Switch ON
1A DL Khan Road
Kolkata, West Bengal 27
Phone: +91 33 22237454
E: info@SwitchON.org.in
W: www.SwitchON.org.in

Report - Case on Cycle NMT Ban and Kolkata Congestion Survey

Why this Cycle Ban?
Takes 5 Times Less Space: De-Congest

Cycle & NMT

Cycle & NMT

Public Trans

Safe & Smart
Kolkata

Health | Air
Money | Joy

Hoarding at Garia, Koll

CYCLE
& NMT
KOLKATA

SWITCH
ON
Promoting Rural Livelihoods through Sustainable Development
A special thanks to Shri Dunu Roy, Hazard Centre for guiding us through congestion mapping.
We have measured the traffic congestion at 10 major thoroughfares across Kolkata where cycling and NMT is banned. The study has been done during peak and off-peak hours, we took a count of different types of vehicles plying through the roads. The key findings are below -

### Summary of Findings from Congestion Analysis

| No. of Vehicles, Road Share and Passengers at 10 Major Crossings of Kolkata |
|---------------------------------|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                                 | Private Cars    | Taxis          | Trucks, Vans, & Goods Carriage | Auto Rickshaws | Buses, Mini Buses | Bikes, Scooters | Bicycles | Cycle Van, Rickshaws, Carts | Tram |
| Vehicle modal Share             | 31%             | 20%            | 4%                           | 13%            | 12%             | 15%            | 3%         | 2%                          | 0%   |
| Vehicle Road Share (app)        | 29%             | 18%            | 8%                           | 7%             | 32%             | 4%             | 1%         | 1%                          | 0%   |
| Passenger Modal Share (app)     | 6%              | 5%             | 1%                           | 7%             | 76%             | 3%             | 1%         | 1%                          | 1%   |

### Share of Non-Motorized Transport and Motorized Transport (Public Vs Private)

<table>
<thead>
<tr>
<th></th>
<th>Private - Car</th>
<th>Private - 2 Wheeler</th>
<th>Public - Taxi</th>
<th>Public - All Other</th>
<th>NMT &amp; Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of Vehicle</td>
<td>31%</td>
<td>15%</td>
<td>20%</td>
<td>29%</td>
<td>5%</td>
</tr>
<tr>
<td>Road Space</td>
<td>28%</td>
<td>4%</td>
<td>18%</td>
<td>48%</td>
<td>2%</td>
</tr>
<tr>
<td>Share of Commuter</td>
<td>6%</td>
<td>3%</td>
<td>5%</td>
<td>84%</td>
<td>2%</td>
</tr>
</tbody>
</table>

**Mobility Efficiency Index (MEI)**

<table>
<thead>
<tr>
<th>Mobility Efficiency Index (MEI)*</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>21%</td>
<td>71%</td>
<td>28%</td>
<td>177%</td>
<td>99%</td>
</tr>
</tbody>
</table>

* Share of Commuters being transported / Road Space taken by Vehicles

**Key Observations and Conclusions -**

- With only 2% road space being occupied by Cycle and NMT - it does not lead to congestion.
- Public Transport (Bus, Trams, Autos), Cycle and NMT are the most efficient means of transport (MEI of 177% and 99% respectively) and must be promoted and given priority.
- Private Cars are the most ineffective method of transport (MEI of 21%) and commuters must be provided with safe and clean alternatives.
Methodology

For the purpose of the study that in Kolkata, major share of the work-force commutes from the suburbs and hinterlands of the city.

- the hours when the commuters rush to work in the morning (morning peak hour) spreads between 9 am and 11 am and
- the hours when they return from work in the evening (evening peak hour) spreads between 5 pm and 9 pm.
- The remaining time can be termed as off-peak hour.
- The lean hour is the time between 11 am and 4 pm and also between 10 pm and 7 am. These are the time when heavy goods vehicles are allowed to ply inside the city.

Thus we identified 2 time-slots for our survey and during these slots we took a count of different types of vehicles on 10 minutes slots with 5 minutes gaps in between.

1. Between 9 am and 11 am we measured the congestion level during peak hour and between 11:30 am and 01:30 pm we measured the congestion level during off-peak hour.
   - Darga Road (near Park Circus Maidan off 4 No. bridge)
   - Dhakuria Footbridge (near Dhakuria Flyover off 37 No. Bus Stand)
   - Ekdalia Crossing (near Ballygunje Railway Station)
   - Rajabazar (near Rajabazar Tram Depot)
   - Sealdah (near NRS Medical College & Hospital)
   - Ultadanga (near Bidhannagar Railway Station)

   Observation - There was not much difference in traffic congestion between 9am-11am and 11.30am - 1.30pm.

