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Re: The Dune Lookout (West Lake Resort), #1874 County Road 12, Prince Edward County, c/o RFA

Subject: Traffic Brief – #1874 County Road 12

Project Number: 22-3-7758

Having reviewed the available documents, the following is provided in support of The Dune Lookout development application process and is intended to assess the impact of the proposed development on the traffic of County Road 12.

Existing Conditions

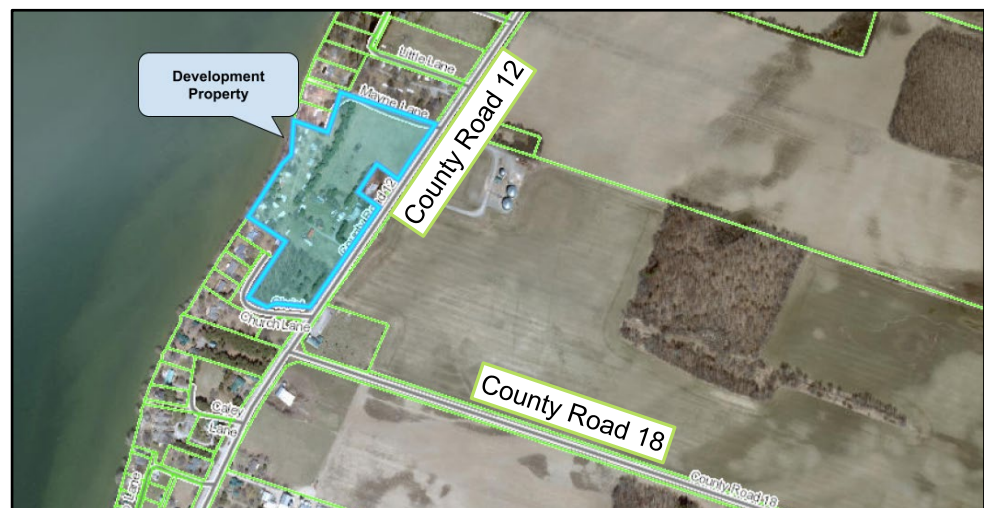
The development property has a municipal address of #1874 County Road 12, which is about 175m north of the County Road 12-County Road 18 intersection.

County Road 12 is a rural two-lane road travelling north to south between Loyalist Parkway (Highway 33) in Bloomfield and County Road 18, following the east shore of West Lake. Traffic activity is a mixture of local, tourist and agricultural traffic, typical to the Prince Edward County region. The posted legal speed limit in the area of study is 50km/h.

County Road 18 is a rural two-lane road travelling east to west between County Road 10 and County Road 12, following the south shore of East Lake. Traffic activity is a mixture of local, tourist and agricultural traffic. The posted legal speed limit is 60km/h.

The property has been used recently as a trailer park. Existing buildings include three cottages, a two-unit house, one washroom building, five sheds and one barn. The current zoning is "RU1 - Rural One".

The development property borders Christ Church Lane to the south and Mayne Lane to the north. Both are private gravel single lane access roads with waterfront residential land use. The following image shows the development property in relation to the surrounding area.



Aerial image of surrounding road network from PEC GIS Viewer.

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Three existing gravel driveways currently provide access to the development property from County Road 12. The southern-most driveway (#1874) / Christ Church Lane is the main laneway into the property, while the next two to the north (#1866B and #1866) are from existing houses.



Existing driveway entrances on County Road 12.



Existing driveway (Christ Church Lane) and barn at #1874 County Road 12.

Proposed Development

The conceptual site plan prepared by RFA Planning Consultants includes:

- 20 bungalow villas each with two bedrooms, for 40 total overnight accommodation units.
- Office and reception building with Bike Café.
- One-storey guest clubhouse.
- 62 total parking spaces, with 20 spaces in the bike cafe parking lot, 2 spaces closer to the bike cafe, and 40 spaces for bungalow villa guests.

The #1874 gravel laneway will remain as the principal entrance into the property post-development. It will be the entrance into the bungalow villa accommodations, clubhouse area, and the Bike Café. The middle driveway (#1866B) and third entrance (#1866) will be converted into a path for bicycle and pedestrian use.



