10

SAFETY IN THE FIELD

PAVEMENT STRIPER OPERATION

The pavement striper utilizes paint under pressure in its operation and, because of the nature of the work, requires special traffic control measures. Therefore, the following practices shall be followed when performing the striping operation:

Preparation:

- Perform normal pre-operational inspection of the vehicles.
- Check equipment-grounding straps.
- Ensure that fire extinguishers are available and conveniently located.

Operation:

- Do not smoke in vicinity of striper or supply truck.
- Check all hydraulic and air lines for defects.
- Release pressure prior to performing any maintenance work on system.
- Handle paints and other materials in accordance with the label instructions and Materials Safety Data Sheets (MSDS).

Center-Line & Edge-Line Painting:

- Have buffer/supply truck drive ahead of striper with flashing amber lights in operation and appropriate signing displayed.
- Have truck drive ahead of striper with flashing amber lights in operation and appropriate signing displayed.

HAZARDOUS SPILLS ON COUNTY ROADS

The Department will issue new Emergency Response Guidebooks to every employee when the U.S. Department of Transportation publishes revisions to the guidebook. REMEMBER: The ER Guidebook is primarily to aid first responders in quickly identifying the specific of generic hazards of the material(s) involved in the incident, and protecting themselves and the general public during the initial response phase of the incident.

If County Public Works personnel are first on a spill scene notify a department supervisor immediately, because **every spilled substance should be considered hazardous until identified otherwise.** Then, make an effort to keep people and vehicles from coming into contact with the spill. The primary concern for County Public Works personnel is for the safety of the public and themselves. **You are not trained to respond to hazardous material incidents.**

If you discover an unlabeled container, a container that is labeled with one of the labels listed in the DOT's Emergency Response Guidebook, or you come upon an accident involving vehicles suspected of transporting

hazardous materials, follow the procedures listed below. **You are not trained to respond to hazardous material incidents.** Plumas County Department of Public Works' role in responding to hazardous material incidents is **limited** to denying entry to those persons not trained in emergency response. See **APPENDIX F** for additional information about placards and clues for recognizing a hazardous materials incident.

> ***Section 5192(q), General Industry Safety Orders defines First Responder at the "Awareness" Level as: One likely to witness/discover a hazardous substance release and can initiate notifying authorities and take no further actions.***

The California Highway Patrol has the primary responsibility for the management of the spill scene. They will arrange for the notification of all parties involved in identification, control, and cleanup. **County Road Department personnel are not trained to respond to hazardous materials incidents and do not become involved in the identification, control or cleanup of any hazardous material.**

Procedures:

- Call your supervisor or the DPW office and report any suspected hazardous material incident. If it is other than normal working hours, call the Road Maintenance Superintendent, the Deputy Director of Public Works, or the Director of Public Works. The DPW office, or one of the above officials, will call the CHP and the Sheriff's dispatch. If you fail to contact DPW personnel then call 911 to report the incident yourself.
- Stay clear of the spill area. Stay upwind, uphill and upstream of the spill area if possible.
- Protect traffic and deny entry. Stop traffic and detour if possible.
- Wait for the experts (CHP, Caltrans' Identification Team, Emergency Services Personnel or DPW officials).

Cooperate with the experts and assist with the control of traffic and scene containment, if necessary. **County Road Department personnel are not trained to respond to hazardous materials incidents and do not become involved in the identification, control or cleanup of any hazardous material.**

[**REF:** 2004 Emergency Response Guidebook]

MOWER OPERATION

Preparation:

- Perform normal pre-operational inspection.

• Ensure that engine is off and parking brake set prior to inspecting machine, performing maintenance, or making adjustments.
• Check all hinge joints and the flail unit for loose connections.
• Mount “Slow Moving Vehicle” sign.

Operations:

• Put on eye and hearing protection devices.
• Use a shadow vehicle for all operations except those on low- volume residential streets. As a minimum, the shadow vehicle shall consist of a pickup with flashing amber lights and the sign “Slow Moving Vehicle”. The shadow truck shall be kept within 50 to 100 feet of the mower.
• Avoid roadway hazards such as rocks, guide markers, telephone boxes, etc. Watch for soft shoulders and holes.
• Keep machine properly balanced when traveling with mowing head high in the air.
• Operate flail in a manner that minimizes flying objects.
• Provide water truck when grass and weeds become dry and there is a fire hazard. The water truck may be used as a shadow vehicle.

