

City of Winnipeg Road Signing and Amber Light Issues



By: Christian Sweryda

Traffic Engineering & Policy With Winnipeg's Photo Enforcement Program



Winnipeg first established its photo enforcement program in 2002. The program includes intersection cameras and mobile photo enforcement units.

Intersection Cameras



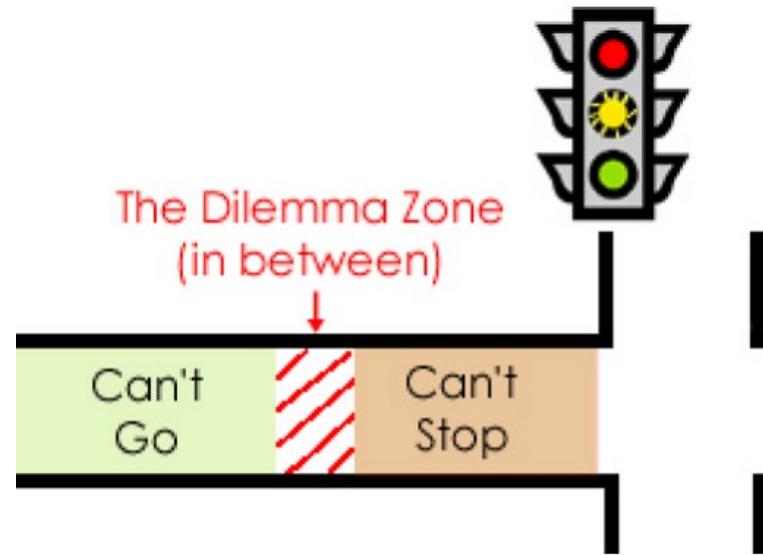
Winnipeg has 52 stationary cameras. The cameras enforce red light and speeding offences at signalized intersections.

Red Light Violations - Yellow Timing

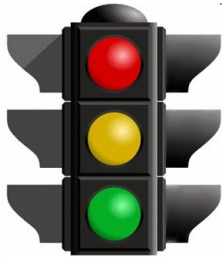


Proper calculation of an amber time is based on three variables: Intersection width, speed limit and grade.

The Dilemma Zone



A yellow signal must allow a motorist to either come to a stop or proceed into an intersection before the red. Improper timing creates the dilemma zone. This is the zone where drivers are unable to come to a stop or clear the intersection before the red light.



Proper Timing



Proper amber times are calculated by engineering formula. Below is the formula used by the city of Calgary.

$$I = \underbrace{\left[tpr + \left(\frac{v}{2a + 2gG} \right) \right]}_{\text{Amber Period}} + \underbrace{\left[\frac{(Wc + L)}{v} \right]}_{\text{All-Red Period}}$$

Total Clearance

a = average deceleration rate (3.0 m/s²)

tpr = perception/reaction time (1.0 sec)

G = grade (downhill is negative) (%/100)

g = gravitational constant (9.81 m/s²)

v = posted speed (m/s)

$Wc + L$ = clearing distance (m), Wc measured from the stop line to far crosswalk line on the other side of intersection; if no crosswalk, use distance to projected face of curb, L is the length of clearing vehicle, $L = 0$ if width of crosswalk is used or $L = 6$ if no crosswalk is used

Higher Speed = More Time

It is a proven engineering fact that timing must be based on intersection design and speed. Higher speeds must have more time. Winnipeg is now using a universal 4.0 second amber which is inadequate for many higher speeds (80 zones). After the arrival of photo enforcement, Winnipeg shortened its yellow timing from up to 6.0 seconds to 4.0 seconds.

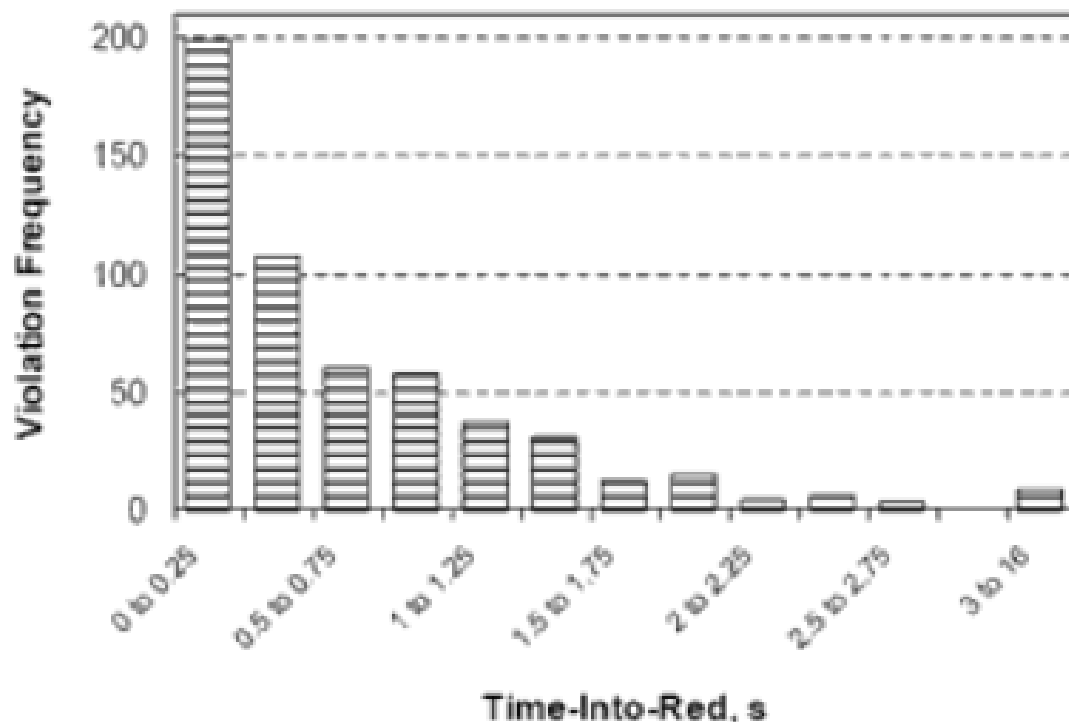
Across Canada

The table to the right shows amber times used in 80 km/h zones by major cities across Canada. Winnipeg does appear alone in using a 4.0 second amber in all speed zones.

City	Time
Toronto	5.0
Calgary	5.0
Ottawa	4.6
Edmonton	5.0
Mississauga	5.4
Halifax	5.5
London	5.4
Saskatoon	5.4
Regina	5.0

The proof is in the ticket counts. In 2010, Winnipeg cameras in 50-70 km/h zones issued 164 tickets/camera while cameras in 80 zones produced 979 tickets/camera. Unless Winnipeg's red light runners stick to driving in 80 zones, the problem is the timing and not the drivers.

Short Ambers Are Profitable



-1. Frequency of Red-Light Violations as a Function of Time-Into-Red

The above Texas Transport Institute chart shows approximate time into red violations. Even a split second reduction in amber duration can create huge ticket increases.

Short Ambers Are Dangerous

“Several crash-based studies report that setting change interval timing to values associated with ITE guidelines is associated with reduced risk of total crashes, injury crashes, and/or right angle crashes.”

