

TRAFFIC DENSITY

As per Indian Road Congress (IRC) Standards and based on the existing traffic scenario as mentioned in Chapter 3, the level of service has been determined and shown in **Table Error! No text of specified style in document.-1**.

Table Error! No text of specified style in document.-1: Existing Level of Service

Location	Distance (km)	Direction	V:Volume in PCU per day	C: Design capacity in PCU/day	V/C ratio	LoS as per IRC
T1: SH-48	5.4	NW	11689	15000	0.78	D
T2: SH-6 near Sadau	3.4	NW	8166	69600	0.12	A
T3: Baroi Road	0.75	N	2251	15000	0.15	A
T4: Road near Alcargo logistics	2.4	ENE	553	15000	0.04	A
Relation between V/C ratio & LoS						
V/C Ratio	LoS	Performance				
0.0-0.2	A	Represents a condition of free flow				
0.2-0.4	B	Represents a zone of stable flow				
0.4-0.6	C	The general level of comfort and convenience declines noticeably at this level				
0.6-0.8	D	Represents the limit of stable flow				
0.8-1.0	E	Represents operating condition when traffic volumes are at or close to the capacity level				

From the survey, it is clear that the SH-48 is already obstructed with the existing PCU reaching the limit of stable flow. It is unlikely that this road will be used by passengers while approaching the proposed airport. NH 8A provides a good approach which is having LoS as A.

Post-project Level of Service

The project has facilities for carrying about 2.72 lakhs of passengers and about 7.05 lakh tonnes of cargo per year by 2021-22. Assuming 2 passengers per car, the number of cars will be 372 per day. Considering incoming and returning cars, it will be 745 cars per day. Similarly, considering 10 tonne capacity trucks, the number of trucks per day will be about 193. Considering returning empty trucks, total movement of trucks coming into and going out of airport will be 386 per day. The total additional PCU will be $745 + (3 \times 386)^1 = 1903$ PCUs per day.

The traffic from the airport is expected to go towards Mundra and Gandhidham. So it can be assumed that 50% of traffic will go in one direction on NH-8A, while the other half will go towards Luni. Thus the additional PCU in each direction from the airport will be approximately 950.

Table 4.11: Predicted Level of Service after Operations

Location	V:Volume in PCU per day	Incremental PCU	Total Resultant Volume	C: Design capacity in PCU/day	V/C ratio	LoS as per IRC
T1: SH-48	11689	950	12639	15000	0.84	E
T2: SH-6 near Sadau	8166	950	9116	69600	0.13	A
T3: Baroi Road	2251	950	3201	15000	0.21	B

¹ PCU for Trucks is 3

Location	V:Volume in PCU per day	Incremental PCU	Total Resultant Volume	C: Design capacity in PCU/day	V/C ratio	LoS as per IRC
T4: Road Road near Alcargo Logistics	553	950	1503	15000	0.10	A
Relation between V/C ratio & LoS						
V/C Ratio	LoS	Performance				
0.0-0.2	A	Represents a condition of free flow				
0.2-0.4	B	Represents a zone of stable flow				
0.4-0.6	C	The general level of comfort and convenience declines noticeably at this level				
0.6-0.8	D	Represents the limit of stable flow				
0.8-1.0	E	Represents operating condition when traffic volumes are at or close to the capacity level				

Thus it can be seen from the above table that all the roads leading to the site will have traffic flow within the capacity design. However by 2025, the width of SH-48 will have to be increased and the road converted to 4-lanes to accommodate the additional traffic from the airport as well as the Mundra Port as this road is also used by trucks and container vehicles for travelling from the port to the hinterlands