

## REPORT TO COUNTY COUNCIL

# Punkeydoodles Corners – Intersection Improvements

**To:** Warden and Members of County Council

**From:** Director of Public Works

## RECOMMENDATIONS

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1. That County Council endorse the recommended intersection improvements at Punkeydoodles Corners for implementation in 2024 as detailed in Report PW 2023-44;
2. And further, that County Council authorize a three-way capital cost sharing arrangement with Perth County and Wilmot Township to implement proposed intersection improvements as a joint project with municipalities sharing jurisdictional road authority;
3. And further, that County Council pre-approve \$1,000,000 as part of the 2024 Capital Budget to fund proposed capital works at Punkeydoodles Corners with one-third cost recovery each from Perth County and Wilmot Township;
4. And further, that a future by-law be presented to County Council to amend By-law 3741-98 to amend through highway designation for Oxford Road 24 and Oxford Road 5 as a result of proposed intersection closure at the location identified as Intersection 3 (Perth-Oxford Road/Oxford Road 24 and Perth Road 101) in Report 2023-44.

## REPORT HIGHLIGHTS

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- The purpose of this report is to seek County Council endorsement of the proposed intersection improvements at Punkeydoodles Corners, based on the findings and recommendations of the Intersection Control Feasibility Study (ICFS) that was lead by Oxford County (Oxford) as a joint project with Perth County (Perth), Wilmot Township (Wilmot) and the Region of Waterloo (ROW).

- Recommended intersection improvements for implementation in 2024 (refer to Attachment 1) include closure of Intersection 3 (Perth-Oxford Road/Oxford Road 24 and Perth Road 101) and 4 (Perth Road 101 and Huron Road) with redistribution of traffic to Intersection 2, realignment and addition of turning lanes and illumination at Intersection 2 (Perth Road 101 and Road 101A), and changing Intersection 1 (Punkeydoodles Avenue and Oxford Road 5) to a three-way (tee) intersection with stop control on Punkeydoodles Avenue. Intersections 5 (Punkeydoodles Avenue and Huron Road) and 6 (Perth Road 101/Regional Road 1 and Concession Road) are to remain unaltered.
- Conceptual layouts for roundabout feasibility for potential implementation were considered as part of the ICFS; however, existing and 20 year (2043) traffic projections with consolidation of traffic at Intersection 2 were found to not meet warrants for signalization/roundabout. An All-Way Stop (AWS) warrant analysis at intersection 1 also did not meet Ontario Traffic Manual (OTM) volume/collision warrants.
- Total project cost for proposed recommended intersection improvements is estimated at \$1 million and will be equally funded by Oxford County, Perth, and Wilmot, subject to approval from respective municipal Councils. In comparison, although not warranted, roundabout implementation is estimated at between \$3 to \$4 million depending on preferred layout concept and associated property acquisition requirements.
- Public engagement and feedback was encouraged throughout the ICFS through liaise with Punkeydoodles Corners Community Association (PCCA), Speak Up, Oxford! (SUO), dedicated project webpage, meetings with adjacent landowners, Public Information Centre (PIC), Community Notices and Council delegation opportunities.

## **IMPLEMENTATION POINTS**

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Implementation of recommended intersection improvements will be a joint project between Oxford, Perth, and Wilmot and will require approval from respective municipal Councils for implementation and cost sharing. Perth and Wilmot staff will be seeking approval from their corresponding Councils on December 7, 2023 and December 11, 2023, respectively. If approved by all parties, detailed design and tender document preparation will be completed in Q1/Q2 2024, with construction anticipated to proceed in Q3 2024 for completion by Q4 2024.

A formalized cost-sharing arrangement will be established with the aforementioned municipalities prior to project commencement. Each municipality will be expected to contribute its equitable portion towards the intersection improvements.

By-law 3741-98, *Designating Through Highways and Providing for Erection of Stop Signs*, will require a minor amendment to revise the through highway description of Oxford Road 24 and Oxford Road 5 to address the proposed closure at Intersection 3, and will be presented to Council at the January 24, 2024 Council meeting for enactment.