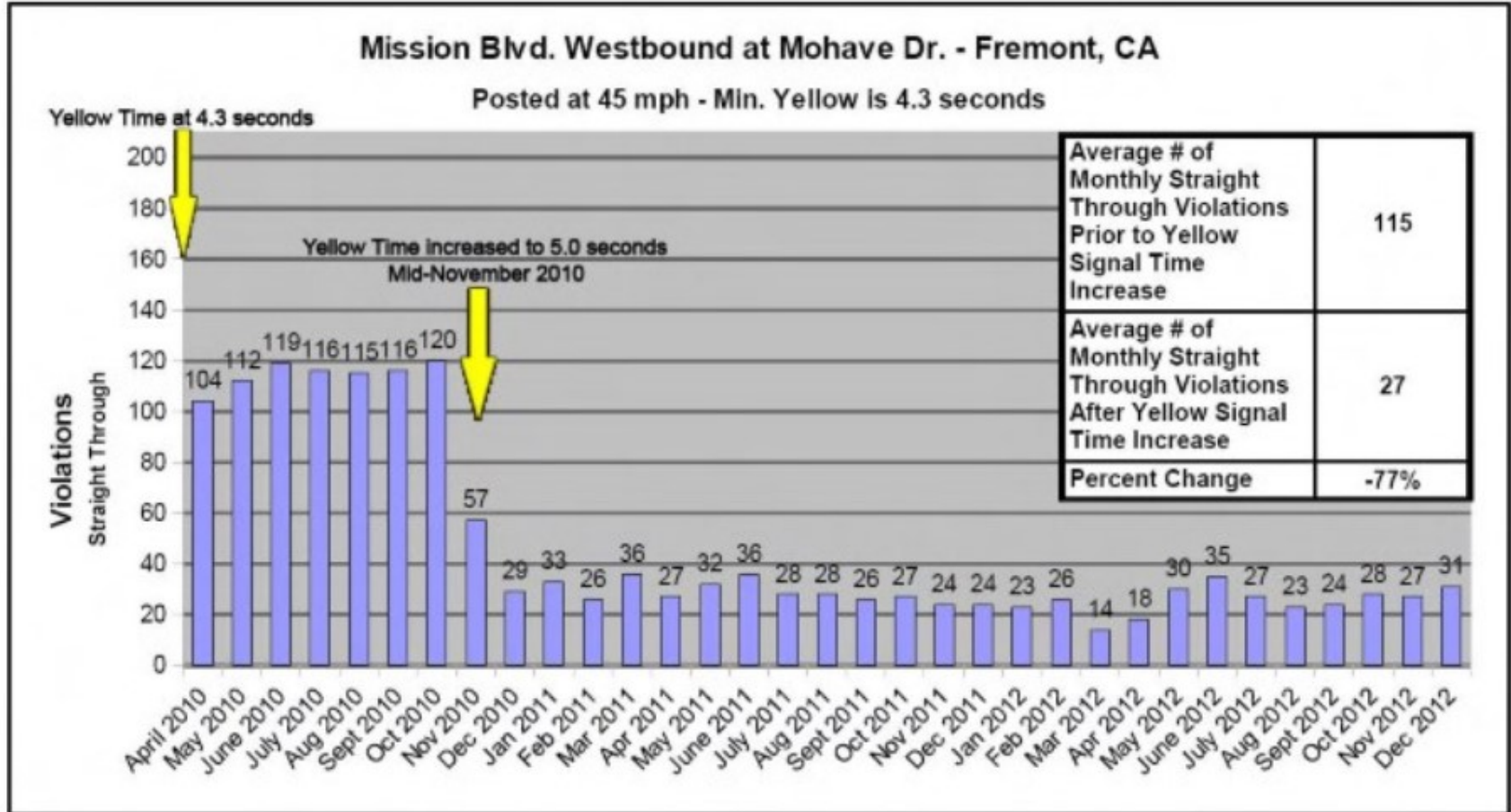
- National Cooperative Highway Research Program

Effects of Proper Timing

Mesa, Arizona	73%
Georgia	75%
Virginia site 1	79%
Virginia site 2	77%
Virginia site 3	Problem “virtually eliminated”
Maryland	Problem “virtually eliminated”

Eighty percent of red light violations occur during the first 1 second of the amber light and will disappear when the amber is timed properly. Winnipeg will not release their data to check this statistic locally. Above shows the decreases in violations at sites where ambers were extended. Quote: Adjusting Amber Lights.....”Would Ruin the Photo Enforcement Program” -Traffic Sgt. John Butcher, Oct. 30, 2001 Winnipeg Free Press

More Effects Of Amber Extensions





Warning Flasher Removal



There are many engineering measures that should be used before enforcement. One is Warning Flashers which also would mitigate the dangers of short yellow timing. Instead, Winnipeg has been removing pre-existing ones that were near camera locations.

Speeding (Numerous Locations)

Speeding is one of the highest contributing causes of collisions in Manitoba.

“An overall reduction in driving speed CAN and WILL make a difference” - WPS.

Higher speeds increase stopping distance, increases accident severity and reduces control - MPIC

What Is Speeding?

1 - Driving at an Unsafe Speed?

2 – Driving Faster Than The Number On A Sign?

Are Both The Same?



But Where Do Speed Limits Come From?

Speed Limits Should Be Set Near The 85th Percentile Operating Speed.

Is speeding still dangerous when limits are set below engineering standards due to politics?

But In Winnipeg...

Report Summary

Key Issues:

A radar speed study and a collision rate evaluation support the establishment of a 60 km/h speed limit on Grant Avenue between Stafford Street and Kenaston Boulevard and on Kenaston Boulevard between Grant Avenue and Academy Road.

The above is from a City of Winnipeg engineering report. So, why are Grant and Kenaston still 50 km/h and top enforcement hotspots?

Politics

DECISION MAKING HISTORY:

Moved by Councillor Steek,

That the administrative recommendation not be concurred in and that in the future, consideration of speed limits be referred initially to the Ward Councillor and if necessary to the respective Community Committee.

Carried

City council no longer allows engineers the ability to exam speed limits without political involvement. The above is a conclusion from the speed limit review.

What About Signing?

The most important part of preventing speeding is to properly post speed limits. Unfortunately, Winnipeg has numerous issues with signing related to:

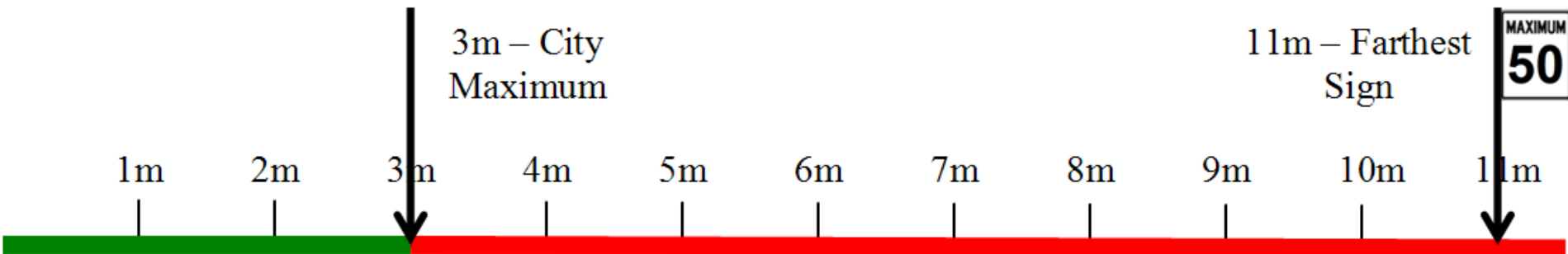
- 1 – Sign Placement
- 2 – Dual Mounting (Signing)
- 3 – Reflectivity
- 4 – Proper Maintenance



