



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

February 12, 2004

400 Seventh St., S.W.  
Washington, D.C. 20590

Refer to: HSA-10/WZ-170

Mr. John Richardson  
President, Premier Plastics, Ltd.  
8328 River Way  
Delta, British Columbia V4G 1C4 Canada

Dear Mr. Richardson:

Thank you for your letter of November 27, 2003, requesting Federal Highway Administration (FHWA) acceptance of your company's "Road Runner" portable traffic barricades as crashworthy traffic control devices for use in work zones on the National Highway System (NHS). Accompanying your letter were reports of crash testing conducted by Karco Engineering and video clips of the test. You requested that we find these devices acceptable for use on the NHS under the provisions of National Cooperative Highway Research Program (NCHRP) Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features."

### **Introduction**

The FHWA guidance on crash testing of work zone traffic control devices is contained in two memoranda. The first, dated July 25, 1997, titled "INFORMATION: Identifying Acceptable Highway Safety Features," established four categories of work zone devices: Category I devices are those lightweight devices which are to be self-certified by the vendor, Category II devices are other lightweight devices which need individual crash testing but with reduced instrumentation, Category III devices are barriers and other fixed or heavy devices also needing crash testing with normal instrumentation, and Category IV devices are trailer mounted lighted signs, arrow panels, etc. for which crash testing requirements have not yet been established. The second guidance memorandum was issued on August 28, 1998, and is titled "INFORMATION: Crash Tested Work Zone Traffic Control Devices." This later memorandum lists devices that are acceptable under Categories I, II, and III.

A brief description of the devices follows:

The Premier Plastics Road Runner UT portable traffic safety barricades have a rectangular base and taper to the top, giving them a trapezoidal side profile. Each unit is approximately 980 mm (3.2 feet) high and has a base that measures 1700 mm (5.6 feet) long and 760 mm (2.5 ft) wide. While these barriers have hollow walls to allow them to be filled with water, this test was run without water. The weight of each unit was 25 kg (55 pounds.) For use near high-speed traffic, a maximum of 45 pounds of water is recommended to bring the total weight of the barricade unit to 100 pounds. A drawing is enclosed for reference.



### Testing

Full-scale automobile testing was conducted on your company' devices. Two stand-alone examples of the device were tested in tandem, one head-on and the next placed six meters downstream turned at 90 degrees, as called for in our guidance memoranda. Each unit had a Flex-o-lite Paralta warning light attached.

The tests are summarized in the table below.

Test Number	TR-P23140-01-NC	
Device Tested	"Road Runner" portable traffic barricades	
Weight of Tested Device	25 kg	
Height	980 mm	
Flags? Lights?	Flexolite Paralta flashing lamp	
Mass of Test Vehicle	790 kg	
Impact Speed	100.95 km/hr	
Velocity Change	7.35 km/hr	
Occupant impact speed	2.0 meters per second	
Extent of contact	Light came off , hit hood, went over windshield	No contact with vehicle
Windshield Damage	No contact	No Contact

### Findings

Damage caused by test device was negligible. Both barricade segments were pushed ahead of the test vehicle. No contact was made with the windshield by any part of the barricades. The warning light lens separated from the first barricade unit and impacted the hood. It then flew over the windshield without making further contact with the automobile. You subsequently recommended that the existing ½ inch bolt be replaced by a 6 ½ inch long, ½ inch diameter bolt to accommodate the thickness of the unit. Also, a 3 ½ inch diameter galvanized steel plate with a 2 inch fender washer should be placed near the bolt head.

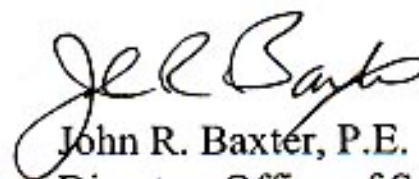
The results of the testing met FHWA requirements and, therefore, the devices described above and detailed in the enclosed drawings are acceptable for use as Type I or Type II barricades on NHS under the range of conditions tested, when proposed by a State. Note that retroreflective sheeting is required by the Manual on Uniform Traffic Control Devices (MUTCD, Figure 6F-7). Also note that this acceptance only covers the use of "Road Runner" units as stand alone barricades. Additional testing is required if you wish to market these devices, when linked together, as longitudinal channelizing barricades.

Please note the following standard provisions that apply to FHWA letters of acceptance:

- Our acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, nor conformity with the MUTCD.
- Any changes that may adversely influence the crashworthiness of the device will require a new acceptance letter.

- Should FHWA discover that the qualification testing was flawed, that in-service performance reveals unacceptable safety problems, or that the device being marketed is significantly different from the version that was crash tested, it reserves the right to modify or revoke its acceptance.
- You will be expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.
- You will be expected to certify to potential users that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance, and that they will meet the crashworthiness requirements of FHWA and NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance, designated as number WZ-170 shall not be reproduced except in full. This letter, and the test documentation upon which this letter is based, is public information. All such letters and documentation may be reviewed at our office upon request.
- The "Road Runner" portable traffic barricades are patented devices and considered "proprietary." The use of proprietary work zone traffic control devices in Federal-aid projects is generally of a temporary nature. They are *selected by the contractor* for use as needed and removed upon completion of the project. Under such conditions they can be presumed to meet requirement "a" given below for the use of proprietary products on Federal-aid projects. On the other hand, if proprietary devices are *specified by a highway agency* for use on Federal-aid projects they: (a) must be supplied through competitive bidding with equally suitable unpatented items; (b) the highway agency must certify that they are essential for synchronization with existing highway facilities or that no equally suitable alternative exists or; (c) they must be used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes. These provisions do not apply to exempt non-NHS projects. Our regulations concerning proprietary products are contained in Title 23, Code of Federal Regulations, Section 635.411, a copy of which is enclosed.
- This acceptance letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented device. Patent issues are to be resolved by the applicant and the patent owner.

Sincerely yours,



John R. Baxter, P.E.  
Director, Office of Safety Design  
Office of Safety