

Staff Report



Development Services Department

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REPORT TO: Community and Infrastructure Services Committee

DATE OF MEETING: April 3, 2023

SUBMITTED BY: Barry Cronkite, Director, Transportation Services, 519-741-2200 ext. 7738

PREPARED BY: Aaron McCrimmon-Jones, Manager, Transportation Safety & Policy, 519-741-2200 ext. 7038

WARD(S) INVOLVED: Ward (6)

DATE OF REPORT: March 16, 2023

REPORT NO.: DSD-2023-113

SUBJECT: Erinbrook Drive Traffic Safety Study & Hot Spot Improvements

RECOMMENDATION:

That an all-way stop control be installed at the intersection of Erinbrook Drive and The Country Way; and,

That an all-way stop control be installed at the intersection of Erinbrook Drive and Rockwood Road; and,

That a speed cushion be installed on Erinbrook Drive between Hedgestone Court and Marlis Crescent; and,

That a speed cushion be installed on Erinbrook Drive between Hedgestone Crescent and Tara Crescent; and further,

That the Uniform Traffic Bylaw be amended accordingly.

REPORT HIGHLIGHTS:

- The key finding of this report is that speeding is a safety concern within the study corridor and that speeding was identified as a major contributing factor to the severe collisions that occurred in 2020 and 2022. To address safety issues, four countermeasures have been recommended in the highest risk locations including the installation of two all-way stop controls and two speed cushions.
- The financial implications include a total estimated budget impact of \$10,000 to be funded from the capital budget. The recommendations have no impact on the operating budget.
- This report supports the delivery of core services.

BACKGROUND:

A traffic safety study was initiated for Erinbrook Drive as a result of a motion approved by Council August 2022 as follows:

Whereas two residential homes on Erinbrook Drive have been struck by vehicles as a result of dangerous driving since June 2020 and;

Whereas traffic safety continues to be a concern for residents of Erinbrook Drive;

That staff be directed to conduct a traffic safety study for Erinbrook Drive between Rittenhouse Road (easterly intersection) and Rittenhouse Road (Westerly intersection), and;

That study shall include:

- *Data collection and analysis*
- *All-way stop warrant review*
- *Sight line review*
- *Geometric constraints review*
- *Collision analysis*
- *Recommendations for warranted traffic safety improvements; and*

That staff be directed to report back to Council by March 2023,

The motion was tabled due to two severe collisions that occurred between 2020 and 2022 which resulted in homes being struck by vehicles. Additionally, a total of 12 collisions occurred over past five years within the study corridor. Of those, three collisions involved driver injury and nine collisions involved property damage only.

In response to the motion, Transportation Services conducted a traffic safety study between fall 2022 and winter 2023. The intent of the review was to understand existing conditions, safety hazards and recommend countermeasures to enhance safety.

REPORT:

Erinbrook Drive is a minor community collector street and is approximately 9 m wide with one lane of traffic in each direction. The study corridor, as shown in *Attachment A - Erinbrook Drive Study Corridor and Proposed Safety Measures*, is approximately 1.6 km long and is defined as Erinbrook Drive (south of Rittenhouse Road), between Rittenhouse Road and Rittenhouse Road. Additionally, the existing conditions can be described as follows:

Existing Conditions:

Erinbrook Drive is classified as minor neighbourhood collector roadway with the following characteristics:

- Approximately 9 m wide running east-west with one lane of traffic in each direction.
- There are 18 intersections along the study corridor. With two all-way-stop controls, and 16 intersections with stop control on the side street approach only.
- There are 1.5 m wide sidewalks on both sides of Erinbrook Drive with 2.5 m boulevards between the curb and sidewalk.

