Appendix G: Pilot Car Load Movement Guidelines

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Pilot Car Load Movement Guidelines

November 2016

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Acknowledgements

In the development of these guidelines, we have relied on program information from a variety of other jurisdictions, and on content from the *Escort Drivers' Handbook (Rev Nov 29, 2011),* produced by Alberta Transportation, and the *Pilot Car Escort Best Practices Guidelines* which was produced jointly by the Specialized Carriers & Rigging Association, the US Department of Transportation Federal Highway Administration and the Commercial Vehicle Safety Alliance.

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Section 1: Introduction

1.1 Purpose of the Guidelines

Pilot cars play an important role in making sure that unusually large loads or wide vehicles travel BC's roads safely. Pilot cars function to warn other road users of the presence of an oversize vehicle, assist in maneuvering the load through constrained areas, and keeping traffic delays to a minimum.

These guidelines have been developed to support activities for the safe movement of oversize loads over BC highways. The standards for pilot cars and their equipment are set out in the *BC Commercial Transport Regulations Division 8*. This manual is intended to clarify, enhance and support the conditions for travel that are set out in provincial permits for oversize and overweight loads.

The traffic control described and illustrated in these guidelines is generally the minimum required. No one standard sequence of signs or other control devices can be set up as an inflexible arrangement for all conditions and locations, due to the variety of conditions encountered. It should also be recognized that while the Pilot Car Load Movement Guidelines contain mandatory language such as "shall" there may be circumstances where strict compliance with such requirements is not reasonable and it will be necessary to deviate from the requirements.

Loads that are very large or very heavy often require the development of detailed, written Transportation Management Plans in the course of planning and seeking approval for the necessary permit to move the load. In those cases, in addition to the content of these guidelines and the legal requirements from the BC Commercial Transport Regulations, please consult the guidance in *Section 6.4.4 Chapter 6, of the Commercial Transport Procedures Manual.*

1.2 Definitions

Lead pilot car: A pilot car travelling ahead of the load. Where there are two pilot cars ahead of the load, the lead pilot car is the one closest to the load. The lead pilot vehicle should travel 4 to 8 seconds ahead of the load. The purpose of the lead pilot car is to warn oncoming drivers that the load is approaching and to double check clearances and other constraints for the load.

MoT: BC Ministry of Transportation and Infrastructure

Multilane highway: A highway with at least 4 lanes (typically 2 lanes in each direction).

Oversize load: The vehicles and loads that are overheight, overwidth, overlength and/or overweight, i.e. any load or vehicle for which the terms of a permit or authorization requires the use of one or more pilot cars.

Pilot car: A pilot car, for the purposes of these guidelines, is a vehicle that is escorting commercial transport vehicles. A pilot car used to escort commercial transport vehicles is different than a pilot car used to lead traffic through a work zone.

Rear pilot car:	The rear pilot should travel 4 to 8 seconds behind the load. The purpose of the rear pilot car is to warn drivers approaching from the rear, to monitor the load (e.g. cargo securement, off tracking, etc.), and to notify the load driver if any vehicles may be passing. The rear Pilot Car should avoid getting in the load driver's blind spot without communicating with the driver.
Scout pilot car:	When there are two pilot cars travelling ahead of the load, the scout pilot car travels further ahead in order to identify potential issues before the front pilot car and load arrive. The scout pilot car is also responsible for establishing appropriate traffic control, if required.
Traffic control:	The act of slowing, stopping, or directing general purpose traffic on a highway (flagging). All traffic control must be conducted by a certified traffic control person as per the Occupational Health and Safety Regulation, Division 18. When a Pilot Car is only operating as a mobile warning device for the load, it is not conducting traffic control.
Trailing pilot car	When there are two pilot cars travelling behind the load, the pilot car furthest away from the load is the trailing pilot car. The trailing pilot car position is typically a temporary position that a second or third pilot car may occupy following a traffic control situation where traffic was held in order to let the load manoeuver.
Transportation Management Plan	A transportation management plan is used to plan and implement moves for loads that are very large or very heavy. They detail the specific agreed processes for the movement of the load. This is different from a “traffic management plan” which is used to outline vehicle movement through a construction zone.
Two and three lane highway:	A highway with one lane in each direction but may have sections with passing or truck climbing lanes resulting in a total of three lanes.

1.3 The Importance of Pilot Cars

Provincial highways are designed to fit standard vehicles with standard dimensions. However, there are times when the movement of oversize loads are required to meet the needs of both public and industry.

Oversize load vehicles and the loads they carry are often too long, wide, or high for the marked lanes of a highway or the infrastructure on and over the highway. This can create operational problems, especially as many of British Columbia’s highways are two-lane, two-way highways.

Pilot cars ensure that all road users are aware of the potential hazard, and know what to do if they encounter these vehicles so they can pass safely.

Section 2: General Pilot Car Operations

2.1 When Pilot Cars are Required

Pilot Car requirements for oversize load moves on provincial highways will be established by the terms of the permit issued for the move. These permits also establish other terms for the move, including time of day movement restrictions.

One or two pilot cars may be required when the load width, length, or height result in needing additional roadway space to maneuver. Basic rules for whether one pilot car should be in front of or behind the load are set out in the Commercial Transport Regulations, section 8.08. When two pilot cars are used, generally one is positioned as lead and the other follows the load as the rear pilot car. The main duties of the rear pilot car driver are to communicate with the load driver about surrounding traffic or other obstacles, and to monitor the load.

Three or more pilot cars may be required for more complex moves. The requirements and typical positioning of the pilot cars would be set out in the permit conditions and may vary depending on the locations and situations along the route. A third pilot car would typically assume the scout pilot car position and may travel well ahead of the load and lead pilot car in order to identify appropriate traffic control locations or pinch points ahead of time.

CVSE 1000 and other T-forms set out the general pilot car requirements. The load permit may have additional requirements. If a transportation management plan has been required as a condition of approval for the move, it may have further pilot car and traffic control requirements.

Figure 2.1 – Sample of permit pilot car requirements

Pilot Cars:
Pilot cars must have two-way communication with the driver of the oversize load.

	Width →	Up to 3.2 m		3.21 to 3.5 m		3.51 to 3.8 m		3.81 to 4.4 m	
		Day	Dark	Day	Dark	Day	Dark	Day	Dark
Length	Up to 27.5 m	0	0	1*	1	1	1	1***	2
	27.5 to 31 m	1	1	1	1	1	1	2	2
	31.1 to 36 m	1	2	1	2	1	2	2	2
	36 to 40 m	2**	2	2**	2	2	2	2	2

* Or the towing vehicle must be equipped with and operate one or two amber flashing lights
** Up to 3.5 m wide, only one pilot car is required for travel over four (4) lane highways
*** Two pilot cars for travel on Highway 97 from the junction of 77/97 to the Yukon Border
For weight permits, where the approval to obtain a permit includes bridge crossing conditions, a minimum of two pilot cars are required at each bridge crossing condition location

Additional Pilot Car Requirements for Front or Rear Projection:

- If you are using an allowance for front projection beyond 3 m of the kingpin or beyond 6.5 m measured forward of the turn center of the front steering axle group, a minimum of one pilot car is required (unless otherwise provided for by commodity or vehicle policy).
- If you are using an allowance for rear projection beyond 6.5 m from the turn center if the rear-most axle group, a minimum of one pilot car is required (unless otherwise provided for by commodity or vehicle policy).
- A minimum of two pilot cars will be required if the load exceeds 3.8 m in width and the front projection is in excess of 3 m and/or the rear projection is in excess of 6.5 m.

For overall widths over 3.2 m, a minimum of one pilot car is required:
On Vancouver Island:
- Highway #4 from the Taylor River Bridge (40 km west of Port Alberni) to Tofino
- Highway 30 from Highway 19 to Port Alice

On the Sunshine Coast: Highway 101 from Langdale to Earl's Cove
In the Lower Mainland/Southern Interior: Highway 99 from Pemberton to Lillooet
In the Kootenays:
- Hwy 3A and 31 (Balfour-Kaslo-Galena Bay Highway)
- Hwy 33, southbound only, to approach and cross the Westbridge Bridge

In the Peace River Region: Highway 97 from Junction 77/97 to the Yukon border

2.2 When Certification is Required

In BC, pilot car operators are not required to be certified to do the parts of their work that do not involve controlling traffic, such as acting as a moving visual warning device escorting a commercial load, and communicating with the load driver to assist in the safe movement of the load.

However, certification is required to perform traffic control in a high risk situation, such as on a highway. In BC, the basic level of certified traffic control training is available through the *BC Construction Safety Alliance,* and the Occupational Health and Safety Regulation further requires that employers must provide additional training if the traffic control needed is more advanced than what is covered in the basic course. The basic course teaches the current standards for traffic control, primarily intended for flagging at road construction sites, and also covering information about equipment, flagging movements, stopping distances, etc. These guidelines establish the movement of commercial loads using pilot car escorts and standards for advanced traffic control training related to the movement of commercial loads.

Further, oversize and overweight permits in BC require that traffic control, where necessary, must be done by a certified traffic control person using the methods set out in these guidelines, or by a peace officer.

Out-of-province pilot car operators who engage in traffic control in British Columbia shall either be certified traffic control persons in British Columbia or proof of valid traffic control person certification from their home jurisdiction.

2.3 Related Laws and Policies

Pilot car use is one piece of the overall permitting process for oversize and overweight loads. Some other tools are:

- Standards for weights and dimensions of vehicles and loads without permits on provincial highways are in the BC Commercial Transport Regulations, *Division 7*.
- Legal requirements for pilot cars and their equipment are in the BC Commercial Transport Regulations, *Division 8*.
- The *Commercial Transport Procedures Manual* which sets out policy guidelines for permitting
- *T-Forms* (permit attachment forms) which are attached to permits to provide travel times, numbers of pilot cars required, basic light and flag information, and sometimes routing assistance
- *Extraordinary Load Approvals* and *CVSE1052* forms for extremely large or heavy loads
- In BC, permits are issued through the Provincial Permit Centre, 1-800-559-9688, and online at *OnRouteBC*. Permit Centre hours are 6 am to 10 pm, 7 days per week, except Christmas Day.

2.4 Best Practices

Pilot car operators need sufficient driving experience and training that they can manage the complexities of assisting the load they are escorting in addition to the usual demands of operating a motor vehicle. Keep in mind that pilot car operators must:

- Comply in all respects with provincial or other government laws for the movement of vehicles.
- Drive defensively – anticipate potential incidents and plan for them. Expand the area you would be aware of when operating your personal vehicle to the area the load driver needs to be aware of.
- Be aware of the load driver's lines of sight.
- Keep windows uncluttered, and mirrors properly adjusted.
- Respect the weather and the road conditions, and drive accordingly. Remember that, in some cases, permits become invalid when road conditions are poor.

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Section 3: Load Movement Planning

3.1 Non-provincial Highways

The use of non-provincial highways such as municipal streets and industrial roads is subject to approval and/or permitting by the jurisdiction operating those roadways, and operational requirements may differ. Sometimes those jurisdictions place controls (such as noise bylaws) that affect oversize load moves, and must be planned for in advance.

3.2 Route Planning or Route Survey Guidelines

Single trip oversize or overweight permits for loads that require the use of pilot cars include approved routing information. The approved route must be followed exactly, unless a peace officer directs otherwise.

When using a term permit (which does not have a specified route), or if assisting a carrier to plan a route before a single trip or term permit is obtained, consider the following:

- What are the load dimensions? Are there areas along the route which will require special attention?
- Known constraints on the highway, and how to manage the traffic. For example, if oncoming vehicles will have to be stopped to allow the oversize load to pass, plan a suitable place for directing road users at constraint points along the route. Very large loads may need approval of a Transportation Management Plan by MoT, RCMP and utility companies before a permit can be issued, and these moves often involve making arrangements ahead of time to temporarily move infrastructure such as signs and barriers. Guidelines for developing Transportation Management Plans can be found in *Section 6.4.4 Chapter 6* of the Commercial Transport Procedures Manual.
- Where are the pullouts and other stopping points along the route?

The MoT maintains an overheight registry of major structures located along the numbered highways in BC, available at *www.DriveBC.ca*. Carriers and/or pilot car operators should use this tool during pre-trip planning to determine the route to request for the permit. Clearances should be checked for each and every trip.

3.2.1 Using Height Poles on Route Surveys

From time to time, a pilot car with a height pole may be engaged to double-check route viability during the planning stage for an oversized move. Before embarking on such a trip, height clearances on major routes should be checked using the CV Height Clearance Tool at *www.DriveBC.ca*. If the pilot car operator engaged to do route analysis does not have strong local knowledge, they must check with local weigh scale staff before running the route, to identify known issues that might prevent the trip.

Power and other overhead lines and bridge structures may have lower road clearance tolerances on secondary highways and municipal roads, and care must be taken at all times, including during route analysis, to maintain a safe clearance distance from the lines. See *Section 4.2.1* for height pole requirements.

If a visual estimate indicates that the height pole may come in contact with a line, stop in a safe location and assess the situation. Use a safe tool to measure overhead wires and lines or traffic signals - preferably a laser or other electronic measuring device. If using a measuring stick, it must be of a non-conductive material, and must not make direct contact or come too close to the line or signal; measure to the side. Any measurement activities that might interfere with the flow of traffic must be done with appropriate approvals, using certified traffic control personnel.

www.DriveBC.ca is a good resource for planned construction activity on the selected route. It can also be helpful to use web tools such as maps that have street view to assist in determining the shape of a structure you will be encountering.

Note: Legal height in BC is 4.15 m, measured from the surface of the roadway. In order to exceed 4.15 m with a height pole, except while escorting a permitted load, an oversize permit is required (Provincial Permit Centre – *onRouteBC.gov.bc.ca* 1-800-559-9688)

In order to exceed 4.88 m overall height (5.33 m in the Peace River Area), an *Extraordinary Load Approval* and a signed *CVSE1052* form are required before the permit can be obtained. Please allow a few days to obtain these documents.

3.3 Expect the Unexpected (Contingency Plan)

Develop and review contingency plans with the pilot cars involved with the move, the load carrier and their oversize load driver

- Plan for vehicle breakdowns
- Plan for emergencies, including allowing emergency vehicle to pass
- Plan for sudden weather changes
- Plan for contact with an overhead obstruction
- Plan for railroad crossing issues – See *Section 8.5* and *Operation Lifesaver Tips for Professional Drivers*
- Plan for vehicle collisions/accidents and property damage
- Plan for allowing scheduled vehicles to pass (Bus Lines, Mail Services, etc.)
- Cell coverage maps from cell providers should be checked to determine where cell coverage areas may be lost
- Plan for bringing in additional or replacement Pilot Cars
- If the pilot car operators are not certified for traffic control, plan for how certified traffic control persons will be brought in if an unexpected circumstance will require traffic control.

