

The FreezeFree™ Automated anti-icing system provides automatically calibrated applications of de-icing liquids on bridges, curves, ramps, steep grades, high-accident locations and other targeted areas.

The FreezeFree Automated System includes all the same features of the FreezeFree Basic System, plus active pavement sensors and a user-friendly, programmable controller that allows the system to activate itself before icing conditions occur. The pavement sensor monitors ambient surface conditions to activate the spraying cycle. Upon actuation, the system activates the pump and automatically sequences a series of high-pressure solenoid valves to spray the de-icing liquid over the targeted area.

The FreezeFree Automated System's computer logs the event conditions for that date and time, and can store log entries on more than thirty activations. This data can be retrieved via telephone or fax. The system and its parameters can also be monitored remotely via the telephone.

The system has the capability to be expanded in length. The system can also be expanded from two lanes to four, six and eight lanes wide by the substitution of in-pavement flush-mounted nozzles in place of the standard wall-mounted nozzles.



Pavement sensor installation.

#### Automated Activation Made Easy!

- FreezeFree Automated System's programmable controller features a user-friendly interface that allows the user to determine the freezing point at which the system's spray cycle will activate.
- Pavement sensors use electrical conductivity measurements, surface temperature and optical measurements to monitor surface conditions.
- From the measured data, including water-layer thickness, depression of freezing point and chemical concentration, a computer algorithm calculates when icing conditions will occur and activates the system.
- The computer warns of low fluid levels and automatically shuts off the pump.

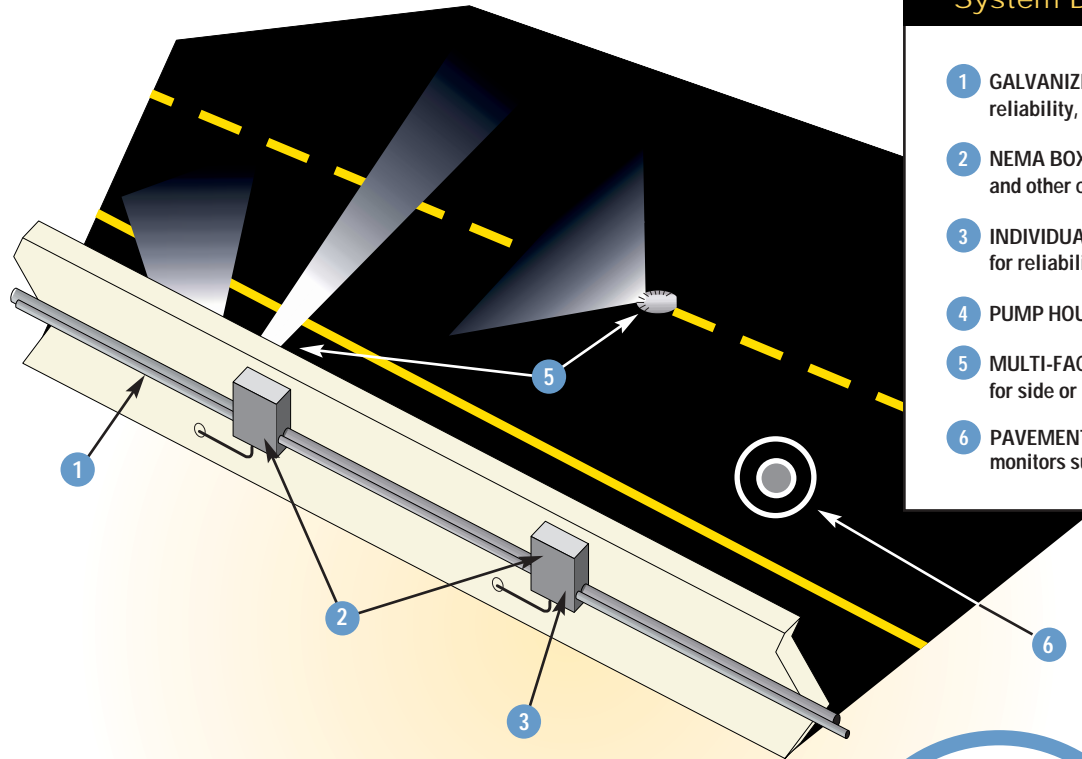
## Customize A System For Your Site

Choose from a wide range of optional features:

- **Extra Stations Including Piping**  
Extra lengths including solenoids and nozzles allow for protection up to 10,000 feet (3048 meters).
- **Plowable (in pavement) Nozzles**  
Special in-pavement flush-mounted nozzles can be substituted for wall-mounted nozzles facilitating four to six and eight lane width coverage.

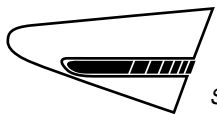
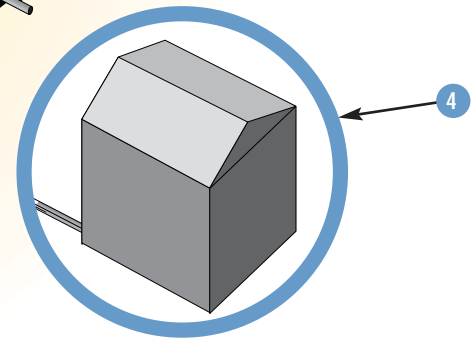


- **Motorist-Alert Message Sign**  
Optional upstream warning light or message sign alerts motorists of anti-icing operations in progress.
- **Roadway Information Systems (RWIS)**  
Optional self-contained weather stations monitor real-time atmospheric conditions and transmits information to a control center or to the FreezeFree computer system for automated activation. Additional features include video monitoring and traffic management data.



### System Diagram

- 1 GALVANIZED STEEL PIPING for superior reliability, protection and permanence
- 2 NEMA BOXES for protection from weather and other contaminants
- 3 INDIVIDUALLY ADDRESSED valve controls for reliability
- 4 PUMP HOUSE
- 5 MULTI-FACETED DISPENSING SYSTEM for side or in-pavement dispensing
- 6 PAVEMENT SENSOR monitors surface conditions



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