

Public Works Director



Derrick A. Radke, P.E.

MEMORANDUM

February 7, 2018

To: County Council
Thomas C. Fisher, County Manager

From: Derrick Radke, PE - Summit County Public Works Director

Re: Work Session - Engine Brake Restrictions

For many years, the County has received requests from residents to place signs restricting the use of Engine Brakes in various areas of our community. A compression release engine brake, frequently called a Jacobs Brake or Jake Brake, is an engine braking mechanism installed on some diesel engines. When activated, it opens exhaust valves in the cylinders after the compression cycle, releasing the compressed air trapped in the cylinders, which slows the vehicle. Engine Brakes are considered an essential safety device by the trucking industry. Engine Brakes can be an effective braking method, creating massive amounts of force to resist gravities pull on heavy trucks on steep grades. Engine Braking can extend the life of friction brakes and help drivers maintain better control of their rig, especially when driving down a steep and/or long slope. The benefit and safety aspect of vehicle control was echoed by a representative of the Utah Trucking Association contacted in preparation of this report.

Engine braking is prohibited in some jurisdictions because of the loud noise it creates. Typically, restrictions occur when interstate highways, major roadways, and even local minor roads are in or near residential areas. A couple of internet sources likened the decibel level to be the same as that of a large lawnmower. In the early morning or late at night, the sound of a Jake Brake, when engaged, can be very disruptive to residents in close proximity to these roadways.

According to a representative from the Utah Trucking Association, the industry is keenly aware of the disruptive noise caused by the Engine Brakes and have been making great strides in reducing the noise produced by their use. He stated that it is typically the older trucks that have "straight pipes" (exhaust systems with no mufflers) that are creating almost all of the disruptive noise. He went on to state that most over the road trucks are only 3 to 4 years old and the technology of the braking systems create much less noise, and it is typically the local area trucks such as construction vehicles, and local delivery (heavy) trucks that still have the old systems. In time, most of the noise problems may solve themselves.

Summit County has installed Engine Brake Restriction signs in some residential area, and does currently have rules governing the use of Engine Brakes in Residential areas. Title 5, Chapter 3, Section L states, "Dynamic Braking Devices: Operating any motor vehicle in a residential zone with a dynamic braking device engaged, except to avoid imminent danger, during the following

hours: nine o'clock (9:00) P.M. to seven o'clock (7:00) A.M., Monday through Saturday, and eleven o'clock (11:00) P.M. through nine o'clock (9:00) A.M. on Sundays". This section of the Code does not require placement of a sign; however to enforce the Code section, typically an Officer would have to witness the violation, with or without a sign.

In the last couple of years, staff has received a few more calls than usual from residents residing along I-80 near Parley's Canyon, US 40 near I-80, and along SR-248 requesting the placement of Engine Brake Restriction signs. These roads are all under the jurisdiction of the Utah Department of Transportation (UDOT). UDOT has implemented a policy that it will not install these signs unless requested by the local jurisdiction. The Policy is summarized as follows:

- UDOT must receive a request for No Jake Brake signs from Local Agency
- The Local Agency must provide a copy of our Noise Ordinance which prohibits/limits their use (our Ordinance language noted above)
- Upon receipt, UDOT will do a safety review prior to implementation
- If installed, UDOT will install and maintain, but at the Local Agencies expense
- Local Jurisdiction must commit to ANY enforcement

The most recent request for restricting Engine Brake use is from Mr. David Jenkins dated July 28, 2017, a resident living along SR-248 in Summit County. His request is repeated below.

Hello Council Members,

Thank you for considering my email request. For the past 17+ yrs. I have owned and lived continuously at [REDACTED] (3 miles West of Kamas) which is on the final down grade into Kamas. As we know this side of the county is growing quickly and is also a natural resource and heavy equipment hub of sorts in the county, all of these traits are expected to continue without pause indefinitely.

As the years have passed the truck traffic has increased significantly, while the Wasatch County portion of SR 248 enjoys the decency of engine brake restrictions, the Summit County downhill sections of the road do not carry the same restrictions, and unfortunately the truck drivers know it. My neighbors and myself now listen to engine brakes 24/7/365, this morning it started at 605am, its loud and the grade is lengthy, the sound carries for miles, its noise pollution.

So, I'm writing to request your offices assistance in posting this section of the road with engine brake restriction signage, from Tuhaye to the flats. The good news is it should only require maybe 2 signs. It's a simple request which I'm sure the state would accommodate with your instruction and a small step towards your goal of maintaining the quality of life in the county.

The UDOT Region 2 offices can be reached at (801) 975-4900.

I look forward to your reply.

Thank you;

David C Jenkins

Below is some technical information related to roadway safety on long/steep hills. The Utah

MUTCD (Manual on Uniform Traffic Control Devices) and the regulation/guidance for “Hill” signs is as follows:

Section 2C.16 Hill Signs (W7-1, W7-1a)

Guidance:

- 01 *The Hill (W7-1) sign (see Figure 2C-4) should be used in advance of a downgrade, horizontal curvature, and/or other physical features require special precautions on the part of road users.*
- 02 *The Hill sign and supplemental grade (W7-3P) plaque (see Section 2C.57) is used alone, should be installed in advance of downgrades for the following*
 - A. *5% grade that is more than 3,000 feet in length,*
 - B. *6% grade that is more than 2,000 feet in length,*
 - C. *7% grade that is more than 1,000 feet in length,*
 - D. *8% grade that is more than 750 feet in length, or*
 - E. *9% grade that is more than 500 feet in length.*
- 03 *These signs should also be installed for steeper grades or where crash experience and field observations indicate a need.*
- 04 *Supplemental plaques (see Section 2C.57) and larger signs should be used for emphasis or where special hill characteristics exist. On longer grades, the use of the Hill sign with a distance (W7-3aP) plaque or the combination distance/grade (W7-3bP) plaque at periodic intervals of approximately 1-mile spacing should be considered.*



