/lh
4:30 o'clock p.m. Wednesday, May 26, 2024
Environment, Transportation & Public Safety Standing Committee
Sitting as the Transit Windsor Board of Directors

ADDITIONAL INFORMATION

9.1 Response to CR183/2024-Petition from Residents on the Corner of Derek Street and Radcliff Avenue in Opposition to Implementation of Bus Route - City Wide **(S 40/2024)**
Clerk's Note: Mark Sementilli, area resident, submitting the ***attached*** dated June 20, 2024, as a written submission.

9.2 Town of Amherstburg - Transit Service Agreement Renewal - City Wide **(S 70/2024)**
Clerk's Note: P&C Memo provided to committee members only.

DELEGATIONS: (5 minutes)

9.1 Response to CR183/2024-Petition from Residents on the Corner of Derek Street and Radcliff Avenue in Opposition to Implementation of Bus Route - City Wide **(S 40/2024)**
a) Mark Sementilli, area resident (in person)

Comprehensive Community Concerns Report on Proposed Bus Route: Safety, Environmental, and Quality of Life Impacts on Radcliff Ave

Prepared by Mark Sementilli
Resident of Radcliff Ave
June 20, 2024

Please accept the following report on behalf of my neighbors and myself to express our collective concerns regarding the proposed new bus route through our neighborhood. Our extensive outreach efforts have revealed a significant level of opposition to this change, and I would like to provide a comprehensive overview of the key issues we have identified.

Community Outreach and Awareness: We have conducted extensive canvassing, covering every street in the neighborhood, including all townhomes. Through this process, we discovered that residents were largely unaware of the new bus route until bus posts appeared. Our petition, which includes 300 signatures from the streets listed below, demonstrates the widespread opposition for various reasons to this change:

- **Radcliff Ave**
- **Derek St.**
- **Savanna St.**
- **Soloman St.**
- **Norbert St.**
- **Lakeview Ave**
- **Blair St.**
- **Cobblestone Crescent**
- **Boulder Crescent**
- **Rockland St.**
- **Maitland Ave.**
- **Thistledown Ave.**
- **Duneshill Ave**
- **Gatwick Ave**

Concerns Raised:

- **Safety:**
  - Narrow streets causing vehicles to move into oncoming traffic.
  - Tight turning radii and winding curves creating hazardous conditions.
  - Absence of designated crosswalks.
  - Increased traffic and lack of space for cyclists.
  - Wintertime challenges on the eastside hill.
  - Lack of cut-ins for community mailboxes.
- **Privacy, Noise, and Vibration:**
  - Proximity of bus stops to homes affecting privacy.
  - Noise from buses disrupting the quality of life.
  - Concern for pet safety near bus stops.
- **Parking:**
  - Potential loss of parking spaces for townhomes.
  - Increased parking restrictions on Radcliff Ave.
- **Environmental Impact:**
  - Increased traffic affecting local wildlife.
  - Concerns over noise pollution in the park.
  - Increased emissions contrary to environmental responsibility.
- **Traffic:**
  - Increased traffic volume due to buses running every 30 minutes.
  - Potential for more bypass traffic through Radcliff and Maitland Ave, exacerbating congestion in the townhome area.

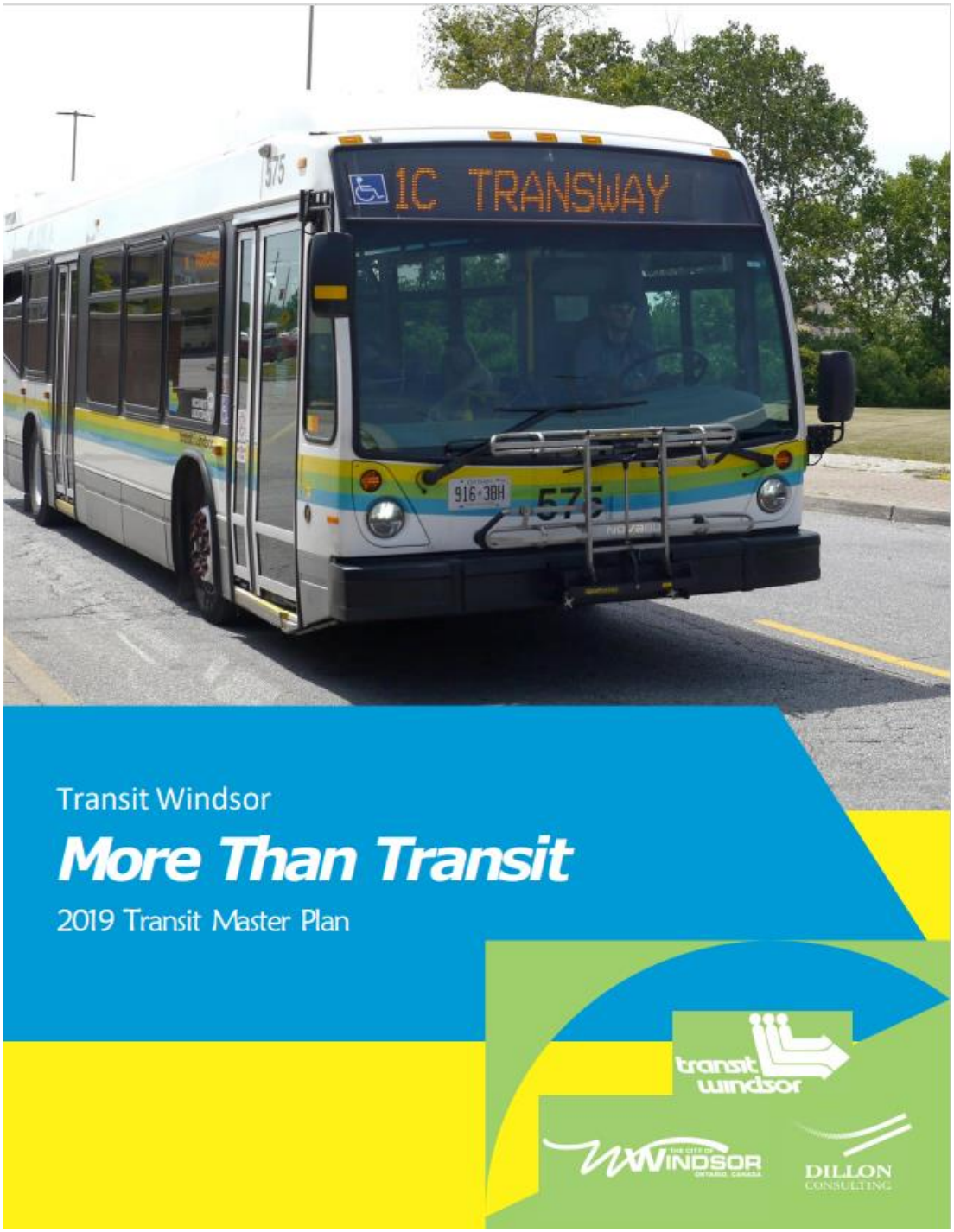
Proposed Alternatives: Utilize roads like Banwell Ave. or continue using Clover, which are perceived as better suited for transit.

Risk Assessment: A detailed risk assessment has been produced and shared, summarizing the safety, environmental, and community impact concerns.

Additionally, the following report will include residents' concerns applied to:

- **Transit Windsor Route Infrastructure Planning and Design Guidelines**
- **Transit Windsor More Than Transit: 2019 Transit Master Plan**
- **Dillon Consulting On Demand Transit Strategic Assessment**

The ***hope*** is this summary of our findings and concerns will highlight the need for reconsideration of the proposed bus route. We are committed to working together to find a solution that benefits all members of our community.



Concerns raised contrary to Sections 3.3 and 6.2 of the Transit Master Plan.

Noncompliance Report Regarding Bus Route 335 – Radcliff Ave Portion

Title of Document Audited	Transit Windsor More Than Transit:2019 Transit Master Plan	***Noncompliant***
Date of report	June 20, 2024	
Reported to:	Transit Windsor	City of Windsor
Author:	Mark Sementilli, CD, B.Eng Tech, MSc., CSME	

Section 3.3	**Mission**
Requirement	Transit Windsor supports the growth of a livable and sustainable community by providing a reliable, safe and convenient mobility service option that is accessible to all. **Safe** – This speaks to a service that emphasizes the safety of its customers, employees, and any other roadway user or traveler driving, cycling, or walking near or in potential conflict with the transit vehicles.
Concerns	Several safety concerns and non-compliances have been identified and shared with Transit Windsor , The City of Windsor and ATU via Risk Assessment (see attached)
Findings	Transit Windsor has not given a response to the Risk Assessment, only generic statements have been made that this route is safe because it meets the Transit Master plan. **<u>There are no safety or design criteria in the Master Plan.</u>** It was also stated that Transit Windsor was moving ahead because it was passed by the Environmental, Transportation & Public Safety Standing committee as well as City Council. - there has been no supporting evidence to show that Transit Windsor disclosed safety, design and previous public objection to the City or the Standing Committee in any of the standing committee's minutes. **<u>No evidence of diligence has been provided when requested.</u>** **<u>Current</u>** - the hazards identified on the Risk Assessment do not exist currently **<u>Impact</u> - the probability of serious injury or fatality increases significantly**.

Findings	Continued …….