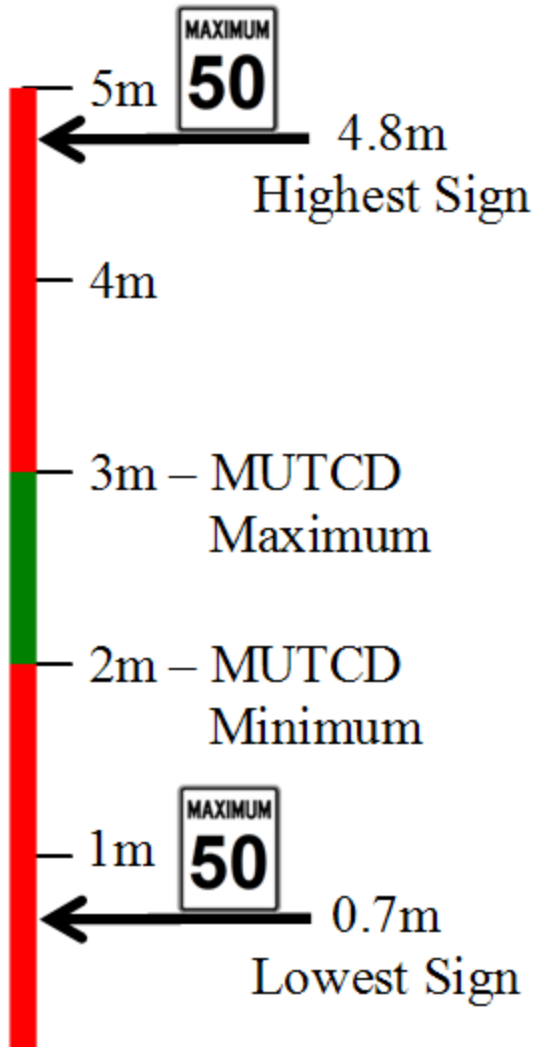
Horizontal Placement



Speed limit signs are very often found much farther off the road than permitted by the engineering manual.



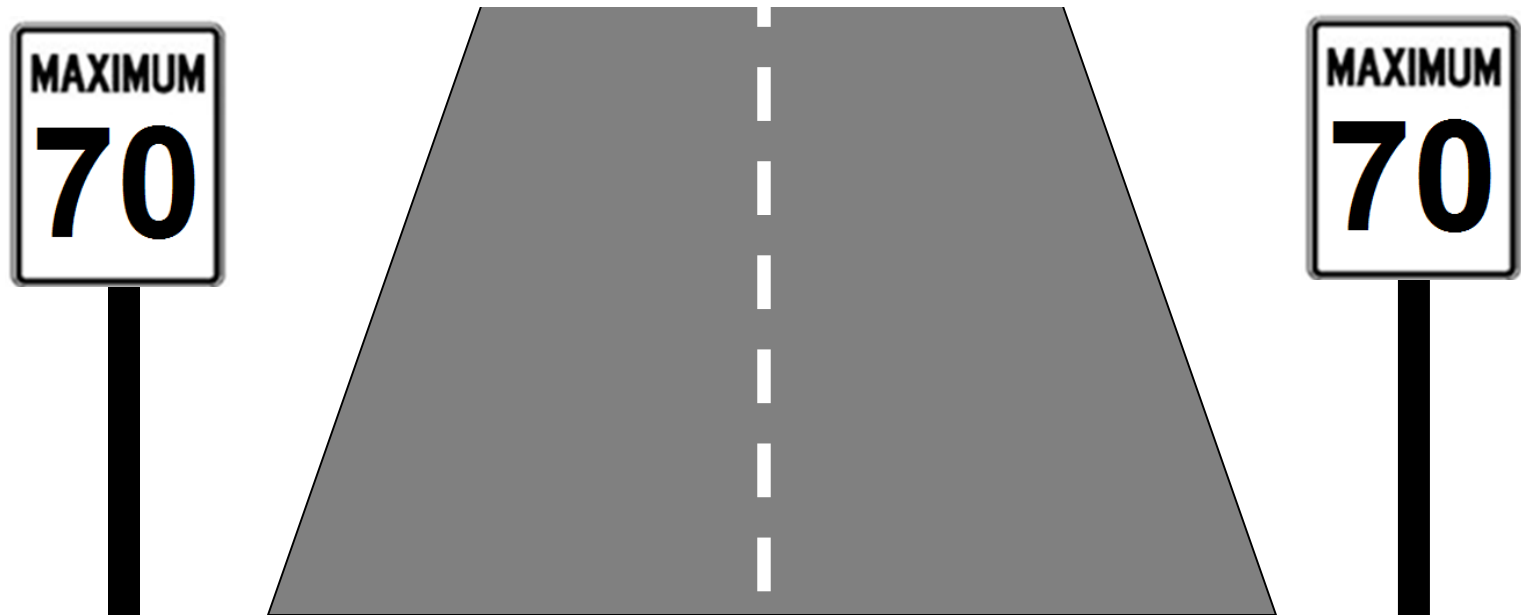
Vertical Placement



Signs at extreme heights will not fall within a driver's line of sight. The above are speed limit reduction signs and are not compliant with standards.

Dual Mounting

The standards manual states, “There are cases where it is advisable to place a second sign on the left side of the road to supplement the primary sign”. This practice consists of placing a second sign on the median of a divided or the left side of a one-way street.



Across Canada



All major western Canadian cities (except Winnipeg) have dual signed speed limit signs. This includes Calgary (above-right), Edmonton, Regina, Victoria, Vancouver Saskatoon (above-left). US traffic authorities will also dual sign speed limits. Dual signing is most common at speed changes, but most cities will do it on all large divided roads.

