

Setting the Right Priorities for Mumbai Transportation

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Despite the exceedingly efficient suburban railway system and undoubtedly best bus service of B.E.S.T in Mumbai, traffic and transportation woes are sapping citizen's energy to no end, adversely affecting quality of life of one and all. To bring about improvement, the Government of Maharashtra (GoM) initiated construction of the Flyovers, Bandra Worli Sealink (BWSL), Mumbai Urban Transport Projects (MUTP) and the Mumbai Urban Infrastructure Projects (MUIP), the Mumbai Metro Master Plan (MMMP), more flyovers, the extension to BWSL on the west coast and the Mumbai Trans Harbour Link. The GoM has also embarked upon with the Mumbai Monorail Master Plan (MMoMP), the Eastern Freeway and the Bus Rapid Transit System (BRTS).

It is not the question of just the sapping of energy and poor quality of life but conditions which lead to about 12 railway related fatalities and 7 road related fatalities every day. This comes to about 4000 rail and 2500 road fatalities per annum. Injuries number a lot more than this and most go unreported. Government and Civil Society not giving cognizance to this and advocating projects that do not address the problem are working with wrong priorities. Priorities would also be wrong if sustainability aspect is not given its due importance.

One can attribute the high railway fatality figures to overcrowding during peak period – peak period extending over about four hours in the morning and four hours in the evening. The off peak period trough is near flat and the peak periods and off peak periods are reasonably uniform with practically no



Municipal Corporation of Greater Mumbai



Mumbai Metropolitan Region



Roads and Democracy



Suburban Railway Station Platform at Peak Period

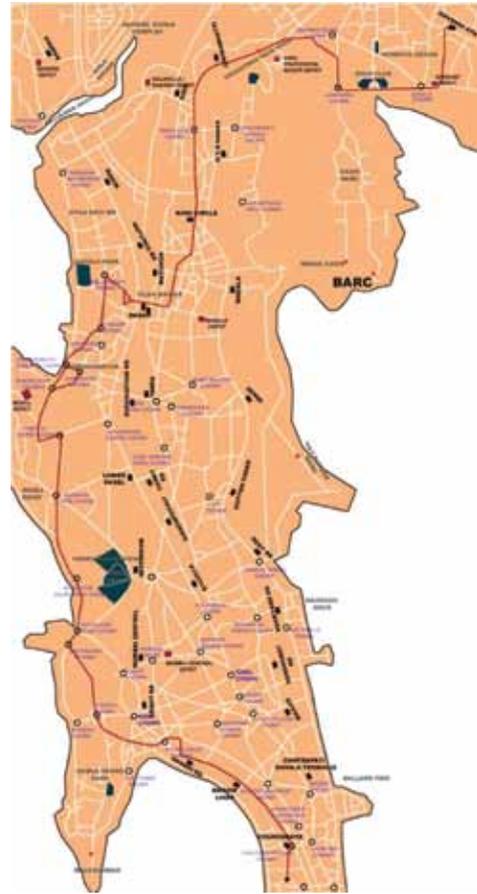
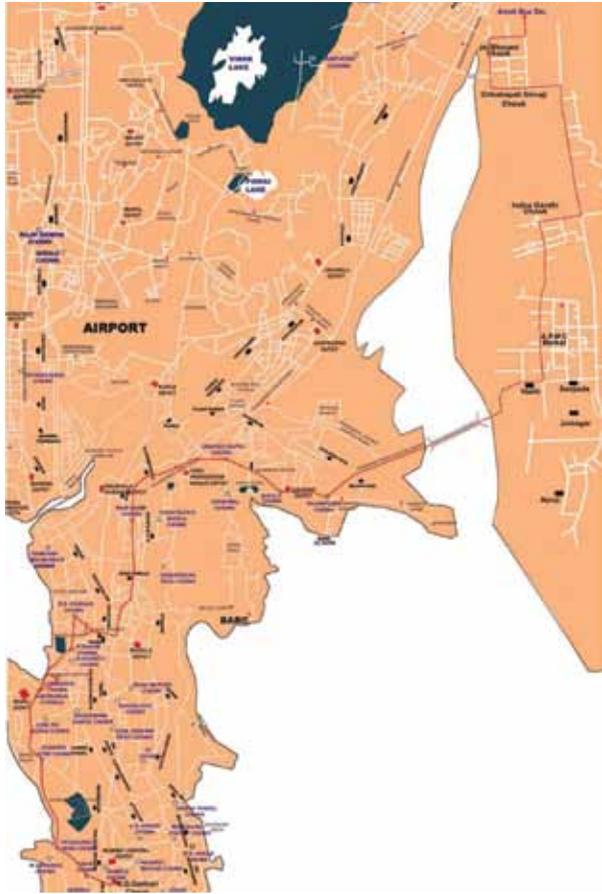


