

### **3.0 PRAIRIE GRAIN ROAD PROJECTS COVERED BY THE MODEL CLASS SCREENING REPORT**

#### **3.1 Introduction**

This section discusses the types of prairie grain road projects that can be assessed under the MCSR and provides guidance for the types of projects not intended to be assessed under the MCSR due to their potential to cause significant adverse environmental effects. The types of project activities commonly associated with the model class, project timing and project duration are also outlined in detail.

#### **3.2 Purpose of Prairie Grain Road Projects**

Factors such as federal reforms to grain transportation legislation, consolidation of the rural grain elevator system, changes in cropping patterns, adaptation of new production technologies and development of value added processing have contributed to increased heavy truck traffic that has led to deterioration of rural grain roads. Projects funded under the Prairie Grain Roads Program are typically road modification projects designed to safely increase the potential capacity of rural grain roads. Funded projects improve road durability and speed, and enhance safety through the construction of improvements such as turning lanes, upgrading of road surfaces and improving horizontal and vertical site lines.

#### **3.3 Prairie Grain Road Projects Subject to Class Screening**

##### **3.3.1 Prairie Grain Road Projects Subject to the CEA Act**

Only proposed developments that fall within the *CEA Act's* definition of “project” require environmental assessment. A *CEA Act* project must be either an undertaking in relation to a physical work or a physical activity described in the *Inclusion List Regulations*. All prairie grain road projects are activities related to physical works and are considered “projects” under *CEA Act*. An undertaking in relation to a physical work includes any proposed construction, operation, modification, decommissioning, abandonment, or other undertaking in relation to that physical work. Generally a physical work is considered to be a fixed, man-made structure with some permanency.

Even if an undertaking can be considered a “project” as defined above, an environmental assessment is not required under the *CEA Act* unless there is also a federal “trigger” that enables the project to proceed. All prairie grain road projects under the PGRP have a federal funding trigger (s.5(1)(b) *CEAA*) because the money provided by this program enables the project to proceed.

### **3.3.2 Prairie Grain Projects Excluded under the CEA Act**

A number of prairie grain road projects do not require assessment under the *CEA Act* where “the environmental effects of certain projects in relation to physical works are insignificant”, based on the *Exclusion List Regulations* as noted below:

**Section 1:** *The proposed maintenance or repair of an existing physical work.*

**Section 15:** *The proposed expansion or modification of an existing road that would be carried out on the existing road right of way and would not*

- a) lengthen the road;*
- b) widen the road by more than 15 percent;*
- c) be carried out in or on or within 30m of a water body; and*
- d) involve the likely release of a polluting substance into a water body.*

**Section 42:** *The proposed modification of that part of an existing culvert that*

- a) is not connected to a water body;*
- b) crosses under a railway or road; and*
- c) is within the existing railway or road right of way.*

The determination of exclusion pursuant to the *Exclusion List Regulations* is determined in accordance with the procedure outlined within the Class Screening Project Report (Section 6).

### **3.3.3 Prairie Grain Road Projects Subject to the MCSR**

Activities related to prairie grain road projects include work done to modify an existing roadway as well as associated activities necessary to carry out work on the roadway.

Projects covered by the MCSR include:

- Road widening by more than 15%; and,
- Road extensions or realignments that will lengthen the road;
- Bridge deck modifications.

Prairie grain road projects often require the construction and operation of other physical works or activities that are incidental to the road project itself including the construction and operation of:

- Borrow and aggregate pits;
- Asphalt plants;
- Culvert replacement or installation that are not associated with bridges on non-fish bearing waterbodies.

Projects and activities that fall within the above categories are covered under the MCSR.

### **3.3.4 Prairie Grain Road Projects Not Subject to the MCSR**

Certain types of prairie grain road projects **are not** suited for the MCSR depending on the type of modification and the specific ecological attributes of the project area. Prairie grain road projects that **are not subject** to the MCSR include:

- Replacement of bridges with culverts;
- In-water work on bridges, bridge footings or other related structures;
- Construction of new bridges or new roads;
- Culvert replacements/installations that involve an extension of culvert length, change in diameter or change in shape/design and that on waterbodies that support permanent fish populations or seasonal fish migrations;
- Decommissioning of bridges;
- Projects carried out on lands administered by Parks Canada Agency;
- Projects requiring a permit from Indian and Northern Affairs Canada;
- Projects requiring a permit, authorization or approval from Fisheries and Oceans Canada, (Habitat Management Program and/or Canadian Coast Guard) or Environment Canada.