Now You See It



Now You Don't



Multiple Lanes



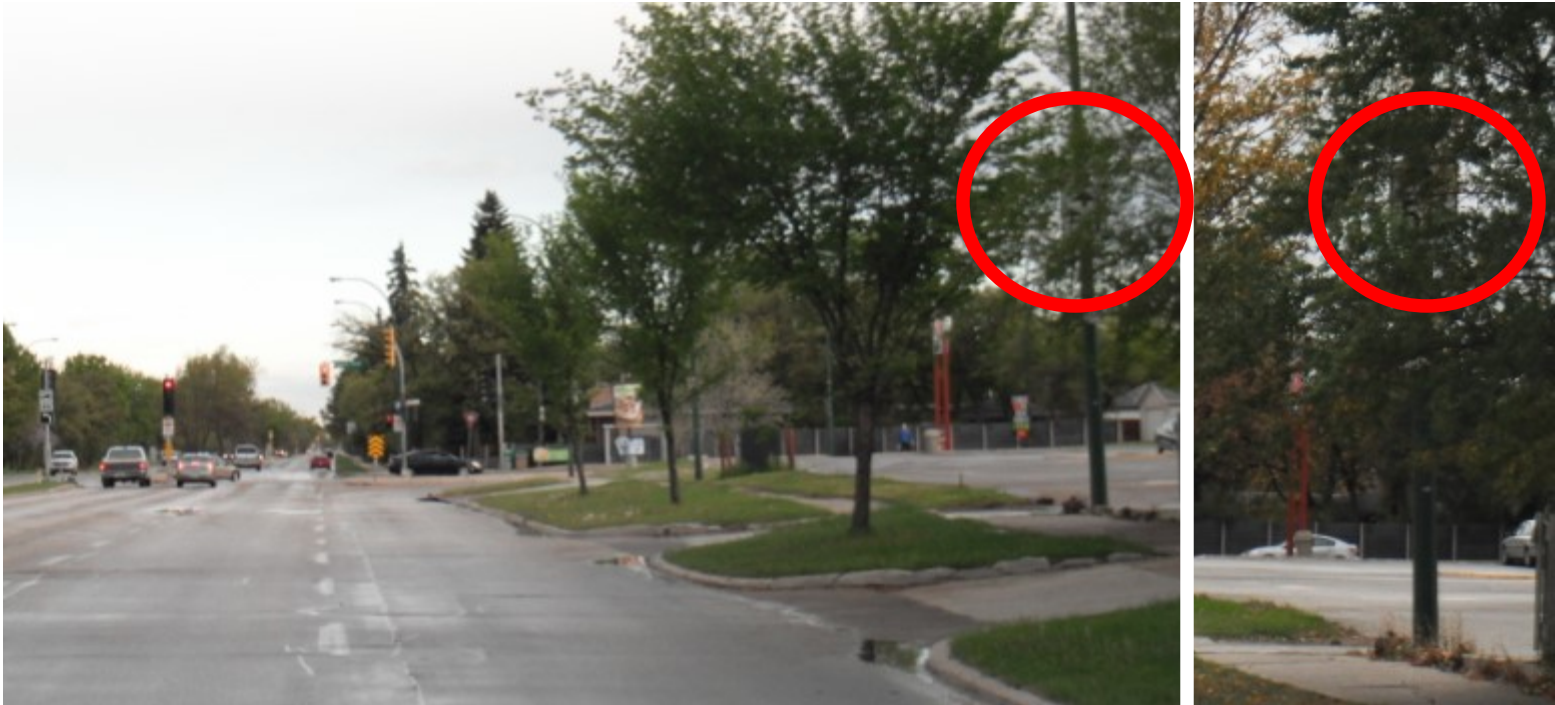
Not one speed reduction in Winnipeg is dual signed including NB Main at Assiniboine (above) which has four lanes of through traffic. This is before the most profitable speed camera at Logan. Winnipeg has 58 speed reductions on divided roads where dual signing should be done.

Other Signs in Winnipeg



For almost all other signs, dual mounting can be found for as few as one-lane of traffic (left) and most often for two.

Moray Example



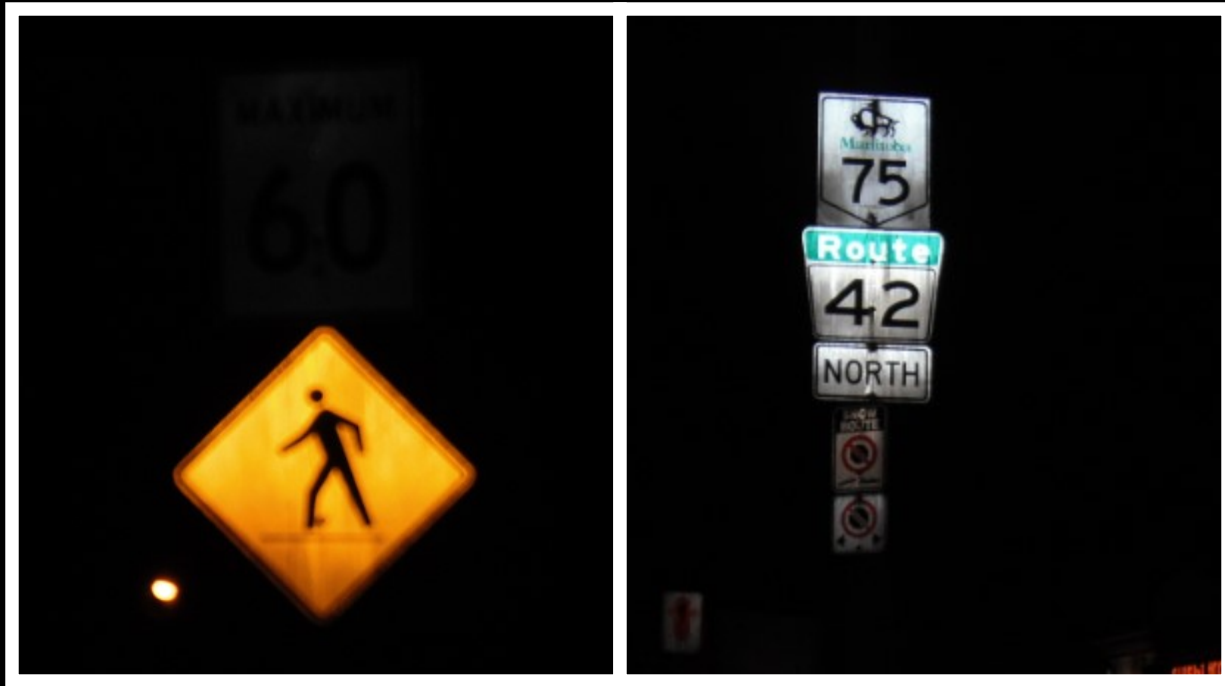
The speed reduction sign leading into a playground zone is hidden by trees. Also, the truck route markers are dual signed but the speed reduction is not. This location receives daily photo radar enforcement.