The language on line 01 states, “The Hill...sign...should be used in advance of a downgrade where the length, percent of grade, horizontal curvature, and/or other physical features require special precautions on the part of road users.” This indicates that when roads have grades in excess of 5%, special precautions should be used when circumstances warrant. We all watch heavy trucks on I-80 at Parley’s going downhill very slow and others going almost as fast as the cars. I believe the differences relate to the loads they carry, and the abilities of the drivers. Those having heavy loads and going slow are probably in low-low gears and using engine brakes. Most of the trucks on SR-248 seem to be dump trucks and local delivery trucks. Most are driving near the speed limit, and probably are using engine brakes to maintain their speed. The alignment of SR-248 is fairly straight, with some gentle curves, which is probably why the speeds are higher.

UDOT has placed No Engine Brakes signs in Wasatch County at the Summit/Wasatch Boundary both East Bound and West Bound. At the West Bound location, they have also placed a “Hill” sign (see below) indicating a 5% grade. UDOT has also placed a similar “Hill” sign for a 5% grade on the East Bound lane inside of Summit County.

Using Google Earth (take it for what it’s worth), the grades of 5% seem to check out on SR-248 on the Wasatch County Side. On the Summit side, several of the steeper downhill sections seem to be at about 6% and 7%. The “Hill” signs on Parley’s are 6%, which are confirmed by information on Google Earth.

One of the requirements of UDOT’s Policy is that the local jurisdiction must commit to enforcement. Input from the Summit County Sheriff’s Department was solicited and was provided by Lt. Hemingway. Please see the complete text attached. In summary, Lt. Hemingway indicates that enforcement of Engine Brake Restrictions would be difficult and would not be the highest priority call, but would respond to violations based on jurisdictional & priorities. Based on the safety considerations from the MUTCD, the recommendation of the Utah Trucking

Association, and the difficulties of enforcement, I would recommend that the Council and Manager direct staff to propose County Code language changes to reflect placing Engine Brake Restriction Signs only on roads with the jurisdiction of the County, and only recommending to UDOT to place Engine Brake Restriction signs, on roads that have grades less than 5% and are less than 3000 feet long. Some consideration for hours of restriction should also be considered.

If you have any questions prior to the meeting, please contact me. I look forward to the discussion.

Enclosure (Letter from Lt. Hemmingway)

cc: file (C:\Users\DRadke\Documents\MyDocs\Public Works\Misc\Engine Brake\cc-engine brake disc 2-7-18.doc)



SUMMIT COUNTY SHERIFF'S OFFICE

SHERIFF JUSTIN MARTINEZ

6300 JUSTICE CENTER ROAD PARK CITY, UTAH 84098 (435) 615-3600

Mr. Radke,

I understand that citizens of Summit County are requesting signs, “engine brake restrictions”, to be posted along portions of Interstate 80 and State Road 248. To consider the installation of these signs, the State of Utah’s Policy requires:

1. Request from local governmental agency
2. The request must include a copy of the local noise ordinance with boundaries clearly indicated, the location of the proposed signs, and **a commitment of both enforcement** and reimbursement for all costs.

After consideration of the request to the state for the signage, the Sheriff’s Office would like to provide you with information on our ability to commit to the enforcement of this type of violation.

Obviously the Sheriff’s Office is responsible for violations of state and local ordinance violations in Summit County. Summit County has a noise ordinance “5-3” that details noise disturbances. Section 5-3-9-L specifically identifies “dynamic braking devices” as a prohibited act and is punishable up to a class B misdemeanor if found guilty.

Signs posted advising of engine brake restrictions are a great visual warning and initial deterrent, but if not enforced, will only serve as a written warning for so long before it is disregarded by those who know there is no targeted enforcement of the violation.

The challenges you run into when enforcing this type of violation can be represented in the following hypothetical situation:

A Summit County Resident who lives in the general area of Parley’s Summit is unhappy at the frequent noise caused by semi tractors using their engine brakes as they descend Interstate 80 eastbound. The resident calls public safety dispatch to report the noise disturbance. In order to enforce that violation, the responding law enforcement officer would need the following information:

What time did the noise occur?

Did you see which vehicle was using the engine brakes?

- Make/Model
- Color
- Direction of Travel
- Etc

As the complainant, you will need to sign a voluntary statement and/or the citation if the violator is located, due to the officer not witnessing the violation.



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Unless a citizen understands that descriptive information for the prosecution of the violator is needed, many violators will not be able to be located, and/or prosecuted successfully.

Effective enforcement of this violation would require an officer be present in the location where the signs are posted and waiting for a violation to occur. This enforcement may not be practical due to several variables.

In all, the Sheriff's Office will always respond to a call for service regardless of the nature. Calls for service are jurisdictionally & priority based on several factors. Variables encountered in day to day operations of the Sheriff's Office may not place this type of enforcement or response as the number 1 priority.

I hope this information helps you and others understand our ability to commit to the enforcement of this type of violation. Please let me know if I can be of any further assistance.

Respectfully,

Lieutenant Justin Hemingway
Patrol Division Commander
Summit County Sheriff's Office
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435-615-3558