

File 304844-9

October 2, 2020

Andrea Woodrow, MCIP, RPP
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Township of Severn
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Re: Menoke Beach Subdivision, Phase 2, Township of Severn
Traffic Impact Study (TIS) Addendum

Dear Andrea:

On behalf of Menoke Beach Developments, we have prepared this addendum to the *Orsi Development Traffic Impact Study*¹, with a focus on Phase 2 of the proposed Menoke Beach subdivision development.

LOCATION

As illustrated in Figure 1, the proposed development is located on Menoke Beach Road between Amigo Drive and Couchiching Avenue, on the east side of Highway 11.

DEVELOPMENT PLAN

In the 2005 Traffic Impact Study, the Menoke Beach subdivision was proposed to include a total of 271 units, comprised of the following:

- 203 single family detached units; and
- 68 units in seventeen 4-plex units. 177 townhouse units (Phases 1 and 2);

Subsequent to this, the subdivision proposal has evolved and 4.4 ha of land was transferred to the Township for a proposed recreation centre. The remaining lands are to support 189 units, as follows:

- 92 single family detached units in Phase 1; and
- 83 single family units and 14 townhouse units in Phase 2.

Given the above, the total residential unit count has been reduced from 271 to 189 units. The corresponding development plans are illustrated in Figure 2 and Figure 3.

¹ *Orsi Development Traffic Impact Study*. Consult Tatham Transportation Consultants, December 2005.

Phase 1 is currently under construction with all underground infrastructure in place and home construction anticipated to commence soon. The revised Phase 2 is in the design stage.

SITE ACCESS

Initially, 4 new access points to Menoke Beach Road were proposed (via the new subdivision road system). As part of the current development plan, there are 2 proposed access points to Menoke Beach Road (1 in each of Phase 1 and Phase 2) in addition to a connection to Couchiching Avenue (also in Phase 1). The following access/intersection spacings are noted (as illustrated in Figure 3):

- Quayside Drive (Phase 1 access to Menoke Beach Road) is approximately 250 metres north of Couchiching Avenue (measured centre to centre); and
- Sunbank Crescent (Phase 2 access to Menoke Beach Road) is approximately 260 metres north of Quayside Drive and 125 metres south of Amigo Drive.

Given the local road nature of Menoke Beach Road, Quayside Drive and Sunbank Crescent, the relatively minor traffic volumes on each, and their expected stop-control on the minor street configuration, the noted spacings are considered appropriate.

SITE TRAFFIC

Trip Generation

The change in the number of units within the Menoke Beach subdivision will result in a reduction in the number of trips being generated. Table 1 illustrates the associated trip estimates from the initial development plan and traffic study, whereas Table 2 reflects the revised plan taking into account the recent changes in the overall development size and unit count.

The revised development levels represent a reduction of 30% in the total unit yield (189 vs 271 units) and a reduction of 25% in the associated peak hour traffic volumes. As noted, the site will generate 46 fewer trips in the AM peak hour and 61 fewer trips in the PM peak hour.

Table 1: Site Generated Traffic - Initial Development Plan

LAND USE	SIZE	AM PEAK HOUR			PM PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
4-plexes (17 bldgs)	68 units	5	25	30	25	12	37
single family	203 units	38	114	152	131	74	205
Total	271 units	43	139	182	156	86	242



Table 2: Site Generated Traffic - Current Development Plan

LAND USE	SIZE	AM PEAK HOUR			PM PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Phase 1 singles	92 units	17	51	68	57	34	91
Phase 2 singles	83 units	15	46	61	52	30	82
Phase 2 towns	14 units	1	5	6	5	3	8
Total	189 units	34	102	136	114	67	181
Reduction in Trips		9	37	46	42	19	61

In considering only Phase 2 traffic (in that Phase 1 is under construction), an additional 67 trips will be generated during the AM peak hour and 90 trips during the PM peak hour, which translates to approximately 1 to 1.5 trips per minute.

Trip Distribution & Assignment

As employed in the initial 2005 Traffic Impact Study, the following distribution of traffic has been assumed:

- 25% to/from the north; and
- 75% of traffic to/from the south.

This is considered reasonable and appropriate for this study given that the closest urban centres (major trip attractors) are the cities of Orillia and Barrie, located just south of the site.

