Restructuring Plan of Old and Outdated Transportation Planning

Sanjay Verma¹, Ajit Singh²

M. Tech. (Transportation Engineering)¹, Assistant Professor² CBS Group of Institutions, Jhajjar^{1,2}

Abstract: Traffic control is a serious problem for mankind for the last few years. Roots of traffic, lack of parking, pollution and other problems begin to target humans. In this regard, the issue has been minimized to the least, one of which is detecting and tracking. Because there are different types of cars in the car, bush, edges, colors, shadows, corners, etc., this is a wide range. In this article, we will focus on reducing the background to detect the vehicle with detection of colors and to create a picture to get a background image. Later the image is processed with the implementation process. The change detection process further analyzes and removes appropriate changes to identify. When the pixel changes, it is ranked as a preview. Otherwise, it is considered a background. This process is called out of the background. Depending on the degree of change is an important element, depending on the application. The acquisition results in one or more previews, which is a combination of attached pixels.

Keywords: Traffic control, image implementation process, pixel changes, Roots of traffic

1. INTRODUCTION

The transportation plan identifies future policies, objectives, investments and designs to meet future needs. To move people and goods to their places. Today practice is a mutual interaction involving views of many government institutions, including government agencies, public and private companies. Transportation plans are usually referred to as international transport plans, evaluation, evaluation, design, and transportation facilities (usually roads, highways, and bicycle lanes) and public transport paths).

1.1 MODELS AND SUSTAINABILITY

Transportation planning or planning traditionally follows the definition of goals and objectives, problem identification, alternative generation, alternative evaluation and rational planning model development. More and more people want to adopt a multidisciplinary approach to planners, especially as environmental protection is becoming increasingly important. For example, use behavioral psychology to drive the drivers to their vehicles and use public transport.

Under the scheme of traffic, various methods including urban methods, urban transport policies, legislative activities, finance agencies, and project management are summarized. It includes the success of traffic planning for various agencies and organizations. Transportation plans must include all aspects of urban life, including the economic development, life-saving, public health, and the environment to support long-term environmental balance. To this end, traffic planners and engineers have always been concerned about the effective flow of people and supplies across the country.



Integrated Transport and Land Use Plan brings the following long-term benefits to the community.

- Making
- Improving transportation
- Better road safety
- Improving the livability of the community
- Improve financial decisions
- Potential developer predictability

The local planning rules outline the interest in local transport. This guide supports and extends regulatory transport policies to help local planning departments develop plans and policies, develop regional and designated land, and design developments in a way that reflects regulatory policies.

1.2 TRANSPORTATION PLANNING ACTIVITIES/INITIATIVES

Roads and other vehicles generally balance the balance of two competitive functions: Transport (transportation) and direct access to land (waterways). Commuting traffic and freight movement prefer to move quickly from one place to the next, with minimal stops. Multiple traffic lights, property aisles, and an intermediate pedestrian crossing can block this. The National Planning Rules Development Plan recognizes three transport activities and measures as per the requirement or consideration in the development plan development plan. They help balance mobility and access while reducing contention and increasing user security. The three activities include:

- Functional classification/road grade (required)
- Access control plan (discussion)
- Transportation master plan (examination)

The main differences between these categories are liquidity and land use rights. For example, the priority of highways is mobility, limited access to facilities, and limited land use. On regional roads, access to land and facilities is given priority given mobility. In addition, each road type can also contain several subcategories. For example, arterial classification may include suburbs and major roads in downtown. Figure 1 shows how each classification balances mobile and ground access.



Fig: 2 Road Classifications and Functions

There are several features that distinguish road classifications for transportation facility planning and design. These include:

- Numbers of lanes
- Lane widths
- design/operating speeds

The number of lanes attached to other road classification, lane width, and design / travel speed is usually on highways and highways, but the lowest on the rural roads. Table 1 shows the connectivity to other roads. It shows how different functional categories are combined. There may be exceptions to these connections, such as the old town where local streets may intersect with materials.

1.3 TRANSPORTATION MASTER PLAN (TMP)

In addition to access control planning, the State Planning Rules also determines the preparation of the Transport Master Plan (TMP). Large or rapidly developing communities should consider remote multi-purpose movements in which transmission and ground use plan experts have prepared to complete the development projects.



Fig: 3 example of building master plan

Winnipeg's complex transportation system benefits from a TMP. In addition to access control plans, the National Planning Code also defines the preparation of Transport Master Plans (TMPs).

