January 10th, 2019

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Re: 7731 Fernbank Road – Proposed Crain's Pit
Addendum Traffic Letter Report
City of Ottawa, Ontario

The purpose of this addendum traffic letter report is to provide an update to the original "Transportation Brief[1]" (December 21st, 2015) prepared by McIntosh Perry. The original study evaluated the traffic-related impacts to the proposed pit and quarry located at 7731 Fernbank Road in the township of Goulbourn, within the City of Ottawa. The revised site plan is illustrated in Exhibit 1.

The following changes have occurred since the last submission:

- The proposed site access has been relocated across Munster Road. The original site plan had assumed the access would be located east of Munster Road; and
- The proposed pit is expected to produce a maximum annual tonnage of 500,000. The original study assumed 1,000,000 tonnage per year.

The City of Ottawa has indicated that since the original Transportation Brief was undertaken before the new TIA guideline, the updated traffic study would not be required to comply with new TIA guidelines.

1.0 REVISED SITE TRAFFIC VOLUMES

To remain consistent with the original Transportation Brief, the same method of traffic generation was used to determine the site traffic volumes.

- The proposed site is anticipated to produce approximately 500,000 tonnage per year;
- It is assumed that each truck exiting the site would carry approximately 20 tonnes of materials;
- The estimated number of working days for the Ottawa area, based on the MTO working day chart is 110;
- This would translate to approximately 227outbound trips (500,000/20/110) and a total of 454 daily trips;

[1] "*Transportation Brief - Proposed Pit & Quarry: Township of Goulbourn – City of Ottawa*" (December 21st, 2015)

