



Ministry of Transportation of Ontario (MTO)

Session 11 – High Productivity Vehicles

Performance-Based Standards As An Alternative to Prescriptive Regulation

PIARC World Road Congress

Sept 20, 2007

Paris, France



Bruce McCuaig, Assistant Deputy Minister
Provincial Highways Management Division

Ontario - Overview

- Largest of Canada's 10 provinces – population over 12 million people.
- Diversified economy with significant manufacturing base – especially in automotive sector.
- Large reliance on international trade – around \$400 billion annually.
- Over 90% of exports and 70% of imports with the United States.
- Three-quarters of trade with U.S. moves by truck.
- Ontario has five immediate neighbours including 2 provinces and 3 U.S. states – all with significantly different truck weight and dimension regimes.



Truck Weights & Dimensions



- Size and weight limits set at provincial level.
- By necessity, truck dimensions largely standardized across North America.
- Significant differences in truck weights and axle configurations in different provinces and U.S. states.
- Ontario allows some of the most generous and productive axle and gross weights in North America.
- A major challenge -- harmonize allowable weights and dimensions with other jurisdictions for free movement of trucks.

Past Regime

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



Need for Reforms



- Permissive regime has been very productive and has served Ontario industry well.
- But, resulted in multi-axle configurations with extensive use of liftable axles so vehicles could turn.
- Configurations were causing 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



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

VW&D Reforms

- Three of the four phases (representing all tractor-trailers) now implemented. Work is progressing on the final - Phase 4 to address 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 built to very prescriptive SPIF standards. Existing vehicles grandfathered for their reasonable life. Transition expected to take around 25 years.



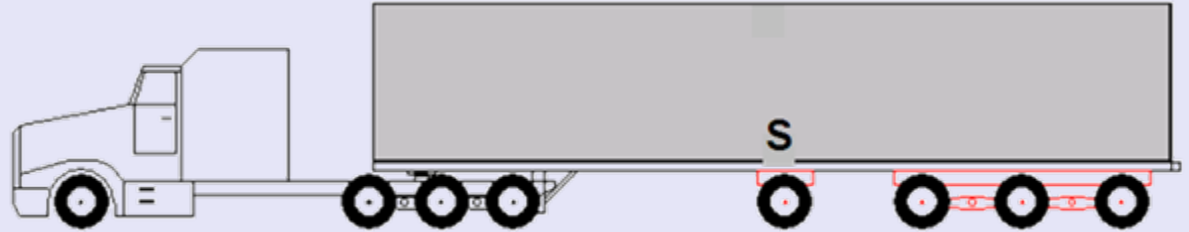
SPIF Vehicles

- Wide variety of SPIF vehicle configurations to meet diverse industry needs -- to maximize productivity within infrastructure and safety constraints.
- To protect infrastructure, multi-axle vehicles now equipped with self-steering axles in place of rigid lift-axles. All axles on semi-trailers must automatically share the weight without driver intervention.
- Design and weights of SPIF vehicles based on performance standards and guidelines developed in Canada.

