ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue VII July 2025

Current Status of Passenger Flow and Bus Movement from Digboi, Tinsukia District, Assam

Dr. Sangeeta Boruah Saikia

Assistant Professor Dept of Geography Digboi College.

DOI: https://doi.org/10.51244/IJRSI.2025.120700116

Received: 05 July 2025; Accepted: 07 July 2025; Published: 06 August 2025

ABSTRACT

The topic regarding the status of passenger flow and movement of buses from Digboi lies in the realm of public transportation efficiency and management. Understanding passenger flow patterns and bus movements is crucial for optimizing bus schedules, resource allocation, and revenue estimation in the transportation system. By predicting passenger flow accurately, authorities can enhance service quality, reduce delays, and improve overall operational efficiency.

The use of advanced techniques like deep learning with recurrent neutral networks allows for precise forecasting of passenger numbers at different bus stops, aiding in better planning and decision-making for bus services. Digboi's present public transport system mostly comprises buses and minivans, which provide access inside the town and connect it to other parts of the state. This predictive analysis not only benefits passengers by providing more reliable and timely services but also assists transport departments in optimizing routes, schedules, and resource allocation to meet the demands of passengers effectively. The study reveals that because the frequency of buses between Digboi and Duliajan is relatively low, passengers would have to wait for a long period.

Keywords: Movement, passenger flow, resource allocation, revenue allocation, transportation system, etc.

INTRODUCTION

The paper focuses on the current status of passenger flow and bus movement from Digboi and assesses the impact of anticipated changes on regional transport. IOCL's Digboi Refinery expansion project intends to expand crude oil processing capacity, potentially affecting traffic patterns and infrastructure requirements. Furthermore, the Moran to Disang Kinar Bangali road repair project under the Asom Mala program aims to increase connectivity, influencing local transportation networks and passenger flow. Understanding the ramifications of these developments on passenger flow, bus routes, and overall transportation infrastructure in Digboi is critical for assessing their socioeconomic impact and ensuring efficient regional travel networks.

The Assam State Transport Corporation (ASTC) runs buses in Digboi, providing vital transportation for locals and visitors. Additionally, online platforms such as Make My Trip provide booking services for non-AC buses from Digboi to destinations such as Gohpur, expanding passengers' travel options. While the offered search results do not go into great detail about the frequency, routes, and effectiveness of public transport in Digboi, the existence of ASTC buses and online booking services suggests that the town has a functional public transport system.

Objectives

The objectives for the topic of the status of passenger flow and movement of buses from Digboi are:

1. To analyses ensuring effective connectivity between cities and towns.

2. To examine covering many paths from Digboi

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue VII July 2025

3. To understand flow of bus services including city, rural, and inter-state, and its services through Digboi from Arunachal Pradesh.

METHODOLOGY:

The primary components of the passenger flow and bus mobility in Digboi are:

1. Detailed examination of passenger traffic trends.

2. Bus schedules.

3. Route optimisation techniques.

4. Revenue generation analysis.

5. Resource allocation for bus services.

6. Primary source of data collection.

The report also includes information on bus kinds, passenger counts, income earned, bus movement efficiency, and the influence of potential expansions or upgrades on passenger flow in the region. This is done through library work to find out relevant information in books, journals, articles, monographs, etc., and also assembling personal experiences, theoretical knowledge, imaginations, opinions, observations, and discussions with the people of the region. Then intensive, documents are collected from different secondary and tertiary sources.

The Study Area:

Digboi Town located in the extreme eastern part of Assam and N.E. India is a town basically developed due to power resource point of petroleum in the area. It is the first oil town in India that started to grow in and has been growing since 1883 starting with a humble railway station, the urban centre takes more than a hundred years to attain at the present shape and size. Digboi town is situated at about 150 meters height above the mean sea level having a location within 95°36´E. longitude and 27°26´N.latitudes.

