Resident Submission to Mississauga City Council

for: July 31, 2024 Council Review
Approach #5 vs Approach #6*
Mississauga Bloor St. - Redesign Project

BLOOR ST
Road-Diet Crash-Lane* Implications for Resident Safety

NO APPLICABLE INDUSTRY CRASH-RISK CASE STUDIES

TO RESPONSIBLY JUSTIFY:

ROAD-DIET-CRASH-LANE APPROACH
PLUS
RISK PROFILE OF MISSISSAUGA'S BLOOR STREET

Dan Anderson, resident Ward 2
July 23, 2024

Subject:	No Applicable "Road-Diet-Crash-Lane" Industry Crash Risk Studies (re: upcoming July 31 Council Review)
Date:	Tue, 23 Jul 2024 21:19:06 -0400
From:	Dan Anderson
To:	Bloor St residents etc (bcc) <justresident@bell.net>, John Kovac - Councillor Ward 4 <john.kovac@mississauga.ca>, Chris Fonseca - Councillor Ward 3 <chris.fonseca@mississauga.ca>, Dipika Damerla - Councillor Ward 7 <dipika.damerla@mississauga.ca>, Stephen Dasko - Councillor Ward 1 <stephen.dasko@mississauga.ca>, Carolyn Parrish - Mayor of Mississauga <mayor@mississauga.ca>, Natalie Hart - Councillor Ward 5 <natalie.hart@mississauga.ca>, Martin Reid - Councillor Ward 9 <martin.reid@mississauga.ca>, Joe Horneck - Councillor Ward 6 <joe.horneck@mississauga.ca>, Brad Butt - Councillor Ward 11 <brad.butt@mississauga.ca>, Matt Mahoney - Councillor Ward 8 <matt.mahoney@mississauga.ca>, Alvin Tedjo - Councillor Ward 2 <alvin.tedjo@mississauga.ca>, Sue McFadden - Councillor Ward 10 <sue.mcfadden@mississauga.ca>
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July 23, 2024

To: Bloor St Residents etc (bcc)
Mississauga Council Members

Cc: Commissioner Wright
others, as indicated
Paige Peacock

re: <u>No Applicable "Road-Diet-Crash-Lane" Industry Crash Risk Studies</u> (re: upcoming July 31 Council Review)

During the June 23, 2023 General Committee meeting, at 2:29:20 in the meeting video, Councillor Kovac referenced the basic accident risks associated with the road-diet-crash-lane approach in the context of the risk profile of Bloor St.. (also at elapsed time of 4:25 in the summary annotated video at https://www.youtube.com/watch?v=WOOXTRViPFQ).

Those concerns have **<u>not</u>** been resolved and Council members and residents have been provided only with unsubstantiated assurances.

As part of the July 31 Council review of the approach to be taken for the Bloor St project (approach #5 vs #6), a key consideration would seem to be the lack of supporting industry case studies for the road-diet-crash-lane approach #6, and the potentially serious safety risk implications for residents.

For purposes of the July 31 Council review, and In the absence of transparent disclosures by Commissioner Wright, **<u>please refer to the attached pdf critique of comments as provided recently by the "City Advocate" on the Bloor St project</u>**, regarding applicable research reports and assumed accident frequency-severity implications for residents along Bloor St.

The attached also contains a section referencing **<u>various cautions</u>** noted in the research literature regarding the road-diet-crash-lane implications.

Best wishes,
Dan

<u>attached</u>: "2024-07-23 - critique of City Advocate re safety risk factors for Bloor St.pdf"

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(related distribution emails dated June 2, June 4, July 7 and July 18 2024 were included)

No Applicable "Road-Diet-Crash-Lane" Industry Crash Risk Studies (issue #3)

The following anonymous comments by a City Advocate are provided in the context that Commissioner Wright has refused, and/or is unable, to have staff publicly provide "road-diet-crash-lane" industry case studies that take into account the safety risk profile of Bloor St.