Pending approval of this Report's recommendations, future Community Update notices are also planned to be issued prior to the start of construction. Changes to intersection control and permanent intersection closures will be communicated through advanced signage and social media postings.

## **Financial Impact**

A total project cost for the proposed intersection improvements, estimated at \$1,000,000, has been carried as part of the draft 2024 Business Plan and Budget for consideration. This budget includes detailed design, construction, contract administration (inspection and material testing), staff time and project contingency that will be required to implement the improvements.

Oxford County will fund the entire project cost with two-thirds cost recovery from each of Perth and Wilmot (i.e. one-third each).

## **Communications**

An extensive communication and public consultation campaign was undertaken to inform and engage stakeholders throughout the ICFS. The following is a summary of consultation activities:

- Regular liaison with representatives from the PCCA throughout the ICFS;
- One on one meetings with adjacent landowners to review preliminary study findings and seek feedback on potential property impacts;
- In-person PIC in Tavistock was held on October 5, 2023 to share the preliminary ICFS findings and recommendations, provide a question and answer period, and promote opportunities for public feedback. The PIC held in Tavistock on October 5, 2023 was attended by over 150 residents, senior municipal representatives and political dignitaries;
- Following the PIC technical presentation (refer to Attachment 2), an online interactive polling tool was utilized to secure meaningful and specific community feedback across a range of public safety matters and the specific recommendations put forward. A total of 51 PIC attendees responded and the results from the survey are included in the Facilitator Report Memo, included as Attachment 3;
- A dedicated project website, <https://speakup.oxfordcounty.ca/punkeydoodles> was created on SUO to make information about the ICFS publicly available and to provide the opportunity for those who could not attend the PIC to see all documents presented and provide feedback. Through this project webpage, there were a total of 813 visits, 135 people opened one of the documents and there were 9 questions/comments;
- Information has been shared throughout on social media and on the Oxford County website; and

- A Community Notice (Attachment 4) was hand delivered to residents in the vicinity of Punkeydoodles Corners on October 24, 2023 advising of the ICFS findings and recommendations, dates of upcoming municipal Council meetings and complementary road operational improvements that were being immediately implemented based on study findings and public feedback received.

From the public feedback received, residents generally felt that the proposed recommendations would improve existing conditions but do not go far enough to reduce operating speeds and occurrences of severe collisions that a roundabout would afford.




Report PW 2023-44 will be circulated to the Township of East Zorra-Tavistock, Wilmot, ROW, Perth and the PCCA, with a report link on the project webpage.

## 2023-2026 STRATEGIC PLAN

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Oxford County Council approved the [2023-2026 Strategic Plan](#) on September 13, 2023. The Plan outlines 39 goals across three strategic pillars that advance Council’s vision of “Working together for a healthy, vibrant, and sustainable future.” These pillars are: (1) *Promoting community vitality*, (2) *Enhancing environmental sustainability*, and (3) *Fostering progressive government*.

The recommendations in this report supports the following Strategic pillars and goals:

| PILLAR 1   | PILLAR 2  | PILLAR 3  |
|--|---|---|
|                         |  |    |
| <b>Promoting community vitality</b>  | <b>Enhancing environmental sustainability</b>                                       | <b>Fostering progressive government</b>   |
| <p>Goal 1.2 – Sustainable infrastructure and development</p> <p>Goal 1.4 – Connected people and places</p> |   | <p>Goal 3.1 – Continuous improvement and results-driven solutions</p> <p>Goal 3.2 – Collaborate with our partners and communities</p> |

See: [Oxford County 2023-2026 Strategic Plan](#)

## DISCUSSION

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### Background

As shown in Attachment 1, the study area includes several intersections within a multi jurisdictional area where regional boundary and local roads converge. The ICFS was completed as a joint project with Perth, Wilmot and ROW and included analyses of existing and future traffic conditions, geometric alignment, intersection consolidation, and development of short, medium and long term recommendations for intersection improvements (including conceptual roundabout layouts).