3.4 Pre-trip Meetings

A safe move requires good teamwork. Before beginning an oversize load move, make sure all contacts required for the move are clearly identified with contact information. Discuss and plan the move with the load driver and any other pilot car operators or teams involved.

Prior to the start of an oversize load move, a team coordination meeting should take place. Meetings should be held on the initial move day, and on subsequent days if the move takes place over several days.

- Discuss roles and responsibilities of the move's team members
- Discuss safety precautions and communications to be used during the move and ensure all team members have two-way radio and cell phone communication for the move (see *Section 4.4 – 4.7*)
- Verify the oversize load dimensions against the permit before leaving
- Review the route plan and verify the route hazards expected to be encountered that day (bridge and overpass clearances, signs, wires, concrete barrier and shoulder issues)
- Check the permit and any attached approval for bridge crossing or other locations that have mandatory traffic control, and ensure that those locations are known and understood
- Discuss and complete a Job Hazard Safety Analysis

A Job Hazard Safety Analysis is part of the team coordination meeting and consists of the following steps:

- Identify load-specific risks
  - Fire
  - Explosive potential
  - Dangerous goods (identify railroad or tunnel restrictions based on the material to be moved)
  - Load configuration (protruding components, weight/load shift potential)
  - Fragile or collapsible loads
  - Time sensitive or perishable materials
- Ensure appropriate emergency equipment is on hand and team members know how to use it
- Review emergency procedures
  - Review procedures for communications during emergencies
  - Review procedures to delay or abort the move
- Review load dimensions and the subsequent limitations
  - Ground clearances
  - Load Height
  - Maneuverability limitations
- Review contingency plans for emergencies
  - Contact information to emergency providers along the route
  - Stopping sites for reviewing load security and breakdowns

3.5 Checks just prior to Moving the Oversize Load

- Check the pilot cars to ensure they are equipped with the proper signage, communication, and safety equipment for the move.
- Test communication equipment prior to the load proceeding.
- Verify the dimensions of the load and vehicles involved in the move to ensure load and vehicle fit within the clearances of the expected structures and roadside geography expected along the route.
- Identify any features of load security that pilot car operators might help monitor, if needed.
- Verify all permits are available to be shown to officials where required.
- Verify the permit restrictions, including the times the move may take place.
- Verify the route outlined on the permit matches the planned route.
- Review how each vehicle in the move will be positioned for the move.
- Identify the location where the next safe stop will be made, if required.

Section 4: Equipment and Communication

4.1 The Pilot Car

Vehicle requirements and the specifics of signs and lights required on the pilot car may be found in *Division 8* of the Commercial Transport Regulations.

We recommend choosing a vehicle, such as a light pickup or SUV, that:

- has good stability at highway speed with a sign displayed;
- allows the sign to be clearly visible in heavy traffic;
- offers sufficient cargo capacity for required equipment, signs and devices.

4.2 Pilot Car and Driver Equipment to be Worn/Carried

As a minimum, you must wear and carry/use the following:

- Safety apparel as per *BC MoT Technical Circular T-09/05*
- Required signs and devices, as described in section 4.3
- Radios and cell phones, as described in section 4.5

Recommended additional equipment:

- First aid kit
- Fire extinguisher
- Tape measure or other measuring equipment (minimum 8 m/25')
- Personal items: Drinking water, food, extra clothing, blanket, medication
- General tool kit with pliers, wrenches, screwdrivers, etc.
- Jumper cables
- Motor oil, coolant, windshield fluid, etc.
- Extra "Oversize Load" and "Wide Load" or "D" sign, meeting the requirements from *Section 8.03 of the Commercial Transport Regulations*, with hardware for attaching it to a load

4.2.1 Height Pole

Height poles, if used, must be made of non-conductive material such as fiberglass or plastic, and equipped with a flexible tip. The height pole should be set at 100 to 150 mm above the height of the load to accommodate flexing in the pole caused by wind resistance when travelling. The intent is not to strike power lines or overpasses, as height on the route should always be known in advance of the move. The height pole is intended to be an extra safety measure in case of unexpected clearance issues on the route.

Scout and/or lead pilot cars may be equipped with height poles, under oversize permits, and preference would be given to the scout car to accommodate stopping distance for the load. If using a height pole on a lead pilot car, and a potential height obstacle is observed ahead, the lead pilot car and the load should develop a large enough gap to allow the load to stop if necessary.

If height pole(s) are used on scout and/or lead pilot cars while escorting overheight loads travelling under a single trip permit, no additional oversize permit is required for the pilot car(s) during the permitted trip.

4.3 Signs and Devices for Traffic Control

When traffic control is needed for 15 minutes or more, additional devices will be needed for traffic control outside a vehicle. For example, sometimes unforeseen circumstances, such as a breakdown, can result in lengthy unplanned traffic control. Information on the following signs and devices can be found in *Chapter 4 and Appendix B of the TMM.*

With each oversize load move requiring pilot cars, at least the following signs and devices must be carried:

- One (1) Stop/slow C-027 paddle per crew member - (Illuminated traffic stop paddles, with LEDs around the perimeter of the sign, are an acceptable enhancement for stop/slow C-027 paddle as per *WorkSafeBC Occupational Health and Safety Regulation Guidelines Part 18, Section 9a*)
- One (1) illuminated baton with light that appears red or flashlight fitted with a red signalling wand, per crew member
- Two (2) Road Work Ahead C-018-3A signs, in fluorescent pink or fluorescent orange, with necessary supports
- At least five (5) channelizing devices (tubular markers, barrels, or cones), to form tapers

This equipment may be distributed among all the pilot cars involved in the move.

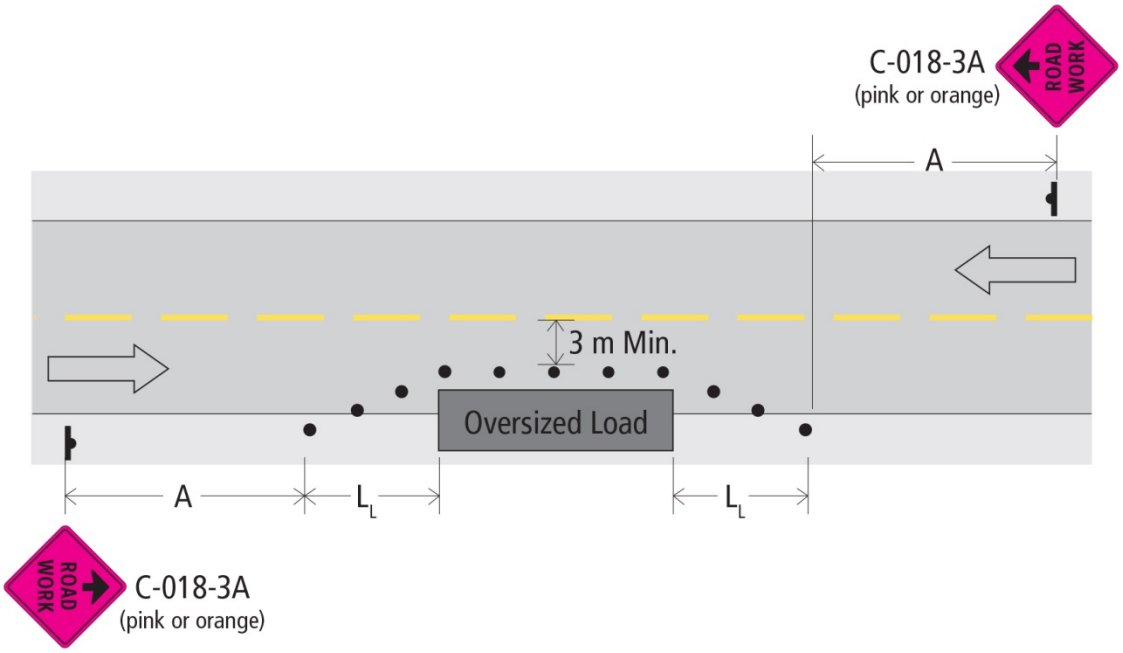
> Note: The above signs and devices are mandatory for all oversize/overweight load moves requiring pilot cars, even if the pilot car operators are not certified traffic control people, in case of an emergency situation.

Pilot car crews should also carry the following additional equipment, especially crews escorting very large or very heavy loads.

- Two (2) Traffic Control Person Ahead C-001-1 signs
- Two (2) Prepare to Stop C-029 signs
- Temporary sign support for each sign
- Five (5) additional channelizing devices to form tapers

Pilot car operators should be prepared to set up simple layouts such as that shown in *Figure 4.1* for situations such as vehicle breakdowns or unexpected stops. If the anticipated incident duration is greater than 15 minutes, or if a complete lane closure is required, certified traffic control people must be brought on scene and additional signage and devices may be required.

Figure 4.1 – Emergency or Incident – Load Pulled Over but Partially Encroaching into Travelled Lane



Refer to Table A and Table B in *Section 6.6 of the Traffic Management Manual for Work on Roadways* for spacing A and L_L.

4.3.1 Vehicle-mounted Stop Signs (Optional)

A pilot car may be equipped with a vehicle-mounted stop sign, mounted approximately midway down the vehicle, on the driver's side, at such height that it is visible to approaching vehicles and does not block the pilot car driver's mirrors or their view from the mirrors. The vehicle-mounted stop sign must swing out and in under the control of the driver, and must be covered at all times except when escorting an oversize load. The appropriate sign for this use is a double-sided, 600 x 600 mm, R-001 stop sign.

Illumination, such as LED lights around the perimeter of the sign, is acceptable. Red or amber alternately flashing lamps, such as those used on school buses, are prohibited on vehicle-mounted stop signs for pilot cars.

See *Section 5* for guidance about when a vehicle-mounted stop sign may be used in traffic control.

4.3.2 Dynamic Message Signs (Optional)

In addition to the pilot car sign mandated in Division 8 of the Commercial Transport Regulations (e.g. Wide Load, Oversize Load, D), dynamic message signs (DMS) may be used to direct traffic and provide additional messaging. DMS may display traffic control message such as STOP, SLOW, DO NOT PASS or OBEY FLAGGER.

When used at night, a DMS shall adjust brightness levels to maintain legibility and visibility for oncoming vehicles.

DMS should use primarily yellow text. Other text colours may be permissible, e.g. STOP messaging in red text, but its use should be limited. For nighttime visibility, coloured text on a black background is preferred.

Figure 4.2 Dynamic Message Sign

4.4 Communication during the Move

One of the pilot car operator's most important roles is to monitor the area around the load and communicate what they see to the oversize load driver. Pilot cars in front of the load are especially helpful for communicating about obstacles ahead, and those to the rear are very helpful for keeping the load driver informed about vehicles that may be approaching to pass, and also identifying cargo securement or load security issues.

Remember that the load driver needs to know where you are. Watch lines of sight or communicate when moving out of sight.

We suggest using "call signs" for communication during the move. They don't have to be fancy or formal, but agreeing ahead of time on how you will address each other may be helpful, especially when other oversize loads are in the area.

Test the frequencies or channels that were specified in your pre-trip meeting and other trip planning, and make plans for what to do if radio communication is temporarily not available.

4.5 Radio Equipment and Frequencies

Radios to be used should either be 40 channel CB (GRS) radios or 128 channel (minimum) VHF radios. If possible, carry a spare radio and extra batteries. Try to avoid chatter, and politely ask other traffic to do the same, if necessary. Carry information about available frequencies for the area and route you will travel, including where international travel applies.

Cell phones are useful as a backup, either via Bluetooth or at roadside.

If the users will be operating on resource roads then they must use VHF radios so that they can communicate with other vehicles on the roads and report their locations. VHF radios are required on resource roads, and for use of LADD channels, and operators need a license from *Innovation, Science, and Economic Development Canada* (ISED). Information about application for that license can be found on their website.

VHF radio operators require an appropriate license to operate in Canada. CB radio operators do not require a license in Canada or the US. However, they must ensure that their radio equipment is legal in Canada (it should have an ISED approval sticker), and they must operate in it a legal manner (no profanity, no transmitting of sensitive material, etc.)

4.5.1 Radio Channels for VHF Radios

For information about available radio channels, please contact the Spectrum Management and Telecommunication branch of ISED. A listing of local offices and contact information may be found at *their website.*

A trucking firm may have its own radio frequencies, licenced to them by ISED. In that case, it would always make sense to use the frequency licenced to the trucking firm instead of the LADD channels, which can be fairly congested and open to everyone, except for communications intended for traffic around the load. Many pilot cars are equipped with and use two VHF radios for this reason.

It is also possible to use another company's assigned frequency only if:

- The frequency is valid in the area they will be using it.
- They have a letter from the company authorizing their use of the frequency.
- They have updated their ISED licence to include the authorized frequency.

4.6 Best practices for speaking into a two-way radio

Radios are used to improve safety. It's important that the messages you transmit are clearly heard and understood.

- If possible, hold the microphone directly in front of your mouth, just 1 to 2 inches away. This helps minimize surrounding noises.
- Speak directly into the microphone, rather than across it. Radios are designed to be spoken directly into.
- As much as possible, shield the microphone from surrounding noises.
- Position radios and microphones away from car radios or other noisy equipment.
- Speak clearly and at a normal pace; neither too fast nor too slow. And if someone on the other end is hard to understand, don't be afraid to say so.
- In congested areas with lots of traffic, it's especially important to use proper radio calling procedures, meaning use previously established call signs.

4.7 Radio use on resource roads

When radio use is required for travel on resource roads, *these guidelines* from the BC Ministry of Forests, Lands and Natural Resource Operations should be followed.

It is very important that users have an accurate map of the resource road channel assignments for the resource roads they will be travelling on. There is *channel assignment information* on the Innovation, Science, and Economic Development Canada website.

Section 5: Traffic Control (Flagging) Practices

Pilot car operators are often required to conduct traffic control (flagging) as part of an oversize load move. Any pilot car operator that is conducting flagging must be a certified traffic control person. In each situation, a pilot car operator will have to decide if it is best to flag from within their vehicle or outside their vehicle.

Illuminated traffic stop paddles, with LEDs around the perimeter of the sign, are an acceptable enhancement as per *Work Safe Occupational Health and Safety Regulation Guidelines Part 18, Section 9a*.

5.1 Flagging from Inside a Pilot Car

The following are conditions where it may be appropriate to control traffic from within a pilot car. These are straightforward, simple and brief situations. An example of a simple flagging situation where traffic control may be conducted from within a vehicle would be a short closure at a two-lane bridge or tunnel where the load needs to straddle the centreline in order to pass.