1. **City Advocate's Anonymous Social Media assertions May 27-29 2024 re Bloor St Project**
2. **Critique of road-diet-crash-lane industry studies identified by City Advocate.**
3. **Addendum - Some cautions as noted in road diet research studies**

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1. Quoting from City Advocate's Anonymous Social Media assertions May 27-29 2024

From: https://www.reddit.com/r/mississauga/comments/1d1ahd0/mississauga_bloor_st_bikecycle_and_car_lanes/

The context for the comments below was specific to Mississauga and specific to the Bloor St project. The City Advocate provided comments anonymously through social media.

Resident Advocate:

> "... focusing on 'safety' by means of obstructing traffic and creating crash-zone lanes is problematic in the context of the lack of an overall coherent structure (e.g. public transit options that do not themselves obstruct the one-lane traffic) ... and doing so by fully disregarding the views of affected residents, including those who are faced with backing out of their driveways into the middle "crash-zone" lane. Alternative #5 DOES make the road safer (the argument of speed reduction with narrower lanes) AND makes it safer RELATIVE TO the crash-zone lane approach, while also providing a safer bike pathway."

City Advocate:

> "... the goal is to discourage car traffic. Discourage car traffic that the road and community was not designed to handle. I'll remind you, the Bloor Street Corridor has peoples' driveways (and schools) open up to it. "
> "... the goal of this project is not principally to benefit cyclists ... Alternative #5 ... is not a road diet and it provides pedestrians no physical protection from cyclists." ...
> "Providing bike lanes (was) more a means to an end, as well as an added bonus."
>
> "... collisions are reduced in road diet corridors primarily by replacing a travel lane with a center turn lane that mostly eliminates the conflict created by cars changing lanes to avoid queueing behind vehicles waiting to turn left into driveways and at intersections. "
> "... confident that by narrowing and reducing lanes, regional traffic (66% of all traffic using Bloor today) will move to higher-speed roads on Burnhamthorpe or Dundas: roads that were designed to handle them."
>
> "... I've seen ... first hand, some residents have concerns about this project and perhaps feel they weren't given the influence they wanted. But the way I see it, the job of government is not to make every single person happy. It is to make the most correct, evidence-based decision it can."

Resident Advocate:

> "When you refer to "traffic that the road (Bloor St) was not designed to handle" - that design perspective somewhat contradicts the notion of dealing with that perceived

problem by instead proposing a road design that intends to dramatically reduce road capacity from two travel lanes each way to one travel lane each way, with the specific objective of increasing traffic congestion."

"You refer to "replacing a travel lane with a centre turn lane", but the crash zone (road diet) approach does not actually do that and in fact can increase collisions where:

a) the one middle lane is in fact replacing two travel lanes going in opposite directions,

b) the design change results in even heavier traffic congestion,

c) the middle lane is now simultaneously shared by cars going in opposite directions,

d) cars in both directions are allowed to continue to use that centre lane as a travel lane when their ... lane is obstructed by buses, parked ambulances, slow-moving cars, fallen garbage containers, errant cyclists, snow piles, etc.

e) multiple residents in both directions simultaneously use that same centre lane for: i) backing out of driveways, ii) making left turns, iii) route for emergency vehicles and iv) using that centre lane as a secondary travel lane."

"... a rationale for putting the onus on (locating) studies ... would be:

a) there are no studies that address the considerations as listed ... ,

b) there is no incentive by City staff to make such studies available if Commissioner Wright's personal objective is to get on the "road diet (crash zone)" band wagon. It is discouraging when Commissioner Wright once again takes the position that the views of residents can be disregarded or misrepresented in order to meet his personal objectives."

City Advocate:

"You lament that "there are no studies that address the considerations". Every study I've cited addresses them because every study I've provided has a TWLTL (two-way-left-turn-lane) as part of its design. Every single one has tested for the variables you claim are so significant they cause crashes. And yet, they don't. Perhaps this is why **the city has "no incentive" to make these studies available** .... Because the studies exist, but the results you seem to be chasing simply do not."

"I have not addressed your "list of increased risks" directly, and there's a reason for that. I've provided you a list of studies that tests for these "risks" themselves. I feel far more confident trusting peer-reviewed journal articles than my personal opinions on the matter. ... if the risks you have highlighted are so significant, why don't they appear in any (that I've read) impact analysis on any road diet anywhere else in the world? ... A rational approach, the one I believe I have taken, is to place the evidence first and allow that to lead to a conclusion. You have taken the opposite approach in this conversation at least, trying to make the facts fit whatever preconceived notions you have about TWLTLs."