HAND SIGNALS

• A signal person shall be provided when the point of operation is not in full and direct view of the operator unless a signaling or control device is provided for safe direction of the operator.
• Only qualified persons shall be permitted to give signals.
• A uniform signal system shall be used on all operations and if hand signals are used, they shall be clearly understood by the operator.
• Signal systems other than manual shall be protected against unauthorized use, breakage, weather or obstruction which will interfere with safe operation. In the event of any known malfunction, an alternate signal system shall be used or all motion shall be stopped.
• There shall be conspicuously posted in the vicinity of the hoisting operations, a legible chart depicting and explaining the system of signals used.

[**REF:** OSHA Title 8 Group 13 & Federal Code 1910.180]

Hoist: With forearm vertical, forefinger pointing up, move the hand in a small horizontal circle.

Lower: With an arm extended downward, forefinger pointing down, move the hand in small horizontal circles.

Multiple Trolleys: Hold up one finger for block marked “1” and two fingers for a block
marked “2.” Regular signals follow.

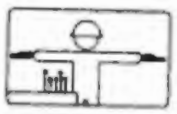
Bridge Travel: Arm extended forward, hand open and slightly raised, make a pushing motion in direction of travel.

Trolley Travel: Palm up, fingers closed, thumb pointing in direction of motion, jerk
the hand horizontally.

Stop: Arm extended, palm down, hold the position rigidly.

Emergency Stop: Arm extended, palm down, move the hand rapidly right and
left.

Magnet Is Disconnected! : Crane operator spreads both hands apart, palms up.



What are some common hand signals for crawler, truck and locomotive cranes?

Use Main Hoist: Tap fists on head; then use regular signals.

Use Whip Line (Auxiliary Hoist): Tap elbows with one hand; then use regular signals.

Raise Boom: Arm extended, fingers closed, thumb pointing upward.
Lower Boom: Arm extended, fingers closed, thumb pointing downward.
Swing: Point with a finger in direction of swing of a boom.

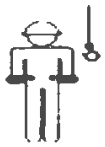
Raise the Boom and Lower the Load: Arm extended, fingers closed, thumb pointing

upward, other arm bent slightly with forefinger pointing down and rotate hand in horizontal
circles.

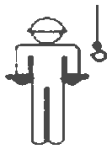
Lower the Boom and Raise the Load: Arm extended, fingers closed, thumb pointing
downward, other arm with forearm vertical, forefinger pointing upward and rotate the hand
in horizontal circles.

Move Slowly: Use one hand to give any motion signal and place the other hand
motionless in front of the hand giving the motion signal.

Retract Boom (Telescoping Booms): Both fists in front of body with thumbs pointing toward
each other.



Extend Boom (Telescoping Booms): Both fists in front of body with thumbs pointing
outward.



What are some signals for crawler cranes only?

Lock Track: this side as indicated by raised fist.

Turn Travel Track: this side in direction shown by revolving fist.

Travel Both Tracks: forward or backward by revolving fists.

POLICY FOR PROTECTING CONSTRUCTION WORK ZONES WITHIN COUNTY ROAD RIGHT-OF-WAY

The Plumas County Department of Public Works is committed to protecting the traveling public and its employees that work at construction work zone projects. Employees in a construction work zone by virtue of being near moving traffic are at risk of being struck by errant vehicles.

Plumas County Road Maintenance and Engineering crews **shall** set up temporary traffic controls designed to control traffic through construction work zones. Temporary traffic controls employed on roads by our workforce shall conform as much as possible with the***"Manual on Uniform Traffic Control Devices" (MUTCD) and the California Supplement - May 20 2004"*** *and supplements to the MUTCD.* All traffic control devices used on street and highway construction, maintenance, utility, or incident management (temporary traffic control) operations shall also conform to the applicable specifications of the ***MUTCD.***

No one set of signs or other traffic control devices can typically satisfy all conditions for a given project. At the same time, defining detailed standards that would be adequate to cover all applications is simply not practical. The

MUTCD displays several diagrams that depict common applications of standard temporary traffic control devices. See the section in this manual for typical components of temporary traffic control zone.

