4.4.5.1 Traffic due to Airport project

There will be no increase in traffic due to extension of runway at the existing airport. The extension of runway will allow bigger aircrafts to come in and the airport capacity will thus increase. The existing road connectivity of the airport is a four lane road. It will be adequate to carry in traffic load to airport.

Thus, there will be increase in the traffic volumes due to daily plying vehicles. Considering the maximum vehicles/day, it has been assumed that the peak daily vehicle traffic due to airport operation is about 4200 Passenger Car Units (PCU), (with peak hourly traffic of 1400 vehicles/day). The details of the traffic due to airport operation are given in **Table-4.6.**

TABLE-4.6
ADDITIONAL TRAFFIC DUE TO THE PROPOSED PROJECT

Mode of Transport	No of Vehicles/day	Total (PCU/day)
Cars/Taxis/Cabs/LCV	1400	4200

(PCU Factors: Light Duty Vehicles=1.0, Buses=3.0, 2/3 Wheelers=0.5)

Hence, it is estimated that the traffic density is about 4200 PCU/day.

4.4.5.2 Impact of Traffic on Air Quality

The number of passenger considered for computing traffic emissions in the operating airport is 1 MPPA. The vehicles ply on roads will cause air and noise pollution along the roads. Proper maintenance of vehicles while meeting the permissible emission levels will limit the air pollution. Also ensuring functioning of silencers will ensure low noise levels from the vehicles.

4.4.5.3 Details of Mathematical Modeling

For prediction of maximum Ground Level Concentrations (GLC's), the air dispersion modeling software (AERMOD version 7.1.0) was used. AERMOD is steady state advanced Gaussian plume model that simulates air quality and deposition fields upto 50 km radius. AERMOD is approved by USEPA and is widely used software. It is an advanced version of Industrial Source Complex (ISCST3) model, utilizes similar input and output structure to ISCST3 sharing many of the same features, as well as offering additional features. The model is applicable to rural and urban areas, flat and complex terrain, surface and elevated releases and multiple sources including point, area, flare, line and volume sources.

Dispersion modeling using AERMOD requires hourly meteorological data. Site specific data is used for executing modeling studies. The site specific meteorological data is processed using AERMET processor.

- Model Input Data

The predictions of traffic volume incremental concentrations of CO and NO_X due to traffic density in the operating airport are estimated based on site specific meteorological conditions and line source. The emission rates as inputs to the line

source model are calculated based on "Bharat State-III & Stage-IV Standards". The inputs used for modeling area given in **Table-4.7**.

TABLE-4.7
PARAMETERS CONSIDERED FOR MODELLING

Sr. No.	Parameter	Description
1	No of vehicles per day (4 wheelers)	1400 vehicles / day
2	Emission factors – 4 wheelers	
	CO (g/km/vehicle)	1.0
	NOx + HC (g/km/vehicle)	0.18
3	Emission rate (4 wheelers)	
	CO (g/s)	42.1
	NOx + HC (g/s)	14.6

- Model Predictions

The predicted CO and NOx concentrations from vehicular traffic are presented in **Table-4.8**.

TABLE-4.8
PREDICTED INCREMENTAL CONCENTRATIONS DUE TO ADDITIONAL TRAFFIC

Sr. No.	Parameter	Concentration ($\mu g/m^3$)
1	Carbon Monoxide	39.7
2	Oxides of Nitrogen	11.8

The observation from predictions reveal that the maximum NOx and CO concentration of 11.8 $\mu g/m^3$ and 39.7 $\mu g/m^3$ likely to occur at 10 m from the centre of the road. The CO and NOx concentrations are likely to be very low when compared with NAAQS for CO (4000 $\mu g/m^3$) and WHO standard of 400 $\mu g/m^3$ for hourly average for NOx. Hence, it is assumed that the impact on the present ambient air quality will be less significant due to the additional traffic from the proposed runway extension project.

4.4.5.4 Adequacy of Road Network at the Airport

The traffic contribution due to road network, due to movement of 1400 vehicles per day, which is equivalent to 4200 PCU/day wherein the maximum carrying capacity of 7 m wide road is of 15,000 PCU/day. The existing road to the airport from Jammu is a 4-lane highway. The estimated peak traffic in terms of PCUs, when compared to the stipulated standards by IRC for traffic capacity of the roads and it can be observed that the existing road network is adequate. IRC recommendations are provided in **Table-4.9**.

TABLE-4.9
RECOMMENDATIONS ON TRAFFIC CAPACITY – IRC

Sr. No.	Category of Road	Maximum Carrying Capacity (PCU/day)
1	Two lane roads (7 m) with earthern shoulders	15,000
2	4- land highway with earthern shoulders	35,000

4.4.5.5 Air Quality Management

Major pollutants envisaged from the proposed project will be from aircraft exhaust, ground service equipment, vehicular traffic (airside and landside) and from DG sets. The following methods of abatement shall be employed for the air pollution control at the source level.

- Aircrafts shall be operated in accordance with ICAO/USEPA standards to ensure aircraft emissions are within specified standards;
- Allowing aircrafts with certified engines only to land and take-off, as far as possible;
- Shut down engines during idling and taxing;
- Single engine taxing and reduced taxing would be effective in reducing emissions of HC and CO from aircrafts;
- Converting ground service equipment to use alternative fuels;
- The Double Annular Combustor (DAC) burns the fuel at lower temperature in two stages to radically reduce NOx levels;
- Height of the stack for DG sets shall be kept as per CPCB guidelines;
- Providing adequate buffer zones where pollution concentrations are highest to reduce the impact of emissions;
- Appropriate design of access roads to avoid traffic jams to reduce air pollution;
- Providing suitable green belt/green cover to reduce the impact of air pollution; and
- Vehicles moving within the airport shall be maintained and emission checks shall be carried out on regular interval.

In addition to the above, any additional control measures suggested by SPCB/CPCB/MoEF&CC shall be implemented.