Northern Virginia NTRAK "How-To" Article

PAPER ROADS
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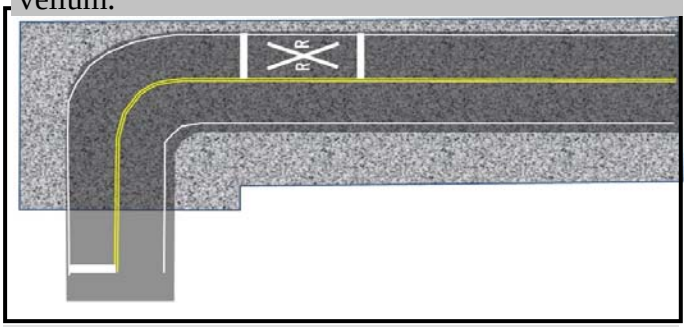
So many questions! How do you get the yellow lines straight on a new road? What is the best way to make good looking railroad crossing markings and parking lot spaces? Wouldn't be nice if we could just design and print our roads using available software and printers? It turns out we can using "waterproof paper".

Michael Rathje started it the process. He printed the parking lots for fast food restaurants on his module on paper vellum. It was a good first effort. There is lots of detail and it looks great. Well, great on a dry day. When the humidity is high, as it was at Manassas, there is a lot of buckling in the parking lots. The process is good, but the medium for printing needed improvement.

The first attempt at a printed parking lot on vellum.

Printing: The first issue is whether we can develop a good looking road surface with a home system. **Mike** has access to some commercial grade equipment. **Jim** was able to make very realistic surfaces using MS Power Point, MS Paint, and a simple three color ink jet printer.

As shown in the next diagram, an underlying "textured" layer was added first. In this case granite. On top of that, the road surface, lines, and other markings were laid out. Varying the "picture" settings of the texture layer and color and transparency of the top layer provided a wide range of options. A number of test prints on plain paper were needed since the printer and computer screen did not always look the same.



This picture shows the effect of the two layers. The bottom layer has been cut back to show what the road looks like without it.

As a first effort, the parking lot and walk for the school were made on plain printer paper without any protective coat. The grass glued down very carefully, but there was still some damage along the edges.

Markings, such as handicap parking were copied from the internet and converted to jpg picture files using MS Paint. The picture can then be added to the road, re-sized and cropped as needed. Anyone can develop a very nice looking road or parking lot with this software.

(Continued on page 2)

(Continued from page 1)

Paper: The next issue is paper. We were looking for a suitable, printable medium that will stand up to conditions on a module. Photo paper was tried and turned out to be a total disaster. Although the print looks good, the chemicals in the paper make it almost impossible to glue down, with the edges tending to turn up. Additionally, the printed surface is easily damaged by any water or glue that contacts it.

Plain printer paper or card stock seems to work, but requires great care to keep it from getting wet when putting scenery next to it. It is too touchy to be used reliably and is susceptible to buckling in high humidity.

Mike suggested trying waterproof paper. A little internet search provided a source of "Inkjet Printable & Waterproof paper". Search on Inkjet Teslin Synthetic Paper if you are interested. There is also a laser printer paper as well. Actually, it is more a printable plastic that sets up after it has been printed. For now this is the most stable "paper" we have found. It is also flexible enough to fit around modest contours.

Here is a section of road printed on waterproof paper, mounted on cork, with Dullcote. sealant.

Glue: The next issue is getting the road stuck down on the module. Testing was done using both wood and cork as a base. Several different spray adhesives did not work very well, with edges frequently pulled loose. There is also no room for error as the road is being put down since it cannot be slipped around. White glue works, but water near the edge will make it come loose. In the end, regular yellow wood glue seems to work best. A very thin layer is painted onto the base and the road is put in place. There is time to move it around a little and get any creases out. So far the edges have held well.

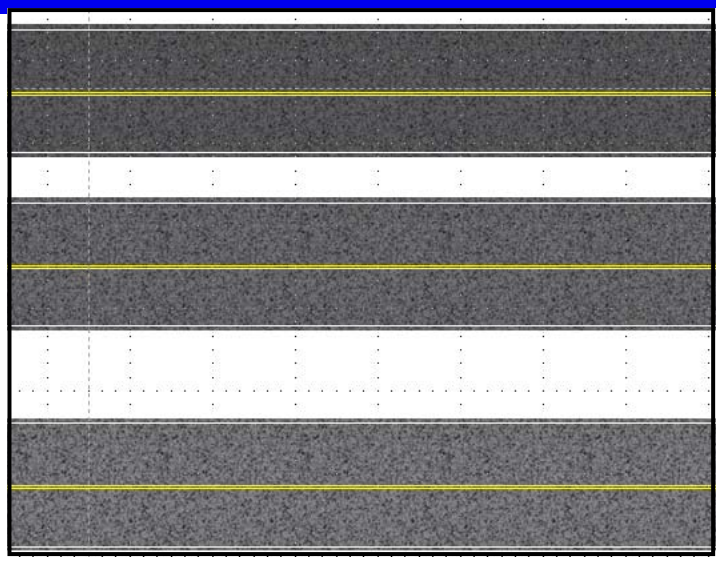
Protecting the surface: The printed surface needs to be protected. A thin spray of ***Dullcote*** seemed to work on one test sample. Sprayed a little too thick on another sample, it reacted with the ink and changing the colors. One road installed with ***Dullcote*** looks OK, but only because of the variations seen in older roads. It was not intentional.

Currently we believe that ***Matt Medium*** provides the best protection since it does not interact with the ink and you can clean white glue off the surface. It does generate a little sheen and brush strokes can be seen when viewed at the right angle.

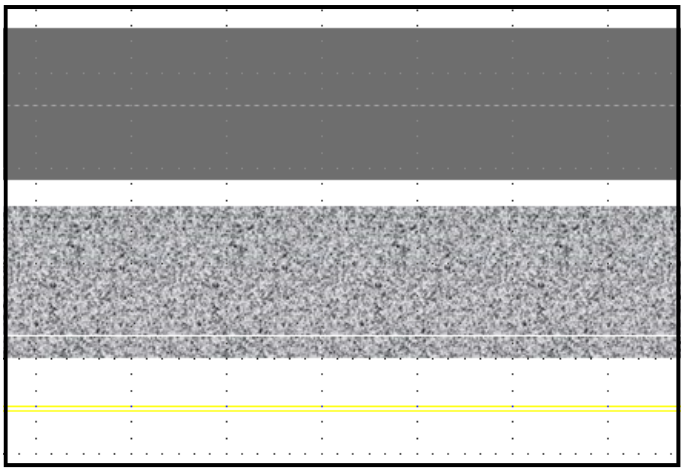
Caution! Isopropyl Alcohol is a strong solvent and will react with paper, ink and coating. Only use dish detergent as a wetting agent in wet water or 50/50 white glue used near these surfaces.

Parking lot for a train station with a cutout for the station. The plastic is too slick to glue items on top of it.

Road and parking lot are all on one piece of waterproof paper with ***Dullcote.*** The Concrete pad used sand as the background layer. The ***Dullcote*** was not thick enough and there is some water damage to the ink on both the left and right sides of the parking lot.



Variations in road surface achieved by changing transparency of the layers.



The three layers that make up the roads shown.