

# SAFETY BRIEF

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## Zero Obstruction Repair Overpass



Fig.1 The Z.O.R.O. Story

Professor Ralph Barnett, his students and Triodyne are introducing a new concept in highway construction which enables roadways to be repaired without interrupting normal traffic flow. The concept is called Z.O.R.O., Zero Obstruction Repair Overpass. Z.O.R.O. is a movable, prefabricated hill which cars drive over while construction proceeds underneath. Z.O.R.O.'s lightweight, reusable modular design incorporates techniques developed for military bridge construction.

The Z.O.R.O. model pictured above has been on display at:

The Skokie Public Library, "Safety and Forensic Engineering," March-April 1982

The John Hancock Center Observatory, "Architectural Model Exhibition," Summer 1982

Circulation: 30,311

No Charge

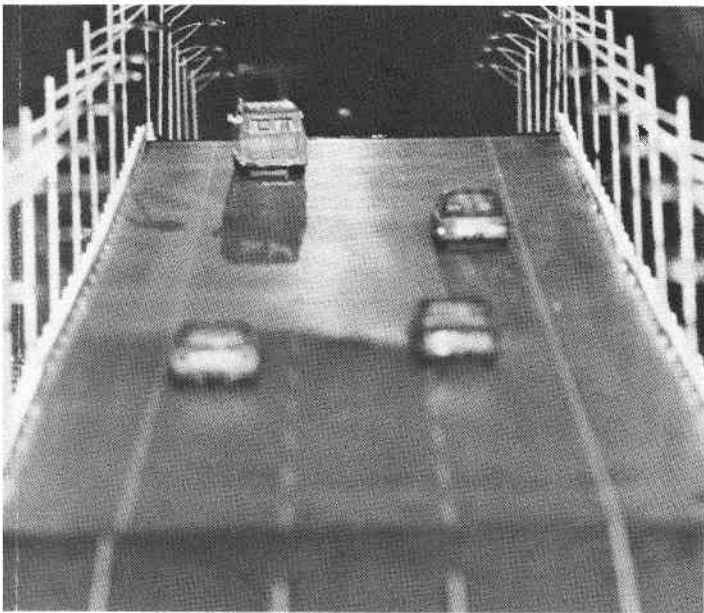


Fig.16 A Hill in the Roadway

### paper's Blocks

If construction will be hidden from motorists' view; motorists will perceive only a normal hill in the roadway. Underneath, all repair work will be taking place.

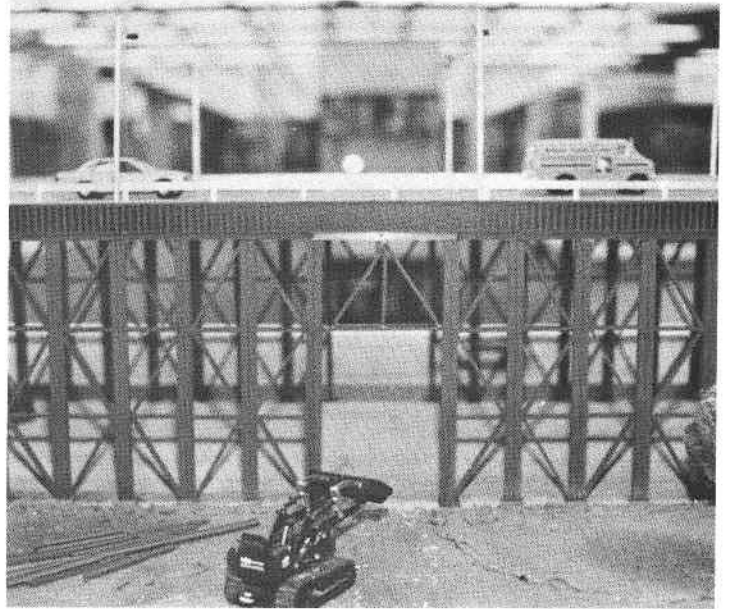


Fig.17 Improved Safety

### Safety

Since vehicles operate remote from the construction site, the safety of both motorists and construction workers is improved.

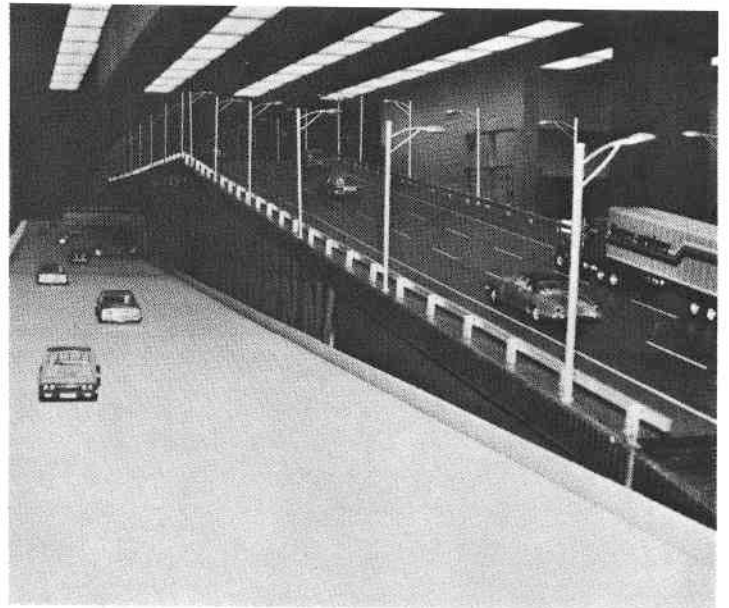


Fig.18 Uninterrupted Traffic Flow

### Political Pressure

Without traffic interruption, optimum repair programs can be conducted without public outcry.