Reflectivity



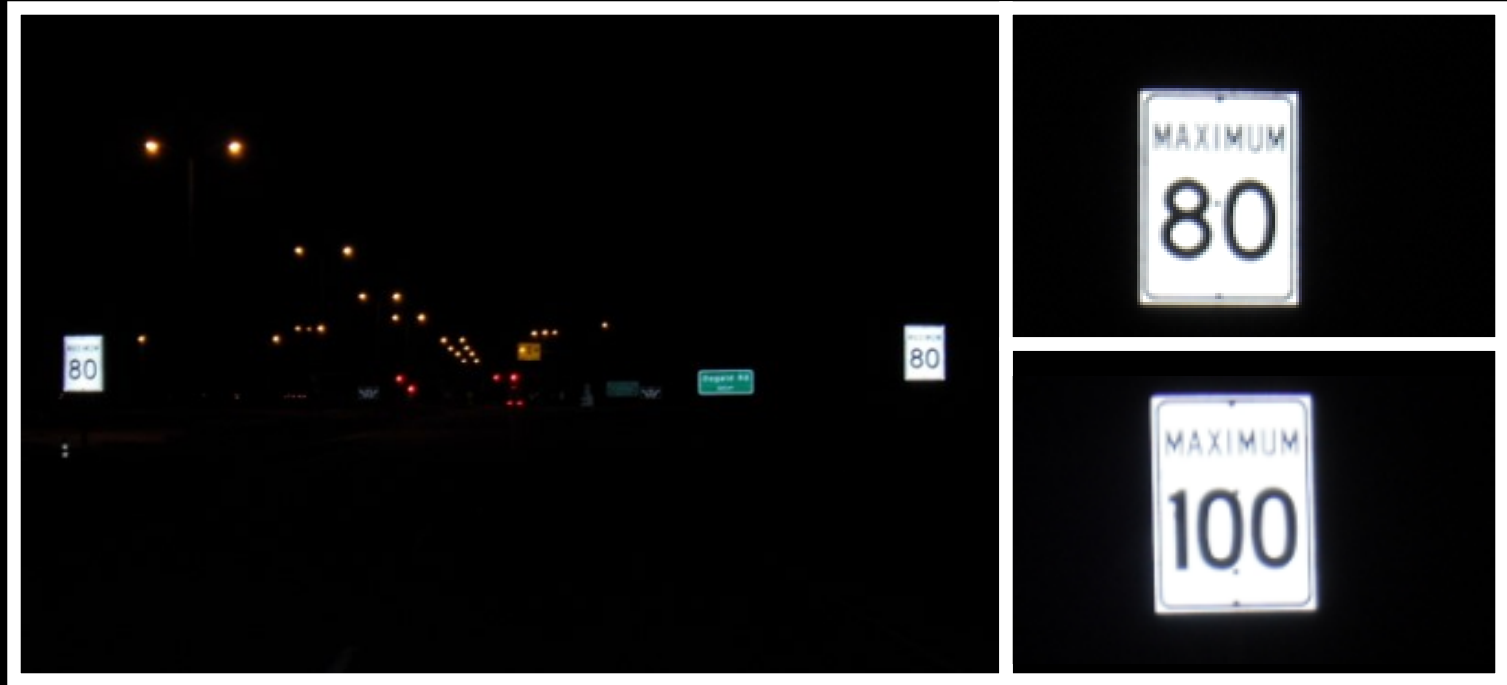
Some speed limit signs in Winnipeg have little to no reflectivity while other signs, often on the same pole, are fully reflective. The first two of the above examples were before photo radar locations that are used for night time enforcement.

Speed Signs With Other Signs



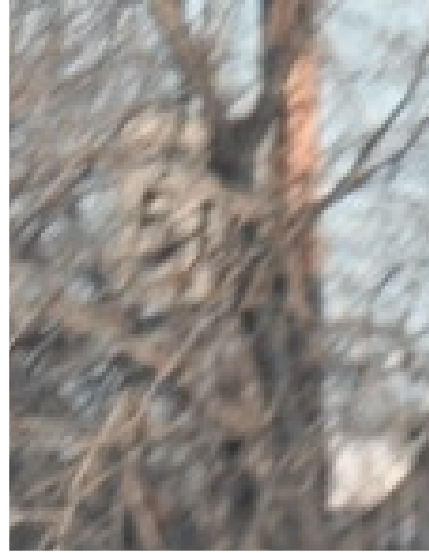
Speed limit signs should be as equally important as other signs. On many roads, every other sign is reflective except the speed limit sign. This includes route markers which serve very little safety purpose.

Provincial Signs



Signs outside Winnipeg are fully compliant with reflectivity standards.

Proper Maintenance - Winnipeg



Over time, untrimmed trees will grow to the point that signs are fully covered. Many signs will be left to lean on a 45+ degree angle for years. They eventually over and lay in the ditch for months before being stolen.



Brookside Example



The speed reduction sign on Brookside Blvd was reported missing to the city in June 2011. Despite repeated complaints to the city, the sign remained down. The problem was fixed in October when the province installed new signs.

Brookside Blvd After



With the city refusing to fix signing, improvements were made by the province. Once proper signing was installed, police moved to a new location and have not been seen since.

Speed Limit Sign Removal



In regards to the radar accuracy issue on Grant, Winnipeg Police stated that, *"They're still speeding like crazy. It's a big problem speed area. It's a huge complaint area. A lot of the people from all the residential apartment blocks phone us on a regular basis, saying they can barely get across the street at the crosswalk because of all the speeders."* Despite this, signs also got removed from Grant.

Sign Removal and Higher Speeds

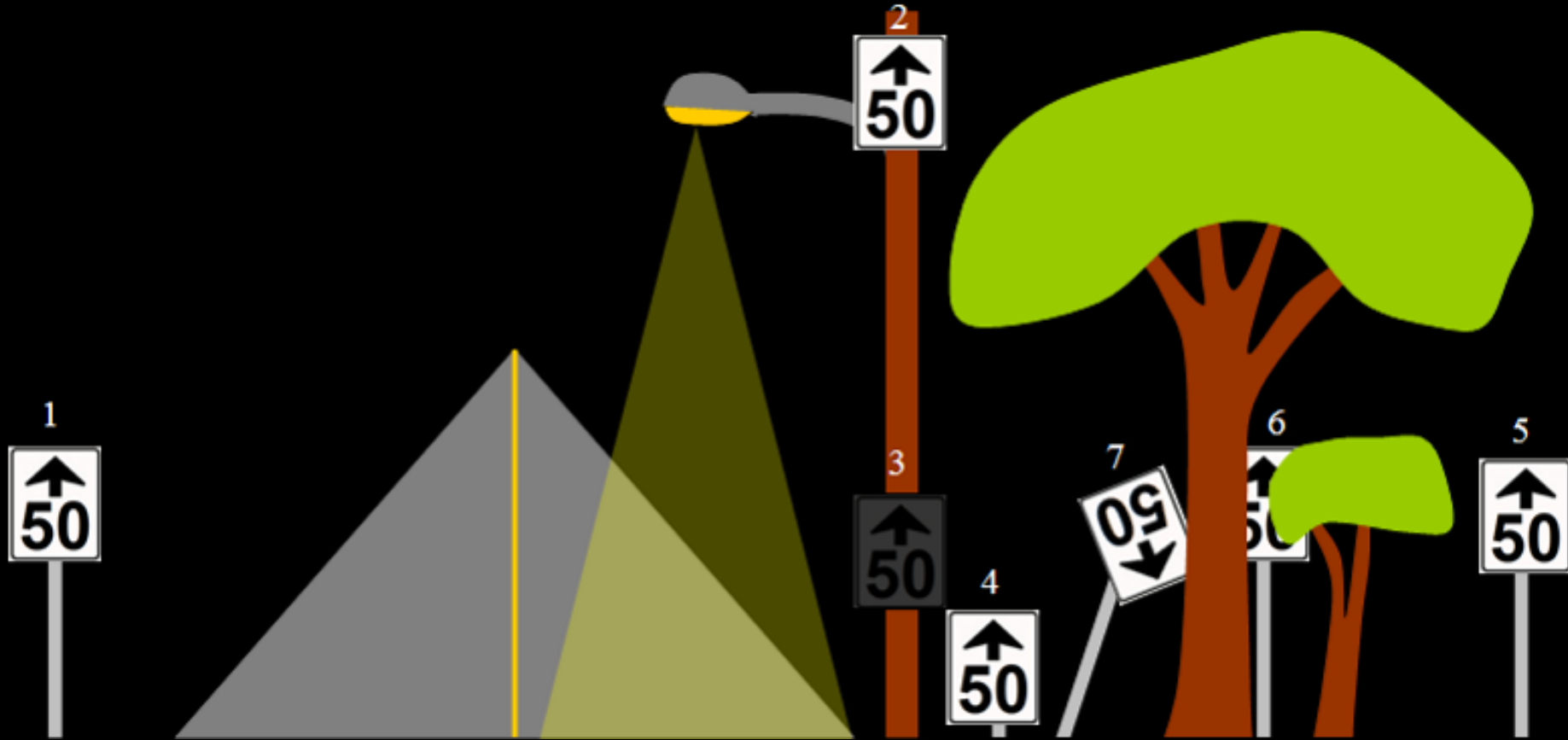


After starting the sign removal on 50 km/h roads, this project moved into higher speed zones. To date 110 signs have been removed including all that were added in front of photo radar cameras and many from photo enforced school zones.