Traffic was assigned to the site access points in consideration of the phase of development (ie. Phase 1 traffic was assigned to Quayside Drive and Lakepoint Crossing (via Couchiching Avenue); Phase 2 traffic was assigned to Sunbank Crescent). Beyond the site, traffic was assigned to the area road system in consideration of the noted distributions and means of access, recognizing that Menoke Beach Road is limited to a right-in/right-out only with Highway 11 (traffic from the north and to the south must otherwise use the Telford Line/Soules Road interchange with Highway 11). The resulting assignment of the site generated traffic to the area road system is illustrated in Figure 4 for Phase 1, Figure 5 for Phase 2 and Figure 6 for Phase 1 plus Phase 2. It is reiterated that Phase 1 servicing and roads have been constructed, with house construction to commence in the near future.



ROAD SYSTEM TRAFFIC VOLUMES

Traffic volumes on the area roads were determined from the *2017 Road Needs Study*², as summarized in Table 3. The *2017 Road Needs Study* provided the Average Annual Daily Traffic (AADT) volumes for the 2017 and 2027 horizons (which reflects the total 2-way volumes over an average 24-hour period). It is noted that the basis of the AADT volumes was summer traffic counts completed in 2017, thus representing the peak season.

Table 3: Traffic Volumes

ROAD	LIMITS	2017 AADT ¹	2027 AADT	2027 PEAK HOUR ²	CAPACITY ³	V/C
Menoke Beach Road	Couchiching Ave to Amigo Drive	310	326	33	700	0.05
	Amigo Drive to Ardrea Drive	600	631	63	700	0.09
	Ardrea Drive to Highway 11	900	946	95	700	0.14
Ardrea Road	Menoke Beach Rd to Eastside Drive	300	352	35	700	0.05
Campbell Road	Hwy 11 offramp to Eastside Drive	500	586	59	700	0.08
	Eastside Drive to Soules Road	500	586	59	700	0.08
Soules Road	Campbell Road to Eastside Drive	300	483	48	700	0.07
	Eastside Drive to Hwy 11 Overpass	300	483	48	700	0.07

¹ AADT - Average Annual Daily Traffic

² peak hour volume is assumed as 10% of the AADT; noted volume is total of both directions

³ based on 350 vehicles per hour per lane x 2 lanes (1 per direction)

Typically, the peak hour volumes are in the order of 10% to 15% of the daily volumes; the *Road Needs Study* noted that 18% of the daily volumes occurred in the AM and PM peak hours combined, as determined from traffic counts. The resulting 2027 peak hour volumes have been determined, assuming 10% of the 2027 AADT volumes. It is noted that peak hour volumes are total of 2-way travel (ie. volumes in both directions).

² *2017 Road Needs Study*. R.J. Burnside & Associates Limited, October 2017.



TRAFFIC OPERATIONS

Road Section Operations

As per the *2017 Road Needs Study*, the capacity of a local Township road is 350 vehicles per hour per lane and thus a 2-lane road (ie. 1 lane per direction), has an hourly capacity of 700 vehicles per hour per lane. As all of the area roads as noted in Table 3 are considered local roads, the noted capacity has been applied to each. The resulting volume to capacity (v/c) ratio for each road section is also illustrated in Table 3. As noted, the v/c ratios range from 0.05 to 0.14, suggesting that the roads are expected to operate at 5 to 14% of their available capacities.

While it is understood that the 2027 projections account for some growth in the Township, it is unlikely that they have specifically considered the Menoke Beach subdivision. Suffice to say however, that there is significant reserve capacity in the road system to accommodate the additional volumes. As noted in Figure 6, the resulting site volumes are in the order of 50 to 180 vehicles per hour per direction (total of 2-way travel), which translates to 7 to 26% of the available capacity. Even with this increase, the road sections are expected to operate well below their planning capacities.

Intersection Operations

Detailed intersection traffic counts were not completed due to the COVID pandemic which has significantly reduced travel demands (and thus traffic counts completed at this time are not likely to reflect typical conditions). Suffice to say, given the excess reserve capacity that is projected on the area road system, the corresponding intersections are expected to operate at acceptable levels.

In considering the site access intersections with Menoke Beach Road, acceptable operations will be provided at each, given that the site volumes will be distributed across the 3 access points. Furthermore, as previously noted, the volumes on Menoke Beach Road are not significant (33 to 95 total 2-way volumes).

CONCLUSION

The Menoke Beach Subdivision development has undergone significant changes since the initial traffic impact study was prepared, the most significant of which is the allocation of lands for a future Township recreation centre. Overall, the number of residential units decreased by 30%, which translates to a 25% reduction in associated traffic volumes.