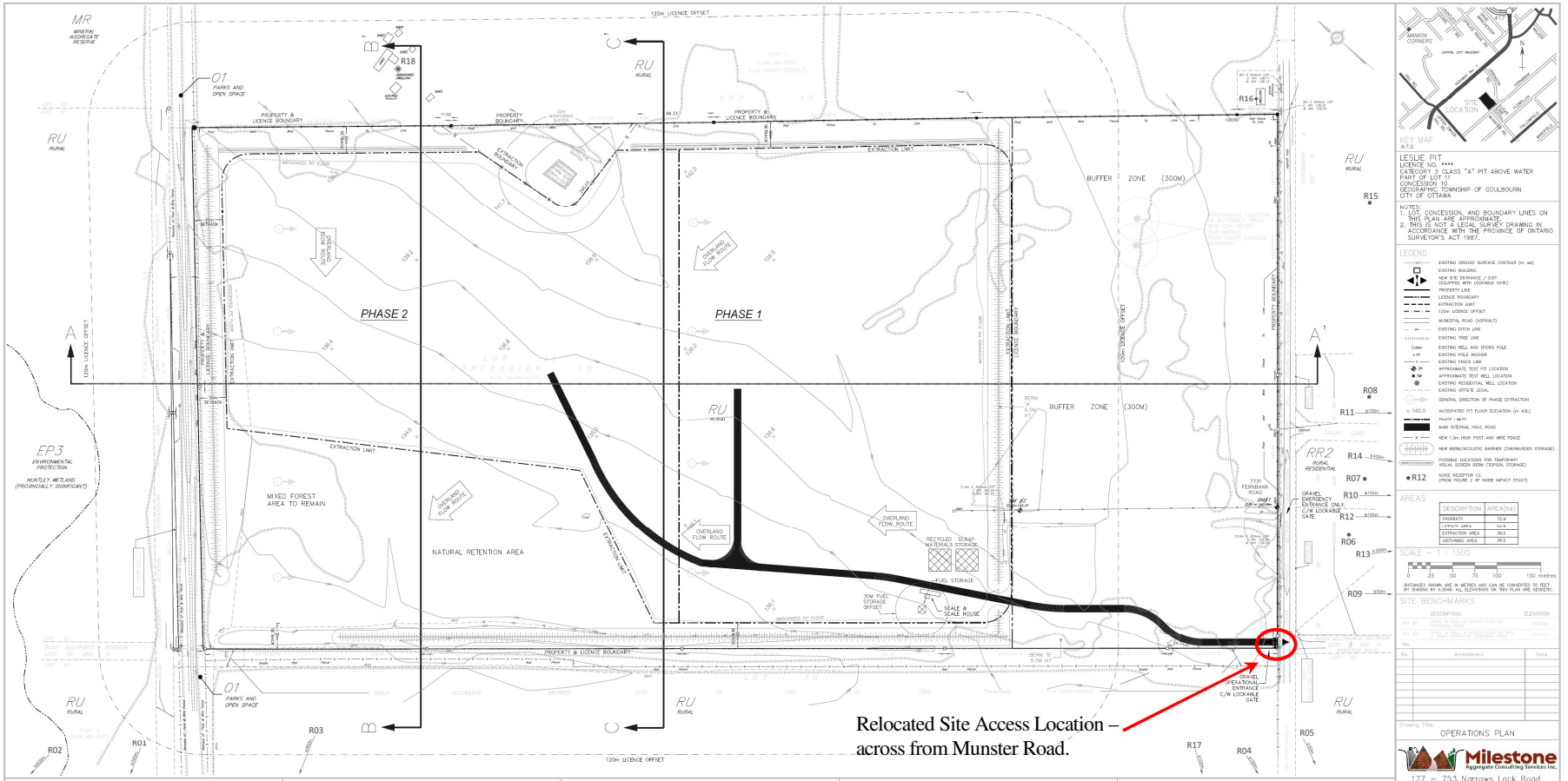


Exhibit 1: Site Plan

- To remain conservative and account for employee trips, the trips were increased by 20%. This results in 272 outbound trips (545 total daily trips); and
- Assuming a regular 8-hour work day, the peak hour traffic volume has been estimated to be 68 total trips (34 in / 34 out).

The trips generated by the new proposed site are half of the trips generated by the previous site plan.

Exhibit 2 below illustrates the forecast traffic volumes with the revised site traffic volumes entering/exiting the proposed relocated site access opposite Munster Road. The same forecast background traffic volumes were used from the previous 2015 Transportation Brief[2]. The same distribution patterns were also used for the revised site traffic volumes as the original study (60% north via Jinkinson Rd; 25% west via Fernbank Rd and 15% south via Munster Rd).

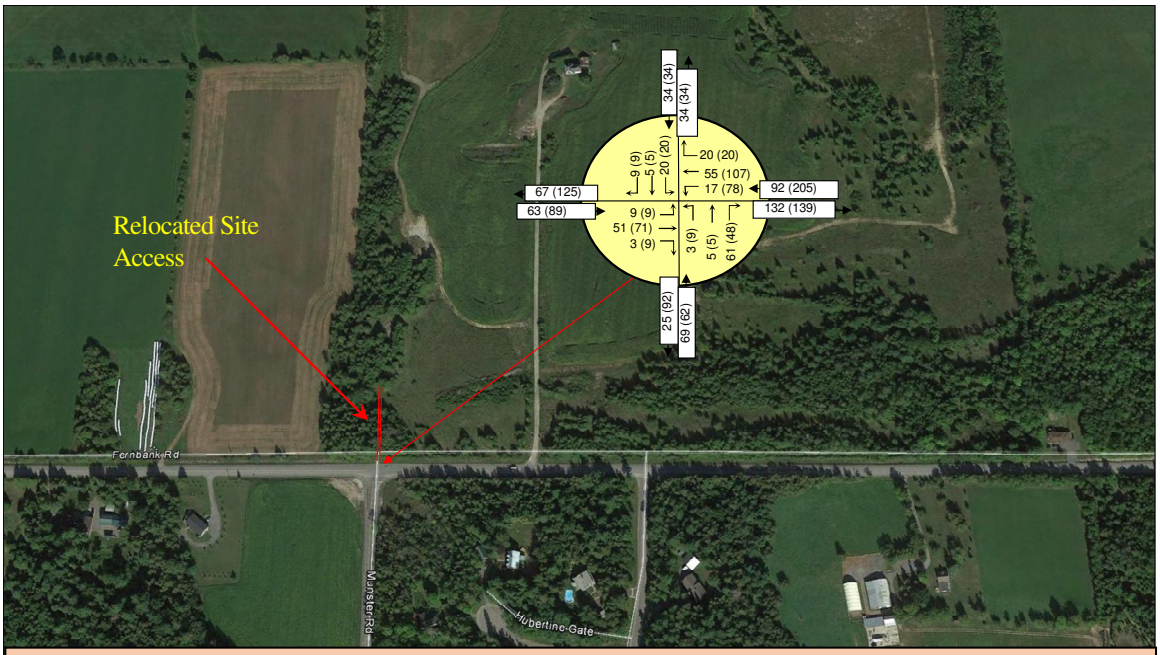


Exhibit 2: Forecast 2020 Traffic Volumes

2.0 REVISED SITE ACCESS ANALYSIS

The previous Transportation Brief analyzed four intersections that included:

- Fernbank Rd / Munster Rd;
- Fernbank Rd / Site Access (east of Munster Rd);
- Fernbank Rd / Lucas Ln; and
- Fernbank Rd / Jinkinson Rd.