The population of the Digboi Town increase from 23,691 in 1951 to 33,712 in 2011 only 17.1 % growth during this period. The density of population is found to be 1,930 persons per km² according to 2011 census. The highest density of population in Digboi Town committee ward no.1.Ward no.2 shows lowest densities because this area becomes the least populated part as there are usually few residential buildings. The process of peopling is presently under two administrative i.e. the Digboi Town committee and the Oil Corporation. Its activities, role and significance having location on the doorway of the surrounding hilly areas are matters of study and research to understand the current status of passenger flow and bus movement under the peculiar physical and cultural set up of the locality in particular and N-E India in general. So the piece of work organized under the title, “current status of passenger flow and bus movement from Digboi”

Physiography:

Digboi Town is located within the foothill and piedmont zone of Patkai-Naga range of the Tirap and Changlang districts of Arunachal Pradesh. The physiography of the town is undulating specially the oil town area. The area under municipality in the north is a plain area. Hillocks are found scatteredly distributed in the oil town area. These hillocks are very recent origin and mostly originated due to heavy dissection of the terrain. The heights of the town vary from 140 to 200 m Hillocks are found concentrated in the central western heart of the town. The hillocks are all higher than 150 m. S.L. (approximate mean) and famed of acidic soil. These all are parts of Digboi Hill, a structural anticline extending approximately E-W direction towards Kumsai of Arunachal Pradesh. It is an alignment of Jaipur-Tipam-Digboi range of hills. Old built-up plain with old alluvium cover fringes surrounding the hillock areas, specially towards north. The general slope of the town is towards north in the northern municipal town area and towards south in the oil town area divided by a basin water head line made by S-W college hospital Muliabari road.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue VII July 2025

Streams and drains area flowing towards orth to empty far in to the Bogapani River to flow in to the Tingrai River. The south ward flowing streams and *nallas* are emptying into the Digboi River. Southern streams far outside are prominent than the northern ones. The Kharjan River is flawing northern in the eastern boundary of the town.

The town area may be divided in to two basins north and south draining the surface water towards south in to the Digboi River and towards north in the Bogapani River.

The town stand on the surface of old alluvial acidic soil underlying by geological formations given below with Naga Thrust and a number of lineaments. The sandstones of Tipam series are lying immediately below red soil and old alluvium. To understand the geology and the oil bases, the will help to have information about the geological formations under lying the area as a whole and the location and history of petroleum formation in the area.

The average temperature in Digboi, Assam, India, changes throughout the year. During the summer season, from March to June, the average temperature ranges between 22°C and 38°C. The average temperature throughout the winter season, which begins in November, is between 7°C and 20°C. Digboi's spring temperatures range from 20°C (68°F) to 30°C (86°F).

DISCUSSION:

