



# TC – Innovation Centre/ ecoTECHNOLOGY for Vehicles

Task Force on Vehicle Weights and Dimensions Policy  
Platooning Trial - Update  
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# Cooperative Truck Platooning Pilot Project – Canada

## Project Description

- To perform Canada's first on road platooning trial on multi-lane divided highways;
- To perform Canada's first off road platooning trial on forestry roads;
- Partners include FP Innovations/PIT, Auburn University, MTO and MTQ.
- Trialing was completed early November.





# Cooperative Truck Platooning Pilot Project

## On-Road Goals

- Monitor how the public interacts with a platoon;
- Verify the sensor technology, signal strength, GPS connectivity;
- Attempt 100+ km of continuous platooning on public roads;
- Verify how platooning would work around on ramps/off ramps; and
- No attempt was made to quantify fuel/drag savings.





## Cooperative Truck Platooning Pilot Project

### Off-Road Goals:

- Much less focus on other motorists;
- Will it work on curved roads/On rough roads/terrain;
- Would GPS/Radar function correctly close to dense forest?;
- Will signal get confused with empty trailers;
- Where opposing traffic is much closer than on divided highways;
- No attempt was made to quantify fuel/drag savings;
- Long term goals: less about aero and much more about driver-less vehicles.







# Cooperative Truck Platooning Pilot Project

## Method - On Road

- Vehicles entered Ontario through Michigan;
- Vehicles were ferried through Ontario to Quebec;
- Final setup occurred at Blainville, TC Motor Vehicle Test Centre;
- Platoon headed towards Trois Riviere, Quebec City, then La Tuque, PQ;
- Used Autoroute 40, then 155 North with pilot/escort vehicles;
- Gradually decreased gap separation to approximately ~18 m;
- Target steady state speed of ~98 km/h;
- Two empty 53 foot van semi-trailers;
- Level one automation: longitudinal gap control only;
- Combination of TC drivers and Auburn drivers.



# Cooperative Truck Platooning Pilot Project

## Method - Off Road

- Single lane (1.5 total width) forestry road near La Tuque, PQ;
- Platooned for 100+ km;
- Various gap separations down to ~18 m;
- Target speed of 65 km/h;
- Level 1 automation only;
- Two empty stake trailers;
- Same tractors;
- Winter/off road tires;
- Conditions were: rainy!





# Cooperative Truck Platooning Pilot Project

## Results/Conclusions - On Road

- Most motorists kept clear of the platoon;
- But, many cut-ins as well;
- More cut-ins at longer separation distances;
- System was relatively stable;
- Some GPS loss of connectivity;
- System slow to boot up/reset;
- Drivers were generally comfortable and at-ease with the system;
- Cut-ins created some situations where system braking intervened.





# Cooperative Truck Platooning Pilot Project

## Results/Conclusions – Off Road

- All systems worked well;
- No issues platooning on narrow roads;
- No issues with on-coming traffic;
- No issues with empty stake trailer;
- More reliable at closer gap separation distances;
- Larger gap created system confusion on steep grades.







## **C.20c Cooperative Truck Platooning Stakeholder Workshop Meetings – Oct 23 and 24<sup>th</sup> 2018**

### **Description**

- First time ever in Canada hosting such a forum;
- Assembled all major sectors in one room for two days discussions;

### **Participants**

- BC, Alberta, Saskatchewan, Manitoba, Ontario, Quebec were all in attendance;
  - Federal government;
  - Municipal governments;
  - Freight carriers;
  - Others such as Hwy 407;
  - Keynote technical speakers who have done extensive RD and D; and
  - Legal and Policy analysts.
- TC to review comments and concerns and develop a 'Top 5' list of relevant projects to test the safety, efficiency and acceptance of platooning in Canada.



# Cooperative Truck Platooning Stakeholder Workshop Meetings

## Topics for Further Discussion/Testing/Funding

1. Cut ins, mixed traffic, public perception;
2. Braking, stopping distances, discs vs. drums;
3. Winter conditions, road curvature, sensor technology in freezing rain;
4. Aero research particularly in cross winds with larger vehicle gaps which could reduce expected drag reduction;
5. Driver fatigue/driver distraction/increased wages/reduced ROI due to other expenses;
6. Standards for V2V messaging protocols;
7. Platooning with dangerous goods;

## Next Steps

- TC-ETV to incorporate these concepts into the FY 2019/2020 funding ask for creation of relevant RD projects.
- TC-MVS to circulate proposal later this year for developing national safety guidelines for cooperative truck platooning trials.



# Cooperative Truck Platooning Pilot Project

## Next Steps

- Ongoing discussions for a Summer 2019 on-road trial;
- Possible configuration as follows:
  - Saskatchewan is interested;
  - Three tractor-trailers;
  - Lightly loaded (i.e. some payload);
  - Level 1 automation with some Level 2.



**THANK YOU!**

**Questions?**