- System performance and preservation
- Traffic protection
- City Road Function Classification
- Intelligent Transport System (ITS) Technology
- Asset Management Strategy

Environment and quality of life

- Leisure travel and sightseeing
- Traffic calm in the neighborhood
- Road Safety Initiatives

Planning co-ordination

- Coordination with local government officials and other stakeholders
- Combine with local transportation plans, policies and guidelines
- Integration with other municipality/regional land use plans and local planning rules

• For example, in smaller, less populated areas, you may not need to consider transit or freight transport. Finally, the planning department is responsible for determining the capacity of TMP.

1.4 TRANSPORTATION PLANNING PROCESS

Metropolitan Planning Organization (MPO), State Department of Transportation and carriers. It shows the transportation planning process. Transportation planning consists of many steps.

• Monitor the existing situation

• Predict future population and employment growth, including assessing the expected land use in the region and identifying key growth pathways.

• Identify current and future traffic problems and needs and analyze various traffic improvement strategies through detailed planning surveys to meet these needs.

Repair and construction of new roads is essential to provide adequate, safe and efficient transportation for passengers and cargo, and is also essential to improve economic competitiveness and maintain high growth rates.

1.5 TRANSPORT INFRASTRUCTURE DEVELOPMENT IN JAPAN AND LESSONS FOR INDIA

A. Transport Infrastructure Development in Japan

Japan has been in a development stage since the 18th century. Pre-war Japan had both import substitution and export promotion phases, but the overall growth momentum between 1880 and 1940 required the expansion of infrastructure services. Japan is in need of infrastructure service development policy, especially transportation infrastructure development, due to the increasing traffic and cargo demand of goods and passengers. In the three major infrastructure sectors, such as pre-war transport, electricity and telecommunications, the infrastructure sector invests between 1 and 2.5 times GDP, increasing between 5 and 6 percent of GDP between 1955 and 1985 did. Most of the transport infrastructure (3% to 4% of GDP) corresponds to the revolution of the automotive industry and increased demand due to increased transport and passenger demand within the county. Continued investment in postwar infrastructure has led to significant improvements in infrastructure services.

B. Development of Railways

Railway became an increasingly preferred mode of transportation. The railway development began with the Meiji government, emphasizing the modernization and efficiency of the railway transportation sector. The first railway began in 1972 and issued bonds through the London Oriental Bank at the London Market. Since then, the private sector has been the main driver of railway development, but the government has: (i) Government subsidies for interest payments and net income guarantees over the past 10 years, (ii) to railway companies we support the private sector, including free sales of land for alternative government. Monetary incentives such as land purchase. Finally, the national railway was divided into seven companies and privatized in 1987 after nationalization in 81. However, the railway has achieved some notable achievements during government control, such as the first Shinkansen innovation in Asia.

In addition to all these factors, long-term public investment in infrastructure has led to the expansion of transportation infrastructure since the mid-1950s. In fact, even during the long recession of the early 1990s, the Japanese government invested heavily. Today's infrastructure investment in India is almost the same as Japanese investment 50 years ago. The consequently, in the last 50 years the investment in the infrastructure is due to a high quality infrastructure list in Japan. Various levels of government, including central and local governments and listed companies, directly and indirectly fund most of Japan's infrastructure.

2. MATHEMATICAL MODEL

In India, we can identify different traffic planning times. Prior to the release of NUTP in 2006, transportation plans were developed only as part of the master plan, and the master plan was revised every ten years. The master plan defines the existing and future land areas needed for various activities such as housing, commerce, and green space. Land allocation is based on the estimated demand for each land use in the Horizon Year. Some cities prepare urban traffic studies (CTTS) for 20 to 25 years. The purpose of CTTS is to estimate current and time travel needs and to provide a solution that meets the estimation needs. The CTTS provides detailed suggestions as outlined in the Master Plan.

Therefore, the focus of these strategies, such as road widening and elevated road construction, is to increase the city's traffic volume. A detailed project report (DPR) has also been prepared for a specific project, and provides an implementation plan for a specific project that helps to achieve a specific stated objective, such as reducing travel time. After the start of the JnNURM program, the Urban Development Plan (UDP) was created for all the cities identified in the program. CMP provided a methodology for integrating land use transport planning and transport models to guide the process of better travel needs in cities, announced by the Ministry of Urban Development (MoUD) in 2008. UMP Toolkit As of 2010, 23 out of 65 cities (reviewed according to the JnNURM program) have been submitted to UMP.



