	<b>ENGINE RETARDER BRAKES SIGN</b>		<i>Issued: DEC 2003</i>
			<i>Revised: DEC 2006</i>
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<b>RECOMMENDED PRACTICES</b>	PART	HIGHWAY SIGNS	
	SECTION	REGULATORY SIGNS	
	SUB-SECTION		

## General

Concerned citizens and local governments occasionally raise issues regarding the noise levels of engine retarder brakes from heavy trucks.

When noise problems become persistent and affect many residents, signs may be placed on a highway, asking drivers to refrain from using their engine retarder brakes.

Since truck drivers often rely on engine brakes in controlling their vehicles, the information sign is only allowed where there are no safety implications as a result of displaying the sign along the highway.

### ***Use of Engine Retarder Brakes***

Engine retarder brakes are used in many heavy trucks as a supplement to the vehicle's service brakes. The principle behind the engine retarder brake is that it changes the action of the exhaust valves, turning the engine into an air compressor. Engine brakes use the characteristics of the diesel engine to produce a significant amount of drag through the vehicle's drive train to the wheels. This allows the service brakes to stay cool and ready for emergencies.

Engine retarder brakes provide increased driving safety in normal and difficult weather and road conditions, including ice, snow and wet or gravel road surfaces.

Engine retarder brakes can provide:

- Faster, steadier, more efficient braking performance.
- Reduced wear on engine, tires, and service brakes.
- Less vehicle downtime.
- Enhanced driver confidence.

The engine makes a distinctive staccato sound while in operation (while converting the power-producing diesel engine into a power-absorbing retarding mechanism).

Since 1988, vehicles have been required to produce less than 80 dB(A). When the muffler is removed, the sound level increases by 21 decibels.

### ***Provincial Legislation***

There is no provincial legislation to regulate the use of engine retarder brakes along provincial highways. There is also no provincial law to control noise levels generated by engine brakes, unless the vehicle is found to have deficient equipment.

### ***Safety Implications***

Actions restricting the use of engine retarder brakes may have legal and safety implications since truck drivers often rely on engine brakes in controlling their vehicles under various situations.

For this reason, signs advising truck drivers to limit the use of engine brakes will normally be discouraged.

Thus, the use of Engine Retarder Brakes signs is a local development issue in which Alberta Infrastructure and Transportation must balance development needs with the safety needs of the motoring public.

### **Standard**

The Engine Retarder Brakes sign consists of a word message provided with black lettering on a white background. The content of the message will vary depending on the need (e.g., it may prescribe a distance or the area limits over which a sign would apply).

A typical message will read: *TRUCKERS, PLEASE AVOID USE OF ENGINE RETARDER BRAKES.*

Details of the sign can be found in drawings TCS-A-205 and TCS-A-206.

### **Guidelines For Use**

An Engine Retarder Brakes sign may be permitted to alleviate noise levels at locations that meet all of the following criteria:

- the area affected by noise has a substantial residential section
- a record has arisen of persistent complaints from different local residents (for an extended period of time, of at least one year)
- a considerable amount of truck traffic

passes through the residential area

- the area is located within a distance of 400 m from a provincial highway.

Signs will be reviewed on a request basis only.

The final decision to authorize the placement of an Engine Retarder Brakes sign on the highway will depend on the combined effect of the roadway operational and safety factors (with safety issues being the predominant factor to consider).

### **Sign Application Process**

A local municipality may apply to Alberta Infrastructure and Transportation to install Engine Retarder Brakes signs on a provincial highway.

After reviewing a request, Alberta Infrastructure and Transportation may issue a Letter of Approval allowing for the installation of Engine Retarder Brakes signs within the highway right-of-way.

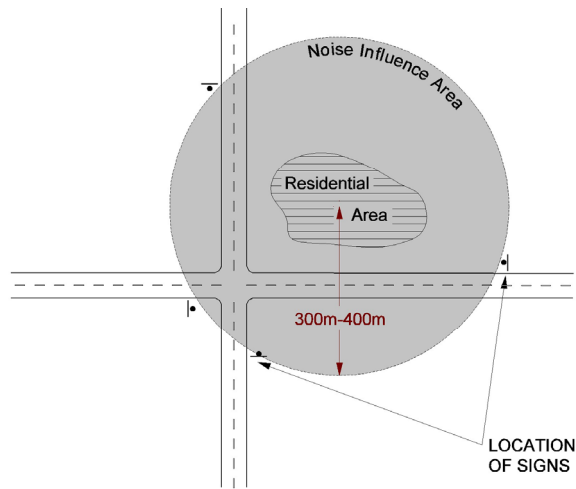
### **Guidelines for Placement**

Engine Retarder Brakes signs may be installed on highway entrances to an urban area. The exact location and the number of signs will depend on the need and site-specific conditions (i.e., presence and proximity of residential areas to a highway, noise influence area, existing noise attenuation measures, and other socio-demographics).