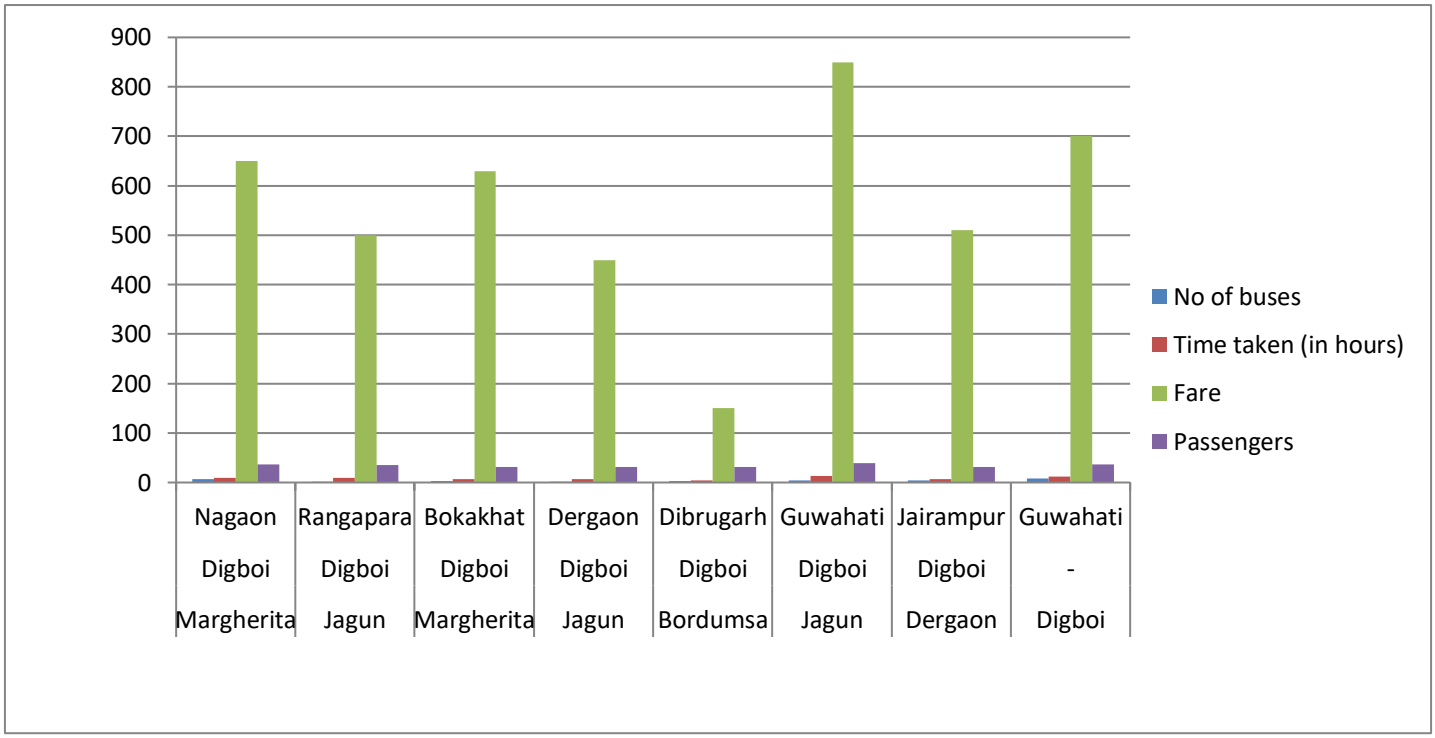
This comprehensive report aims to provide insights into the current status of passenger flow, bus operations, and the effectiveness of existing transportation services in Digboi, facilitating informed decision-making for enhancing the efficiency and quality of bus services in the area. The table no -1 shows the no of buses, time taken, fare and Passengers while travelling from their sources to their final destination of ASTC bus stand.

ASTC Bus Stand from Digboi

Table-1 Personal Data collection, March, 2025

Sources	Through	Destination	No of buses	Time taken (in hours)	Fare	Passengers
Margherita	Digboi	Nagaon	7	9	650	37
Jagun	Digboi	Rangapara	2	10	500	35
Margherita	Digboi	Bokakhat	3	6.5	630	32
Jagun	Digboi	Dergaon	2	6.5	450	32
Bordumsa	Digboi	Dibrugarh	3	4	150	32
Jagun	Digboi	Guwahati	4	13	850	39
Dergaon	Digboi	Jairampur	4	7	510	32
Digboi	-	Guwahati	8	12	700	37