Considering traffic volumes reported in the Township's *2017 Road Needs Study*, background traffic volumes on the area road system are not considered significant (2-way peak hour volumes of 33 to 95 vehicles per hour). With consideration for the Menoke Beach Subdivision (both Phases 1 and 2), an additional 50 to 180 vehicles per hour will result on the area roads, with the greatest volumes on Menoke Beach Road south of Ardtrea Road. In considering a planning capacity of 700 vehicles per hour (350



vehicles per hour per lane x 1 lane per direction), the noted volumes can be readily accommodated (maximum volumes will be in the order of 275 vehicles (which translates to 40% capacity).

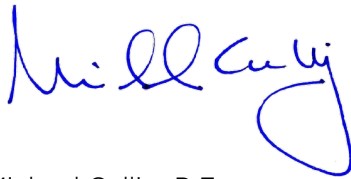
While not specifically addressed in that detailed intersection counts were not completed, traffic operations at the key intersections within the study area (including the new Menoke Beach Road intersection with Sunbank Crescent) are also expected to be acceptable given the limited volumes. The turning volumes at each site access intersection are not such that would warrant separate right and/or left turn lanes .

In consideration of the above, and the findings of the 2005 Traffic Impact Study, the site generated traffic can be readily accommodated on the road system.

Should you have any questions or comments, please do not hesitate to contact us.