Findings

Safety Risk Assessment Register - Radcliff Ave

Identification							Initial Safety Risk Rating			Further Mitigation Action	Revised Safety Risk Index		Mitigation Owner and Implementation Date		
Hazard	**Hazard Type**	**Identification Date**	**Identification Source**	**Analysis Date**	**Worst Possible, Worst Credible, or Most Common Potential Consequence(s)**	**Existing Mitigation(s)**	**Severity of Consequences**	**Likelihood of Consequences**	**Safety Risk Index**	**Further Mitigation Action**	**Revised Safety Risk Index**	**Revised Safety Risk Index Date**	**Department Responsible for Mitigation**	**Estimated Implementation Date**	**Contact Person**
Bus turning Northbound onto Radcliff Ave	Technical - Operational	2/1/2024	Residential safety reporting. **Previous petition raised by residence.**	02/01/24	Bus crosses into oncoming lane due to parked cars and nonstandard width roadway and there is a **head-on collision.** > Radius of turn nonstandard for single lane turning onto single lane. > Bus could have to complete turn in oncoming lane. > Radcliff Ave is too narrow to accommodate busses, two way traffic and parked cars 28.5 ft is below design standards) > No yellow divide line to separate traffic > No traffic light at an identified high traffic area > No defined stop line from Radcliff Ave onto McNorton	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition **- does not meet design guidelines or best practices (eg. NACTA or Translink)**	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Car turning Northbound onto Radcliff Ave	Technical - Operational	2/1/2024	Residential safety reporting. **Previous petition raised by residence.**	02/01/24	Car crosses into oncoming lane due to parked cars and nonstandard width roadway resulting in **head-on collision** with Bus. > Radius of turn nonstandard for single lane turning onto single lane. > Bus could have to complete turn in oncoming lane. > No yellow divide line to separate traffic > No traffic light at an identified high traffic area > No defined stop line from Radcliff Ave onto McNorton	No existing mitigations (administrative only) - existing condition but increased frequency and severity by adding Transit	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Mid Block bus stops	Technical - Operational	2/1/2024	Residential safety reporting.	2/1/2024	Bus enters oncoming lane to clear parked cars in front of bus stop - **head-on collision.** > No yellow divide line to separate traffic > Radcliff Ave is too narrow to accommodate busses, two way traffic and parked cars 28.5 ft is below design standards) > History of collisions and traffic calming issues	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition **- does not meet design guidelines or best practices (eg. NACTA or Translink)**	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Mid Block bus stops	Technical - Operational	2/1/2024	Residential safety reporting.	2/1/2024	Bus creates visibility issues for pedestrians trying to cross road. - **On coming vehicle collision with pedestrians** > no stops signs or cross walks > two park entrances and sledding usage	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition **- does not meet design guidelines or best practices (eg. NACTA or Translink)**	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Mid Block bus stops	Technical - Operational	2/1/2024	Residential safety reporting.	2/1/2024	Bus along with parked cars creates visibility restrictions when Turing onto Radcliff Ave from various side streets. - **On coming vehicle collision or collision with pedestrians**	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition **- does not meet design guidelines or best practices (eg. NACTA or Translink)**	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Mid Block bus stops	Technical - Operational	2/1/2024	Residential safety reporting.	2/1/2024	Cars passing stopped busses trying to turn right or passing, **colliding** with the bus as the bus pulls out of the stop.	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition **- does not meet design guidelines or best practices (eg. NACTA or Translink)**	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Mid Block bus stops	Technical - Operational	2/1/2024	Residential safety reporting.	2/1/2024	Side walk maintenance and snow removal. - sidewalks maintained by condo company, will condo company maintain? **- Slip and fall**	If existing snow removal service not established with condo company. No snow removal.	3 (Marginal)	B (Probable) - existing condition, frequency and probability increases slightly.	3B (Acceptable based upon mitigations)	Assumption Condo company will continue snow removal service of sidewalks.	4C (Acceptable)				
Bus turning Southbound onto Radcliff Ave **- turning from Little River Rd.**	Technical - Operational	2/1/2024	Residential safety reporting. **Previous petition raised by residence.**	02/01/24	Bus crosses into oncoming lane due to nonstandard width roadway and winding section resulting is a **head-on collision.** > Radius of turn nonstandard for single lane turning onto single lane. > Bus could have to complete turn in oncoming lane. > Radcliff Ave is too narrow to accommodate busses, two way traffic and two sections of curves (28.5 ft is below design standards) > No yellow divide line to separate traffic > No traffic light > No defined stop line from Radcliff Ave onto McNorton	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition **- does not meet design guidelines or best practices (eg. NACTA or Translink)**	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Bus turning Southbound onto Radcliff Ave **- turning from Little River Rd.**	Technical - Operational	2/1/2024	Residential safety reporting. **Previous petition raised by residence.**	02/01/24	Potential of **head-on collision** due to Bus being struck by oncoming traffic. Oncoming traffic crosses into oncoming lane due to parked cars, nonstandard width roadway and winding road. > Radius of turn nonstandard for single lane turning onto single lane. > Bus could have to complete turn in oncoming lane. > Radcliff Ave is too narrow to accommodate busses, two way traffic and parked cars 28.5 ft is below design standards) > No yellow divide line to separate traffic > No traffic light at an identified high traffic area > No defined stop line from Radcliff Ave onto McNorton	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition **- does not meet design guidelines or best practices (eg. NACTA or Translink)**	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Car turning Southbound onto Radcliff Ave	Technical - Operational	2/1/2024	Residential safety reporting. **Previous petition raised by residence.**	02/01/24	Car crosses into oncoming lane due to parked cars and nonstandard width roadway resulting in **head-on collision** with Bus. > Radius of turn nonstandard for single lane turning onto single lane. > Bus could have to complete turn in oncoming lane. > No yellow divide line to separate traffic > No traffic light at an identified high traffic area > No defined stop line from Radcliff Ave onto McNorton	No existing mitigations (administrative only) - existing condition but increased frequency and severity by adding Transit	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Bus Traveling Southbound	Technical - Operational	2/1/2024	Residential safety reporting.	02/01/24	Car crosses into oncoming lane due to parked cars and nonstandard width roadway resulting in **head-on collision** with Bus. > No yellow divide line to separate traffic > Radcliff Ave is too narrow to accommodate busses, two way traffic and two sections of curves (28.5 ft is below design standards)	No existing mitigations (administrative only) - existing condition but increased frequency and severity by adding Transit **- does not meet design guidelines or best practices (eg. NACTA or Translink)**	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Other factors															
School bus route	Technical - Operational	Date	Employee safety reporting	Date	Collision likelihood increases due to road being too narrow, with transit, two way traffic and parked cars.	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition **- does not meet design guidelines or best practices (eg. NACTA or Translink)**	1 (Catastrophic)	A (Frequent) - daily during school season	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A	N/A	N/A	N/A	N/A
School bus route - no crosswalks	Technical - Operational	2/1/2024	Residential safety reporting.	2/1/2024	Bus creates visibility issues for pedestrians trying to cross road. - **On coming vehicle collision with pedestrians** > no stops signs or cross walks > two park entrances and sledding usage	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition **- does not meet design guidelines or best practices (eg. NACTA or Translink)**	1 (Catastrophic)	A (Frequent) - daily during school season	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Maintenance Crews - condos on sideroads	Technical - Operational	2/1/2024	Residential safety reporting.	2/1/2024	Bus creates visibility and Collison issues for maintenance crews that park and use equipment along Radcliff to service all the condos on the sideroads. Crews will be working around Mid Stop Bus Stops- **On coming vehicle collision with pedestrians, workers, equipment, bus stop interaction with lawn cutting tractors.**	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition	1 (Catastrophic)	P (Probable) - once per week during lawn care months.	1B (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1B				
Animal Crossing to Blue Heron Park	Technical - environment	2/1/2024	Residential safety reporting.	2/1/2024	Bus creates increased traffic flow along with visibility and Collison issues for existing wildlife. -**Collision** is with wildlife but could be on occasion lead to motor vehicle or pedestrian collision.	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - existing condition that will increase	4 (Negligible)	A (Frequent) - once ever hour, hundreds of times per month	4B (Acceptable based upon mitigations)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	4B (Acceptable based upon mitigations)				

Screen shot of Risk Assessment with identified risks. No mitigations or answers have been provided.

Source: The Federal Transit Administration's (FTA) Safety Risk Register and Guide. A recognized best practice tool designed to support implementation of SMS in the public transportation industry.

Note

A copy of this risk assessment was shared with Transit and ATU/local unit.

Under the Occupational Health and Safety Act, workers (bus drivers) have a right to know, and a right to a safe work environment.

None of the concerns brought up by the neighborhood in this risk assessment had been shared with workers beforehand.

CCOHS: Health and Safety Legislation in Canada - Three Rights of Workers

Noncompliance Report Regarding Bus Route 335 – Radcliff Ave Portion

Title of Document Audited	Transit Windsor More Than Transit:2019 Transit Master Plan	***Noncompliant***
Date of report	June 20, 2024	
Reported to:	Transit Windsor	City of Windsor
Author:	Mark Sementilli, CD, B.Eng Tech, MSc., CSME	

Section 6.2	**Next Steps**
Requirement	Following the approval of this report by the Windsor City Council, Transit Windsor will embark upon the implementation of this Plan's recommendations, in accordance with the schedule shown in Table 16 of Section 5.1. As Transit Windsor prepares to implement the various elements of the Plan, it will consult the valuable feedback already collected regarding the individual new route details. **Transit Windsor will also will bring each new route or route change in the proposed network back to the community for feedback to finalize route details, scheduling, stop locations, etc. in advance of Transit Windsor's implementation of these changes**
Concerns	Several safety concerns and non-compliances have been identified and shared with Transit Windsor and The City of Windsor, no answers or solutions are being provided.
Findings	No opportunity for community feedback has been provided to the Radcliff Ave (and adjoining) neighborhood. Radcliff Ave has had a historical concern with previous petitions and no direct outreach was provided regarding this bus route traveling down Radcliff Ave. In 2013/2014 – Transit Windsor promised the people on Radcliff Ave, that they would be consulted if a bus was to be considered again. After awareness of the bus route by the residents and despite several attempts by the residents to bring concerns forward over the past 6 months, no solutions or mitigations are being provided by Transit Windsor to address any concerns. **Furthermore, <u>no community feedback</u> is being accepted in advance of Transit Windsor's implementation contrary to the Master Plan.**

Transit Windsor Route Infrastructure Planning & Design Guidelines

THE CITY OF WINDSOR ONTARIO, CANADA

transit windsor

TRANSIT WINDSOR

May 1, 2022

Concerns raised contrary to Sections 1, 1.1, 2.1, 2.4 and 6 of the Transit Design Guidelines.