"At the end of the day, you have zero evidence that road diets are more dangerous. Until you do, I am not going to continue this debate."

(see below for a critique of the stats from five studies that were referenced by City Advocate)

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The following comments are as at: 2024-07-23

2. Critique of road-diet-crash-lane industry studies identified by City Advocate

First consider the following July 18 2024 distributed list that more extensively identifies the sort of multiple risk profile considerations applicable to Bloor St in Mississauga, and that are **not** taken into account by transportation industry "road-diet-crash-lane" case studies, and which could, in turn, imply a reckless increase in the structural risk for serious injury or even death of residents.

(per July 18, 2024 distribution email, again noting the lack of supporting case studies)

Risk profile considerations for Bloor St, in combination with the "crash lane" feature:

1. urban, not rural
2. residential, not commercial or industrial
3. TWLTL* in context of 2 other lanes and not 4 other lanes
4. high population access
5. **high driveway density** (residential)
6. design intention to maximize congestion at peak periods
7. residents exiting driveways backwards
8. **no buffer lane on right** for delivery trucks, stopped vehicles etc
9. conflict re ambiguous right-of-way in centre lane
10. using centre lane as a passing lane in both directions
11. school drop-off line-ups adding to congestion
12. in context of also navigating bike lanes
13. pedestrians wrongly perceiving centre lane as "safe zone"
14. crash risk & cost - type/severity more important than simple numerical counts
15. prior experience of very long lineups during construction periods
16. etc
17. absence of case studies taking account of Bloor St risk profile
18. discrediting and disregarding personal insights of Bloor St residents

*TWLTL - centre two-way left turn lane (but becomes a shared "crash lane" in this context). .

Critique of the five studies anonymously cited by the City Advocate as at May 29 2023:

The following five research reports were those identified by the City Advocate May 29, 2023 as the basis for assertions regarding the expected crash frequency effect of the road-diet-crash-lane approach for Bloor St, with no acknowledgment of the risk profile implications for a potential increase in the occurrence-severity of significantly more-serious accidents. In general, references to such studies, and sometimes the studies themselves, seem propaganda-based with an unreasonable advocacy objective that disregards common sense and the views of residents:

1. " Iowa's Experience with Road Diet Measures - Use of Bayesian Approach to Assess Impacts on Crash Frequencies and Crash Rates" (2006)

   Critique: the City Advocate's assertions regarding crash frequency stats were based on these Iowa studies from 1982 to 2004 that "*were predominately on US or State routes in small urban towns with an average population of 17,000*". Not particularly relevant to Bloor St, even without taking into account other risk profile considerations such as commercial vs. residential roadways. This Iowa research report is not readily accessible

online (nor by request to the authors) but is one of only two sources that also form the basis for the 2008 "Accident Modification Factors" research report, as per details provided in 2008 Appendix C, and would seem similarly irrelevant there as well.

2. "Take the High (Volume) Road: Analyzing the Safety and Speed Effects of High-Traffic-Volume Road Diets" (Sept 2023)

Critique: The City Advocate's broad generalization on crash reductions were based on somewhat spurious results related to only five relatively small sections of roadway in Los Angeles (mainly commercial). No before-and-after analysis was involved and instead an apple-and-oranges comparison of the combined accident rates on these five Los Angeles sections of roadway that had road diets (primarily commercial), compared to the combined accident rates on 16 other roadways without road diets. Two small subsections of those road-diet roadways were residential (approx 0.5 miles in total, out of 3 miles) but no separate before-and-after analysis nor comparison analysis provided. In any case, each small residential section had wide buffer lanes on the right accommodating on-street parking, etc. No stats applicable to the Bloor St risk profile.

3. "Reconfiguring Urban Undivided Four-Lane Highways to Five-Lane: A Nonideal but Very Effective Solution for Crash Reduction" (Oct 2020)

Critique: The City Advocate's assertions of crash reduction factors based on this research report, appear to have no particular relevance to Bloor St because it involves adding a middle section while retaining two dedicated travel lanes in each direction.

