

# PERFORMANCE-BASED STANDARDS AS AN ALTERNATIVE TO PRESCRIPTIVE REGULATION

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## ABSTRACT

This presentation gives a high level overview of Ontario's Vehicle Weight and Dimension Reform Project. This is a long-term, multi-phased project which is fundamentally changing the type of heavy trucks and trailers operating on Ontario highways. Reforms have three primary objectives: reduce avoidable infrastructure damage; improve highway safety through use of performance based vehicle designs; and, maximize trucking productivity. The process involves extensive consultation and partnership with industry stakeholders. Key challenges include developing new vehicle standards as well as ensuring a smooth and fair transition from existing vehicles.

## ONTARIO - OVERVIEW

Ontario is the largest of Canada's 10 provinces with a population of over 12 million people. We have a diversified economy with a significant manufacturing base – especially in the automotive sector. We trade approximately \$400 billion worth of goods internationally every year and over 90% of our exports and 70% of our imports are with the United States. Three-quarters of this U.S. trade moves by truck. Ontario is bordered by 2 Canadian provinces and 3 U.S. states, all of which have somewhat different truck weight and dimension regimes.

### Truck Weights & Dimensions

Size and weight limits for trucks are set at the provincial level. By necessity, truck dimensions are largely standardized across North America. However, there are significant differences in truck weights and axle configurations in different provinces and U.S. states. For its part, Ontario allows some of the most generous and productive axle and gross weights on the continent. Therefore, our major challenge at Ontario's Ministry of Transportation is to harmonize allowable weights and dimensions with other jurisdictions for the free movement of trucks.

### Past Regime

In the past, Ontario has had a 'permissive' weight and dimension regime. We allowed a wide array of vehicle configurations as long as they fit within general length, width and height limits. We determined allowable weights from a complex series of axle and gross weight tables based on number and spacing of axles. Maximum gross weight was set at 63,500 kg. Axle and gross weight tables were based on bridge and pavement constraints with little regard for vehicle dynamic performance.

### Need for Reforms

This permissive regime has been very productive and has served the Ontario industry well. But, it resulted in multi-axle configurations that made extensive use of lift-able axles in order to allow vehicles to turn. These configurations caused excessive and avoidable

infrastructure damage and unacceptable rates of collisions. As a result, in the late 1990's, Ontario began a program of vehicle weight and dimension (VW&D) reforms.

### **VW&D Reforms**

We divided our reforms into four phases, each dealing with a different group of vehicles. Stakeholders, including vehicle and component manufacturers, vehicle operators, shippers and neighbouring jurisdictions were extensively consulted. The primary interest of stakeholders was maintaining vehicle productivity, harmonization with neighbouring jurisdictions, and ensuring a 'level playing field' during any transition.

Three of the four phases (representing all tractor-trailers) now implemented. Work is progressing on the final Phase 4, which is aimed at addressing straight trucks and their trailers. Reforms are designed to force a migration to vehicles designated as "Safe, Productive and Infrastructure-Friendly" (SPIF). All new tractor-trailers are to be built to very prescriptive SPIF standards. Existing vehicles are to be grandfathered for the remainder of their reasonable working life. The entire transition is expected to take around 25 years.

### **SPIF Vehicles**

There are a wide variety of SPIF vehicle configurations designed to meet diverse industry needs including maximizing productivity within infrastructure and realizing safety constraints. To protect infrastructure, multi-axle vehicles are now equipped with self-steering axles in place of rigid lift-axles. All axles on semi-trailers must now automatically share the weight without driver intervention. The design and weights of our SPIF vehicles are based on performance standards and guidelines developed in Canada.

### **Expected Results**

The result of all these efforts is that trucking productivity will be maintained or improved. We expect to avoid around \$300 million in infrastructure deterioration and damage annually. As well, meeting national performance standards will reduce the number and severity of heavy vehicle collisions. We believe that straightforward prescriptive SPIF standards will improve compliance and enforcement. It's a win/win situation - highway safety and infrastructure protection.

### **System Flexibility**

We are receptive to different vehicle configurations and emerging technologies and we can accommodate them by special permit or amendment to the laws. However, the onus is on proponent to show how vehicle meets SPIF requirements, including:

- High and low-speed performance criteria;
- Adherence to Ontario's Bridge Formula; and,
- Acceptable strain on pavement and roadways.

Acceptability of proposed SPIF vehicle depends on safety and infrastructure impacts as compared to economic and environmental benefits.

### **What's Ahead**

We're very pleased with the progress we've made so far. Our weight and dimension reforms are generally well-received by stakeholders and the transition to SPIF vehicles is progressing smoothly. Policy work has commenced on Phase 4 and changes are likely to impact trucks and trailers built from 2010 onward. We will continue to work closely with stakeholders to monitor issues and examine productivity improvements.