2. Hence at two locations we conducted the survey between 7am - 9am to cover off-peak and 9.30am-11.30am to cover peak hour.
   - Hazra Crossing
   - Dharmatala Crossing

3. And at the other two locations we conducted the survey between 6am - 8am and 8.30am - 10.30am.
   - Exide Crossing
   - Strand Road Crossing

While segregating the different vehicle types, we kept in mind the following parameters:

- Motorized and non-motorized means of transport are separate
- Private vehicles and public vehicles are separate
- Approximate passenger carrying capacity
- Road space taken by each vehicle

Thus we got the following heads of classification:-

- Private Cars, Taxis, Goods Vehicle (Trucks, other Goods Vehicles), Auto Rickshaws, Bus (Buses and Mini Buses), Two Wheelers (Bikes, Scooters, Mopeds), Bicycles, NMT (Cycle vans, Rickshaws, Carts and other Non-Motorized Vehicles), Trams

We identified the different foot-bridges as the spots for our survey for the following reasons:

- Firstly, the foot-bridges are constructed in those roads which the government has already identified as having heavy traffic movement.
- Secondly, the view of the vehicles plying on the road is very clear and convenient while standing on these foot-bridges.
Following are our findings from the survey till date:

<table>
<thead>
<tr>
<th>Crossings</th>
<th>Privatel Cars</th>
<th>Taxis</th>
<th>Trucks, Vans, &amp; Goods Carriage</th>
<th>Auto Rickshaws</th>
<th>Buses, Mini Buses</th>
<th>Bikes, Scooters</th>
<th>Bicycles</th>
<th>Cycle Van, Rickshaws, Carts</th>
<th>Trams</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sealdah</td>
<td>2661</td>
<td>1380</td>
<td>220</td>
<td>295</td>
<td>549</td>
<td>1126</td>
<td>54</td>
<td>81</td>
<td>58</td>
<td>6424</td>
</tr>
<tr>
<td>Ekdalia</td>
<td>1430</td>
<td>599</td>
<td>103</td>
<td>1788</td>
<td>346</td>
<td>584</td>
<td>180</td>
<td>42</td>
<td>0</td>
<td>5072</td>
</tr>
<tr>
<td>Ultadanga</td>
<td>1126</td>
<td>608</td>
<td>247</td>
<td>1946</td>
<td>445</td>
<td>542</td>
<td>221</td>
<td>72</td>
<td>5</td>
<td>5212</td>
</tr>
<tr>
<td>Dhakuria</td>
<td>2027</td>
<td>1263</td>
<td>132</td>
<td>519</td>
<td>396</td>
<td>895</td>
<td>95</td>
<td>0</td>
<td>0</td>
<td>5327</td>
</tr>
<tr>
<td>Raja Bazar</td>
<td>997</td>
<td>627</td>
<td>182</td>
<td>30</td>
<td>608</td>
<td>700</td>
<td>98</td>
<td>189</td>
<td>29</td>
<td>3460</td>
</tr>
<tr>
<td>Park Circus</td>
<td>1897</td>
<td>913</td>
<td>111</td>
<td>804</td>
<td>137</td>
<td>1501</td>
<td>51</td>
<td>32</td>
<td>0</td>
<td>5446</td>
</tr>
<tr>
<td>Hazra</td>
<td>638</td>
<td>628</td>
<td>440</td>
<td>40</td>
<td>391</td>
<td>258</td>
<td>158</td>
<td>27</td>
<td>7</td>
<td>2587</td>
</tr>
<tr>
<td>Dharamtala</td>
<td>435</td>
<td>575</td>
<td>195</td>
<td>0</td>
<td>598</td>
<td>165</td>
<td>74</td>
<td>24</td>
<td>0</td>
<td>2066</td>
</tr>
<tr>
<td>Exide Chowringheee</td>
<td>1169</td>
<td>725</td>
<td>100</td>
<td>0</td>
<td>334</td>
<td>341</td>
<td>170</td>
<td>36</td>
<td>0</td>
<td>2875</td>
</tr>
<tr>
<td>Strand Road</td>
<td>755</td>
<td>1154</td>
<td>231</td>
<td>0</td>
<td>891</td>
<td>224</td>
<td>137</td>
<td>316</td>
<td>0</td>
<td>3708</td>
</tr>
</tbody>
</table>

| Total No. of Vehicles | 13,095 | 8,440 | 1,829 | 5,447 | 4,915 | 6,311 | 1,263 | 787 | 99 | 42,186 |
| No. of Commuters      | 19,643 | 16,880 | 3,658 | 21,788 | 245,750 | 9,467 | 1,895 | 3,148 | 2,475 | 324703 |

| Percent of Vehicle    | 31%    | 20%   | 5%    | 13%   | 11%   | 15%   | 3%    | 2%  | 0.2% | 100%  |
| Percent of Road Space | 29%    | 18%   | 8%    | 7%    | 32%   | 4%    | 1%    | 1%  | 0.5% | 100%  |
| Percent of Commuter   | 6%     | 5%    | 1%    | 7%    | 76%   | 2%    | 1%    | 1%  | 1%   | 100%  |

