

Modern Trend in Transport Management

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Introduction

Transport is an essential to the functioning and development of any society. For a rapid growth of a country, a good network of roads is essential. It is the basis of the existence of the country. An efficient and well developed system of transport and communication is vital to the success of a plan of economic development which plays stress on rapid industrialization [1]. So, for a successful modern economy, the ability to guarantee the smooth and efficient transportation of people and goods is a fundamental requirement. Failure to achieve this represents a threat to competitiveness, and also reflects an unsustainable use of the transport infrastructure. But, the establishment of effective transport systems is never an easy thing [1]. With the advent of the information age, expansion of the global population and deteriorating environment modern transport systems is facing a great challenge. Therefore, how to effectively solve the traffic problem in the situation so as to achieve sustainable economic development is a great concern in every country.



Figure 1: Traffic Flow in a Modern Way

Goal and Objectives of Modern Transport

A variety of possible transportation planning goals and objectives are listed below [2]:

- Improved access.
- Improved Safety and Health
- Improved Transportation Reliability
- Improved Equity
- Economic Development
- Improved Community Liability
- Energy Efficiency
- Environmental protection
- More Efficient Land use

Objectives are ways to achieve goals. The objectives that can be used for modern urban Transport Planning [3] are - improved mobility and congestion reduction, manage parking facilities, energy conservations and pollution emission reductions, improved non-motorized transportation and reduced sprawl. In a word the main objective of modern transport is to control of trip demands distribution of peak demands and encouraging public, bicycle and walking modes.

Methods of Modern Transport Management

Modern transport management includes the following aspects:

Planning and Policies

This consists of the following issues:

Integrated land use and transport planning

In order to effectively reduce the adverse impacts of current transportation systems it is essential to influence future and existing transportation and land use development patterns. Once urban land use and transportation become integrated, it becomes possible to increase accessibility without increasing the need for automobile travel.

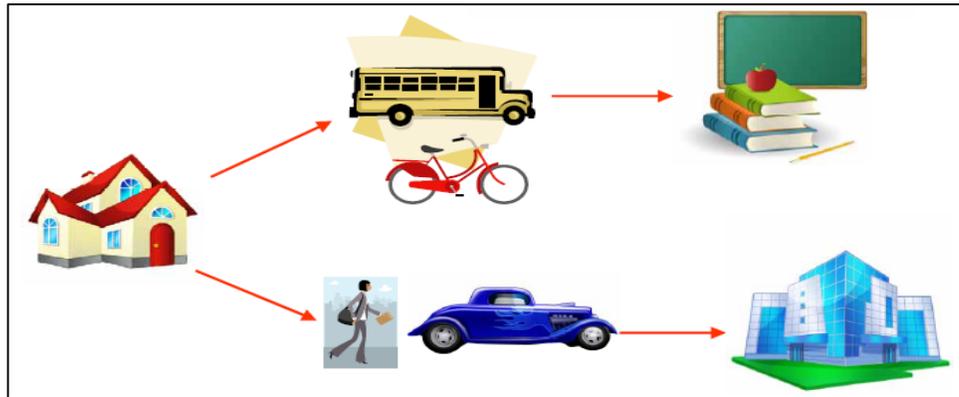


Figure 2 : Integrated Transport and Land use [4]

Full-cost pricing and Taxes and pollution fees

Full-cost pricing involves the full or partial recovery of costs related to the public investments incurred by varying levels of government in relation to constructing, repairing and operating road networks [5]. It includes road pricing, pollution taxes and fees, and parking controls. The main objective of this strategy would be to discourage automobile use during peak periods and to promote the use of alternatives modes of transport. Taxes and pollution fees are other feasible methods of recovering transportation costs while attempting to reduce heavy traffic loads. They would involve the implementation of increased taxes on vehicle as well as fuel purchasing as well as imposing fees on vehicle owners who operated at low levels of energy efficiency [5].

Zonal Concept

Zoning is defined as the creation by law, of the sections or zones such as residential, commercial, industrial, civic, institutional and recreational in which the regulations prevent misuse of lands and buildings and limit the height and densities of population differing in different zones [6]. As Traffic is generated from residential, commercial, industrial etc. activities so the zonal concept can play a great role to provide an efficient transportation plan.

Integrated walking and bike facilities

Planners, engineers, and citizens have come to recognize that while automobile use over the last several decades has increased accessibility and the quality of life in

some respects, the resultant auto-oriented cities has its disadvantages, including air pollution, traffic congestion, and high infrastructure maintenance costs [6] To reduce automobile dependence, many cities throughout the world have increased efforts in recent decades to plan for increased bicycling and walking, as a complement to existing public transportation.



Figure 3: Bike facilities in Holland [6]

The main goal of this expanded focus on multi-modal transportation is to increase safety for autos, cyclists, and pedestrians; reduce traffic congestion; make transit a viable option; and reduce the negative impacts of excessive auto use.

Restricting private modes

Private mode should be restricted. Because if the private modes are more in the road these occupy a large portion of right of way but carry a small portion of passenger. But using the same right of way public modes can play a great role to carry a large number of passengers in comparison to private modes.



Figure 4: IT based communication system [7]

IT based communication

The use of computers now extends into almost all fields of human endeavour - transport is no exception. Intelligent Transport Systems (ITS), also called transport telematics, include a wide range of tools and services derived from information and communications technologies. These systems have the potential to deliver significant benefits with respect to operational efficiency, service reliability, infrastructure management, as well as enhanced safety, reduced environmental impact, and valuable information services for transport users [6].