- Daylight hours only
- Short duration (15 minutes or less)
- Good sight distances for approaching vehicles in both directions
- Work on a two-lane highway
- No adjacent or nearby intersections or accesses
- Low traffic volumes
- Traffic control only needs to direct to stop or proceed

Flagging from inside a Pilot Car requires the following equipment:

- Retro-reflective hand held stop/slow C-027 paddle
- *Optional instead of hand help stop/slow sign:* Vehicle-mounted stop R-001 sign as per *section 4.2.1*
- The appropriate Class 2 safety apparel as per *Section 5 of the Traffic Management Manual for Work on Roadways*

Pilot cars which use a dynamic message sign may control traffic from inside the pilot car at night, under the above circumstances.

5.2 Flagging Outside a Pilot Car

When conducting traffic control from outside a vehicle, refer to the *Section 5 of the Traffic Management Manual for Work on Roadways* for information on positioning, signals, and safety requirements. Remember to always have an escape route and be aware of your surroundings.

Except for situations described in *Section 5.1*, traffic control should be performed from outside the pilot car. This includes:

- Longer duration
- Sight distance limitations
- Multi-lane highways
- Near intersections, or there are intersections/accesses within the area that is being closed
- Higher traffic volumes
- Where traffic may need to be guided or directed to perform an action other than stopping.

Flagging from outside a Pilot Car requires the following equipment:

- Retro-reflective stop/slow C-027 paddle, hand-held or pole mounted
- Illuminated baton with light that appears red or flashlight fitted with a red signalling wand
- The appropriate Class 3 safety apparel as per *Section 5 of the Traffic Management Manual for Work on Roadways*
- Two-way radios to maintain communication with the load and other pilot vehicles.

In all cases, a TCP must consider their visibility when choosing a location from which to stop traffic. It is important to remember that the distance required for an approaching vehicle to stop increases with approach speed, on wet roads, or on downgrades. Drivers need enough space to see the TCP, react to their sign, and come to a stop. *Table 5.1 – Stopping Sight Distance* can be used as a guide and provides a summary of stopping sight distance for passenger vehicles on a flat, wet roadway.

Table 5.1 – Stopping Sight Distance

Speed (km/h)	Stopping Sight Distance (m)
60	85
70	110
80	140
90	170
100	210
110	250
120	290

When standing near the pilot vehicle, the headlights and other accessory lights can draw attention away from the TCP and obscure their visibility. The pilot vehicle should be oriented so that it is not shining lights directly behind the TCP (when viewed by approaching vehicles). This arrangement can make it difficult for approaching drivers to see the TCP over the headlight glare. In this situation, the headlights on the pilot vehicle should be switched to parking lights so that the vehicle itself is still visible, but does not drown out the TCP.

Note: It is important to use your judgment as terrain or circumstances may require additional measures. If you are standing outside your vehicle flagging for less than 15 minutes, you don't always need signs and other devices. However, planning an escape route, being prepared to use it, and positioning yourself where you can see and be seen is extremely important. See *Section 4.3* for more on signs and devices for traffic control.

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Section 6: Pilot Car Load Movement - General

6.1 Pilot Car Operation for Different Load Characteristics

Each oversize load is different. It may be overwidth, overheight, overlength, and/or overweight, and those characteristics help to establish what the pilot car operator needs to watch for and be aware of during the move.

> **Note**: If it is necessary to take actions that will affect the movement of other traffic around the load, those actions must be taken by a certified traffic control person or peace officer.

6.1.1 Overwidth Loads

In addition to being a moving warning device to let other drivers know that something big may be coming into their lane, pilot car operators should watch for areas where the road narrows, shoulder signs or rock outcroppings that may be risks to the load, spots where tunnel or bridge edges will require extra caution, curbs or concrete barriers that may require ground clearance, etc. Also, keep the load driver informed about obstacles such as cyclists or stopped vehicles ahead on the road shoulder.

For a lead pilot car, it may help to position your vehicle close to the centre line.

6.1.2 Overheight Loads

The physical height of an overheight load must match or be lower than the height indicated in the permit. Watch for bridges, overpasses and other obstacles that should be communicated to the load driver.

Power lines frequently cross highways, and only professionals with the utility companies, or their contractors, can handle their lines. *Part 19 of the Occupational Health and Safety Regulation* is a good source of information about maintaining a safe distance from lines.

See the Trip Planning section for more information about checking height clearance limits on your route in advance, and the Common Constriction Points section for more information about travelling through overhead obstacles.

6.1.3 Overlength Loads

Curves and turns onto and off of roadways are key for overlength loads. The load driver may need to swing very wide in order to complete a turn without the middle part of the load posing a danger to the inside corner and any pedestrians, cyclists or road infrastructure located there. When negotiating tight curves to the left, the middle part of the load may encroach into the next lane. In either direction, the tail swing may need careful control.

It may take extra time for the load to clear an intersection or rail crossing. Also, if a long vehicle combination has low ground clearance, be aware of and careful at rail crossings, since the load must clear the rails.

6.1.4 Overweight Loads

Many permits for overweight loads have specific conditions for crossing bridges along the route. It's important to know the locations of the bridges in advance, together with the exact conditions for the crossing. Common conditions include:

- Travel down the centre line, or straddling two lanes
- Maximum speed of 10 km/h
- Must be the only vehicle on the bridge while crossing

The permit documents will tell you which conditions apply at each bridge. Often bridge crossing conditions make it necessary to hold traffic while the load crosses. See *Section 8*: Pilot Car Load Movement Layouts - Structures for further guidance.

Term weight permits have a permit attachment (*Form CVSE1011*) that lists bridges with weight restrictions on major provincial roads.

6.2 Positioning on the Highway

Basic Pilot Car positioning is set out in the Commercial Transport Regulation, Division 8 or for more complex situations, in the permit and accompanying documents. When road conditions dictate that the use of the pilot car in another position (or at a greater distance) would be more effective, the pilot car position may be temporarily reassigned. For example: A pilot car is assigned to the rear of an overlength load on a two-lane highway. The load is about to enter a highway segment that has curves significant enough to cause the load to encroach on the oncoming lane of traffic. The pilot car may be temporarily reassigned to the front to warn oncoming traffic.

When escorting a load, the Pilot Car shall have its sign displayed, headlights on and amber flashing lights on.

6.3 Passing a Slower Vehicle

Although it is rare for an oversize load to overtake a slower moving vehicle, it may occur. Be cautious and aware of how much time you will need to spend in the passing lane. A decision to pass will be made by the load driver, and the pilot cars will keep the load driver informed of their movements and movements by other traffic in the area.

If there is a lead pilot car, one of its roles is to inform the other vehicles about oncoming traffic, in case they need to move to the right for safety. Remember that the rear pilot car's forward vision will be blocked by the load. They are relying on communication from the forward-most vehicle to tell them if they need to merge back into the right lane.

If there is a rear pilot car, its role is to move left just before the load moves left, blocking other vehicles from passing and informing the load driver when they are in position. As soon as it passes the slower vehicle, the rear pilot car driver notifies the load driver by radio that it is safe to move right, and then follows the load back into position in the right lane.

Figure 6.1A Initiating a passing manoeuvre – rear pilot car moves left

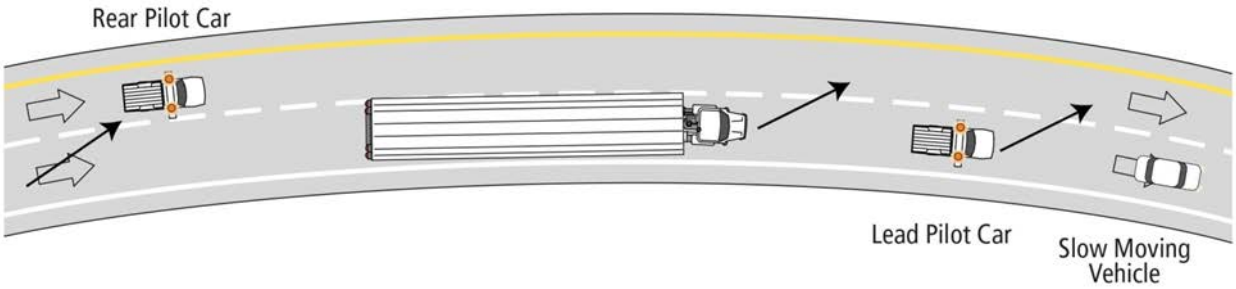


Figure 6.1B Truck moves left once the rear pilot car is in position

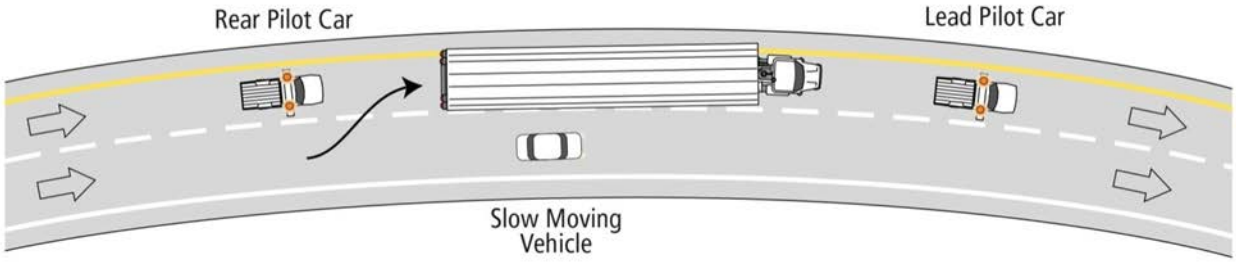
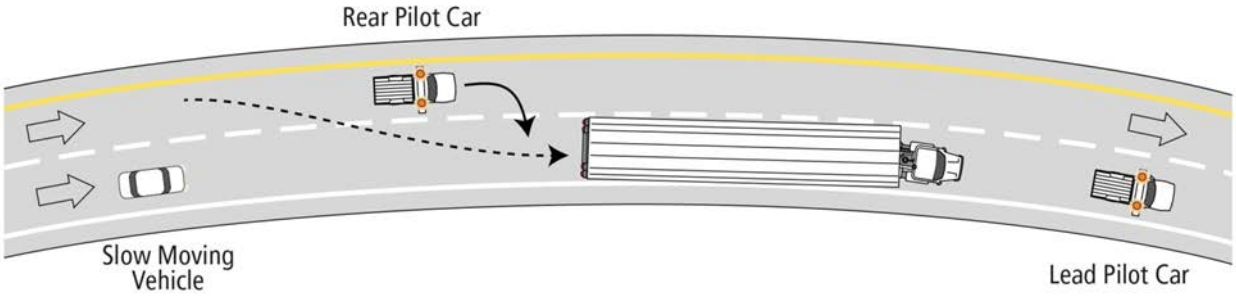


Figure 6.1C Rear pilot car notifies the load driver that the slow vehicle is now passed, and the load and rear pilot car move right



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Section 7: Pilot Car Load Movement Layouts – Roadway Type

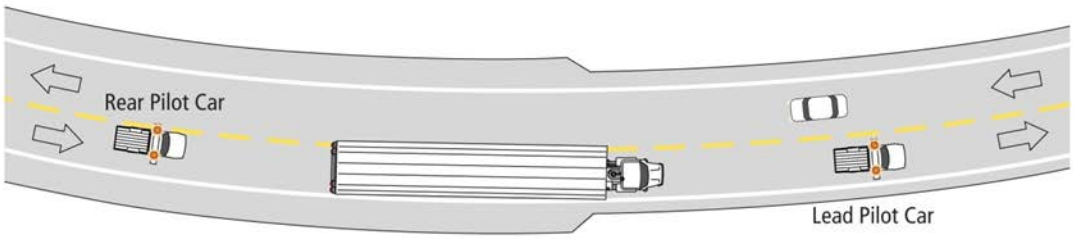
7.1 Two Lane Road Positioning – One or Two Pilot Cars

On two lane highways where only one pilot car is used, it typically occupies the lead pilot car position (except for loads that are overlength and not exceeding 3.2 m wide, when it travels to the rear.) The lead pilot car is watching for hazards that should be communicated to the load driver, including overhead restrictions, and making oncoming traffic aware of the approaching load. Where two pilot cars are required, one is positioned to the front and one to the rear of the load.

For overlength only, or when there is a rear pilot car because two cars were required by the permit, the rear pilot car travels behind the permitted load at a safe distance. The rear pilot car should drive as close to the left side of the lane as practicable without crossing the centreline.

Typically, the oversize load travels as far to the right as possible given the road geometry and obstacles.

Figure 7.1 Two lane road with two pilot cars



7.2 Two and three lane highway positioning – one or two pilot cars

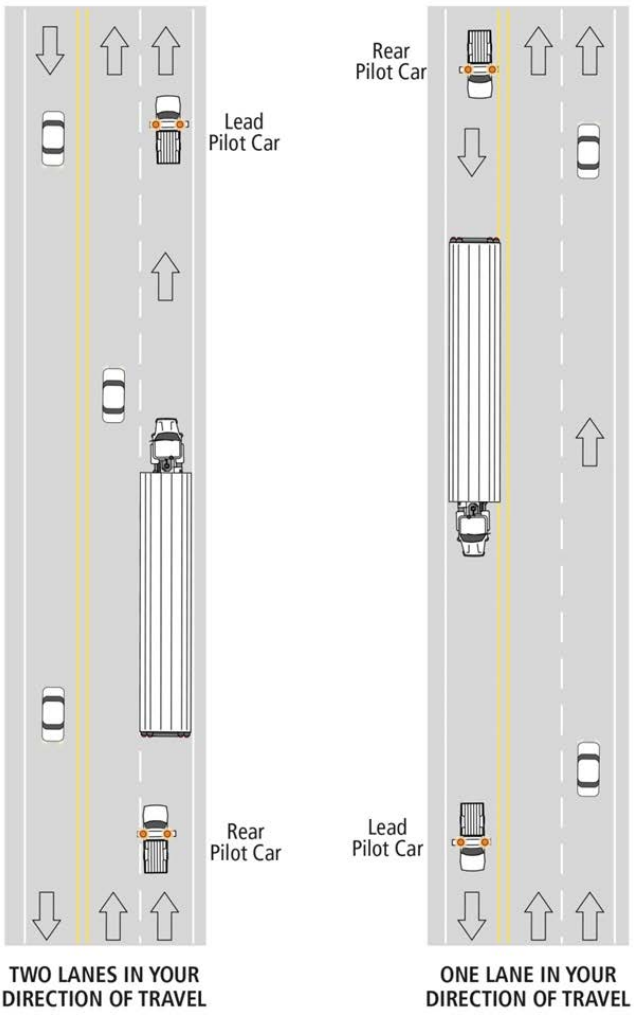
The lead pilot car is watching for hazards that should be communicated to the load driver, including overhead restrictions, and making oncoming traffic aware of the approaching load. The position of the rear pilot car may change depending on whether travelling uphill or downhill, the number of lanes in its direction of travel, and on the position of the oversize load.