Sign Removal in Progress



Courts and the Highway Traffic Act



What do all of the above signs have in common?

Court Rulings: Required Signage

'The Act [HTA] does not provide for the requirement of reduce speed signs' (Court of Queen's Bench)

'It's guidelines [engineering standards]. I'm satisfied that it's guidelines for the placement of signs, and there are no regulations that say they [Speed Limit Signs] have to be placed at a certain location' (Provincial Court)

Speed limit signs are *'not even required'* (Provincial Court)

Despite an implication in the HTA that signage must be proper, in reality, courts have consistently ruled that signage is not required.

Statistics

Intersection Camera Location	2012 Violations	2012 AWDT	Violation Rate
Regent Ave West EB at Madeline Street	1,835	13,300	0.138
Main Street NB at Logan Ave	3,433	30,300	0.113
Grant Ave WB at Wilton Street	2,073	24,300	0.085
Kenaston Street SB at Corydon Ave	2,738	45,500	0.061
Ellice Ave WB at St. James Street	996	18,400	0.054
Moray Street NB at Lodge Ave	445	12,900	0.035
Inkster Ave WB at Airlies Street	672	21,800	0.031
Hespeler Ave EB at Beatrice Street	608	25,800	0.024
Sargent Ave EB at Clifton Street	280	15,700	0.018
Isabel Street NB at William Ave	410	23,600	0.017
Balmoral Street NB at Sargent Ave	386	24,700	0.016
Provencher Ave EB at Alneau Street	383	27,400	0.014
Academy Ave EB at Stafford Street	267	22,300	0.012
Salter Street SB at Mountain Ave	106	13,900	0.008

Using enforcement data compared to traffic flow, we showed 400% more speeding after speed reductions on 50 km/h roads. The city's response was...

City's Response

The City of Winnipeg claims that Winnipeg does not have enough crashes to warrant fixing speed limit signs to national standards.

Most significantly, the City is not aware of increased traffic collisions as a result of traffic signing practices and that the complainant has not provided any such evidence for consideration by APEGM.

But it gets better...

City's Use of The Law

Winnipeg has not denied that signing is improper but claims it is acceptable because there are no laws mandating proper use signage.

What is seminal for your consideration is that this approval is specific to the design and dimension of traffic control devices but does not extend to the application, placement, positioning or any other aspect of the MUTCDC. Accordingly, neither the HTA nor the Regulation require adherence to anything other than the design and dimension requirements for traffic control devices in the MUTCDC.

It was further claimed by the city that speed limits are politically set so exceeding them is not a major safety concern...

The City's Latest Response

In defence of its signage practices, the city wrote to the Association of Professional Engineers that:

Speed limits in Manitoba, including the City of Winnipeg, are established by a committee of non-technical people appointed by the Provincial government and authorizations for City speed limit requests are provided by a committee of City Councillors. For this reason, "speeding" is not considered a major safety concern as it relates to a maximum speed, not necessarily established based exclusively on engineering principles.

According to MPI documents (see attached), distracted driving, following too close, actions of wild life and backing unsafely are most likely reasons for collisions to occur than speeding.

If speed were the reason motorists are involved in collisions, then there would be no roadways with high speed limits.

Manitoba's Fine Amounts

Manitoba Vs. Canadian Average Fine Amounts

Amount Over	Can. Average	Manitoba Amount	Difference
10 km/h	\$98.26	\$181.50	185%
20 km/h	\$127.28	\$312.25	245%
30 km/h	\$179.12	\$442.75	247%
40 km/h	\$234.28	\$573.50	245%
49 km/h	\$269.62	\$692.00	257%

Manitoba has the highest fines in Canada. The fines increased dramatically one year following the introduction of photo enforcement for an offence that the city claims is not enough of a major safety concern to warrant adequate signage.

Mobile Photo Enforcement Units



Winnipeg has 10 mobile photo enforcement units that enforce speed limits in school, playground and construction zones.

Construction Zones Before 2008



Speed limits in Manitoba Construction zones were '60 When Passing Workers' and fines were doubled only when workers were present.

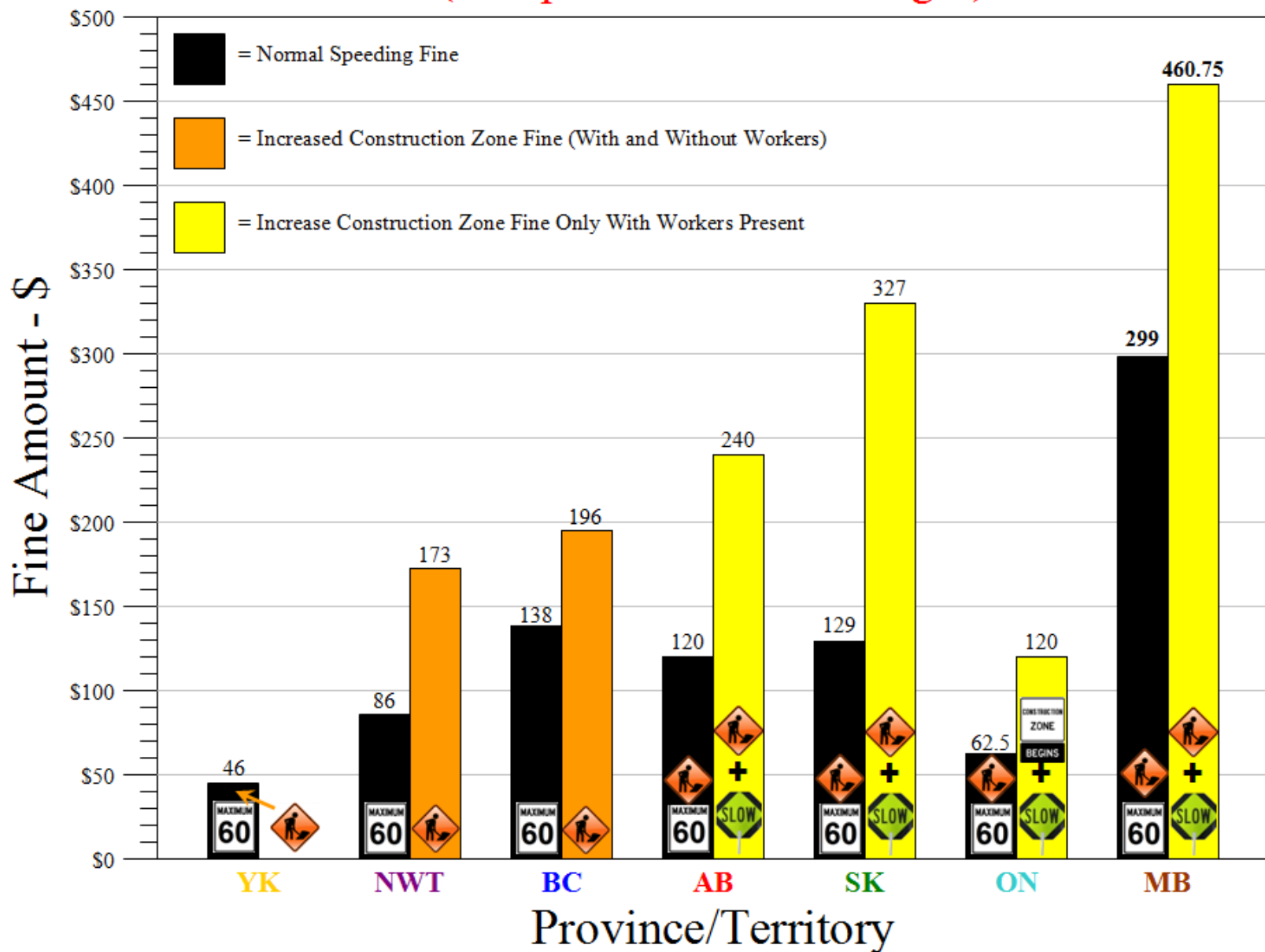
Photo radar did not enforce these limits since they only applied when workers were present. Police issued about 25 tickets/year.