Guidelines have been developed to protect workers and the traveling public. The guidelines that follow are minimum requirements and are not intended to discourage the use of procedures and methods that are more likely to enhance the safe movement of vehicles through construction work zones. There may be situations where more protection is necessary. It is the responsibility of the person in charge of the work to ensure that proper signing is used, and that it provides adequate protection to employees and the traveling public.

Definitions:

The following definitions are useful in determining what temporary traffic controls are necessary to protect employees and the traveling public:

Flashing Amber Light: This term includes such devices as flashing lights and omnidirectional strobes.

Flashing Arrow Sign: The Type I is an 8 ft. x 4 ft., trailer mounted FAS. The Type II is a (FAS) 6 ft. x 3 ft., vehicle mounted FAS. FASs have several modes. The caution mode has four lights flashing and the arrow modes flash right or left. The terms “arrowboard” and “flashing arrow sign” are synonymous. [**REF:** MUTCD Section 6F.56]

Moving Operations: A moving operation is any work activity that moves along the traveled way slower than the prevailing speed of traffic. Some examples are striping, sweeping, etc.

Short-Term Operation: A short-term operation is any work activity that can be performed in 10 minutes or less during light traffic volumes, without interfering with traffic or placing the employee in jeopardy. Some examples are pavement patching, removing a large piece of debris, etc.

Stationary Operation: A stationary operation is any work activity that includes workers on foot or equipment occupying any part of a paved shoulder or the traveled way at one location for more than 10 minutes. See Exception noted in Moving Shoulder Operations.

Supervisor: The term supervisor as used here refers to any individual who has direction or control over another employee; however for

approval of deviations, a supervisor is defined as one who is classified as a supervisor by his/her job classification.

Traveled Way: The traveled way describes that portion of the roadway where vehicles normally drive. This includes traffic lanes, turning lanes, and ramps. It does not include paved or unpaved shoulders or medians.

Planning Work To Reduce Worker Exposure:

Managers and/or Supervisors shall plan work to minimize the amount of time employees are exposed to moving traffic. Work methods and procedures should be designed to keep the amount of time workers are exposed to moving traffic to a minimum. For example, crews should be instructed to assemble
in safe areas well away from the traveled way, convoy to the work site, and do their work expeditiously. Once the work is completed, they should return immediately to a safe area.

In addition, when employees reach the work site, the work method should be designed to minimize the amount of time, workers spend on foot near moving traffic. The first choice should be to use mobile, power equipment to do the work. A worker in a piece of equipment is generally much safer than a worker on foot. The next choice of work methods would be to provide workers on foot with physical protection. For example, a barrier vehicle or some other obstacle can be used to provide physical protection.

The last choice is to have workers on foot without physical protection. Whenever possible in the situation were workers are working without physical protection the work method should be designed
so that workers can face traffic and can work apart as individuals and not in groups.

Before any work is done on a County roadway which requires closing of one or more lanes, careful consideration must be given to effects such an operation will have on traffic.

Working Near Moving Traffic:

When working on or near the traveled way for any amount of time, workers must be aware of the hazards from errant vehicles. If available, a vehicle, regardless of its size, shall be used as physical protection from traffic. Workers on foot shall face traffic whenever possible. Flaggers may be necessary
if the work involves employees being in the traveled way.

Employees should work quickly, but safely, and return to their vehicles as soon as work is completed.

When working on the outside radius of curves, workers should be aware that some vehicles, may have the tendency to drift to the outside.

Work on our two-lane roads sometimes involves short-term operations, which requires employees to work on foot, often on or next to the traveled way. When employees are working by themselves, they should make sure that they use their eyes and ears to look and listen for danger signals to ensure their personal safety.

All employees working on or next to the traveled way shall remain highly visible to traffic. Outer garments worn during inclement weather are allowed if they are covered by highly visible reflective vests or raincoats. Rain hoods are not allowed since they restrict peripheral vision and could shield the view of approaching errant vehicles.