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue VII July 2025



ASTC Bus Stand from Digboi Fig-1

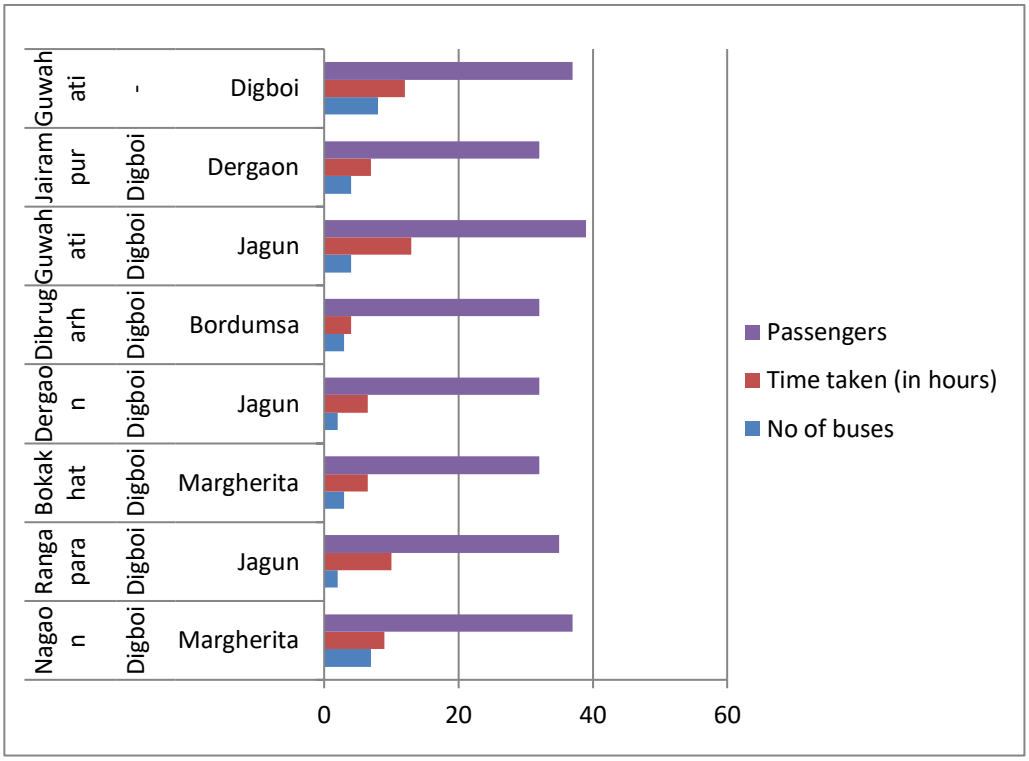
The table no-1 shows the number of buses, the time taken, fare and number of passenger while travelling to their final destination from their sourced places of ASTC bus stand.

Table-2 ASTC Bus Stand to Digboi

Sources	Through	Destination	No of buses	Time taken (in hours)	Fare	Passengers
Nagaon	Digboi	Margherita	7	9	650	37
Rangapara	Digboi	Jagun	2	10	500	35
Bokakhat	Digboi	Margherita	3	6.5	630	32
Dergaon	Digboi	Jagun	2	6.5	450	32
Dibrugarh	Digboi	Bordumsa	3	4	150	32
Guwahati	Digboi	Jagun	4	13	850	39
Jairampur	Digboi	Dergaon	4	7	510	32
Guwahati	-	Digboi	8	12	700	37

Personal Data collection, March, 2025

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue VII July 2025



ASTC Bus Stand to Digboi Fig-2

Public Bus Stand from Digboi Table-3

Sources	Through	Destination	Number of Buses	Time taken (in hrs)	Fare	Passenger
Jagun	Digboi	Jorhat	4	4	420	38
Margherita	Digboi	Dibrugarh	3	3	210	32
Bordunsa	Digboi	Tinsukia	3	3	130	34
Ledo	Digboi	Dimapur	2	6	650	42

Personal Data collection, March, 2025

The table no -3 shows the no of buses, time taken, fare and Passengers while travelling from their sources to their final destination of public bus stand.

Public Bus Stand to Digboi Table-4

Sources	Through	Destination	Time taken (in hrs)	Fare	Passenger
Guwahati	Digboi	Bordumsa	13	850	32
Nagaon	Digboi	Jagun	10	750	32
Ledo	Digboi	Moran	5	470	27
Jairampur	Digboi	Margherita	4	360	36

Personal Data collection, March, 2025

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue VII July 2025

The table no-4 shows the number of buses, the time taken, fare and number of passenger while travelling to their final destination from their sourced places of public bus stand.

Duliajan Bus Stand from Digboi Table-5

Sources	Destination	Number of Buses	Time taken (in hrs)	Fare	Passenger
Digboi	Duliajan	6	1	60	35

Personal Data collection, March, 2025

Duliajan Bus Stand to Digboi Table-6

Sources	Destination	Number of Buses	Time taken (in hrs)	Fare	Passenger
Digboi	Duliajan	6	1	60	35

Personal Data collection, March, 2025

The table no -5 and 6 shows the number of buses, time taken, fare and passengers while travelling up and down from their sources to their final destination of Duliajan bus stand.

