

Leveraging Truck Traffic Data from Mechanistic-Empirical Pavement Design to Support Other Transportation Engineering Decisions

NATMEC 2010

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Seattle, Washington



- Truck traffic exposure
- Manitoba MEPDG project: key results
- Leveraging inputs in other contexts
 - Environment
 - Safety
 - Regulation
 - Bridges
 - Charging
- Concluding remarks

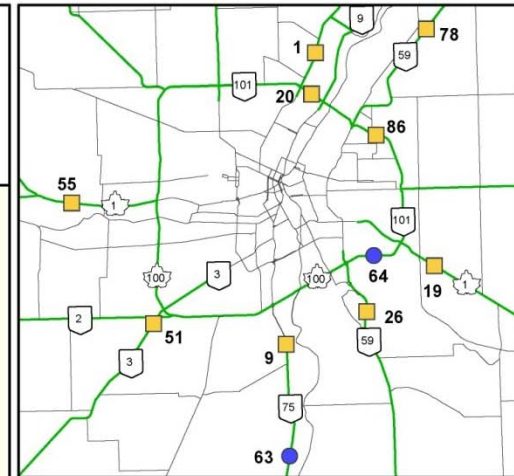
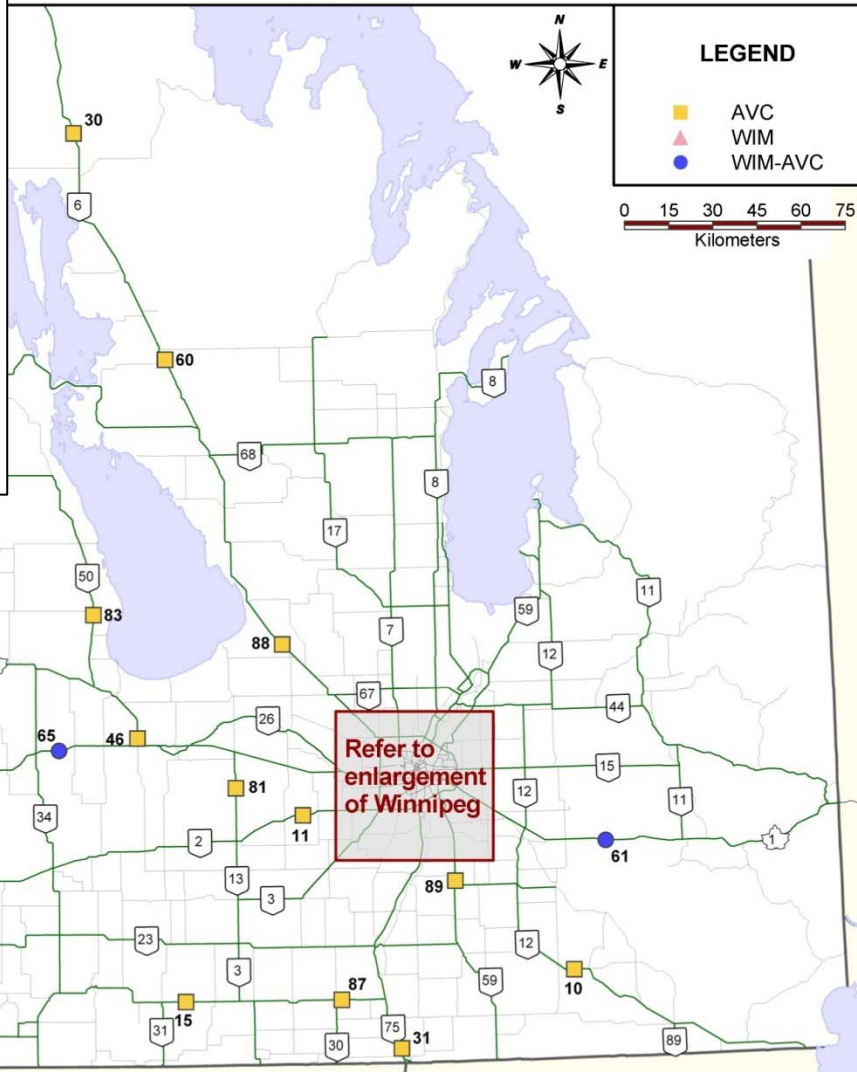
Truck Traffic Exposure Indicators

- Inputs for MEPDG
 - Volume
 - Class distribution
 - Directional and lane distributions
 - Temporal distributions
 - Speed
 - Axle load spectra
 - Axle configurations
- Data hierarchy