Noncompliance Report Regarding Bus Route 335 – Radcliff Ave Portion

Title of Document Audited	Transit Windsor Route Infrastructure Planning and Design Guidelines	***Noncompliant***
Date of report	June 20, 2024	
Reported to:	Transit Windsor	City of Windsor
Author:	Mark Sementilli, CD, B.Eng Tech, MSc., CSME	

Section 6.3	Lane Widths
Requirement	Pavement widening beyond standard widths should be considered when buses are the largest design vehicle for an undivided roadway. Figure 113 through Figure 118, show the desirable curb lane widths on road sections for bus operation, as well as the ideal pull-out distance between a stopped bus and parked vehicles. The required width of the curb lane depends on the number of through lanes available in the same direction of travel, any allowance for parking in the curb lane, and the presence of bike lanes. Buses are among the largest vehicles operating on city streets, with mirror widths often exceeding available lane space. Where buses operate in a narrow mixed-traffic lane, intrusion into adjacent lanes may sometimes occur, such as when two buses pass each other. Ensure that adjacent lanes in a street section can occasionally accommodate such movements when needed. Figure 119 and Figure 120 explore the widths of buses and lanes interacting with the buses

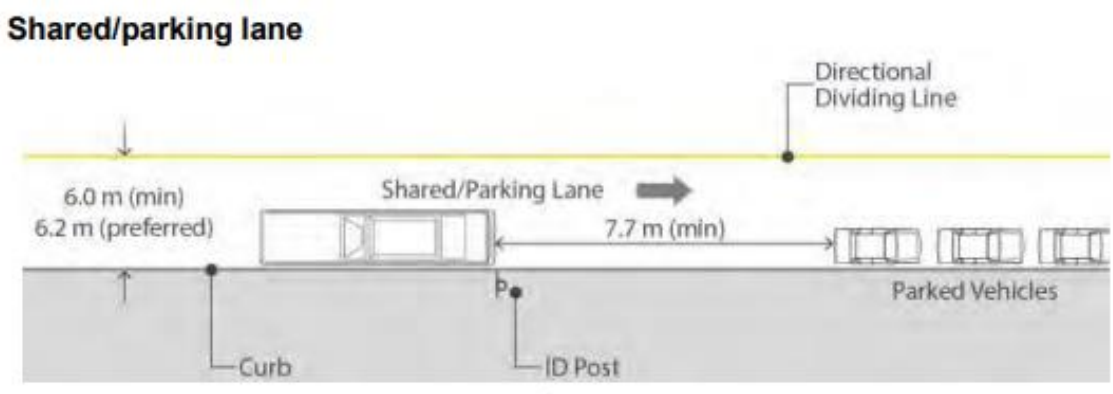
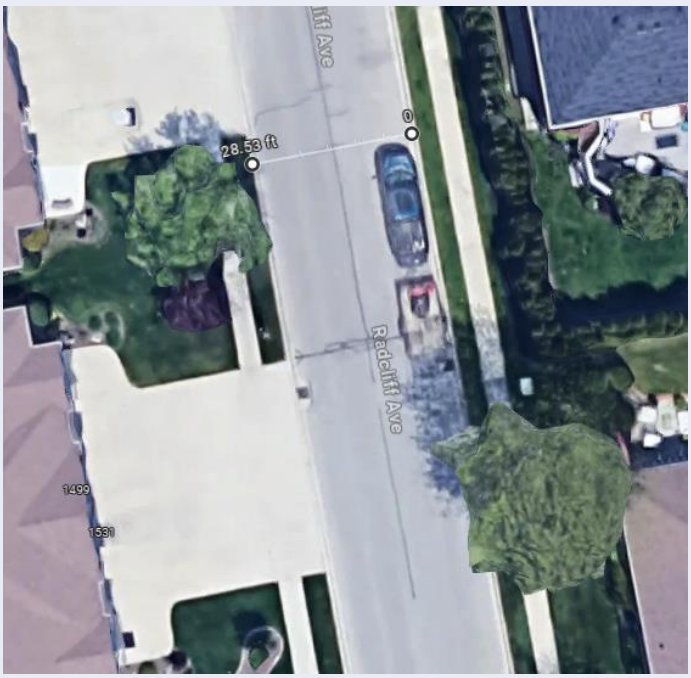


Figure 116 Shared/Parking Lane Diagram

Findings	Continued ……..
Concerns	Radcliff Ave does not meet the recommended lane widths and will require busses to move into oncoming traffic to avoid parked vehicles. Furthermore, busses traveling in the lane that does not have shared parking will have vehicles moving into that lane to avoid parked cars.
Findings	Radcliff **<u>does not meet</u>** the Transit Windsor Design Guidelines with a direct impact to driver and public safety.

	Minimum	Maximum	
Criteria	3.3 meters	3.7 meters	Non parking lane
	6.0 meters	6.2 meters	Shared parking lane
	9.3 meters (30.5 ft)	9.9 meters (32.5 ft)	Total width
Actual	8.7 meter (28.5 ft)	8.7 meters (28.5 ft)	Actual width
	0.6 meters (2 ft)	**1.2 meters (4 ft)**	**Too Narrow**



Note	*There will be a greater impact by other vehicles such as school busses, garbage trucks and Condominium Service vehicles that park and use Radcliff Ave to access adjoining streets. This will inevitably drive the maximum width requirement to be even more.*

Noncompliance Report Regarding Bus Route 335 – Radcliff Ave Portion

Title of Document Audited	Transit Windsor Route Infrastructure Planning and Design Guidelines	***Noncompliant***
Date of report	June 20, 2024	
Reported to:	Transit Windsor	City of Windsor
Author:	Mark Sementilli, CD, B.Eng Tech, MSc., CSME	

Section 1	**Spacing of Bus Stops**
Requirement	To determine the number and location of bus stops, one has to consider the following: • The relative spacing between subsequent stops • Locating bus stops that correspond to passenger demand • Providing physical facilities that promote safe and efficient interaction of transit vehicles, transit passengers and other road users
Concerns	Almost all residents of Radcliff as well as all adjoining side streets canvassed **do not want or plan to use this bus.** - The recent petition with 300 signatures shows there is no demand in this area and people are concerned that adding this pass-through route will add to an existing traffic issue on Radcliff. - The number of proposed stops does not correspond to the actual demand highlighted by the petition. - Additional concern is that this will reduce parking for the residents in the adjoining streets/condominiums adding to an existing parking problem.
Findings	Currently - no request for service. Transit Master Plan did not survey or provide outreach to this area specifically. - Radcliff Ave. (as well as Maitland) has had traffic calming studies performed asking the City of Windsor for help. - recent fatality on Mc. Norton prior to the turn onto Radcliff Ave which will be part of the new bus route illustrates the growing traffic issue. Impact - no favorable cost to benefit ratio to run this service on Radcliff Ave. - this will only exasperate an existing traffic problem.

Noncompliance Report Regarding Bus Route 335 – Radcliff Ave Portion

Title of Document Audited	Transit Windsor Route Infrastructure Planning and Design Guidelines	***Noncompliant***
Date of report	June 20, 2024	
Reported to:	Transit Windsor	City of Windsor
Author:	Mark Sementilli, CD, B.Eng Tech, MSc., CSME	

Section 1.1	**Stop Spacing Guidelines**
Requirement	The recommended bus stop spacing range for different land use areas is included in Table 1. In general, bus stops are spaced closer in central business districts and urban areas where activities are more concentrated. It is noted that there may be special circumstances that require the spacing to deviate from the spacing ranges. Nevertheless, bus stop spacing should be optimized as much as possible to correspond to passenger demand.

Table 1 Recommended Bus Stop Spacing

Area	Typical Spacing (m)	Spacing Range (m)
Central Business Districts	200	200-300
Urban Areas	230	200-365
Suburban Areas	300	200-760
Rural Areas	380	200-800

Transit users are generally willing to walk 400 m (metres) to a local stop or 800 m to a rapid transit station / express bus stop. The placement of local stops between 200 m and 250 m apart supports an average 400 m walking distance to local stops within an interconnected network of streets and blocks. For express or rapid transit services supported by a network of feeder transit routes, spacing stops greater than 250 m apart is often appropriate to limit stops, reduce travel times, and maintain route efficiency. No bus stops should be placed closer than 150 m together.

An over abundance of bus stops on a route will reduce the route efficiency, slow down the bus service, and impact the level of customer riding comfort.

Findings	
Findings	There are 4 stops on the east side of Radcliff Ave and one on the west Side. The 4 east side stops are spaced every 220 meters which **<u>does not comply</u>** with Transit Windsor Design Guidelines. Table 1 Recommended Bus Stop Spacing **Area** / **Typical Spacing (m)** / **Spacing Range (m)** Central Business Districts / 200 / 200-300 Urban Areas / 230 / 200-365 Suburban Areas / 300 / 200-760 Rural Areas / 380 / 200-800 There is an excessive number of stops planned for Radcliff Ave. The design guidelines have a typical spacing of **<u>300 meters</u>** not 220 meters. It is also stated that spacing for suburban areas can be as high as <u>760 meters.</u> It is important to note that many of the residentss during the petition process questioned why Banwell Rd. could not be utilized more for this route. Banwell Rd is: - 700 meters to Radcliff Ave. on Little River - 790 meters to Radcliff Ave. on McNorton St. residents understood a general need for public transportation but would like to see this North/South Leg be shifted to Banwell or even Lesperance. Two roads which can better hand a bus and have less impact to a residential neighborhood. The maximum number of stops was applied to a route that has no support contrary to efficiency recommendations.

Noncompliance Report Regarding Bus Route 335 – Radcliff Ave Portion

Title of Document Audited	Transit Windsor Route Infrastructure Planning and Design Guidelines	***Noncompliant***
Date of report	June 20, 2024	
Reported to:	Transit Windsor	City of Windsor
Author:	Mark Sementilli, CD, B.Eng Tech, MSc., CSME	

Section 2.1	Placement of Bus Stops – Far-Side and Mid-block Configuration
Requirement	At Transit Windsor, each bus stop is evaluated individually in terms of its environment. Bus stops are to be located on the near or far-side of intersections or mid-block as appropriate. Bus stops should be evaluated to be at the near or far-side of intersections before middle block (mid-block) as shown in Figure 1, dimensions of the configurations are shown in Table 2: • Locate stops on the near-side of the intersection to accommodate pedestrians near a cross walk and to provide the bus driver more control of the bus as they make the stop and then proceed through the intersection • Locate stops on the far-side of the intersection to reduce interference where there is a high volume of turning vehicles and bus service is frequent. Far-side stops allow the bus to proceed through a green signal and make it easier for buses to re-enter traffic • Mid-block stops are located at a minimum of 60 m from intersections. Mid-block stops are applicable where large destinations justify high-volume access **Once a bus stop is established, stops should not be relocated unless transit service to the affected stop is removed or road re-construction/environmental changes require a change in stop location.** Requests by residents, businesses, city staff or councilors to move established stops should be resisted. However, if a request is made and Transit Windsor deems it to be an acceptable move, the cost of moving the stop (sign, database, etc.) should be billed to the individual(s) requesting it. **This cost will be determined on an individual basis, based on the conditions of the move as some moves may cost more than others.**

