

A Geographical study of regional Development level and Transportation Network in in Beed District

Mr. Shrimant Bibhishan Gandhale

Assistant Professor, Department of Geography,
Dalit Mitra Kadam Guruji Vidnyan Mahavidyalaya Mangalwedha, Solapur

Article Info	ABSTRACT
Article History: Received: 18th Sep 2025 Accepted: 02nd Oct 2025 Published: 17th Oct 2025 Keywords: Transportation, Sustainable, Infrastructure, Regional Development.	This research paper examines the levels of regional and road transport development and looks for connections between them in Beed. An economy's growth is reliant on the expansion of its transportation network. The transport system serves as the economy's pacesetter. Roads are an integral part of the transport system. A country's road network should be efficient in order to maximize economic and social benefits. I have interest in the study to transport for two main reasons first-transport is significant human activity with a strong spatial component and second –it is an important factor influencing the special variation in many other social and economic activity. Road transport constitutes an essential element in the infrastructure of all kind of economic activity in aback word region. It promotes spectacular production and exchange.

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Introduction:

This research paper examines the levels of regional and road transport development and looks for connections between them in Beed. An economy's growth is reliant on the expansion of its transportation network. The transport system serves as the economy's pacesetter. Roads are an integral part of the transport system. A country's road network should be efficient in order to maximize economic and social benefits. They play a significant role in achieving national development and contributing to the overall performance and social functioning of the community. It is acknowledged that roads enhance mobility, taking people out of isolation and therefore poverty. Roads play a very important role in the socio-economic development of the country but meanwhile this expansion also pose great challenges to the safety and security of the travelling public. The road transport industry is the backbone of strong economies and dynamic societies. In order to meet the demand for sustainable mobility of people and goods, an industry that is essential to economic growth, social development, prosperity, and, ultimately, peace must be protected. This industry affects everyone's daily lives in both industrialised and developing countries.

Study Area:

For the present investigation the Beed district is selected as a study region. the Beed district is lies between 18°28' to 19° 28' North latitude and 74°54' to 76° 57' East longitude. Beed district covers an area of 10638.55 square km which is 3.45% of the total state area. total road length as on 2013 it is 11591.17 km national highway 191.35 km state highway-1249.20 km district road -1469.70km village road -2030.77 km. the Beed district divided in to 11 tahshil for administrative setup these tahshil are Beed, Gevrai, Majalgao, Dharur, Ashti, Shirurkashar, Patoda, Parli, Wadvani, Kaj and Ambajogai. The total population as per 2011 census is 25.85 lace and density of population is 242 persons per square km of the study region.

Objective

- To the study of road density network in the study area.
- To study the transport network system and Regional Development in study area.

Distribution of Road Density

The best method for measuring the density of a road network is to look at the total length of roads per area. Thus, the road density in one region of the district may be determined by calculating the total length of road per square kilometre in each area of the district. may be compared to another area of the district's road density. The road density per square kilometre is calculated using the formula below.

$$ROAD DENSITY = \frac{TOTAL ROAD LENGHT}{TOTAL GEOGRAPHICAL AREA}$$

TABLE NO.1 DENSITY OF ROAD NETWORK IN BEED DSTRIC 2015

Tehsil	Total Geographical Area (in sq.km)	Road Length (in kms)	Road Density (Per km.)
Ashti	1530.89	1579.95	1.03
Patoda	869.79	733.90	0.84
Shirur-kashar	749.71	760.80	1.01
Georai	1512.16	1430.35	0.94
Majalgaon	952.41	1442.20	1.51
Wadvani	403.08	487.33	1.20
Beed	1571.02	2185.04	1.39
Kaij	1099.19	1364.75	1.24
Dharur	579.91	758.05	1.30
Parali	759.67	1069.64	1.40
Ambajogai	934.82	1317.02	1.40
Total	10693.00	13129.03	1.22

Table no.1 shows that, the district has road length of 13129.09 kms whereas the area is 10693.00 sq.km. The district has density of 1.22 roads as total. Highest score of density has been observed in the case of Majalgaon (1.51) whereas lowest has been observed for Patoda tehsil (0.84). For categorization, above 1.50 score has been considered as high, 1.50 to 1.25 -medium and below 1.00 as low density. It shows that, high density has been observed from Majalgaon (1.51). Medium level density of roads has been noticed from the tahsils of Beed(1.39), Dharur (1.30), Parali (1.40) and Ambajogai (1.40). Low level road density has been noticed from the tehsils of Ashti (1.03), Shirur-kashar(1.01) and Wadvani (1.20) The area of low level density are specially rural area.

Result Discussions:

Development levels of transportation facility

Aggregate Transportation Score is a theory put out by A. B. Mukerji in 1974. This allowed for the calculation of the transport facility development levels.

Table No.4.1 Tahshilwise Aggregate Transportation Score 2015

Tehsils	Road Density (Per km.)	Alpha Index	Beta Index	Gamma Index	Total score	ATS
Ashti	1.03	0.44	1.86	0.62	3.95	0.98
Patoda	0.84	0.61	2.19	0.73	4.37	1.09
Shirur-kashar	1.01	0.57	2.10	0.70	4.38	1.09
Georai	0.94	0.57	2.12	0.71	4.34	1.08
Majalgaon	1.51	0.61	2.15	0.72	4.99	1.24
Wadvani	1.20	0.63	2.18	0.73	4.74	1.18
Beed	1.39	0.64	2.26	0.76	5.05	1.26
Kaij	1.24	0.69	2.34	0.78	5.05	1.26
Dharur	1.30	0.64	2.21	0.74	4.89	1.22
Parali	1.40	0.68	2.33	0.78	5.19	1.29
Ambajogai	1.40	0.55	2.07	0.69	4.71	1.17

Source: Computed by Researcher

In table 4.1, the aggregate transport score for 2015 is computed and displayed. The entire district is divided into three groups based on its Aggregate Transportation Score: High (Above 1.26), Medium (1.17 to 1.24), and Low (Below 1.09).

High Level of transport Development: In this category, there is four Tehsil Parali (1.29), Dharur (1.22), Kaij (1.26) and Beed (1.26). Parali tehsil has high Aggregate Transportation Score (1.29). It forms region in south eastern part of district. The high road density of this tehsil causes to bring it in the high transport development area. Physiographical this area is the low land area at hence road network is well developed. The high road density and Beta index value of this tehsil causes it to bring it in the high transport development area. Beed, Kaij, and Dharur tehsil are well developed in the industrial sector as well as Parali in agricultural, it means industrial and agricultural sector played a dominant role in tehsil development.

Moderate level of Transport Development: There are eleven tehsils in the district out of these, three tehsils fall under medium category which is score from 1.17 to 1.24. These tehsils are Majalgaon (1.24), Wadvani (1.18) and Ambajogai (1.17). Majalgaon tehsil are covered north part of the district, this area is covered by a plain region these tehsils are developed in the agricultural sector and come into the intermediate level category due to the fertile river basin and irrigation system.

Low level of Transport Development: low level of Transport Development has been observed from four Tehsils. There is Patoda (1.09), Shirur-kashar (1.09), Gevrai (1.08) and Ashti (0.98). Ashti tehsil is found in West part of the district and it is covered by hills.

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