Since the last site plan, the proposed site access has been relocated opposite of Munster Road. This would convert the intersection of Munster Road / Fernbank Road to a 4-leg intersection with stop signs facing the north and south leg. Given the remaining study area intersections are not anticipated to change in terms of traffic impact, a revised analysis was only undertaken at

[2] "*Transportation Brief - Proposed Pit & Quarry: Township of Goulbourn – City of Ottawa*" (December 21st, 2015) – Figure 4 Background Traffic (2020)

the Munster Road/Proposed Site Access/Fernbank Road intersection. The analysis indicates that the intersection continues to operate at satisfactory level of service as a 4-leg intersection (See Annex A).

A left-turn warrant analysis[3] was also undertaken to determine if a left-turn lane would be required into the proposed site access. It was determined that a left-turn lane was not warranted (See Annex "B").

3.0 FINDINGS AND CONCLUSION

The Traffic Letter Report yields the following findings:

- The new proposed Crain's Pit generates half of the site traffic volumes compared to the previous site plan.
- The new relocated site access opposite Munster Road is anticipated to operate at a satisfactory level of service.
- A left-turn warrant analysis determined that a left-turn lane is not required.

Based on the above traffic assessment, the City of Ottawa should be encouraged to assemble appropriate conditions that would permit the development application to proceed.

Yours Truly,

Arman Matti

Arman Matti, P. Eng.
January 2019

[3] "*Geometric Design Standards for Ontario Highways – Ministry of Transportation*".

Annex A

Forecast 2020 Traffic Analysis

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	9	51	3	17	55	20	3	5	61	20	5	9
Future Vol, veh/h	9	51	3	17	55	20	3	5	61	20	5	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	100	2	2	2	2	100	2	100	2	100	100	100
Mvmt Flow	10	55	3	18	60	22	3	5	66	22	5	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	82	0	0	58	0	0	192	195	57	219	185	71
Stage 1	-	-	-	-	-	-	77	77	-	107	107	-
Stage 2	-	-	-	-	-	-	115	118	-	112	78	-
Critical Hdwy	5.1	-	-	4.12	-	-	7.12	7.5	6.22	8.1	7.5	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	6.5	-	7.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	6.5	-	7.1	6.5	-
Follow-up Hdwy	3.1	-	-	2.218	-	-	3.518	4.9	3.318	4.4	4.9	4.2
Pot Cap-1 Maneuver	1071	-	-	1546	-	-	768	557	1009	570	565	775
Stage 1	-	-	-	-	-	-	932	673	-	707	651	-
Stage 2	-	-	-	-	-	-	890	643	-	702	673	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1071	-	-	1546	-	-	740	545	1009	520	553	775
Mov Cap-2 Maneuver	-	-	-	-	-	-	740	545	-	520	553	-
Stage 1	-	-	-	-	-	-	923	666	-	700	643	-
Stage 2	-	-	-	-	-	-	861	635	-	644	666	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	1.4	9.2	11.7
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	936	1071	-	-	1546	-	-	575
HCM Lane V/C Ratio	0.08	0.009	-	-	0.012	-	-	0.064
HCM Control Delay (s)	9.2	8.4	0	-	7.4	0	-	11.7
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	71	9	78	107	20	9	5	48	20	5	9
Future Vol, veh/h	9	71	9	78	107	20	9	5	48	20	5	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	100	2	2	2	2	100	2	100	2	100	100	100
Mvmt Flow	10	77	10	85	116	22	10	5	52	22	5	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	138	0	0	87	0	0	407	410	82	428	404	127
Stage 1	-	-	-	-	-	-	102	102	-	297	297	-
Stage 2	-	-	-	-	-	-	305	308	-	131	107	-
Critical Hdwy	5.1	-	-	4.12	-	-	7.12	7.5	6.22	8.1	7.5	7.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	6.5	-	7.1	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	6.5	-	7.1	6.5	-
Follow-up Hdwy	3.1	-	-	2.218	-	-	3.518	4.9	3.318	4.4	4.9	4.2
Pot Cap-1 Maneuver	1013	-	-	1509	-	-	555	408	978	401	412	715
Stage 1	-	-	-	-	-	-	904	655	-	543	522	-
Stage 2	-	-	-	-	-	-	705	516	-	684	651	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1013	-	-	1509	-	-	512	379	978	355	383	715
Mov Cap-2 Maneuver	-	-	-	-	-	-	512	379	-	355	383	-
Stage 1	-	-	-	-	-	-	895	648	-	538	490	-
Stage 2	-	-	-	-	-	-	646	485	-	636	644	-

