel good for areas that may be prone to vandalism or other damage. Fiberglass panels generally call for 6 to 8 weeks of production time.
- **Phenolic resin panels** are essentially a high-pressure laminate that encapsulates a digital paper graphic between layers of ultraviolet-filtering film and resin composed of formaldehyde and phenol (think kitchen countertops). These panels are good for all locations – remote or staffed, wet or dry. They can be easily maintained and cleaned by waxing once a year with a high-quality automotive wax. If vandalized, they hold their integrity well even after being damaged. Phenolic resin signs used in the field by the Minnesota Historical Society have held up for more than 10 years. These colorfast panels are an excellent choice for reproducing high-resolution photographs. Production time is 6 to 8 weeks; prices are moderate.
- **Porcelain enamel markers** are made by fusing glass to steel. They are



Minnesota Historical Society photos

Durable cast aluminum markers like this one require little or no maintenance, making them a good choice for roadside rest areas.

durable and stable and perform very well in moist environments such as zoos and aquariums. However, if damaged, porcelain enamel will rust, causing surface stains or bleeds. Because they are expensive to produce, these panels should be placed in areas that are regularly staffed. They generally require 10 to 12 weeks of production time.

- **Vinyl graphics on aluminum backers**, commonly used for highway markers, are ideal for semipermanent, way-finding signs. They are an economical solution for signs that need to change

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from season to season – those announcing hours of operation, for example, or signs carrying directional or instructional information. The aluminum backer won't rust, and the vinyl lettering can be changed readily without affecting the sign's background and standard information. This type of signage looks professional and offers flexibility, minimizing season-to-season costs. Vinyl-on-aluminum signs take from 3 to 4 weeks to produce.

Fabricate the frame

While your graphic signs are being produced, use the time to fabricate the frames that will hold them. Wood, steel or aluminum – all can be used for your frames. Your choice will depend on several variables – where the signs will be placed, what your budget is and how much maintenance your organization is willing and able to do.

- **Wood** is the most readily available and user-friendly material for trail sign frames. You may even be able to find a volunteer who can make them for you. Since the frames will be exposed to the elements year-round, it's important to use exterior-grade wood, primers, paints and sealers. To prolong the life of your wood frames, don't forget to prime and seal the end grains. Of the three choices of material, wood frames are the most easily damaged or destroyed and will require the most maintenance. If you've ever had to repair a wooden fence, you'll have a good understanding of what sort of maintenance would be involved.



This fiberglass panel shows fading from exposure to ultraviolet light. Though they have a relatively short lifespan, fiberglass panels are inexpensive to produce so multiples can be ordered for replacement as needed.

- There are advantages and disadvantages to using either **steel or aluminum** for frame fabrication. You may be able to have steel frames made locally, whereas aluminum frames may have to be fabricated elsewhere, adding to shipping costs. As for the material itself, steel frames will rust when exposed to the elements, leaving red-brown stains. Aluminum will not rust or stain when left outside. In addition, aluminum frames are usually about half the weight of their steel counterparts.
- There are also variables to consider when choosing the **finish** for steel or aluminum frames. One option is **painting**, which can usually be done locally. Painted metal frames also are easy to repair and touch up but, in

general, are less durable than the other option, **powder coating**. Typically done by specialty fabricators, powder coating is an electrochemical process that bonds pigment to the metal. The powder-coated finish is much harder than a standard painted finish and therefore resists scratching. The downside to powder-coated finishes is that they are difficult to match when touch-ups are needed; automotive epoxy paint comes closest to matching their finish and durability.

- As for **cost**, steel frames and painted finishes are, overall, less expensive to begin with but will require more maintenance over time. Aluminum frames and powder-coated finishes are more expensive at the outset but will require less maintenance.

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More things to consider before installation

A few more decisions remain before you're ready to send your signs for fabrication. Determining the exact requirements for their installation – how and where you plan to affix the signs – will help you find the solution that best fits your circumstances.

- Will you attach your signs to the walls of buildings? That will have a bearing on the type of frame you choose – something relatively lightweight, for example, with no legs.
- Will your signs stand on the ground? If so, will they be attached to posts buried in the ground or will they just sit on the ground? If you're using buried posts, they need to be sunk

at least 48 inches into the ground to avoid upheaval as the ground freezes and thaws. If your signs are to rest on top of the ground, they should be weighted so that neither the wind nor visitors can move them easily. Consider a concrete base for this type of sign.

