

August 8, 2022

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**Attn:** Campbell Cameron

**Re:** Transportation Impact Assessment – Downtown Dike and Riverside Drive Closure  
Town of Drumheller, Alberta  
**Update 2 – Traffic Volume Comparison (August Long Weekend)**

**JCB Engineering Ltd.** (JCB) has been asked to compare traffic volumes data recently collected by the Town of Drumheller along Riverside Drive / 5 Street between 3 Avenue and 4 Avenue to traffic volumes used in the transportation impact assessment (TIA) completed by JCB on April 12, 2022. A similar comparison was already conducted based on information provided from a count during the May long weekend (May 19 to 24, 2022); a summary of the information from that comparison conducted in May is also included with this data collected in July and August 2022. There was no count conducted for the July long weekend as comparison to the other long weekend counts because there was a parade through the downtown which disrupted the typical traffic patterns due to various intersection closures.

The Town of Drumheller collected directional traffic volumes on Riverside Drive / 5 Street between 3 Avenue and 4 Avenue from July 28 to August 2, 2022; however, only July 29 to August 1 had full day data as the counter was installed and uninstalled on July 28 and August 2, respectively. July 29 to August 1 does provide coverage for the August Long Weekend (Friday to Monday, inclusive), a time period where it is expected to have a combination of local and tourist traffic on the roadways within the town.

## 1. Transportation Impact Assessment Traffic Volume

Following is a summary of the methodology used to create the traffic volumes used in the TIA, a more detailed explanation is provided in **Section 2** of that study.

Traffic counts were conducted in August 2021 at several intersections around the section of Riverside Drive proposed to be impacted by the Downtown Dike to get a baseline for the traffic in the area. Traffic volumes at the non-counted intersections were assumed based on traffic patterns at the adjacent counted intersections and balancing volumes on roadways between intersections. Traffic patterns were then modified by adding or subtracting volumes from movements based on the level of impact on Riverside Drive for each of the options to be analysed.

There was concern that because the traffic counts were collected in 2021 during the COVID-19 pandemic the data may not entirely representative of both tourist and local traffic, and so should be supplemented from data collected prior to the pandemic. Adjustments were made using historical data provided by Alberta Transportation and the Town of Drumheller.

- There is an Alberta Transportation automated traffic reporting (ATR) station on Highway 9 near the Village of Beiseker that provided historical traffic volume data. This ATR station was chosen for growth rate data as it was one of the nearest to the town of Drumheller and the section of Highway 9 it is located on is a primary connection between the town and Highway 2, so traffic recorded at this location would be a good comparison to historical traffic patterns observed in the town. From 2006 to 2019 (i.e., pre-pandemic data) the average annual daily traffic (AADT) volume increased by an average of 1.36% per year on this section of Highway 9. Also, it was found that the greatest monthly traffic volume in a given year was either in July or August, the most recent data available from 2020 showed that August traffic volumes were greater than in July.
- Data<sup>1</sup> provided by the Town of Drumheller contained counts at various intersections from May and July 2006. Because the July counts were greater than the May counts and were collected at approximately the same time of year as the preliminary study counts, the July count data from the report provided by the Town was used. The data from these three locations was compared to the preliminary traffic count data, and it was found that the 2006 traffic volumes were greater than those collected in 2021. The higher approach volumes based on the 2006 data, extrapolated to 2022, were distributed at the three intersections based on the 2021 patterns; this was done because it is likely that traffic patterns have changed in Drumheller between 2006 and 2020.

This methodology provided traffic volumes for use in the TIA analysis that took into account pre-pandemic volumes, historical growth assuming no impact from the pandemic, greater traffic volumes in the peak of the summer and reflect current traffic patterns in the town.

## 2. Town of Drumheller Traffic Counts – May 2022 Summary

Following is a summary of the key points of data that resulted from the traffic count conducted by the Town of Drumheller in May 2022; more detail is provided in the May 28, 2022 update completed by JCB.

Some basic observations from the data provided by the traffic counts are that Friday, May 20, had the highest traffic volumes over the days with full counts. The AM peak hour was from 10:00 to 11:00 AM, the late start to the day likely due to people starting to travel for the upcoming long weekend. The PM peak hour was from 2:00 to 3:00 PM, as with the AM peak hour this was earlier than expected again likely due to long weekend travel plans. The PM peak hour was also greater than the AM peak hour.