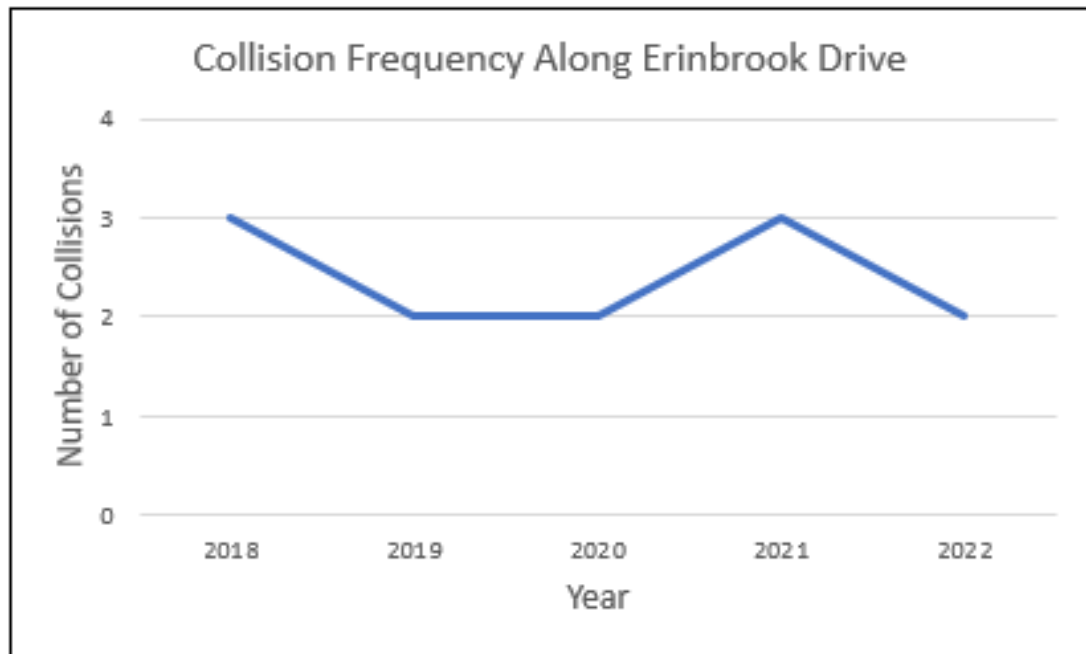
- There is currently no Grand River Transit service active along the study corridor.

Collision Analysis:

Analysis of the 5-year collision history (from 2018 – 2022) was carried out as part of the safety review. The collision analysis results are summarised below:

- There has been a total of 12 collisions within the study corridor over a five-year period from 2018 to 2022. Collision frequency within the study corridor over the past five years is shown in *Figure 1*.
- 9 collisions (75%) involved property damage only and 3 collisions (25%) involved driver injury. No fatalities were reported.

Figure 1: 5-year collision history within the study corridor



- Four collisions occurred on Erinbrook Drive near Rockwood Road, and Four collisions occurred on Erinbrook Drive near The Country Way. These locations have the highest concentration of collisions, and as a result all-way-stop controls are being proposed at these intersections. The distribution of collisions along the study corridor is included in *Attachment B - Erinbrook Drive Spatial Distribution of Collisions*.

Review of Geometric Constraints:

The study corridor along Erinbrook Drive has major horizontal curves located between Thistledown Drive and Goundry Crescent, and between Tamvale Crescent and Erinbrook Court. A Ball-bank indicator test was conducted to determine the maximum ball-bank deflection achieved while travelling along the curves at different speeds. The observed ball-bank deflection values at speeds of 50 km/h and 60 km/h were within the criteria set by Ontario Traffic Manual.

Additionally, sightlines at all intersections along the study corridor were reviewed. There were no sightline issues identified for street users. There are boulevard street trees on both sides along Erinbrook Drive between the curb and sidewalk. However, because the sidewalks are not curb facing, drivers on the side streets have opportunity to safely roll their vehicles from the stop position to achieve a better view of traffic travelling on Erinbrook Drive.

Traffic Speed and Volume Analysis:

Traffic data along the study corridor has been consistently reviewed since 2009. Through the 2022 Seasonal Traffic Calming program a series of seasonal narrowing were installed within the study corridor. While these measures are temporary they had a positive impact on reducing traffic speeds. Historic data collection along Erinbrook Drive is summarized in the two charts below comparing the speeds before 2022 (*Table 1*), and during 2022 when the series of seasonal narrowings were installed (*Table 2*).

<i>Table 1: Traffic Data Averages from 2009 to 2020</i>				
Street	From	To	Average 85th Percentile Speed	Average Daily Volume
Erinbrook Drive	Ridgeway Crescent	Bonnybank Court	55km/h	2,000 trips
Erinbrook Drive	The Country Way	Goundry Crescent	47km/h	1,900 trips

<i>Table 2: Traffic Data Averages in 2022 (with three seasonal narrowings installed)</i>				
Street	From	To	Average 85th Percentile Speed	Average Daily Volume
Erinbrook Drive	Ridgeway Crescent	Bonnybank Court	47km/h	2,300 trips
Erinbrook Drive	The Country Way	Goundry Crescent	39km/h	1,900 trips

The highest 85th percentile speeds have historically been observed near Hedgestone Crescent and Hedgestone Court, as shown in *Attachment C – Erinbrook Drive Speed and Volume Data*. The 85th percentile speeds near these locations have historically averaged approximately 56 km/h. This is in close proximity to the location of the severe collision that occurred in 2020. The series of seasonal narrowings installed in 2022 along the study corridor, including near Hedgestone Crescent and Hedgestone Court, had a positive impact reducing the average 85th percentile speed by 8 km/h.

