

TECHNICAL MEMO

To Timothy Nye Real Estate Planning & Development Consultant	From Bob Bigelow, P.Eng. Branch 2111 / Traffic & Road Safety Division
Re 2650 Copperfield Road – Vehicle Trip Generation	Date October 18, 2021

1. Introduction

McElhanney Ltd. (McElhanney) was retained by Rosebery Investments Ltd. (the Client) to develop more detailed vehicle trip generation estimates for the proposed development located at 2650 Copperfield Road in Courtenay, British Columbia. This technical memorandum provides a summary of the process used along with the expected development related trips for the AM and PM peak hour conditions as well as the daily totals.

The proposed development will consist of the following units:

- 22 single-family homes
- 2 duplex units
- 15 townhomes
- A maximum of 7 carriage homes

Note that the carriage homes will be optional, some of which may never be constructed. Carriage homes are typically residential suites located above detached garages.

2. Trip Generation

2.1. METHODOLOGY

Project trip generation refers to the process of estimating the amount of vehicular traffic a development would add to the surrounding roadway system based on land use and development size. For the proposed development, the amount of traffic entering and exiting the road system was calculated for the weekday AM and PM peak hours and the daily totals. For the AM and PM peak hours, the trip rates represent the hourly trips that would occur between the hours of 7:00-9:00 AM and 4:00-6:00 PM, respectively.

Peak hour and daily trip generation estimates for the proposed development were developed using the ITE *Trip Generation, 10th Edition (2017)*. Peak AM and PM and daily ITE trip generation rates were then applied, as summarized in [Table 1](#) below.

Table 1: ITE Vehicle Trip Generation Rates

Land Use Description	Development Type	ITE Code	Unit ¹	Vehicle Trip Rate			In / Out Split		
				AM	PM	Daily	AM (%)	PM (%)	Daily (%)
Single-Family Detached Housing	Single-Family, Duplex	210	DU	0.74	0.99	9.44	25 / 75	63 / 37	50 / 50
Multi-Family Housing (Low-Rise)	Townhome	220	DU	0.46	0.56	7.32	23 / 77	63 / 37	50 / 50

Notes:

1. DU = dwelling units

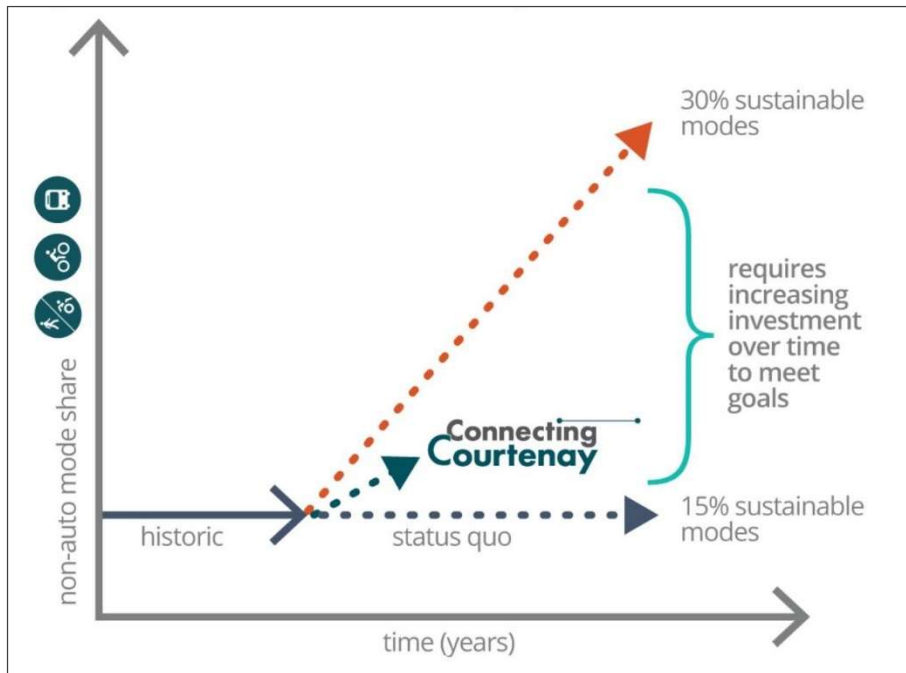
Note that carriage houses have not been explicitly accounted for in [Table 1](#). The ITE *Trip Generation, 10th Edition (2017)* does not have a specific trip rate for lots that include both single-family homes and carriage houses. Similarly, specific trip rates are not provided for houses that include additional suites (e.g. basement suites). Therefore, it is assumed that these types of land uses have already been incorporated in the trip rates for other land uses, which is in line with the typical methodology used for estimating development related trips.

