West Bengal Pollution Control Board

Brief report on Status of Road Traffic Noise Levels during summer and winter of 2004 in Kolkata

In recent years, noise as an environment pollutant, has been receiving increased attention. Concerns were expressed about the ill effects of noise and subsequently legislative regulations to control noise in western countries were enacted in the sixties and seventies of this century. But in the developing countries, the control exercise was initiated only in the eighties. In India, noise pollution was deemed to be an offence only recently through the promulgation of the Environment (Protection) Act, 1986. Every industry, trade, transport and process using equipment, apparatus, material and methods that produce unwanted and unpleasant sound, constitute a source of noise. In India, the major sources of noise are the industries, automobiles, domestic appliances and public address systems.

The West Bengal Pollution Control Board has been conducting road traffic noise survey in some selected locations in Kolkata in the past, for example in 1993, 1994 and 1999. In the year 2004-05, a similar study has been undertaken to assess impact of road traffic noise on the ambient noise level in the city during summer (May-August 2004) and winter (Dec 2004-Feb 2005).

Methodology:

The monitoring was carried out close to the residential building in all the 30 selected locations in Kolkata. The Sound Level meter was placed in a tripod strand at a height of 1.2m from the ground level and 1m from the façade of the building. The data were recorded continuously for 24 hours with an interval of 30secs. The simultaneous recording of traffic volume and honking of horn. The weather parameters such as temperature, humidity, wind speed and wind direction were also recorded. The noise data were recorded at the traffic intersections such as Dunlop Bridge, Chiria More, Nagerbazer, Lake Town, Shyambazar V Point, Ultadanga, Karunamoyee-Salt lake, Manicktola, Girish park, Ganesh Takie-Chitpur, Strand Rd-Howrah Bridge Approach, Sealdah-Mirjapur, Bowbazer-College St., B.B.D. Bag SE corner, Esplanade-Lenin sarani, Moulali More, Chowringhee-Park St., Park Circus-VII Point, Minto Park-Lansdown, J.N. Rd-A.J.C. Bose Rd., Khidirpur-D.H. Rd., Hazra More, Gariahat More, Rashbehari Crossing, Taratola Crossing, Jadavpur-Sulekha, Behala 14 No. Bus Stand, Tollygunge Metro Crossing and Garia More. The result of the study is indicated below:

Results:

The salient features of the study report are highlighted below:

In general:

1. The temperatures of the monitoring locations varied between 24-39 degree Celsius during summer and 12-33 degree Celsius during winter, whereas humidity varied between 46-100% and 24-96% in respective seasons.

2. The total traffic count in pre-selected 30 monitoring locations was 7,75,068 in summer and 7,52,287 in winter. The highest and lowest total traffic count in both the seasons were observed in JLN Nehru Rd-AJC Bose Rd. Crossing and Nagerbazer. Car & taxi were the dominant traffic components in almost all the monitoring locations except in Esplanade where bus was dominant.
3. The total traffic volume in the Central Business District (CBD) was much more than that in the North and South Kolkata. Traffic volume in the North was lower than that in the South.
4. The total honking events in the CBD were much more than in the North and South. The honking events in the North were lower than that in the South.

Summer season (May-August 2004) monitoring:

1. During 2004, the 24hours equivalent continuous noise level(L_{eq24}) are slightly less in comparison to 1999 summer value with some exception at monitoring locations such as Howrah Bridge Approach, Moulali and Hazra. The trend at these three locations may be due to increase in the vehicular traffic along with the increase in honking in those areas compared to 1999(Fig-1).
2. During 2004, the 24hours equivalent continuous noise level(L_{eq24}) are considerably less in comparison to 1993 summer values as well.
3. During 2004, the day time equivalent continuous noise level(L_D) values are less compared to 1999 and 1993 values except in two locations Howrah Bridge Approach and Moulali(Fig-3).
4. During 2004, the night time equivalent continuous noise level(L_N) values are less compare to 1999 and 1993 values except in two locations Howrah Bridge Approach and Hazra(Fig-5).