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Background Traffic Volumes

Background traffic on County Road 12 was assessed using traffic counts from Prince Edward County, and from a manual count conducted by Greer Galloway.

Prince Edward County has provided traffic data for the nearby road network. The closest relevant location was County Road 12, 100m north of Kleinsteuber Parks Road, which is 3.1 km northeast of the development. Data from this location is provided below:

Road	Description	Traffic Volume (24h)	Posted Speed (km/h)	Date of Counts
County Road 12	100 metres North of Kleinsteuber Parks Road	1,602	60	Tuesday May 27, 2014
		4,417		Saturday July 31, 2018

(Note: The posted speed limit on County Road 12 increases to 60 km/h at Kleinsteuber Parks Road.)

This data shows that traffic grew 30% each year for the four years between the counts. This is far above what we would typically expect for any road, even considering the busy tourist roads within the County. It is more likely that the increase represents traffic variation associated with Tuesday vs. Saturday traffic.

Instead, a baseline projection based on a more typical 3% year-over-year growth rate will be made from the 2018 count. Between 2018 and 2023 (a five-year period), this results in 5,121 vehicles.

Following the Ontario Good Roads Association procedure of relating short duration counts to average annual daily traffic (AADT), approximately 30% (1,536 vehicles) of the AADT can be expected between the four hours between 2pm and 6pm; leaving 384 vehicles for the peak weekday afternoon hour.

Greer Galloway Traffic Count – Thursday, July 27, 2023

Greer Galloway also conducted a brief 4-hour traffic count at the intersection of County Road 12 and County Road 18 on Thursday, July 27, 2023, from 1:00pm to 5:00pm. The peak hour of traffic on County Road 12 travelling on the north side of the intersection was counted between the times of 3:15pm and 4:15pm. This hour saw **127** southbound vehicles and **308** northbound vehicles for **435** vehicles total.

This is similar but higher than the projection assumed from the Prince Edward County data. This will be used to estimate the adjacent background traffic.

It may also be of interest that 10 bikes were counted at the County Road 18 intersection, with nine of them passing the development site on County Road 12.

Adjustment for Weekend Traffic

The *Ontario Ministry of Transportation Provincial Highways Traffic Volumes 1988 – 2016* was used to determine a reasonable weekend adjustment factor.

The section of Highway 33 between Bloomfield and the Warings Corner



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roundabout was used and is categorized by a “tourist” pattern type.

The most recent four years of data are provided below.

Highway	Location Description	Dist. (KM)	Year	Pattern Type	AADT	SADT	SAWDT	WADT	AR
33	PR ED RD 1/SANDY HOOK RD(S) - SCOHARIE RD(N)		2013	T	5,350	7,800	7,650	3,400	N/A
			2014	T	5,400	7,900	7,850	3,450	N/A
			2015	T	5,500	8,050	8,000	3,500	N/A
			2016	T	5,550	8,100	8,050	3,550	N/A

Summer average daily traffic (SADT) was slightly higher than summer average weekday daily traffic (SAWDT), which indicate that weekends are busier than weekdays. Relating the two metrics by weighed average gives a 1.035 (3.5%) adjustment increase between weekday and weekend traffic volumes. We will assume that this trend is representative of the County traffic patterns in general.

Since the manual count was taken on a weekday, we will apply the 3.5% adjustment to the counted peak hour to estimate the weekend volumes. This increases the total number of through vehicles on County Road 12 to **450**, with **131** travelling southbound, and **319** travelling northbound.

New Trip Generation

It is difficult to estimate the peak hour traffic activity developments such as this as traffic can vary significantly depending on the characteristics of the development.

The 11th edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual will be used to assist with new vehicle trip generation.

We will characterize the development by two generators: one for the overnight accommodations and amenities, and one for the bike café.