With two lanes in your direction of travel, often on an uphill slope, if it is unsafe for vehicles to pass, the rear pilot car positions itself in the lane to the left of the load, blocking traffic approaching from the rear.

With one lane in your direction of travel, often on a downhill slope, the rear pilot car travels behind the permitted load at a safe distance. The rear pilot car should drive as close to the left side of the lane as practicable without crossing the centreline.

Typically, the oversize load travels as far to the right as possible given the road geometry and obstacles.

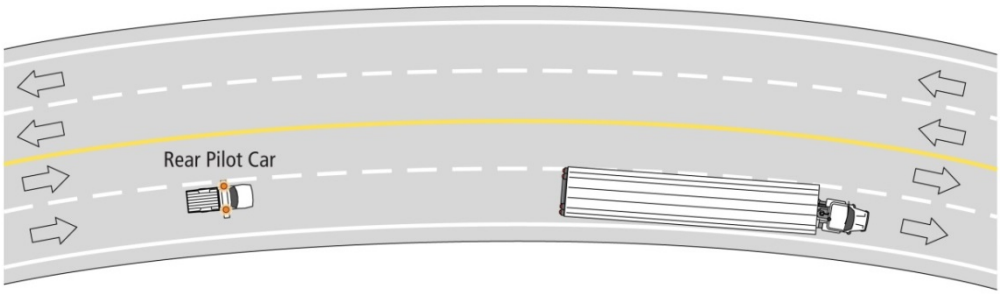
Figure 7.2 Passing or Climbing Lane – Two Pilot Cars



7.3 Multilane Highway – One and Two Pilot Cars

For highways with 4 or more lanes, or on divided highways with one pilot car, the pilot car is positioned in the rear pilot car position to alert drivers approaching the load from the rear. The pilot car typically operates 4 to 8 seconds behind the load.

Figure 7.3A Multilane highway - one pilot car



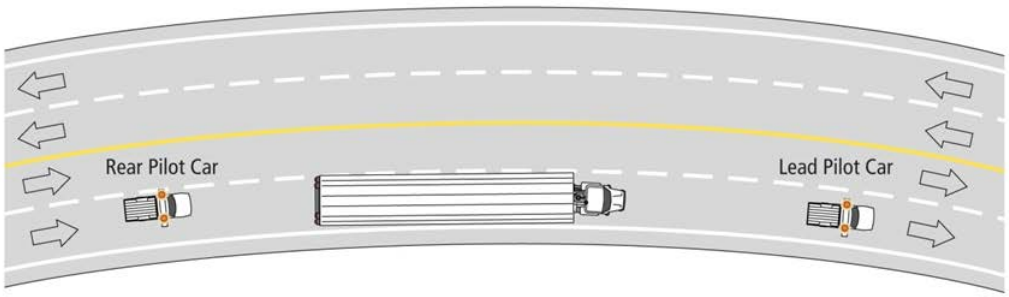
When two pilot cars are required, one pilot car travels to the front and one to the rear, in the same lane as the load.

The lead pilot car is watching for hazards that should be communicated to the load driver, including overhead restrictions, and making oncoming traffic aware of the approaching load.

The rear pilot car should drive as close to the left side of the lane as practicable without crossing the lane line, unless necessary to place the vehicle in line with the left side of the load to protect it from other traffic.

Typically, the oversize load travels as far to the right as possible given the road geometry and obstacles.

Figure 7.3B Multilane highway - two pilot cars



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Section 8: Pilot Car Load Movement Layouts – Structures

8.1 Two-lane bridges with two-way traffic – Two pilot cars

One common reason to close a bridge for a load to pass is the width of the load. Another is that weight permits often set out specific conditions for bridge crossings, which may necessitate closure of the bridge. In some cases, you may be able to allow traffic to the rear to follow the load across the bridge. Sometimes, though, the permit conditions will require that traffic be stopped in both directions while the load proceeds.

The diagrams in this section show two pilot cars. See *8.2 Two Lane bridge with two-way traffic – Three Pilot Cars* if your permit requires three pilot cars.

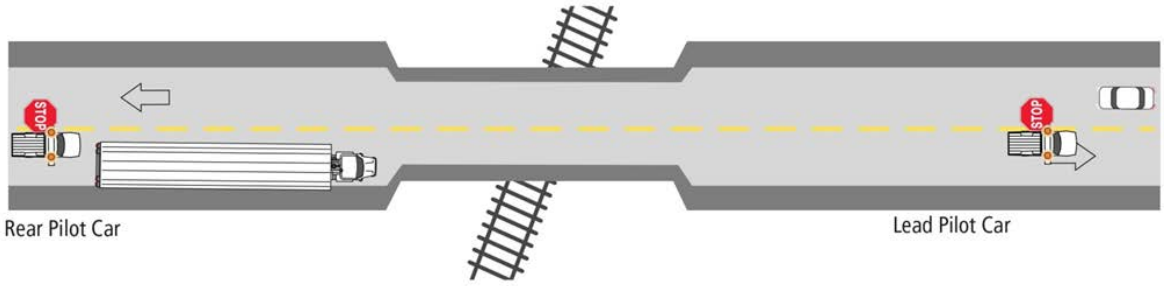
See *Section 5* for guidance about stopping distances and whether to flag from inside or outside the vehicle.

In this scenario, the lead pilot car may need to move well out in front of the load as the team approaches a bridge stop location, to the first location past the bridge that has appropriate sight lines for the oncoming traffic, and sufficient room between the lead pilot car and the bridge so that the load will be able to clear the bridge completely before the oncoming traffic is released. The lead pilot car will rely on communication with the load driver to know when the load is approaching the bridge. If it is necessary for the lead pilot car to wait before commencing the traffic stop, it should do so on the shoulder.

Once the lead pilot car has traffic stopped, it radios the rest of the team (with a description of the last car on its way to the load, if applicable), and the load proceeds across the bridge, with the rear car either trailing or holding traffic (if permit conditions require that no other traffic should be on the bridge with the load.)

As soon as the load clears the bridge, the rear pilot car radios that the lead pilot car can release traffic. The lead pilot car waits for the load and the rear pilot car to reach its location and the team proceeds.

Figure 8.1 Two lane bridge with two-way traffic – Load approaching the bridge, waiting for the lead pilot car to advise that traffic is stopped before proceeding



8.2 Two-lane bridges with two-way traffic – Three pilot cars

If your permit requires three pilot cars, you will normally have two in front (scout and lead) and one to the rear.

The scout pilot car will normally be moving well ahead of the rest of the vehicles in the move team, in order to stop traffic where sight lines are good, as needed for the load to proceed. This is no different in a two-lane bridge crossing with two-way traffic; oncoming traffic should be stopped at the first location past the bridge that has appropriate sight lines for the oncoming traffic, and sufficient room between the scout pilot car and the bridge so that the load will be able to clear the bridge completely before the oncoming traffic is released. The scout pilot car will rely on communication with the lead pilot car to know when the load is approaching the bridge. If it is necessary for the scout pilot car to wait before commencing the traffic stop, it should do so on the shoulder.

In this scenario, the lead pilot car is just ahead of the load as it travels to the bridge and, once the scout pilot car radios that traffic is stopped (with a description of the last car on its way to the load, if applicable), the lead pilot car waits for the last oncoming car and then proceeds to the scout pilot car's position and takes over there. The scout pilot car can then proceed to its next stop location. Some pilot car teams prefer to use a 'leap-frog' approach where the scout and lead pilot cars trade positions at each stop rather than have the lead pilot car take over from the scout car at each stop location.

Meanwhile, the load proceeds across the bridge, with the rear car either trailing or holding traffic (if permit conditions require that no other traffic should be on the bridge with the load.)

As soon as the load clears the bridge, the rear pilot car radios that the lead pilot car can release traffic. The lead pilot car waits for the load and the rear pilot car to reach its location and radios the scout pilot car that all vehicles are once more on the move.

Note: When the scout or lead pilot car is holding oncoming traffic, if more than a few vehicles are queued, the pilot car operator may choose to ask the first stopped car to wait until the oversize load reaches them and then proceed. Once they have agreement from that first stopped driver, they can slowly travel down the line of cars, with their stop sign out, partly to inform the waiting drivers of the reason for the delay (if time allows), but importantly, to protect the last stopped vehicle by keeping the pilot car lights and stop sign at the point where new arriving vehicles must stop.

Figure 8.2A Two lane bridge with two-way traffic – Three Pilot Cars

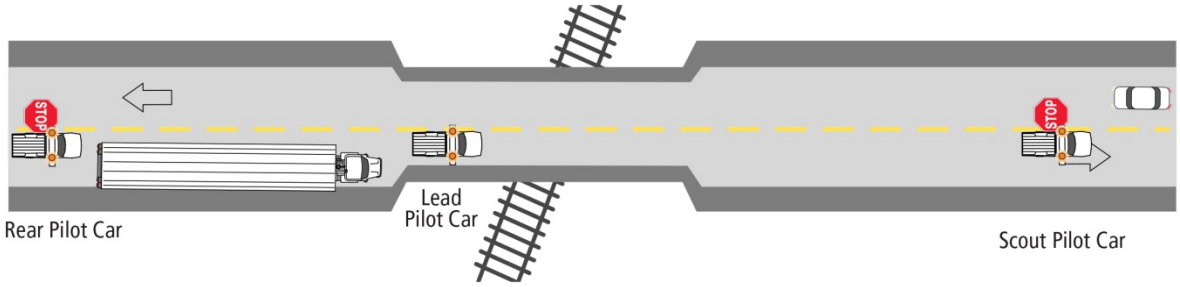
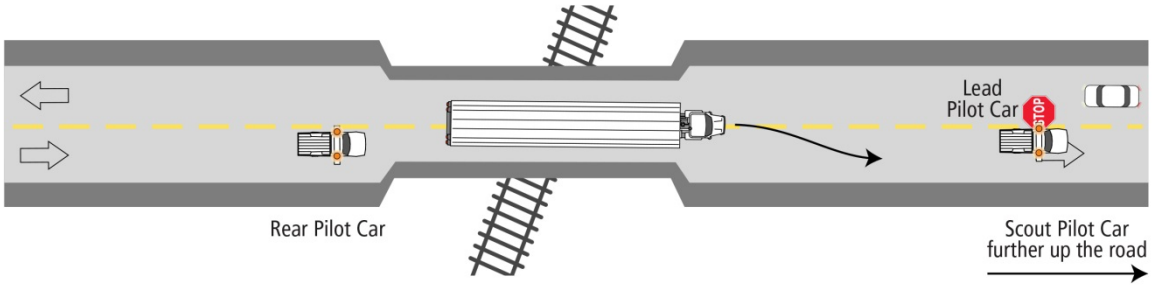


Figure 8.2B Two lane bridge with two-way traffic – Three Pilot Cars



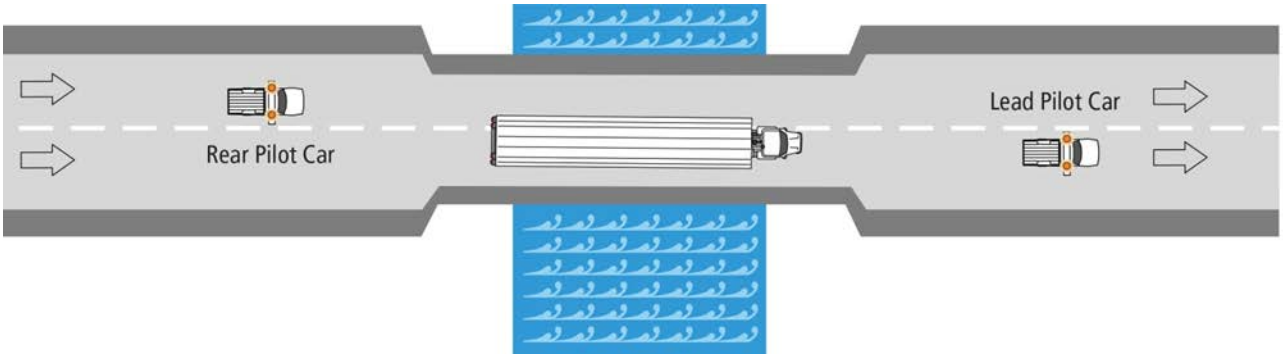
8.3 Multilane-bridges with one way traffic

If two pilot cars are required for the move, the lead pilot car should notify the load driver as far in advance as possible of any approaching obstructions.

If the load must cross straddling two lanes (or down the centre of the bridge), but there is no permit requirement that other traffic must be kept off the bridge during the crossing, the rear pilot car will move left just before the load moves left, blocking other vehicles from passing and informing the load driver when they are in position. As soon as the load and rear pilot car have crossed the bridge, the rear pilot car driver moves right into their normal travelling position and notifies the load driver by radio that it is safe to move right.

If permit conditions require that no other vehicles may be on the bridge with the load, the lead pilot car should join the rear pilot car behind the load in advance of the bridge, and together, they hold traffic while the load moves across. Depending on the terrain and the length of the bridge, it may be possible to perform this manoeuvre at rolling speed, but a full stop may be required.

Figure 8.3 Multilane bridges with one-way traffic



8.4 Tunnels and other restricted sight distance locations

Controlling traffic for the movement of oversized loads where sight distance restrictions exist is a challenging situation for pilot cars. The reason is the lack of advance knowledge for approaching motorists of where the oversize load is situated. At locations with restricted sight distance (tunnels or other blind corners), traffic control may be required, especially if the load may encroach into an oncoming lane.

Safety Planning: In situations where the route follows a winding road, a scout pilot car is beneficial. The scout pilot car can travel further ahead and provide advance notification to the load and other pilot cars of constraints as well as establish traffic control. If a scout pilot car is used, it can assume the traffic control and some of the communication duties of the lead pilot car as described below. For traffic control (flagging) information see Section 7.

If no scout pilot car is used, the lead pilot car should travel well ahead of the load, and communicate with the oversize load driver about constraints and any approaching traffic.

At any locations where the load will encroach into an oncoming lane and traffic control is required, the scout or lead pilot car will choose a location with good lines of sight for approaching traffic.