### **3.4 Project Descriptions**

Project descriptions are arranged to reflect a pragmatic breakdown of work activities, as well as to reflect the requirement of the *CEA Act* to consider potential impacts of all proposed undertakings related to a project (i.e. construction, operation, modification, decommissioning, abandonment as per the *CEA Act* sub Section 15(3)).

#### **3.4.1 Road Upgrades**

These types of projects generally deal with modifications to existing roadways although they may involve disturbance either within an existing ROW or in new ROW. The intent of these projects is often to upgrade the road surface to safely increase traffic volume, to safely increase road speed by straightening corners and taking out vertical dips and rolls, or to strengthen the road bed to decrease damage and reduce maintenance costs. Other projects often include changes such as the addition of new turning lanes or access roads to crop delivery points or value-added processing operations. In general, road upgrades include activities undertaken to widen, resurface, level, extend or realign an existing roadway.

**Site Preparation** - possible activities related to site preparation include:

- clearing of vegetation;
- removal and handling of topsoil;
- excavation and disposal of unsuitable soils and surficial materials.

**Equipment Operation** - equipment commonly used for road upgrade projects includes heavy hydraulic equipment including track vehicles (backhoes, bulldozers), rubber tire vehicles (backhoes, bobcats, graders, gravel trucks, water sprayers), and specialty vehicles (packers, dust

control applicators, asphaltting machines). Equipment operation includes the potential for **accidents and malfunctions** that may affect environmental components. Equipment operation spans the scope of all undertakings related to a project.

**Construction** - activities commonly undertaken as part of construction of road upgrade projects include:

- grading of ditches and side slopes;
- addition of materials to the road base for widening and fill;
- replacement or adding of materials to the road surface for widening;
- application of dust control agents;
- excavation and placement of materials for drainage works, culverts, and utility crossings;
- asphaltting or paving;
- sediment control measures.

**Post Construction Activities** - post construction activities commonly associated with road upgrade projects include:

- topsoil replacement and handling;
- revegetation of ditches, sideslopes and new ROW;
- installation of permanent or temporary erosion control measures;
- weed control measures;
- disposal of construction waste, surplus and hazardous materials;
- fencing.

**Accidents and Malfunctions** - possible situations related to accidents and malfunctions include:

- fuel spill from equipment operated on site;
- fires during all phases of the project;
- erosion/overflow of sediment traps and slope failure caused by heavy rains during construction;
- increase in traffic leads to accidents with other vehicles and wildlife;
- spills of asphalt, paint, chemicals, and road salt;
- asphalt plant air pollution control equipment breakdown or failure
- failure of drainage control measures.

**Operation** - the operation of roads includes maintenance activities such as grading, snow removal and salting, mowing of ditches, surface repairs, and application of dust control agents. Operation also includes the regulation and movement of vehicular traffic on the road. Road operations and maintenance activities and standards are currently in place for the road modification projects covered by the class and fall under the jurisdiction of provincial or municipal government authorities. Potentially significant effects of road operation activities such as impacts to sensitive fisheries, wildlife habitat, or hydrology would be identified and addressed on a project-specific basis through the CSPR.

**Decommissioning** - the rural road projects subject to the MCSR are considered to be permanent physical works and are not intended to be decommissioned at any point - as opposed to roads established for temporary resource access (i.e. for mining, forestry, and oil and gas operations, or for seasonal access i.e. winter ice roads). Because of their permanent nature, the

decommissioning of rural roads is not covered in the scope of the MCSR. If there were to be a federal trigger, decommissioning activities could be defined as a “project” under the *CEA Act* and would be assessed as an individual screening.

### **3.4.2 Bridge Deck Modifications**

Bridge deck modifications may be undertaken in relation to certain projects in order to upgrade the capability of the bridge to accommodate increased traffic flows and speeds consistent with those of the project roadway. This may involve reinforcement of the bridge structure, replacement of bridge decking materials, or resurfacing. In-water works such as repairs or upgrades to bridge footings are not covered in the scope of the model class screening report.

**Site Preparation** - activities related to site preparation for bridge deck modifications may include:

- removal and disposal of existing bridge materials;
- stockpiling of new construction materials.

**Equipment Operation** - equipment commonly used during bridge deck modification projects includes heavy hydraulic equipment including rubber tire vehicles (backhoes, bobcats, graders, cranes trucks, gravel trucks, water sprayers), and specialty vehicles (asphalting machines). Hand powered equipment may also be used extensively, including the operation of generators, compressors, jack hammers, sandblasters, welding machines, acetylene torches, paint sprayers, and a variety of hand held power tools. Equipment operation includes the potential for **accidents and malfunctions** that may affect environmental components. Equipment operation spans the scope of all undertakings related to a project.