The 85<sup>th</sup> percentile speed in the northbound direction was 52 km/h and the maximum speed was 81 km/h; in the southbound direction the 85<sup>th</sup> percentile speed was 51 km/h with a maximum of 87 km/h.

## 3. Town of Drumheller Traffic Counts – July / August 2022

The Town of Drumheller collected directional traffic volumes on Riverside Drive / 5 Street between 3 Avenue and 4 Avenue from July 28 to August 2, 2022; however, only July 29 to August 1 had full day data as the counter was installed and uninstalled on July 28 and August 2, respectively. July 29 to August 1

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<sup>1</sup> Town of Drumheller Transportation Study; iTrans Consulting Inc.; September 2007

does provide coverage for the August Long Weekend (Friday to Monday, inclusive), a time period where it is expected to have a combination of local and tourist traffic on the roadways within the town.

Some basic observations from the data provided by the traffic counts are that Friday, July 29, had the highest traffic volumes over the days with full counts. The AM peak hour was from 12:00 to 1:00 PM, which is more like an early PM peak hour, there was no defined peak in traffic during the morning. There were a number of local events in and around the Town of Drumheller during the August long weekend, so it is likely that the peak of traffic occurred as many of these events started for the long weekend. The PM peak hour was from 4:00 to 5:00 PM, which would be when some of the events occurring around the Town would start shutting down for the day and visitors began to head home or to another event in the evening. The AM peak hour was greater than the PM peak hour.

#### 4. Speed Analysis – July / August 2022

The Town of Drumheller has also requested a review of the traffic speeds that were recorded during the traffic counts. As per the Town of Drumheller Traffic Bylaw 01-03, Section 18 (2) “Unless otherwise posted the maximum speed limit within the Town of Drumheller corporate limits is 50 kilometres per hour”. As there is no posted speed limit on the subject section of Riverside Drive / 5 Street, it is assumed that the legal speed limit is 50 km/h. It was also input into the traffic counter a speed limit of 50 km/h for its analysis of the recorded speed data.

The 85<sup>th</sup> percentile speed in the northbound direction was 53 km/h and the maximum speed was 115 km/h; in the southbound direction the 85<sup>th</sup> percentile speed was 51 km/h with a maximum of 87 km/h. Using only the full day data from July 29 to August 1, several observations were made about the speed data collected.

- While the majority of drivers did obey the speed limit, approximately 21% exceeded it. The 10 km/h interval in which the greatest number speeds were observed was from 41 km/h to 51 km/h, the average and 50<sup>th</sup> percentile speeds were both at 45 km/h.
- The average speeder on all 4 days was consistent at about 54 km/h (54.1 km/h to 54.6 km/h).
- The day of highest non-compliance with the speed limit was on Friday with 23% of drivers exceeding the speed limit; as noted previously, this was also the day where traffic volumes were greatest during the count.
- The time of highest non-compliance was typically in the early mornings (6:00 to 8:00 AM); the highest speed of 115 km/h was recorded on Monday August 1, between 10:00 and 11:00 AM.

Based on this information, the speed limit of 50 km/h appears to be suitable for this section of Riverside Drive / 5 Street. The majority of drivers obey the speed limit with approximately half of those that disobey only travelling 5 km/h in excess.

## 5. Traffic Volume Comparison Summary

The following table summarises the directional, peak hour traffic volumes from the TIA, the May 2022 counts and the July / August 2022 counts. The peak hour traffic volumes from the TIA are from the 2022 pre-closure scenarios in that study, as Riverside Drive is still open; these values are for Riverside Drive immediately south of the intersection with 3 Avenue, which is the approximate location where the traffic counter was installed by the town. The observed Town of Drumheller traffic volumes from Friday, May 20 and Friday, July 29 were used in this comparison.

