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Identification and Spatial Pattern of Passenger Oriented Wayside Amenities Along NH44 in Jammu Province

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Abstract

National highways comprise 2.7% of India's total road network, but carry about 40% of road traffic. As compared to village roads, district roads and state highways, national highways have huge traffic and vehicles are plying throughout day and night. Provision of passenger oriented facilities along national highways is essential since both the passengers and drivers need certain minimum facilities to make their travel safe, comfortable and convenient in order to reduce fatigue in a long distance journey. It has thus become important to provide road users with not only just the highest quality of road infrastructure but also with sufficient facilities to relax and take a break from highway travel. Jammu and Kashmir (J&K) has been a place of attraction for tourists ever since centuries. The large number of tourists used to visit the state from different parts of the country as well as from different parts of the world. The lush green forests, sweet springs, perennial rivers, picturesque, alpines scenery and pleasing climate of Kashmir valley has remained an internationally acclaimed tourist destination, whereas Jammu province- the land of temples is attracting a large number of pilgrim, tourists and the important destination have been Shri Mata Vaishno Devi (SMVD), Shiv Khori, Raghunath temple, Bahu Fort and many hill stations like Patnitop, Sanasar, Nathatop, Bhaderwah etc. There are different types of requirements of highway users ranging from food, drinking water, rest rooms, parking facility, mobile charging, toilet facility etc. An attempt has been made to identify and study the spatial pattern of passenger oriented wayside amenities along NH44 in Jammu province.

Introduction

Starting from the *pugdandies* (a small path created naturally due to regular walks) of earlier times to the present-day Rajpath of New Delhi, India has crossed many spheres of road

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journey. The length of roads in the country has increased manifolds since independence. But the aspect of wayside amenities for the passengers remained undermined for many decades. Even before independence certain initiatives for road development like Jaykar committee on roads (1927), central road fund (1929) and Nagpur Plan (1943-1963) do not have any mention about the provision of passenger facilities. After independence, Bombay plan (1961-81) was prepared in 1958 but there was no mention about the passenger facilities in this plan. As a result, these facilities along roads grew rather chaotically and instinctively according to requirement of time and space. The serious thought to this aspect of road development was first time taken in Lucknow plan (1981-2001). This plan suggested that the ecological qualities of roads and the area through which they pass must be maintained and enhanced. Road safety measures must be undertaken to control and even bring down the intensity of road accidents. This plan also recommended that facilities like parking lots, drinking water, toilet, snack bars, *Dhabas*, restaurants, rest rooms, and petrol pumps with service and repair and communication facilities should become essential part of roads transformation and modernisation. As per information submitted by NHAI, Ministry of Road Transport & Highways has planned to expand wayside amenities along national highways across India and asked NHAI to develop inclusive wayside amenities which would include parking for trucks, buses and cars separately, restaurant/food court, low cost *Dhaba*, telephone booth/ATM, fuel stations, minor repair shops, rest rooms/Motels for short stay. Toilets landscaping and kiosk for sale of various sundry items, village haats to promote local products and parking facilities at an interval of about 50 Km along national highway on sustainable economic model, on self-sustainable green building concept and taking into account of socio-economic profile of the area/region .

Objectives

1. To identify and evaluate the spatial pattern of different passenger oriented wayside amenities along national highways in Jammu province.
2. To analyze the concentration of passenger facilities (per ten kms) in order to compare the amenities along national highways in study area.
3. To give the valuable recommendations for concentration of passenger oriented amenities along NH44 in Jammu province.

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Database and methodology

The present study is mainly based on primary data and very little secondary data is available for present study. The secondary data is collected from the review of literature and other information published from time to time like newspapers, books, research papers, thesis and other printed material about the present study. After the pilot survey, five major types of passenger facilities are identified like food courts, banking and communication facilities, Security & health care services, fuel filling stations and recreational and other facilities. All these facilities are further divided into sub categories as shown in fig 1. The data about these facilities is collected through personal interview and field survey from some selected sites like the junction roads, chowks, link roads, district roads connecting to national highways. In order to make the comparative analysis of the concentration of these facilities along national highways, the highways are divided into different stretch between the important junctions or chowks. Further to make the comparative study of the passenger facilities along different highways concentration index i.e per ten kms concentration has been calculated.