**Construction** - common activities undertaken as part of bridge modification projects includes:

- sandblasting to remove painted surfaces and prepare corroded surfaces;
- cutting and welding of new materials to existing bridge structure;
- painting of new construction materials;
- placement of bridge deck materials (i.e. concrete slabs);
- asphalting.

**Post Construction Activities** - activities associated with project cleanup include:

- disposal of old bridge materials;
- disposal of construction waste, surplus and hazardous materials;
- fencing.

**Accidents and Malfunctions** - possible situations related to accidents and malfunctions include:

- fuel spill from equipment operated on site;
- fires during all phases of the project;

- erosion/overflow of sediment traps and slope failure caused by heavy rains during construction;
- increase in traffic leads to accidents with other vehicles and wildlife;
- spills of asphalt, paint, chemicals, and road salt
- asphalt plant air pollution control equipment breakdown or failure
- failure of drainage control measures.

**Operation** - Operation and maintenance of bridges includes activities such as cleaning, sandblasting and painting with potential impacts similar to that of the construction phase. Operation also includes snow and ice removal, the use of salts and abrasives and the regulation and movement of vehicular traffic on the bridge. Bridge operation and maintenance procedures and standards are currently in place for the road modification projects covered by the class and fall under the jurisdiction of provincial or municipal government authorities. Potentially significant effects of bridge operation activities such as impacts to sensitive fisheries, wildlife habitat, or hydrology would be identified and addressed on a project-specific basis through the CSPR.

**Decommissioning** - bridge projects subject to the MCSR are considered to be permanent physical works and are not intended to be decommissioned at any particular point - as opposed to bridges established for temporary resource access (i.e. for mining, forestry, and oil and gas operations). Although a bridge structure itself has a limited lifespan, the details associated with the decommissioning, abandonment or replacement of the structure are not usually known. Possible options include the removal and replacement of the bridge with another, extensive repair and reinforcement work, or replacement of the bridge with another structure such as a culvert. Because of their permanent nature, and the uncertainty associated with future project details, the decommissioning of bridges is not covered in the scope of the MCSR. If there were to be a federal trigger, decommissioning activities being a “project” under the *CEA Act*, it would then be assessed as an individual screening.

### **3.4.3 Borrow and Aggregate Pits**

Borrow and aggregate pits are often required in order to provide fill or aggregate (gravel, rock, rip rap) materials for road projects or as input to asphalt operations.

**Site Preparation** - activities related to site preparation for pits include:

- clearing of vegetation;
- removal, handling, storage of topsoil;
- excavation and disposal of unsuitable soils and surficial materials;
- construction of access trails.

**Equipment Operation** - equipment commonly used for the excavation and operation of borrow pits includes heavy hydraulic equipment including track vehicles (backhoes, bulldozers) and rubber tire vehicles (backhoes, bobcats, graders, dumptrucks). Equipment operation includes the potential for **accidents and malfunctions** that may affect environmental components. Equipment operation spans the scope of all undertakings related to a project.

**Construction/Operation** - activities associated with the construction and/or operation of pits include:

- salvaging or storing topsoil or subsoil materials;
- excavating overburden;
- excavating, processing or stockpiling any product;
- diverting groundwater or surface water to facilitate mining or washing;
- moving stockpiled materials within the pit;
- removing stockpiled materials from the pit;
- replacing conserved soil materials;
- excavation and disposal of unsuitable soils and/or surficial materials.

**Post Construction Activities** - pits may be reclaimed as landscape borrows (returned to equivalent original land capability), as dugouts, or for other specified uses (i.e. fish ponds) in consultation with the landowner or land management authority. Activities commonly associated with the reclamation of borrow pits and access trails include:

- removal and disposal of rocks and other waste materials;
- replacement of overburden and subsoil materials;
- site grading and contouring
- topsoil, subsoil, and plant growth medium replacement and handling
- seed bed preparation, seeding and re-vegetation
- installation of permanent or temporary erosion control measures
- protection of restored areas
- weed control measures;
- disposal of construction waste, surplus and hazardous materials;
- fencing.

**Accidents and Malfunctions** - possible situations related to accidents and malfunctions include:

- fuel spill from equipment operated on site;
- fires during all phases of the project;
- erosion/overflow of sediment traps and slope failure caused by heavy rains during construction;
- increase in traffic leads to accidents with other vehicles and wildlife;
- spills of asphalt, paint, chemicals, and road salt

#### **3.4.4 Asphalt Plants**

Asphalt plant sites may be temporarily established to facilitate the supply of asphalt materials for certain road surfacing upgrade projects. Asphalt plants are located in the immediate vicinity of the road project as working temperature constraints prohibit transportation of asphalt over long distances.

