Public Transit (P. T) is very important means to reduce traffic congestions, to improve urban environmental conditions and consequently affects people social lives. Planning, designing and management of P. T are the key issues for offering a competitive mode that can compete with the private transportation. These transportation planning, designing and management issues are addressed in the Transit Network Design Problem (TNDP). It deals with a complete hierarchy of decision making process. It includes strategic, tactical and operational decisions. The main body of TNDP is two stages, namely; route design stage and frequency setting. The TNDP is extensively studied in the last five decades; however the research gate is still widely open due to its many practical and modeling challenges. In this paper, a comprehensive back-ground is given to illustrate the issues and challenges related to the TNDP to help in directing the incoming researches towards the untouched areas of the problem.
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**Index Terms**

Computer Science
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**Keywords**
