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EFFECT OF RELOCATION OF MAJOR TRAFFIC ATTRACTION POINTS ON THE CONGESTION IN TALWANDI SABO

Barinderpal Singh[1], Dr. Rishabh Bajpai[2], Vishal Behl[3]
M.Tech scholar Department of Civil Engineering, Guru Kashi University, Punjab[1]
Assistant Professor, Department of Civil Engineering, Guru Kashi University, Punjab[2]
Assistant Professor, Department of Civil Engineering, Guru Kashi University, Punjab[3]

ABSTRACT:

The analysis of traffic congestion in Talwandi Sabo reveals key challenges stemming from heavy vehicle traffic, particularly along the Bathinda side road, exacerbated by the absence of a truck terminus. To address these issues, a comprehensive proposal has been formulated, encompassing three alternative routes for intercity traffic and the relocation of congestion-prone sites such as the grain market, vegetable market, tractor market, and bus terminus. These measures aim to alleviate congestion, improve traffic flow, and foster the city's growth while enhancing safety and fuel efficiency. Furthermore, the development of new infrastructure along the proposed routes presents opportunities for job creation and economic development. Repurposing existing sites for public health and recreational purposes underscore a holistic approach to urban planning, leveraging resources for the community's benefit. Overall, the proposed initiatives hold promise for enhancing Talwandi Sabo's livability, sustainability, and economic prosperity in the long term.

Keywords: Congestion, Relocation, Traffic flow

INTRODUCTION:

Traffic scenarios in India are characterized by a dynamic mix of vehicles, diverse road users, and varying infrastructure conditions. Congestion is a pervasive issue, particularly during peak hours, exacerbated by narrow roads and a high volume of vehicles. Lane discipline is often lacking, with frequent lane changes and honking contributing to the chaotic flow. Non-motorized traffic, such as bicycles and pedestrians, shares the road with motor vehicles, necessitating careful attention from all users. Enforcement of traffic rules can be inconsistent, though efforts to promote road safety are underway. Despite challenges, infrastructure improvements, including public transportation systems, are being implemented to alleviate congestion and enhance traffic management in many cities.

Continuously, rapid urbanization and population growth pose ongoing challenges to traffic management efforts. As cities expand/develop the demand for transportation increases and place additional strain on existing infrastructure. Moreover, the proliferation of motor vehicles, including cars, motorcycles, and auto-rickshaws further compound congestion issues. The lack of adequate parking spaces exacerbates traffic woes, leading to haphazard parking practices and obstruction of roadways.

In response to these challenges, urban planners are increasingly prioritizing sustainable transportation solutions, including the development of pedestrian-friendly infrastructure, dedicated cycling lanes, and integrated public transport networks. Initiatives such as metro rail projects, bus rapid transit systems (BRTS), and last-mile connectivity options aim to provide viable alternatives to private vehicle usage and reduce reliance on fossil fuels.

OBJECTIVES:

Congestion generally refers to a situation where there is an excessive accumulation or overcrowding of something, often resulting in blockage, slowdown or inefficiency. It can apply to various contexts: Traffic congestion is when there are too many vehicles on roads or highways, causing slowdowns, delays, and sometimes gridlock. Traffic congestion refers to a situation on roads where the volume of traffic surpasses the road's capacity, resulting in slower speeds, longer travel times, and sometimes complete standstills. It's essentially when there are too many vehicles trying to use the same roads at the same time, leading to inefficient movement. Congestion can occur for various reasons, including rush hours, accidents, road work, inadequate infrastructure, and events that draw large crowds. It's a common urban problem that impacts commuters, businesses, and the environment.

- To identify the traffic bottlenecks and congestion points of Talwandi Sabo.
- To study the traffic pattern for due to Takht Shri Damdama Sahib.
- To study the effect of bypass on traffic conditions of Talwandi Sabo city.
- To study the seasonal and religious impact on traffic in Talwandi Sabo.

LITERATURE REVIEW:

Agrawal, Aditi with Paulus, Rajeev (2022): Author has studied the existing traffic light control techniques and improve traffic and emergency vehicle clearance system at congested isolated intersection using Fuzzy Inference Engine and then design the traffic control system for clearing traffic, pedestrians and emergency transit at isolated intersection also design a fuzzy logic based adaptive traffic light control system for connected intersections, further author compare the evolved systems with the existing systems(http://hdl.handle.net/10603/412723)

Nilesh Ramchandra Mate, Bharati Vidyapeeth (2022): Author has studied Indian road traffic congestion problems, its reasons with special reference to on-street parking

space.(https://www.researchgate.net/publication/363535567_indian_road_traffic_congestion_problems_its_reasons_with_special_reference_to_on-street_parking_space)