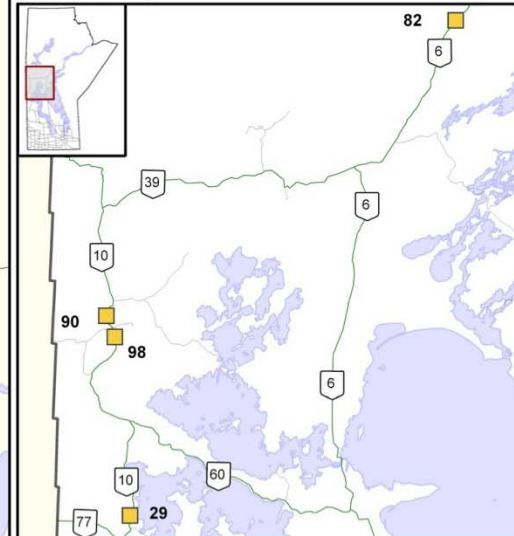
Truck Traffic Exposure Impacts



Manitoba MEPDG Project: Data Sources



Enlargement of Winnipeg
(Not to Scale)

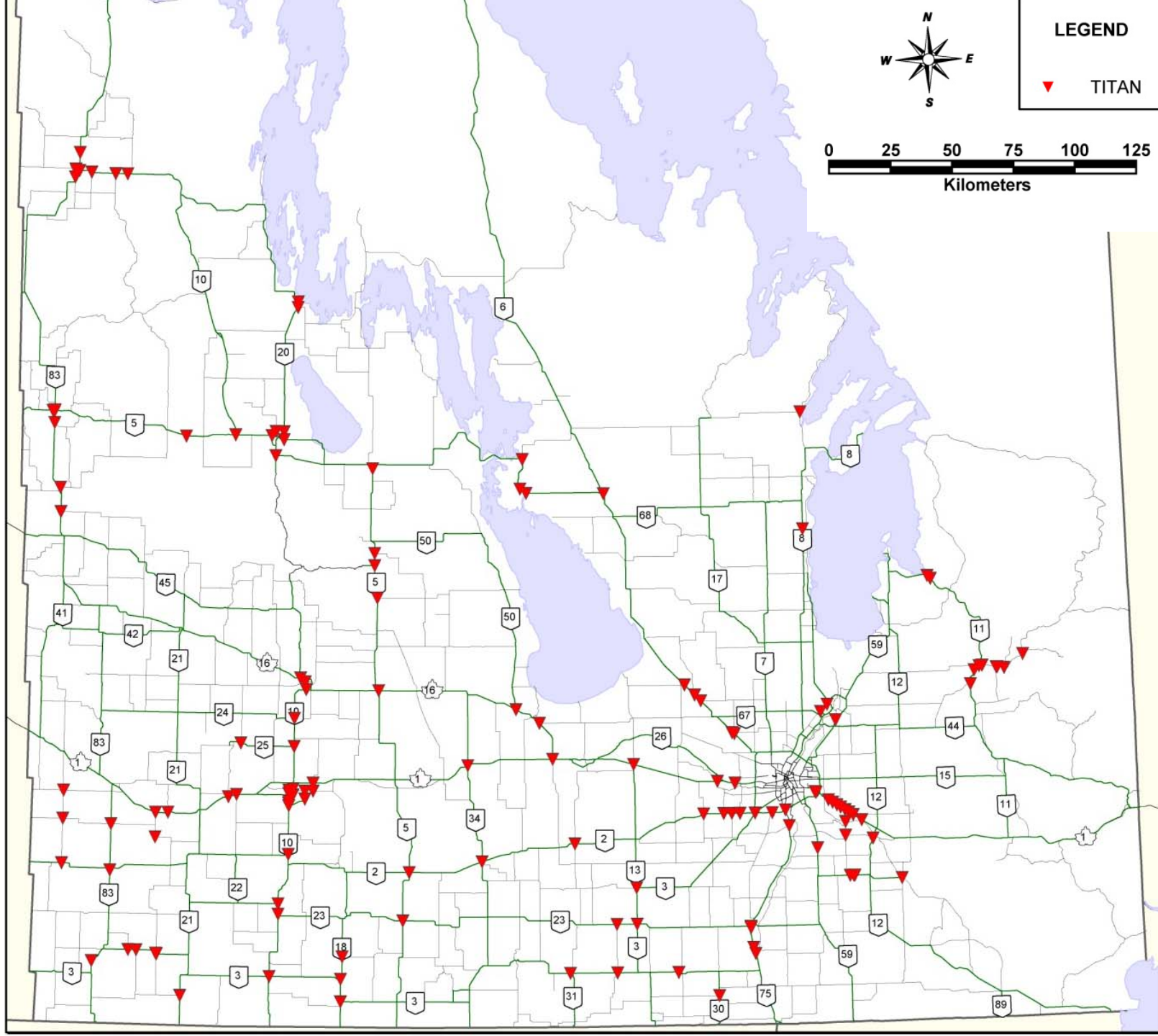
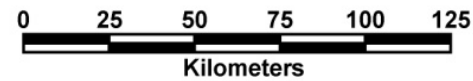


