



**CORPORATE ASSET MANAGEMENT
MEMORANDUM**

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Pending #:TMP-31028

TO: AFFORDABILITY COMMITTEE

FROM: M. MUNSHAW, SUPERVISOR OF ENGINEERING STANDARDS, EXT 4723

WARD: ALL

NOTED: K. OAKLEY, ASSOCIATE DIRECTOR OF CORPORATE ASSET MANAGEMENT

B. ARANIYASUNDARAN, GENERAL MANAGER OF INFRASTRUCTURE AND GROWTH MANAGEMENT

M. PROWSE, CHIEF ADMINISTRATIVE OFFICER

RE: REVIEW OF RIGHT OF WAY DESIGN STANDARDS FOR SALEM AND HEWITT AREAS

DATE: SEPTEMBER 27, 2023

The purpose of this Memorandum is to provide members of Affordability Committee with a report back concerning Council motion 23-G-065 item 4; adopted by City Council on March 29, 2023.

Motion 23-G-065 mainly relates to a zoning bylaw amendment for 680 Lockhart Road (Phase 2), with Item 4 being more general, and read as follows:

That in order to increase pedestrian and driver safety alike, staff review the ROW roads standards for lands in the Salem and Hewitt's areas, including the possible reclassification of roads to account for differences between existing roads and roads yet to be built, and report to Affordability Committee with the following:

- a) A reduction of lane size on minor collector and major collector roads from the current 3.5 metres;
- b) Earmarking immediately in front of schools, enough ROW that allows the possible construction of school drop-off zones, even when the ROW is lower for the rest of the road;
- c) Bike lanes that are separated from the road asphalt and at-grade with the sidewalk on minor collectors, major collectors, arterials, and intensification corridors; and
- d) The use of multi-use paths in substitute of sidewalks where appropriate.

This memo is structured to address the points in the same sequence as in motion 23-G-065 Item 4.

Note that staff report DEV049-23 listed on the General Committee Agenda dated September 27, 2023, includes information about active transportation infrastructure, specifically off-street cycling facilities on existing streets.

Review Right-of-Way Standards for Salem and Hewitts

Motion 23-G-065 was specific to reviewing standards for the Hewitts and Salem SPA (Secondary Plan Areas) given that these are primarily greenfield developments.

One of the goals of City Standards is to strive for consistent service levels for infrastructure, regardless of location. To that end, the Standards provide a range of options that allow flexibility to accommodate site specific constraints, while also striving for consistent outcomes.



With this in mind, this memorandum was developed with the view that the City's Right-of-Way Standards will continue to be applicable to the entire City.

Reclassification

Street classifications for the transportation network are established through the Transportation Master Plan and are documented in the Official Plan. The process that classifies local, collector and arterial roadways is based on long established practices in transportation planning.

The City's current street classifications can be found on [Map 4b Mobility Network](#) of the Official Plan.

Conclusion

Given the analysis undertaken as part of the various master plans and the environmental assessments, current street classifications should be maintained as per the Transportation Master Plan and the Official Plan. There is no justification to revisit street classifications at this time.

Part A - Lane Width Reductions

Transportation Association of Canada (TAC) design guidelines specify a lane width design range of 3.0m to 4.0m on collector streets with 3.3m being the minimum required to allow for transit vehicles. Reducing lane widths from 3.5m to 3.3m would negatively impact, and in some cases prevent the operational activities of the City's winter control, transit, and emergency services groups.

Conclusion

The current lane width standard of 3.5 m should be maintained for minor and major collectors to reduce operational difficulties and risks in the future.

Part B - School Drop Off Zones in the Municipal Right-of-Way

The responsibility to provide adequate traffic circulation facilities falls to the owner of each development site, based on the site-specific traffic generation and circulation needs. It is the responsibility of the owner to allow for circulation within the site and mitigate impacts on the adjacent street network. This includes parking, kiss, and ride, and drop off requirements. These features are controlled through the site plan process.