Overnight Accommodations and Resort Amenities

Within the ‘Lodging’ land use group, land use #330 –Resort Hotel is described as: *“A resort hotel is similar to a hotel in that it provides sleeping accommodations, full-service restaurants, cocktail lounges, retail shops, and guest services. The primary difference is that a resort hotel caters to the tourist and vacation industry, often providing a wide variety of recreational facilities/programs (e.g., golf courses, tennis courts, beach access, or other amenities) rather than convention and meeting business.”*

For 40 rooms, average trip generation rates are:

- 0.41 trips per unit for the peak weekday morning hour; 16 trips total
- 0.50 trips per unit for the peak weekday afternoon hour; **20** trips total

Weekend trip generation is not provided for this land use.

Parking for the bungalow villas is provided as 2 spaces per villa for a total of 80 spaces. The trip generation appears reasonable for the number of units and parking spaces provided.

Bike Café (Separate parking in southern portion of development)

The bike café is more difficult to align with trip generator land uses. Land use #936 – Coffee/ Donut Shop without Drive Through Window only provides data for urban establishments and generates trips far more than what we would expect for

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a rural establishment such as this. Instead, the parking provision will be used.

Parking for the bike café is provided consistent with the established Prince Edward County zoning by-law. Twenty-two (22) spaces are shown. To estimate a conservative number of vehicle trips for the bike café, we will assume that 68 percent of the available parking spaces will turn over within a given hour. This results in **15** exiting trips, **15** entering trips, and **30** total trips.

Adjustments for Bike, Boat, and Pass-by Trips

No reduction will be made to the trip generation to replace vehicle trips with those made with other modes of transportation.

Entrance Modelling: #1874 Driveway at County Road 12

No appreciable impacts to traffic resulting from the development are expected. However, a rough model was created using HCS7 traffic modelling software to illustrate the interaction of new and existing traffic on County Road 12.

ADJUSTED WEEKEND BACKGROUND TRAFFIC			NEW TRAFFIC ACCOMODATIONS ONLY		
	SB-RT	SB-TH		SB-RT	SB-TH
	0	131		5	0
EB-LT	Total 450		EB-LT	Total 20	
0			5		
EB-RT			EB-RT		
0			5		
	NB-LT	NB-TH		NB-LT	NB-TH
	0	319		5	0

NEW TRAFFIC BIKE CAFÉ ONLY			TOTAL TRIPS BACKGROUND + NEW		
	SB-RT	SB-TH		SB-RT	SB-TH
	7	0		12	131
EB-LT	Total 30		EB-LT	Total 500	
8			13		
EB-RT			EB-RT		
7			12		
	NB-LT	NB-TH		NB-LT	NB-TH
	8	0		13	319

Entrance Safety

The entrance will be located where existing gravel entrances already exist, and we are not aware of any existing concerns or history of accidents at either of them. The following sightline requirements are provided for information.

1. Ministry of Transportation Highway Access Management Guideline

The MTO Highway Access Management Guideline has been used by the County in other instances and is assumed to be the applicable standard in this case.

Stopping sight distance is from the point of view of a motorist travelling on the road. It is the distance that a motorist should be able to see to stop safely. This is the minimum standard that should be met.

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Stopping Sight Distance (Table 9)

- Posted speed of 50 km/h.
- Design speed allowance of an additional 20 km/h.
- Roughly flat approach grade.
- Distance Required = 105m

The entering sight distance is from the point of view of a motorist waiting to enter or cross the highway. It is the distance a motorist should be able to see to safely enter the road and accelerate to the posted speed without being overtaken by an approaching vehicle.

Entering Sight Distance for 2 Lane Highways (Table 7)

- Posted speed of 50 km/h.
- Commercial access.
- Design speed allowance of an additional 20 km/h.
- Roughly flat approach grade.
- Distance Required = 225m

2. Transportation Association of Canada Geometric Design Guide (TAC)

Stopping Sight Distance (Table 2.5.2)

- Posted speed of 50 km/h (design speed of 100 km/h).
- Level roadway.
- Design speed allowance of an additional 20 km/h.
- Distance Required = 105m (same as MTO)

Intersection Sight Distance: Right Turn (Table 9.9.6)

- Distance Required = 130m

Intersection Sight Distance: Left Turn (Table 9.9.4)

- Distance Required = 150m

Note that the entering and intersection sight distances differ above because MTO Table 7 assumes a multi-unit truck commercial design vehicle; Tables 9.9.6 and 9.9.4 (TAC) assume a passenger vehicle, unless adjustments are made.