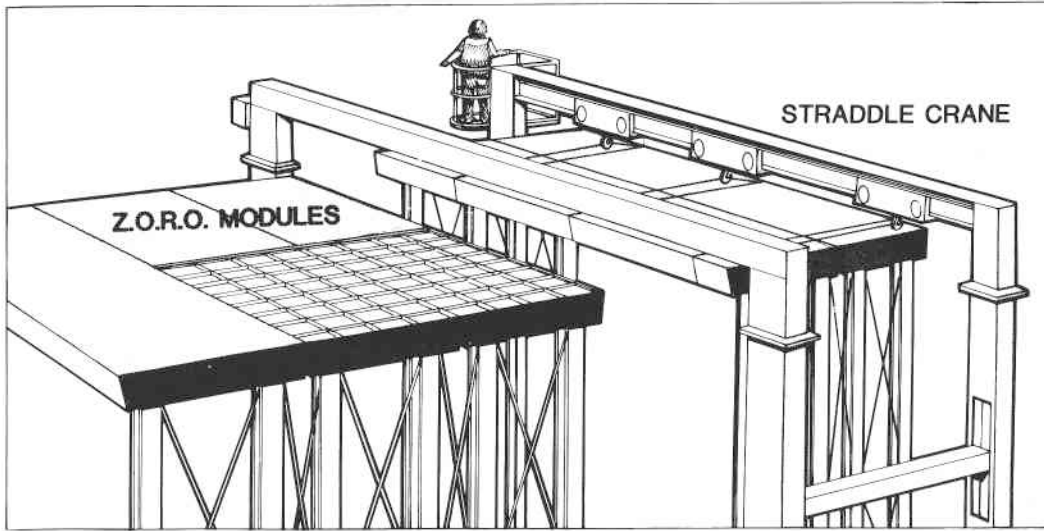


Fig.4 Straddle Crane Erection

Standard equipment is used to assemble Z.O.R.O. The straddle crane used in the erection process is a standard piece of equipment developed for piggyback and container service.

