Potential Research Topic:

Interaction of Bus and Metro in Bengaluru on routes where both services overlap (partially or significantly) along phase 1 or 2 metro routes, especially impacts on ridership of both public transport systems.

Research stream (suggestive): transit ridership analysis, Multi-modal integration, route rationalization, transit service design etc.

Research Brief:

Public transport forms the backbone for mobility in metropolitan cities like Bengaluru. The Comprehensive Mobility Plan (2019) for Bengaluru targets to increase the mode share in Bengaluru from 42% (existing) to 70% by 2035. As such several initiatives are being taken up to increase capacity of public transport like extension of metro network, introduction of suburban rail, retrofitting Bus Priority Lanes on roads with high frequency of bus operations etc.

However, when planning public transport systems like metro, there is a perception among some that existing public transport systems like buses operated by BMTC should not be run on routes where metro is operated as these two systems may compete for ridership with each other. They opine that buses should be acting only as a feeder to metro systems. As such ridership estimates while preparing metro project reports do not take into consideration all the potential scenarios of interaction of metro and buses.

On the other hand, there is different view by others that both the systems, metro and buses, should co-exist (even if they are operated on significantly overlapping routes) as they may cater to different types of public transport users (different income classes, etc.). Also, they opine that while significant part of trip may have overlap between buses and metro, the buses may give direct connectivity to origin and destination to commuters, without need for transfers, making bus travel more preferred. Since the demand for travel along some corridors might be high, they argue that the competition in such corridors is between public transport system vs. private motorized modes of travel rather than competition between metro and buses.

Such debates have perplexed decision makers regarding rationalizing bus services in areas where metro is planned/commissioned.

The research should throw light on the issue mentioned above through analysis of data collected along phase 1 or 2 metro routes and current bus routes. The data to be analyzed includes ridership data of metro and bus routes, and survey data of metro users, bus users, and non-users. These data should be utilized to develop a tool to evaluate the ridership impacts of interactions between metro routes and bus network. Such a tool should be useful in the following ways:

1. Evaluate the (bus and metro) ridership impact of different metro-bus route structure configurations – considering the extent of complementarity and competition between the two modes as well as with the other modes.

2. Such an evaluation should guide the structuring of bus route network vis-à-vis the metro routes for enhancing ridership for both systems (and to attract a wide range of travelers to the public transit system).

The survey data may be utilized to examine the following aspects of metro and bus users and non-users: (1) income/demographics (2) persona (3) trip characteristics (trip length, trip purpose, number of transfers, etc.) and influence of these aspects on their choice of mode (metro or bus). Such an analysis can provide insights into the following:

1. Is there a significant difference in the commuter characteristics between metro users and bus users? When do they choose metro vs. bus?
2. What are the characteristics of commuters not currently using metro or bus? How are they different from the users? How can they be attracted to the public transit modes?