See *Section 5* for guidance about stopping distances and whether to flag from inside or outside the vehicle.

The lead pilot car will rely on communication with the load driver to know when the load is approaching the constrained area. If it is necessary for the lead pilot car to wait before commencing the traffic stop, it should do so on the shoulder.

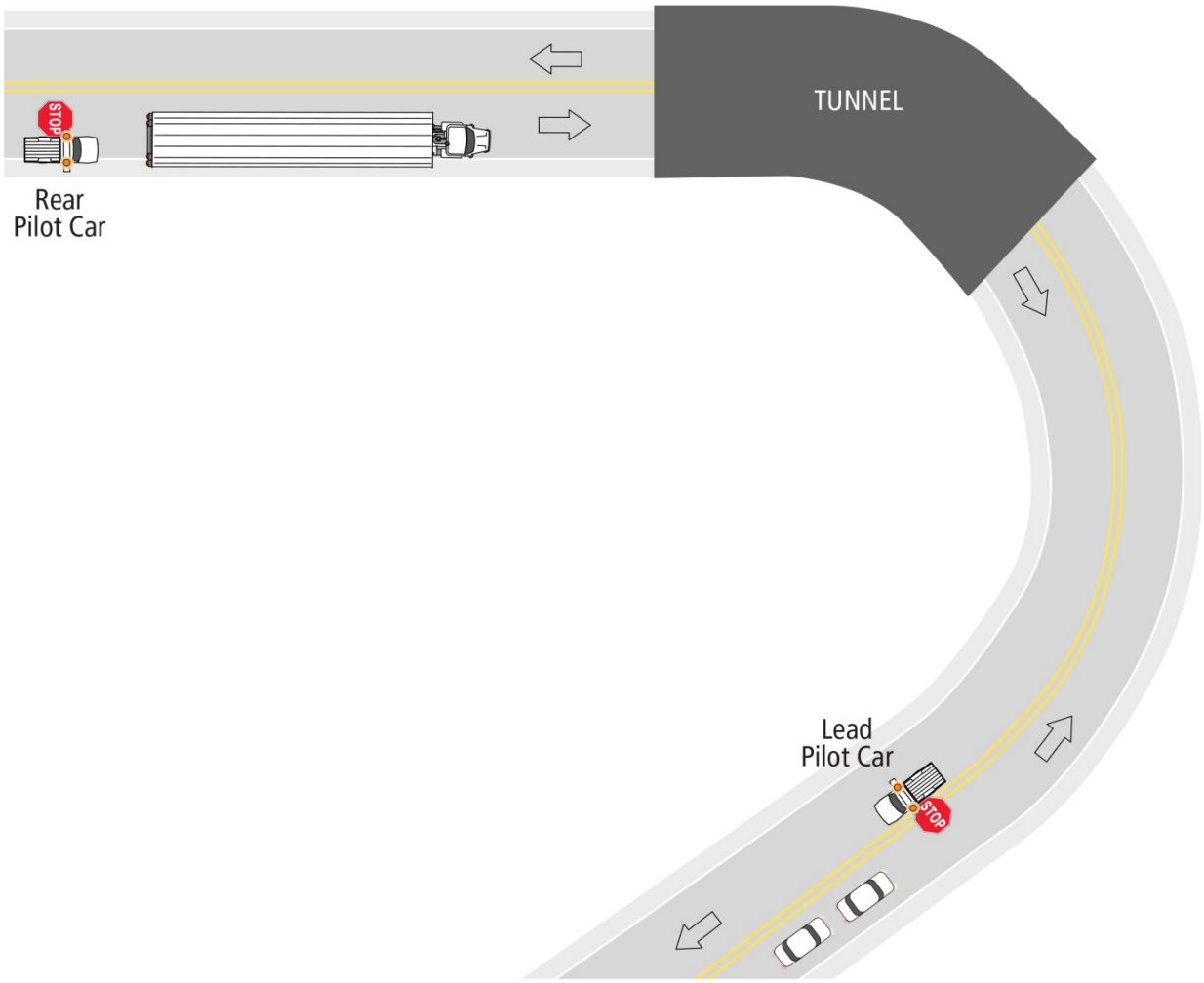
Once the lead pilot car has traffic stopped, it radios the rest of the team (with a description of the last car on its way to the load, if applicable), and the load proceeds through the constrained area, with the rear pilot car either trailing, or holding traffic to the rear, if necessary.

As soon as the load clears the tunnel or other restricted sight location, the rear pilot car radios that the lead pilot car can release traffic. The lead pilot car waits for the load and the rear pilot car to reach its location and the team proceeds.

On very curvy stretches of highway, it may be necessary to divide the highway into sections and perform traffic control for each section separately, moving the load from one safe stopping location to the next. In this case, a scout pilot car would be recommended, particularly if there are other access points to the highway between the scout pilot car and the load. The rear pilot car stops with the load, in line with the left edge of the load, and assists the load to re-enter the highway from each stopping location.

Where curves, or terrain features make radio communication challenging or impossible, the lead or scout pilot car stopping traffic may use the ‘baton method’, giving a baton or flag to the last car proceeding towards the load and asking the driver to pass that baton or flag to the rear pilot car.

Figure 8.4 Tunnels and other sight distance restricted locations



8.5 Railway Crossings

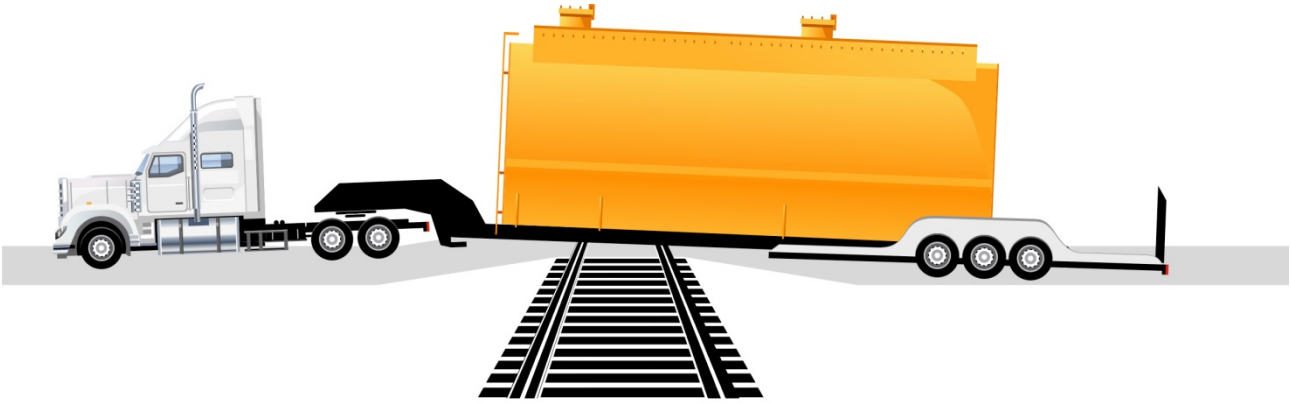
Overlength loads must also be evaluated for railway crossings to make sure that long loads do not:

- become ‘high centered’, as shown in Figure 8.5
- encounter problems resulting from the time it may take for a long load to clear a rail crossing, particularly near intersections or other road geometry features

Railway crossings should be assessed for:

- Amount of daily rail traffic to be encountered
- Crossing profiles between highway and rails
- Slope on the approaches and departures, the length of crossing, the number of tracks, and the road condition over the tracks both on approach and departure including curves and the need to make turns.
- In cases where railway crossings are a concern for the move, ensure that emergency contact numbers for the railways are available
- Advance contact should be made with the railroad if there is any doubt the load can safely negotiate the crossing

Figure 8.5 Railway crossing clearances



The profiles of railway crossings encountered along a route can vary, making them a potential location for a load to get hung up, or ‘high centred’. Always assess all railway crossings along a route for clearances, especially if “lowboy” trailers are involved in the move.

If you think the rails may have been damaged by a move, you should contact the railway immediately so that they can ensure safe rail operations are maintained.

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Section 9: Pilot Car Load Movement Layouts – Intersections

9.1 Driving in urban conditions

In British Columbia, primary highways often travel through the heart of municipalities and smaller communities. Movement through urban areas requires additional care and constant communication within the move team. Some additional issues to be considered include:

- An increase in the number and density of height clearance restrictions, such as low wires and signs;
- Pedestrians and cyclists, which may be difficult for the load driver to see;
- An increase in activity, including the number of other drivers, private accesses, unexpected obstacles;
- Raised channelization (eg. pedestrian islands) and landscape treatments;
- Increased traffic volumes building up behind the load, which may need traffic control management.
- Limited sightlines due to buildings and other structures.

Some urban obstacles may require that the load move temporarily into lanes meant for opposing traffic, or in some other manner that requires traffic control. Appropriate approvals must be in place.

The number of pilot cars required by a permit depends on the load characteristics, however, for loads in excess of 4.88 m high, the use of three pilot cars (scout, lead, and rear) is recommended.

Relatively smaller wide or long load moves may be conducted with one pilot car, but at least two are recommended in areas with tighter turns, higher traffic volumes or obstructions that require the load to travel in opposing lane(s).

Figure 9.1A Driving in urban conditions – Traffic entering intersection is stopped

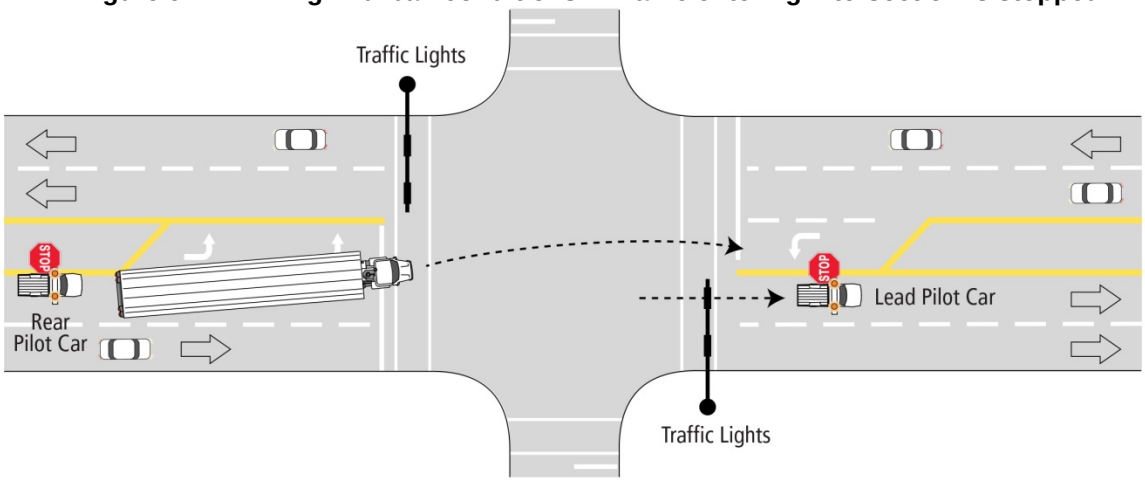


Figure 9.1B Driving in urban conditions – Load uses opposing lane to cross intersection