Facing Traffic (Employees on Foot):

The Supervisor shall plan and supervise the work to minimize the amount of time workers will have their backs to traffic.

Unless there is a clear reason for doing otherwise, employees shall continually face oncoming traffic while working on or near the traveled way. This is the personal responsibility of every worker.

Facing traffic is the most important thing workers can do to protect themselves and their coworkers while working on or near the traveled way. Facing traffic gives workers a better opportunity to see and hear errant vehicles. This allows them a chance to move out of the way and warn fellow workers.

Flaggers:

While working on foot on or near the traveled way, workers should normally be protected by barrier vehicles, guardrail, or other physical means. Where the absence of such physical protection exposes workers on foot to errant vehicles, a person shall be assigned as a flagger according to circumstances described below.

Flagging is an extremely important component of employee safety and is often overlooked by employees and the public as a life saving responsibility. Flaggers should be selected with care.
Flaggers should be alert, intelligent, neat in appearance, have good hearing and good eyesight.

All persons assigned as flaggers shall wear orange, strong yellow-green, or fluorescent versions of these colored warning garments such as vests, jackets, shirts or other approved warning garments. Flaggers should be stationed far enough from the work to slow down or stop vehicles before they enter the work area. During the hours of darkness, flaggers' stations shall be illuminated such that the flagger will be clearly visible to approaching traffic and flaggers shall be outfitted with reflectorized garments. The retroreflective material shall be visible at a minimum distance of 1,000 feet. The retroreflective clothing, or the retroreflective material added to the clothing, shall have a minimum of one horizontal stripe around the torso. White outer garments with retroreflective material that meets the above requirements may be worn during hours of darkness in lieu of colored vests, jackets and/or shirts.

Flaggers are encouraged to avoid arguments with irritated drivers or passengers. If a driver refuses to obey a flagger's instructions, a record is to be taken of the license plate number of the car and the time of day, and a report made to the flagger's supervisor.

The flagger shall continually watch approaching traffic for errant vehicles that may hit workers on foot. If trouble is suspected, the flagger shall warn the workers by yelling, using a vehicle or warning horn, a portable lookout alarm device or any system capable of communicating the warning message.

A flagger shall not be assigned any other duties.

The Supervisor is responsible for rotating flaggers and providing them with sufficient breaks to prevent fatigue thus ensuring that the flagger remains alert.

Flagger Training:

Flaggers shall be trained in the proper fundamentals of flagging moving traffic before being assigned as flaggers. Signaling directions used by flaggers shall conform to the "*Manual of Traffic Controls*". The training and instructions shall be based on the "*Manual of Traffic Controls*" and "MUTCD", and work site conditions and also includes the following:

1. flagger equipment which must be used,
2. layout of the work zone and flagging station,

3. methods to signal traffic to stop, proceed or slow down,
4. methods of one-way traffic control,
5. trainee demonstration of proper flagging methodology and operations,
6. emergency vehicles traveling through the work zone,
7. handling emergency situations,
8. methods of dealing with hostile drivers,
9. flagging procedures when a single flagger is used (when applicable).

FLAGGER STATION ENHANCED SETUPS:

Adding supplemental traffic control devices upstream of flagger stations has the potential to increase conspicuity and alert drivers that they are approaching a flagger station. These additional devices are very low in cost, and are easily deployed.

Actual distances will vary to meet approach speeds and roadway conditions, and minor adjustments should be made as necessary to achieve the best results.

[**REF:** MUTDC 6E.01 Thru 6E.05]

Use of Flashing Arrow Signs:

Arrow messages pointing left, right, or to both sides, are to be used as action messages. An arrow is to be used only when requiring the motorist to change lanes. An arrow message is not to be used when a vehicle is parked in a closed lane unless it is being used for the arrow closing that lane.

During hours of darkness the FAS shall be dimmed to prevent blurring of the arrow image.

To alert the motorist to work activity near, but not on the traveled way, the caution mode of the FAS is to be used.

Flashing Amber Lights and Rotating Amber Lights:

Flashing amber lights shall be used to alert motorists to work activity near or on the traveled way.

Flashing amber lights are to be used on motor graders, snow removal equipment and other specialized equipment that are operated on the traveled way at lower than prevailing traffic speeds.