Suburban Trains with Super Crush Load



Typical Scenes on Suburban Railway Station Platforms at Peak Period





Sample routes of B.E.S.T. Bus Services in Mumbai and Navi Mumbai



sharp peak in the commuter load. Simple visual observation at any railway station reveals that platforms are overcrowded, trains are heavily overcrowded. Crowd on the Foot Over Bridges (FOB) and the Stairs leading to it are very cumbersome to negotiate. This also substantiates the fact that many people get off as well as many board the trains at every station, meaning by that the distances traveled by most commuters is not very long as one tends to perceive.

Although train frequencies are around 3 minutes, people do not want to miss a train and many rush to board a train which has already started moving. Some people slip meet with tragic end, falling between the platform and the wheel. Though of small percentage, many avoid the climb on the crowded stairs but prefer to cross the track instead, despite the risks involved. Some do so with preoccupied minds, not responding to horns from the trains and do get run over. And some fall off the trains for not having adequate foothold and handhold or overhanging commuters getting hit by a post close enough to the train. There are many more who get injured, some losing limbs, adding to the ever growing number of persons with physical disability. The root cause for this is overcrowded suburban railway system. MUTP attempts to address this issue but confines itself to reducing the crowd in the coach designed to carry little less than 200 commuters, from the peak crowd of 500 by at most 150. This itself is not adequate plus the remaining problems still do not get addressed.

To what could we attribute the approximate daily 7 fatalities on

roads? For this we have to understand that when cars move at speeds more than 50 kmph, the probability of fatality when it hits a pedestrian is more than 80% since speeds at the time of impact is definitely not less than 30 kmph. On the other hand if the speed were to be around 30 kmph, the probability reduces to less than 20% as the speed at the moment of impact is much less than 30 kmph. Majority of fatalities are due to speeding vehicles hitting a pedestrian or cyclist. In a city where road congestion rues during peak periods, can we expect high speeds? The fact is that there is near bumper to bumper driving at moderate speeds during this peak period, reaching barely 20 kmph with several halts and starts in between signals, good enough for people to cross without causing any delays to vehicular movement. However let there be a slight let up in the traffic, say just outside the peak periods, and there is ample scope to speed up the vehicle, especially with the modern day high acceleration light weight cars with young and impatient drivers. Also, there is this great tendency to beat the green signal turning red and drivers speeding up much much beyond 50 kmph. Many times these vehicles overshoot the red while a pedestrian is crossing legitimately. This definitely leads to severe injuries and probable fatality. In this, the buses are no less the culprits.

Lack of focus on pedestrian safety on normal conditions of roads accentuates while road is under repair or reconstruction.

Any conscientious government will pay heed to these aspects and select options that expeditiously



Case for Pedestrian and NMV Only ?



Peddar Road during Peak Period

What Is The Way Out?

To find that out, it is necessary to assimilate some additional observed facts.

Study shows that about 57% of citizens live within 3 km of their place of work. This proportion increases to 69% if one considered a 5 km range. For a 10 km range, it is 81% and for 15 km range it is 89%. Only 11% travel more than 15 km.

While 47% of Mumbai citizen moves about on foot or bicycle, the 7% of cyclists outnumber the 6% motorcar users.

While embarking upon major improvement schemes on mobility, on this day one must also pay heed to environment and global warming aspects. In this regard it is observed that buses emit less than one half of metrorail CO₂ emission, one third of diesel and one fourth of petrol driven cars per passenger kilometer. Energy consumed for running a metro is considerably more due to the fact that underground stretches need to be ventilated and air-conditioned and more than 70% of electric power in India is generated through fossil fuel.

There is one more aspect that needs to be kept in view while conceiving mobility plan. A repeat of the deluge of 26 July 2005 cannot be ruled out considering climate change. To counter the probable rise in seawater level due to global warming, Mumbai may be protected by building levies in the future as it exists in New Orleans. Surely we would like to avert potential disaster situation by adopting some schemes that would help mitigate disaster and also assist in managing it. For this, Konkan Railway's innovative mode based on railway technology called the "Skybus" would be of great value. As a byproduct, Skybus provides a 11 m wide walkway at about 12 m height for facilitating people from avoiding walk in flood waters. Under normal conditions, the same walkway becomes an added accessible open public space in a city with dismal figures of accessible open public space.