Study area and Stretch wise demarcation of national highway (NH44)

In order to make the comparative analyses of passenger facilities within NH44 in the study area. NH44 is divided into 11 different stretches, in such a manner that it may not supersede beyond 30 kms, so that the appropriate comparison can be drawn within the highways.

Table no.1 Stretch wise demarcation of NH44 in Jammu province

	Stretch of National Highway (NH44)		**Length (Kms.)**
NH44	Lakhanpur to Dyalachak via Kalibari, Chadwal.	A	29
	Dyalachak to Mansar Morh (Samba) via Hiranagar, Ghagwal and Samba.	B	27
	Mansar Morh (Samba) to Bari Brahmana via Vijaypur	C	25
	Bari Brahmana to Nagrota via Jammu Byepass	D	28
	Nagrota to Tikri via Jhajjarkotli	E	24
	Tikri to Samroli via Udhampur	F	28
	Samroli to Cheneni	G	24
	Cheneni to Patnitop via Kud	H	23
	Patnitop to Chanderkote via Batote Byepass	I	29

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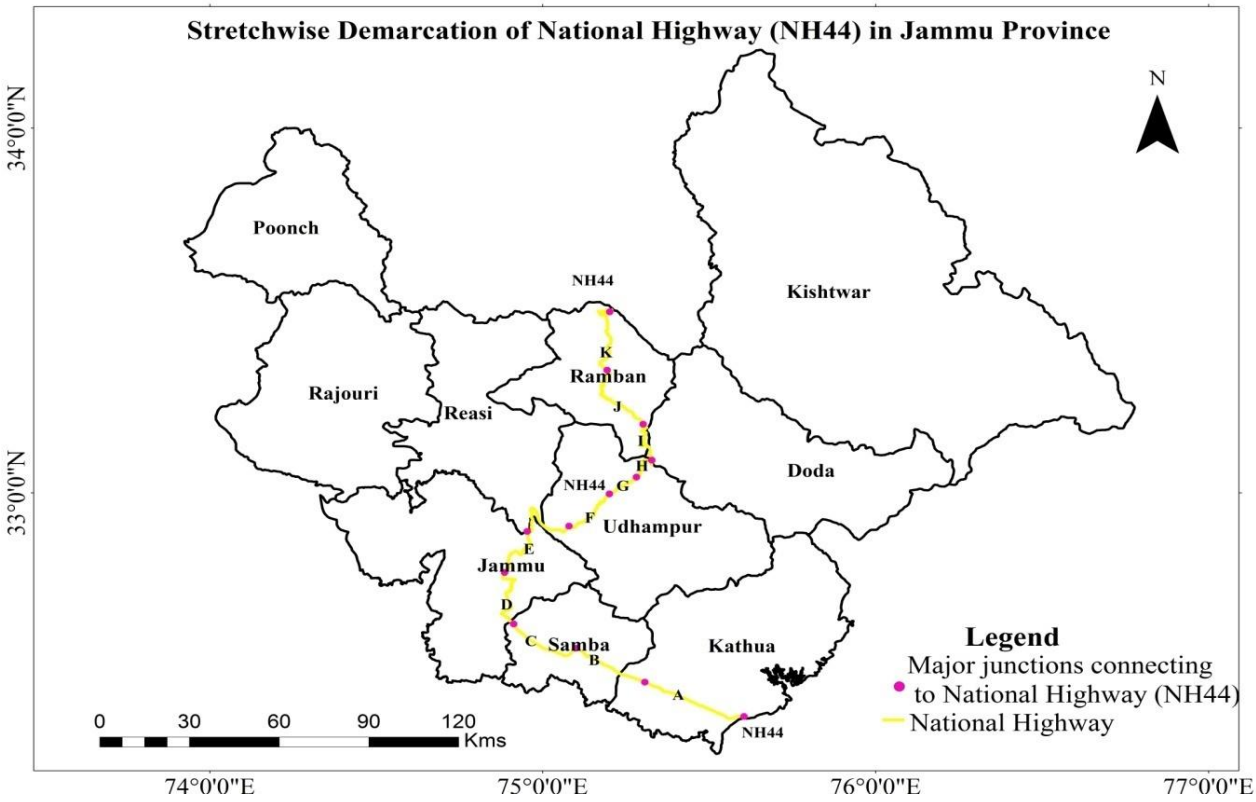
	Chanderkote to Ramsoo via Ramban	J	29
	Ramsoo to Banihaal tunnel via Banihaal	K	21
		Total	**287**