Flashing amber lights are not to be used:

- While driving at prevailing speeds; and
- When no danger to the employee or motorist exists.

Advance Warning Signs:

Advance warning signs shall be placed when a stationary operation is on the traveled way or is on the shoulder within 6 ft. of a traffic lane. Also, warning signs shall be placed well in advance of the work, when traffic slows, changes lanes, or moves from its normal course of travel because of the work. The standard signs shown in the *"Manual of Traffic Controls" Part 6* shall be used.

A barrier vehicle or a shadow vehicle may be used as protection from traffic while setting up and retrieving signs. A shadow vehicle shall be used as a protective vehicle during the installation and retrieval of traffic cones and signs in the taper and tangent sections of a lane closure.

When work is temporarily stopped or finished and traffic is not affected, all signs shall be promptly covered, dropped down or turned away from traffic. Once work is completed, all signs shall be promptly removed. Using signs that do not affect traffic will reduce their effectiveness. In addition, installing them when they are not needed will increase worker exposure to traffic.

Extra warning signs may be used, when appropriate.

Signs on vehicles with messages such as "Warning – This Truck Makes Frequent Stops" are advisory only and do little to protect the workers. They should only be used on low speed roads or city streets. When this type of sign is used, an amber light or FAS in the caution mode shall be used along with it.

Signs, such as "Loose Gravel", "Fresh Oil", etc., may be placed on barricades. The barricades shall be ballasted by means of sandbags placed on the lower parts of the barricade frame or stays. The sandbags shall not be placed on top of the barricade.

Lane Closure on Low-Volume, Two-Lane Road:

When one lane of a two-lane road is closed, the remaining lane must accommodate both directions of travel. The typical procedure for short-term work is to utilize flaggers to alternate traffic flow, as shown in the ***Manual of Traffic Controls'*** Figure TA5-10 or "MUTCD".

For low traffic volumes on a minor road, where traffic may be self-regulating, the procedure illustrated in the ***Manual of Traffic Controls'*** Figure TA5-11 may be used.

Mobile Operations:

Mobile operations include activities that stop intermittently and then move on (e.g., pothole patching and litter pickup) and those that move continuously (e.g., pavement striping). Mobile operations often involve frequent short stops, each as much as 15 minutes long, and are similar to stationary operations. Warning signs, flashing vehicle lights, flags, and/or channelizing devices should be used.

With operations that move slowly (less than 3 mph), it may be feasible to use stationary signing that is periodically retrieved and repositioned in the advance warning area. At higher speeds, trucks are typically used as components of the traffic control zones. Appropriately colored and marked vehicles with signs, flashing or rotating lights, and special lighting panels move as part of a train behind the work vehicles.

Mobile operations that move at speeds greater than 3 mph, such as snowplowing operations, striping, street sweeping or activities that move along without stopping, shall have appropriate devices on the equipment, (i.e., rotating lights, signs, or special lighting, or shall use a protection vehicle with apropriate warning devices.

SPECIFIC WORK ZONE AND WORK METHOD PROCEDURES

Pothole Patching:

When two employees and a dump truck are used to patch holes, one employee shall serve as the flagger while the other employee patches holes. The two-person crew shall rotate flagging and patching responsibilities throughout the shift.

The dump truck shall have its flashing amber light operating during the pothole patching operation.
Prior to patching potholes on a stretch of road, the two person crew will assess the road and weather conditions to determine a practical work zone that shall not be more than one mile.

A "ROAD WORK AHEAD" sign shall be placed at each end of the work zone prior to pothole patching. Pothole patching work zones can be less than one-mile depending upon the road and topography, but is also determined by the experience and judgement of the crew and/or the crew's supervisor. Pothole

patching shall only take place inside the work zone that is defined by the placement of the advance warning signs.

Sign Installation:

If work vehicles used to install permanent road signs are parked on the traveled way, advance warning signs shall be placed upstream and downstream of the work zone so as to give effective warning to motorists. Advance warning sign locations will depend upon alignment, grade, location of road intersections and posted speed limit. See the *"Manual of Traffic Controls*" for further details
about proper signing.

TRAFFIC CONTROL

Two-Way Traffic Taper