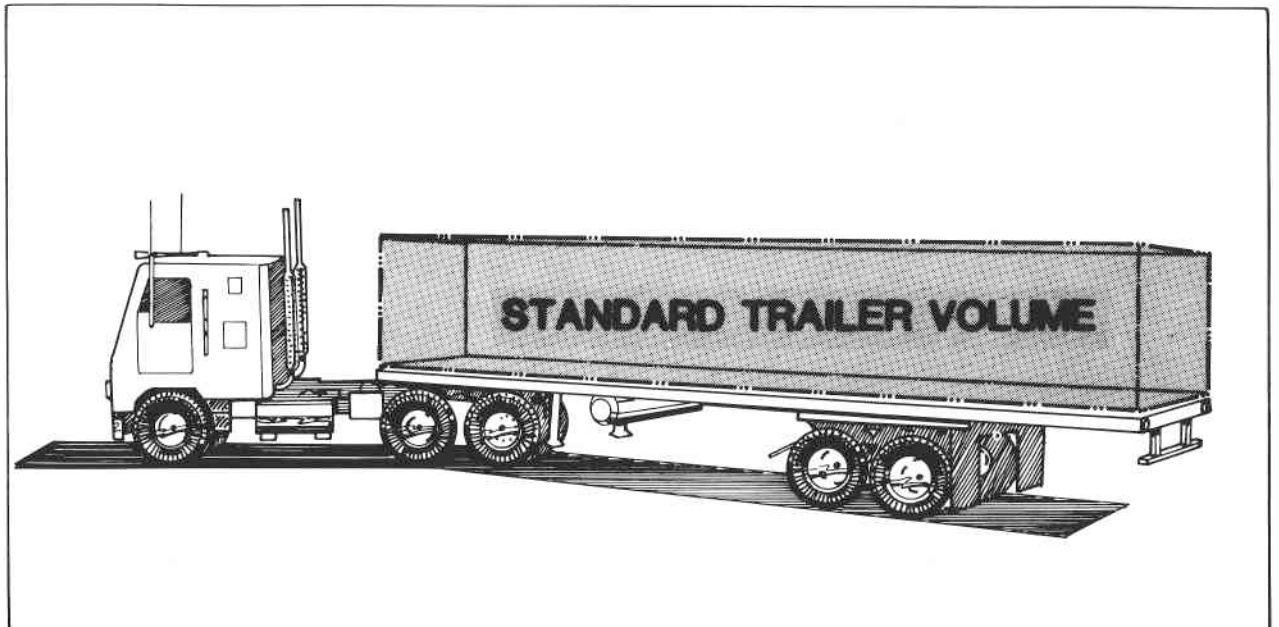


Fig.5 All Z.O.R.O. Components can be Transported with Conventional Trucks



Fig.13 Bridging an Overpass

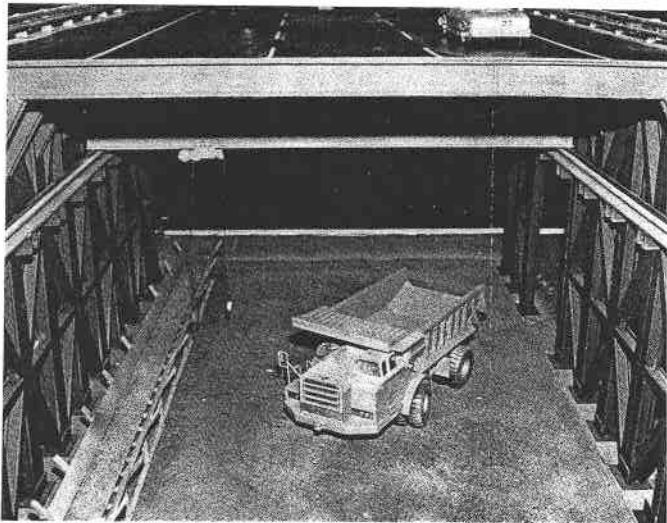


Fig.14 New Construction Concepts

#### **New Construction Concepts**

Z.O.R.O. may allow the use on nonconventional construction equipment such as overhead cranes and continuous conveyor belts.

A broader range of construction materials, such as epoxy and fast cure concrete, may also be possible because of the sheltered workplace.

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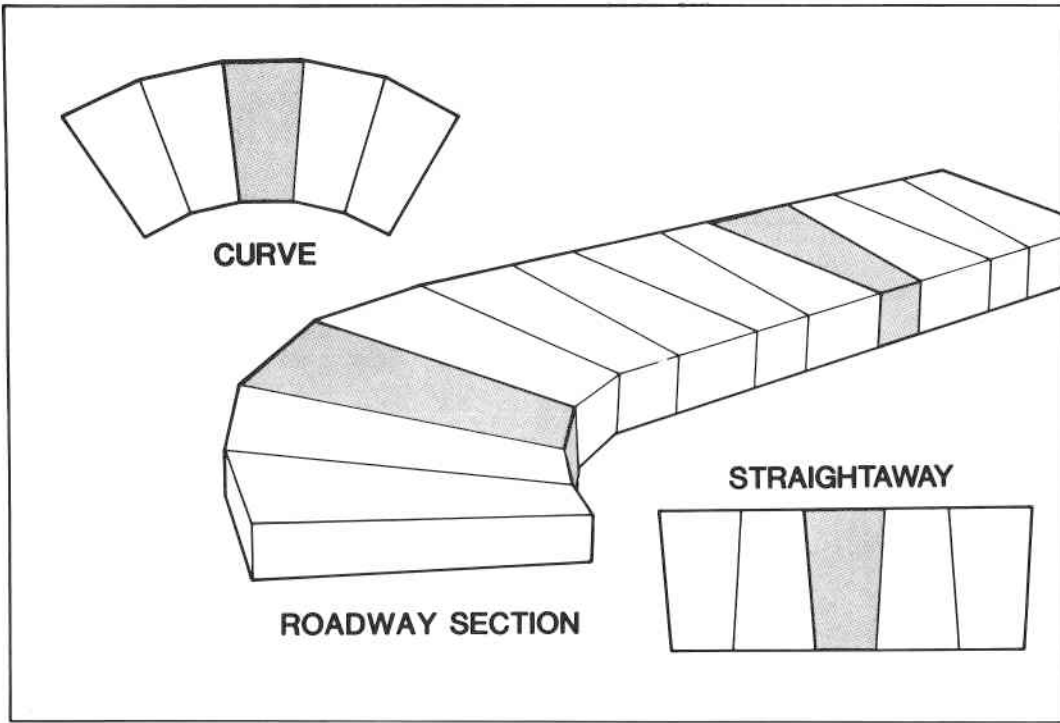