Winter season (Dec 2004-Feb 2005) monitoring :

1. During 2004, the 24hours equivalent continuous noise level(L_{eq24}) are considerably less in all the monitoring locations comparison to 1994 winter value(Fig-2).
2. During 2004, the day time equivalent continuous noise level(L_D) values are less compared to 1994 winter values(Fig-4).
3. During 2004, the night time equivalent continuous noise level(L_N) values are less compare to 1994 winter values(Fig-6).

The number of honking during 2004 summer and winter studies have increased at particular traffic intersections such as J.N. Rd.-A.J.C. Bose Rd. Crossing, Chowranghee-Park St. Crossing, B.B.D. Bag, Ultadanga, Gariahat, Howrah Bridge Approach etc. The highest number of honking recorded is 22168 in 24 hrs during summer, and 19268 during winter at J.N. Rd.-A.J.C. Bose Rd. traffic intersection. This contributed to the increase in ambient noise level of Kolkata, apart from creating annoyance of the public.

In sum, the study in 2004 reveals that the noise levels are slightly less in comparison to 1999 and significantly less in comparison to 1993 and 1994 results. This is due to better traffic management, increase of average speed of the vehicles, and construction of flyovers etc. in the last couple of years. Interestingly, the South of the Central Business District of Kolkata City is more noisy than that in the North (Maps-1&2). This, as it appears from the present study, is due to increase in number of vehicles as well as honking of horns.

N.B.: Detailed report available in WBPCB Library. Executive summary posted at website: www.wbpcb.gov.in

Table 1: Comparison of Noise Levels during summer

Monitoring Location	Leq 24			L_D			L_N		
	1993	1999	2004	1993	1999	2004	1993	1999	2004
Dunlop	92.0	67.0	67.5	93.7	77.0	67.9	84.3	73.1	65.1
Chiria More	90.3	67.6	66.3	91.8	78.0	66.9	85.2	71.1	62.6
Nagerbazar	92.1	70.3	67.3	93.5	79.7	68.5	87.4	77.7	56.4
Shyambazar	91.1	69.0	68.4	92.8	78.8	69.1	83.7	75.8	64.0
Ultadanga	88.5	68.2	69.2	90.4	78.6	70.2	79.3	72.0	60.9
Manicktola	87.5	71.0	68.8	89.0	81.0	69.6	82.3	77.2	62.7
Howrah Bridge Approach	85.1	72.9	95.7	86.7	83.1	96.9	79.3	78.3	76.4
Sealdah	86.8	70.1	71.5	88.5	79.9	72.2	80.4	76.7	66.7
Bowbazar	86.8	70.3	70.3	88.4	80.9	70.6	80.4	72.6	68.0
B. B. D. Bag	84.4	70.3	71.1	86.1	80.3	71.8	77.5	74.2	66.8
Esplanade	85.5	80.3	68.1	87.2	80.8	68.9	77.8	73.3	62.8
Moulali	86.3	71.4	93.2	87.9	81.7	94.4	80.7	76.1	71.1
Hazra	84.0	68.1	77.6	89.6	78.7	78.7	77.8	69.7	68.1
Jadavpur	82.2	89.5	76.8	83.8	80.4	77.9	76.0	77.1	67.1
Garia	83.0	69.2	70.9	84.6	79.9	71.6	77.1	70.4	66.7