Fig: 4 Transport planning approaches in India

The purpose of the CDP is to provide measures to improve the infrastructure to achieve the city's vision of delivering services. Therefore, it includes assessment of existing infrastructure, identification of gaps, and measures to fill gaps. CTTS is a basic document emphasizing the strategy of improving the network of transport. Thus, this achieves the integration of land use-transport

planning. The basic step involved in the CMP approach is the social and environmental impact analysis of the proposed strategy. Thus, this will help cities achieve sustainability that the early approach lacks. However, CMP does not achieve its goals because the choice of appropriate programs and strategies is not based on the impact analysis of alternatives or strategies. A new method defined for the preparation of CMP solves this gap. To achieve the goals defined in NUTP, scenarios need to be evaluated based on their impact on the identified indicators. According to the R Toolkit, this step is required before deciding on network improvement, land use, and technology improvement strategies.

3. SIMULATION

3.1 TRAFFIC DATA ANALYSIS USING IMAGE PROCESSING TECHNIQUE ON DELHI-GURGAON EXPRESSWAY

Traffic data collection delivers the basic information needed to plan, operate and manage road facilities. Although several techniques and methods have been used for this purpose, they can be broadly divided into manual methods and automatic detection techniques. Invasive techniques include inductive loop detectors and pneumatic tube detectors, and weighing motion systems, non-invasive techniques include infrared sensors, pulse and active ultrasound sensors, microwave Doppler and radar, passive and active Ultrasound, Passive Acoustic Array Sensors, and Video Imaging Systems (VIPS) VIPS can capture all necessary traffic information, including several parameters that are not readily available with other types of detectors. Transportation in developing countries such as India is very different from that in developed countries because of heterogeneity. In addition, Indian highway traffic makes sense for two reasons. Transportation takes place at multiple levels, including highly mobile vehicles such as cars and pickup trucks, and large vehicles such as trucks and buses. Traffic data collection is one of the difficult tasks that researchers face under disparate traffic conditions. **Traffic Analyzer and Enumerator (TRAZER) is a video processing software** that can be used effectively as an image processing tool for traffic data collection and analysis in different traffic situations. It can be used for IP feed cameras and recorded traffic videos. Therefore, to evaluate **TRAZER** performance, this study was conducted on the Delhi-Gurgaon Highway. For this purpose, software is used for microscopic and macroscopic traffic parameters to retrieve data with reasonable accuracy, and then between the median value at a given point and the vehicle speed and its lateral arrangement.

The scope of the research paper is limited to **TRAZER's** performance evaluation of traffic flow data processing on the Delhi-Gurgaon Expressway in fine weather. He also highlighted the applicability of **TRAZER** in crowded conditions in India. Studies show that the software is used to analyze traffic flow parameters at the macro and micro levels.

Fig: 5 Snapshot of traffic at the study location

Field data collection

After selecting a study to stretch and install the camera, a video photo survey was conducted. Data were collected for 10 hours from 8 am to 6 pm. In winter, when the weather is cloudy, no car is detected due to poor visibility in the morning and evening. Only 5 hours from 11 am to 4 pm will be selected for traffic flow analysis. For data acquisition, the camera is attached to a bridge (FOB) perpendicular to the width of the road and on video about 65 meters in length is identified as the distance between two consecutive electrodes arranged parallel to each other Ru. 14 meters on the road. Thus, as shown in Fig 2b, three consecutive poles appear in the video, resulting in trap lengths of 65 x 14 m, 130 x 14 m, and 195 x 14 m. At the 130 x 14 m upstream end of the 195 x 14 m trap, most vehicles were not detected.

Manual data extraction

Data extraction is done manually and detects detected vehicle volume counts, average individual vehicle speeds, and lateral placement (vehicle position at a specific point). This may be sufficient to check the accuracy of TRAZER based on a reasonable sample size. Therefore, as sample observation, we extracted speed and horizontal data of 30 vehicles every 5 vehicles. The process of extracting these parameters is described below.

Volume count

Use the markers on the screen to mark the exit edge on the screen where the video is running in TRAZER software. Count values are manually entered into Microsoft Excel worksheets and recorded every 5 minutes.

Speed

TRAZER software is used to play video on the computer screen and screen markers are used to mark the entrance and exit lines at the entrance and exit ends. The frame rate is chosen to be 25 frames per second. When the vehicle enters and leaves the area, the frame number is recorded.