Fig.8 Horizontal Curves

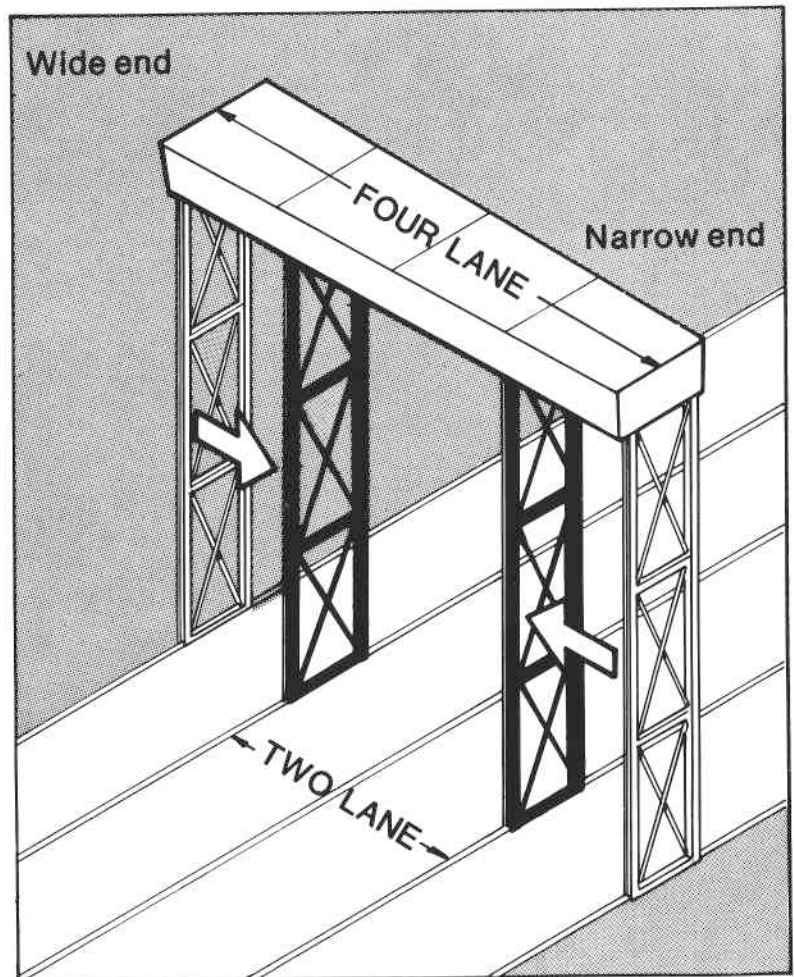


Fig.9 Basic Module for Two and Four Lane Applications



Fig.16 A Hill in the Roadway

### Gaper's Blocks

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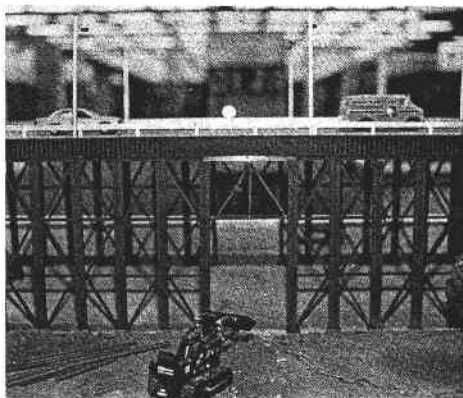


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### Safety

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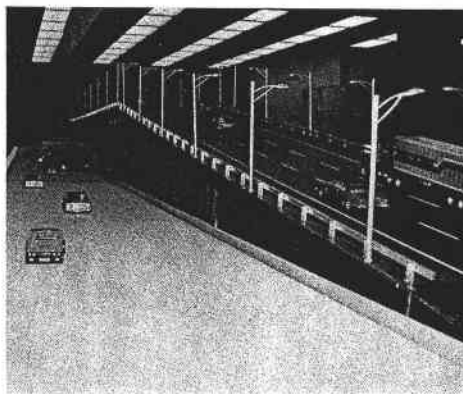
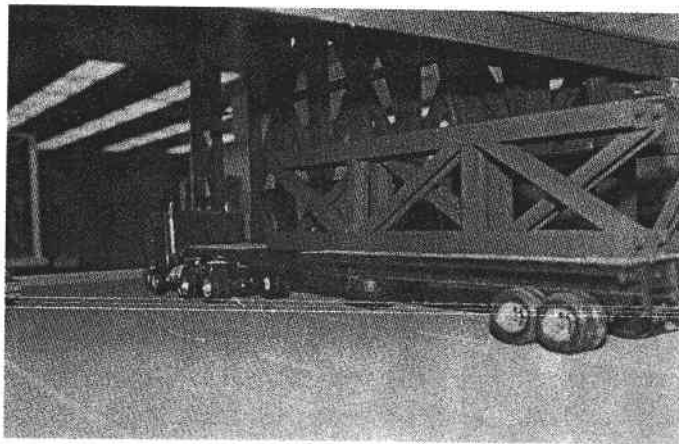