4. "Urban Four-Lane Undivided to Three-Lane Roadway Conversion Guidelines" (Aug 2003)

Critique: The City Advocate references crash reduction factors mentioned in this report that the introduction to this report itself acknowledges are grossly overstated and **not statistically valid**.

Instead, the introduction to this report references a much lower aggregated crash reduction factor from a different report, but then goes on to state that further analysis that "controlled for factors like volume and study period showed ... **no significant difference** in crash severity and crash type 'before' and 'after' this type of conversion".

However, even the conclusion of "no significant difference" does not make distinctions regarding the various risk profile considerations that could in fact result in a **material increase** in the occurrence-severity of significantly more-serious accidents with a road-diet-crash-lane approach in the context of a risk profile comparable to Bloor St.

5. " Costs and benefits of a road diet conversion " (2025)

Critique: Although the City Advocate references this research report as his source for a crash reduction factor, that report simply sources the factor from a separate 2013 FHA "synthesis" report, which in turn sources the factor from a separate 2013 New York report. That 2013 New York report "Safety countermeasures and crash reduction in New York City—Experience and lessons learned" (Chen) does not appear to be readily accessible online. The indirect nonsubstantive source reference, combined with the difficulties in accessing the report would suggest that the City Advocate may have no knowledge of the basis for the applicability of that factor to the Bloor St risk profile.

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3. Addendum - Some cautions as noted in road diet research studies

"A TWLTL that leads to the loss of a passing lane needs careful evaluation."
source: 2009-11 - Highway Safety Manual Knowledge Base
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Genesee County Michigan "assessed (and prioritized) every 4-lane road ... for potential of conversion to 3 lanes ... (and) encouraged ... a low-cost Road Diet (approach) by restriping existing 4-lane segments to three lanes and (after a trial period) if the conversion (was) not operating as desired or publicly accepted, the road (could) be restriped back to the original layout."
source: 2015-03-23 - FHA case studies on Road Diets
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The following study (road diet on two lane roads) illustrates the **rural vs. urban** risk profile difference for road diets, and without considering that the accidents may have greater severity and without taking account of other risk factors such as driveway density:

Table 2. Results of the Disaggregate Analysis by Type of Environment.

Disaggregate Group	Sites	EB estimate of crashes expected in the after period without strategy	Count of crashes observed in the after period	Estimate of percent reduction (standard error)
Arkansas—rural	15	230.7	114	**51.2% (7.1)**
Arkansas—urban	10	349.6	337	3.8% (8.3)
California—rural	21	208.6	103	**50.8% (5.7)**
California—urban	10	92.8	96	-2.8% (13.4)*
Illinois—rural	5	111.1	93	16.7% (10.5)
Illinois—urban	5	125.3	114	9.4% (10.0)
North Carolina—rural	38	478.4	349	**27.3% (5.5)**
North Carolina—urban	40	260.9	275	-5.0% (8.8)*

*These negative effects are highly insignificant.
Note: Bold denotes results that are statistically significant at the 95% confidence level. A negative sign indicates an increase in crashes.

source: 2008 - summary of safety of TWLTL on 2-lane roads (Persaud)
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As referenced in"2009-11 - Highway Safety Manual Knowledge Base.pdf":
"Persaud et al. (2008) evaluated the safety effectiveness of TWLTLs installed on several urban sites (60). They found the safety effects to be negligible and suggested that potential sites in this environment should be carefully selected and that future research may be necessary to identify circumstances most favorable for urban installations."
source: 2009-11 - Highway Safety Manual Knowledge Base
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" Hauer points out that as TWLTLs are designed to prevent accidents at access points, mainly left-turn in and out accidents, AMFs (accident modification factors) for TWLTLs (two-way left turn lanes) should apply only to driveway-related accidents"
source: 2009-11 - Highway Safety Manual Knowledge Base

... but the intention of that approach would be to hide the risk implications of cars using the centre crash-lane as a passing lane; AMFs also do not seem to take account of accident severity and basic differences in risk profiles as illustrated by Bloor S