Northern Manitoba
(Not to Scale)



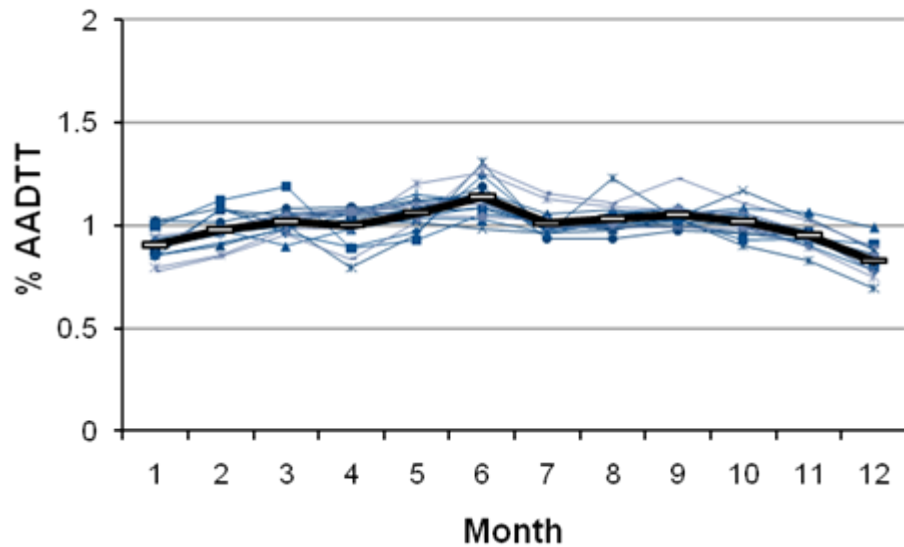
LEGEND

▼ TITAN

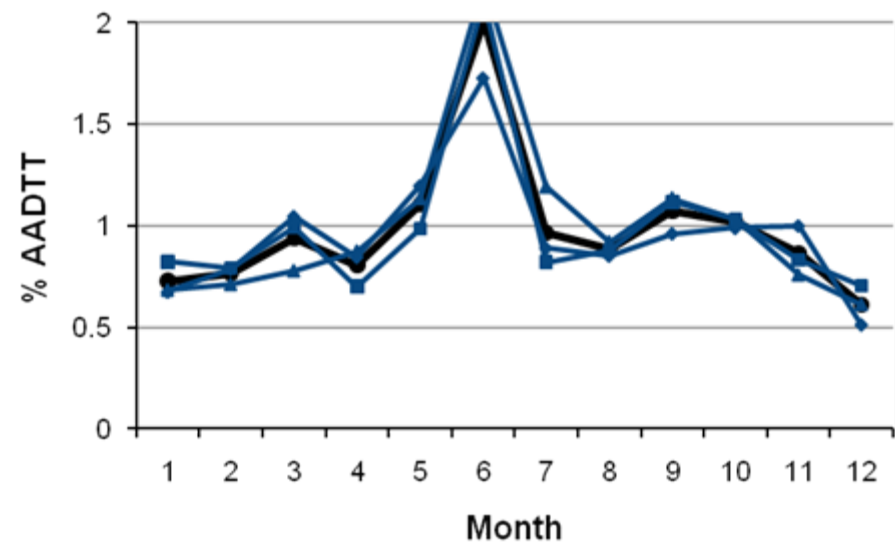


Manitoba MEPDG Project: Temporal Factors