One may consider providing elevated bus way for this purpose, but then the additional space for running buses does not reduce space for use of personal motorized vehicles, which is important aspect to consider for



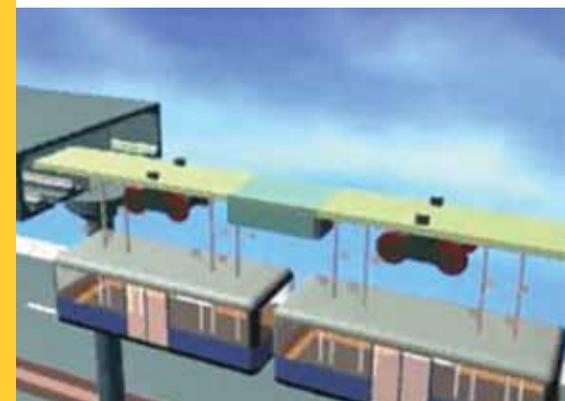
There is total disregard to safety to pedestrian and Non Motorized Vehicle users during construction phase and after



Speeding on coming Buses and mini truck make the lady in red sari and school boy jump onto under construction footpath.



Fast moving traffic on Marine Drive during ongoing footpath construction work. Notice the cyclist. They are all over Mumbai, not visible to those not inclined to see



If Skybus metro existed along the two main arterial roads when the 26 July 2005 deluge occurred, the fatality figure due to being washed away in floods and leptosporosis would not have been there. BRTS lanes are available to emergency vehicles

achieving effective mobility in Mumbai and reducing CO2 footprint. The elevated bus way will tend to become tracts for high speeds of buses and still be unable to cope up with the commuter crowd during deluges and people will still require place to walk safely. There are other issues of BRT on elevated roads which do not serve the purpose of BRT as a part of holistic solution to transportation and traffic woes of Mumbai.

Skybus with stops every five kilometers can sustain an average speed of 80 kmph, thereby connecting Borivli and Colaba or Thane and Colaba with a 30 minute ride.

Considering that emergency services need quicker mobility during normal times and more so during congestion due to calamity, B.R.T.S. lanes at grade could prove to be very useful for the purpose. Therefore it is necessary to provide B.R.T.S. in addition to its high carrying capacity, very low costs and its being able to be quickly implemented.

Aspects That Have Been Considered In Arriving At Prioritization Are:

1. Annual fatalities of 4000 on suburban railway system and 2500 on roads.
2. High proportion of commuters being pedestrians and cyclists.
3. Global warming and Climate Change
4. Inclusion of Disaster Mitigation and Management Plan in infrastructure development
5. Duration of implementation
6. Costs of Projects.

Taking into account various aspects covered thus far, it is suggested that following measures be given

priorities over other measures, even though some projects have been already taken up for execution.

(1) Priority Items

(a) Ensure all footpaths are safe and convenient to walk on without any impediments, including slanting tree trunk. Make them friendly towards Persons with Disability, Elderly, Expectant Women, Infirm, Children and those suffering from arthritic ailments.

(b) Provide infrastructure space for bicycle and other non motorized vehicle users that ensures their safety and convenience. Provide shortcuts to them and longer travel for motorized travel.

(c) Provide well designed B.R.T.S. of high capacity that can reduce the current load on the railways so significantly that it reduces to its design capacity. This will lead to reduction in the fatality rates on railway system due to overcrowding in the coaches, the platforms, the stairs and the FOBs and approach roads.

(d) Only after providing road space for pedestrians, non-motorized vehicles and public transport like buses, should space be available, it should be allocated to general motorized transport, unless a bus transport route exists in very close vicinity. In which case the space for bus could be given to other motorized vehicles.

(e) Reduce the designated lane widths for motorized transport to 3 m in urban areas (like whole of Greater Mumbai) to reduce the maximum cruising speeds of motor vehicle to less than 50 kmph and provide traffic calming measures to aim for a zero fatality rate on the road.

(f) Provide adequate and appropriate pedestrian road crossings such that neither pedestrians need to cross the vehicular flow nor is the vehicular flow disrupted unnecessarily.