2.2. VEHICLE TRIP REDUCTIONS FOR SUSTAINABLE MODES

The City of Courtenay’s *Connecting Courtenay – Transportation Master Plan* (Urban Systems, September 2019) states that passenger vehicles account for 85% of all weekday trips made within the City. Walking (8%), cycling (4%) and transit (3%) trips, i.e. sustainable travel modes, account for the remaining 15% of weekday trips. As shown in [Figure 1](#), the City has targets to increase the sustainable mode share to 30% in the future. Without transportation investments aimed at improving the transit, walking and cycling infrastructure in the City, the 15% sustainable mode share is expected to continue.



Figure 1: City of Courtenay Sustainable Mode Share Target



Source: Figure 3-1 from *Connecting Courtenay – Transportation Master Plan* (Urban Systems, September 2019)

ITE trip data are typically surveyed from suburban locations where access to transit and the tendency to walk/bike is low. The project site is within a reasonable walking distance to parks, an elementary school, trail networks, bus routes, etc. To account for these sustainable transportation facilities within proximity of the project site, a 15% sustainable mode share reduction was applied to the ITE trip generation results for this project. Although the City has targets of increasing this mode share in the future, it is unknown when infrastructure improvements will actually be completed. Therefore, to be conservative, only a 15% reduction has been applied.

2.3. ESTIMATED VEHICLE TRIP GENERATION

Table 2 presents the net estimated vehicle trips generated from the development using the rates discussed in Section 2.1. A 15% reduction has also been applied to account for sustainable travel modes.

The proposed development is expected to generate 20 (5 inbound / 15 outbound) and 27 (17 inbound / 10 outbound) vehicle trips during the weekday AM and PM peak hours, respectively. Overall, the development will generate approximately 286 (143 inbound / 143 outbound) total weekday daily trips.

Table 2: Net Site Generated Vehicle Trips

Development Type	Land Use Code	Description	Units	# of Units	Period ¹	Trips		
						In	Out	Total
Single-Family	210	Single-Family Detached Housing	Dwelling Units	15	Daily	104	104	208
					AM	4	12	16
					PM	14	8	22
Duplex	210 ²	Single-Family Detached Housing	Dwelling Units	2	Daily	9	9	18
					AM	0	1	1
					PM	1	1	2
Townhome	220 ³	Low-Rise Multifamily Housing	Dwelling Units	22	Daily	55	55	110
					AM	2	5	7
					PM	5	3	8
Sub-Total Development Trips					Daily	168	168	336
					AM	6	18	24
					PM	20	12	32
Reduction for Sustainable Modes ⁴					Daily	15%		
					AM			
					PM			
TOTAL VEHICLE TRIP GENERATION					Daily	143	143	286
					AM	5	15	20
					PM	17	10	27

Notes:

1. AM and PM rates correspond to peak hour of adjacent street traffic
2. Trip generation rates for single-family detached housing were used to remain conservative
3. Low-rise multifamily housing includes apartments and townhouses with at least three other units
4. Based on current mode shares stated in "Connecting Courtenay Transportation Master Plan" (Urban Systems, September 2019)



3. Closing

If you have any questions or concerns regarding the contents of this technical memo, please contact the undersigned.


Sincerely,
McElhanney Ltd.

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Attachments: A – Statement of Limitations



ATTACHMENT A

Statement of Limitations

Statement of Limitations

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