2008 - Speed Limits Now Lowered Without Workers



In 2008, Winnipeg lowered speed limits 24/7 in long term construction zones (projects lasting more than a day). Photo radar began enforcing these limits only when workers were not present. This tripled the ticket volume but without workers, the fines were not doubled. Photo radar never issued a single ticket for speeding with workers present.

2013 Fines By Province - 19 Km/h Over (Comparison Before Changes)



2014 Changes – Brittany's Law



In 2010, a young flagger was killed after being hit by a vehicle. After the driver was acquitted of dangerous driving in 2013, a new law was passed in her name called Brittany's Law which was claimed to bring double fines for speeding in Manitoba's construction zones.

WINNIPEG FREE PRESS ARCHIVES

Brittany Murray was killed while on the job in October 2010.

The Response

According to headlines, Brittany Murray was killed by a speeding driver. This brought the response of higher fines and a claimed crack down on construction zone speeding.

Manitoba cracks down on construction zone speeders

By [The Canadian Press](#) — [The Canadian Press](#) — Nov 15 2013



WINNIPEG - The Manitoba government has announced plans to crack down on motorists who speed in work zones, three years after a speeding driver crashed into and killed a young construction worker

What Really Happened

According to the trial transcripts and the Health and Safety report, contributing causes of the crash that killed Brittany were:

- Wearing ear buds despite a prohibition.
- Running on the highway in front of oncoming traffic.
- Inadequate road signage.

Speed Limits Increased With Workers



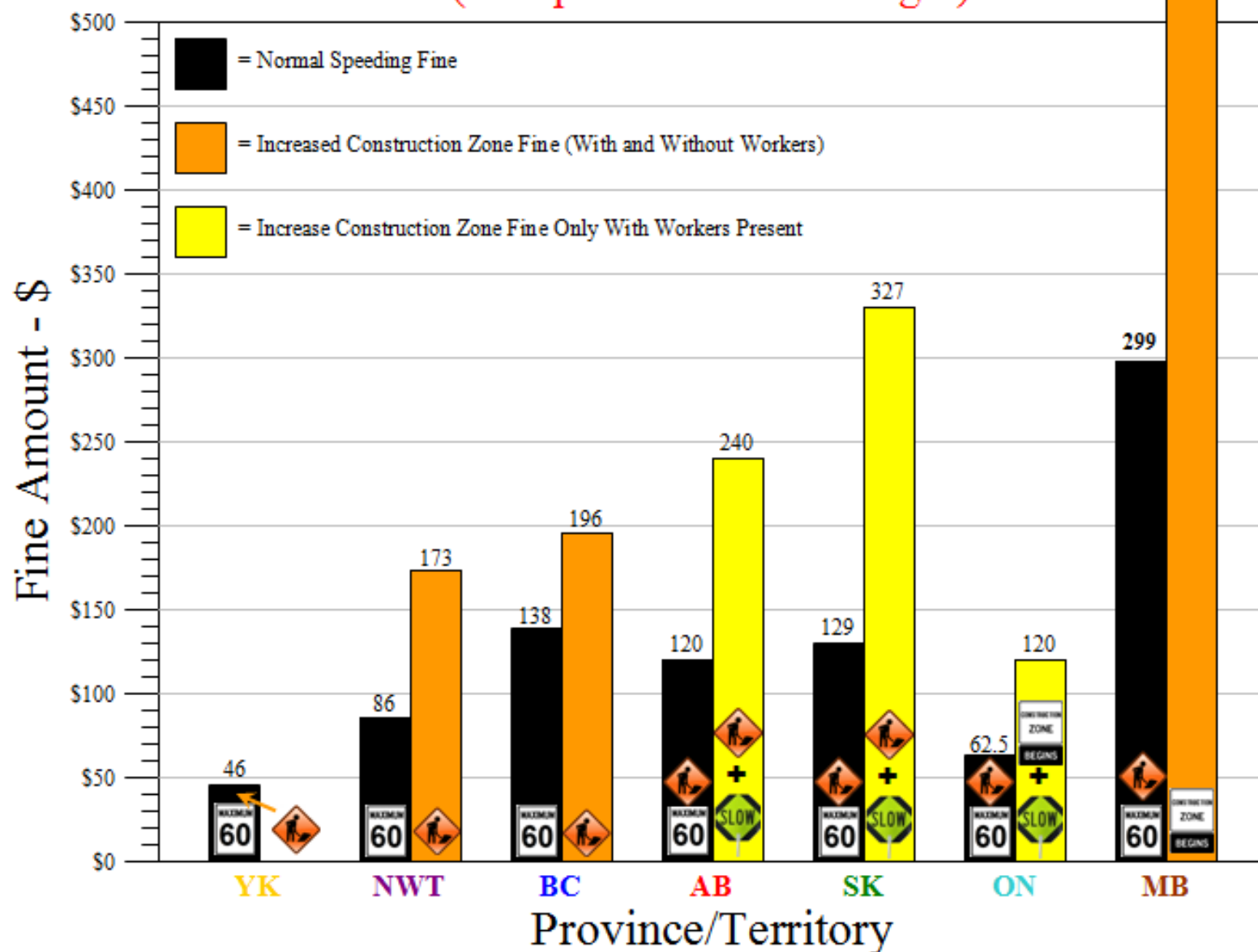
Under Brittany's Law, speed limits are now full 80 km/h and the fines are reduced in most zones for speeding with workers present.

Speed Fines Doubled Without Workers



Speed limits are still reduced without workers present (since 2008), but now the fines are doubled.