(g) Any infrastructure that caters to efficient operation of B.R.T.S. should be given equal status as that of B.R.T.S. itself.

(h) Provide finance and initiate full fledged effort to make Konkan Railway's Skybus Metro a usable mode of transport. Thereafter, make Western Express Highway and Eastern Express Highway and two routes in the Island City reaching Colaba as the route of Skybus. Integrate the Skywalks and BRTS with Skybus on these routes. Besides Skybus being a mode of public transport, its purpose is also to make provision for emergency travel by foot with least hindrance. It is incidental that Skybus would provide a large length of accessible open public space in Mumbai where there is acute dearth of such space.

(i) Mumbai Trans Harbour Link connectivity to Mumbai Metropolitan Region.

(j) Along with the existing surface railways and Road Over Bridges in the MMR, provide adequate network of BRTS with high capacity potential. This will facilitate quicker development of the region.

(k) Amend DC Rules whereby the space allocated for parking of 150 bicycles, 5 motorized vehicles and one ambulance per 1000 sqM of plot size will be exempt from FSI consideration. Only designated plots which could form a set of nodes about 850 m apart would get incentive FSI for providing public

parking. This will make a commuter to choose a public transport which is likely to be closer to his point of origin or destination than the parking lot. This will hopefully encourage migration to use of public transport for daily commutes.

(2) Items That Should No Longer Be On Front Burner But Moved To Back Burner:

- (a) Mumbai Metro Master Plan
- (b) Selected Flyover Projects
- (c) Selected Skywalk Projects
- (d) Foot Over Bridges on Western Express and Eastern Express Highways as well as JVL and SCLR planned by MMRDA and executed without giving much consideration to proposed B.R.T.S. bus stop locations and details.

(3) Items To Be Deleted From Current Priority Items Of Government:

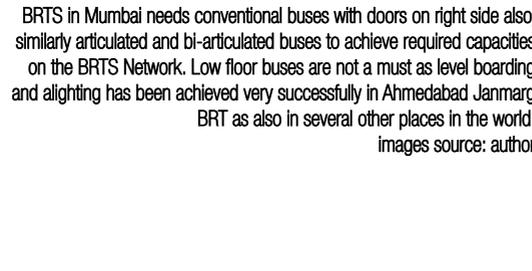
- (a) Out of 146.5 km of MMMP, the routes on WEH and EEH be replaced with Skybus Metro.
- (b) About 180 km of Mumbai Monorail Master Plan has been conceived by MMRDA, of which about 20 km of Jacob Circle-Wadala-Chembur route is under construction. The remaining routes are yet to be cleared by the Cabinet of Government of Maharashtra. None of these should be cleared unless MMRDA puts forth transparently, a comparative report vis-à-vis BRTS on these routes – comparing (i) absolute cost, (ii) absolute capacity for the cost, (iii) projected demand, (iv) time of travel, (v) period of construction and traffic management plan for the period, (vi) likely reasons for delays in construction and (vii) emergency action plan for emergency arising out of its own follies as well as due to extraneous



Quality of footpaths (sidewalks) in most parts of Mumbai seldom match with these; here the pedestrian traffic is almost nonexistent.



Level Boarding and Alighting Facility



factors. Justify the option selected. Make these available transparently to citizens before a decision is taken by the Cabinet.

(c) All road widening projects must be halted including tree cutting, until an acceptable plan is put forth giving schemes for pedestrian and bicyclists' and other non motorized modes of transport.

(d) All proposed Motorcar Parking projects must be halted and the DC Rules Amendment that every new construction given additional FSI for providing parking facility be scrapped.

(e) Scrap the Worli to Haji Ali to Napeansea Road to Nariman Point Sealink.

(f) Scrap the Haji Ali to Wilson College viaduct over Peddar Road.

(g) Scrap Versova-Bandra Sealink.

If we wish to tackle the daily fatality figure of 20 in the rail and road accidents, government bodies and other stakeholders, including the citizens must expeditiously come together to discuss these and move forward.

Sooner or later policies that are equitable, sustainable and makes city livable for all, will have to be adopted and implemented. Wisdom lies in our recognizing these early and taking suitable steps.



BRTS in Mumbai needs conventional buses with doors on right side also, similarly articulated and bi-articulated buses to achieve required capacities on the BRTS Network. Low floor buses are not a must as level boarding and alighting has been achieved very successfully in Ahmedabad Janmarg BRT as also in several other places in the world.
images source: author