Table II: Comparison of Noise Level during winter

	Leq_{24}		L_D		L_N	
Monitoring Location	**1994**	**2004**	**1994**	**2004**	**1994**	**2004**
Dunlop	86.0	69.4	87.7	70.3	80.0	63.1
Chiria More	84.8	66.8	86.3	67.1	79.9	64.7
Nagerbazar	85.3	69.1	87.1	70.0	75.5	62.0
Shyambazar	82.5	70.8	83.4	71.6	80.1	66.1
Ultadanga	81.8	70.5	83.5	71.6	75.6	61.5
Manicktola	84.5	68.1	86.1	68.1	78.4	66.7
Ganesh Talkie	84.8	68.3	86.5	69.0	78.1	63.6
Howrah Bridge Approach	87.6	80.2	89.0	81.2	83.3	72.8
Sealdah	84.8	66.2	86.2	67.2	80.5	57.7
Bowbazar	81.7	69.6	83.3	70.7	75.8	59.4
B. B. D. Bag	81.3	72.9	82.5	73.9	78.2	65.9
Esplanade	80.7	69.6	82.3	70.2	74.3	65.6
Moulali	85.2	78.8	86.7	79.9	79.7	68.6
Chowringhee	82.8	75.6	84.4	76.5	77.4	69.4
Park Circus	82.8	74.8	84.6	75.6	75.3	68.5
J. N. Road – AJC Bose Road Crossing	83.1	80.3	83.5	81.3	77.0	71.4
Khidirpur	81.1	68.8	82.2	69.7	78.0	62.8
Hazra	83.6	74.2	85.4	75.2	76.1	66.5
Gariahat	79.7	78.1	80.9	79.2	75.2	67.3
Rashbehari	79.5	68.7	80.1	69.7	74.6	61.7
Taratola	84.7	71.9	86.2	73.0	79.5	63.3
Jadavpur	83.0	74.5	84.1	75.7	79.9	61.7
Behala 14 No. Bus Stand	81.9	75.0	82.6	76.1	77.8	64.8
Garia	82.6	68.0	83.7	68.7	75.2	63.4