Placement of Bus Stops – Continued

Requirement

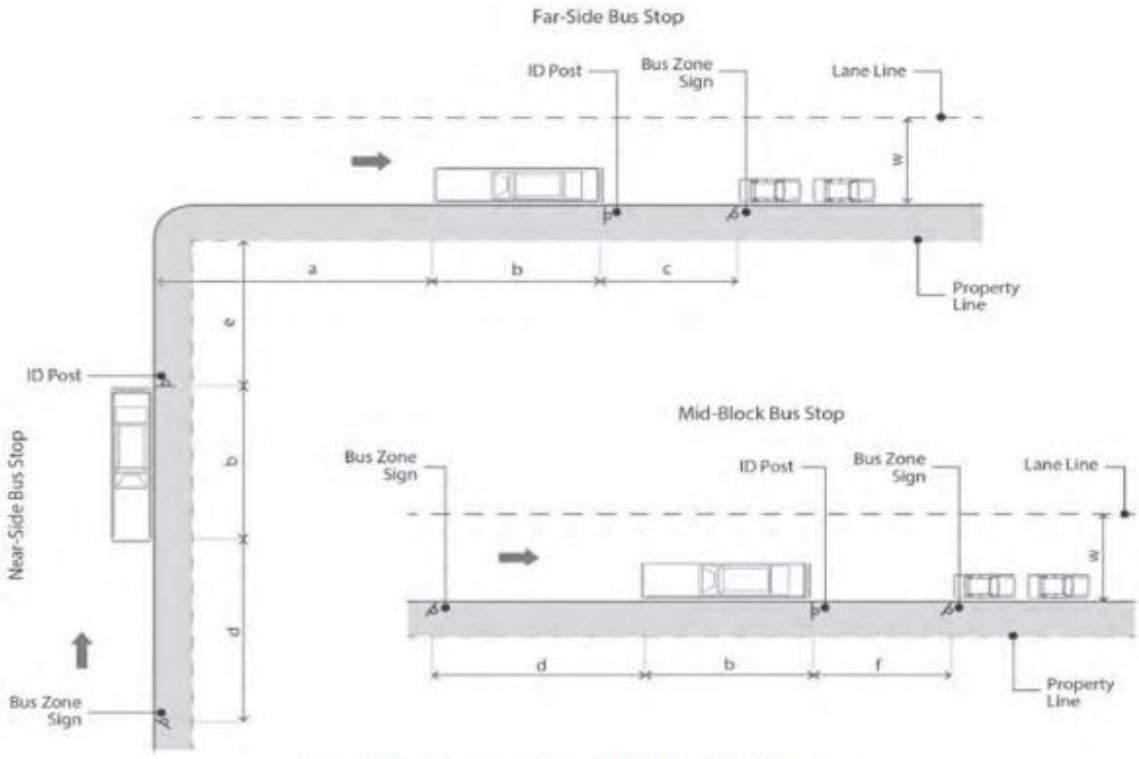


Figure 1 Far-Side, Near-Side and Mid-Block Configurations

Table 2 Far-Side, Near-Side and Mid-Block Bus Stop Dimensions from Figure 1

Type of Bus	Bus Length (b) (m/ft)	Far-Side Stop			Near-Side Stop		Mid-Block Stop		Width (w) (m/ft)
		Approach Movement	Corner Clearance (a) (m/ft)	Pull Out (c) (m/ft)	Pull In (d) (m/ft)	Corner Clearance (e) (m/ft)	Pull In (d) (m/ft)	Pull Out (f) (m/ft)	
Standard Bus	12.4 / 40	Right Left Through	12.3 / 40 15.9 / 52 6 / 20	7.7 / 25	18 / 59	Minimum 6 / 20	18 / 59	7.7 / 25	Minimum 6 / 20 Preferred 7 / 23
Articulated Bus	18.5 / 60				21 / 69		21 / 69		

Notes:

1. A minimum clearance of 6 m (20 ft) between the stopped bus and a crosswalk, a flashing beacon, stop sign, traffic control signal located at the side of a roadway for near side stops.
2. The clearance distance between the crosswalk edge and the rear of the bus is to be 6 m (20 ft) for a bus making the through movement and 14m (46 ft) for a bus making the left-turn or right-turn movement.
3. For bus bays, an extra 3 m (10 ft) should be included at the stop for a standard/articulated bus to straighten out
4. Upstream from Pedestrian Crossover (PXO): at least 15 m (49 ft) (required) / 30 m (98 ft) (desirable)
5. Downstream from PXO: at least 10 m (33 ft) (required) / 15 m (49 ft) (desirable)

	Placement of Bus Stops – Continued …….
Concerns	- Busses pulling out on to a narrow road - Shared pedestrian traffic with cyclists - reduced parking for condominiums - Obstructed view for side streets turning on or off Radcliff Ave

Findings

Table 2 Far-Side, Near-Side and Mid-Block Bus Stop Dimensions from Figure 1

Type of Bus	Bus Length (b) (m/ft)	Far-Side Stop			Near-Side Stop		Mid-Block Stop		Width (w) (m/ft)
		Approach Movement	Corner Clearance (a) (m/ft)	Pull Out (c) (m/ft)	Pull In (d) (m/ft)	Corner Clearance (e) (m/ft)	Pull In (d) (m/ft)	Pull Out (f) (m/ft)	
Standard Bus	12.4 / 40	Right Left Through	12.3 / 40 15.9 / 52 6 / 20	7.7 / 25	18 / 59	Minimum 6 / 20	18 / 59	7.7 / 25	Minimum 6 / 20 Preferred 7 / 23
Articulated Bus	18.5 / 60				21 / 69		21 / 69		

Actual measurements of proposed bus stops from south to north on Radcliff Ave

	Approach Movement	Corner Clearance		Pull Out		Width (min)		Width (Preferred)	
		m	ft	m	ft	m	ft	m	ft
Requirement	Right	12.3	40	7.7	25	6	20	7	23
Stop 1	Right	14.7	48.4	7.8	25.5	4.3	14.25	4.3	14.25
Stop 2	Right	14.6	48	7.6	25	4.3	14.25	4.3	14.25
Stop 3	Right	15.7	51.7	7.5	24.6	4.3	14.25	4.3	14.25
Stop 4	Right	12.6	41.4	7.7	25.2	4.3	14.25	4.3	14.25
						1.7	5.75	2.7	8.75

Each stop measured met the spacing requirements (minimizing the elimination of parking where the stops are) but they are **not compliant** for road width by a range of **1.7 meters to 2.7 meters (5.75-8.75 ft).**

This supports residents concerns that buses will be required to move into oncoming traffic due to the narrowness of the road.

Findings	Placement of Bus Stops – Continued ……

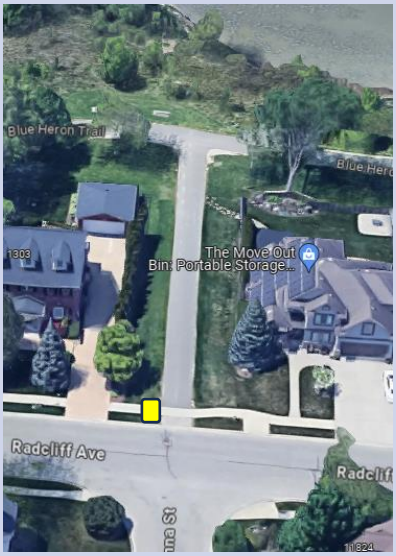
Findings

Further findings under the “note” section of the requirement.

Notes:

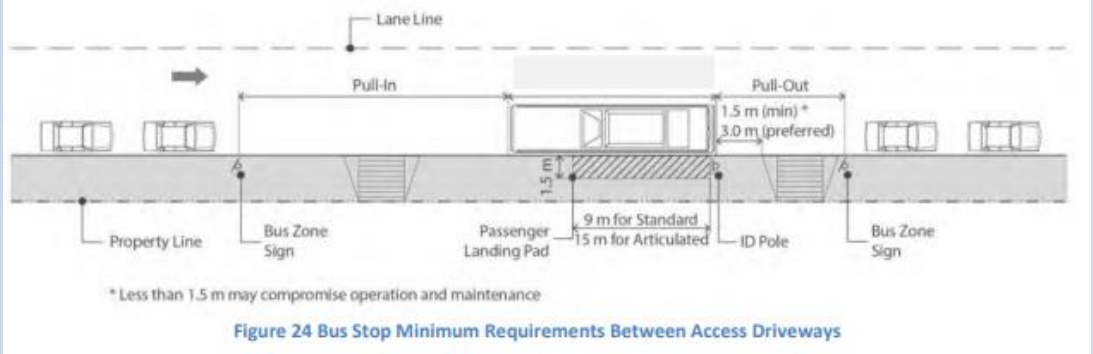
1. **<u>A minimum clearance of 6 m (20 ft)</u>** between the stopped bus and a crosswalk, a flashing beacon, stop sign, traffic control signal located at the side of a roadway for near side stops.

The proposed bus stop has been placed right at the cross walk/park entrance which is **<u>not compliant</u>** to the Design Standard.



Noncompliance Report Regarding Bus Route 335 – Radcliff Ave Portion

Title of Document Audited	Transit Windsor Route Infrastructure Planning and Design Guidelines	***Noncompliant***
Date of report	June 20, 2024	
Reported to:	Transit Windsor	City of Windsor
Author:	Mark Sementilli, CD, B.Eng Tech, MSc., CSME	

Section 2.4	Bus Stop Access Between Driveways
Requirement	Bus stops should be located away from driveways wherever possible to minimize conflicts between buses and vehicles using the driveways of adjacent properties. At locations where this cannot be avoided, the minimum requirements for the placement of a bus stop between two driveways can be found in Figure 24. The placement of a bus stop between access driveways is to be examined on a case-by-case basis. When locating a bus stop near a driveway the following should be considered: • Type and spacing of access driveways near the bus stop • Peak volume of traffic entering/exiting the access driveways • Expected service level and customer boarding/alighting volumes at the bus stop • Peak time of bus stop usage vs. the peak time of driveway traffic • Adequacy of passenger waiting area at the bus stop • Sight line requirements between customers walking to/from bus stop and drivers at the access • Possibility that traffic queued at the driveway will affect the efficient operation of the bus stop • Availability of alternative bus stop locations  Figure 24 Bus Stop Minimum Requirements Between Access Driveways

Findings	Bus Stop Access Between Driveways – Continued ……
Findings	Sightlines and proximity to driveways is problematic at the east and west stops by Radcliff Ave and Savanna St. West side stop East Side Stop

Noncompliance Report Regarding Bus Route 335 – Radcliff Ave Portion

Title of Document Audited	Transit Windsor Route Infrastructure Planning and Design Guidelines	***Noncompliant***
Date of report	June 20, 2024	
Reported to:	Transit Windsor	City of Windsor
Author:	Mark Sementilli, CD, B.Eng Tech, MSc., CSME	

Section 6	**Transit Road Design**
Requirement	It should be noted that the design objective is to provide bus operators with adequate opportunity to act and react safely in all traffic conditions, taking into account the design and performance characteristics of buses, particularly those critical in roadway design. **If any minimum design standards are not met, one or a combination of the following scenarios may occur, <u>which may compromise public safety</u>, transit efficiency and customer service:** • <u>A bus may not be able to physically complete a certain maneuver without conflicting other traffic movement(s)</u> • <u>A bus operator may be forced to maneuver without adequate visibility of adjacent traffic</u> • Bus adherence to schedule may be delayed due to design deficiency • The mechanical parts of the bus may be damaged, increasing maintenance needs and affecting operational safety • The safety and comfort of the customers may be adversely impacted • The opportunity to provide bus customer facilities or bus stops may be limited.
Concerns	- Residents are concerned with the tight turn radii on and off Radcliff Ave at both Little River and McNorton St. - Winding turns (reason for previous petition) at Radcliff Ave and Little River. - Narrow street not wide enough accommodate bus traffic. - Busses will create visibility issues with oncoming vehicles or vehicles turning to and from adjoining streets.

