

## ***SMOKE MANAGEMENT AND TRAFFIC CONTROL GUIDELINES FOR PRESCRIBED BURNS***

### **Purpose**

The purpose of this section is to provide guidance for situations where smoke from a prescribed burn may have an impact on a nearby roadway. The safety of the public traveling on roads near DNR burns, and the safety of burn crews working near roads, must be a top priority. Smoke from a prescribed burn has the potential to reduce visibility on roadways, impairing the vision of drivers and those working near the roadway. DNR burn crews must follow all laws regarding the proper management of traffic in situations where smoke from a burn will, or may potentially, impact visibility on a roadway, including proper use of signage, high visibility clothing, and flagging operations.

### **Ownership of Roadways**

The authority to regulate a roadway, and any activities impacting its use, lies with the owner of the roadway (federal, state, county, municipal, etc.) Requirements for posting signs to alert drivers to the presence of personnel working along the roadway or potential smoke on the roadway vary by ownership. The burn plan shall identify the ownership of the roadways adjacent to the burn unit and adhere to the relevant guidelines for temporary traffic control. The information outlined in this section is intended to comply with state guidelines. For county guidelines, consult the county engineer. For municipal roadways, consult the city manager to determine the appropriate contact person. Ownership of roadways within state parks, or where state lands exist on both sides of a roadway, may vary and should be identified on a case by case basis.

### **Smoke Impacts to Visibility on the Roadway**

The goal of managing smoke impacts to roads is to ensure adequate visibility for drivers of vehicles on the roadway, thereby helping ensure their safety and the safety of burn crew members working near the roadway. The required temporary traffic control methods outlined in this policy vary based on the following levels of impact to the roadway:

Scenario 1: No smoke on the road is planned; however there is a road adjacent to the burn unit.

Scenario 2: Smoke is planned on the roadway. Traffic will be controlled by a flagger.

Scenario 3: Smoke is planned on the roadway. The roadway will be temporarily closed.

### **Required Warning Signs**

In all of the above scenarios, signage and flagging operations must use equipment consistent with standards found in the Manual on Uniform Traffic Control Devices (MUTCD). These standards cover the number of signs used, placement of signs, and physical characteristics of signs. The following requirements apply to all warning signs used for prescribed fire operations:

Shape and Size: The standard warning sign is a 48 inch by 48 inch diamond shaped sign.

Markings: Warning signs must be orange with a black written message or symbol. Appropriate text for fire operations may include, but is not limited to the following:

Scenario 1: Message options are:

- Controlled Burn Ahead
- Prescribed Burn Ahead
- Caution Smoke Ahead
- Smoke Limited Visibility

Scenario 2: Required messages are:

- Workers Ahead (First sign encountered by traffic)
- Prepare to Stop (Last sign encountered by traffic prior to flagger)

Message options (may be placed between the two mandatory signs):

- Controlled Burn Ahead
- Prescribed Burn Ahead

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- Caution Smoke Ahead
- Smoke Limited Visibility

Retro-reflectorization: Warning signs used during the hours of darkness must be made of retroreflective material or must be illuminated.

Placement and Mounting of Signs: Warning signs must be placed on the right hand side of a two-way roadway and on both the right and left hand sides of a multi-lane roadway. For signs mounted on portable supports, the bottom of the sign must be at least one foot above the roadway. If a ballast system is needed, the approved ballast system for signs mounted on portable supports is sandbags. All signs must be constructed and mounted in a manner that will yield upon impact so as to minimize damage if struck by a vehicle. For appropriate spacing of warning signs, see the Warning Sign Placement Chart below. Note that the proper placement of warning signs may change during the course of the burn based on the location of the smoke impact to the roadway.

Number of Signs: The number of warning signs required varies based on the smoke impact level.

Scenario 1:

- A single sign on each relevant road, of the type and messaging described above, is the minimum requirement.
- Additional signs may be added if site specific road and traffic conditions warrant.

Scenario 2:

- A minimum series of two signs per road is required. The first sign encountered by traffic should have a message stating “Workers Ahead” or similar.
- The last sign encountered by traffic prior to the flagger must state “Prepare to Stop”.
- A third sign, with one of the burn/smoke related messages listed above, may be placed between the two required signs.

Spacing of signs is dependent on the type of roadway being impacted--see the Warning Sign Placement Chart for spacing information.

Removal of Signs: When fire operations no longer have the potential to impact traffic, warning signs must be removed, covered, turned, or laid flat so that they are not visible to drivers.

**Warning Sign Placement Chart**

Type of Roadway	Distance from smoke impacted area to Flagger	Distance from Flagger to “Prepare to Stop” sign	Distance to next sign	Distance to next sign
Urban (<35 mph)	site specific	100 feet	100 feet	100 feet
Urban (35-45 mph)	site specific	350 feet	350 feet	100 feet
Rural	site specific	500 feet	500 feet	500 feet
Freeway	site specific	1000 feet	1500 feet	2640 feet

### Flagging

Scenario 1: Members of the burn crew should be designated as “emergency flaggers” and must have the appropriate equipment accessible onsite (vest and paddle sign) in the event that a shift in wind direction unexpectedly puts smoke on the road. The number of emergency flaggers designated will vary based on the proximity of the burn unit to one or more roads.

Scenario 2: Where smoke is planned to go on the roadway, flaggers are required. The flaggers will use mounted “Stop/Slow” paddle-type signs, in conjunction with the required warning signs, to control traffic on the impacted roadway. The Iowa Department of Transportation (IDOT) has developed a handbook to provide guidance for carrying out flagging operations. It is recommended that personnel assigned to flagging operations for temporary traffic control review the IDOT Flagger’s Handbook on an annual basis. The handbook is available at: <http://www.iowadot.gov/erl/current/FM/flagger.pdf>.

### Required Equipment for Flagging

The following equipment is mandatory for all flagging operations:

Paddle: The “Stop/Slow” paddle is the primary traffic control device. This sign must be at least 24 inches by 24 inches with 6 inch high letters. It must be mounted on a ridged handle at a minimum height of 5 feet.

Vest: Class 3 High-visibility safety vests are required for any person working within ANY public right-of-way. This will always include the flagger. *Note that prescribed fire participants acting in roles that may directly expose them to flame, fire, heat, and/or hazardous materials are exempted from wearing high-visibility safety vests (i.e. those controlling a fire burning in a road right-of-way).*

### Road Closures

Closure of a roadway not owned by the DNR (Scenario 3) requires the cooperation and prior permission of the owning authority. The burn organizer should obtain permission from, and discuss closure and signage requirements with, the owning authority prior to the burn season.