Leq_{24} = 24hours equivalent continuous noise level in dBA

L_D = day time equivalent noise level i.e. $L_{Aeq(16h)}$

L_N = night time equivalent noise level i.e. $L_{Aeq(8h)}$

Figure 1 : Comparison of Leq24 Values of different Years during Summer

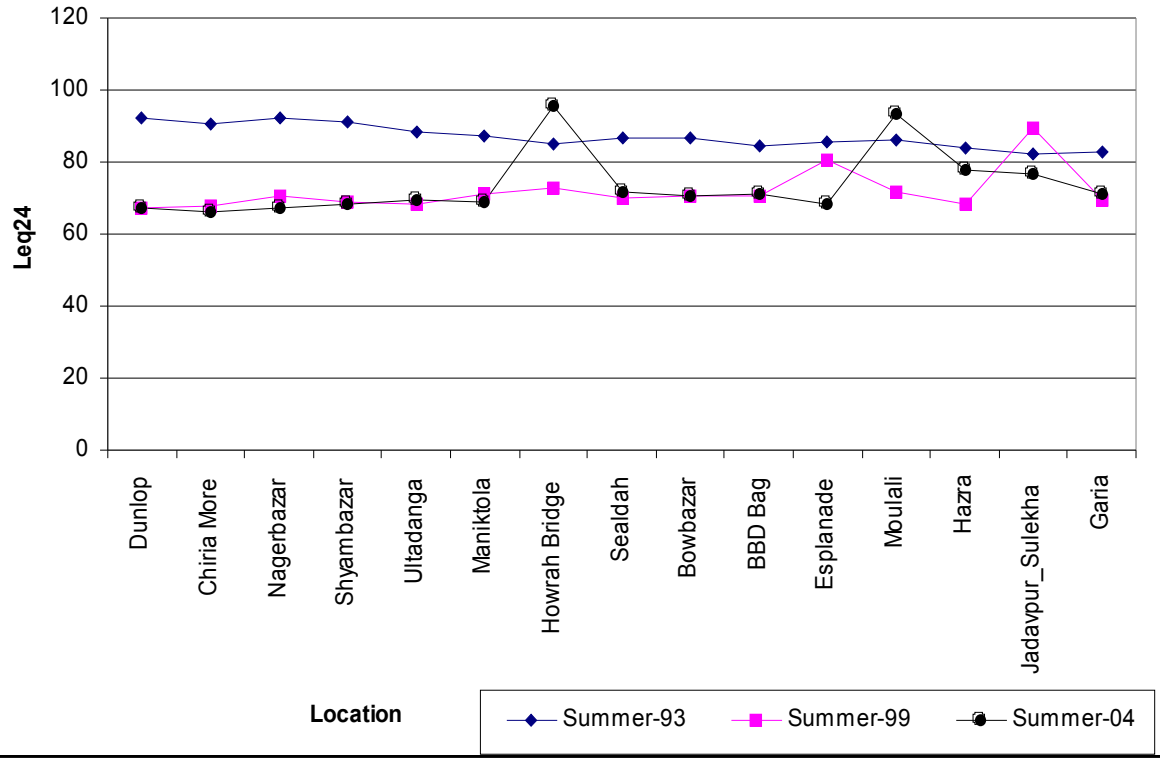


Figure 2 : Comparison of Leq_{24} Values of Two Different Years during Winter

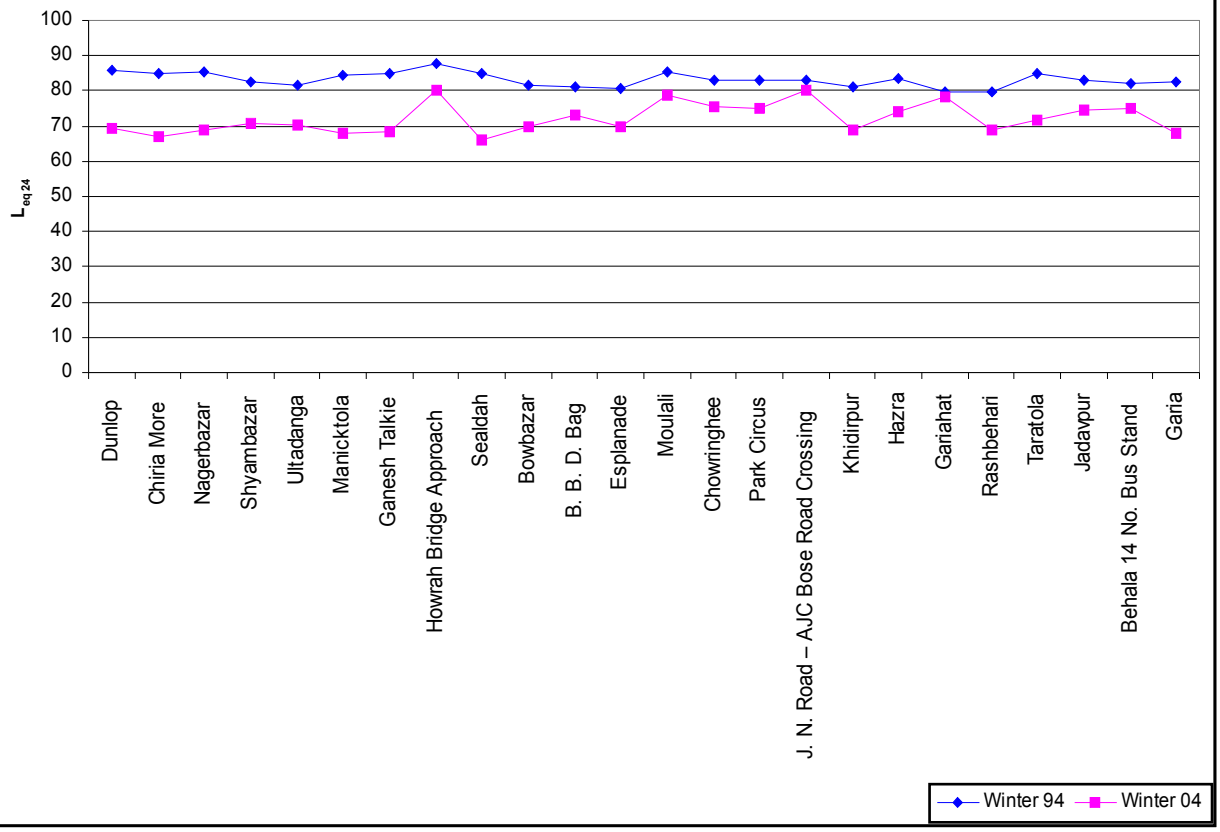