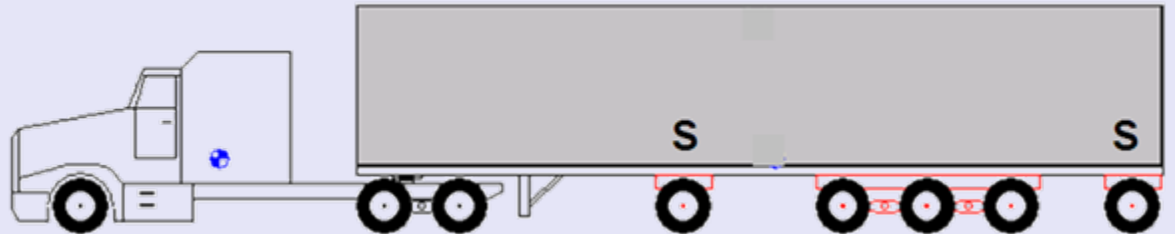


Examples of SPIF Heavy Vehicles

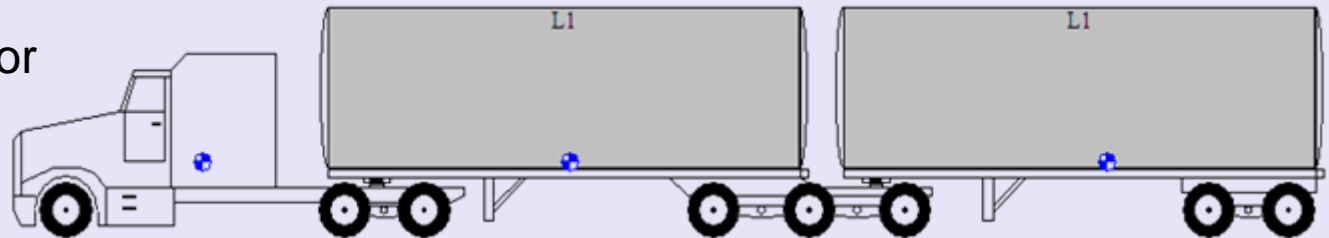
Tridem-Drive Tractor
Quad Semi-Trailer



Tandem-Drive Tractor
5-Axle Semi-Trailer



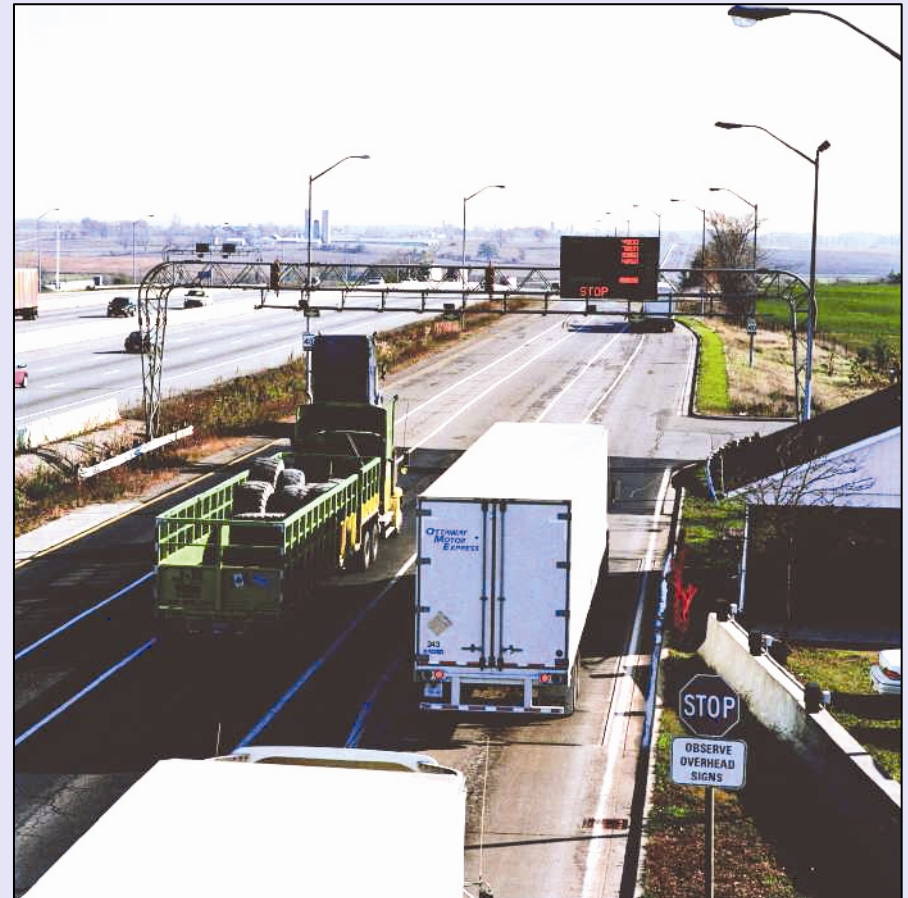
Tandem-Drive Tractor
Double Semi-Trailer



“S” – indicates a self-steering axle

Expected Results

- Trucking productivity maintained or improved.
- Around \$300 million in infrastructure deterioration and damage will be avoided annually.
- Meeting national performance standards will reduce number and severity of heavy vehicle collisions.
- Straightforward prescriptive SPIF standards will improve compliance and enforcement = highway safety and infrastructure protection.



System Flexibility



- Ontario receptive to different vehicle configurations and emerging technologies
 - can be accommodated by special permit or amendment to the laws.
- The onus 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

- Weight and dimension reforms generally well received by stakeholders –transition to SPIF vehicles progressing smoothly.
- Policy work has commenced on Phase 4 and changes are likely to impact trucks and trailers built from 2010 onward.
- We continue to work closely with stakeholders to monitor issues and examine productivity improvements.