It is recognized that in the past, compliance with these requirements varied at different school locations based on factors such as the number of students and parents choosing vehicle use instead of active school travel. The goal of active transportation is to encourage trips to school be made by non-auto modes. Implementing additional space within the municipal right-of-way does not align with goals of encouraging active school travel. Furthermore, encouraging more drop-off activity adjacent to live traffic lanes presents an increased safety hazard to students.

Conclusion

The practice of addressing pickup and drop off facilities should continue to be provided within the site plans of schools and not be accommodated within the right-of-way.

Part C - Off-Street Cycling Facilities (Cycle Tracks)

A discussion of two options with respect to cycling facilities is presented in this section. The two options are cycle tracks and on-street bike lanes.

Cycling infrastructure, which is physically separated from the street, and at grade with the sidewalk is typically referred to as cycle tracks.

With the release of new provincial cycling guidelines in 2021, the threshold to implement separated cycling facilities was lowered as compared to the previous guideline. A key change was the recommendation to implement separated cycling facilities, rather than on-street bike lanes, on right of ways with greater than three lanes (typically major collector and arterial streets). Changes in industry guidance can rarely be implemented immediately, as detailed standards must be prepared, and discretion is required on application to projects and developments already in progress.

The City's Active Transportation Strategy (part of the 2019 TMP), recommends implementation of a variety of active transportation options based on serving all users and all abilities. Cycling facilities are selected based on multiple criteria, but primarily number of travel lanes, traffic volumes and speed. Speed differential between motorists, cyclists, and pedestrians present conflicts within the ROW. Additionally, built form including the prevalence of driveway entrances can create conflict points and safety concerns.

Staff assessed the option of implementing cycle tracks against the City's current practice of on-street buffered bike lanes. The comparison of the two alternatives is summarized in Appendix "B" to the Memorandum to the Affordability Committee dated September 27, 2023 and discussed below.

Safety

Arterial streets experience the highest traffic volumes and speed and therefore pose the greatest risk of vehicular collision with cyclists. In most cases cycle tracks are the safest choice for arterial streets.

Traffic volumes and speeds are lower on minor and major collector streets. On collector streets in the SPA, developers are constructing narrow townhomes with lots ranging from 4.5m to 5.5m in width. This results in a condition of almost continuous driveways resulting in a significant number of conflict points. While cycle tracks keep cyclists away from the vehicle lanes, they are less visible to motorists accessing driveways. On balance, cycle tracks likely provide increased safety compared with on street buffered bike lanes, however, where the cycling network is fragmented, the transition from on street to off street cycling facilities can cause problems for both vehicle operators and cyclists. As such, consistency and connectivity of the network must be considered in the design of these facilities.

Cost

Generally, the capital cost to construct cycle tracks is appreciably higher than for on street bike lanes. While on street bike lanes are constructed at the same time, with the same equipment and materials as the vehicle lanes, cycle tracks introduce an additional linear asset, with specialized construction equipment. Operating and maintenance costs are significantly higher for cycle tracks, primarily because of the specialized equipment and resourcing requirements. As cycling facilities are built, additional equipment, staff and resources will be needed to support their ongoing operation and maintenance. Future asset management plans as well as business plans will be created to support the requests for additional capital and operating funding as required.

Additional Implementation Considerations

Normally the application of updated standards for any developments at the registration or draft plan approval stage would be considered only on a limited basis. At draft plan approval, much of the detailed engineering design of infrastructure has been done, and updating this work to reflect a new ROW standard would not be practical or cost effective for the development community. Application of a new standard to some developments and not others, could result in a patchwork of cycling infrastructure with undesirable transitions between on street and separated facility types creating safety issues.



Once built out, there will be approximately 39 km of collector streets within the Hewitts and Salem SPA, split almost equally between the two. Staff calculate the % of collector streets within developments that have already reached draft plan approval or registration to be 76% in Hewitts and 27% in Salem. Therefore, the potential for implementation of a consistent network of cycle tracks is much greater in Salem SPA, than in Hewitts SPA. Staff will work with developers to maximize the uninterrupted length of cycle track that can be implemented on future applications.