The range of systems include those for- automated traffic management, support for public transport operations, demand management, traveller information and trip planning services, freight and fleet management, incident management and support for emergency services, electronic payment services, and fee collection, advanced in-vehicle technologies. Some examples are described below explaining the importance of their integration and interoperability.



Figure 5: The typical elements of an ITS implementation for urban traffic management and control [7]

Intelligent Transport Systems

Transport authorities now accept that simply building more roads is rarely a solution to the almost universal problem of road traffic congestion. It is essential to find ways of managing traffic more efficiently on existing roads, and of increasing the use of other modes of transport by travellers and freight. ITS can make a valuable

contribution to both of these objectives. The first telematics systems, which appeared in the late 1960s, were computerized signal control systems designed to optimise urban traffic flows. Over the years, a growing number of increasingly sophisticated products and systems have been developed. The range of systems now available is extensive, including support for commercial freight and public transport services as well as in vehicle telematics and traveller information.

They are spreading to all transport modes – not only road, but also rail, water and air. To be able to exploit their maximum potential, it is important that these systems work in a co-ordinated way across the whole transport network.

Traveller Information

This is one of the areas in which great strides are being taken. ITS service providers are able to offer information to travellers via many different channels before and during trips, e.g. on-board devices, web-based services, message panels, special kiosks, mobile phones, etc., giving support in the choice of the best mode and route, as well as information on journey costs. ITS is moving towards the provision of a complete ‘travel service’: from trip planning and route guidance to the booking of tickets and parking places. Links with tourist services offer additional services, such as hotel bookings, information on places to visit etc.



Figure 6: Travel Information System for the Traveller[7]

ITS in towns and cities

Most major urban areas in Europe are already using various types of ITS in order to support the control and management of traffic and public transport operations, as well as for enforcement and access control. A growing number of city transport

departments are seeking to take advantage of the benefits to be gained by integrating such systems.



Figure 7: ITS in Towns and Cities [7]

Freight and Fleet Operations

Operators in the running of public transport services or commercial freight transport, covering both long distance freight haulage and urban goods deliveries. ITS applications can increase the efficiency of operations, encourage the use of different transport modes, and also improve the level of safety.



Figure 8: Freight and Fleet Operations [7]

Construction

Build operates and transfer (BOT) system

This system means one body will build an infrastructure and operate for a certain time than handover another body by a negotiation. By this process many roads, bridges, bus terminals, air-terminals are being build and ultimately resources are using efficiently. By this system modern transportation system is improving rapidly.

Auto soil compaction and super smooth road surface

For the improvement of technology new tools, machinery, techniques are introduced in transport related works. These tools and machinery are playing a great role to build up transport infrastructures such as roads, bridges etc. in a shortest time and ultimately helping the improvement of mobility in a rapid way.

Considering the above discussion we can sum up the transport management system in the following way:

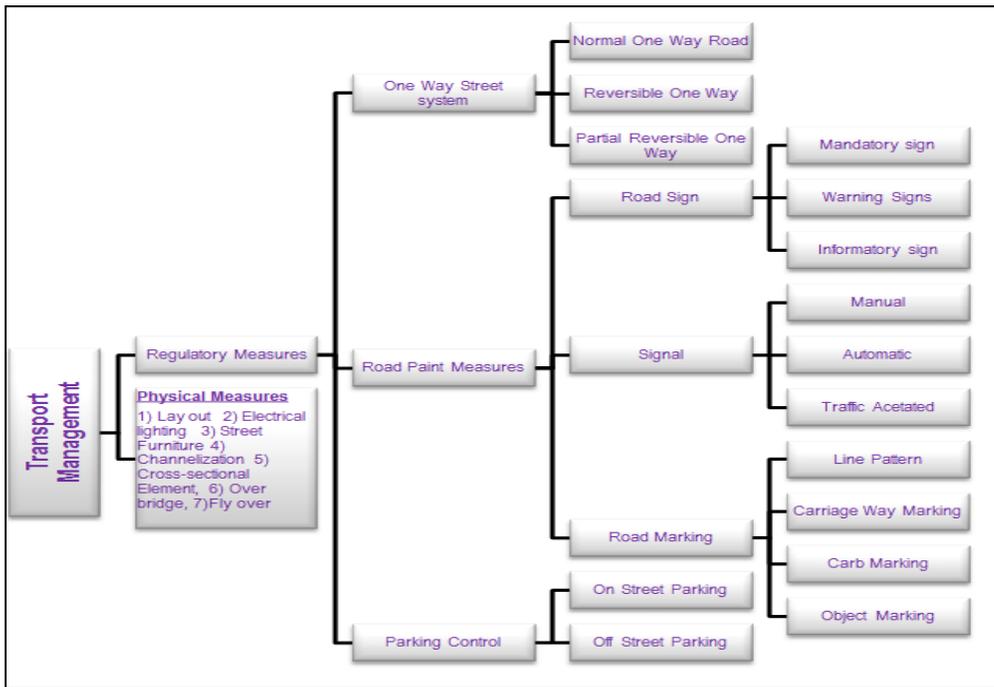


Figure 9: A Summary of Various Components used in Transport Management [6]

Conclusions

Effective transportation is indispensable to economic process. Mining, manufacturing, trade and banking and agriculture are also necessary, but these activities, like many others, depend upon transportation. Without adequate facilities for moving goods and people from place to place, economic and social activities can be carried on in a limited way only. So, modern transport industry is introduced for playing a great role in improving the mobility and same time to improve the economy. The main target of modern transport industry is to use minimum resources and to achieve maximum

benefit considering safety, security, economic development and pollution free environment.

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