

## Unscientific Traffic Signals: Insights from Yelachenahalli Junction

According to the Indian Road Congress (IRC) standards, traffic signals are typically required at road intersections where the volume and complexity of traffic movements necessitate controlled and organized traffic flow. The decision to install traffic signals is influenced by factors such as traffic volume, vehicular and pedestrian conflicts, safety considerations, and the overall efficiency of traffic management. IRC guidelines provide criteria for assessing these factors and determining when the installation of traffic signals becomes necessary to enhance the safety and functionality of a road intersection.

The implementation of traffic signals without adhering to the above mentioned, established guidelines, can result in the creation of unscientific signals. When traffic signal installations lack the careful consideration and planning outlined in official guidelines, several issues may arise, compromising the effectiveness and safety of the traffic control system. Yelachenahalli Junction epitomizes these challenges. Yelachenahalli Junction is a three-legged junction, formed at the intersection of Kanakapura Road and Chunchaghatta Road, caters to heavy traffic volume, owing to the fact that Kanakapura Road is an Arterial Road and Chunchaghatta Road is a Collector Street.

This bustling intersection grapples with heavy traffic flow, exacerbated by narrow lanes and conflicting movements. While signalization brought structure, manual control by police introduced subjectivity and challenges. While this approach might be adopted due to specific circumstances or operational preferences, it comes with certain drawbacks and considerations:

- **Subjectivity in Timing Control:** The manual control of signal timings by police introduces subjectivity and may vary based on the discretion of the officers on duty. This can lead to inconsistencies and challenges in maintaining a standardized traffic flow.
- **Potential for Human Error:** Manual control increases the likelihood of human error in managing signal timings. Mistakes or oversight by police officers could impact the efficiency of traffic flow and may lead to safety concerns.
- **Limited Adaptability:** The absence of automated signal timings reduces the adaptability of the system to real-time traffic conditions.
- **Inadequate Width of Chunchaghatta Road:** The overall width of Chunchaghatta road is about 6m which does not comply with IRC standards which says that minimum width of the road is 7.0 m for two lanes without raised kerbs. There is insufficient road width for vehicles to stop at the signal, this leads to increased queue lengths during peak hours, often extending upto 0.7-1.0 km
- **Inadequate Turning Radius from Kanakapura road to Chunchaghatta Road:** The radius available for vehicles turning left from Kanakapura Road onto Chunchaghatta Road is insufficient, especially for big cars, LMVs and school vans and buses. Left turning traffic is high, especially school vans and buses, owing to the fact there are a couple of schools located on this road. The insufficient turning radius contributes to traffic congestion, particularly during peak hours when there is a higher volume of vehicles attempting the left turn. Delays and queuing may occur as vehicles negotiate the constrained turning space. Safety concerns arise as vehicles may need to make sharper turns than optimal, increasing the risk of collisions or near misses. Pedestrian safety can also be compromised
- **Dependency on Police Presence:** Continuous police presence is required to manage signal timings manually. Any lapses in police coverage may impact the smooth functioning of the traffic signals.
- **Human Error and Safety Concerns:** Manual control increases the risk of human error, potentially impacting safety. Mistakes in setting signal timings could lead to unsafe traffic conditions.

To conclude, the manual control of traffic signal timings and the challenges related to turning radius, width, and queue build-up highlight the need for a comprehensive approach to traffic management and infrastructure improvement at Yelachenahalli Junction. Addressing these issues may involve considering road design standards, optimizing signal timings, and implementing measures to enhance traffic safety and efficiency.

Reevaluating the decision to switch off the timer and rely on manual control for signal timings is essential. Implementing automated traffic signal control systems can bring efficiency, consistency, and adaptability to varying traffic conditions.

Conducting updated traffic studies to understand current traffic patterns, volume, and intersection usage becomes crucial.

To navigate traffic challenges effectively, a holistic approach is imperative. Automated signal control systems offer efficiency and consistency, while addressing infrastructural deficiencies is crucial for long-term solutions. Yelachenahalli Junction serves as a microcosm, illustrating the intricate balance required in traffic management.