Yours truly,

Tatham Engineering Limited



Michael Cullip, P.Eng.
Vice President Head Office Operations
MJC:mjc

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MENOKE BEACH SUBDIVISION

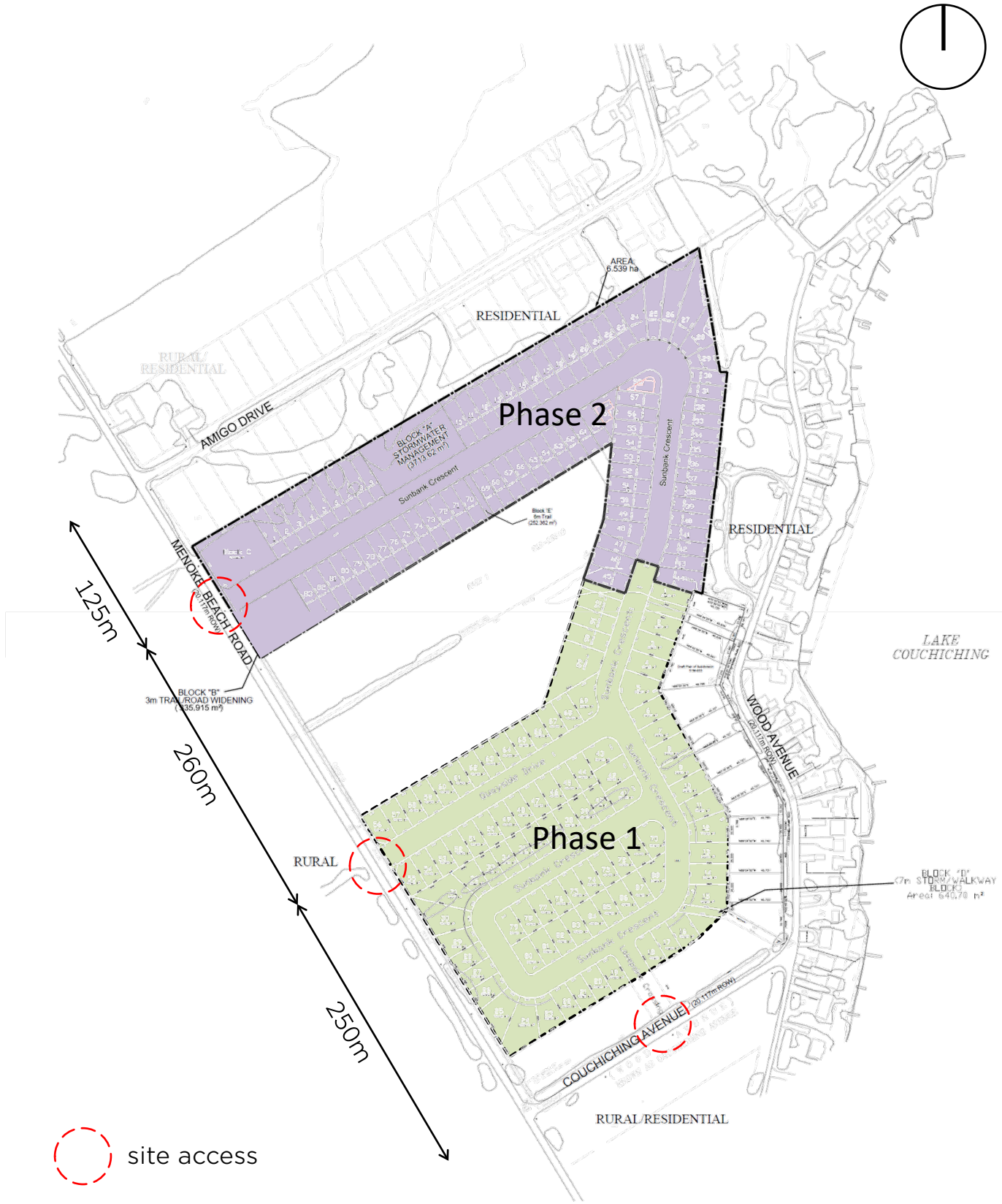
Figure 1: Site Location





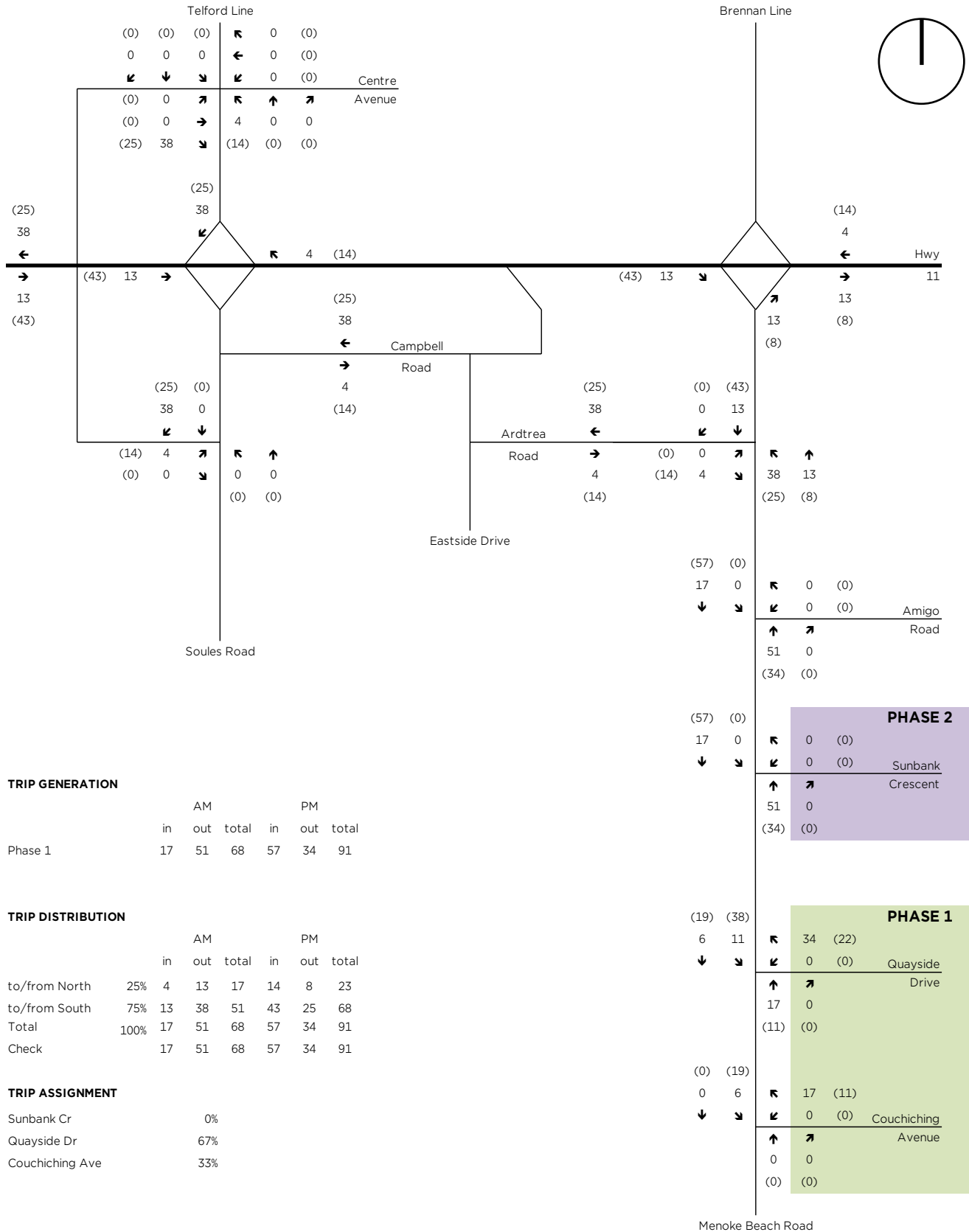
MENOKE BEACH SUBDIVISION
 Figure 2: Initial Development Plan