Conclusion

The City's standards will be updated to include cross sections and other design guidance for cycle tracks. A draft standard collector street cross section and a standard intersection design have been developed and are provided in Appendix "C" to Memorandum to the Affordability Committee dated September 27, 2023. As next steps, development of additional cross sections and designs will be required. Staff will use OTM Book 18 protocols as guiding principles for design and implementation. In addition to safety, the importance of consistency and continuity throughout the City's cycling network will be a key consideration. Cycle tracks will be implemented on future developments, except where connectivity and consistency cannot be achieved.

Part d – Multi-Use Paths

Multi-use paths are shared facilities between cyclists and pedestrians. They are more economical than separated cycling facilities, both in terms of upfront capital and ongoing maintenance. However, they are only appropriate for use in certain instances. Current industry best practices for the design of active transportation infrastructure are moving away from multi-use paths and recommend separate and distinct operating spaces for pedestrians and cyclists to increase safety for both user groups. Multi-use paths are only suitable for streets with lower pedestrian and cyclist volumes and with a low frequency of driveways and intersecting streets. The bi-directional travel on multi use paths creates safety concerns in terms of driver expectation and visibility. Motorists accessing entrances and intersections do not expect cyclists to be travelling from both directions, and at high speed. Speed differential between pedestrians and cyclists using the same facility, also creates a safety issue.

Conclusion

Multi-use paths will continue to be considered as an active transportation facility option in future designs, however they will be used only when there is low demand for active transportation infrastructure, where entrances are minimal, and where there are extreme corridor constraints.

Summary Of Active Transportation (Parts C and D)

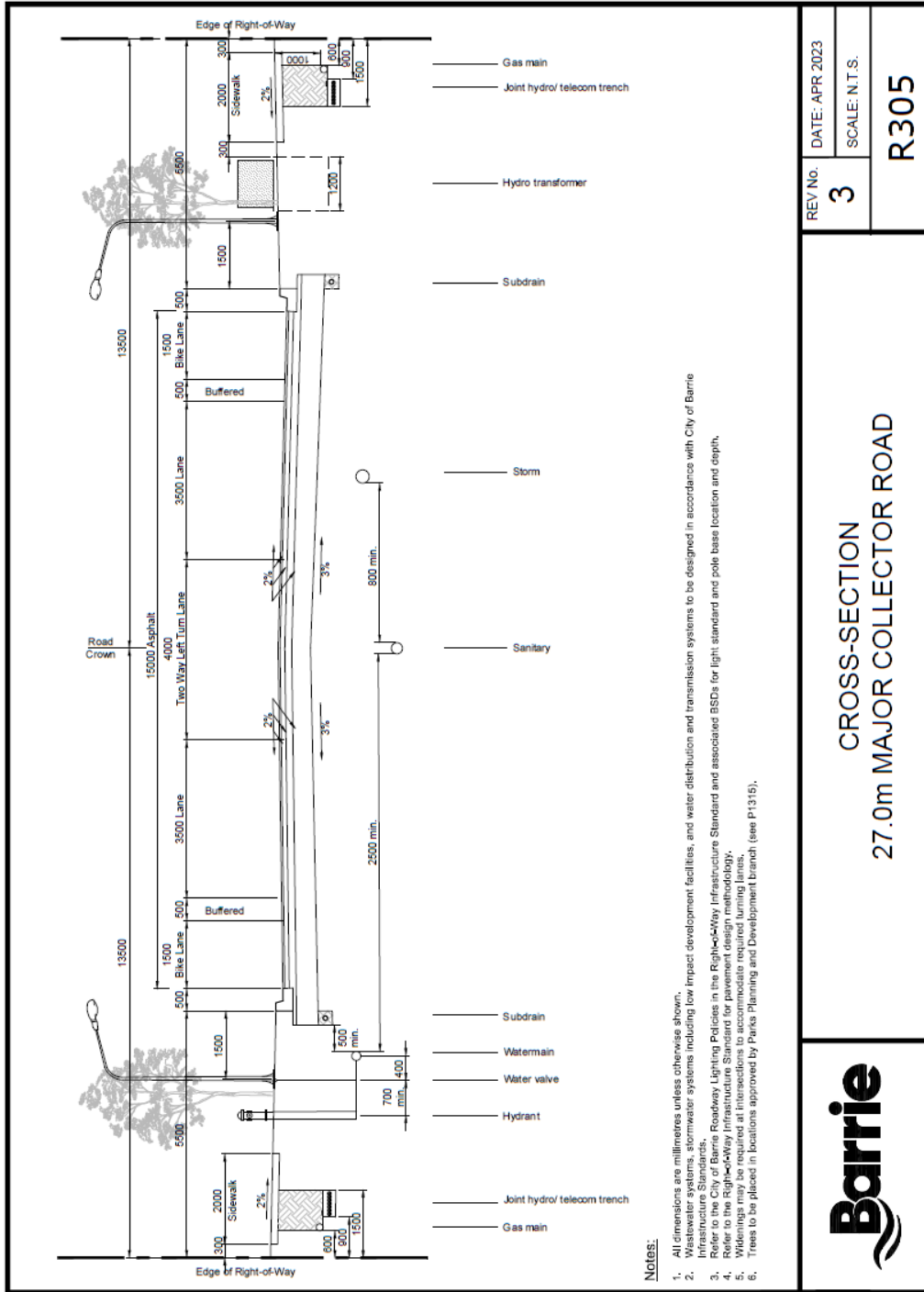
In summary, implementation of cycling facilities would be as follows:

On collector streets cycle tracks are the standard and will be implemented for new developments where engineering submissions have not been made. On street buffered bike lanes will be accepted where engineering submissions have been received.

On arterial streets, off street facilities are preferred and corridor specific solutions would be assessed and identified through the Municipal Class EA process.

APPENDIX A

Current Major Collector Street Standard – With Buffered Bike Lanes



- Notes:**
- All dimensions are millimetres unless otherwise shown.
 - Watermain systems including low impact development facilities, and water distribution and transmission systems to be designed in accordance with City of Barrie Infrastructure Standards.
 - Refer to the City of Barrie Roadway Lighting Policies in the Right-of-Way Infrastructure Standard and associated BSDs for light standard and pole base location and depth.
 - Refer to the Right-of-Way Infrastructure Standard for pavement design methodology.
 - Widenings may be required at intersections to accommodate required turning lanes.
 - Trees to be placed in locations approved by Parks Planning and Development branch (see P1315).

<p style="text-align: center;">CROSS-SECTION 27.0m MAJOR COLLECTOR ROAD</p>	<p>REV No: 3</p>	<p>DATE: APR 2023</p>
	<p>SCALE: N.T.S.</p>	<p>R305</p>



APPENDIX B

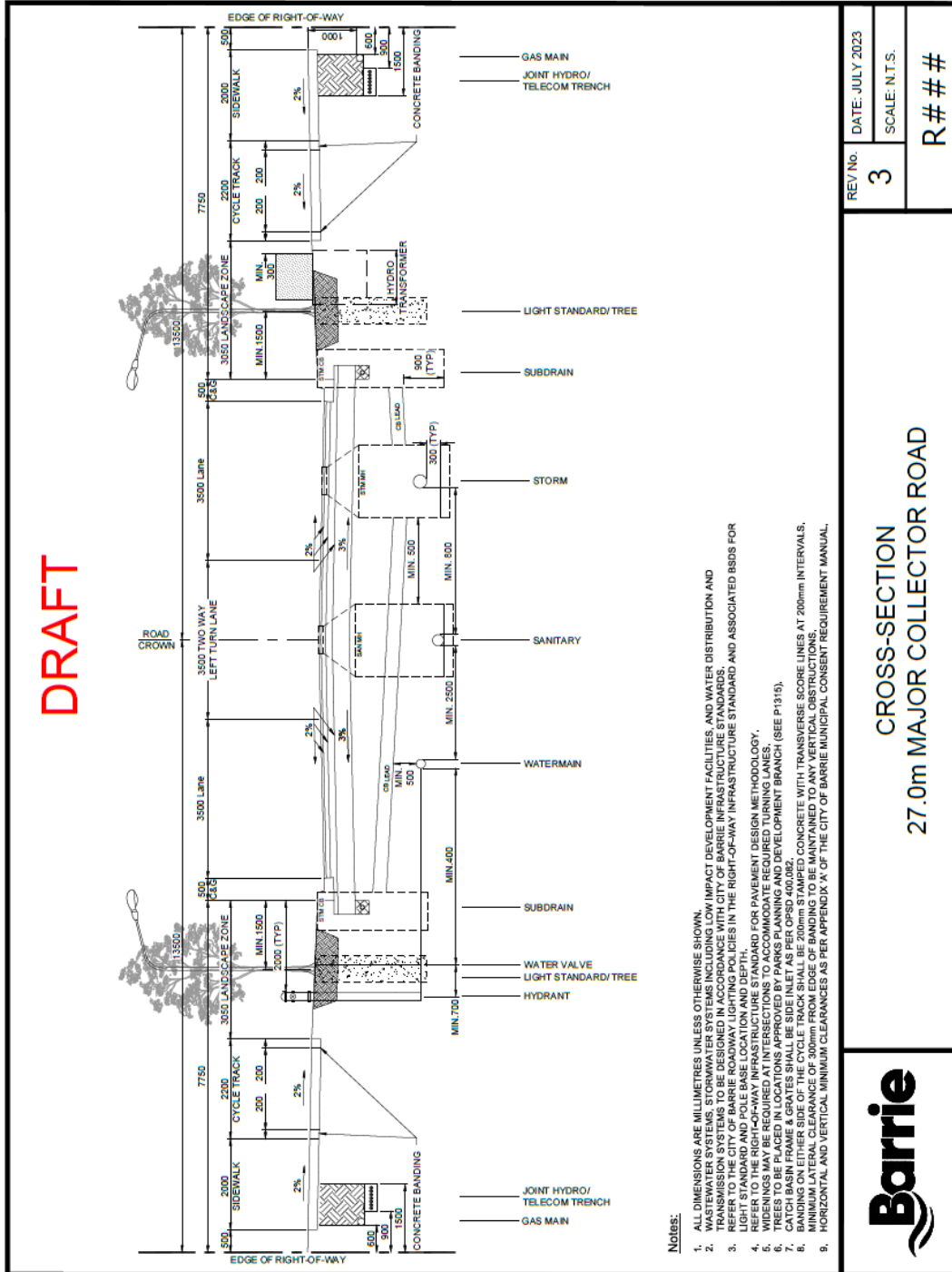
Cycling Facility Comparisons

Comparisons were made considering user experience, safety and costs, as follows:

	On-Street Buffered Bike Lanes	Cycle Tracks
User Experience	<ul style="list-style-type: none"> - suited for more confident users - best for users who travel at high speed - adjacent to live traffic lane; may be uncomfortable for new users and less confident users - provides separation from sidewalk users 	<ul style="list-style-type: none"> - suited for all ages and abilities - best for users who are new to cycling or less confident - less suited for confident riders due to potential conflicts with sidewalk users and vehicles accessing driveways - provides separation from live traffic
User Safety	<ul style="list-style-type: none"> - users occupy street platform with vehicles with no physical separation (spatial separation provided) - users more visible to motorists - more compatible with built form in secondary plan area (4.5m – 5.5m lots; continuous driveway conflicts) - higher risk of collision with vehicles at travel speeds 	<ul style="list-style-type: none"> - users are physically separated from vehicles behind the curb - users less visible to motorists - less compatible with built form in secondary plan areas (visibility and driveway conflicts) - higher risk of collision with slow/stopped vehicles and sidewalk users
Capital Cost	<ul style="list-style-type: none"> - less costly as construction occurs with the street using the same materials and equipment to construct a wider platform 	<ul style="list-style-type: none"> - more costly as additional specialized work is required to construct a separate linear asset; the narrow cycle track requires specific paving equipment, material and has slower production rates
Operating and Maintenance Cost	<ul style="list-style-type: none"> - maintained with the street - additional cost related to annual line painting 	<ul style="list-style-type: none"> - significantly more costly to maintain - specialized equipment is required to perform summer maintenance (sweeping machines with vacuum capability) - Requires additional winter maintenance

APPENDIX C

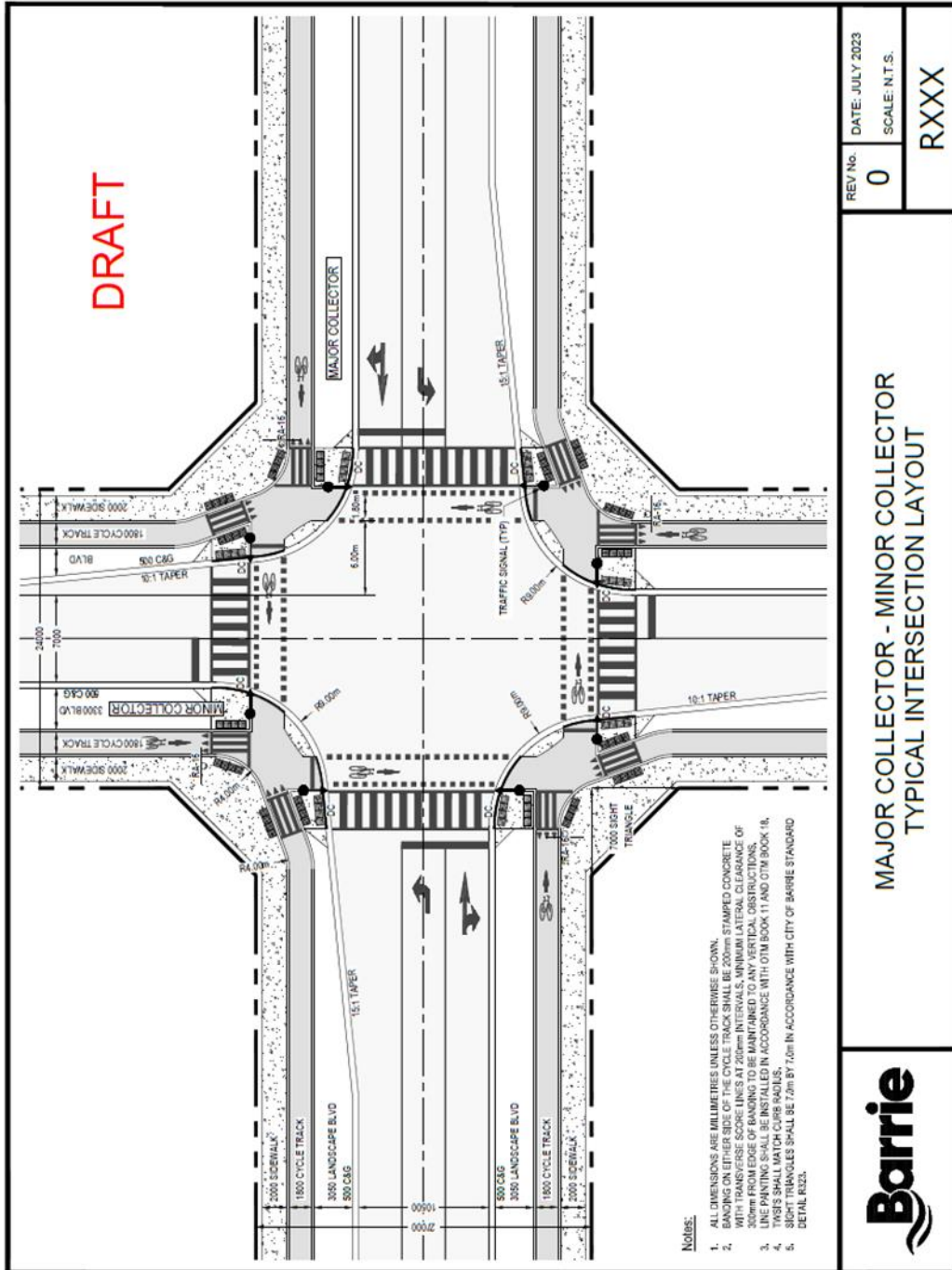
Proposed Major Collector Street Standard - With Cycle Tracks