Single Trailer Trucks Group 2 Monthly







Single Trailer Trucks Group 5 Monthly

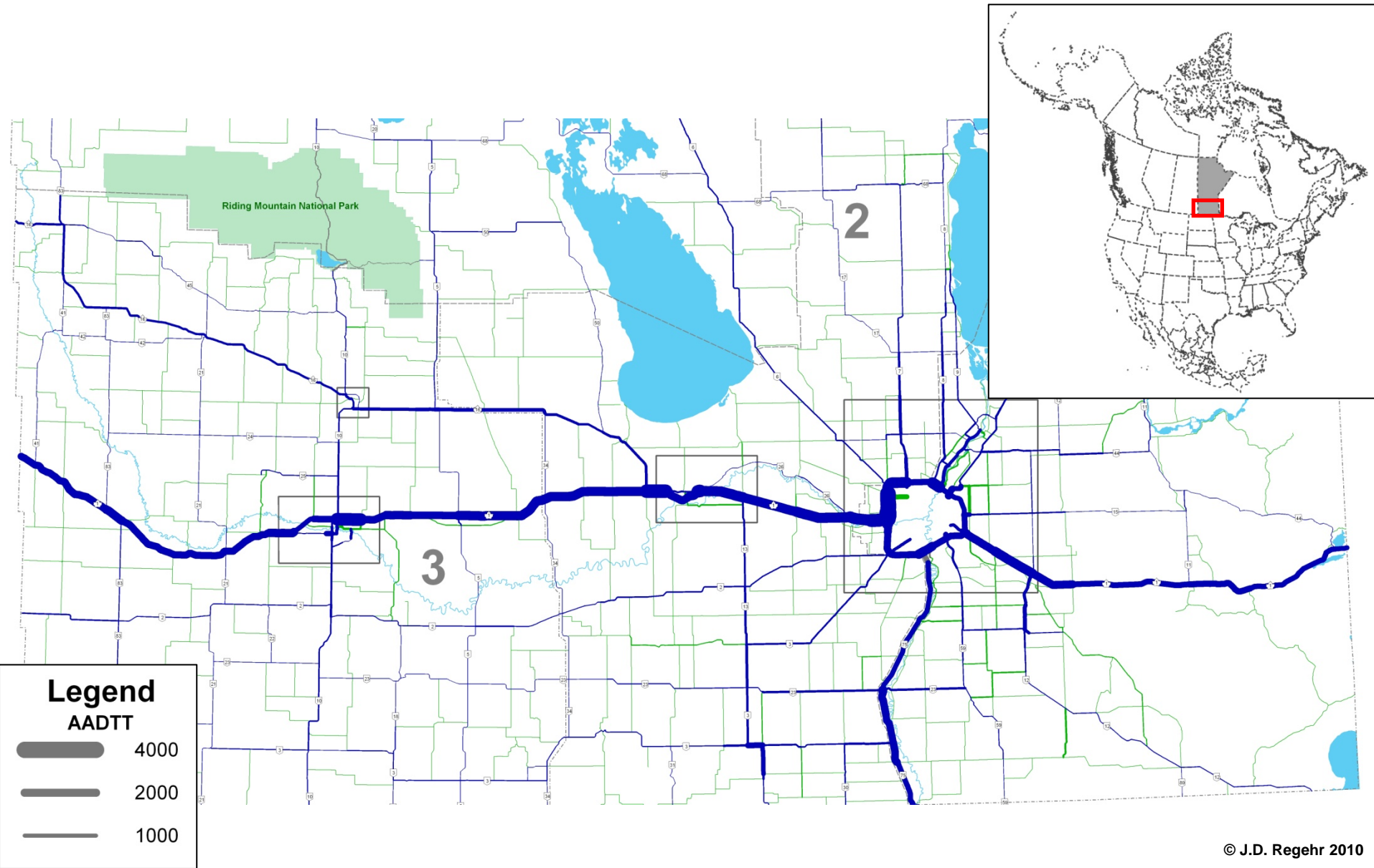