Assumptions -

<table>
<thead>
<tr>
<th>Mode of Transport</th>
<th>Passenger*</th>
<th>Road Space**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Vehicle</td>
<td>1.5</td>
<td>5</td>
</tr>
<tr>
<td>Taxi</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Minibus / Bus</td>
<td>50</td>
<td>10</td>
</tr>
<tr>
<td>Cycle</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td>Goods Vehicle</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>NMT</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Tram</td>
<td>25</td>
<td>10</td>
</tr>
<tr>
<td>Auto</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

*Educated Assumption made based on observation
**Road space compared to 1 No. cycle, Educated Assumption made based on observation
The share of vehicles at 10 major crossing of Kolkata, surveyed for about 1600 minutes between 6:00 - 13:30

**Vehicle share**
The approx. share of road occupied by the vehicles at 10 major crossing of Kolkata.

**Vehicle Road Share (Approx)**

- Private Cars: 29%
- Buses, Mini Buses: 32%
- Taxis: 18%
- Trucks, Vans, & Goods Carriage: 8%
- Auto Rickshaws: 7%
- Bikes, Scooters: 4%
- Cycle, Van, Rickshaws, Carts: 1%
- Trams: 0%

The approx. share of commuters being transported in the vehicles at 10 major crossing of Kolkata.

**Modal Share / Commuter Share (Approx)**

- Buses, Mini Buses: 76%
- Private Cars: 6%
- Taxis: 5%
- Auto Rickshaws: 7%
- Trucks, Vans, & Goods Carriage: 1%
- Bikes, Scooters: 3%
- Cycle, Van, Rickshaws, Carts: 1%
- Trams: 1%
Reason for Cycle Ban sighted by Kolkata Police: “to provide for safe and uninterrupted movement of vehicular Traffic”

Are Cycles / NMT (Non Motorised Transport) make Kolkata unsafe?

Sure there is no or very poor infrastructure for cyclists, Non motorists and pedestrians on the streets in Kolkata. But the argument of Kolkata police that cycles and non motorized transport interrupt safe movement - does not match statistics from the Ministry of Transport.

According to Ministry of Transport report, that only 1.5 per cent of road accidents happen due to fault of cyclists against 71 per cent due to faults of motor vehicle drivers.

As for safety of cyclists, the same report states that Bicycles are involved in only 5% accidents whereas pedestrians are involved in 64% of accidents.

While the safety of cyclists, NMTists and even pedestrians is a large case of concern, we would urge Kolkata to build infrastructure for safety of cyclists and pedestrians and definitely not banning or discouraging them.

What is the cause of Congestion in Kolkata?

Kolkata police claim that “Slow Moving Vehicle” or Cycle and NMT interrupt the movement of vehicles in Kolkata.

From secondary data we know that the Average speed of traffic in Kolkata varies between 14-18 km/hour. And a cycle can match this speed. Hence to examine the argument of “interruption” or congestion caused by Ban on the Cycles and NMT, we considered doing a congestion mapping in Kolkata. The congestion mapping clearly points out that NMT Cycle and Public transport are the most efficient forms of commuting and take least road space in Kolkata.
The Vehicle Trend at the following congested spot of the city is as under:

1. Darga Road (near Park Circus Maidan off 4 No. bridge)
2. Dhakuria Footbridge (near Dhakuria Flyover off 37 No. Bus Stand)
3. Ekdalia Crossing (near Ballygunje Railway Station)
4. Rajabazar (near Rajabazar Tram Depot)
5. Sealdah (near NRS Medical College & Hospital)
6. Ultadanga (near Bidhannagar Railway Station)
The Vehicle Trend at the following congested spot of the city is as under:

1. Hazra Crossing
2. Dharamtalla Crossing

![Graph showing vehicle trends at Hazra Crossing and Dharamtalla Crossing.](image1)

The Vehicle Trend at the following congested spot of the city is as under:

