

**TRAFFIC SURVEY REPORT**

**FOR**

**Balkhu-Kulekhani-Bhimphedi-**  
**Bhainse (PH-BG-004) Road**

**Bagmati Province**

## 1.0 Introduction

An essential component of the traffic management system is the traffic survey. Counting the number of vehicles on a specific road of interest while taking into account the origin, destination, vehicle types, and road conditions is known as a traffic survey.

In order to properly prepare for the future, control traffic, and expand the area's current road infrastructure, it is crucial for the assessment study to benchmark the traffic situation in the Balkhu-Kulekhani-Bhimphedi-Bhainse (PH-BG-004) road segment.

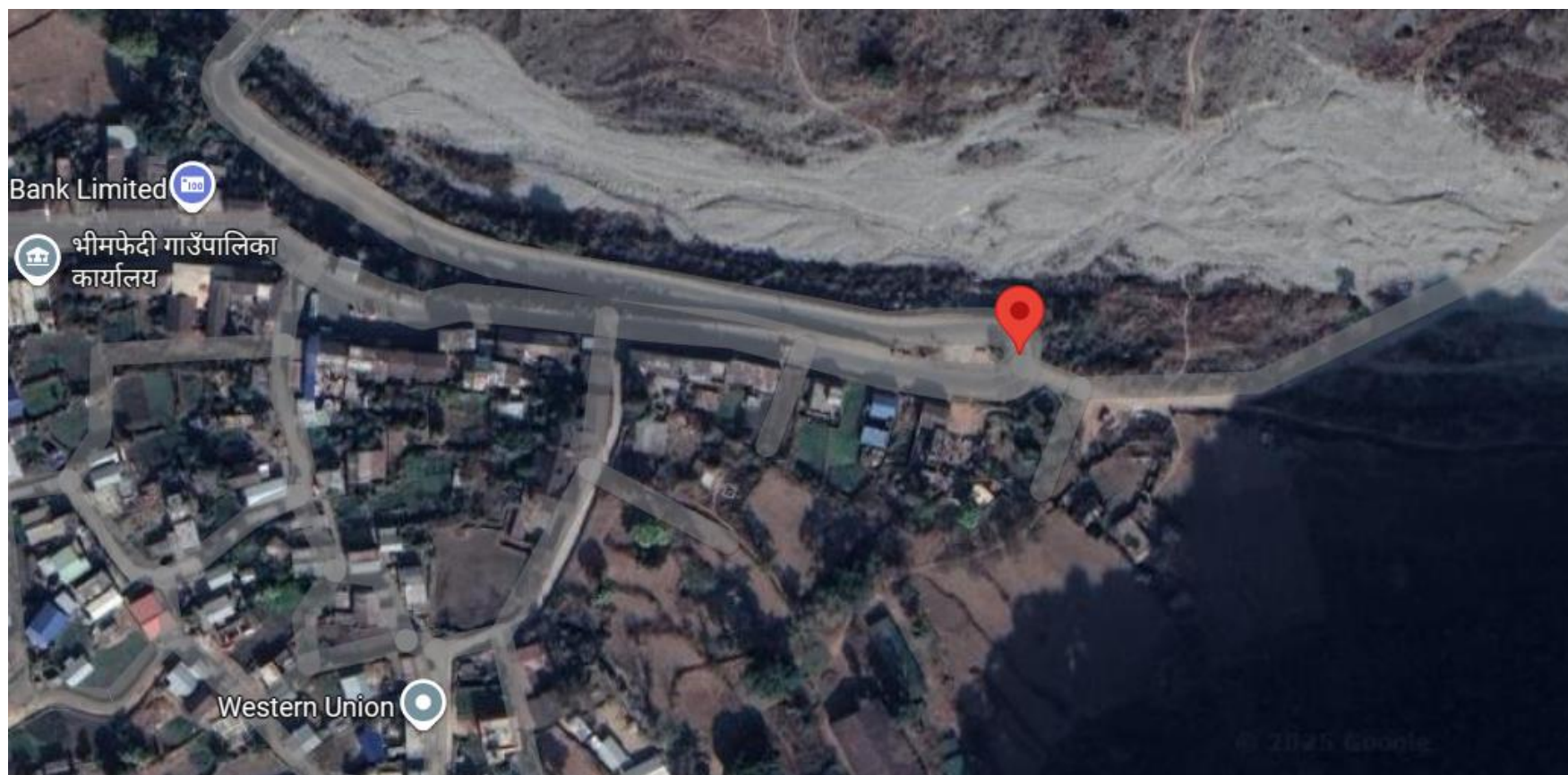
## 2.0 Methodology

Using a traffic survey data sheet, the traffic count was done Manually every hour between 9 a.m. and 6 p.m. At a station, four (4) people were stationed: two (2) were counting vehicles coming in, while the other two (2) were counting vehicles leaving. The investigation was carried out from 8<sup>th</sup> Asoj 2082, to 14<sup>th</sup> Asoj 2082, for a total of seven (7) days.

The counting stations established in the course of the assessment as stated below.