Oxford Road 24 and Oxford Road 5 are boundary roads that Oxford shares ownership with Perth and Wilmot respectively. Perth and ROW share ownership of Perth Road 101/Regional Road 1 north of the study area that connects to Provincial Highway 7/8. Wilmot has jurisdictional authority of local roads within the study area that include Punkeydoodles Avenue and Huron Road.

An ICFS at Oxford Road 5 and Oxford Road 24 was originally identified as an implementation project in the 2019 Oxford County Transportation Master Plan (TMP) to be completed in the 2024 – 2028 horizon, but was advanced to the 2023 capital program as directed by Oxford County Council following a delegation by PCCA representatives at the December 14, 2022 Council meeting. The PCCA representatives raised concerns about intersection safety following a fatal collision that occurred in October 2022 at Intersection 1 (Punkeydoodles Avenue and Oxford Road 5).

In Q1 2023, Oxford County staff convened a meeting with municipal partners from Perth, Wilmot and the ROW to introduce and validate the ICFS objectives, scope of work, and proposed cost sharing of any future capital upgrades. It was agreed that Oxford County would act as project lead with representatives from each municipality participating as part of the project team. The ICFS assignment was awarded to an external Consultant, R.C. Spencer Associates, through an open procurement process and was initiated in April 2023.

Existing operational and road safety conditions were assessed through collection of traffic data (volume, speed, and collisions), sight line assessments and illumination warrants. Existing and future traffic volume projections were utilized to assess intersection performance (level of service, capacity, delays, and queue lengths).

## Comments

The work plan, findings, and proposed recommendations for intersection improvements as presented during the PIC on October 5, 2023 (refer to Attachment 2) are summarized below:

### ICFS Findings

#### Traffic Patterns:

In order to fully understand commuter and origin-destination travel patterns, eight-hour turning movement counts were initially collected for Intersections 1-3 and 4-6 in November 2022, and April 2023, respectively. A second round of counts were collected for all six (6) intersections from May 19-21, 2023 as a representation of peak long weekend traffic conditions. A third round of counts was collected for all six (6) intersections for a typical summer weekend traffic conditions on July 8, 2023.

From the collected data, it was determined that the Friday May 19 PM peak hour (5 – 6 PM) exhibited the highest traffic volumes and represented the “worst case” peak hour. As such, this was used in software analysis for existing peak hour conditions.

Twenty-year traffic volume projections to 2043 were calculated using an assumed 2% per annum growth rate.

#### **Existing Conditions:**

- Intersection 1 had the highest number of collisions (16) from 2015 to 2022 inclusive;
- All-way stop (AWS) warrant analysis at Intersection 1 did not meet Ontario Traffic Manual volume/collisions warrants;
- Southbound left turn lane and illumination is warranted at Intersection 2;
- Traffic signal warrant analysis at Intersection 2 did not meet Ontario Traffic Manual volume/collisions warrants;
- Intersection 2, 3, and 4 are at skewed angles and create undesirable conditions with limited visibility, and encourage high speeds for vehicles leaving the highway to enter the side roads;
- Sightline distances were found to meet minimum guideline requirements at Intersection 2, 3, and 4, but visibility beyond minimum requirements is partially obstructed due to skewed angles, horizontal and vertical road alignment, and vegetative growth on the roadside;
- Intersection (1 - 5) performance is acceptable based on existing and future traffic conditions; and,
- 85<sup>th</sup> percentile speeds through the curve on Perth Road 101 were found to be 105km/h.

**Note:** Intersection 6 (Perth Road 101/Regional Road 1 and Concession Road) was not included for analysis as part of the ICFS, but traffic volume counts were procured at this intersection due to its proximity to Intersection 4 (Perth Road 101 and Huron Road) and to further inform recommendations at the other intersections.

**Intersection Consolidation/Traffic Redistribution (Closure of Intersection 3 and 4):**

- Collision occurrences would be mitigated at Intersection 1 by closing west leg and changing stop control to east leg;
- Southbound left turn lane, northbound right turn, and deceleration lanes required at Intersection 2;
- Realignment of Road 101A at Intersection 2 required to meet geometrical design guidelines and improve sightlines;
- Intersection (1, 2, 5) performance would be acceptable within the 20 year horizon and would not require any additional intersection control enhancements (AWS, signalization, roundabouts) beyond the above noted Intersection 2 improvements; and
- Realignment of Intersection 4 was not considered a feasible option due to low turning movements and property acquisition requirements and, as such, was recommended for closure.