Overall Conditions of Roads Bifurcating from Digboi:

The roads bifurcating from Digboi are part of significant infrastructure projects aimed at improving connectivity and socio-economic development in the region.

1. The Moran to Disang Kinar Bangali route under the Asom Mala Program includes improving and upgrading the A30_1 road, which connects vital towns, settlements, tea estates, and key infrastructure such as the Kathalguri Gas Base Power Plant and Digboi Refinery.

2. The Asian Infrastructure Investment Bank (AIIB) funded this project, which includes public consultations, environmental impact assessments, and social management plans to address issues such as land compensation, safety measures, tree cutting, wildlife considerations, job opportunities, and road maintenance.

3. Furthermore, the Dhodar Ali road project aims to improve transport connectivity in Assam by rebuilding and upgrading State Highways and Major District Roads that connect Golaghat, Jorhat, and other vital locations, in line with the goals of the Asom Mala Program and AIIB financing. These initiatives are part of a larger effort to improve Assam's road infrastructure, which will help to boost economic growth and regional connections.

Frequency of Buses Leaving Digboi:

To determine the frequency of buses departing from Digboi, we must examine the search results supplied. From Digboi to Guwahati, there are six daily bus services, according to

The earliest bus leaves at 5:15 AM, and the last bus leaves at 7:45 PM. INR 700 is the cheapest bus ticket price on this route.

It mentions that there are buses on the route, however, it doesn't give precise information regarding how frequently they leave Digboi.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue VII July 2025

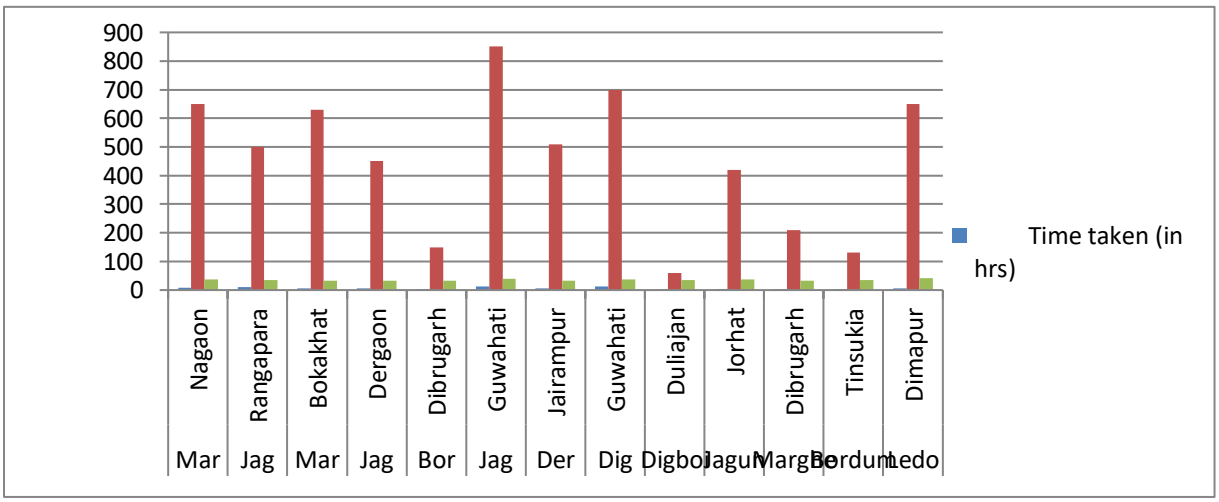
Websites for purchasing bus tickets from Digboi to other areas exist, however, they don't offer any details regarding how frequently buses run.

There are six daily bus services from Digboi, with the earliest bus leaving at 5:15 AM and the last bus leaving at 7:45 PM, according to the search results analysis.