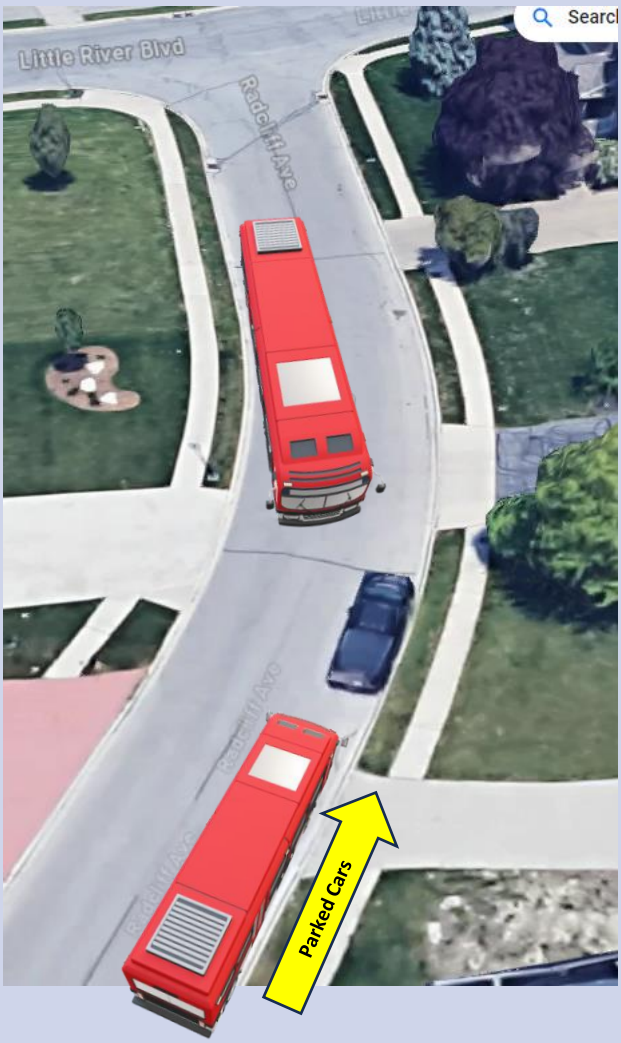
Findings	Bus Stop Access Between Driveways – Continued …….

Findings

Safety Concern from Original Petition – blind spots, tight corners, obstructed views, need to move into oncoming traffic.

- Decision to run the bus on Radcliff Ave was reversed.
- Current schedule will have an even greater frequency than previous time the bus was tried, increasing the probability that an issue may arrise.
- **<u>No mitigation</u>** has been provided by Transit Windsor to address this **<u>safety concern</u>**.

Several tight turn radii forcing bus or oncoming traffic into oncoming lanes.



Note:
There will be a greater impact by other vehicles such as school busses, garbage trucks and Condominium Services vehicles that park and use Radcliff Ave to access adjoining streets. This will inevitably drive the maximum width requirement or possibly even more.

Noncompliance Report Regarding Bus Route 335 – Radcliff Ave Portion

Title of Document Audited	Transit Windsor Route Infrastructure Planning and Design Guidelines	***Noncompliant***
Date of report	June 20, 2024	
Reported to:	Transit Windsor	City of Windsor
Author:	Mark Sementilli, CD, B.Eng Tech, MSc., CSME	

Section 6	Intersection Design
Requirement	The design of intersections should accommodate the required bus turning paths. The Design Vehicle selected should reflect the "worst case" condition for the types of vehicles, including buses, expected to operate on the specific route. Figure 112 illustrates the vehicle path of a Standard Bus making a typical right-turn movement at an intersection and the associated design considerations for corner radii and entry/receiving lane widths. During the design of a new intersection or the evaluation of an existing one, critical vehicle turning paths and other site-specific characteristics should be taken into account when determining corner radii and entry/receiving lane widths.

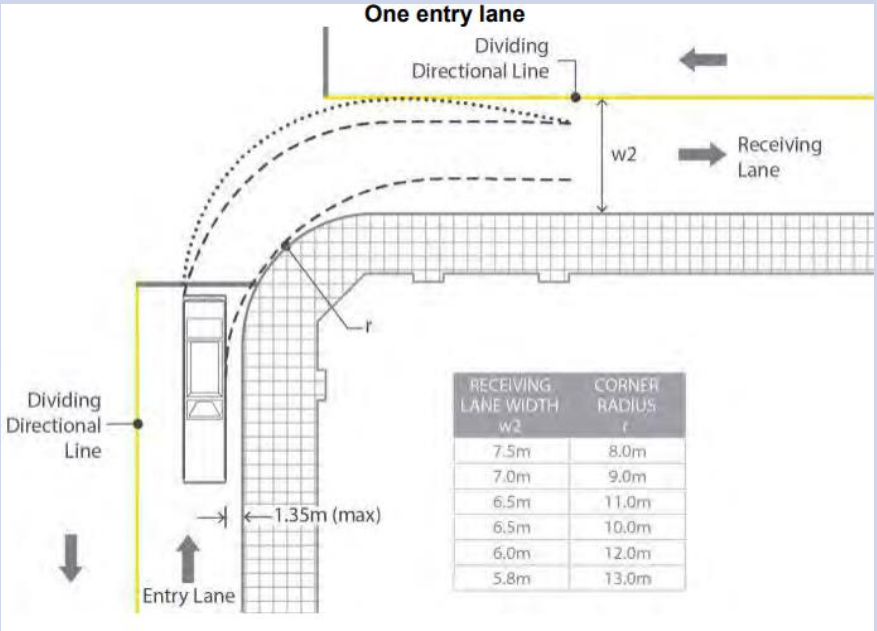
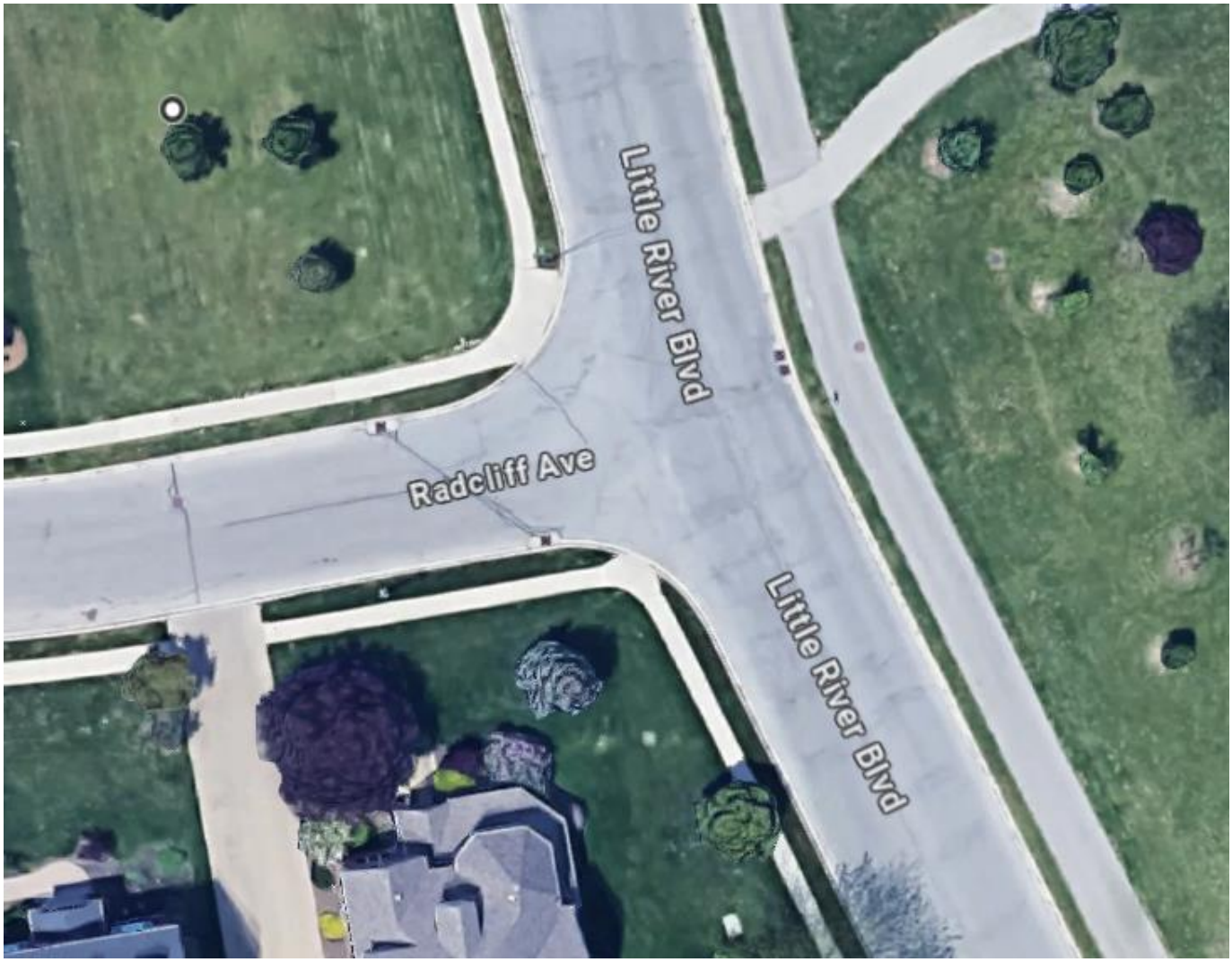


Figure 112 Diagram of Bus Turning Right at an Intersection; TRANSIT WINDSOR ROUTE INFRASTRUCTURE PLANNING AND DESIGN GUIDELINES

Concerns	**- Residents are concerns with the tight turn radii on and off Radcliff Ave at both Little River and McNorton St. - Winding turns (reason for previous petition) at Radcliff Ave and Little River. - Narrow street not wide enough accommodate bus traffic. - Busses will create visibility issues with oncoming vehicles or vehicles turning to and from adjoining streets.**
Concerns	**- Residents are concerns with the tight turn radii on and off Radcliff Ave at both Little River and McNorton St. - Winding turns (reason for previous petition) at Radcliff Ave and Little River. - Narrow street not wide enough accommodate bus traffic. - Busses will create visibility issues with oncoming vehicles or vehicles turning to and from adjoining streets.**



Findings	Bus Stop Radius is not compliant to Transit Windsor Design Criteria……

Findings

As per section 6 of the Transit Windsor Design Guidelines, Radcliff Ave **needs to have a receiving lane of 7 meters and is currently 4.3 meters.** Busses turning from Little River onto Radcliff Ave must do so with **too tight a turn radius and is not compliant to the design criteria.**

RECEIVING LANE WIDTH w2	CORNER RADIUS r
7.5m	8.0m
7.0m	9.0m
6.5m	11.0m
6.5m	10.0m
6.0m	12.0m
5.8m	13.0m

Actual

w 4.3 m r 8.7 m
(w 14.16 ft) (r 28.52 ft)

Taken from Figure 112 Diagram of Bus Turning Right at an Intersection;
TRANSIT WINDSOR ROUTE INFRASTRUCTURE PLANNING AND DESIGN GUIDELINES

DILLON CONSULTING

75 YEARS

TRANSIT WINDSOR

On Demand Transit Strategic Assessment

Final Report

September 2021 - 21-1745

Concerns raised contrary to Section 2.3 of assessment.