Jayanthi, G with Jothi lakshmi, P (2021): Author has studied the Real-time traffic volume data for 52 weeks which is collected at a centralized toll system comprising toll collection centers at three different sites in Chennai City are Perungudi toll plaza, ECR link road and Egattur toll plaza of Tamil Nadu state, India. Further author has prediction of rush hour traffic volume for which travel time based Prefix Span and (TT-PrefixSpan) algorithm is proposed to analyses traffic volume on highways and reducing delay in travel, Spatial-Temporal Reconnect (STAR) algorithm is proposed for augmentation of road network based on traffic flow.(http://hdl.handle.net/10603/331716)

Manoj Kumar, Kranti Kumar, Pritikana Das (2021): Author has the findings of studies based on road traffic congestion. Various traffic congestion measurement metrics have been discussed. These matrices categorized into three parts (1) Travel time based, (2) speed based and (3) level of service-based. The findings of the study indicate that improved traffic management and control, better public transport services, increases in funding for transport infrastructure, use of modern technology and overall coordination of transport and land-use policies are important parameters to reduce congestion.

Kharmih, Phidalin with Ryngnga, P.K. (2021): Author has studied the nature and factors responsible for traffic in the city, highlight the traffic management of the state government and analysis the impact of congestion by identifying congestion indicators and also impact of alternative transport or public transport system on driver's productivity. (http://hdl.handle.net/10603/464114)

Olga Vl. Bitkina ,Jungyoon Kim ,Jangwoon Park ,Jaehyun Park (2019): Author has studied Traffic Context Using Driving Stress: A Longitudinal Preliminary Case Study.(https://www.mdpi.com/1424-8220/19/9/2152)

Rajbongshi Gitumoni with U. K. De (2019): Author has studied the nature/pattern, factor and impact of traffic congestion in Shillong city and costs associated with traffic congestion in Shillong. (http://hdl.handle.net/10603/311463)

Shiva Kumar, R. with Jaya shree, P 2017): Author has studied the developments in road network, the growth in vehicle density, and assess the traffic congestion and road accidents in Mysore City. The findings of the study are as total lengths of road network in the City, no of major circles for intersections and one-way roads. And no. of vehicles, auto-rickshaws and buses registered in city. (http://hdl.handle.net/10603/207366)

Nippy Garg (2016): Author has evaluated the existing site of Bus terminus (Bathinda). Select a new site for bus terminus and design an appropriate layout plan of the interstate bus terminus, Bathinda.

Yogita Gupta (2013): Author has evaluated the present site and layout of Truck terminus, Bathinda. Select new site for truck terminus for existing and future requirements, also design a layout for truck terminus to fulfill requirements of truck and operators staff.

Srinivasa Babu, P with Krishnan, N (2012): Author has studied and analysis various physical sensors and video image processing methods and design of a novel class of vehicle detection, vehicle classification, vehicle occlusion detection, traffic control, traffic simulation and traffic prediction techniques for traffic density estimation. Continuous growth of population all over the world creates a great challenge to the transport management systems.

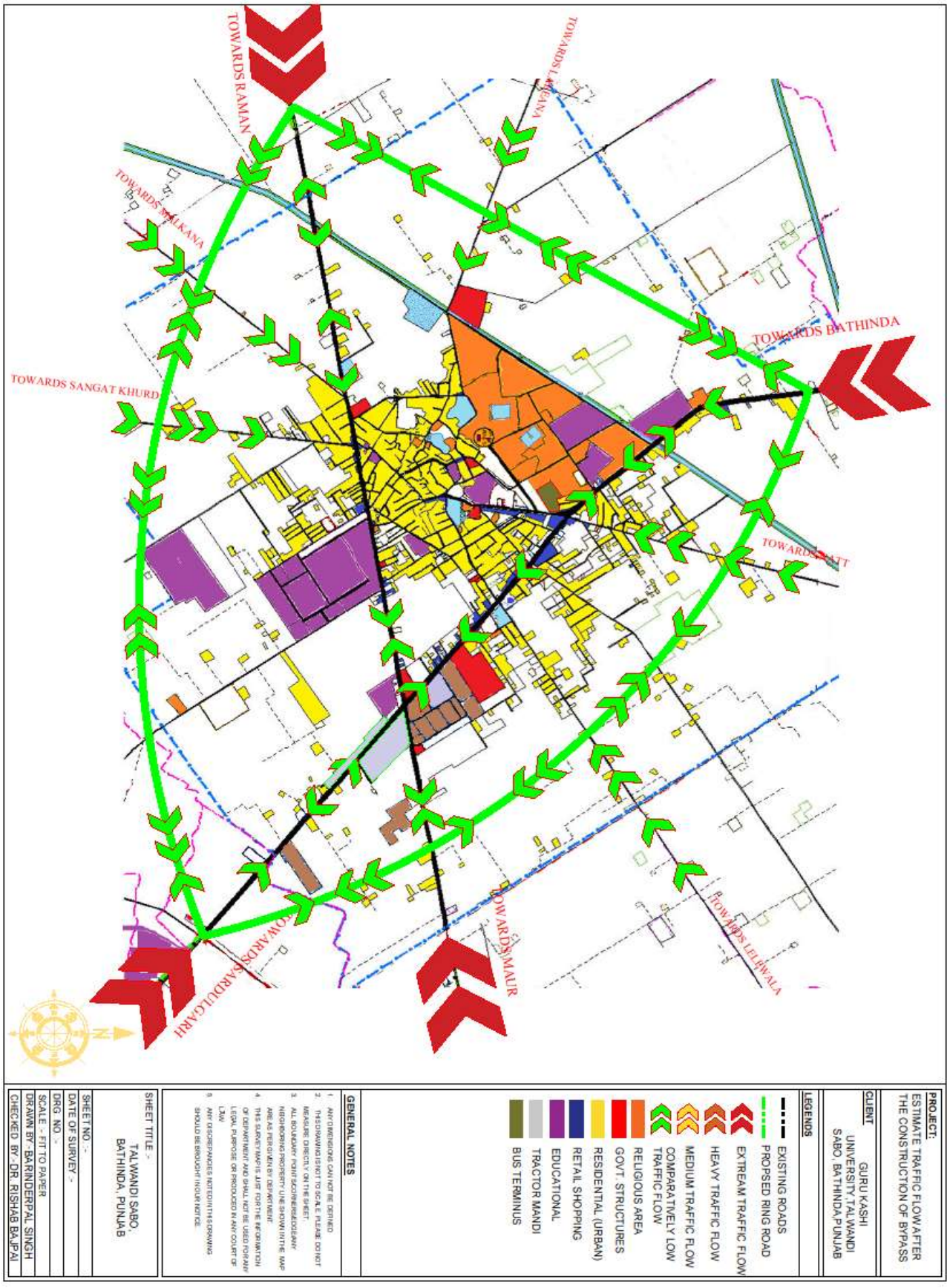
(http://hdl.handle.net/10603/61571)