- Will you be mowing the area around your signs? If so, consider a leg design that is easy to work around. Also consider whether you'll be removing snow from around your signs or using ice-melt (salt) near them.

Salty water doesn't mix well with either wood or steel signposts. Wood soaks water in deeply and salt opens the pores of the wood. When cold weather arrives, that water freezes at the post's core,



This type of marker, with vinyl graphics or lettering on an aluminum backer, is an economical solution for signs that need to change seasonally.

gradually destroying it from the inside out. Steel rusts, developing red and brown scars, blisters and other surface blemishes. Eventually the structure

of the steel will be compromised and you'll find your sign lying on the ground. Aluminum signposts are less susceptible to damage from salty water, exhibiting only a white oxidized powder after contact.

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ECONOMIC ENGINE

With hundreds of men and some 175 horses, the garrison had a gargantuan appetite for wood, hay, grain, corn, and beef. Unable to meet the requirements of the post through any direct federal supply system, the War Department issued contracts to civilian suppliers offering the lowest bids. For years, this system made Fort Ridgely the best market in the Minnesota River valley for farmers and businessmen.

The post also provided much-appreciated services to the community. The army surgeons treated and sold medicines to area residents. Mail could be picked up or dropped off at the fort. Groceries and a variety of goods could be purchased at the sutler's store. Local farmers could use the post's slaughterhouse (located one mile from Ridgely) and buy lumber from the post's sawmill.

Getting Here
From 1853 to 1856, steamboats were the principal mode of transportation for military personnel and supplies going to and from Fort Ridgely. The presence of the post and succeeding white settlements led Congress to improve and build new military roads in the territory. By 1858, land routes had mostly replaced the water routes to the fort.

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Colorfast phenolic resin panels are easy to maintain and hold up well in a variety of settings.

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Project timetable

By this time, you're no doubt wondering how long it will take to create outdoor trail signs from start to finish. The answer: probably longer than you or your board planned for! The easiest way to avoid missed deadlines and other frustrations is to **plan your timetable backwards** from a target completion date. Put your schedule together using the following guidelines:

- **Installation:** On average, you should plan for 1 to 3 days for installation. Allow extra time for bad weather.
- **Production of graphics:** Once the production vendor receives the file (DVD or CD) for your sign graphics, it can take up to 12 weeks for fabrication, depending on the material you've chosen for your signs. Add 2 more weeks for delivery. You can request a shorter production time but rush fees will add to your costs.
- **Frame production:** Since this typically takes less time than production of the graphics, you can easily complete this step while the signs are being made.
- **Final graphic design and file preparation:** Set aside up to 3 weeks for your graphic designer to finalize the digital files of your sign layouts and prepare them for production. Don't forget to review and sign off on the final layouts.
- **Preliminary graphic design:** Your graphic designer will work with you to develop layouts for your signs, using low-resolution images and a variety of designs for your review. Plan for 1 month or more for this process.
- **Research and text writing:** Allow 3 months or more for this initial step, depending upon the quantity of your signs, the complexity of your stories and the number of individuals or groups involved with you. You'll need ample time to select your stories and images; research, write and edit your texts; and send them through the review and approval process. Meanwhile, select a graphic designer to help you create signs with visual appeal.
- **Research and text writing** = up to 12 weeks.
- **Preliminary graphic design** = up to 4 weeks.
- **Final graphic design and file preparation** = up to 3 weeks.
- **Production of graphics** = up to 12 weeks for production and 2 more weeks for delivery.
- **Frame production** = coincides with graphic production.
- **Installation** = up to 1 week just in case Mother Nature doesn't cooperate.

So, from start to finish, how does this all add up?

That's a grand total of 34 weeks, or more than 8 months. Of course, you'll likely be doing other work at the same time so your sign project may take even longer. In other words, if your board tells you to make this happen by your community's Fourth of July celebration, they had better start the ball rolling in September, not February! ■

Ellen Miller, an exhibit developer, and Aaron Novodvorsky, an exhibit project manager, both with the Minnesota Historical Society, have been working in their respective areas of expertise for more than 14 years. They can be reached by email or phone: ellen.miller@mnhs.org or 651-259-3060, and aaron.novodvorsky@mnhs.org or 651-259-3052.

Correction

In Part 1 of this Tech Talk, which appeared in the May-June 2008 Interpreter, credit for the photos on pages 3 (left) and 4 should have been given to Corbis/Bettmann. We regret the omission.



Porcelain enamel panels are durable and stable but expensive to produce.