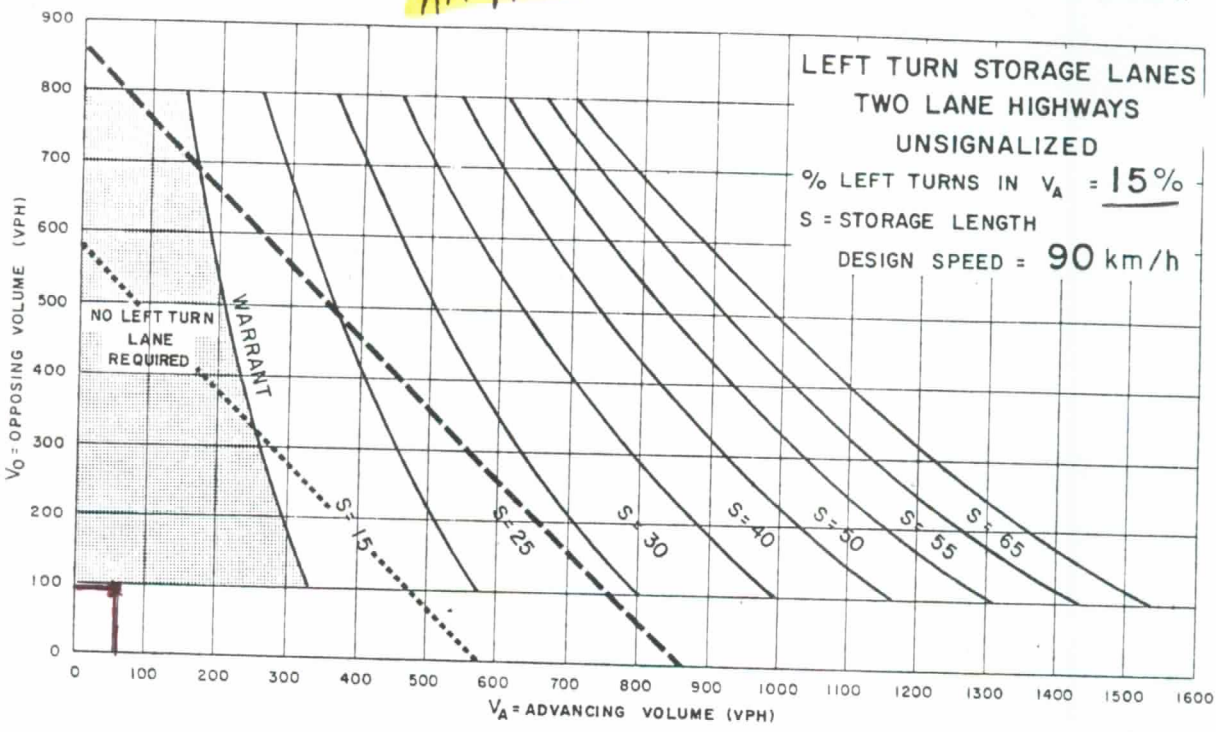
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	2.9	10.1	14.5
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	776	1013	-	-	1509	-	-	415
HCM Lane V/C Ratio	0.087	0.01	-	-	0.056	-	-	0.089
HCM Control Delay (s)	10.1	8.6	0	-	7.5	0	-	14.5
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0.2	-	-	0.3