Noncompliance Report Regarding Bus Route 335 – Radcliff Ave Portion

Title of Document Audited	Dillion Consulting On Demand Transit Strategic Assessment	***Noncompliant***
Date of report	6/20/2024	
Reported to:	Transit Windsor	City of Windsor
Author:	Mark Sementilli, CD, B.Eng Tech, MSc., CSME	

Section 2.3	Community Impact
Requirement	**Stop Locations:** Avoid locations on residential property, where possible.
Concerns	Privacy/Quality of Life - Noise and vibration – people and pets - Loss of parking - Wellbeing of pets
Findings	Houses on Radcliff Ave will have **<u>stops 15 feet from houses</u>** and side yards. This includes living spaces, bedrooms, backyard patios, decks, and pools. <u>Currently</u> - no bus stops <u>Impact</u> – potentially 34 occurrences daily at each stop - all 4 eastside stops on Radcliff Ave - a staggering increase from no busses to 17 hours per day every 30 min - operational times 6 am to 11 pm weekdays, slightly reduced on weekends

Findings	Continued ……..
Findings	 **15 feet from house/deck/etc. to bus stop and loss of parking**
Note	*No plans provided for Noise, Privacy or Vibration Abatement.* *Condominium company requires access from Radcliff to maintain yards.* *Residents were contacted during a petition process, to date nobody on any of the streets has been notified by either Transit Windsor or The City of a bus stop being placed at their side yard. Additionally, nobody was aware this change was coming. Every person was made aware during the petition process.*

Noncompliance Report Regarding Bus Route 335 – Radcliff Ave Portion

Title of Document Audited	Dillion Consulting On Demand Transit Strategic Assessment	***Noncompliant***
Date of report	6/20/2024	
Reported to:	Transit Windsor	City of Windsor
Author:	Mark Sementilli, CD, B.Eng Tech, MSc., CSME	

Section 2.3	**Community Impact**
Requirement	**Reduce GHG Emissions**: The service should operate efficiently, minimizing non-revenue vehicle time/kilometers where vehicles are contributing to traffic and GHG emissions. When possible, Transit Windsor will also consider the introduction of electric vehicles to the fleet.
Concerns	- increased traffic problems being added to a street where there is no interest for a route being added. - utilize roads that are more equipped to handle the bus - no communication with the neighborhood that this change was being proposed despite promises from Transit and the City after the last attempts - despite two failed attempts to try a bus on Radcliff, transit will try it once more with no mitigation to resident's past or current concerns.
Findings	This **will not** minimize the non-revenue vehicle time/kilometers where vehicles are contributing to traffic and GHG emissions. <u>Currently</u> - no request for service. Transit Master Plan did not survey or provide outreach to this area. - Radcliff Ave. (as well as Maitland) has had several traffic calming studies asking the City of Windsor for help. - recent fatality on Mc. Norton just before the turn onto Radcliff Ave which will be part of the new bus route. <u>Impact</u> - no favorable cost to benefit ratio to run this service on Radcliff Ave. - this will only exasperate an existing traffic problem.

Findings	Continued ……..
Findings	The entire neighborhood was canvassed the week of April 8, 2024. With approximately **<u>300 signatures</u>**, there is almost **zero interest** for a bus on Radcliff Ave. No market surveys were completed for this change, the petition along with flyers made by the residents, was the first time people were finding out about this drastic change. Despite three previous requests for traffic calming, this proposed transit addition will increase traffic to Radcliff Ave contrary to the Dillion consulting recommendations. Proposed increased traffic due to bus: From no Bus to Every 30 minutes, 7 days per week Monday to Friday 6am to 11pm – 34 trips (17 hours per day) Sat 7 am to 11 pm – 32 trips (16 hours per day) Sun 8 am to 6:30 pm – 21 trips (With 4 bus stops along Radcliff, the following will be added: 223 trips down Radcliff 892 potential stops (braking noise and acceleration) This is a major impact with no supporting evidence from transit Windsor. The petition proves the opposite. This new route would turn Radcliff Ave into a pass through for Transit Windsor which is **<u>not compliant</u>** to this section of the Dillion Report.
Note	*The petition included Radcliff Ave and all adjoining streets since Transit Windsor suggested (with no supporting documentation) that the townhomes wanted this change.* Streets: Radcliff Ave, Derek St, Savanna St, Soloman St, Norbert St, Lakeview, Blair St, Cobblestone Crescent, Boulder Crescent, Rockland St, Maitland, Thistledown Ave, Duneshill Ave, Gatwick Ave

Next Step/Opportunity/Possible Solutions

During the petition and outreach process people repeatedly questioned why more appropriate existing roads that travel North/South and also met turning radius and width requirements were not being considered.

Examples include:

Clover Ave. – Bus currently runs on the road.

- 34 ft wide road
- Greater turning radius on and off Clover Ave
- Forward facing homes with 32 ft set back for noise and privacy
- No impact to park

Banwell Ave

- Four lanes vs two
- Greater turning radius on and off Banwell Ave
- Limited residential – condominiums
- No impact to park.

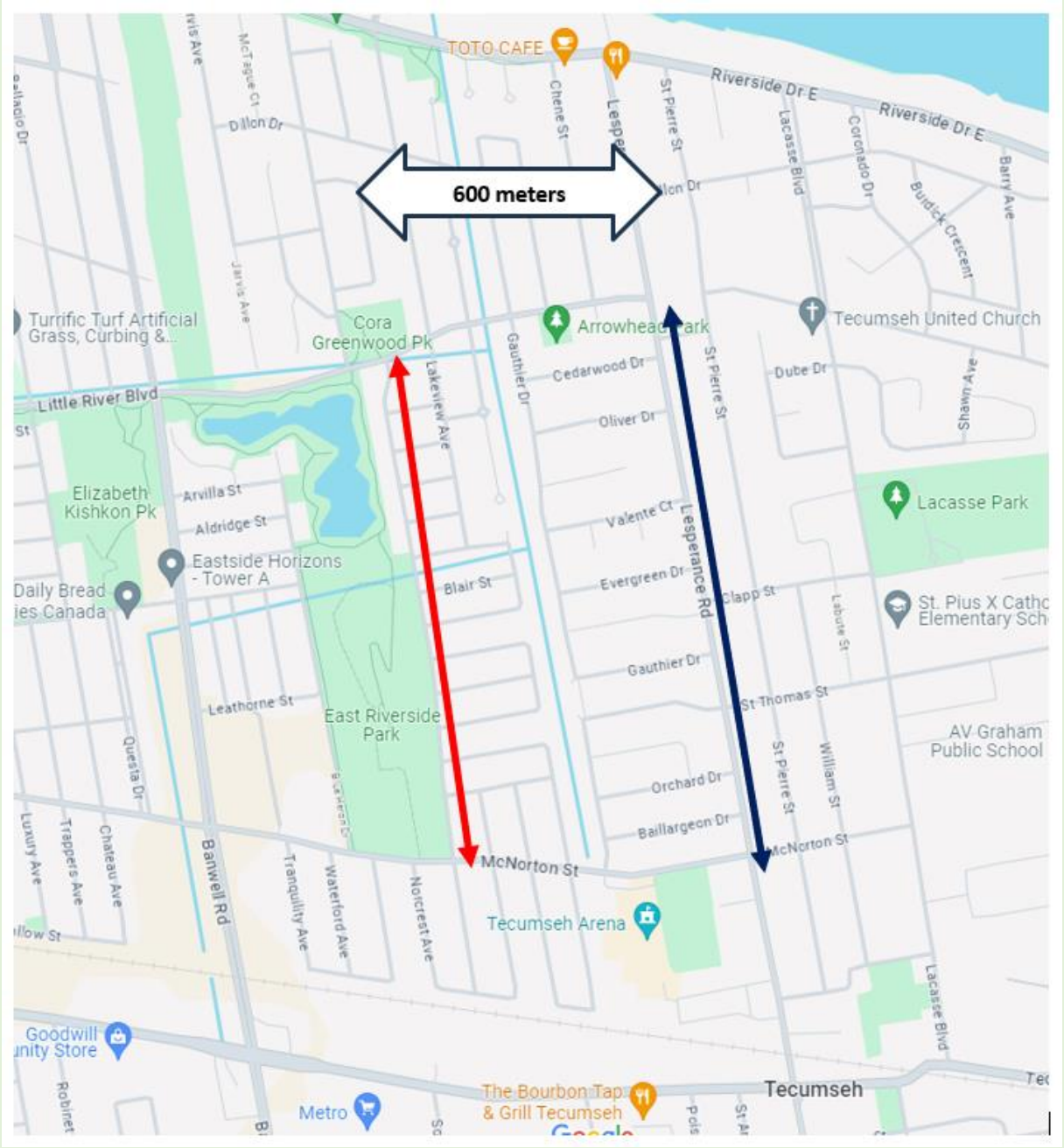
Chateau Ave

- 34 ft wide road
- Greater turning radius on and off Clover Ave
- Forward facing homes with 32 ft set back for noise and privacy
- No impact to park

Next Step/Opportunity/Possible Solution - Lesperance Rd.

During this outreach another North/South road that was continuously questioned was Lesperance Rd. in Tecumseh.

Only 600 meters away.