Figure 3 : Comparison of L_D Values of diffreent Years during Summer

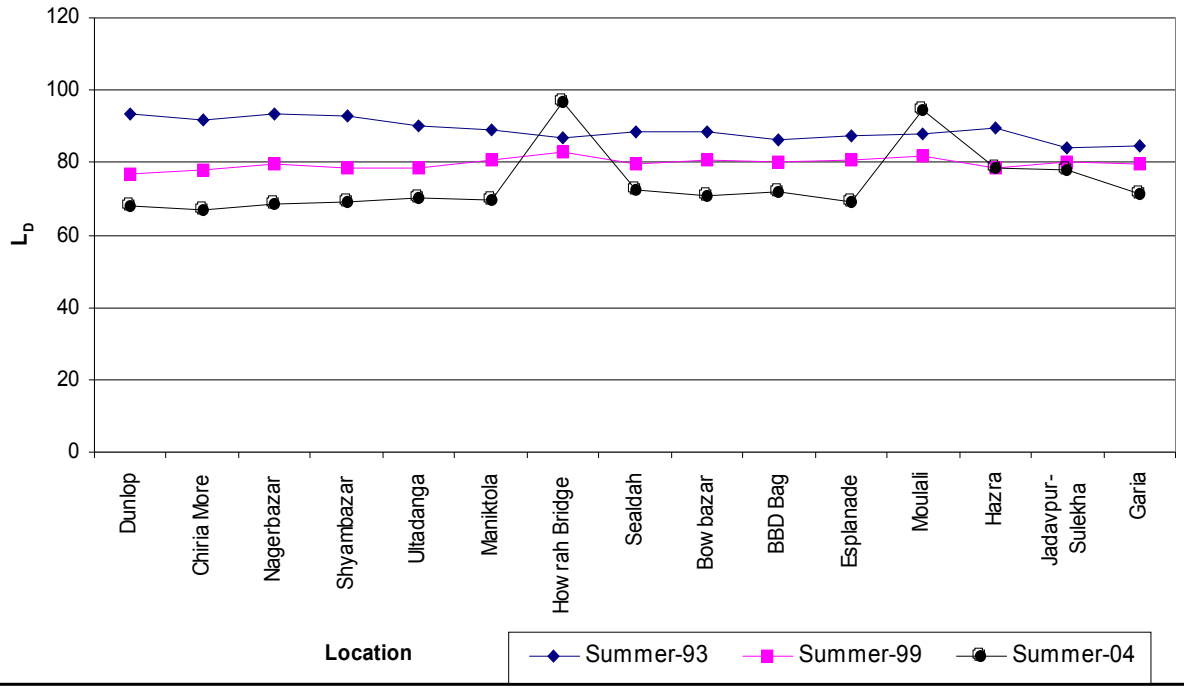


Figure 4 : Comparison of L_D Values of Two Different Years during Winter

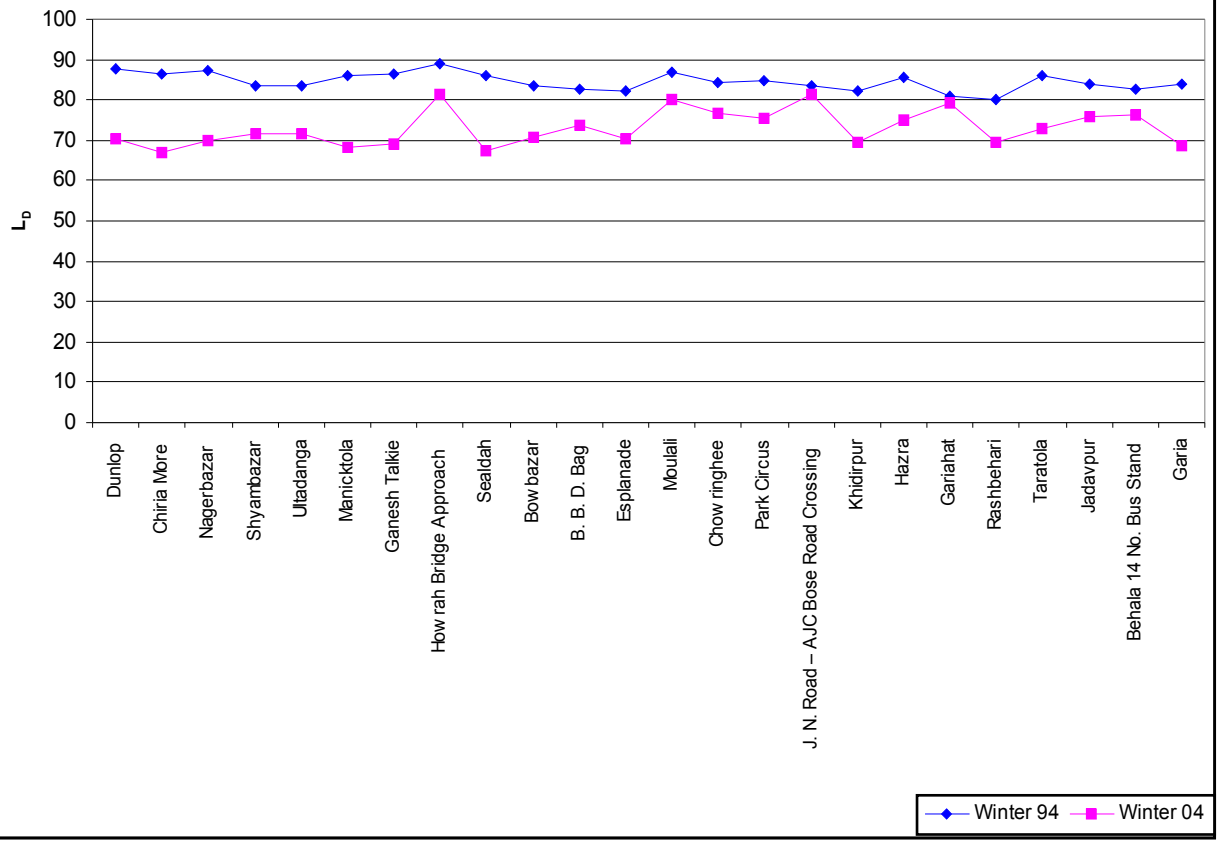