**Table 5-1: Traffic Volume Comparison**

Roadway	Section		Peak Hour	Traffic Volumes			
				TIA 2022 Pre-Closure		May 2022	
				Northbound	Southbound	Northbound	Southbound
Riverside Drive	3 Avenue	4 Avenue	AM	167	252	126 (-25%)	122 (-52%)
	3 Avenue	4 Avenue	PM	215	307	134 (-38%)	158 (-49%)

Roadway	Section		Peak Hour	Traffic Volumes			
				TIA 2022 Pre-Closure		July / August 2022	
				Northbound	Southbound	Northbound	Southbound
Riverside Drive	3 Avenue	4 Avenue	AM	167	252	154 (-8%)	127 (-50%)
	3 Avenue	4 Avenue	PM	215	307	113 (-47%)	120 (-61%)

Based on this comparison, the peak hour traffic volumes for Riverside Drive / 5 Street between 3 Avenue and 4 Avenue used in the TIA are greater than those observed for both counts. Overall, the May 2022 counts were closer to the TIA volumes than the July / August counts, with the exception of the Friday northbound AM peak which was less than 10% from calculated volumes used in the TIA.

The conservative assumptions for the traffic volumes in the TIA may be the reason that the observed volumes for both long weekend counts are significantly lower. It is also important to note that the analysis of the various intersections conducted for the TIA found that there were no delay or capacity issues in the pre-closure scenarios. Lower traffic volumes on the same roadways would confirm that there are no delay or capacity issues at the intersections in this area of the Town of Drumheller under existing conditions.

Some additional comparisons were made between the May and July / August counts.

**Table 5-2: Total Daily Traffic Volumes**

Count Date	Daily Traffic Volumes – Both Directions			
	Friday	Saturday	Sunday	Monday
May	2,855	2,437	2,110	1,850
July / August	2,827	2,516	2,231	2,184

The daily traffic volumes on Riverside Drive / 5 Street were very similar (less than 6% difference), except on the Monday where volumes were significantly higher in July / August (18% greater). With similar traffic

volumes at the start and middle of both long weekends, it is unclear as to why the July / August Monday traffic count would be so much greater than in May.

**Table 5-3: Vehicle Classifications**

Count Date	Vehicle Classification		
	Motorcycle	Car	Truck
May	0.4%	98.0%	1.6%
July / August	0.2%	97.7%	2.2%

The vehicle classifications of the total daily traffic during the two long weekends were also very similar, with ‘trucks’ being significantly higher in July / August but overall, still a very small percentage of the overall traffic that was counted. Unfortunately, the traffic counter could not further classify the ‘trucks’ into recreational vehicles or trailers or other heavy vehicles. However, it could be assumed that the number of heavy vehicles for non-recreational purposes would be relatively unchanged in the Town of Drumheller during the two long weekends, so the increase in heavy vehicles is likely due to additional recreational vehicles.

## 6. Speed Analysis Comparison

Because speed data was collected in both May and July / August 2022, a comparison could be made of the speed profile for this section of Riverside Drive / 5 Street from both sets of observations, summarised in the following table.

**Table 6-1: Speed Profile Comparison**

Month	Pace	Average	50 <sup>th</sup> Percentile	85 <sup>th</sup> Percentile	Exceeding	Average Speeder
May	39-49 km/h	45 km/h	45 km/h	52 km/h	19%	55 km/h
July / August	41-51 km/h	45 km/h	45 km/h	52 km/h	21%	54 km/h

The speed profile on this section of Riverside Drive / 5 Street between 3 Avenue and 4 Avenue was consistent between both the May and August long weekends.

It should be noted that there are some very extreme speeds that were noted in these counts, 87 km/h in May and 115 km/h in July / August. Typically, if a driver chooses to travel at more than double the posted speed limit in a residential area, there is little that can be done to dissuade them from such dangerous behaviour, with the exception of law enforcement catching the driver. However, as the majority of those exceeding the speed limit are at doing so at a considerably lower speed, there may be benefit to adding traffic calming to Riverside Drive to encourage drivers to slow down. Any traffic calming features added to this roadway should be designed to maintain a speed of 50 km/h and not inconvenience drivers by slowing them further than is required to enforce the speed limit. 80% of drivers already obey the speed limit and many even travel at speeds below 50 km/h, so traffic calming would have little impact on their driving behaviour.

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If you wish to discuss any items within this update to the transportation impact assessment, please feel free to contact the undersigned at jcbarett@jcbengineering.ca or (403) 714-5798.

Sincerely,



Justin Barrett, P. Eng., PTOE  
President and Transportation Engineer  
JCB Engineering Ltd.

**Attachments**

- None