

Bengaluru needs scientific not short-sighted mobility planning

February 16, 2023 Bhanu Sridharan

URBAN MOBILITY AND TRANSPORTATION-PART 2



Investing in public transportation and pedestrian friendly streets is crucial to solve traffic problems. Representative image. Pic: pixabay.com/carlovenson

In **part one** of this interview, Professor Ashish Verma, who studies urban mobility planning at the Indian Institute of Science (IISc), explained why India's low car ownership is an opportunity to invest in sustainable and equitable public transportation systems. In part two, Ashish discusses scientific traffic management, which coupled with a long-term vision, can make Bengaluru a truly liveable city.

CM: You often mention that traffic can be optimised with simpler low cost measures. Can you elaborate on these?

AV: This is about utilising the existing road infrastructure and capacity in the most optimum way to improve the throughput of the traffic. While incorporating sustainability and reducing the environmental impact, tailpipe emissions, and so on.

In traffic analysis, **throughput** is the number of vehicles present and able to enter a road system at a given time. It is used as a measure of analysis of the effectiveness of a traffic management system.

Typically, in an urban transport network, signalised junctions are a key point of delay because you have to stop and go. Their functioning can be improved through scientific methods. Current methods of traffic signal timing are archaic and are not based on optimality. In most cases, the traffic constable standing at the junction, ends up giving the green signal by just looking in all directions.

This is a highly sub-optimum way. We have researched how to effectively decrease the queue length, travel time from section to section, and delay at each junction using a simulation model [in our lab and showcased \[this\] in our](#) neighbourhood.

Read more: [How to make Bengaluru traffic jams go away](#)



Channelising streams of flow at traffic junctions can prevent jams. Pic: Mahima Shankar

There are other small interventions that can be done at these signalised junctions. When you see any signalised junction in India we have all this *galata* [chaos] that happens. Somebody standing in the left will try to take a turn bypassing everybody and hindering people going straight. Such criss-crossing reduces the capacity [of roads carrying vehicles] and throughput.

If you channelise these streams of flow, keep the left turning traffic in the left lane, straight running traffic in the middle lane, and right turning in the right lane you will not have all this chaos and intermixing. And you will be able to release a lot more vehicles than currently.

We can learn from what MA Saleem, after becoming Special Commissioner (Traffic), has tried doing at the Hebbal flyover from going from Mekhri circle. They have separated traffic, which would take the ramp to go to Manyata tech park on Outer Ring Road from the one going straight to the airport. They have put a barricade from quite a way ahead, so that the traffic doesn't merge. Earlier at that point, where these ramps start, there used to be a lot of criss-crossing [vehicles switching lanes], which would delay the throughput. By segregating that, they've actually increased the throughput because there's no intermixing happening.



Google Earth image of Hebbal traffic choke point

These are simple logical things. If they can do these things to whatever extent practical at junctions, along with looking at the phasing sequence and timings in an optimum way, the throughput can be improved. If delays and queue lengths are minimised, then the travel time will automatically reduce and throughput will increase.

CM: You talked about several short term traffic optimisation methods that do not involve heavy road infrastructure. Why are these measures not taken seriously?

AV: One is, of course, they don't understand the scientific principles. Traffic police, as an organisation, doesn't have the technical capacity to do this job. It's fundamentally wrong to give the function of traffic management to traffic police. Their core function is traffic law enforcement. Traffic management is a very technical and complex subject, a classic case of complexity science. You need a separate traffic management centre with people of expertise.