County Road 12 is straight and flat on both sides of the development. Measurements taken in Google Maps confirm that the MTO/ TAC 50 km/h stopping and entering sight distances are met in both directions. StreetView images from the existing driveway and the stopping sight distances are attached.

Entrance Geometry

Where possible, consistent with Ontario Ministry of Transportation access management standards, we recommend the entrance to County Road 18 reflect MTOD 305.140 Commercial Entrance to Small Businesses (attached) including a width of 8m and radii of 10m where posted speed is less than 70 km/h.

Emergency Access

According to the Ontario Building Code (OBC), buildings that are more than 3 storeys in building height or more than 600 m² in building area shall be provided with access routes for fire department and emergency vehicles. They shall:

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- Have a clear width not less than 6m.
- Have a centreline radius not less than 12m.
- Have an overhead clearance not less than 5m.
- Have a change of gradient not more than 1 in 12.5 (8%).
- Be designed to support the expected loads imposed by firefighting equipment and be surfaced with concrete, asphalt or other material designed to permit accessibility under all climatic conditions.
- Have turnaround facilities for any dead-end portion of the access route more than 90m long.
- Be connected to a public thoroughfare.

All emergency access requirements are satisfied based on the current site plan.

Conclusion

Based on the above observations, applicable standards, a lack of previous safety concerns and our understanding of the proposed development, we believe that the reconstructed driveway will be acceptable for the proposed development.

(Note: It is reasonable to anticipate some minor changes in the site plan as the approval process runs its course. Only changes that are felt to be significant and directly relevant to entrance traffic may warrant a revision to this document.)

If there are any questions or comments, please contact the undersigned.

Sincerely,

**THE GREER GALLOWAY GROUP INC.
CONSULTING ENGINEERS**



Matthew McIntosh, P. Eng.
Senior Engineer / Project Manager

Attachments:

1. StreetView Photos (x4)
2. Modelling Output
3. MTOD 305.140 Commercial Entrance to Small Business

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Looking north on County Road 12 from the development driveway.



Looking south on County Road 12 from the development driveway.



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Looking north on County Road 12, ~105m south of development driveway.

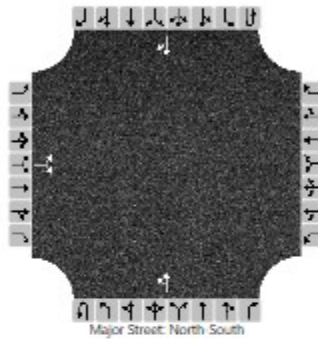


Looking south on County Road 18, ~105m north of development driveway.

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Amelia McIntosh	Intersection	CR12 and #1874 Driveway
Agency/Co.	Greer Galloway	Jurisdiction	Prince Edward County
Date Performed	6/14/2024	East/West Street	#1874 Driveway
Analysis Year	2024	North/South Street	County Road 12
Time Analyzed	Weekend Design Hour	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	#1874 County Road 12		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	10U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0	
Configuration			LR							LT						TR	
Volume (veh/h)		13		12						13	319				131	12	
Percent Heavy Vehicles (%)		3		3						3							
Proportion Time Blocked																	
Percent Grade (%)		0															
Right Turn Channelized																	
Median Type Storage		Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1							
Critical Headway (sec)		6.43		6.23						4.13							
Base Follow-Up Headway (sec)		3.5		3.3						2.2							
Follow-Up Headway (sec)		3.53		3.33						2.23							

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			27							14							
Capacity, c (veh/h)			639							1419							
v/c Ratio			0.04							0.01							
95% Queue Length, Q ₉₅ (veh)			0.1							0.0							
Control Delay (s/veh)			10.9							7.6							
Level of Service (LOS)			B							A							
Approach Delay (s/veh)		10.9								0.4							
Approach LOS		B								A							