Notes:

1. ALL DIMENSIONS ARE MILLIMETRES UNLESS OTHERWISE SHOWN.
2. WASTEWATER SYSTEMS, STORMWATER SYSTEMS INCLUDING LOW IMPACT DEVELOPMENT FACILITIES, AND WATER DISTRIBUTION AND TRANSMISSION SYSTEMS TO BE DESIGNED IN ACCORDANCE WITH CITY OF BARRIE INFRASTRUCTURE STANDARDS.
3. ALL UTILITIES TO BE PLACED IN THE RIGHT-OF-WAY INFRASTRUCTURE STANDARD AND ASSOCIATED BSOS FOR LIGHT STANDARD AND POLE BASE LOCATION AND DEPTH.
4. REFER TO THE RIGHT-OF-WAY INFRASTRUCTURE STANDARD FOR PAVEMENT DESIGN METHODOLOGY.
5. WIDENINGS MAY BE REQUIRED AT INTERSECTIONS TO ACCOMMODATE REQUIRED TURNING LANES.
6. TREES TO BE PLACED IN LOCATIONS APPROVED BY PARKS PLANNING AND DEVELOPMENT BRANCH (SEE P-11-15).
7. ALL UTILITIES TO BE PLACED IN THE RIGHT-OF-WAY INFRASTRUCTURE STANDARD AND ASSOCIATED BSOS FOR BANDING ON EITHER SIDE OF THE CYCLE TRACK SHALL BE 200mm STAMPED CONCRETE WITH TRANSVERSE SCORE LINES AT 200mm INTERVALS. MINIMUM LATERAL CLEARANCE OF 300mm FROM EDGE OF BANDING TO BE MAINTAINED TO ANY VERTICAL OBSTRUCTIONS.
8. MINIMUM LATERAL CLEARANCE OF 300mm FROM EDGE OF BANDING TO BE MAINTAINED TO ANY VERTICAL OBSTRUCTIONS.
9. HORIZONTAL AND VERTICAL MINIMUM CLEARANCES AS PER APPENDIX 'A' OF THE CITY OF BARRIE MUNICIPAL CONSENT REQUIREMENT MANUAL.

<h2 style="margin: 0;">CROSS-SECTION</h2> <h3 style="margin: 0;">27.0m MAJOR COLLECTOR ROAD</h3>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: 0.8em;">REV No.</td> <td style="font-size: 0.8em;">DATE: JULY 2023</td> </tr> <tr> <td style="text-align: center; font-size: 1.5em; font-weight: bold;">3</td> <td style="font-size: 0.8em;">SCALE: N.T.S.</td> </tr> <tr> <td colspan="2" style="text-align: center; font-size: 1.5em; font-weight: bold;">R # # #</td> </tr> </table>	REV No.	DATE: JULY 2023	3	SCALE: N.T.S.	R # # #	
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MAJOR COLLECTOR - MINOR COLLECTOR
TYPICAL INTERSECTION LAYOUT