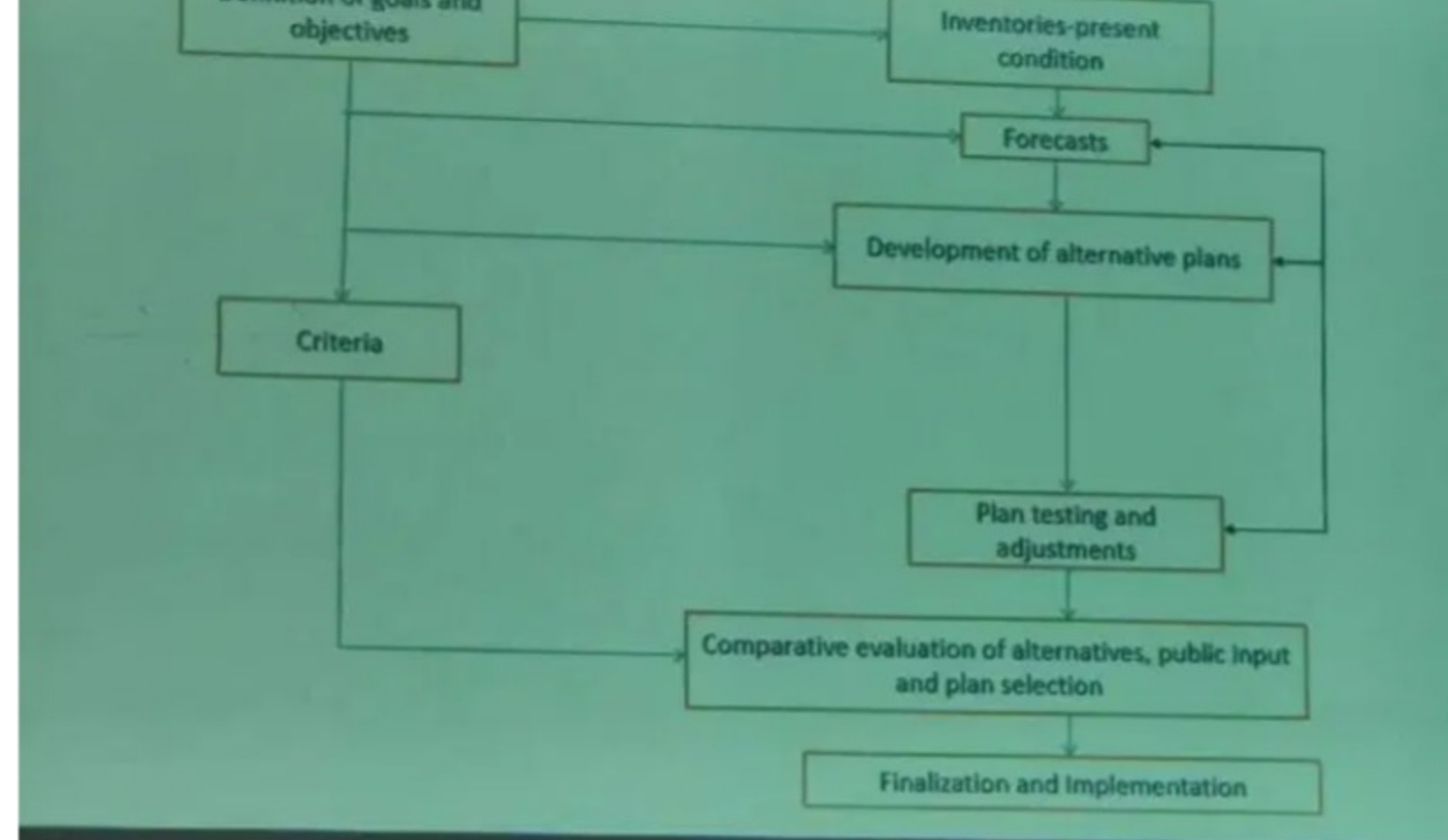
The other reason [these measures are not taken] is it doesn't involve any money; it doesn't cost anything. So, it doesn't serve the other purposes for which politicians and bureaucrats propose these kinds of costly road infrastructure.

CM: In other talks, you have mentioned a certain process flow that should be followed while looking at solutions for traffic. You alluded to the first step in this process, that is goal setting, when you mentioned development [in part one]. What are the other steps that civic agencies should follow while planning for traffic?

AV: From goal setting, we should also have alternative analysis. One is you can bundle your interventions into short term, medium term, and long term measures. Medium and long term measures require interventions, which will enable a mode shift to public transport, walking, and cycling. Short term measures are where you can use these low cost alternatives.

Even if you want to solve a problem at a given point or corridor, look at alternative solutions, evaluate how much they're able to solve that problem, for how long and at what cost. The plan that gives us the best answer should be the one that we decide.

We should not decide upfront that a flyover is the best solution and go ahead and build it without doing an alternatives analysis. Our government agencies are by-passing this critical step all the time.



Basic steps in urban mobility planning as per Ashish Verma. Pic: Bhanu Sridharan

CM: You have pointed out that in the Sankey Road DPR, BBMP's traffic projections of 5% increase per year is an underestimate, which makes flyovers look like long term solutions. Can you talk about this in more detail?

AV: It is a deliberate attempt to under project the future growth of traffic. And even using that, they have not done the basic Volume by Capacity analysis ratio, which is to show what is the congestion mitigation potential. They are claiming it is a long term solution, but they have not even done that analysis of what their proposed solution would achieve today and in the future with the traffic growth rate.

Even with the 5% growth rate assumption, our analysis says that some of these road stretches will start getting congested immediately after the flyover is completed. So, it's not even a short term solution. And if you take a realistic traffic growth rate, which is about 12 to 13%, the situation will be even worse.

CM: Have you seen this sort of underestimation of vehicular growth rate in other road projects?

AV: Yes. In all the road projects they're underestimating. I've seen from time to time the DPR for their elevated road corridor project or the steel flyover project, everywhere it is being underestimated.

CM: BBMP has now submitted the Sankey Road flyover project proposal to BMLTA. What would you advise BMLTA to do?

AV: Well, BMLTA should do an alternative analysis and the results should be put to the public for their inputs, suggestions, and acceptance. Once that is done, then they can go ahead and implement that solution.