Study Area



. Table 1 and fig 1 elucidates the stretch wise demarcation of NH44. The stretches are bifurcated on the basis of important existing halts which are either connecting the national highways with state highways, district roads or any other important link roads/junctions. The division of various stretches is done in such a manner that it may not supersede beyond 30 kms, so that the appropriate comparison can be drawn within the highways. Along NH44, the first stretch begins from Lakhanpur to Dayalachak (A stretch) which is 29 kms in length while the last stretch is from Ramsoo to Banihal tunnel (K stretch) which is 21 kms in length. Along NH44, total number of 11 such stretches has been demarcated from A to K so as to have broad overview of existing facilities along NH44. The total length of the NH 44 is 287 Kms i.e. from Lakhanpur to Banihal.. After the demarcation into different stretch, % age composition of each facility within the national highway and all the highways in the study

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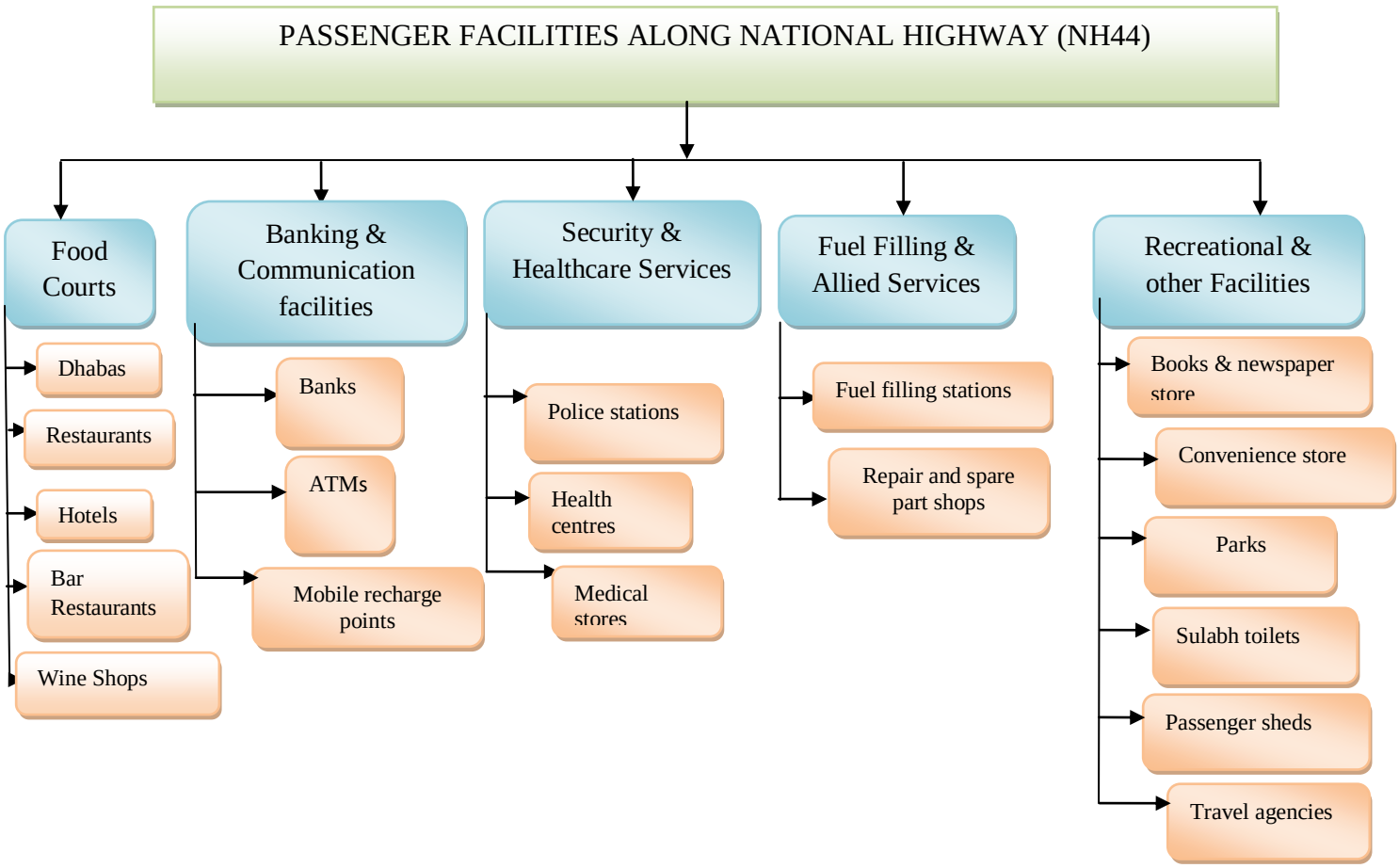
area have been calculated. Then after concentration index (per ten kms) for each passenger facility have been calculated in order to study the spatial pattern of facilities.