Figure 5 : Comparison of L_N Values of different Years during Summer

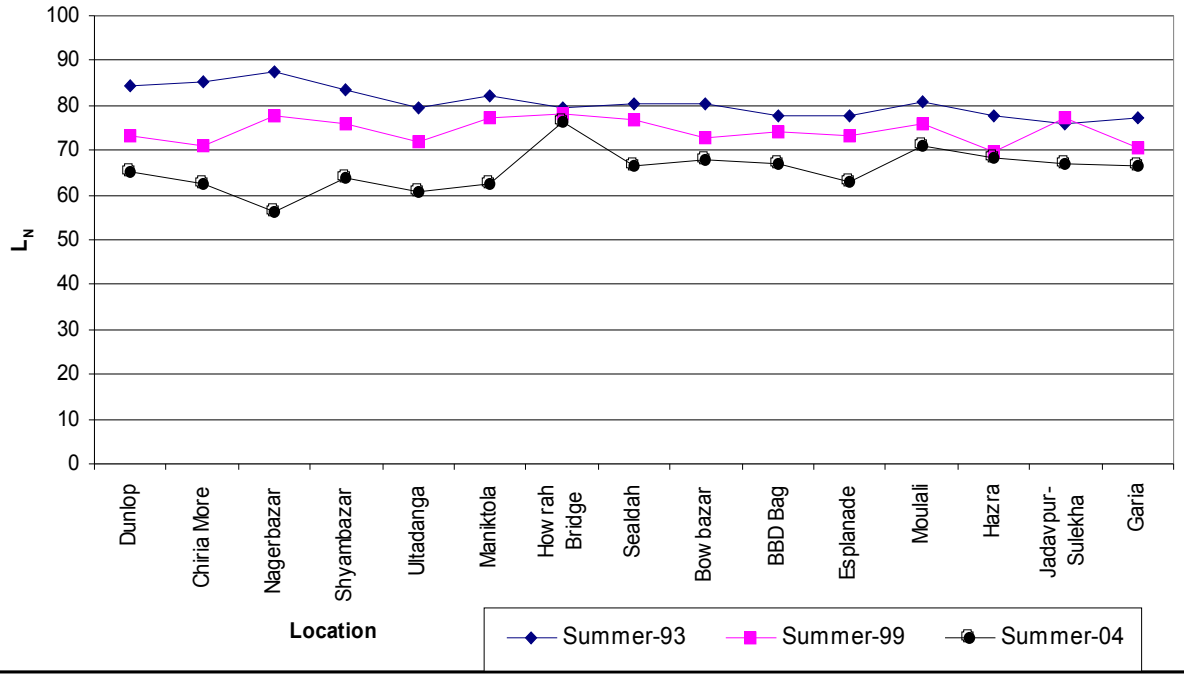
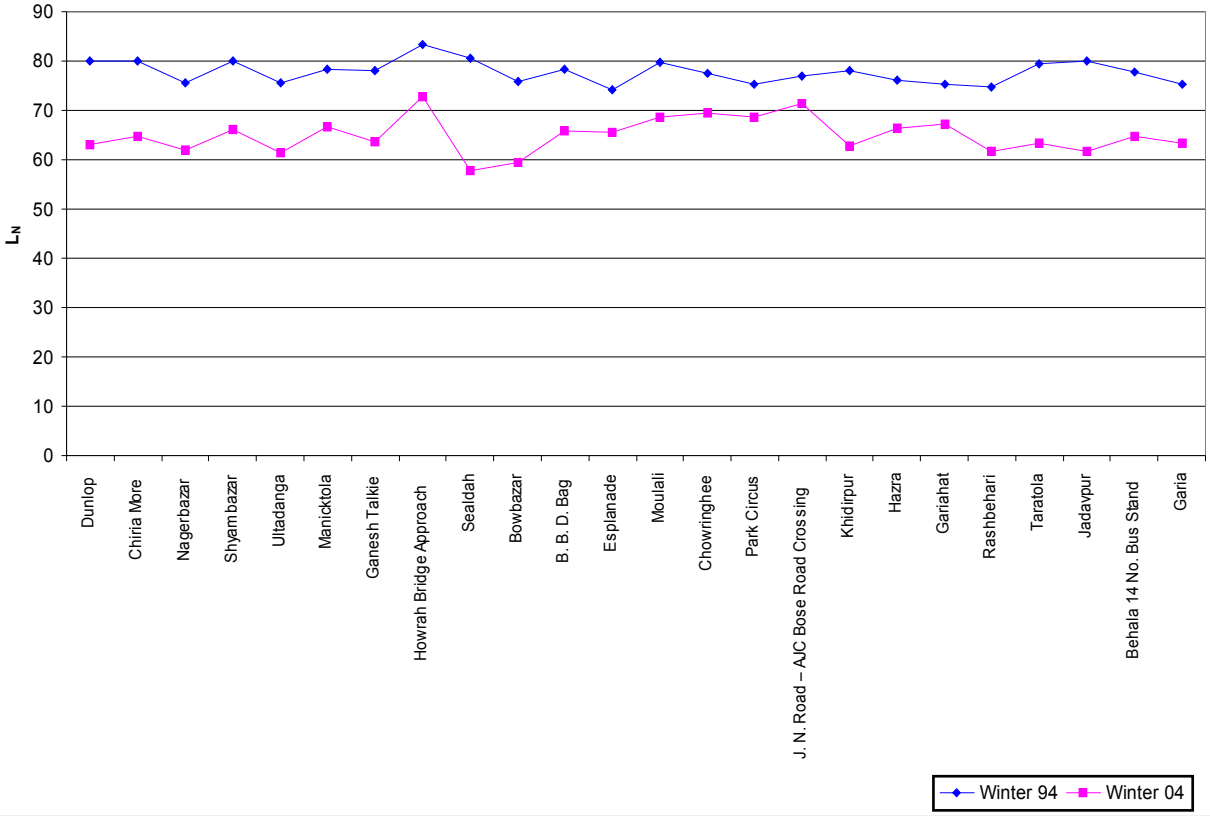
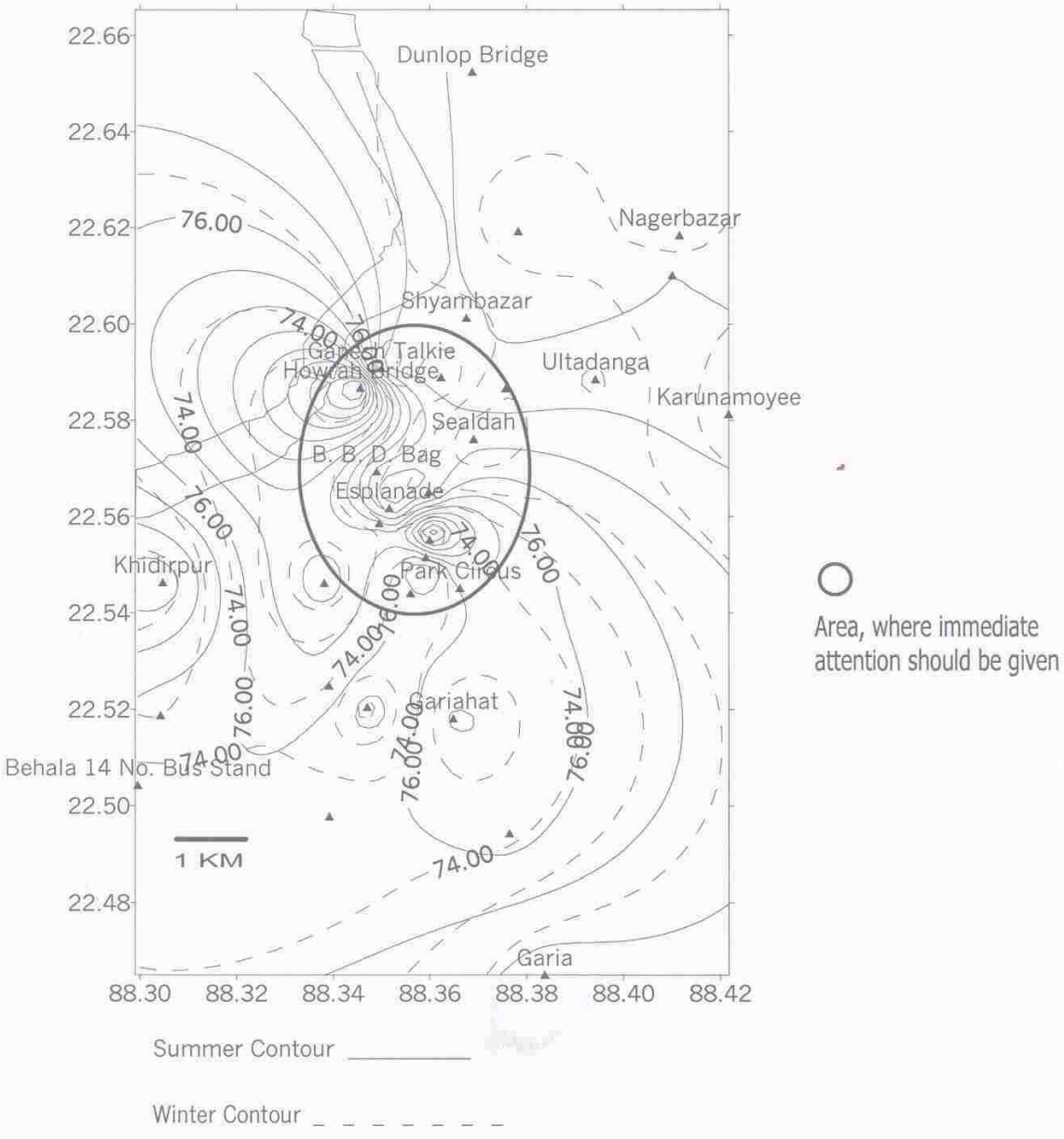


Figure 6 : Comparison of L_N Values of Two Different Years during Winter



Map 1 : Contour of Leq24 Values of Kolkata Metropolis during Summer/Winter 2004-05



Map 2 : Contour of LDN values of Kolkata Metropolis during Summer/Winter 2004-05