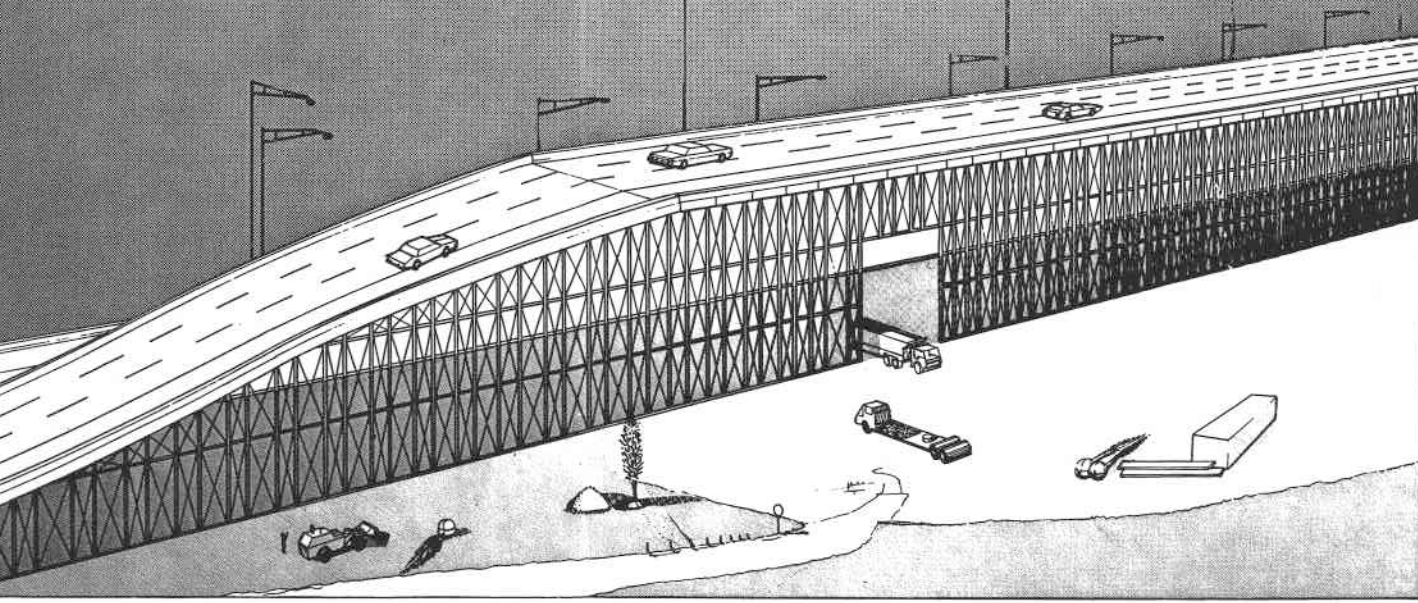
Fig.18 Uninterrupted Traffic Flow

### Political Pressure

Without traffic interruption, optimum repair programs can be conducted without public outcry.



