Vehicle Lighting:
Scale Lights in tiny spaces

As part of most 20th century street scenes, vehicles are an almost mandatory item to model. Add the complication of a night scene, where headlights, taillights, clearance markers and indicators can be conspicuous in their absence, and the challenge to make "believable" vehicles becomes significant.

On Brooklyn, there were a variety of vehicles that had to be recreated, some easier than others. The green Chevrolet Suburban parked in front of "Ronnie's", with it's head, tail, and parking lights on is a Busch model, with built-in Perspex lighting system, powered by a single Grain-of-Wheat incandescent bulb.

In contrast are the Highway trucks on the expressway overpass. These vehicles required a range of lights to be modelled, from sub-3"-diameter clearance markers to barely 12"-diameter headlights. Fibre-Optic lighting offered some tempting solutions, but is generally considered by modellers to be an expensive and hard-to-deploy technique. In practise, it's all about

1- using a suitable (Read BRIGHT!) light source of appropriate colour

2- getting the light INTO the end of the fibre-optic thread

3- and then getting it out again at the point you need it to be visible ☺

"Point 1" is easily solved in the range of current-generation high brightness LEDs. These are available in a range of brightness from 2000millicandela (mcd) to well over 20,000 mcd. The majority of the lighting shown on Brooklyn uses 5000mcd 3mm LEDs as their sources.

Skipping ahead, "Point 3" can be achieved by "mushrooming" the end of the fibre-optic thread. A small controllable heat source, such as a gas b-b-que lighter turned all the way DOWN to a minimum flame, is a cheap, safe, and effective tool for this task.

This leaves us with "Point 2", getting the light from the LED <INTO> the hidden end of the fibre-optic thread. For single LED<>fibre connections, it may be helpful to "mushroom" the LED end of the fibre as well. However, for situations such as the multiple clearance lights along the side of the semi-trailers on the expressway, you may wish to try and use 1 LED to provide light for up to 8 or 10 fibre-optic threads. To achieve the actual "coupling" of the fibres to the LED, a piece of rubber RC airplane fuel line can be easily slipped over the 3mm LED body. The fibres are carefully threaded into the bore of the rubber tube, and pushed until they "nose up" against the domed end of the LED.

The results are startling, and really enhance the look of the vehicles. Similar techniques have been used to model the sealed twin-beam headlights on NYCH locomotive #25, and on a number of the "doorway lights" on various structures. In a pleasant discovery, it appears that fibre-optics are indeed capable of "throwing" light onto nearby surfaces, just as prototype lighting fixtures do. The Phone booth and doorway light at "Ronnie's" are particularly successful examples