**Site Preparation** - asphalt plants are usually sited at, or in the immediate vicinity of, an existing or new aggregate pit. Grading of the area designated for the plant may be necessary to achieve a

level surface for the plant itself, for fuel and oil storage tanks or for vehicle storage, parking, and loading. In some cases plants may not be sited in previously disturbed areas. In these cases site preparation activities may also include:

- clearing of vegetation;
- removal, handling, storage of topsoil;
- excavation and disposal of unsuitable soils and surficial materials;
- construction of access trails.

**Equipment Operation** - equipment commonly used for the construction and operation of asphalt plants includes heavy hydraulic equipment including track vehicles (backhoes, bulldozers) and rubber tire vehicles (backhoes, bobcats, graders, dumptrucks). Equipment operation includes the potential for **accidents and malfunctions** that may affect environmental components. Equipment operation spans the scope of all undertakings related to a project.

**Construction/Operation** - equipment commonly used in the operation of an asphalt plant includes heavy hydraulic equipment including track vehicles (backhoes, bulldozers) and rubber tire vehicles (backhoes, bobcats, graders, dumptrucks). The operation of asphalt plants also includes:

- use of pumps and hoses for fuels and oils;
- use of conveyor belts for onsite movement of aggregate and asphalt materials;
- operation of the asphalt plant itself (including pollution control equipment such as wet scrubbers or baghouse filter systems to control particulate emissions);
- loading/unloading operations related to fuels, oils, and asphalt;
- temporary/permanent sediment control measures.

**Accidents and Malfunctions** - possible situations related to accidents and malfunctions include:

- fuel spill from equipment operated on site;
- fires during all phases of the project;
- erosion/overflow of sediment traps and slope failure caused by heavy rains during construction;
- increase in traffic leads to accidents with other vehicles and wildlife;
- spills of asphalt, paint, chemicals, and road salt;
- asphalt plant air pollution control equipment breakdown or failure

**Post Construction Activities and Decommissioning** - Asphalt plants are generally part of an aggregate pit operation, and are not usually reclaimed separately. However they are dismantled and removed. The primary reclamation concern, aside from standard pit reclamation, is related to soils contamination from leaks or spills of contaminant materials (i.e. fuels, oils, asphalt). Contaminated materials may need to be excavated and the site remediated. Plants not sited in previously disturbed areas will usually be dismantled and reclaimed immediately following construction and activities may include:

- removal and disposal of rocks and other waste materials;



- replacement of overburden and subsoil materials;
- site grading and contouring;
- topsoil, subsoil, and plant growth medium replacement and handling;
- seed bed preparation, seeding and re-vegetation;
- installation of permanent or temporary erosion control measures;
- protection of restored areas;
- weed control measures;
- disposal of construction waste, surplus and hazardous materials;
- fencing.

### **3.4.5 Watercourse/Waterbody Culvert Replacement or Installation**

Road crossings over non-fish bearing watercourses may require the replacement, extension or installation of culverts, these are covered by the MCSR. Culvert replacements that involve an extension of the culvert length, a decrease in culvert diameter, or a change in shape or design on waterbodies that support permanent fish populations or seasonal fish migrations **are not subject** to the MCSR. Likewise, the replacement of bridges with culverts **are not subject** to the MCSR.

**Site Preparation** - possible activities related to site preparation include:

- clearing of vegetation
- construction of coffer dams
- dewatering (the removal of excess water from the site including the use of pumps, hoses, temporary trenches or flumes, and sediment traps)
- grading and excavation
- tunneling
- disposal/storage of cleared materials including vegetation, soils and gravel
- temporary and/or permanent sediment control measures.

**Equipment Operation** - equipment commonly used for the construction and operation of asphalt plants includes heavy hydraulic equipment including track vehicles (backhoes, bulldozers) and rubber tire vehicles (backhoes, bobcats, graders, dumptrucks). Hand powered equipment may also be used extensively, including the operation of generators, compressors, and a variety of hand held power tools. Equipment operation includes the potential for **accidents and malfunctions** that may affect environmental components. Equipment operation spans the scope of all undertakings related to a project.

**Construction** - activities commonly undertaken as part of culvert installation and replacement projects include:

- placing gravel, rip rap or other foundation and stabilization materials (i.e. pouring concrete foundations)
- installation of concrete or metal culverts.