**Fig.6 Modules Arriving at Site**



**Gaper's Block**  
All constructio  
motorists will  
way. Underne

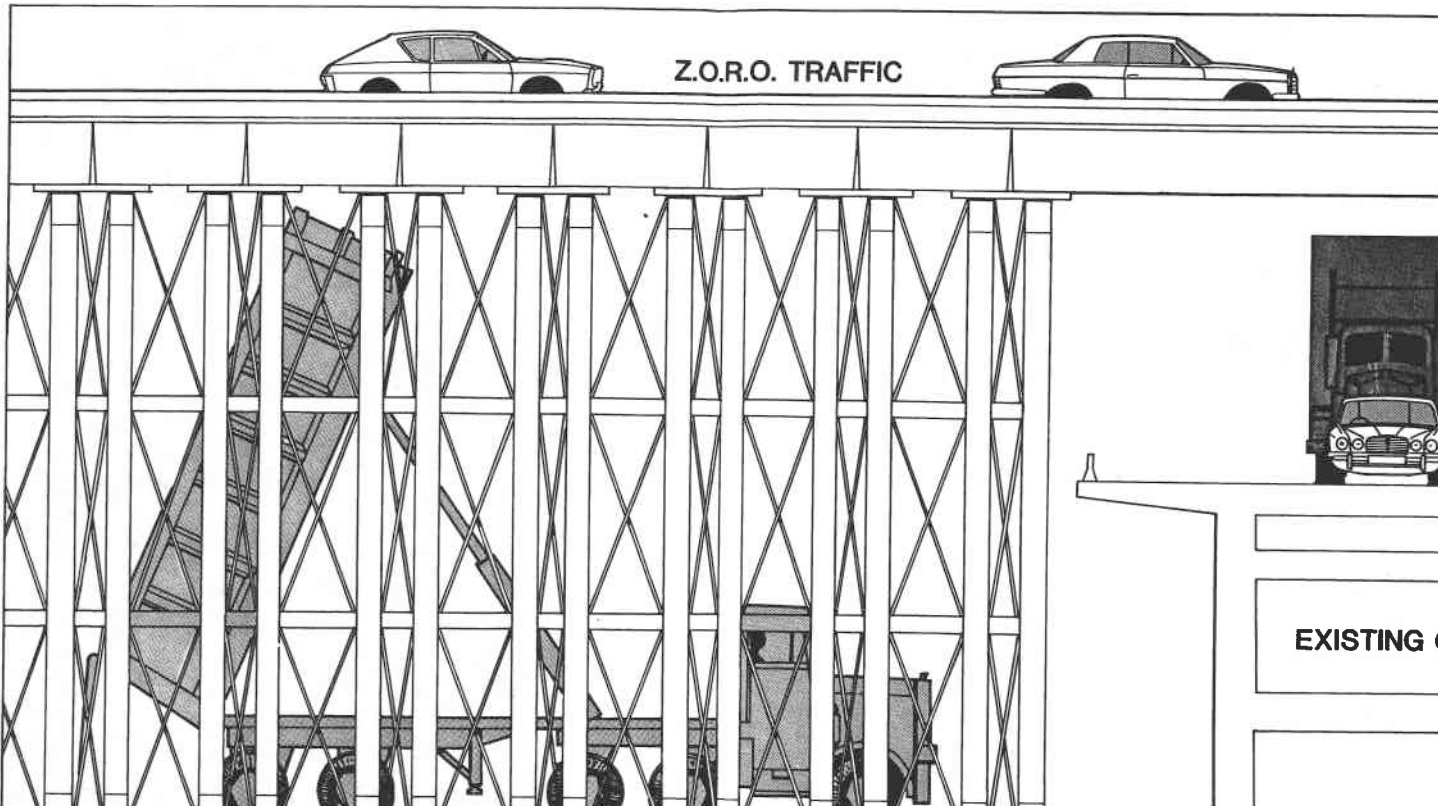
Fig.15 Extended Work Season

ns will allow work to proceed in inclement weather.

ains will reduce construction noise.

will contain airborne dust.





Z.O.R.O. TRAFFIC

EXISTING

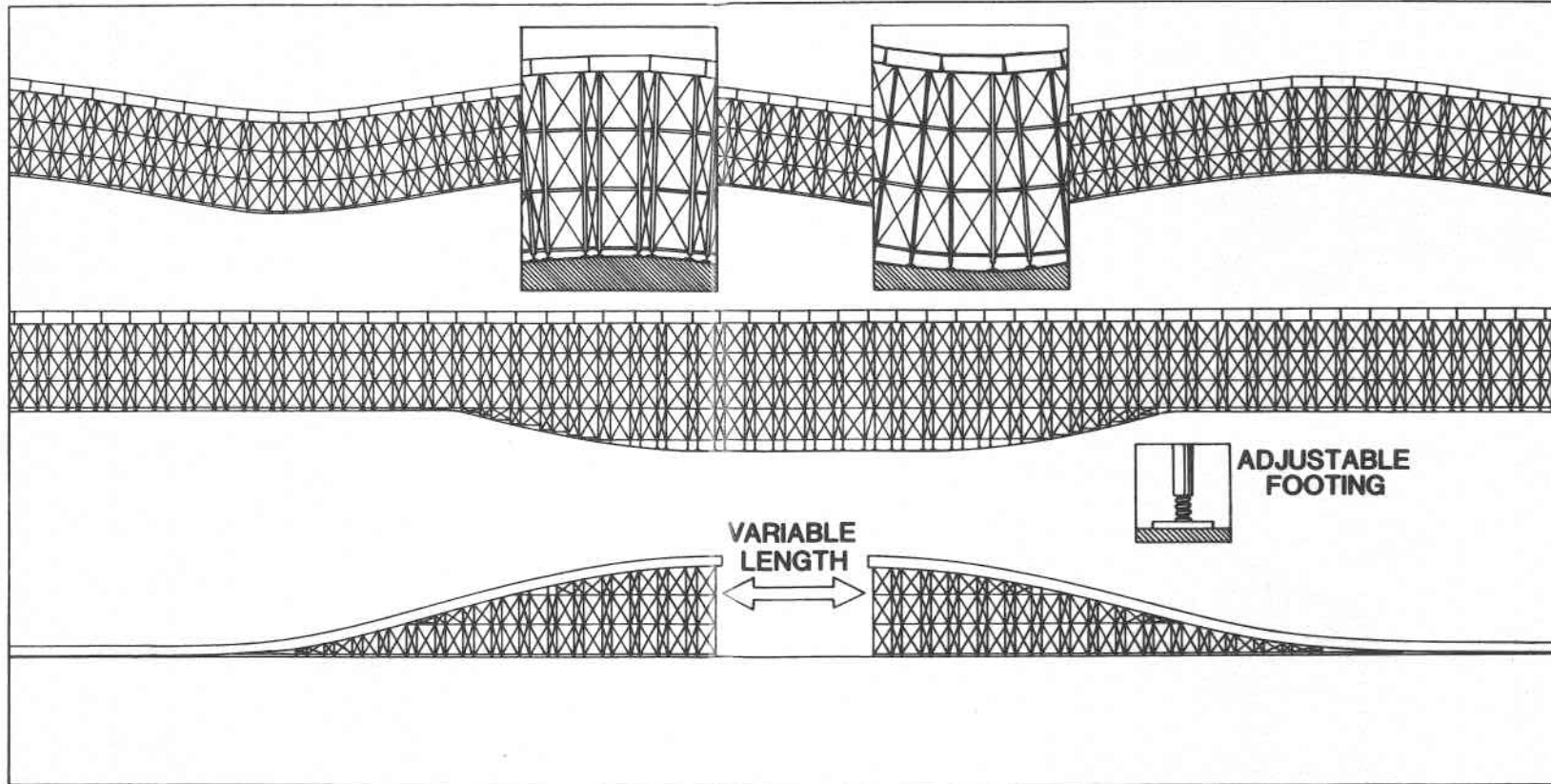


Fig.7 Vertical Curv

### Flexibility

Z.O.R.O. will be rented for use in various major highway repair programs. Z.O.R.O.'s flexible concept will embrace almost every highway topography. The design of the standard module will allow Z.O.R.O.'s structure to accommodate necessary horizontal and vertical curves. And Z.O.R.O. is expandable; the length of the construction area can be varied by adding or subtracting ten-foot modules.