Compilation of Data from Digboi Table-7

Sources	Destination	Time taken (in hrs)	Fare	Passenger
Margherita	Nagaon	9	650	37
Jagun	Rangapara	10	500	35
Margherita	Bokakhat	6.5	630	32
Jagun	Dergaon	6.5	450	32
Bordumsa	Dibrugarh	4	150	32
Jagun	Guwahati	13	850	39
Dergaon	Jairampur	7	510	32
Digboi	Guwahati	12	700	37
Digboi	Duliajan	1	60	35
Jagun	Jorhat	4	420	38
Margherita	Dibrugarh	3	210	32
Bordumsa	Tinsukia	3	130	34
Ledo	Dimapur	6	650	42

Table-7 shows the compilation of time taken from their sourced place to reach their final destination from the three different bus stand. The table shows how much time is needed to reach their final destination starting from its sourced place. Table shows how much time is needed to reach their final destination starting from its sourced place.



Compilation of Data from Digboi Fig-3

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue VII July 2025

Compilation of Data to Digboi Table-8

Sources	Destination	Time taken (in hrs)	Fare	Passenger
Nagaon	Margherita	9	650	37
Rangapara	Jagun	10	500	35
Bokakhat	Margherita	6.5	630	32
Dergaon	Jagun	6.5	450	32
Dibrugarh	Bordumsa	4	150	32
Guwahati	Jagun	13	850	39
Jairampur	Dergaon	7	510	32
Guwahati	Digboi	12	700	37
Duliajan	Digboi	1	60	35
Guwahati	Bordumsa	13	850	32
Nagoan	Jagun	10	750	32
Ledo	Moran	5	470	27
Jairampur	Margherita	4	360	36

The table no -8 shows the compilation of time taken to reach their final destination from their sourced place taken from the three different bus stand. The table shows how much time is needed to reach their sourced place starting from its final destination.

Data Analysis:

Following the completion of the data, the creation of the charts and diagrams, and the compilation of all the charts, data, and diagrams, additional analyses are provided below. The analysis is as follows:

1. The majority of buses pass through Digboi, which serves as both a source and a destination for the Duliajan Bus Stand.

2. In some regions, the time it takes to go from the starting point to the end destination is extremely long due to road construction, bus traffic, and so on. The longest route time taken is 13 hours, from Jagun to Guwahati and Guwahati to Bordumsa.

3. The Final Destination fare differs from place to place for and the fare increases. The maximum fare, which is given, is 850, which is from Jagun to Guwahati and Guwahati to Bordumsa.

4. The passenger flow varies from place to place and the number of seats it contains. The maximum number of passengers travelling is 42, which is from Ledo to Dimapur, and 39, which is from Guwahati to Jagun.

5. The maximum number of buses goes from the ASTC bus stand, and it also has the maximum number of final destinations, and it also has the maximum fare and the maximum number of passengers from Digboi.

6. There are number of buses that goes from Public bus stand, and it also has the maximum fare and the maximum number of passengers coming through Digboi to Bordumsa.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue VII July 2025

FINDINGS:

1. Because the frequency of buses between Digboi and Duliajan is relatively low, passengers would have to wait for a long period.

2. The price of disel has risen, and the poor face numerous challenges in their mobility.

3. There are very few seats reserved for women, resulting in a limited number of women travelling from one location to another.

4. Bus maintenance is inadequate, and the seating arrangements are not thoroughly washed and remain unclean, making long journeys impossible.

5. Because roads are not built, the time it takes to get to your location increases.

6. When moving from one location to another, the climate and physiography are also considered.

Prospects:

By increasing the share of public transport, India has the ability to reverse the trend of diminishing public transport share and reach 50% by 2030, up from 30% presently.

2. Rapid development of mass-transit and BRTS systems: India can ensure the rapid construction of rail-based mass-transit and bus rapid transit systems (BRTS) in Tier 1 and Tier 2 cities, where the demand is already high.

3. Fivefold increase in urban bus stock: By 2030, India can seek to provide 8,000 km of world-class Bus Rapid Transportation System in 68 cities with populations of more than one million.

4. Improving transportation infrastructure: By improving transportation infrastructure, India may increase the proportion of public transportation in Tier 1 cities to 60%, Tier 2 cities to 50%, and Tier 3 and 4 cities to 35%.

