VULCAN
UTILITY SIGNS

LINE MARKER SIGNS

There are two primary components to a **line marker sign**. The rigid substrate and decoration of each. The selection of the rigid substrate is important based on factors of longevity, use, mounting consideration and the overall size.

The Substrate:

The material used in making outdoor durable signs has continued to evolve over the years. Steel was the main material used until aluminum was developed as a lighter, corrosion resistant and with similar strength. The plastic industry formulated an outdoor durable material, namely HDPE for signs. Recently ACM, Aluminum Composite Material, has become another substrate for use. Each of these have they're on pros and cons as show in the table below.

SUBSTRATE	RIGID	RECYCLABLE	ACCEPTS DECALS OR FILM	SURVIVES DITCH BURNS
Aluminum	1	1	1	1
Aluminum Composite Material ACM	1	4	1	2
HDPE	3	4	4	3

1 = Best; 2 = Good; 3 = Average; 4 = Not recommended

The Decoration:

The decoration of the rigid substrate is just as important as the substrate. If the sign does not "convey a message" then its purpose is no longer being fulfilled. Different substrates have different printing methods that have been proven to endure the outdoor environment. The decoration method of each substrate provides different outdoor message legibility expectations as shown here.

SUBSTRATE DECORATION	LEGIBILITY EXPECTANCY
Aluminum	10 + Years
Aluminum Composite Material - ACM	7-10 Years
High Density Polyethylene - HDPE	5-7 Years

ALUMINUM SUBSTRATE DECORATION: Extensive research and development have been and continues in the challenging problem of providing the decoration that will last many years in an outdoor application. Our R&D continues to prove that a Thermoset Polyester Ink system applied to aluminum provides the best and longest legibility in the outdoors. A Thermoset Polyester system only cures with heat at a minimum of 275ºF. The heat causes the polyester to cross link and bond. This ink system is specially formulated for Vulcan with Automotive grade pigments.

HDPE SUBSTRATE DECORATION: HDPE by nature has a low surface energy which makes the bonding of any ink impossible without some form of surface treatment. The proper selection of the surface treatment is critical to the ink used for bonding. Hence not all outdoor durable inks can be used on HDPE.

ACM SUBSTRATE DECORATION: Aluminum Composite Material, ACM, is a three-layer panel material made of two thin layers of pre-finished aluminum bonded on either side of a polyethylene core. The pre-finished aluminum surface allows for digitally printing the message. Digitally printed signs of ACM require a final coating of specialized clear top coating to extend the life of the message.