2014 Fines By Province - 19 Km/h Over^{548.25} (Comparison After Changes)



Brittany's Law's Supporters



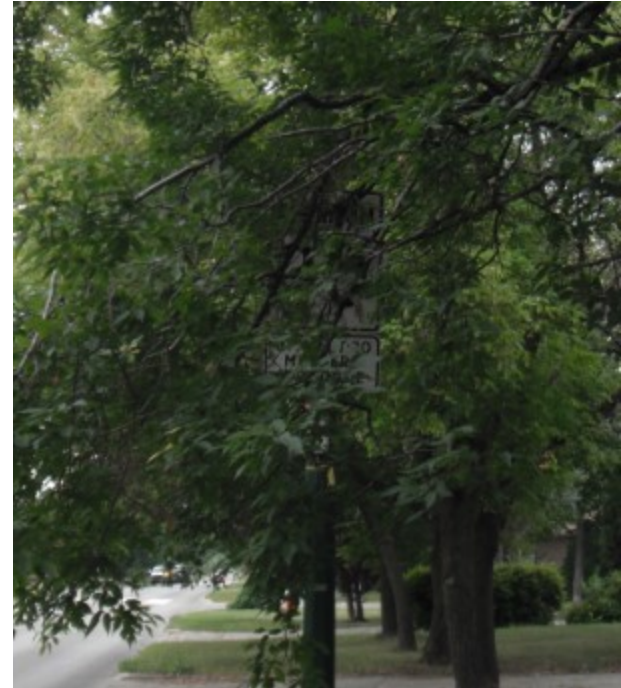
Construction groups showed widespread support for this law. This is despite the fact that it eliminated a part of Manitoba's already inadequate signage requirements in construction zones, raised speed limits in many zones with workers present while lowering fines in about 95% of active work zones just to raise them in the small subset that were photo enforced without workers.

School Zones - Creation of New Zones



Winnipeg did not have school zones at high schools and only created them in 2002; the year photo enforcement arrived. These new zones greatly increased the number of photo enforceable areas. Other cities such as Edmonton and Calgary still do not have school zones at high schools.

School Zones – Reduced Speeds



In 2014, Winnipeg lowered the speed limit in school zones to 30 km/h without any engineering basis. When inadequate signage in school zones was addressed, it was claimed to not be a safety concern because the reduced speeds were “just political”

Winnipeg School Zone Sign Presence



Many (166) of Winnipeg's school zone signs are missing and have been for over 3 years. Traffic on Concordia WB has no sign advising of the upcoming school zone at London Street.

Protests Have Had Little Success



The above location was only signed after a protest, national coverage and then a crash at another unsigned location followed by a letter to the Free Press. Almost all others are still unsigned. Only 5 of 206 signs were replaced (only at the location that media used as the example).

National Post & Global

When Signs Are Present, Obstructions Are Common



Dual Signing at Schools and Playgrounds



Many school and playground zone signs are not dual signed. The left picture is from a major arterial (regional) road that has daily photo enforcement. The picture on the right is a residential street with no enforcement.

Many Signs are Missing While Enforcement Continues



The median sign on Henderson Hwy has been missing for over two years despite repeated attempts to have the sign fixed. The speed sign is also missing at this location and has seen greatly increased enforcement after the signs went missing.

Playground Zone Signs - Reflectivity

When signed, many playgrounds have non-reflective signs. Photo radar targets these for night time enforcement; especially if the speed signs are also not reflective.



Double Dipping



When photo radar finds a good spot, they often double dip by issuing multiple tickets over as little as 1 block.

Summary Of Changes Under Photo Enforcement

- 2002 – Creation of High School Zones
- 2004 – Raising of Manitoba's Fine Amounts
- 2008 – Lowering of Speeds in Workerless Cst. Zones
- 2009 – Sign Removal at Intersection Cameras
- 2011 – Use of Inaccurate Radar on Grant
- 2013 – Reducing Speed Limits in School Zones
- 2014 – Doubling of Const. Fines Without Workers
- 2017 – Eliminating Many Driver's Rights in Court
- 2018 – Abolishing the Citizen's Speed Limit Oversight Board

This is on top of exploiting inadequate speed limits, signage and yellow signal timing from the start of the program.

Other Types Of Enforcement – Front Plates



When police can't ticket for speeding due to road conditions, they ticket for other offences such as not having a front plate. Even people who have just had an accident are targeted.

Enforcement for Obstructed Plates



Cell Phone Enforcement At R/R Crossings



Random Stops & Check-stops



One of the most common tickets given at a check-stop is to a driver who doesn't have their license on them which in no way is a dangerous offence.

Vehicle Inspections



One of the most common charges during vehicle inspections is for low washer fluid.

McPhillips and Inkster



The mandatory turn for the right lane on McPhillips SB at Inkster is heavily enforced by police. This location only gives 25 m of advance warning for the upcoming lane drop which is just over 1 second for traffic traveling at the speed limit.

Other Locations



Other locations similar to McPhillips and Inkster give drivers up to 800 m of advance warning. The normal is usually around 100-150 m.

Overhead Signs



Many locations have overhead signs as well as side mounted which is encouraged by the engineering manuals.

Sign Quantity



Every intersection with turn control signs has anywhere from one to four signs. Four signs is excessive and one is under signed. Police are most commonly found at the under signed locations.

Enforcement



The part-time no left turns at the intersection of Empress NB and SB at Ellice are heavily enforced by police. Unlike other intersections, the near side signs required by city policy and advance signs are missing.

Non Enforcement



The intersection of Ellice WB at Berry uses a near side no left turn sign and has an advance warning sign.

Right of Way Control



Stop signs should be reserved for intersections with high volumes, sightline obstructions or high collision rates. Otherwise the basic right-of-way rule applies or a yield sign can be used. This is the national standard and practice in other cities such as Saskatoon (above).

Overuse of Stop Signs



In Winnipeg, all un-signalized intersections have stop signs with a huge number being all-way stops. This creates unnecessary delay, increased driving speeds (drivers making up lost time), disrespect for stop signs, and more enforcement opportunity.

Conclusion



If the city wants more safety and lower costs, it should invest in more and proper signs. Compare the cost of a sign to the cost of a police cruiser team. Use the speed traps as a means of identifying signage problems.

Signing Mistakes - Examples



Route Marker Confusion



The route marker first said “South” but was on the northbound direction. When informed, the city made a point by putting “North” on upside down. It took a complaint to the province to get it fixed.

Lane Closure Problems



Forcing People To Disobey The Sign



Sign should be a keep right with left turn allowance. Left turning traffic is forced to disregard the sign and risk a ticket.

Crosswalk Ahead Sign With No Crosswalk



The city meant to install a playground zone sign but often mixes them up with crosswalk signs so the different signs are used interchangeably.

Incorrect Truck Route Signs



The above sign incorrectly says that the McPhillips Street Casino Parking Lot is a truck route.

Signing Conflicts



Some locations have two conflicting signs posted. Although yield and merge signs should never be posted on the same right turn channel, some locations are signed like this.

Overuse of Yield Signs



Many locations that are obvious merges or even have a lane added, are signed with yield signs. This restricts traffic flow, creates confusion, and generates disrespect/non-compliance at actual yield locations.

Missing Merge Signs



Many merge locations have no sign. The Pembina Hwy overpass at Bishop has four onramps to Bishop from Pembina. All four are merges, but only one was signed. The one that was signed had three signs, not one of which was in the location where it should have been.

One-Way Streets



One-way signs are necessary to indicate streets where only one direction of travel is permitted but many are unsigned.

Truck Route Marker Pointing Wrong Way Down Unsigned One-Way Street