**Maintenance** - maintenance activities associated with culverts usually involve periodic clearing of debris that may restrict water flow through the culvert. This would typically involve in-water work and the use of hand and power tools. Such work is usually carried out by municipal or

provincial maintenance crews. Potentially significant effects of culvert maintenance activities such as impacts to sensitive fisheries, wildlife habitat, or hydrology would be identified and addressed on a project-specific basis through the CSPR.

**Post Construction Activities** - reclamation activities commonly associated with culvert installation and replacement projects include:

- grading
- in-stream site restoration and/or enhancements
- bank stabilization
- revegetation
- removal of waste materials
- weed control measures
- disposal of construction waste, surplus and hazardous materials
- fencing.

**Accidents and Malfunctions** - possible situations related to accidents and malfunctions include:

- fuel spill from equipment operated on site;
- erosion/overflow of sediment traps and slope failure caused by heavy rains during construction;
- failure of drainage control measures.

**Decommissioning** - culvert projects subject to the MCSR are considered to be permanent physical works and are not intended to be decommissioned at any particular point. Although a culvert structure itself has a limited lifespan, it would not likely be decommissioned per se but would be replaced with another culvert or a bridge structure at the termination of its lifespan. The details associated with the decommissioning, abandonment or replacement of culvert structures are not generally known at the time of construction. Because of their permanent nature, and the uncertainty associated with future project details, the decommissioning of culverts **is not covered** in the MCSR. If there were to be a federal trigger, decommissioning activities being defined as a “project” under the *CEA Act*, it would then be assessed as an individual screening.

### **3.5 Typical Seasonal Scheduling and Duration of Projects**

Prairie grain road projects on the prairies typically take place after the spring thaw, and during the summer and autumn seasons prior to the ground freezing up. This is a pragmatic requirement of road construction projects as it can be very difficult or impossible to handle frozen soils or to run packing, surfacing, asphaltting, paving and related construction operations in sub-freezing temperatures. During the main construction season wet ground and soil conditions may occur as a result of late thaw or high seasonal precipitation levels or temporary storm events. Construction with heavy equipment or transport of heavy loads is often restricted (i.e. rural municipal road bans on gravel roads) during wet conditions in the spring.

Other factors affecting the timing of road construction projects include sensitive periods for fish, wildlife and native vegetation species. In-stream works can be planned when disturbances of resident or migrating fish and other aquatic organisms will be minimized. In freshwater habitat, the fisheries' optimum window for in-stream work is generally during the summer months. Sensitive times for breeding, nesting and migratory waterbirds can also be taken into account when working within or near watercourses and waterbodies.

Sensitive periods for terrestrial wildlife species can also be avoided through construction planning and project timing. Nesting seasons for migratory birds, particularly grassland birds, can be avoided especially in areas of native grasslands and other suitable habitat. Late summer and fall are usually the best times to plan construction in order to avoid sensitive nesting seasons for these species. Other terrestrial wildlife species such as reptiles (garter snakes) and amphibians (salamanders, frogs) are known to migrate through particular areas during particular times of year for overwintering or breeding purposes. Construction in these areas can be timed to avoid migration periods. Potential impacts to provincially or federally listed species at risk should also be considered in terms of construction timing that would avoid sensitive periods such as breeding, and rearing seasons.

Native vegetation species and habitats may also be affected by construction disturbance. The preferred construction window in native prairie grassland habitats is usually in the late summer and early fall when grassland vegetation has become dormant for the season. Timing construction to take place within this time frame is particularly important for projects where native revegetation is to be used as a reclamation technique.

Finally, the majority of road projects will take place in, or in close proximity to agricultural croplands. Project timing should take into consideration potential impacts to agricultural crops and agricultural operations. As with impacts to native vegetation, timing construction to take place in the late summer and early fall, post harvest, will avoid most direct impacts to agricultural operations.

Generally, the preferred time frame for implementation of road modification projects is in the late summer and fall. Timing projects to take place in these seasons will usually avoid the majority of direct impacts to sensitive wildlife, fisheries, native vegetation and agricultural operations. Site specific ecological conditions must still be considered. Construction activities may have to be staged to avoid impacts to sensitive species or ecological features at specific sensitive times. For instance it may be necessary to plan instream work to take place early in the summer, well in advance of fall spawning species migrations, to avoid impacts to sensitive fisheries while construction through sensitive wildlife habitat or through agricultural lands may be deferred until later in the season.

Construction will typically be completed within one season with project duration extending from a few days to several weeks. In some cases it may be desirable to complete reclamation and revegetation of construction sites the following spring.