Next Step/Opportunity/Possible Solution

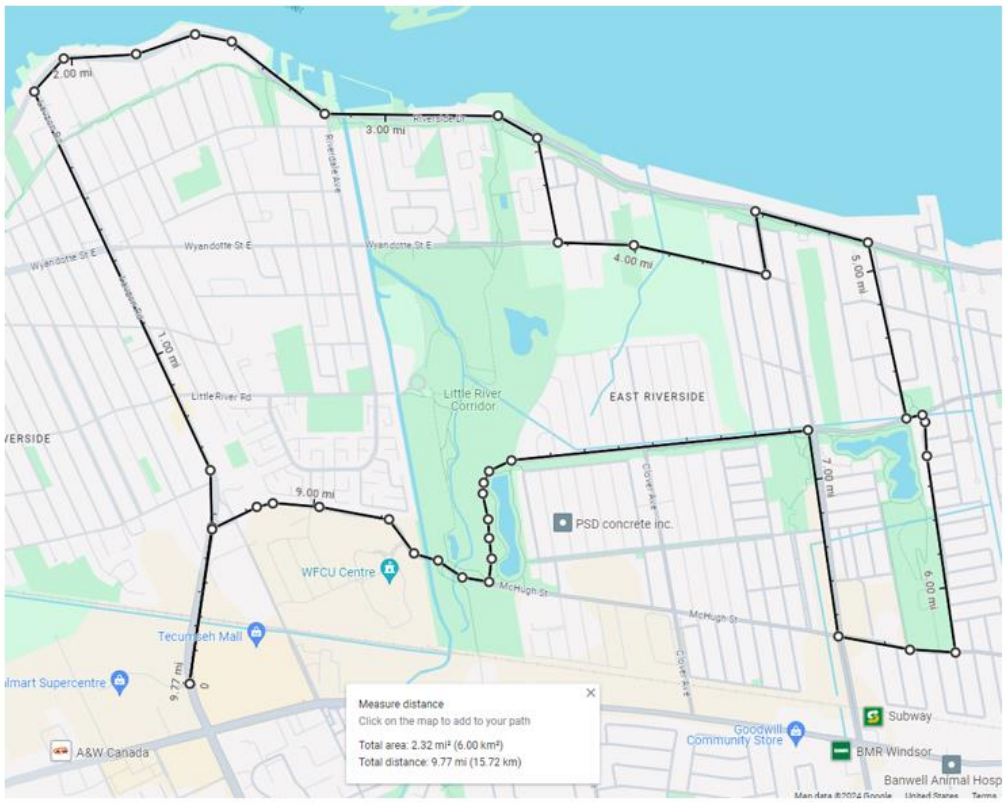
Overview

A 600 meter shift to Lesperance equals:

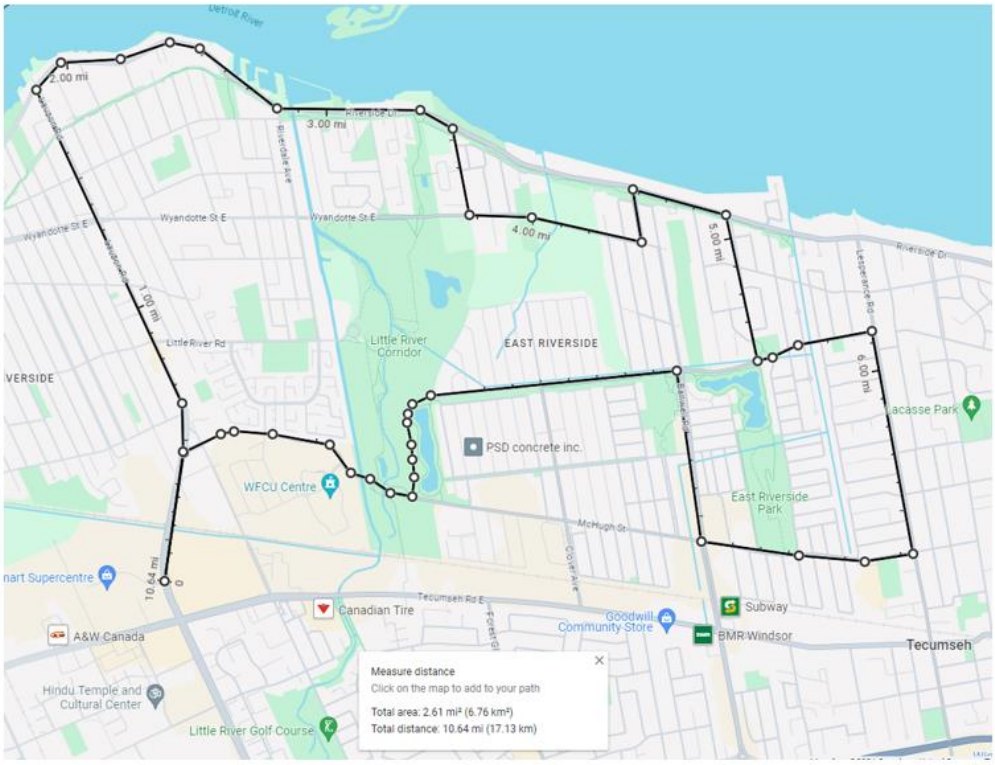
- Potential increase in ridership of 1500 houses within a 400 meter radius to the bus route.
- Regional connection of up to **9000 homes in Tecumseh** beyond what was identified for this route.
- Connect Students and Seniors to St. Clair College and University of Windsor
- Connect L'Essor Secondary School (boundary extends into East Windsor) to Windsor, schoolboard can be less reliant on School Busses.
- Connect Tecumseh to WFCU
- Connect Tecumseh to Tecumseh Mall
- Informal conversation with Tecumseh, there would be an interest in pursuing this model.

This small shift from Radcliff Ave to Tecumseh is truly a regional connection that will happen 7 days a week and roughly 6 am to 11 pm.

Next Step/Opportunity/Possible Solution



Total Distance
15.75 km



Total Distance
17 km

An 8% increase in distance equals an opportunity increase of 9000 homes and regional connection

Summary of finding .....

The following is a summary of findings in the report, compered to another local road where the bus is being removed.

Issue	Radcliff Ave	Clover Ave	Note
Meets Windsor Transit Design Route Infrastructure Planning and Design Guidelines.	**No**	**Yes**	Sections 1, 1.1, 2.1, 2.4, 6 and 6.3 are **not met** for Radcliff Ave.
- Road Width	**28.5 ft**	**38 ft**	Radcliff does not meet Transit Windsor Design Criteria for road width (Section 6.3) **Too narrow** by a range of 2ft to 4ft.
- Spacing of Stops	**Does not meet**	**Yes**	As per section 1 - **excessive number of stop**s have been planned for Radcliff which contradicts efficiency guidelines.
- Bus Stops (Location)	**Does not meet**	**Yes**	As per section 2.1 - width of the Radcliff Ave to support these stops is **too narrow.**
- Cross walks and Line of Sight	**No**	**Yes**	As per section 2.1 - Radcliff **does not meet** the criteria. There are currently two park entrances with no crosswalks, one park entrance does not have proper clearance from the bus stop to the cross walk, line of sight issues at some of the stops.
- Transit road design	**Does not meet**	**Yes**	Radcliff **does not meet section 6** - Several tight turn radii forcing bus or oncoming traffic into oncoming lanes.
- Intersection design	**Does not meet**	**Yes**	As per section 6 of the Transit Windsor Design Guidelines, Radcliff Ave needs to have a **receiving lane of 7 meters and is currently 4.3** meters. Busses turning from Little River onto Radcliff Ave must do so with too tight a turn radius and is not compliant to the design criteria. **Safety - does not meet design criteria.**
Meets Dillion Consulting – On Demand Transit Strategic Assessment	**No**	**Yes**	Community Impact (section 2.3) Stop Locations: Avoid locations on residential property, where possible.
- Bus Stops (Proximity to houses - location)	**Side yard**	**Front**	Reduction in Quality of Life. Privacy and noise.
- Bus Stops (Proximity to houses - distance)	**15 ft**	**32 ft**	Reduction in Quality of Life. Privacy and noise.
- Yellow line to separate traffic	**Not possible**	**Yes**	Will require bus to move into oncoming lane.
- Traffic light at major intersections	**No**	**Yes**	Known safety issues
Meets Transit Windsor Master Plan	**Does not meet**	**Yes**	**3.3 Mission of the Master plan** Safe – This speaks to a service that emphasizes the safety of its customers, employees, and any other roadway user or traveler driving, cycling, or walking near or in potential conflict with the transit vehicles **Risk Assessment** - no mitigation provided
- Outreach and Consultation	**Does not meet**	**NA**	No prior consultation was provided to residents of Radcliff Ave. No community feedback is being accepted.
Meets Master Environmental Plan	**No**	**NA**	Goes against several points in the plan. **No assessment has been completed**. Impact to East Riverside Park/Urban woodland and trails.
Other Observations			
Lane Separation	**No**	**Yes**	No road separation lines and parked cars - forces vehicles to move into opposite lane. 3.3 Mission of the Master plan Risk Assessment - no mitigation provided
Elimination of Parking	**Yes**	**No**	Reduction of parking on Radcliff Ave
No Community Mailbox cut ins	**No**	**NA**	3.3 Mission of the Master plan Risk Assessment - no mitigation provided

Sources

Risk Assessment

Federal Transit Administration- Safety Risk Assessments Matrices for Bus Transit Agencies

Sample Safety Risk Assessment Matrices for Bus Transit Agencies | FTA (dot.gov)

Engineering standards and design guidelines and sources:

TRANSIT WINDSOR ROUTE INFRASTRUCTURE PLANNING AND DESIGN GUIDELINES

Transit Windsor More Than Transit: 2019 Transit Master Plan

Translink – Bus Infrastructure Design Guidelines

Microsoft Word - BIDG - September 2018 v46 (translink.ca)

National Association of City Transportation Officials (NACTO) Urban Street Design Guide

American Association of State Highway and Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets (Green Book)