The above flowchart highlights the glimpse of passenger facilities available along national highways based on pilot survey conducted in study area. Among the major facilities, the special emphasis is given on major passenger facilities namely Food Courts, Banking & Communication facilities, Security and Healthcare services, Fuel filling and other associated services, recreational and other facilities. As far as food courts are concerned, the important prevailing food courts are identified as Dhabas, Restaurants, Hotels, Dhabas, Bar Restaurants, Wine shops etc. In banking and communication facilities, the survey is conducted to access the availability of banks, ATMs, mobile recharge points along national highways for the convenience of the highway users. In order to have the access to the basic health services in the study area various health centres and medical stores are identified. Our state being hub of tourism, needs the special attention towards the influx of tourists, various existing police

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stations are identified so as to overcome any security related issuesof the highway users. Apart from that, the various fuel filling stations and other associated services like repair and spare part shops are traced along the national highways in study area. At last certain recreational and other facilities like Books and newspaper stores, parks, passenger sheds

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sulabh toilets, travel agencies are surveyed to have a broad glance of the above mentioned facilities.

RESULTS AND DISCUSSIONS

Spatial Pattern and Concentration Index of passenger oriented wayside amenities

Table no.2 Distribution & concentration (per ten kms) of food courts along NH44 in Jammu province

	Stretch	Food courts											
		Dhabas		Restaurants		Hotels		Bar Restaurants		Wine Shops		Total	
		NH %	ptk	NH %	ptk	NH %	ptk	NH %	ptk	NH %	ptk	NH %	Ptk
NH44	A	14.4	19.0	13.2	3.1	8.7	3.4	14.5	2.8	16.7	1.4	13.4	29.7
	B	11.3	15.9	8.8	2.2	5.2	2.2	9.1	1.9	12.5	1.1	9.8	23.3
	C	11.5	16.3	13.2	3.3	7.0	3.0	16.4	3.3	16.7	1.5	11.5	27.4
	D	16.2	22.1	20.6	5.0	19.1	7.9	23.6	4.6	25.0	2.1	18.2	41.8
	E	7.9	12.5	11.8	3.3	2.6	1.3	5.5	1.3	0.0	0.0	6.8	18.3
	F	10.2	13.9	7.4	1.8	5.2	2.1	9.1	1.8	12.5	1.1	9.0	20.7
	G	5.8	9.2	5.9	1.7	1.7	0.8	3.6	0.8	0.0	0.0	4.7	12.5
	H	6.3	9.6	10.3	2.8	45.2	20.8	7.3	1.6	0.0	0.0	13.5	34.8
	I	4.5	6.5	1.5	0.4	3.5	1.5	1.8	0.4	4.2	0.0	3.7	9.2
	J	6.3	9.6	4.4	1.2	4.3	2.0	5.5	1.2	8.3	0.8	5.7	14.8
	K	5.8	9.2	2.9	0.8	3.5	1.7	3.6	0.8	4.2	0.4	4.8	12.9
	Total	**100.0**	**13.3**	**100.0**	**2.4**	**100.0**	**4.0**	**100.0**	**1.9**	**100.0**	**0.8**	**100.0**	**22.4**

Source: Field survey, 2016-17.