**Roundabout Warrant Analysis:**

Roundabouts are typically considered an alternative design concept where signalization may be warranted to improve intersection performance. However, roundabouts are not intended to reduce overall collision frequency but generally mitigate high impact collisions due to lower vehicle operating speeds required to safely navigate through.

The ICFS confirmed that roundabout implementation is not warranted at either Intersection 1 or 2, based on traffic projections currently or within the next 20 years. Traffic counts at intersections 5 and 6 were deemed too low to warrant consideration of roundabout implementation at either intersection.

Three conceptual roundabout layouts (refer to Attachment 5) were considered at Intersection 2 as part of the ICFS to understand property acquisition, utility relocation, Class Environmental Assessment (Class EA) Study requirements and potential impacts to adjacent properties should a roundabout warrant be met in the future. Option 1 was identified as the preferred conceptual layout as it best adheres to the desired angles for controlling entry and exit speeds. Option 3 does not achieve the desired controls and Option 2 has an undesired sharp return for eastbound traffic due south.

The Option 1 roundabout would require land acquisition and would be subject to a Class EA Study that would further evaluate and identify a preferred alternative based on environmental and socio-economic impacts and stakeholder consultation. The high level cost estimate for roundabout implementation is \$3 - \$4 million based on current construction costs and land values.

## Recommendations for Intersection Improvements

As a result of the study findings and existing/future intersection performance analysis, recommendations for improvements as shown in Attachment 1 as follows:

- Permanent closure of Intersection 3 and 4 including elimination of west leg of Intersection 1 and north leg of Intersection 5;
- Turning and deceleration lanes, and illumination at Intersection 2;
- Realignment of Road 101A at Intersection 2; and,
- Change Intersection 1 to tee configuration with stop control at east leg.

Permanent closure of Intersection 3 and 4 with redistribution of traffic to Intersection 2 will allow Intersection 1 to be converted to a tee intersection that is expected to mitigate collision occurrences. Realignment of Intersection 2 with the addition of turning lanes will accommodate additional traffic and improve overall geometrical configuration. No changes to Intersections 5 and 6 were deemed necessary based on the proposed intersection consolidation and traffic redistribution.

## Operational Improvements

A number of operational improvements were additionally identified to further complement the intersection infrastructure improvements noted above. As such, Oxford and Perth staff have implemented the following immediate operational improvements:

- Removing the tree row on the Perth Road 101 curve (west side) to improve sightlines;
- Installing electronic speed feedback signs at the north and south approaches to the curve;
- Installing additional diamond reflectors along the east side of the curve; and
- Removing centreline painting on the curve at Rd 101A intersection.



## CONCLUSIONS

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The proposed intersection modifications were developed through a comprehensive review of existing traffic geometrical conditions and application of engineering design guidelines and best management practices. Such modifications will provide operational and safety improvements by consolidation of traffic movements to Intersection 2, realignment and addition of turning lanes and illumination at Intersection 2, and modification of Intersection 1 to a three-way (tee) intersection with a stop control on Punkeydoodles Avenue.

Intersection performance will continue to undergo dedicated monitoring where additional measures can be considered should future traffic conditions and patterns change.

## SIGNATURES

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### Report author:

Original signed by

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Project Engineer

### Departmental approval:

Original signed by

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### Approved for submission:

Original signed by

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Benjamin R. Addley  
Chief Administrative Officer

## ATTACHMENTS

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- Attachment 1: Proposed Intersection Infrastructure Improvement Recommendations
- Attachment 2: Public Information Centre Presentation (October 5, 2023)
- Attachment 3: Public Information Center Facilitator Report
- Attachment 4: Community Notice – Interim Operational Enhancements
- Attachment 5: Future Potential Roundabout Concepts