G.S Bath (1991): Author has evaluated the present site of grain market for the city Mansa and Khanna as the cotton market and paddy market respectively. Relocate and design the grain market.

METHODOLOGY:

1. Choose major arterial roads within the town that experience high volumes of traffic throughout the day. These roads typically connect important destinations and serve as primary routes for commuters and vehicles passing through the town.
2. Identify the specific locations where you want to collect data. This could include intersections, highways, urban streets, or specific segments of roads.
3. Manual traffic counts are conducted during large events or festivals to manage traffic flow and ensure the safety of participants and pedestrians. This involves physically counting vehicles at a specific location, usually using tally counters or manual clickers. It's labor-intensive but can be accurate.
4. For manual counting, deploy trained personnel at the chosen locations with tally counters or clickers. For manual counting, record the number of vehicles passing through the designated locations at regular intervals, usually in time blocks
5. Interpret the analyzed data in the context of your study's objectives. Identify trends, patterns, and areas for improvement or intervention.

RESULTS:



Flow of traffic after the construction of bypass, and relocating the sites.

SIGNIFICANCE OF STUDY:

The present study has delta with the traffic issues of Talwandi Sabo, a major religious place of India. The traffic of Talwandi Sabo city consist of several types of vehicle such as HMV, LMV (2wheeler, 4wheeler, Auto rickshaw, Trucks buses, Tractor, Tractor combine harvesters ,JCB, paddy straw Trollies, Agricultural implements, Bull Cart). Also, there are the numbers of traffic attraction points (such as bus stand, Tractor mandi, grain market, vegetable market, Gurudwaras -Takht Sri Damdama Sahib) in Talwindi Sabo.

The varieties of vehicles & different traffic attractor locations have been creating the situation of congestion at many places of the city.

This study explored the effect of relocation of various traffic attractor points on the congestion. The result will help in reducing congestion, saving of fuel, minimization of accidents, and reducing the pollution in Talwandi Sabo. The methodology will be beneficial to other cities with similar characteristics.

CONCLUSION:

The analysis of traffic congestion in Talwandi Sabo reveals key challenges stemming from heavy vehicle traffic, particularly along the Bathinda side road, exacerbated by the absence of a truck terminus and having most of the data and knowledge about city and surrounding area the alternate route with 3 different routes has been proposed to remove congestion and the attraction points as Grain market, Vegetable market, tractor market, bus terminus Etc Sites are proposed to avoid congestion in the city in future these sites are proposed with two options each. Due to developing city, truck terminus site is also proposed.

After proposing alternate route and new sites, It has been found that these options are beneficial in future as this will be responsible for the growth of city as well entire area these alternate routes and move out of heavy vehicles will reduce the number of accidents improve the fuel efficiency, save the time of traveling even though these sites around the ring road will develop with the new markets, hotels, motels, fuel pumps, garages, site offices, markets, and more. this developing of new infrastructure will create jobs, which is also most Positive effect of proposing Bypass and relocating sites.

Even though the proposed sites will avoid congestion in the city, and existing sites maybe used or improved for public health as Existing bus stand can be used as parking for vehicles, Green Park, Rest houses for the crowd Who reach to Gurudwara, even existing grain market can be developed to indoor stadium.

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