Read more: [Residents of Sankey Road say flyover beda, will BBMP listen?](#)

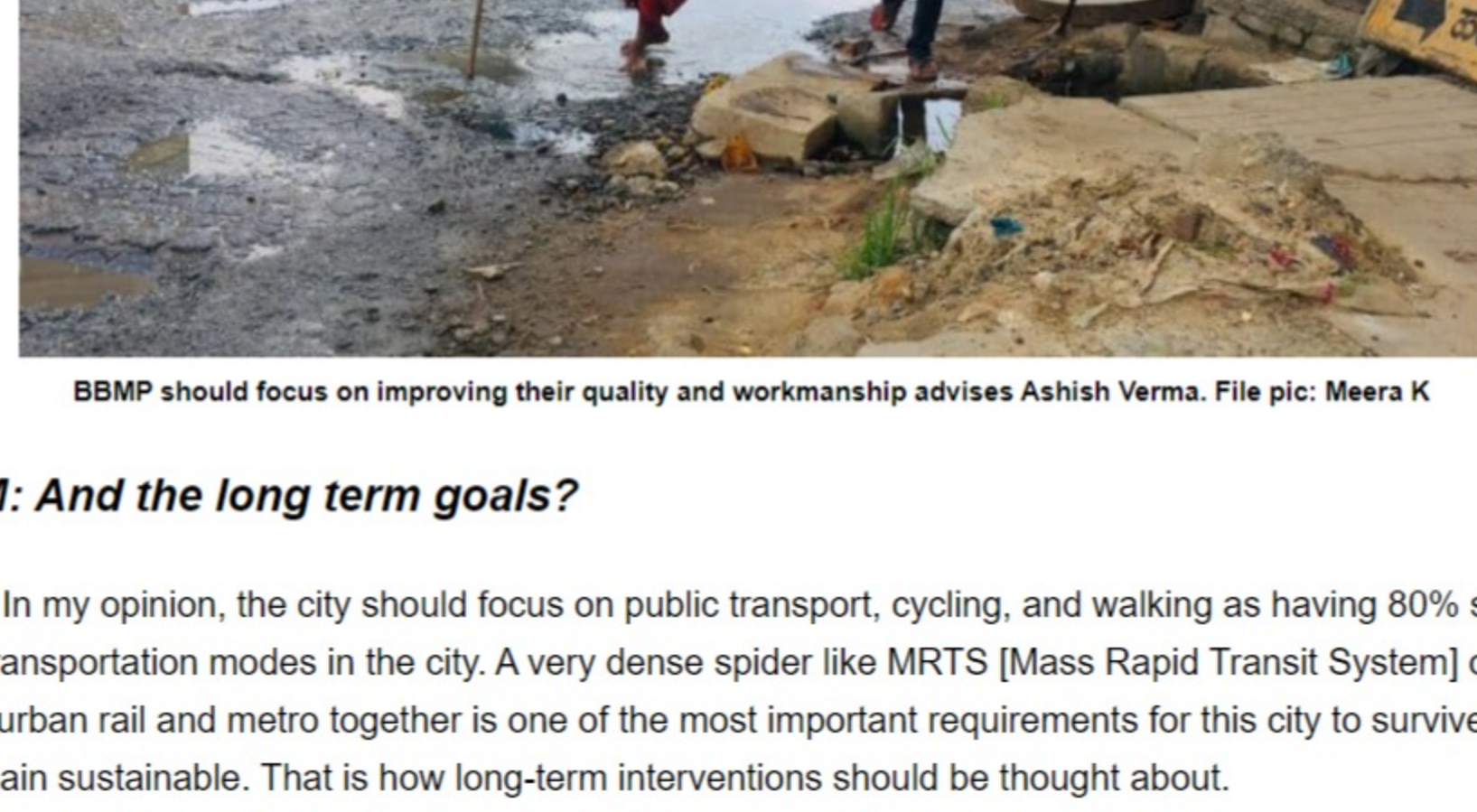
CM: What would you advise the public in light of these events?

AV: Well, the public should really think about and evaluate any given proposed solution or intervention that is put on the table in terms of how holistic it is for the city's development. Development, as I have said earlier, should improve the quality of life. They should think for how long an intervention would be able to solve a problem and how that could impact their individual life. If they do this, then they will have the right understanding of what they should oppose, and what they should accept.

CM: What would you say are the short and long-term goals that BBMP should focus on?

AV: BBMP's function is primarily road infrastructure. They should really concentrate on improving their workmanship. In quality design, expecting much better quality from our civil engineers. **As long as the road width is uniform, the traffic will flow smoothly.**

And most importantly, there should be good quality footpaths for pedestrians. Every junction should have safe pedestrian crossing. BBMP is delivering very poor workmanship on basic elements like the quality of construction, detailing or small decisions like how wide the footpath should be or how evenly they are laid, and having adequate drains so there is no flooding. These are all functions that BBMP has in their hands, and they should do it thoroughly.



BBMP should focus on improving their quality and workmanship advises Ashish Verma. File pic: Meera K

CM: And the long term goals?

AV: In my opinion, the city should focus on public transport, cycling, and walking as having 80% share of suburban transport modes in the city. A very dense spider like MRTS [Mass Rapid Transit System] of suburban rail and metro together is one of the most important requirements for this city to survive and remain sustainable. That is how long-term interventions should be thought about.



Facilitate walking, cycling, and public transport to make Bengaluru sustainable Pic: Ekta Sawant

Note: Professor Ashish Verma's complete presentation during the Sankey Road flyover meeting can be accessed [here](#).