Annex B

LT Warrant Analysis

AM PK HR



TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

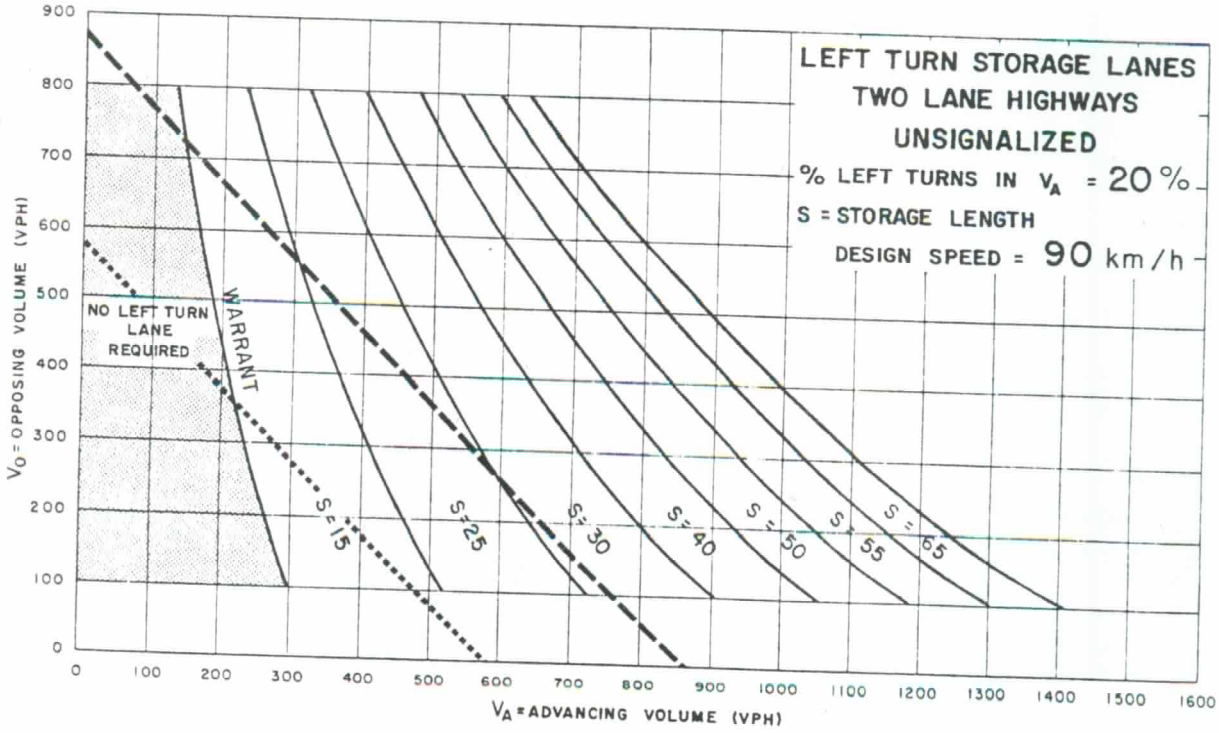
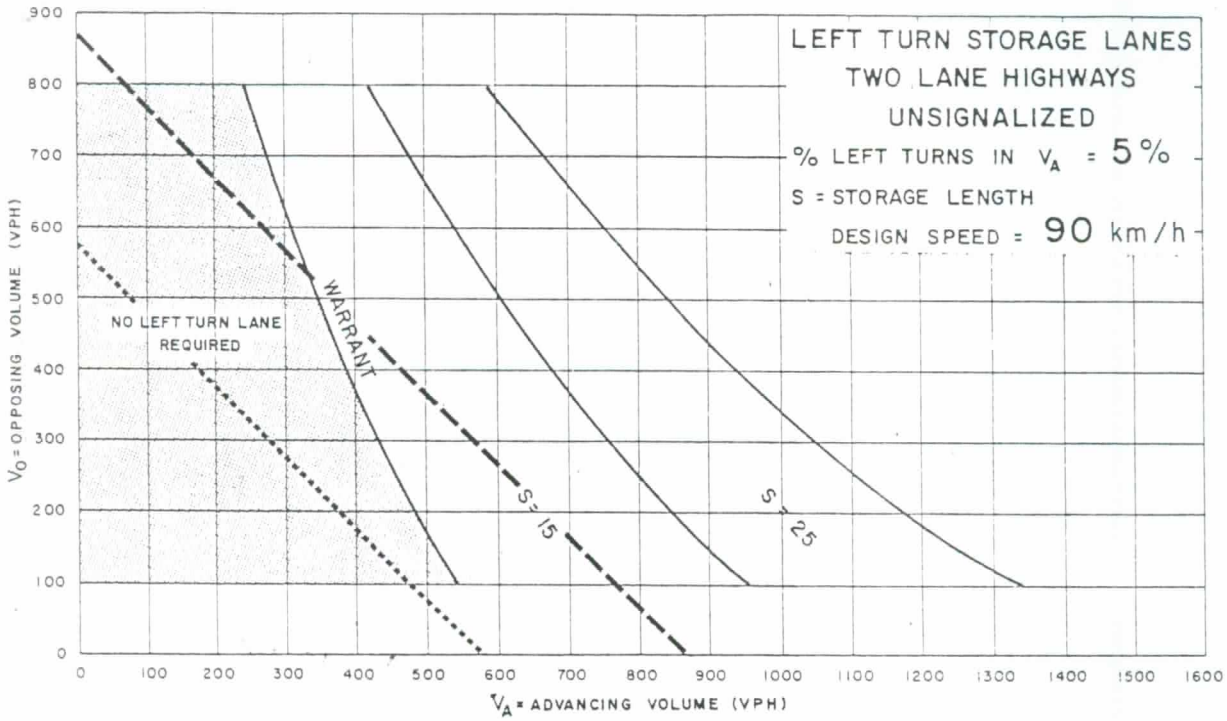