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Table no. 3.2 explains the distribution and concentration pattern of different types of food courts along national highways in study area. Of the different types of food courts, it is the *Dhabas* which have large proportion as compared to all the food courts along NH44, within which the stretch D has most of the food courts. The stretch H i.e Cheneni to Patnitop along NH44 has large number of hotels due to the Patnitop hill station, which is major source of tourist attraction.

Table 3 Distribution (%) & Concentration index (per ten kms) of Banking and Communication facilities along NH44 in Jammu province

		Banking and Communication facilities							
		Banks		**ATMs**		**Mobile recharge points**		**Total**	
	Stretch	**(%)**	**ptk**	**(%)**	**ptk**	**(%)**	**ptk**	**(%)**	**Ptk**
NH44	A	13.1	4.5	13.8	5.9	16.1	14.1	14.9	24.5
	B	11.1	4.1	11.4	5.2	9.4	8.9	10.3	18.1
	C	14.1	5.6	17.1	8.4	13.3	13.6	14.5	27.6
	D	23.2	8.2	25.2	11.1	20.0	18.2	22.0	37.5
	E	8.1	3.3	8.1	4.2	4.7	5.0	6.3	12.5
	F	11.1	3.9	8.1	3.6	9.0	8.2	9.2	15.7
	G	3.0	1.3	3.3	1.7	4.3	4.6	3.8	7.5
	H	4.0	1.7	3.3	1.7	4.7	5.2	4.2	8.7
	I	2.0	0.7	0.8	0.3	5.5	4.8	3.6	5.9
	J	6.1	2.1	4.9	2.1	7.5	6.6	6.5	10.7
	K	4.0	1.9	4.1	2.0	5.5	6.4	4.8	9.6
	Total	100.0	3.4	100.0	4.3	100.0	8.9	100.0	16.6

Source: Field survey 2016-17.

Above table highlights the distribution and concentration (ptk) of banking and communication facilities in terms of banks, ATMs and mobile recharge points along NH44. F these three, it is the mobile recharge points which have maximum share.Stretch D along NH44 has highest per ten kms concentration (37.5) while stretch I has lowest per ten kms concentration (5.9). The reason behind this is most of the banking services are concentrated only at certain specific pockets like Kathua, Samba, Vijaypur, Jammu by pass, Udhampur,

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Ramban while the stretch from Udhampur to Banihal via cheneni, chanderkote, Ramsoo have very minimal number of these services along NH44 as this section is sparsely populated.It is with the advent of mobile phones the concept of the telephone has diminished and not even a single telephone booth found along the national highways in the study area. Thus the focussed is made over the mobile recharge points in the study area.

Table 4 Distribution (%) & Concentration index (per ten kms) of fuel filling and other allied services along NH44 in Jammu province

	Stretch	Fuel Filling and other allied services								
		Fuel filling stations			Repair & spare part shops			Total		
		NH (%)	Total (%)	ptk	NH (%)	Total (%)	Ptk	NH (%)	Total (%)	Ptk
NH44	A	16.7	14.5	3.4	16.2	13.8	11.0	16.3	14.0	14.5
	B	10.0	8.7	2.2	11.2	9.5	8.1	10.9	9.3	10.4
	C	11.7	10.1	2.6	13.7	11.6	10.0	13.2	11.3	12.6
	D	21.7	18.8	4.6	22.8	19.4	16.1	22.6	19.3	20.7
	E	10.0	8.7	2.5	8.1	6.9	6.7	8.6	7.3	9.2
	F	8.3	7.2	1.8	10.2	8.6	7.1	9.7	8.3	8.9
	G	5.0	4.3	1.3	3.6	3.0	2.9	3.9	3.3	4.2
	H	5.0	4.3	1.2	2.5	2.2	2.0	3.1	2.7	5.0
	I	3.3	2.9	0.8	2.0	1.7	1.5	2.3	2.0	2.3
	J	3.3	2.9	0.8	5.1	4.3	4.0	4.7	4.0	4.8
	K	5.0	4.3	1.3	4.6	3.9	3.8	4.7	4.0	5.0
	Total	**100.0**	**87.0**	**2.1**	**100.0**	**84.9**	**6.9**	**100.0**	**85.4**	**9.0**

Source: Field survey 2016-17.