MENOK BEACH SUBDIVISION
 Figure 3: Current Development Plan





TRIP GENERATION

	AM			PM		
	in	out	total	in	out	total
Phase 1	17	51	68	57	34	91

TRIP DISTRIBUTION

		AM			PM		
		in	out	total	in	out	total
to/from North	25%	4	13	17	14	8	23
to/from South	75%	13	38	51	43	25	68
Total	100%	17	51	68	57	34	91
Check		17	51	68	57	34	91

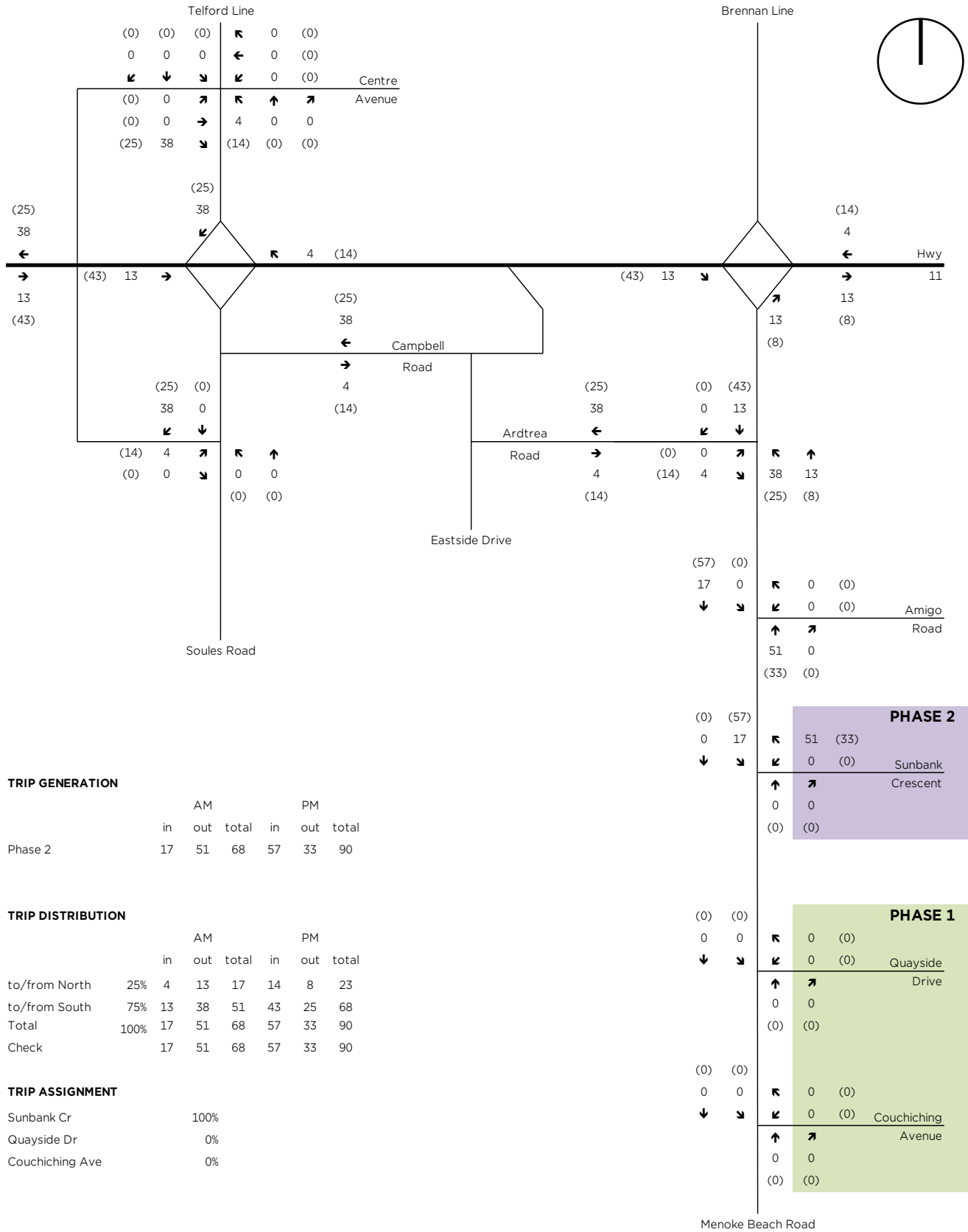
TRIP ASSIGNMENT

Sunbank Cr	0%
Quayside Dr	67%
Couchiching Ave	33%

MENOKE BEACH SUBDIVISION

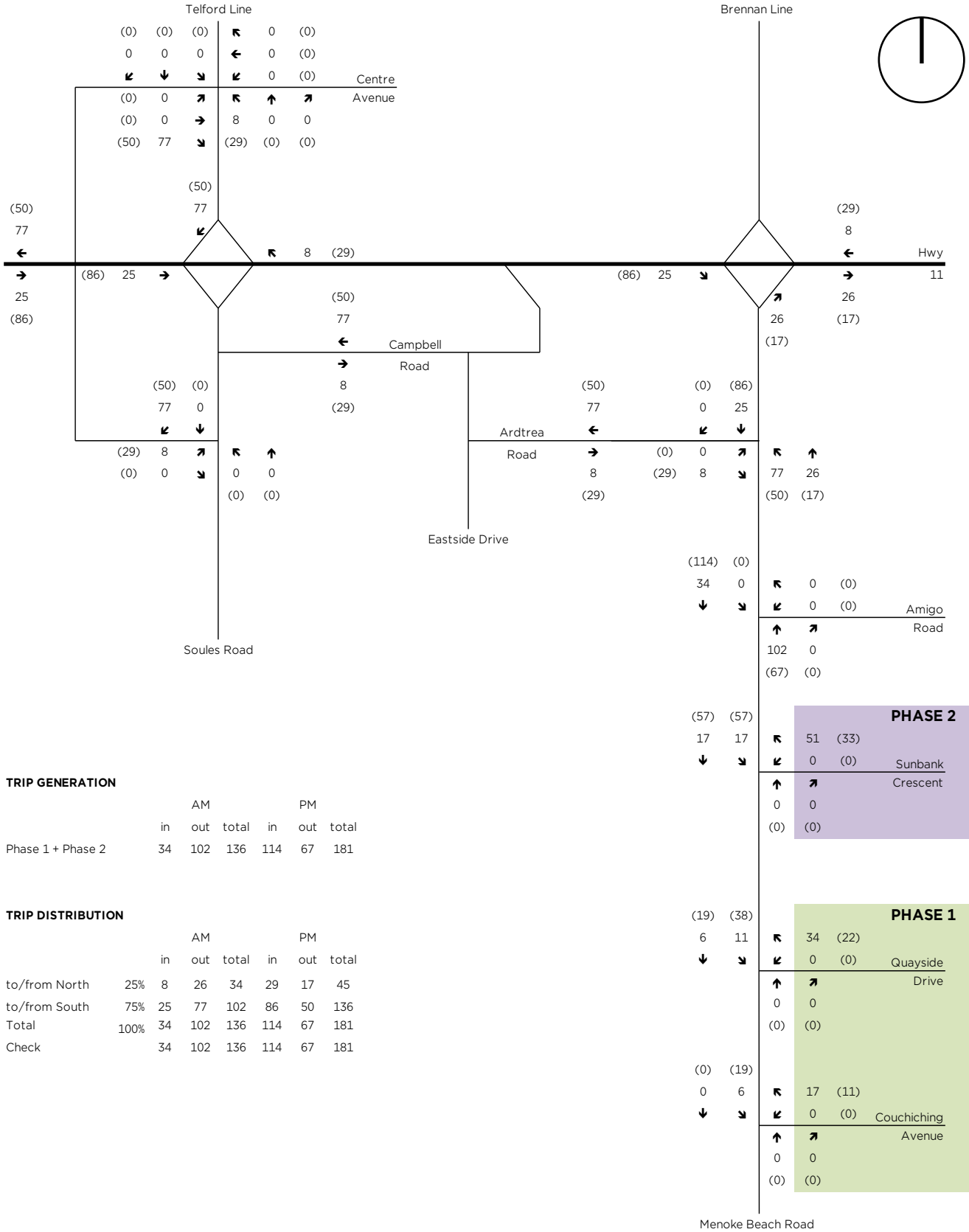
Figure 4: Phase 1 Site Traffic





MENOKE BEACH SUBDIVISION
Figure 5: Phase 2 Site Traffic





MENOKE BEACH SUBDIVISION

Figure 6: Phase 1 + Phase 2 Site Traffic