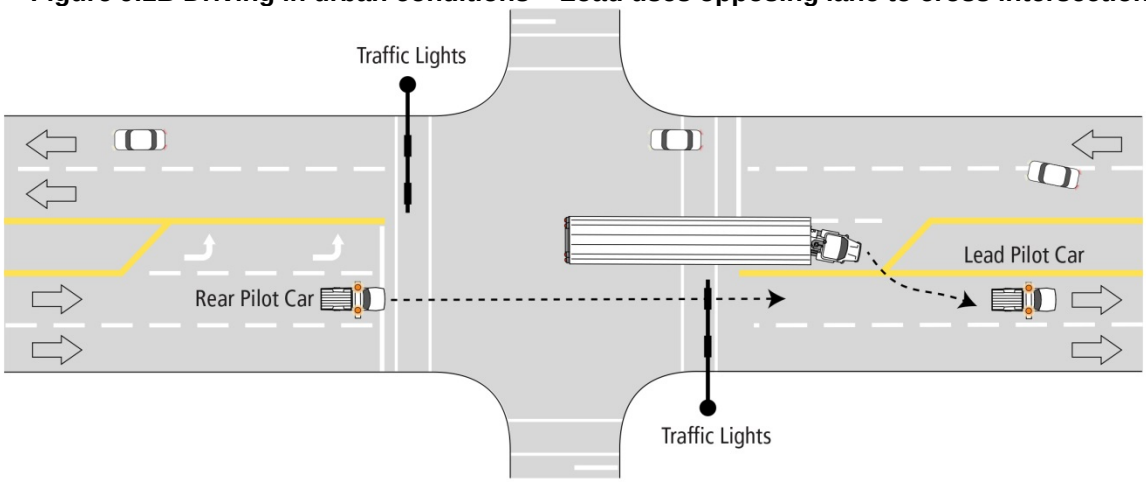


Figure 9.1C Driving in urban conditions – Load returns to travel lane

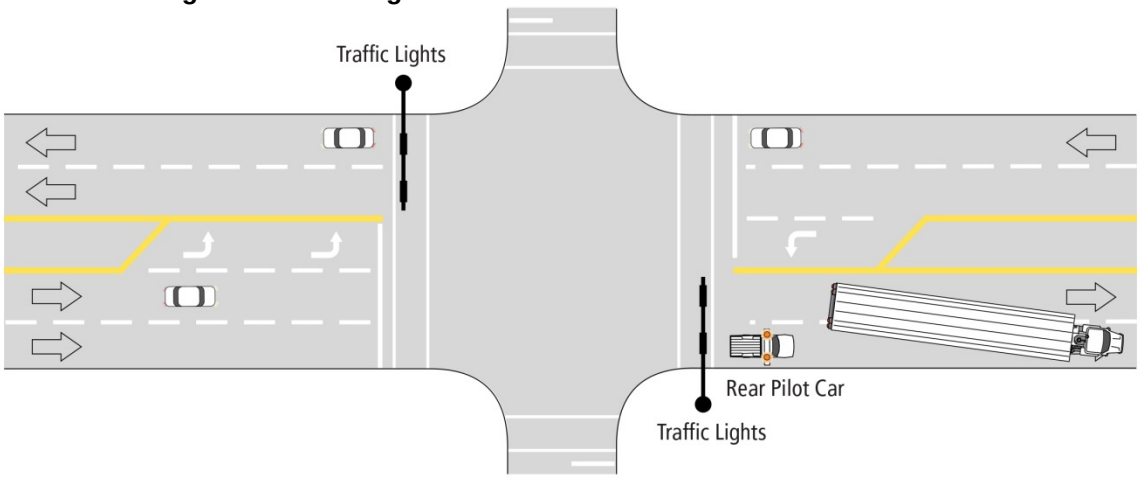
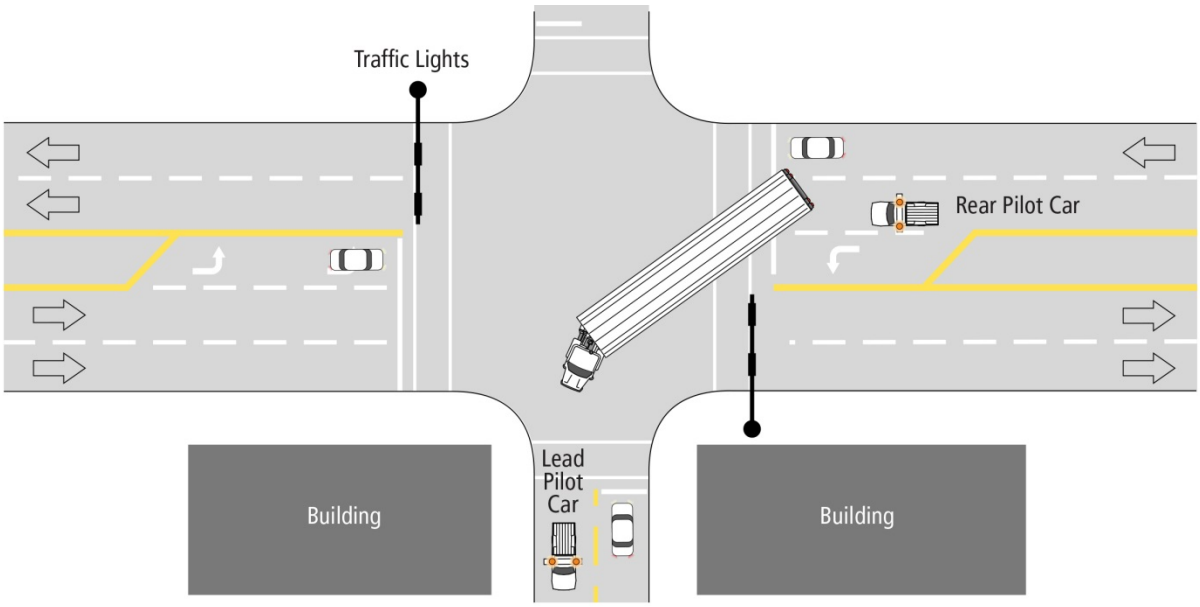


Figure 9.1D Driving in urban conditions – limited visibility at an intersection



9.2 Obeying traffic signals

Traffic signals must be obeyed when travelling a route controlled by traffic signals. Stopping for signals may cause the pilot cars and load to become separated for short durations. Pilot cars and the load driver should remain in communication and reduce speed or wait for each other, as necessary, in order to resume normal operation.

If the pilot car passes through the intersection, but the load is required to stop, the lead pilot car should pull over as soon as possible and resume travel as the load approaches.

When the rear pilot car is stopped by a red light which has been cleared by the load, the load driver (and lead pilot car) should proceed at a reduced speed until the rear pilot car has caught up.

The pilot car driver(s) must be alert and avoid sudden stops at traffic signals.

9.3 Right turns and load tail swing

Sometimes, when a large load moves to the left at the beginning of a right turn, other vehicles try to take the inside lane, not realizing the load's intent. Furthermore, oversize loads with a larger rear overhang have a tail swing that may be faster as it swings than the forward movement of the load, and may project into oncoming lanes towards the end of the turn. In congested areas, that swing may need traffic control to protect surrounding traffic and roadside infrastructure such as trees and signs. Pilot cars need to anticipate that they may need to protect both the oversize load and the other traffic, and adjust their positions accordingly.

If only one pilot car is used, its positioning in advance of an intersection depends on the load characteristics. Typically the pilot car will be ahead of the load unless the load is long and not very wide, in which case the pilot car will likely be in a rear pilot car position. A two pilot car scenario is shown in the diagrams below.

For a right turn, the rear pilot car starts in the right-most lane, while the load swings wide and begins the turn, to keep other traffic from moving in too close to the corner. Once the oversize load is into the turn to the right, the rear pilot car moves left, to the outer rear corner of the load, to follow the tail-swing through the turn, bringing attention to any encroachment into oncoming traffic lanes.

Figure 9.3A Right turns and load tail swing

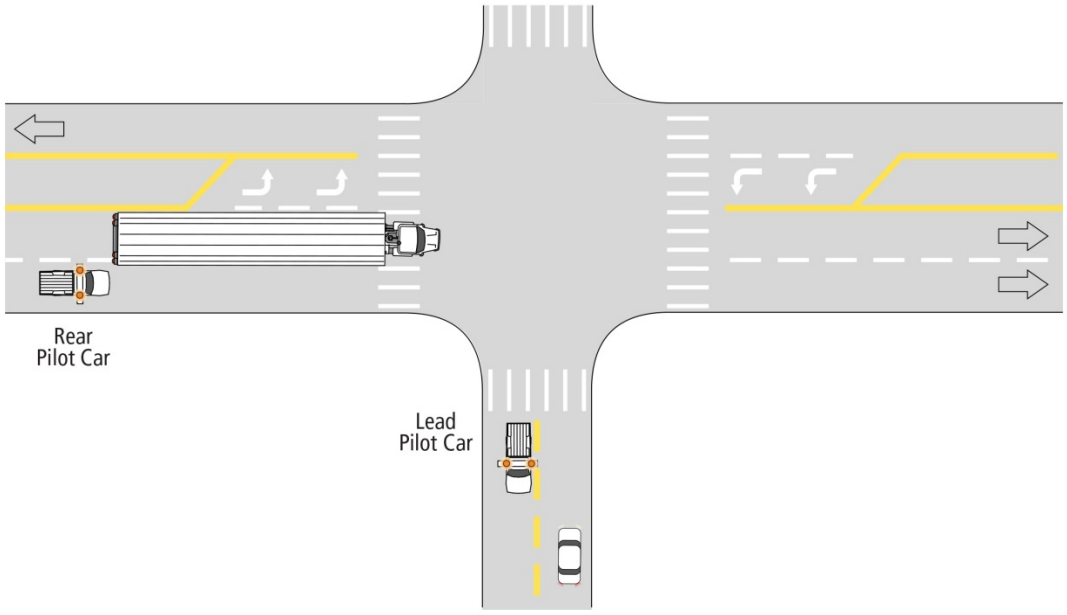


Figure 9.3B Right turns and load tail swing

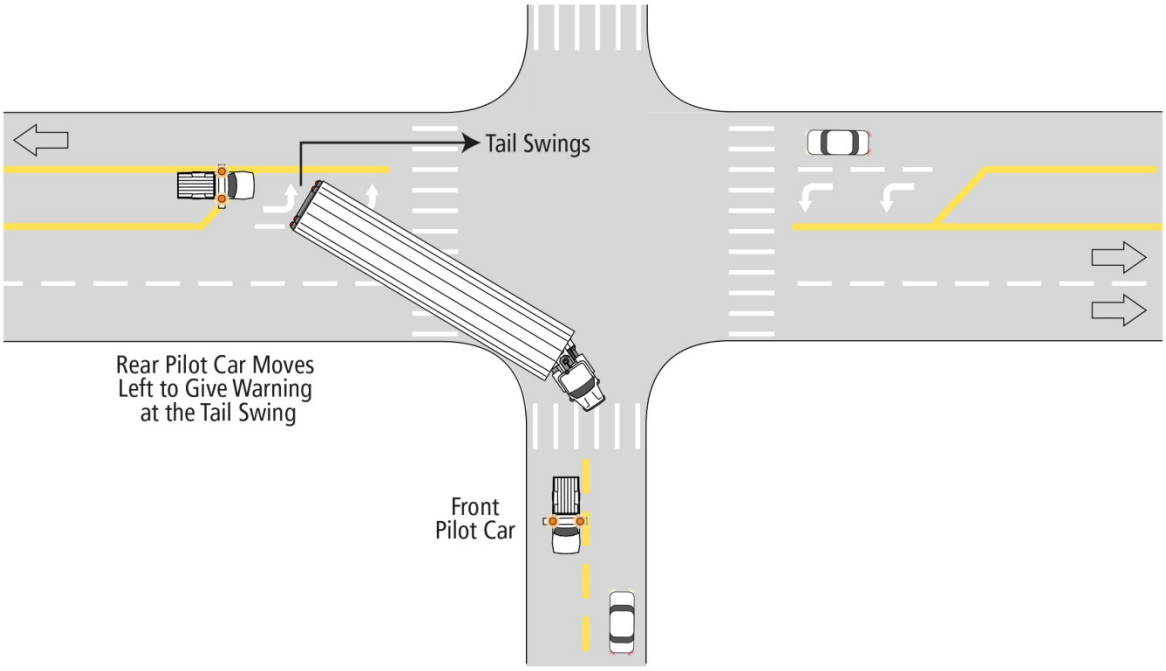
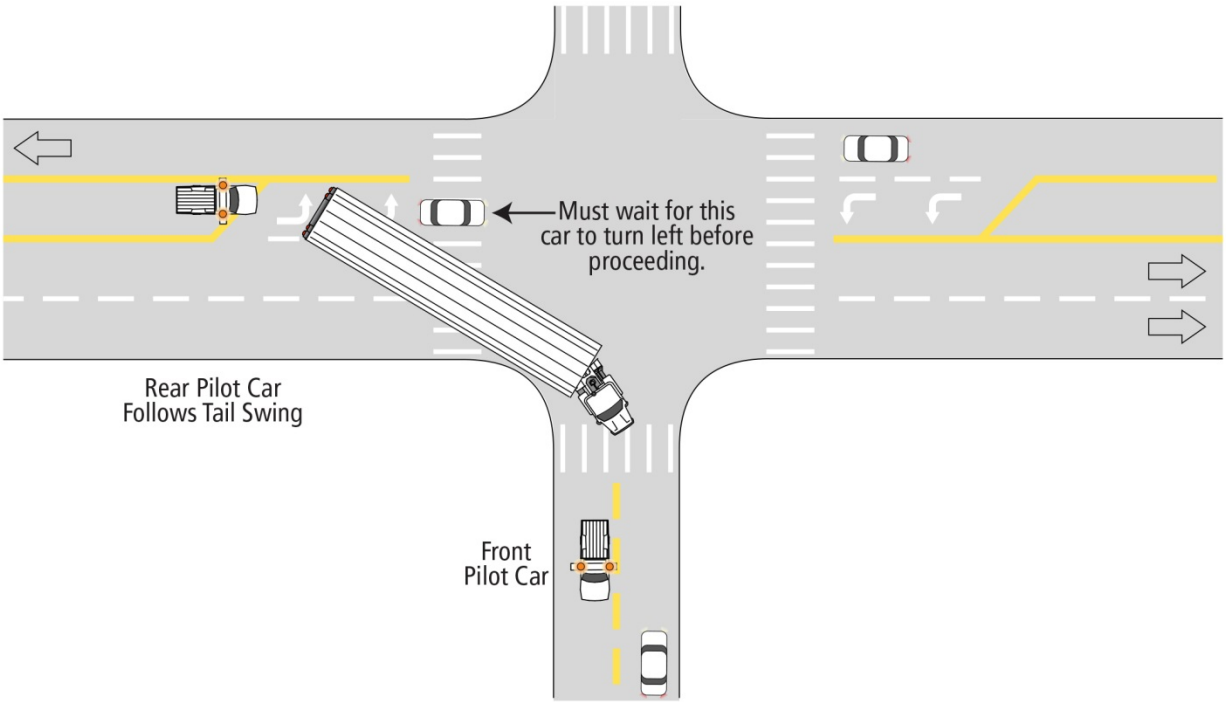


Figure 9.3C Right turns and load tail swing



9.4 Left Turns

See the previous section, 'Right turns and load tail swing', for additional information about manoeuvring the load at intersections.