Above table reveals the distribution and concentration (ptk) of fuel filling and other associated services along NH44 in the study area. Here also the stretch D dominates with the per ten kms concentration of 20.7 followed by stretch A (14.5) and stretch C (12.6), while comparatively the stretches I, G, J have very small concentration of fuel filling and repair and

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spare part shops in study area. The overall per ten kms concentration is 9.0 from Lakhanpur toBanihaal.

Table 5 Distribution (%) & Concentration index (per ten kms) of Security & Health Care Services along NH44 in Jammu Province

		Health care and Security services							
		Health Centres		Medical stores		Police stations/ posts		Total	
	Stretch	NH (%)	ptk	NH (%)	ptk	NH (%)	Ptk	NH (%)	ptk
NH44	A	16.7	4.5	14.0	10	13.0	2.07	14.5	16.5
	B	10.3	2.9	10.6	8.1	8.7	1.48	10.3	12.6
	C	12.8	4	11.6	8.9	10.9	2.00	11.8	15.6
	D	26.9	7.5	23.2	17.1	15.2	2.50	23.0	27.1
	E	6.4	2.1	7.7	6.7	6.5	1.25	7.3	10.0
	F	9	2.5	9.7	7.1	8.7	1.43	9.4	11.0
	G	5.1	1.7	3.4	2.9	6.5	1.25	4.2	5.9
	H	1.3	0.4	3.4	2.8	4.3	0.87	3.0	4.4
	I	2.6	0.7	2.4	1.9	6.5	1.03	3.0	3.5
	J	5.1	1.4	7.7	6.4	8.7	1.38	7.3	8.3
	K	3.8	1.4	6.3	5.4	10.9	2.38	6.3	10.0
	Total	**100.0**	**2.7**	**100.0**	**7.2**	**100.0**	**1.60**	**100.0**	**11.5**

Source: Field survey 2016-17.

While travelling, it is the road safety and the provision of health care and security services is of are of prime importance that makes the travellers journey successful. Health care centres and medical stores have been identified under the health care services along national highways in the study area. Under security services, the total counts of all the police stations / posts have been made. Under this category of services, the medical stores dominates. It is the stretch D along NH44 which from Jammu by pass have highest concentration (per ten kms) and lowest along stretch H & I from Cheneni to Chanderkote.

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Table 6 Distribution (%) & Concentration index (per ten kms) of recreation and other facilities along national highway (NH44)

National Highway	Stretch	Recreation and other facilities																			
		Books & Newspaper Store			Convenience Store			Passenger Sheds			Parks			Sulabh Toilets			Travel Agencies			Total		
		NH %	Total %	ptk	NH %	Total %	ptk	NH %	Total %	ptk	NH %	Total %	ptk	NH %	Total %	Ptk	NH %	Total %	ptk	NH %	Total %	ptk
NH44	A	14.8	11.9	2.8	11.3	8.4	9.3	13.8	9.8	1.4	16.7	11.8	0.7	16.7	12.0	1.0	15.3	9.2	3.8	12.9	9.3	19.0
	B	9.3	7.5	1.9	7.9	5.9	7.0	10.3	7.3	1.1	8.3	5.9	0.4	11.1	8.0	0.7	6.9	4.2	1.9	8.2	5.9	13.0
	C	13.0	10.4	2.6	11.3	8.4	10.0	13.8	9.8	1.5	16.7	11.8	0.7	11.1	8.0	0.7	13.9	8.4	3.7	12.2	8.8	19.3
	D	25.9	20.9	5.0	19.2	14.3	16.4	13.8	9.8	1.4	25.0	17.6	1.1	22.2	16.0	1.4	22.2	13.4	5.7	20.5	14.7	31.1
	E	14.8	11.9	3.3	9.2	6.9	9.2	10.3	7.3	1.3	8.3	5.9	0.4	5.6	4.0	0.4	9.7	5.9	2.9	9.9	7.1	17.5
	F	11.1	9.0	2.1	10.0	7.5	8.6	10.3	7.3	1.1	16.7	11.8	0.7	11.1	8.0	0.7	9.7	5.9	2.5	10.4	7.5	15.7
	G	0.0	0.0	0.0	5.0	3.7	5.0	3.4	2.4	0.4	8.3	5.9	0.4	5.6	4.0	0.4	2.8	1.7	0.8	4.0	2.9	7.1
	H	1.9	1.5	0.4	6.3	4.7	6.0	6.9	4.9	0.8	8.3	5.9	0.4	5.6	4.0	0.4	4.2	2.5	1.2	5.4	3.9	9.2
	I	0.0	0.0	0.0	4.2	3.1	3.8	3.4	2.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	2.8	1.7	0.8	3.1	2.2	5.0
	J	5.6	4.5	1.2	8.3	6.2	8.0	6.9	4.9	0.8	8.3	5.9	0.4	5.6	4.0	0.4	8.3	5.0	2.4	7.8	5.6	13.2
	K	3.7	3.0	0.8	7.5	5.6	7.5	6.9	4.9	0.8	0.0	0.0	0.0	5.6	4.0	0.4	4.2	2.5	1.3	6.1	4.4	10.8
	Total	**100.0**	**80.6**	**1.9**	**100.0**	**74.8**	**8.4**	**100.0**	**70.7**	**1.0**	**100.0**	**70.6**	**0.4**	**100.0**	**72.0**	**0.6**	**100.0**	**60.5**	**2.5**	**100.0**	**72.0**	**14.8**