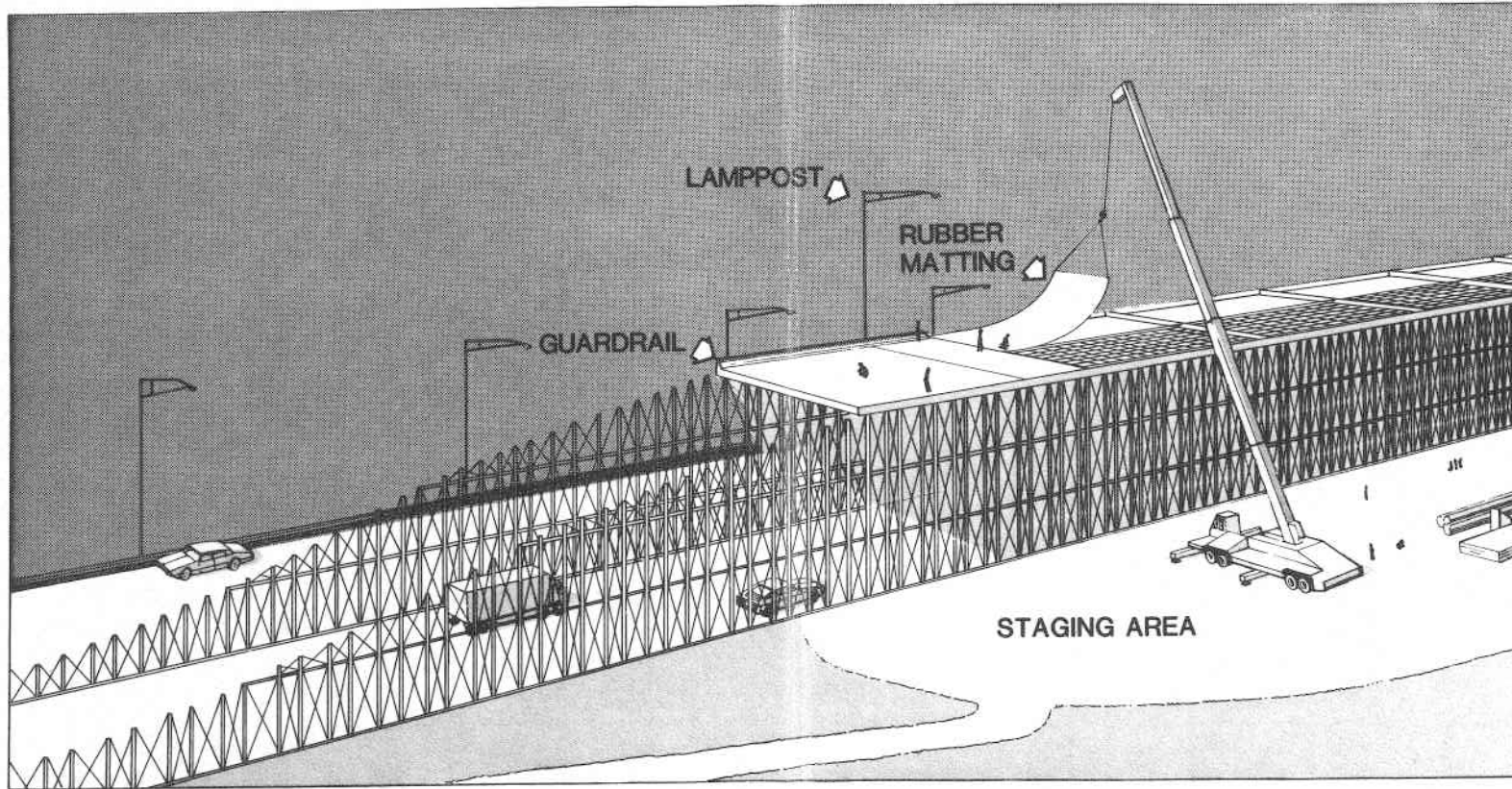
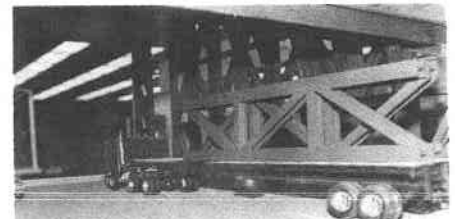


Fig.3 Adding

During the day, detail work proceeds on Z.O.R.O. while traffic drives underneath on the soon-to-be-repaired roadway. Of course, all normal safety devices and shouldiers are incorporated on Z.O.R.O.