Figure 9.4A Left turns

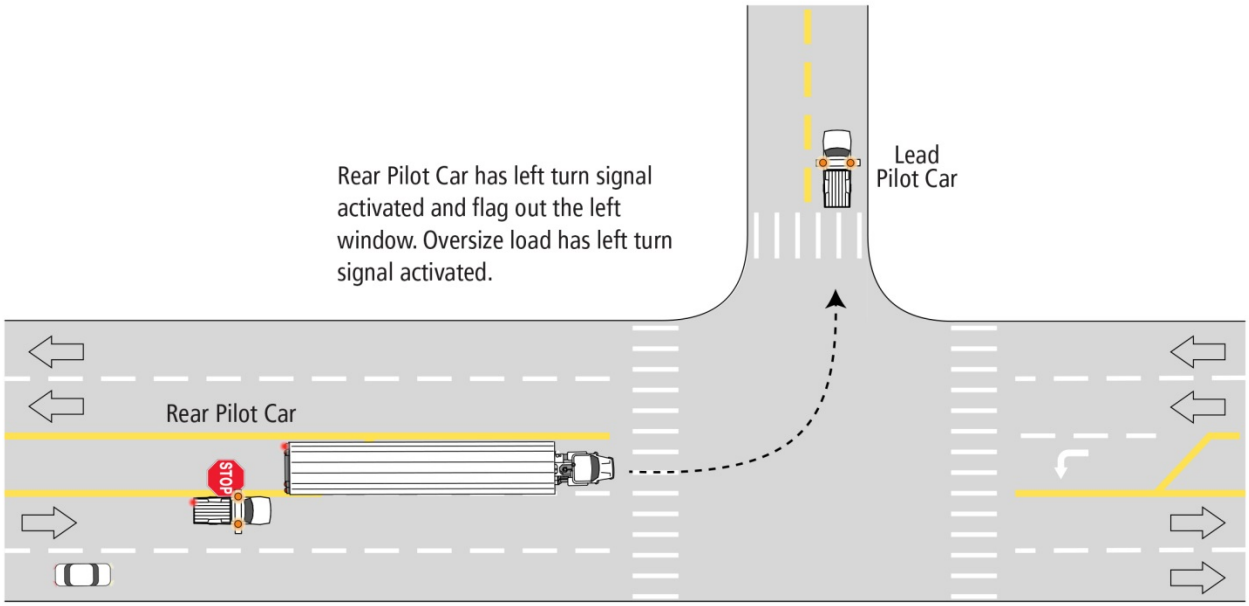


Figure 9.4B Left turns

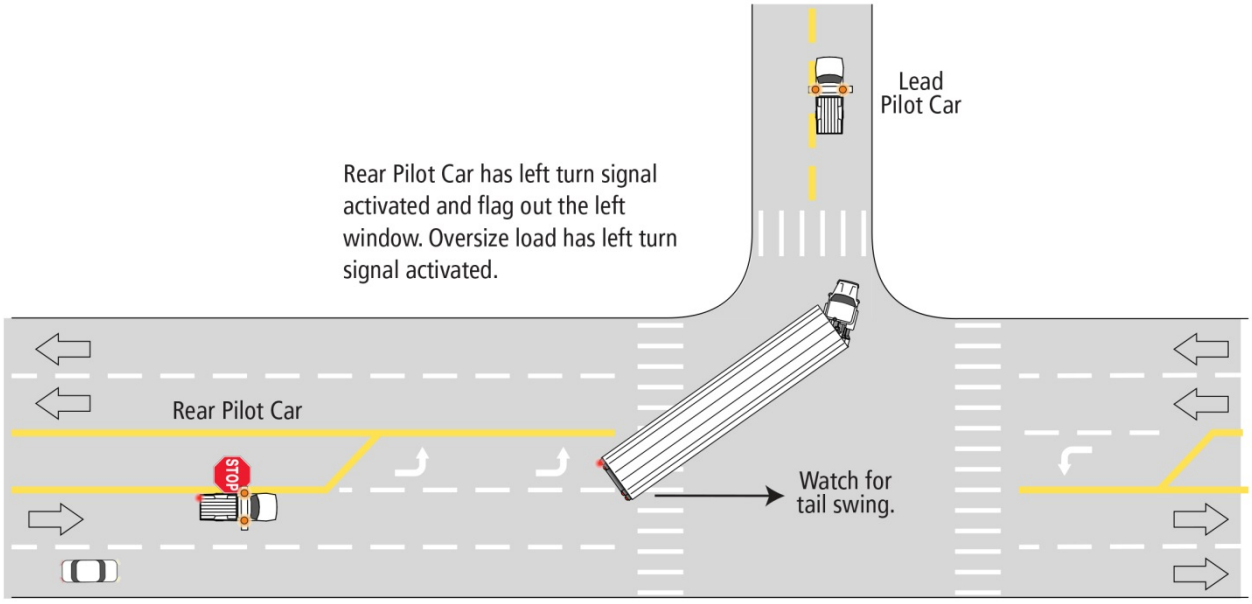
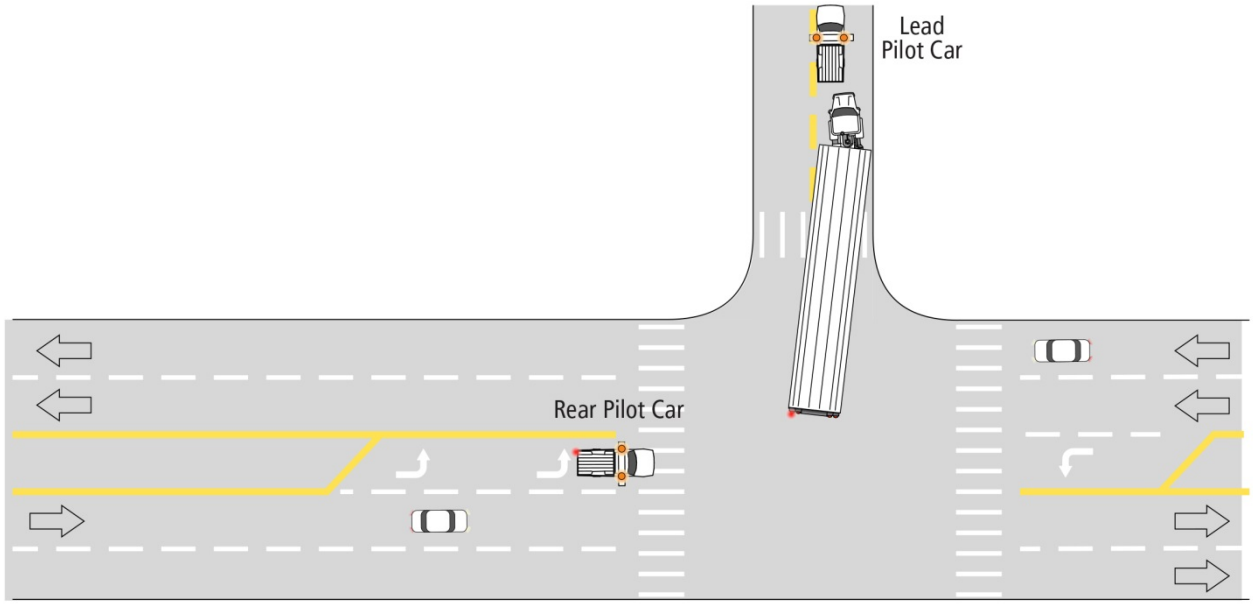


Figure 9.4C Left turns



9.5 Roundabouts

The Ministry has designed roundabouts located on numbered highways to accommodate the same design vehicles as used to design the intersections used on BC highways. When oversize loads are required to traverse through roundabouts, these oversize loads may be required to straddle both lanes of the roundabout and make use of the truck apron, if needed.

If the carrier that will be moving the oversize load on this route has concerns that the load may have difficulty maneuvering through the roundabout, they can provide a schematic of the loaded vehicle configuration to BC MoT's Commercial Vehicle Safety and Enforcement Branch (CVSE) at *commercial.transport@gov.bc.ca*, with a request to check the vehicle's configuration with that of the roundabout's design, to be sure the oversize load will fit. In the unlikely occurrence the oversize load will not be able to maneuver the roundabout, another route will have to be identified.

All BC MoT roundabouts are designed with a truck apron, which is a raised section of pavement around the central island that acts as extra space where a large vehicle trailer can "track." The back wheels of the oversize load's trailer can ride up on the truck apron so the truck can easily complete the turn. This section of the roundabout is specifically for the use of truck trailers and is raised as a means to discourage its use by smaller vehicles.

In British Columbia, most numbered highway roundabouts will have a minimum two lanes (per direction) on the highway legs of the roundabout. Therefore, at these multilane roundabouts, oversize load drivers may occupy the entire circular roadway to travel through the roundabouts. Oversize load drivers should straddle both lanes prior to entering the roundabout, to clearly identify the oversize load will need all lanes to traverse the roundabout. A single lane roundabout is shown in the diagrams below.

Figure 9.5A Operating through roundabouts

Figure 9.5B Operating through roundabouts – making use of the truck apron

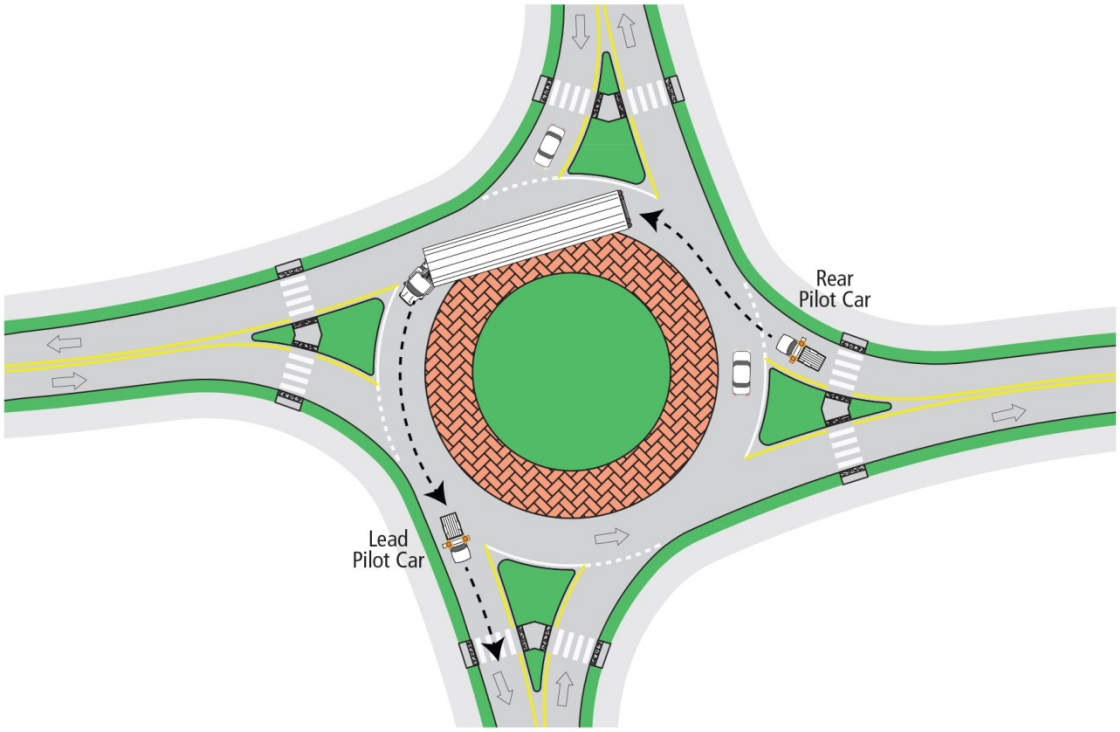
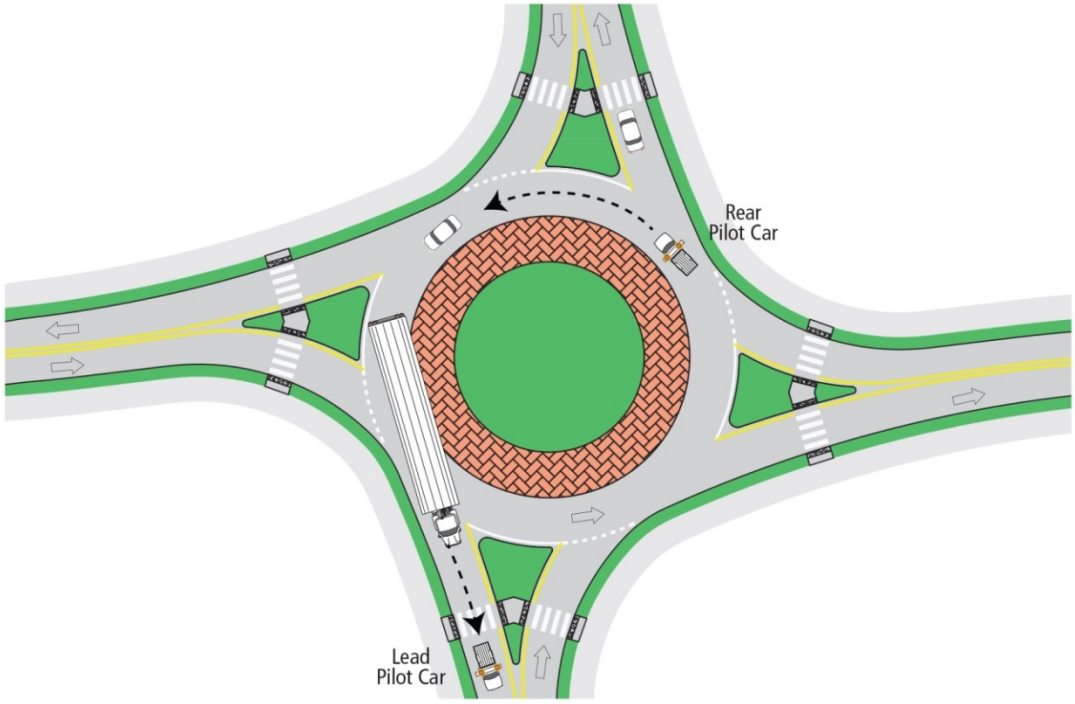


Figure 9.5C Operating through roundabouts



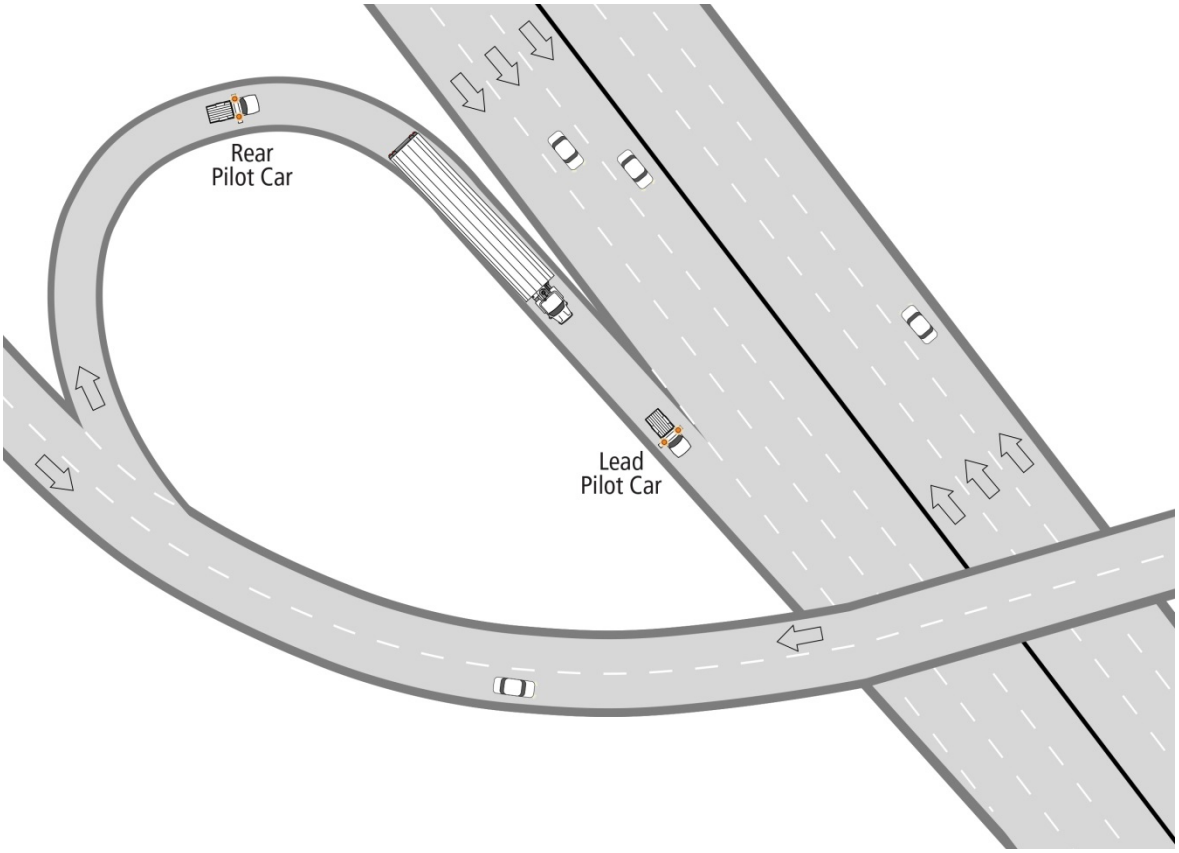
9.6 Interchanges

When approaching an interchange, it is important the move team is familiar enough with the interchange to decide where to position the pilot car(s). In most cases, the pilot car(s) will protect the rear of the load as it moves into the highway it is joining. In some cases, though, it may be useful to have a single pilot car out front to give advance warning of the approach of the load. Good communication within the move team is essential here.