Manitoba MEPDG Project: Class

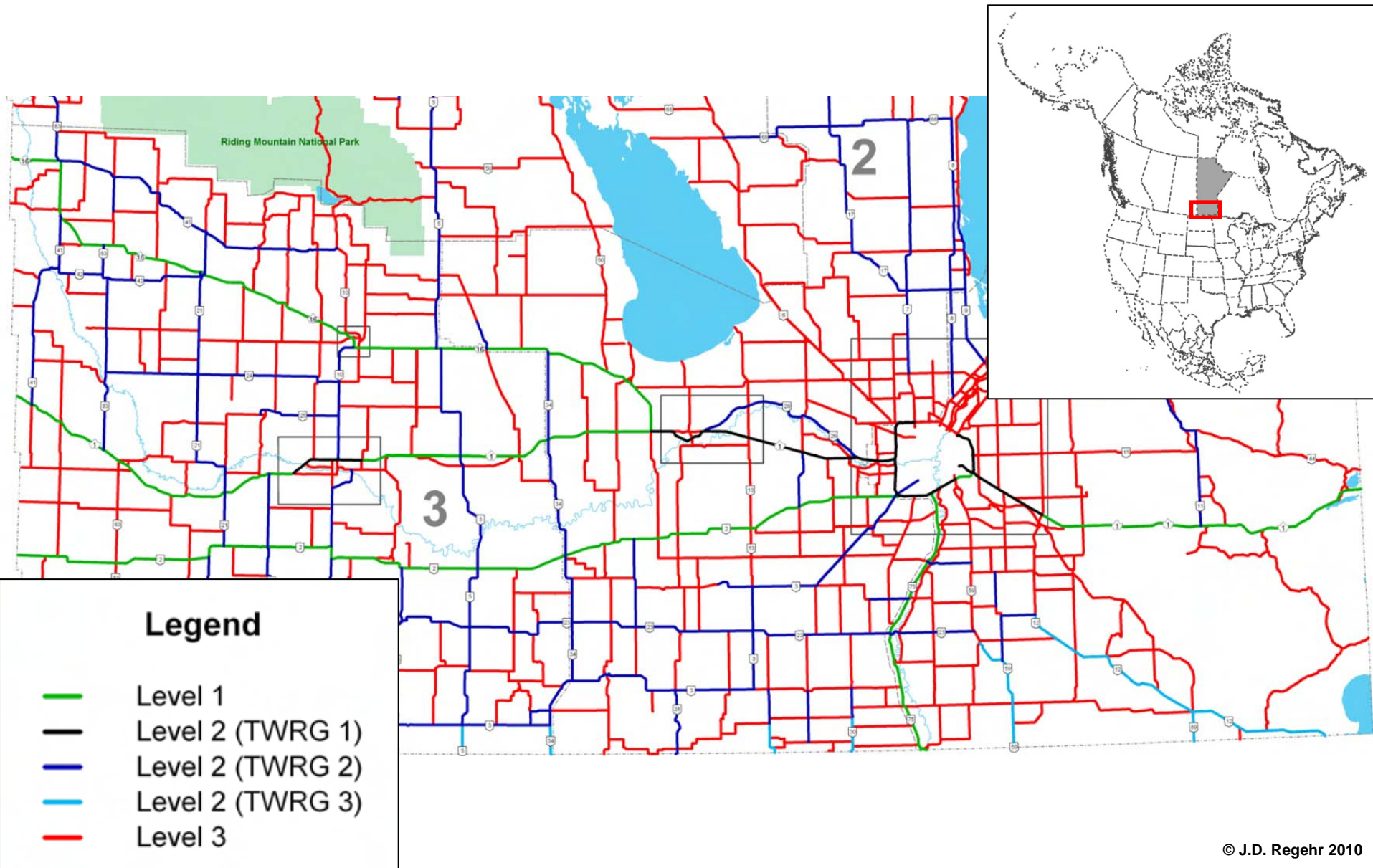
Average Percent by Vehicle Class

TTCG	5-7	9	10	13
				
1	35	35	17	7
2	9	51	20	14
3	21	29	22	21