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"challenges may still arise:

- In urban areas where pedestrians may treat the TWLTL as a refuge area;
- Where traffic volumes increase so that traffic backs up in the turning lane, especially if there are many driveways and the backed up traffic impedes vehicles wanting to turn left in the opposite direction;
- Where drivers use the TWLTL for passing. Fitzpatrick et al. (42) cite Harwood and St. John who found that 0.4% were involved in illegal passing of vehicles. A TWLTL that leads to the loss of a passing lane needs careful evaluation"

source: 2009-11 - Highway Safety Manual Knowledge Base

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The Bloor St risk profile does not correspond to the "classic road diet" configuration:

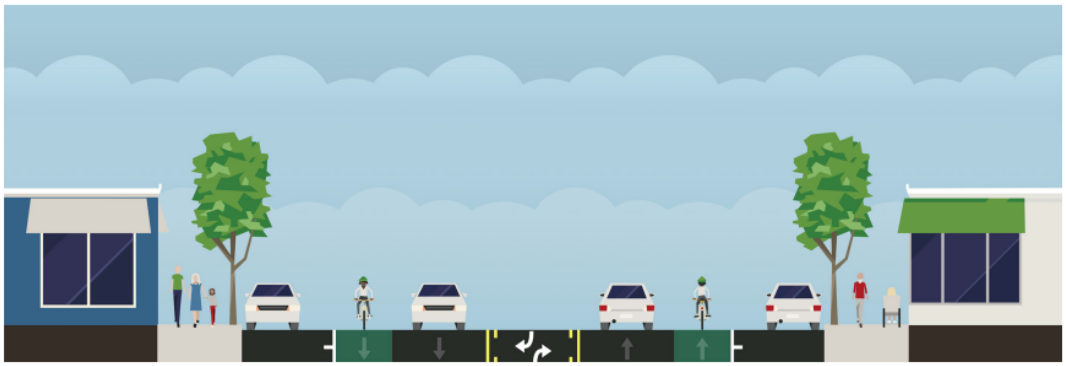

Figure 3. Typical configuration after a classic road diet is implemented.
Source: Created by authors on Streetmix.

source: 2023 - Analyzing the Safety and Speed Effects

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"Sites with lower crash reduction factors (CRFs) generally had higher traffic volumes, suggesting the possibility of diminishing safety benefits as traffic volumes increase."
source: 2014 - Road Diet Informational Guide (FHWA)

... getting past the semantics here, the observation would be that **crash risks increase** when there are higher volumes **relative to the road capacity of the road** and residents are allowed to use the crash-lane as a passing lane.

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This study illustrates cautions in interpreting studies. It starts out evaluating rural vs. urban and head-on collisions and then drops the urban component when the results are not favourable but concludes with a table #4 that does not clearly identify the exclusion of urban applications. The

study also looks at the costs of accidents (relative to construction costs) but does not consider reduced life expectancy and death to be "costs" except in terms of hospital and funeral costs.
reference: 2008 - summary of safety of TWLTL on 2-lane roads
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"high-volume road diet corridors ... are implicitly discouraged by current FHWA guidance and, in turn, by many local policies ... this, perhaps ironically, limits our ability to analyze them"
source: 2023 - Analyzing the Safety and Speed Effects
... similarly there seems to be difficulty finding case studies the correspond to the safety risk profile of Bloor St

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Road diet studies typically are not objective "before and after" studies, but the "before and after" label is still used to describe the apples-and-oranges comparison of the accident experience of roads with road diets with a different set of roads not using that approach. The industry seems reluctant to use more objective "before and after" studies.
reference: various studies

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Accident modification factors for road diets: a) do not appear to consider severity of accident, b) do not appear to consider differences in risk profiles, and c) FWIW, a volume "normalization" (λ lambda) process seems to adjust for the fact that accidents should be numerically lower simply because volumes would inevitably be lower and thereby should avoid hiding increases in the relative rate of accidents arising from increased congestion and the use of the crash-lane as a passing lane. Increases in severity of accidents are generally not part of the studies.
reference: 2008 - Accident Modification Factors (NCHRP & AMFs)

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