Quite often, cloverleafs are constructed with compound curves due to space limitations, meaning that the tightness and elevation of the curve varies as you move through it. In a large cloverleaf, it is also common to find a zone where one stream of traffic is merging in while another is merging out. For large loads, this means that extra caution about speed and the interaction with other vehicles must be taken.

A two pilot car scenario is shown in the diagram below.

Figure 9.6 Cloverleaf style interchange



Section 10: Pilot Car Load Movement Layouts – Constriction Points

10.1 Overhead Obstacles

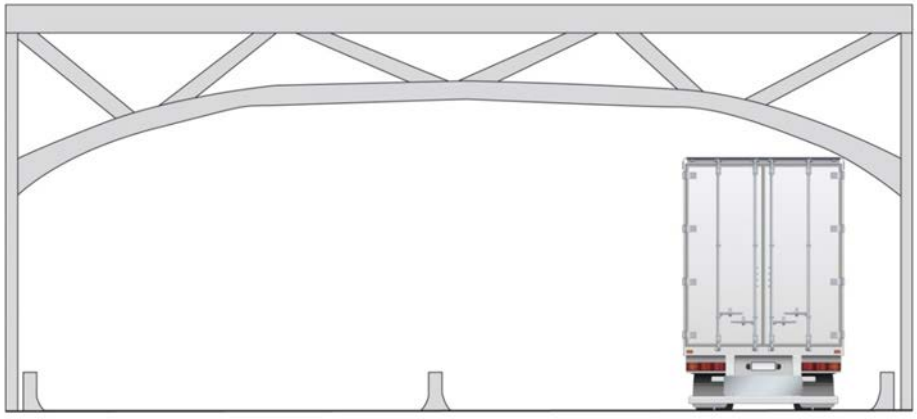
Clearances can vary from one lane to another under a structure. Use caution when approaching an overpass or other type of structure over the roadway, and communicate clearly with the oversize load driver, to ensure that the load you are escorting is in the correct lane.

For loads with heights close to the bridge and other infrastructure clearance restrictions found along the route, checking clearance heights with a laser measure or other device should be considered. When measuring, remember not to make contact with overhead lines. Make any physical measurements to lines to the side of the line so that the measuring stick does not make contact. Checking clearance heights is particularly important at bridges, overpass structures, or power lines that have a variable clearance depending on the lane selected and direction of travel. Other highway infrastructure that may need to be checked along the route for clearances, both vertical and lateral are: signs, luminaire poles, power poles, wires and any device added as part of highway maintenance and construction.

Utility lines can be especially hazardous as many of the lines that cross highway systems are high voltage systems. The handling of telephone, television, or power lines must be left to the professionals from the utility organizations. For the protection of all users of the highway system including those involved with the move, use these precautions:

- Notify utility companies when working near lines when clearances are not known or where clearances need to be adjusted to get the load through
- Treat all wires and electrical equipment that are encountered with the move to be energized. Always check with the utility involved about the status of the system (de-energized or not, etc.)

Figure 10.1 Bridge clearances – Note that available height clearance may vary



10.2 Obstacles on the shoulder

Sometimes shoulder space is limited by manmade structures such as supports for railway overpasses, bridge railings, and signs. It is also common in British Columbia to encounter natural constriction points such as rock outcroppings or other kinds of steep grades. Room on the shoulder may be limited, and when a vehicle, pedestrian, cyclist or other obstruction is on the shoulder, an oversize load may need to move left to avoid the obstacle.

One very important role of a lead or scout pilot car is to communicate about upcoming obstacles to the load driver, so that he or she can adjust speed and positioning as necessary, to get around it. Be as clear and descriptive about the situation to be encountered as possible.

In some cases, it may be necessary to stop the load and do traffic control to make room for the load to move through.

Figure 10.2A Obstacles on the shoulder

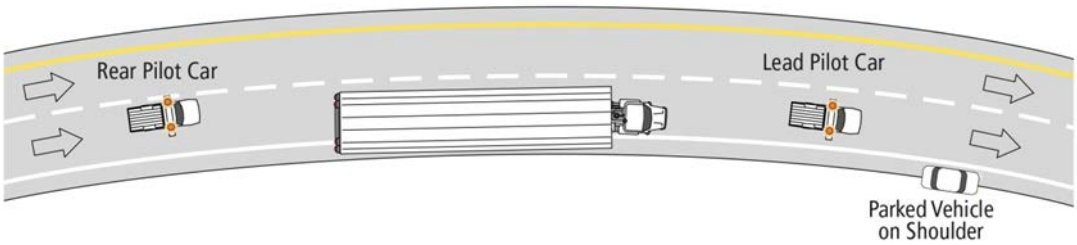


Figure 10.2B Obstacles on the shoulder

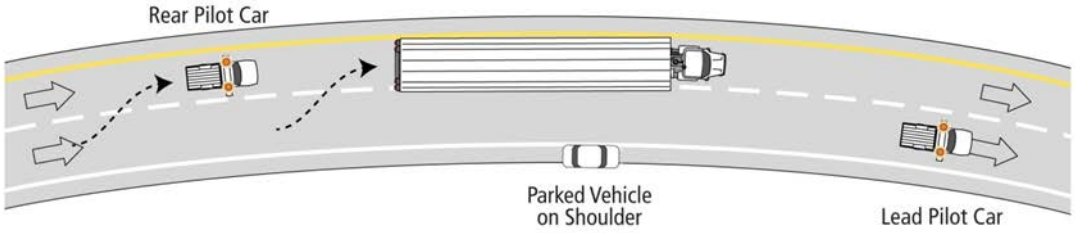
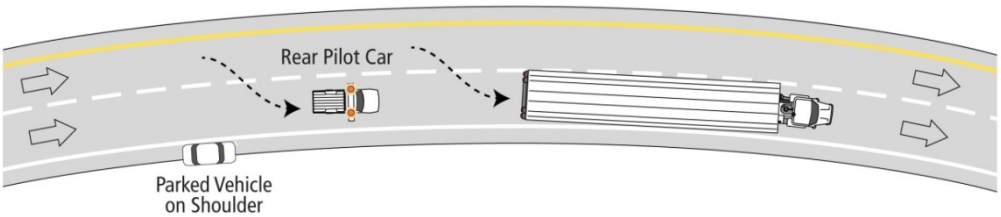


Figure 10.2C Obstacles on the shoulder



10.3 Weigh Scales and Border Crossings

If an open scale or border crossing is encountered during a load move, Pilot Cars should accompany the vehicle they are escorting through the scale or border crossing, and re-enter the highway together, in appropriate positioning.

Figure 10.3A Re-entry from weigh scale

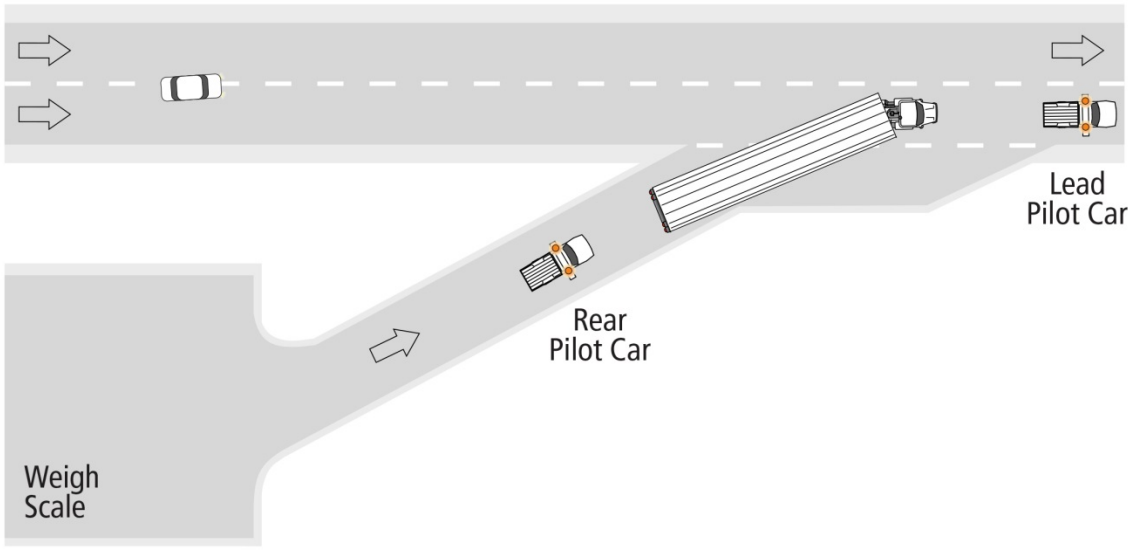
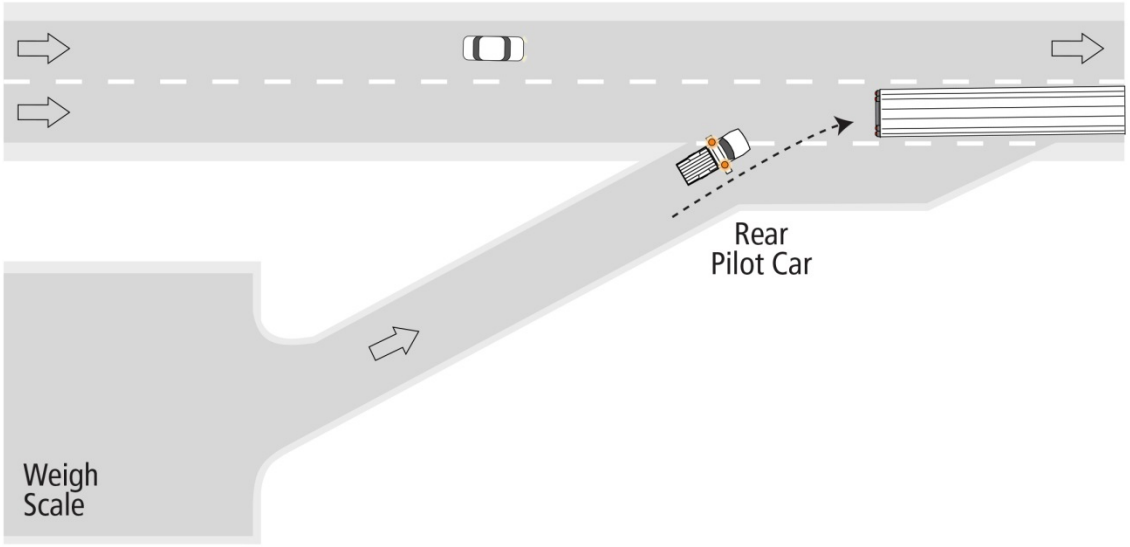


Figure 10.3B Re-entry from weigh scale



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Section 11: Resources

There are many useful links and resources in these guidelines.

11.1 Regulations

- BC Commercial Transport Regulations, Division 7
  http://www.bclaws.ca/civix/document/id/complete/statreg/30_78#division_d2e1638
- BC Commercial Transport Regulations, Division 8.
  http://www.bclaws.ca/civix/document/id/complete/statreg/30_78#division_d2e4480
- WorkSafeBC Occupational Health and Safety Regulation Guidelines Part 18, Section 9a
  https://www.worksafebc.com/en/law-policy/occupational-health-safety/searchable-ohs-regulation/ohs-guidelines/guidelines-part-18
- Part 19 of the Occupational Health and Safety Regulation
  https://www.worksafebc.com/en/law-policy/occupational-health-safety/searchable-ohs-regulation/ohs-guidelines/guidelines-part-19

11.2 Forms

- T-Forms (All)
  http://www.cvse.ca/whatsnew.html
- Extraordinary Load Approval Request Form
  http://www.th.gov.bc.ca/forms/getForm.aspx?formId=1262
- CVSE 1000
  http://www.th.gov.bc.ca/forms/getForm.aspx?formId=1251
- CVSE1011
  http://www.th.gov.bc.ca/forms/getForm.aspx?formId=1258
- CVSE1052
  http://www.th.gov.bc.ca/forms/getForm.aspx?formId=1265

11.3 Manuals and Guidelines

- Commercial Transport Procedures Manual
  http://www.th.gov.bc.ca/Cvse/CTPM/index.htm
- 2015 Interim Traffic Management Manual for Work on Roadways
  http://www2.gov.bc.ca/gov/content/transportation/transportation-infrastructure/engineering-standards-guidelines/trafficmanagementmanual
- Escort Drivers' Handbook (Rev Nov 29, 2011) Alberta Transportation
  http://www.transportation.alberta.ca/Content/docType276/Production/teg054.pdf
- Pilot Car Escort Best Practices Guidelines, SCRA, FHWA, CVSA
  http://ops.fhwa.dot.gov/freight/documents/pilotcar_bpguideline/pilot_car.pdf
- Operation Lifesaver Tips for Professional Drivers
  http://operationlifesaver.ca/resources/professional-drivers/
- ISED-ISDE2366: Mobile Radio Station Licence Application
  http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf06052.html

- Best management practices for mobile 2-way radio use on resource roads in BC, installation and maintenance. BC Ministry of Forest, Lands, and Natural Resource Operations
  http://www.for.gov.bc.ca/hth/engineering/documents/Road_Radio_Project/BMPs_for_radio_use_installation_maintenance_FINAL.pdf
- Important Information on Resource Industry Radio Channels used in British Columbia
  http://www.for.gov.bc.ca/hth/engineering/documents/Road_Radio_Project/rrinformation_bc_final-indcan_apr_2013.pdf

11.4 Websites

- BC Construction Safety Alliance
  https://www.bccsa.ca/Standardized-Traffic-Control-Training.html
- Drive BC
  www.DriveBC.ca.
- Evergreen Safety Council
  www.esc.org
- CV Height Clearance Tool
  www.drivebc.ca/cvrp/

11.5 Contacts

- Commercial Vehicle Safety and Enforcement Branch (CVSE) at
  commercial.transport@gov.bc.ca
- Provincial Permit Centre at
  onRouteBC.gov.bc.ca *or* 1-800-559-9688

This is the final page.