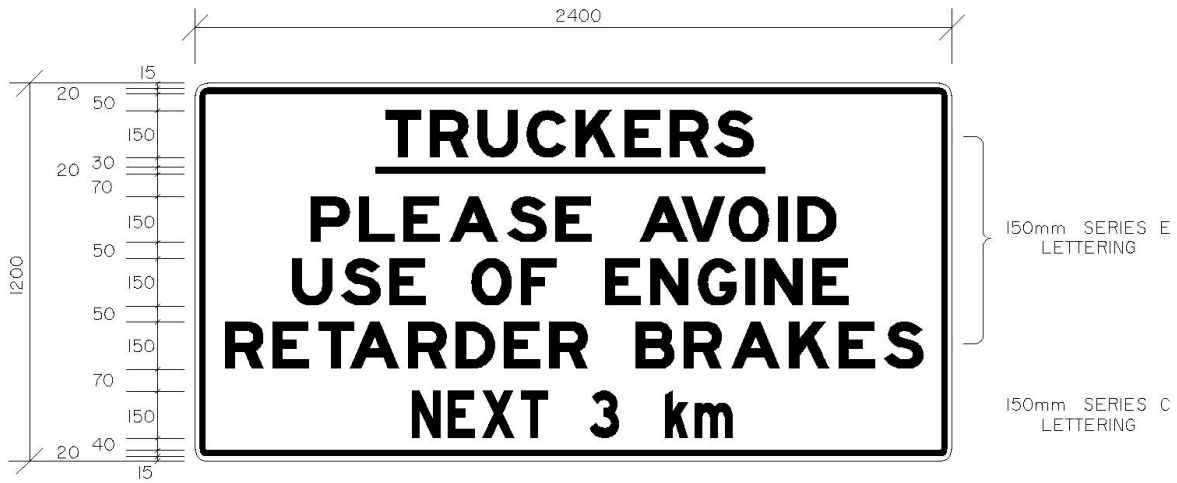
In general, the limits of the noise influence area are considered to be within a radius of 300 m to 400 m from the residential

development as shown in Figure 1. The actual limits or the boundaries of the noise influence area should be established based on the combined input from local residents and field observations.

Alberta Infrastructure and Transportation will be responsible for managing all activities associated with fabricating, supplying, installing and maintaining the signs along the highway. All associated signs costs will be covered by the municipality requesting the sign.



**Figure 1 - Sign Installation and Maintenance**



**SIGN DETAILS**

**LETTER SIZE:** Minimum 150 mm Series E font – main message

Minimum 150 mm Series C font – supplementary information (i.e., distance, the length of the area)


**COLOUR:** Black lettering on white background

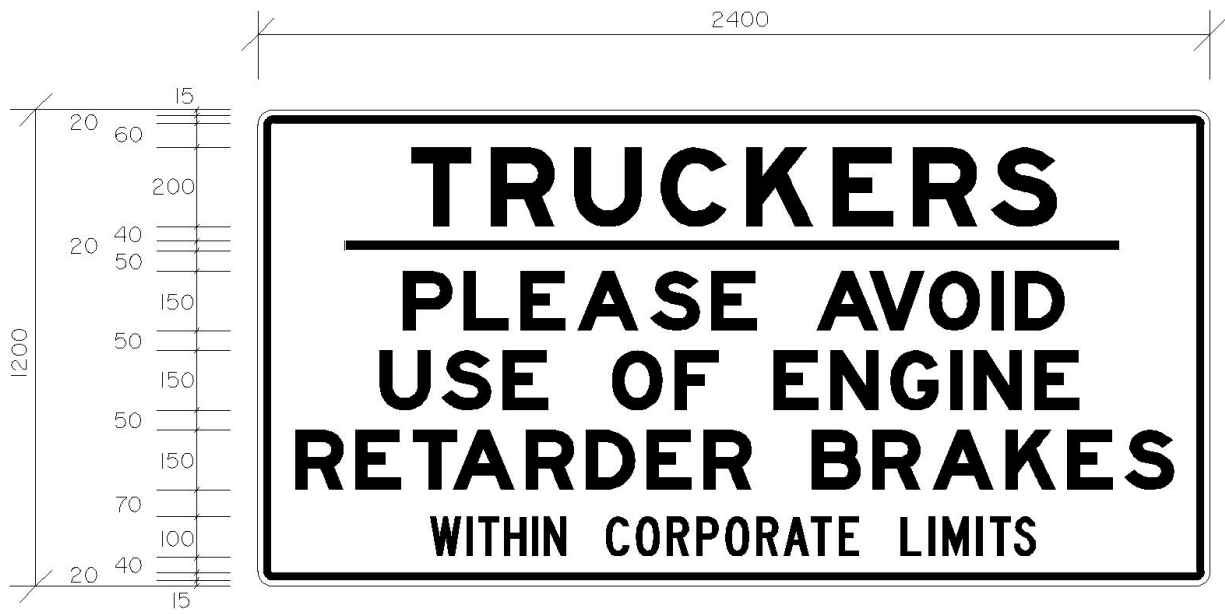
**SUBSTRATE:** 19 mm High Density Plywood

**SIGN FACE:** ASTM Type III or IV sheeting

**PLACEMENT:** Minimum 6 m from white shoulder line

**SUPPORTS:** Double support – wood posts, pressure treated  
100 mm x 100 mm or 100 mm x 150 mm.

NO.	DESCRIPTION	BY	DATE
		DRAWING TCS-A-205	
		Date: DEC 2003	
ENGINE RETARDER BRAKES SIGN – STANDARD			
Prepared by: S.L.	Checked by: B.B.	Scale: N.T.S.	SECTION A2



**SIGN DETAILS**

**LETTER SIZE:** Minimum 150 mm Series E font – main message

Minimum 150 mm Series C font – supplementary (i.e., distance, the length of the area) information


**COLOUR:** Black lettering on white background

**SUBSTRATE:** 19 mm High Density Plywood

**SIGN FACE:** ASTM Type III or IV sheeting

**PLACEMENT:** Minimum 6 m from white shoulder line

**SUPPORTS:** Double support - wood posts, pressure treated  
100 mm x 100 mm or 100 mm x 150 mm.

NO.	DESCRIPTION	BY	DATE
		DRAWING TCS-A-206	
		Date: DEC 2003	
<b>ENGINE RETARDER BRAKES SIGN - TYPICAL URBAN APPLICATION</b>			
Prepared by: S.L.	Checked by: B.B.	Scale: N.T.S.	SECTION A2