1. Exide Crossing
2. Strand Road

![Graph showing vehicle trends at Exide Crossing and Strand Road.](image2)
Analysis -

Analyzing the data gathered so far, we could see:

- Overall the Cycle and NMT share of vehicle and road space is very low at 2%. But According to Census Data, Kolkata has very high ownership of Cycles (4 times of private vehicles),
- When we break into took the survey for morning between 6:00 – 7:30 AM, we realise that the cycle and NMT vehicle share is between 15-18%. While the number of cyclists also dwindle, It can be assumed that

<table>
<thead>
<tr>
<th>Survey starting at 9/7 AM</th>
<th>Mins of Survey</th>
<th>Cycle + NMT</th>
<th>Cycle Per Minute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Morning survey starting at 6:00 AM</td>
<td>1280</td>
<td>1391</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td>320</td>
<td>659</td>
<td>2.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1600</strong></td>
<td><strong>2050</strong></td>
<td></td>
</tr>
</tbody>
</table>

- The marginal number of Cycle and NMT Vehicles is in no way interrupting vehicular movement. Cycles and NMT is used mostly by the poor, to support activities - linked to their livelihood.
- Public Transport (excluding Taxis) are most efficient means of transport with a CEI of 177% with only approx. 48% road space being taken, but 84% commuters being transported.
- Private Cars are the least efficient means of transport with a CEI of constitutes 31% of the total number of vehicles, take up 28% of road space but transport approx. only 6% of commuters.
- Buses and Mini Buses constitutes only 12% of the total number of vehicles, occupying only 32% of the space whereas contributing to 76% of commuter share.
- Public vehicles make up 29% of the vehicle share, taking up approx. 48% road space while transporting 84% of commuters.

Pedestrian, Cycle & NMT must be given priority for a equitable, sustainable, safe and smart city. Safe, clean and reliable public transport should be built and operated as an alternative to private vehicles and taxis - for commuting the ever-increasing number of commuters in this space constrained City of Kolkata. Both is fact imperative, for any modern city to remain competitive, the west have understood the challenge and moved/moving away from car centric cities to NMT, cycle and public transport.

You can see from the data - that the number of buses, trams, cycles, NMT are hardly in numbers, or occupy road space but they carry maximum of the commuter load. Other means of public transport such as taxis and auto rickshaws take up the most part of the remaining commuter load. Conversely Private Vehicles numbers are the most and take the most roas space while contributing to the least modal share or commuter load - making it the most inefficient. The counts also indicate that the modal share of bicyclists and NMT is marginal in its presence and can in no way be blamed for congestion.

During the peak hours it is noted that buses, auto-rickshaws, trams and bicyclists / NMT (along with metro who could not be captured) indicates that the cost-effective public transport is made accessible, while taking up very minimal road space. In other words, the public commuter has much greater right to the road than personal cars.
A series of photographs taken at the same crossing shows some reason of current congestion problems:

Image 1 & 2 - Bottlenecks created by certain vehicles or crossing lights need to be managed better to encourage free flow. Rules relating to restriction on movement of goods vehicle during peak hours, needs to implemented more forcefully.

Image 3 - Buses should not be allowed to block the road to pick passengers, but a corridor should be built and to ensure free flow, more frequency and limited stoppage time

Solutions -

Integrated multi-modal transit system needs to be designed and implemented in Kolkata. As mentioned in the National Urban Transport Policy - The current structure of governance for the transport sector is not equipped to deal with the problems of urban transport. These structures were put in place well before the problems of urban transport began to surface in India and hence do not provide for the right co-ordination mechanisms to deal with urban transport. The Central Government will, therefore, recommend the setting up of Unified Metropolitan Transport Authorities (UMTA’s) in all million plus cities, to facilitate more co-ordinated planning and implementation of urban transport programs and projects and an integrated management of urban transport systems. Such Metropolitan Transport Authorities would need statutory backing in order to be meaningful.

Kolkata is one of the most researched city in terms of traffic and transport in India - and many experts through various reports advocate promotion of cycle and NMT (Non Motorised Transport).

Most important report published by KMDA, The comprehensive master plan” a sectoral master plans and development plans for transportation - ” [http://www.kmdaonline.org/pdf/CMP-KMA.pdf](http://www.kmdaonline.org/pdf/CMP-KMA.pdf). It clearly states the need for Cycle and NMT infrastructure in the multi-modal transport mix for Kolkata. In the “car centric” policy, the report projects a very dangerous traffic scenario for Kolkata. It has detailed recommendation for Kolkata transport and traffic. This report has researched over 34 reports on Kolkata’s Traffic and Transport, and made the necessary recommendations.