As a result of speed and collision data staff are recommending the installation of two speed cushions on Erinbrook Drive including one speed cushion between Hedgestone Crescent and Tara Crescent, and one speed cushion between Hedgestone Court and Marlis Crescent. This will alleviate the need for future seasonal measures.

Turning Movement Counts:

Along the study corridor, turning movement counts were conducted at the intersections of Erinbrook Drive at The Country Way, Erinbrook Drive at Rockwood Road, and Erinbrook Drive at Rittenhouse Road (west intersection). Based on the study results and collision analysis, staff are recommending the installation of all-way-stops at the following intersections:

- Erinbrook Drive and The Country Way, and
- Erinbrook Drive and Rockwood Road.

The proposed all-way stop locations are within the Erinbrook Drive study corridor and within proximity to where the majority of collisions were observed (as shown in *Attachment B*). *Table 3* and *Table 4* below show the all-way stop warrant analysis at the two intersections.

Table 3: All-way stop warrant for Erinbrook Drive at The Country Way

Warrant Factors - "3-Leg" Intersection	Results	Warrant Met
The total vehicle volume on all intersection approaches is at least 350 vehicles per hour for each of any eight hours of the day, and	373	YES
The volume split does not exceed 75% / 25% on the major road, or	72% / 28%	YES
Average of at least 4 collisions per year over a three-year period (susceptible to correction by an All-way stop)	0	NO
All-Way Stop Warranted		YES

Table 4: All-way stop warrant for Erinbrook Drive at Rockwood Road

Warrant Factors - "3-Leg" Intersection	Results	Warrant Met
The total vehicle volume on all intersection approaches averages at least 250 vehicles per hour for each of any eight hours of the day, or	209	NO
The total vehicle volume on all intersection approaches is at least 350 vehicles per hour for each of any eight hours of the day, and	293	NO
The volume split does not exceed 75% / 25% on the major road, or	71% / 29%	YES

Average of at least 4 collisions per year over a three-year period (susceptible to correction by an All-way stop)	0	NO
All-Way Stop Warranted		NO

The all-way stop warrant is justified at the intersection of Erinbrook Drive and The Country Way as per the requirements of Ontario Traffic Manual (OTM).

The intersection of Erinbrook Drive and Rockwood Road does not meet the requirements of the OTM, however the traffic volume splits meet the warrant, and the total traffic volumes are within 20% of meeting the warrant. Given that there has been a history of collisions near the Rockwood Road intersection and anticipated fluctuations in traffic volume, staff are recommending an all-way-stop control at this location. This should create consistent driver expectation along Erinbrook Drive, as all intersections that provide a direct connection to the regional road network will now be controlled by all-way stop conditions.

Summary of Proposed Changes

The proposed changes include two all-way-stops and two speed cushions within the study corridor as shown in *Attachment A - Erinbrook Drive Study Corridor and Proposed Safety Measures*. The proposed measures are located in the areas with the highest speeds and frequency of collisions, including the most severe collisions that occurred in 2020 and 2022. Additionally, the speed cushions are being proposed in close proximity to where seasonal narrowing were installed in 2022. The spacing between the proposed measures was carefully considered to promote consistent and calm speeds throughout the study corridor. Staff will continue to collect traffic data and work with the local Ward Councillor to evaluate the effectiveness of the changes.

STRATEGIC PLAN ALIGNMENT:

This report supports the delivery of core services.

FINANCIAL IMPLICATIONS:

Capital Budget – The financial implications include a total estimated budget impact of \$10,000 on the capital budget. These costs can be absorbed from the existing Traffic Calming budget.

COMMUNITY ENGAGEMENT:

Letters were delivered to all addresses along the study corridor summarizing the proposed traffic safety improvements including a reference map. The letter encouraged residents to connect with staff with questions or provide their feedback about the traffic safety study. The letter identified the Erinbrook Drive Traffic Safety Study staff report number, Community and Infrastructure Services Committee meeting date, and options to participate.

INFORM – This report has been posted to the City’s website with the agenda in advance of the council / committee meeting.

CONSULT – If applicable.

COLLABORATE – If applicable.

ENTRUST – If applicable.

PREVIOUS REPORTS/AUTHORITIES:

- *City of Kitchener Uniform Traffic By-law No. 2019-113*

APPROVED BY: Justin Readman, General Manager, Development Services Department

ATTACHMENTS:

Attachment A – Erinbrook Drive Study Corridor and Proposed Safety Measures

Attachment B – Erinbrook Drive Spatial Distribution of Collisions

Attachment C – Erinbrook Drive Speed and Volume Data