4	19	16	13	45
5	13	33	14	31
6	10	69	9	4

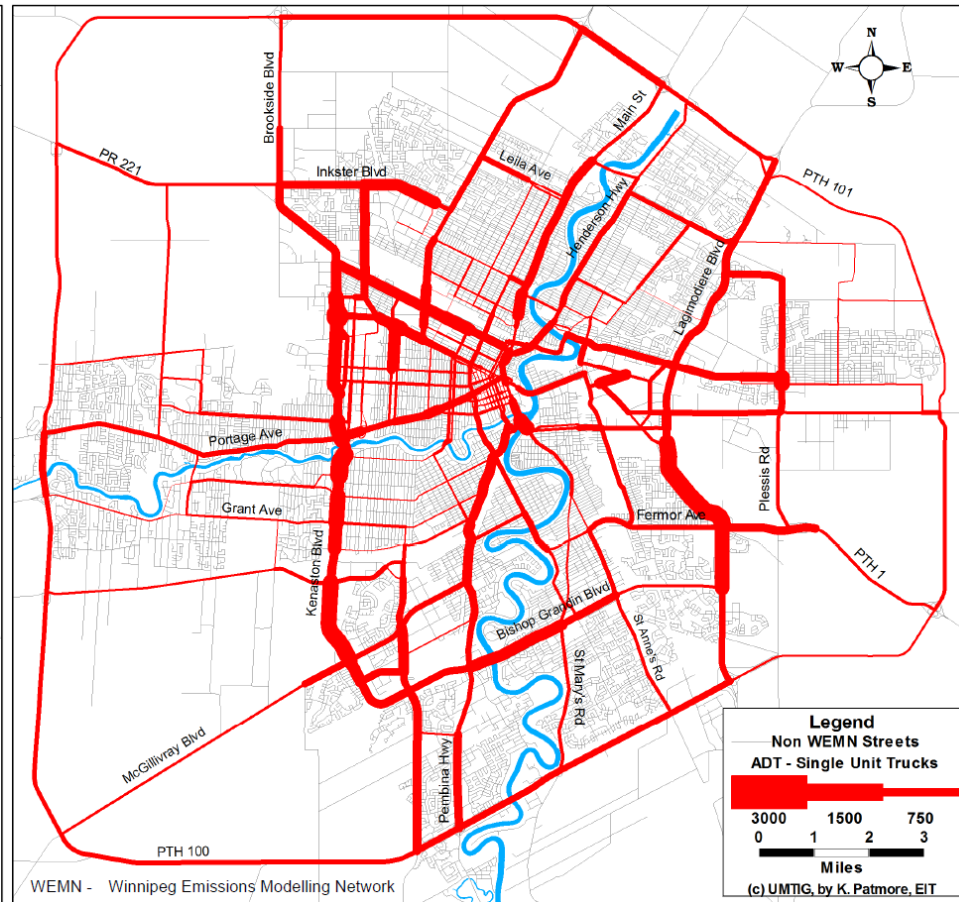
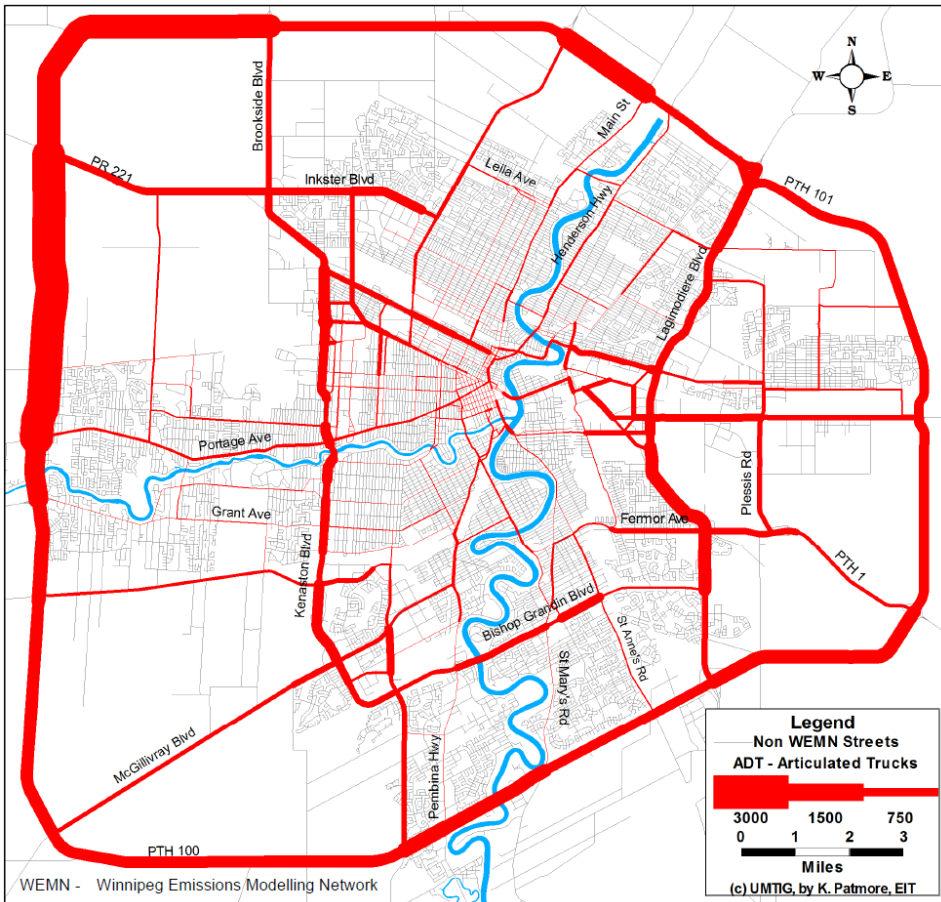
Manitoba MEPDG Project: Volume