5. Addressing affordable housing: Addressing inexpensive housing allows India to reduce overcrowding and enhance transportation infrastructure, resulting in greater passenger flow and bus movement.

To summarise, the paper topic "Passenger Flow and Movement of Buses from Digboi" has substantial issues in terms of India's urbanisation and transportation infrastructure. However, there are significant chances for development, such as boosting public transportation use, building mass-transit and BRTS systems quickly, and solving affordable housing issues.

By tackling these difficulties and opportunities, Assam can increase passenger flow and bus movement, resulting in higher urban productivity and a better quality of life.

SUGGESTIONS AND RECOMMENDATIONS:

Based on the search results, here are some proposals and recommendations regarding passenger flow and bus mobility in Digboi:

1. Online bus ticket booking platform. Using online bus ticket buying services such as red Bus, Chartered Bus, and Make MyTrip can help to improve passenger flow and bus movement in Digboi. These platforms provide a comprehensive list of bus operators, routes, and timings, allowing travellers to easily select and book their preferred bus tickets.

2. Real-Time Updates: By providing real-time updates on bus schedules and seat availability, travellers may make more informed travel selections. This can also help to cut passenger wait times and improve bus efficiency.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue VII July 2025

3. Discounts and Deals: Offering appealing discounts and deals on bus tickets can assist passengers in lowering their transportation costs, making it a more economical mode of travel.

4. Bus Sanitation: Sanitizing buses every night can help assure passenger safety and health while also reducing the danger of disease transmission.

5. Extensive Bus Network: Having a large network of buses that serve both locals and visitors can help boost Digboi's passenger flow and bus movement.

6. Variety of Bus Services: Providing a variety of bus services to meet the demands of different passengers would help attract more consumers and enhance overall bus traffic in Digboi.

7. User-Friendly Interface and Secure Payment Choices: Offering a user-friendly interface and secure payment choices will help travellers book bus tickets more easily and efficiently.

8. Daily Bus Routes: Establishing daily bus routes from Digboi to surrounding destinations can help increase passenger flow and bus movement in the area.

9. Distance and Travel Time: Knowing the distance and travel time between Digboi and adjacent destinations can help optimise bus routes and schedules, making them more convenient for passengers.

CONCLUSION:

The paper conclusion on the current status of passenger flow and bus movement from Digboi can be summarised using the information acquired from the available sources. The examination of passenger flow and bus movement in Dighoi provides critical insights for transportation planning and optimisation, particularly in light of COVID-19. The optimisation model described in the study paper focuses on reducing passenger interaction while boarding and disembarking, emphasising the significance of increasing the number of buses to prevent the virus's spread while ensuring efficient passenger transit.

The study emphasises the need to study passenger flow patterns in order to improve urban mobility. Traffic planners can detect crowded areas, efficiently distribute resources, and plan for improvements such as new routes, higher frequency, and innovative mobility services by analysing movement data.

Furthermore, the research emphasises the advantages of investing in passenger flow analysis, such as improved service quality, increased customer happiness, increased income production, and the formation of strong relationships through data sharing with diverse stakeholders.

Finally, the piece of work on the status of passenger flow and bus movement from Digboi emphasises the importance of data-driven decision-making in improving public transportation services. Cities like Digboi can improve their transport systems, protect passenger safety, and provide efficient and dependable travel experiences for both inhabitants and visitors by using insights from passenger flow analysis.

BIBLIOGRAPHY AND REFERENCES:

1. Cooley, C. H. (1984) “The Theory of Transportation” – Publications of the American Economic Association P 5-7.
2. Census of India (2001) - Assam Series 19 - Primary Census Abstract Directorate of Census operations, Assam.
3. Gilmore, H.W(1953) Transportation and the Growth of Cities. – Gleneoc Illinois: The Free Press.
4. Taher and Ahmed (2001) – Geography of N.E. India – Mani Manik Prakash Guwahati.
5. Wingo, Lowdon Jr. (1961): “Transportation and Urban Landuse,” Washington D C., Resources for the Future Inc.