Source: Field survey, 2016-17.

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Above table stresses on the distribution and concentration pattern of recreation and other facilities which in turn act as a source to leisure more and more outside tourists in any region of state. The recreation facilities and other facilities have been analysed in terms of Books & Newspaper Store, Convenience Stores, Passenger Sheds, Parks, Sulabh Toilets, and Travel Agencies etc. Of the overall facilities, the highest is of convenience stores like tea stalls, cold drink and snacks shops whereas stretchwise, stretch D,C.A & E have highest per ten kms concentration and stretch from Udhamour byepass to Chanderkote have minimum concentration of these facilities.

Conclusion

Of the different passenger oriented wayside amenities in the study area, it is Dhabas under food courts, mobile recharge points under banking and communication services, medical stores under health care services, convenience stores under recreational facilities have highest per ten kms concentration all along the NH44 in the study area. The stretch wise, stretch D, A, C, B i.e. from Lakhnapur to Nagrota via Jammu byepass have high per ten kms concentration whereas the stretch from Udhampur byepass to chanderkote have low per ten kms concentration of the above discussed amenities. The reason behind these huge variations with in highways is because of different terrain and topography and consequently the difference in population density and levels of development.

Recommendations

Since national highways are the nerves of the any state or economy. It is on these highways, the vehicles used to ply throughout day and night especially in the state of Jammu and Kashmir where road transport is still the chief mode of transport. Therefore, it is of utmost importance to develop the passenger oriented amenities at appropriate locations along the national highway. With respect to wayside amenities along NH44, following recommendations are being made:

- Due to uneven distributions of these facilities along national highways in study area. The stretches like stretch G (Samroli to Cheneni), stretch I (Patnitop to Chanderkote) along NH44which are having least proportion of all the categorised facilities along the national highways in the study area. The J&K tourism and other concerned department should

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encourage the locals to open with certain wayside food outlets as well as make the other provision of basic amenities along these stretches as per the latest directives (Highway Nest, Highway Mini etc.) of opening up basic amenities at fixed distance so that the highway users can have smooth journey.

- With the widening process of NH44 particularly from Udhampur to Banihaal which is still in process, there is change in ecological balance along with the displacement of large number of establishment along this national highway. Thus the certain important locations between these locations like Samroli, Nashri, Peerah, Ramsoo etc. needs to focussed to develop the wayside amenities till the widening process gets completed.
- With respect to the road safety and health care along national highways in the study area. There is need of more number of mobile basic life supporting ambulances and their uniform distribution along all the highways 24 by 7.
- National highways authority of India and other department of the state should coordinate with each other and come forward with the well planned mechanism to provide the best services to the highway users along National Highways in study area.

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