Manitoba MEPDG Project: Weight



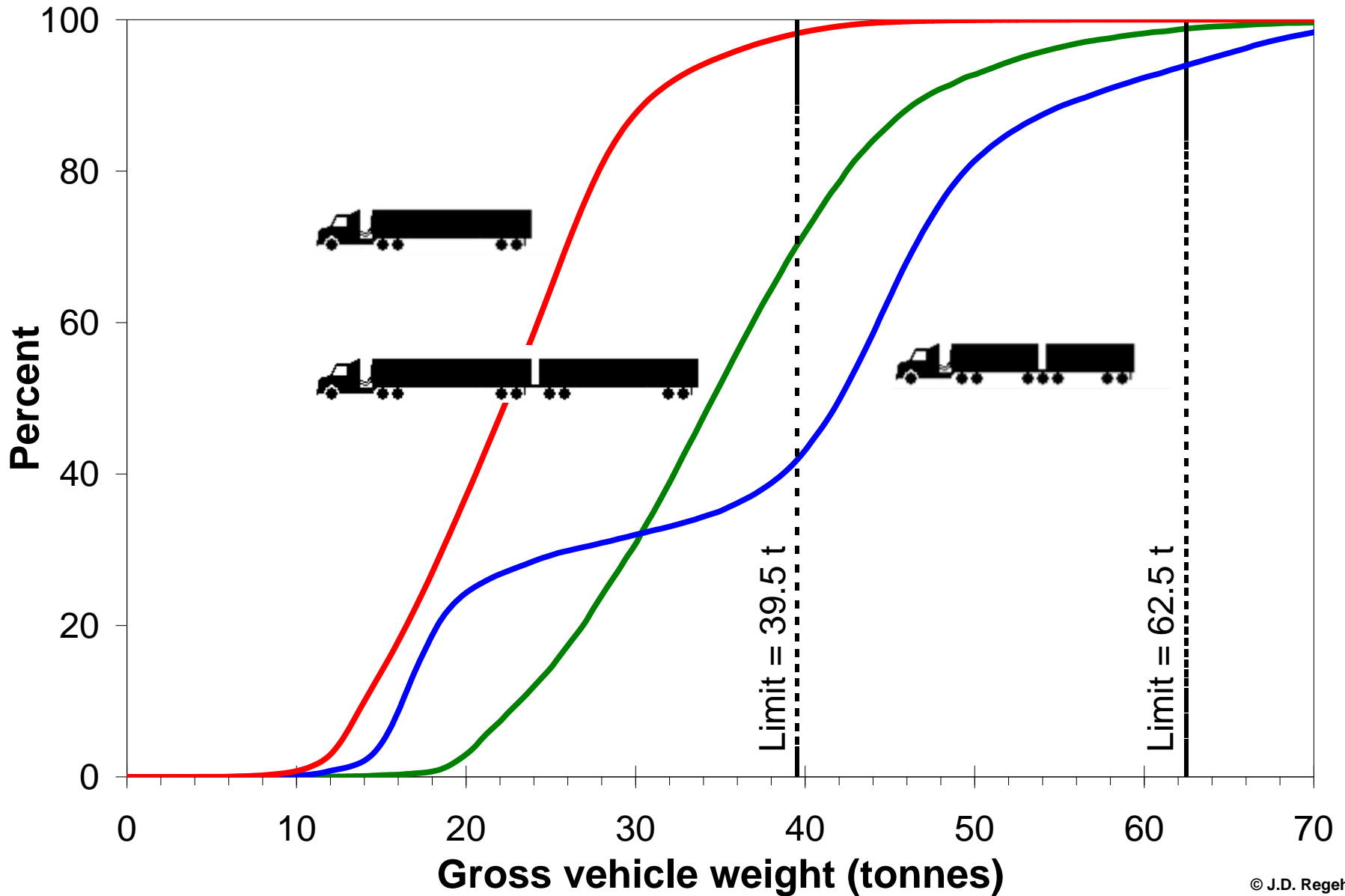
Context: Environment



Context: Safety

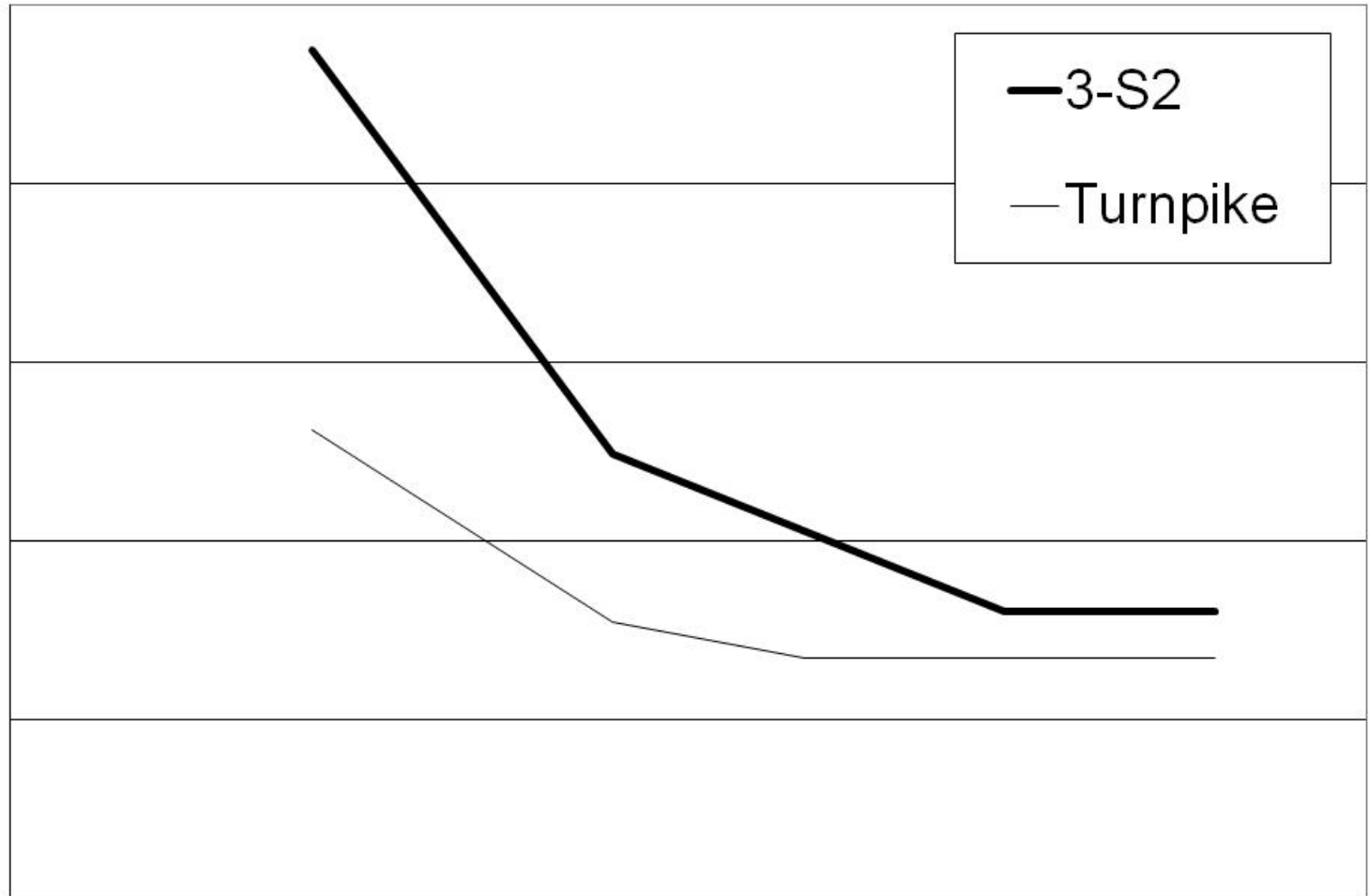
Truck type	Collisions	Exposure (vehicle-distance of travel)	Collision rate
			
			
			
			
			

Context: Regulation and Bridges



Context: Charging

Cost per payload tonne-km



Freight density

Concluding remarks

- Use local/regional data
- Estimate system-wide inputs
- Advertise and share the data
- Transparency about data limitations
- Understand the analysis contexts

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