Institute of Transportation Engineers (ITE) Traffic Engineering Handbook

Safety Risk Assessment Register - Radcliff Ave

Identification							Initial Safety Risk Rating			Further Mitigation Action	Revised Safety Risk Index		Mitigation Owner and Implementation Date		
Hazard	Hazard Type	Identification Date	Identification Source	Analysis Date	Worst Possible, Worst Credible, or Most Common Potential Consequence(s)	Existing Mitigation(s)	Severity of Consequences	Likelihood of Consequences	Safety Risk Index	Further Mitigation Action	Revised Safety Risk Index	Revised Safety Risk Index Date	Department Responsible for Mitigation	Estimated Implementation Date	Contact Person
Bus turning Northbound onto Radcliff Ave	Technical - Operational	2/1/2024	Residential safety reporting. **Previous petition raised by residence.**	02/01/24	Bus crosses into oncoming lane due to parked cars and nonstandard width roadway and there is a **head-on collision.** > Radius of turn nonstandard for single lane turning onto single lane. > Bus could have to complete turn in oncoming lane. > Radcliff Ave is too narrow to accommodate busses, two way traffic and parked cars 28.5 ft is below design standards) > No yellow divide line to separate traffic > No traffic light at an identified high traffic area > No defined stop line from Radcliff Ave onto McNorton	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition - D**oes not meet design guidelines or best practices** (TRANSIT WINDSOR ROUTE INFRASTRUCTURE PLANNING AND DESIGN GUIDELINES, NACTA or Translink)	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Car turning Northbound onto Radcliff Ave	Technical - Operational	2/1/2024	Residential safety reporting. **Previous petition raised by residence.**	02/01/24	Car crosses into oncoming lane due to parked cars and nonstandard width roadway resulting in **head-on collision** with Bus. > Radius of turn nonstandard for single lane turning onto single lane. > Bus could have to complete turn in oncoming lane. > No yellow divide line to separate traffic > No traffic light at an identified high traffic area > No defined stop line from Radcliff Ave onto McNorton	No existing mitigations (administrative only) - existing condition but increased frequency and severity by adding Transit	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Bus stops	Technical - Operational	2/1/2024	Residential safety reporting.	2/1/2024	Bus enters oncoming lane to clear parked cars in front of bus stop - **head-on collision.** > No yellow divide line to separate traffic > Radcliff Ave is too narrow to accommodate busses, two way traffic and parked cars 28.5 ft is below design standards) > History of collisions and traffic calming issues	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition **- Does not meet design guidelines or best practices** (TRANSIT WINDSOR ROUTE INFRASTRUCTURE PLANNING AND DESIGN GUIDELINES, NACTA or Translink)	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Bus stops	Technical - Operational	2/1/2024	Residential safety reporting.	2/1/2024	Bus creates visibility issues for pedestrians trying to cross road. - **On coming vehicle collision with pedestrians** > no stops signs or cross walks > two park entrances and sledding usage	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition **- Does not meet design guidelines or best practices** (TRANSIT WINDSOR ROUTE INFRASTRUCTURE PLANNING AND DESIGN GUIDELINES, NACTA or Translink)	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Bus stops	Technical - Operational	2/1/2024	Residential safety reporting.	2/1/2024	Bus along with parked cars creates visibility restrictions when Turing onto Radcliff Ave from various side streets. - **On coming vehicle collision or collision with pedestrians**	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition **- Does not meet design guidelines or best practices** (TRANSIT WINDSOR ROUTE INFRASTRUCTURE PLANNING AND DESIGN GUIDELINES, NACTA or Translink)	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Bus stops	Technical - Operational	2/1/2024	Residential safety reporting.	2/1/2024	Cars passing stopped busses trying to turn right or passing, **colliding** with the bus as the bus pulls out of the stop.	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition **- Does not meet design guidelines or best practices** (TRANSIT WINDSOR ROUTE INFRASTRUCTURE PLANNING AND DESIGN GUIDELINES, NACTA or Translink)	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Bus stops	Technical - Operational	2/1/2024	Residential safety reporting.	2/1/2024	Side walk maintenance and snow removal. - sidewalks maintained by condo company, will condo company maintain? **- Slip and fall**	If existing snow removal service not established with condo company. No snow removal.	3 (Marginal)	B (Probable) - existing condition, frequency and probability increases slightly.	3B (Acceptable based upon mitigations)	Assumption Condo company will continue snow removal service of sidewalks.	4C (Acceptable)				

Bus turning Southbound onto Radcliff Ave **- turning from Little River Rd.**	Technical - Operational	2/1/2024	Residential safety reporting. **Previous petition raised by residence.**	02/01/24	Bus crosses into oncoming lane due to nonstandard width roadway and winding section resulting is a **head-on collision.** > Radius of turn nonstandard for single lane turning onto single lane. > Bus could have to complete turn in oncoming lane. > Radcliff Ave is too narrow to accommodate busses, two way traffic and two sections of curves (28.5 ft is below design standards) > No yellow divide line to separate traffic > No traffic light > No defined stop line from Radcliff Ave onto McNorton	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition **- Does not meet design guidelines or best practices** (TRANSIT WINDSOR ROUTE INFRASTRUCTURE PLANNING AND DESIGN GUIDELINES, NACTA or Translink)	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Bus turning Southbound onto Radcliff Ave **- turning from Little River Rd.**	Technical - Operational	2/1/2024	Residential safety reporting. **Previous petition raised by residence.**	02/01/24	Potential of **head-on collision** due to Bus being struck by oncoming traffic. Oncoming traffic crosses into oncoming lane due to parked cars, nonstandard width roadway and winding road. > Radius of turn nonstandard for single lane turning onto single lane. > Bus could have to complete turn in oncoming lane. > Radcliff Ave is too narrow to accommodate busses, two way traffic and parked cars 28.5 ft is below design standards) > No yellow divide line to separate traffic > No traffic light at an identified high traffic area > No defined stop line from Radcliff Ave onto McNorton	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition **- Does not meet design guidelines or best practices** (TRANSIT WINDSOR ROUTE INFRASTRUCTURE PLANNING AND DESIGN GUIDELINES, NACTA or Translink)	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Car turning Southbound onto Radcliff Ave	Technical - Operational	2/1/2024	Residential safety reporting. **Previous petition raised by residence.**	02/01/24	Car crosses into oncoming lane due to parked cars and nonstandard width roadway resulting in **head-on collision** with Bus. > Radius of turn nonstandard for single lane turning onto single lane. > Bus could have to complete turn in oncoming lane. > No yellow divide line to separate traffic > No traffic light at an identified high traffic area > No defined stop line from Radcliff Ave onto McNorton	No existing mitigations (administrative only) - existing condition but increased frequency and severity by adding Transit	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Bus Traveling Southbound	Technical - Operational	2/1/2024	Residential safety reporting.	02/01/24	Car crosses into oncoming lane due to parked cars and nonstandard width roadway resulting in **head-on collision** with Bus. > No yellow divide line to separate traffic > Radcliff Ave is too narrow to accommodate busses, two way traffic and two sections of curves (28.5 ft is below design standards)	No existing mitigations (administrative only) - existing condition but increased frequency and severity by adding Transit **- Does not meet design guidelines or best practices** (TRANSIT WINDSOR ROUTE INFRASTRUCTURE PLANNING AND DESIGN GUIDELINES, NACTA or Translink)	1 (Catastrophic)	A (Frequent) - once ever hour, hundreds of times per month	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				
Other factors															
School bus route	Technical - Operational	Date	Employee safety reporting	Date	Collision likelihood increases due to road being too narrow, with transit, two way traffic and parked cars.	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition **- Does not meet design guidelines or best practices** (TRANSIT WINDSOR ROUTE INFRASTRUCTURE PLANNING AND DESIGN GUIDELINES, NACTA or Translink)	1 (Catastrophic)	A (Frequent) - daily during school season	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A	N/A	N/A	N/A	N/A
School bus route - no crosswalks	Technical - Operational	2/1/2024	Residential safety reporting.	2/1/2024	Bus creates visibility issues for pedestrians trying to cross road. - **On coming vehicle collision with pedestrians** > no stops signs or cross walks > two park entrances and sledding usage	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition **- Does not meet design guidelines or best practices** (TRANSIT WINDSOR ROUTE INFRASTRUCTURE PLANNING AND DESIGN GUIDELINES, NACTA or Translink)	1 (Catastrophic)	A (Frequent) - daily during school season	1A (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1A				

Maintenance Crews - condos on sideroads	Technical - Operational	2/1/2024	Residential safety reporting.	2/1/2024	Bus creates visibility and Collison issues for maintenance crews that park and use equipment along Radcliff to service all the condos on the sideroads. Crews will be working around Mid Stop Bus Stops- **On coming vehicle collision with pedestrians, workers, equipment, bus stop interaction with lawn cutting tractors.**	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - new condition	1 (Catastrophic)	P (Probable) - once per week during lawn care months.	1B (Unacceptable under the existing circumstances)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	Remains 1B				
Animal Crossing to Blue Heron Park	Technical - environment	2/1/2024	Residential safety reporting.	2/1/2024	Bus creates increased traffic flow along with visibility and Collison issues for existing wildlife. - **Collision** is with wildlife but could be on occasion lead to motor vehicle or pedestrian collision.	No mitigations (administrative only) - Training, SOP and handling of transit driver only. - existing condition that will increase	4 (Negligible)	A (Frequent) - once ever hour, hundreds of times per month	4B (Acceptable based upon mitigations)	No mitigations present by Windsor Transit or the City of Windsor. Cannot rescore.	4B (Acceptable based upon mitigations)				

Sample Safety Risk Matrix and Likelihood and Severity Tables

Likelihood of Occurrence of the Consequence		
Qualitative Definition	*Meaning*	*Value*
Frequent	Likely to Occur Frequently ($>10^{-1}$)	A
Probable	Likely to Occur Several Times ($<10^{-1}$ but $>10^{-3}$)	B
Occasional	Likely to Occur Sometime ($<10^{-3}$ but $>10^{-6}$)	C
Remote	Very Unlikely to Occur ($<10^{-6}$ but $>10^{-8}$)	D
Improbable	Almost inconceivable that the event will occur ($<10^{-8}$)	E

Severity of the Consequence		
Definition Category	*Meaning*	*Value*
Catastrophic	Could result in one or more of the following: death, permanent total disability, irreversible significant environmental impact or monetary loss equal to or exceeding $10M.	1
Critical	Could result in one or more of the following: permanent partial disability, injuries or occupational illness that may result in hospitalization of at least three personnel, reversible significant environmental impact, or monetary loss equal to or exceeding $1M but less than $10M.	2
Marginal	Could result in one or more of the following: injury or occupational illness resulting in one or more lost work day(s), reversible moderate environmental impact, or monetary loss equal to or exceeding $100K but less than $1M.	3
Negligible	Could result in one or more of the following: injury or occupational illness not resulting in a lost work day, minimal environmental impact, or monetary loss less than $100K.	4

Risk Assessment Matrix				
Likelihood	*Severity*			
	1 (Catastrophic)	**2 (Critical)**	**3 (Marginal)**	**4 (Negligible)**
A (Frequent)	1A	2A	3A	4A
B (Probable)	1B	2B	3B	4B
C (Occasional)	1C	2C	3C	4C
D (Remote)	1D	2D	3D	4D
E (Improbable)	1E	2E	3E	4E

Risk Assessment Matrix Color Code	
Tolerability" based on identified severity and likelihood	
	Unacceptable under the existing circumstances.
	Acceptable based upon mitigations.
	Acceptable with senior management approval.

*Numbers provided for illustrative purposes only