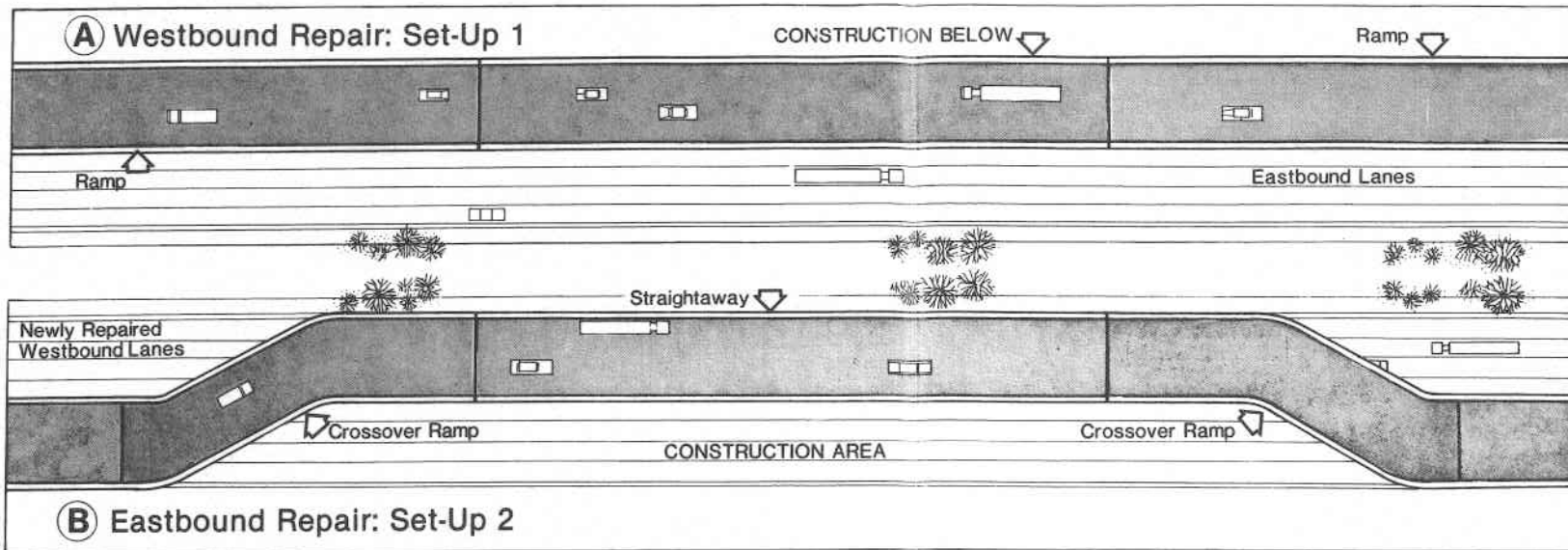


Fig.10 Redirecting Traffic

#### Redirecting Traffic

Z.O.R.O. will allow both sides of the highway to be repaired in a single set-up. In Figure 10A, westbound motorists drive on Z.O.R.O. while construction proceeds underneath. Eastbound motorists drive on the regular eastbound lanes.

In Figure 10B, the westbound lanes have been finished and the eastbound lanes are now under repair. The Z.O.R.O. straightaway was left in place over the westbound lanes. The ramps were shifted to the eastbound lanes and crossover ramps were added as shown. Now the eastbound motorists drive on Z.O.R.O. and westbound motorists drive under the Z.O.R.O. straightaway on the newly repaired roadway. Repair takes place on the exposed eastbound lanes south of the Z.O.R.O. straightaway.

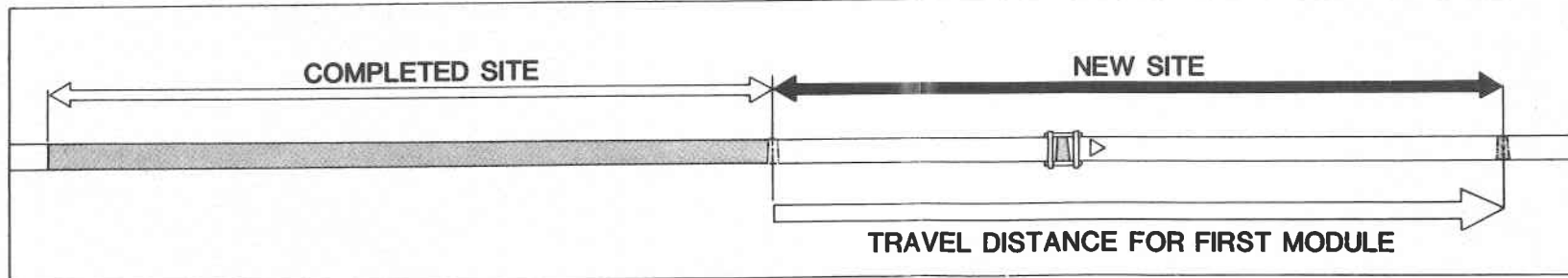


Fig.11 Advancing Z.O.R.O. to a New Construction Site