TRAZER is also used to extract the same parameters to check the accuracy and nature of the automated vehicle detection system. We will explain in more detail in the next section how to use TRAZER to extract data.



Fig: 6 Entry and exit lines marked with screen marker and WINDOW RULER used to measure distance across width.

Data extraction using TRAZER processor

Already using the TRAZER kit for microscopic traffic flow data analysis, it is necessary to fully test and calibrate the major mixed traffic conditions of the Delhi-Gurgaon Highway. It uses TRAZER software to process pre-recorded video and output various traffic parameters such as (i) volume count and vehicle type, (ii) vehicle speed, (iii) horizontal placement.

Corroborating traffic volume count data

As per it can see from Table 1 (column 4), the average accuracy percentage calculated by TRAZER after comparing counts with actual counts is 59.02. We find that the detection rate for this period is lower, which is due to TRAZER's default settings. It may not be able to detect vehicles based on specific pattern recognition basically with its default settings and detect dimensional changes within each vehicle type.

Table: 1 Results from vehicle detection and counting

Vehicle category	Actual count	Count by TRAZER processor	Accuracy percentage
LMV	5,394	2,589	47.99
Three-wheeler	74	43	58.11
HMV	486	309	63.58
Two-wheeler	1,004	667	66.43
Overall accuracy	6,958	3,608	59.02

	Accuracy = 59.02% ; HI	ΛV	Heavy mot	tor vehicle;	LM	IV. Lis	ght mo	otor vehicle
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Fig: 7 Vehicle detection with (a) default settings and (b) modified settings in TRAZER.

Table: 2 Minimum and maximum detection width for each vehicle category

Vehicle category	Minimum detection width modified (m)	Maximum detection width modified(m)
LMV	1.5	2.5
Motorized	1	1.8
HMV	2.5	4
Motorized two-wheeler	0.2	1.2

Figure below a, and b shows instantaneous snapshots of The TRAZER detection window has default settings and correction settings. The yellow square in the detection window represents LMV, and the red square represents HMV. As apparent from the figure, LMV is detected as the default setting of HMV. Varying the minimum and maximum detection widths of the various vehicle categories can significantly improve the detection rate. **Table: 1** shows the carrier test results after changing the detection width. As can be seen from **Table 2** the overall detection rate increased from 59.02 to 77.99 (19% increase).

4. RESULTS 4.1 VECHILES DETECTION

Traffic control has been a serious issue for humanity since the past few years. Traffic jams, lack of parking, pollution and other issues are starting to plague humans. In this regard, the main invention to minimize the problem has been completed, one of which is the detection and tracking of vehicles.

A. Vehicle Synchronization: There are many cars in typical everyday life. To do this, you can synchronize traffic based on color so that the tracking process is more efficient.

4.2 BLOCK DIAGRAM OF OBJECT DETECTION

This section describes the general block diagram of object detection and the importance of each block in the system. Common object detection mainly involves video input, pre-processing, object segmentation, and post-processing. As shown in Fig 5.1.



The significance of each block is as follows

- Video Input: It can be stored video or real time video.
- **Pre-processing:** Mainly involves time and space smoothing, such as intensity adjustment, noise cancellation. For real-time systems, frame size and frame rate reduction are typically used. It greatly reduces the computational cost and time.
- **Object Detection (Vehicle Detection):** The process of change detection extracts appropriate changes for further analysis and identification. When the pixel changes, it is classified as foreground.
- Post-processing: Eliminate false positives due to dynamic conditions in the background using morphology and speckle removal.



Fig: 9 RGB to gray image

Basic Automotive Inspection System the MATLAB platform (MATLAB 2013) is used to implement the bearer system implementation. Various toolboxes were considered and useful MATLAB functions and objects were gathered. These are useful at all stages. The toolbox mainly contains image acquisition, image processing and computer vision.

CONCLUSION

Traffic control is a serious problem for mankind for the last few years. Roots of traffic, lack of parking, pollution and other problems begin to target humans. In this regard, the issue has been minimized to the least, one of which is detecting and tracking. Because there are different types of cars in the car, bush, edges, colors, shadows, corners, etc. etc., this is a wide range. In this article, we will focus on reducing the background to detect the vehicle with detection of colors and to create a picture to get a background image. Later the image is processed with the implementation process. When the pixel changes, it is ranked as a preview. Otherwise, it is considered a background. This process is called out of the background. Depending on the degree of change is an important element, depending on the application. The acquisition results in one or more previews, which is a combination of attached pixels.

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