

## 5. Zero Velocity Spreaders

- a. As mentioned earlier, solids tend to bounce off the roadway. The higher the traveling speed of the truck, the more pronounced these negative effects become.
- b. 'Zero-velocity' spreaders were designed to counteract these effects:
  - i. The faster the vehicle travels, the faster the material is applied in the opposite direction.
  - ii. The net effect is that the material hits the road at zero speed, as if it was dropped by hand by a person standing still.

## E. Plowing and Removal

### 1. Intent of Plowing

- a. To remove as much snow and loose ice as possible from the pavement surface before applying chemicals.
- b. Plowing is all that will be necessary if the pavement and snow are both cold and dry and the snow is not adhering to the pavement.

### 2. Plow types

- a. There are many types of snow removal equipment available
  - i. The most common snow removal equipment used at ODOT are trucks equipped with plows.
- b. Snowplows are available in a variety of types including:
  - i. front plows,
  - ii. underbody plows and
  - iii. wing plows.
- c. Trucks can be equipped with one or several plows.
- d. Various cutting edges are also available in:
  - i. carbide,
  - ii. steel,
  - iii. synthetic polymers and
  - iv. rubber.
- e. Some plows are equipped with shoes to protect the cutting blade from obstructions in the pavement (raised manholes, bridge joints, or steel plates).

- i. Other locations prefer to omit the shoes and run the blade directly on the pavement surface.
- f. Plows also may contain a hydraulic or mechanical counter balance which reduces down pressure and blade wear.



- g. Typical areas of consideration within plow selection include:
  - i. Plow length, height and tripping mechanism
  - ii. Hitching mechanism
  - iii. Angle adjustments
  - iv. Moldboard material and type
  - v. Cutting edge composition
  - vi. Shoes

### 3. Other Removal Equipment

- a. Other types of equipment frequently used for snow and ice removal include:
  - i. graders,
  - ii. front-end loaders,
  - iii. snow blowers and
  - iv. belt loaders.

### 4. In addition to plowing the pavement surface, consideration must be given to loading and removal of snow when storage is a problem.

- a. It is not uncommon to load snow out for removal from median walls along the freeway or from business districts within urban areas.

#### Exercise: Equipment

What type of controls are used on the ODOT fleet?