Figure EA-19



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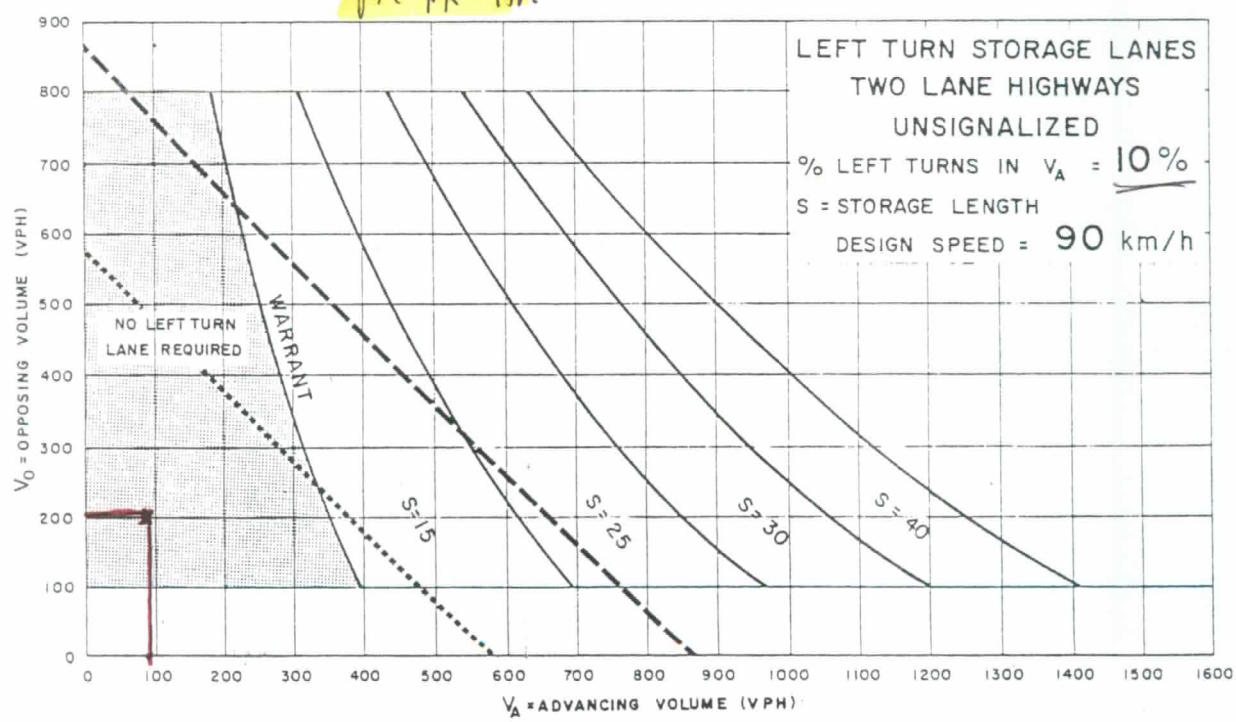

Figure EA-18