Table 1 Traffic Count Location

Point ID	Counting Route	GPS Co-ordinates	Road Condition
1	Bhimphedi Junction of Balkhu-Kulekhani-Bhimphedi-Bhainse ( PH-BG-004) road Section	27°32'44.3"N 85°07'54.1"E	Asphalt, Intermediate lane with no shoulder approx. 5.5m wide



Map 1: Traffic count locations





Photo 1: Bhimphedi Junction



Plate 2: Team taking traffic data







Plate 3: Vehicle Movement at Bhimphedi Junction



Plate 4: Making a data entry



Photo 5: Road at Bhimphedi Junction



## **2.1 Vehicle category**

Vehicle types were grouped into major two parts as motorized Vehicle and Non- Motorized Vehicle and motorized vehicle is further sub divided into five (5) Vehicle category while Non- motorized is further sub divided into two (2) vehicle category according to national standards as stated below.

### **2.1.1 Motorcycles/Bicycle**

A motorcycle is a two-wheeled motor vehicle, sometimes referred to as a bike or motorbike. For a variety of uses, including long-distance driving, negotiating city traffic, cruising, sport, racing, and off-road riding, motorcycle designs vary widely.

### **2.1.2 Cars, Auto rickshaw, EV, UV, Light Vans and pick up**

Cars, autorickshaws, electric vehicles (EVs), utility vehicles (UVs), light vans, and pickups are all types of vehicles used for travel and transport. Cars are mostly used by individuals or families for daily travel, while autorickshaws are common in cities for short-distance rides, especially in traffic. EVs are becoming popular because they run on electricity and are better for the environment. UVs are bigger vehicles, often used for carrying more people or goods, and they are strong enough for rough roads. Light vans and pickups are used mainly for carrying small loads or for delivery services, and they are useful for businesses. Each of these vehicles serves a different purpose, depending on the need.

### **2.1.3 Mini truck, Tractor**

Tractors and compact trucks are both practical automobiles, particularly for small enterprises and farming. A mini truck is a small truck that is used to transport light cargo, such as fruits, vegetables, and building supplies. It is ideal for cities and villages because it is simple to drive on congested highways. Contrarily, a tractor is primarily utilized in agriculture. It facilitates the transportation of crops or other agricultural supplies, plows fields, and pulls large machinery. Mini trucks are better suited for light transportation, whereas tractors are robust and designed for hard work on farms. Both are crucial in meeting local transportation and employment needs.

#### **2.1.4 Truck, Bus, Minibus**

Larger vehicles like trucks, buses, and minibuses are utilized for both short- and long-distance transportation of people or commodities. The primary use of a truck is to transport heavy items, such as building supplies, machinery, or big cargo between cities or even across the nation. Buses are employed in public transportation networks, workplaces, and schools to move large groups of people at once. They are a typical method of group travel. When fewer people need to travel, such as on short-distance public routes or for small tour groups, a minibus, a scaled-down version of a bus, is utilized. Depending on their size and intended use, all three vehicles aid in the efficient movement of people or goods.

#### **2.1.5 Others**

Those Vehicles which are not included in above categories are kept here, Vehicle such as JCB, Loader, Excavator etc. that sometimes travel on the road are kept in this category.

#### **2.1.6 Rickshaw**

A rickshaw is a non-motorized vehicle that is mostly used for short-distance transportation and is often dragged or pedaled by a human. It is a straightforward and reasonably priced mode of transportation, particularly in crowded marketplaces or congested streets where larger cars find it difficult to maneuver. Since rickshaws don't require electricity or fuel, they are silent and environmentally benign. They frequently provide trips to one or two passengers at a time in towns and cities. Even though they are slower than cars, rickshaws are still a vital part of local transportation and a source of income for many.

#### **2.1.7 Bullock Cart/ Hand Cart/ Tanga**

Traditional, non-motorized vehicles like bullock carts, hand carts, and tangas are still utilized in select locations for transportation and cargo transporting. One or two bulls pull a bullock cart, which is mostly employed in communities for short-distance transportation of people, firewood, or crops. Fruits, vegetables, and other items are frequently moved in markets using hand carts, which are pushed or pulled by a person. A tanga is a horse-drawn cart that is frequently used to transport people, particularly in rural or tourist locations. These cars are valuable in places with limited access to modern transportation because they are affordable



and don't require fuel.

### **3.0 Results and discussion**

#### **3.1 Survey Results**

##### **3.1.1 Bhimphedi Junction**

Table 2 and figure 1 present traffic situation on the Balkhu-Kulekhani-Bhimphedi-Bhainse (PH-BG-004) road section at Bhimphedi Junction East as surveyed 8<sup>th</sup> – 14<sup>th</sup> Asoj 2082. The table presents the weekly traffic volume, while the figure presents the bar plot of average daily traffic volume (ADT) and average annual daily traffic volume (AADT) of the Junction. Table 2 revealed the highest traffic volume of 6735 was recorded on 13<sup>th</sup> of Asoj ( Fulpati of Dashain festival ), followed by 12<sup>th</sup> of Asoj with a traffic volume of 5114, while the least traffic volume of 3545 was recorded on 14<sup>th</sup> of Asoj ( Astami of Dashain Festival ).

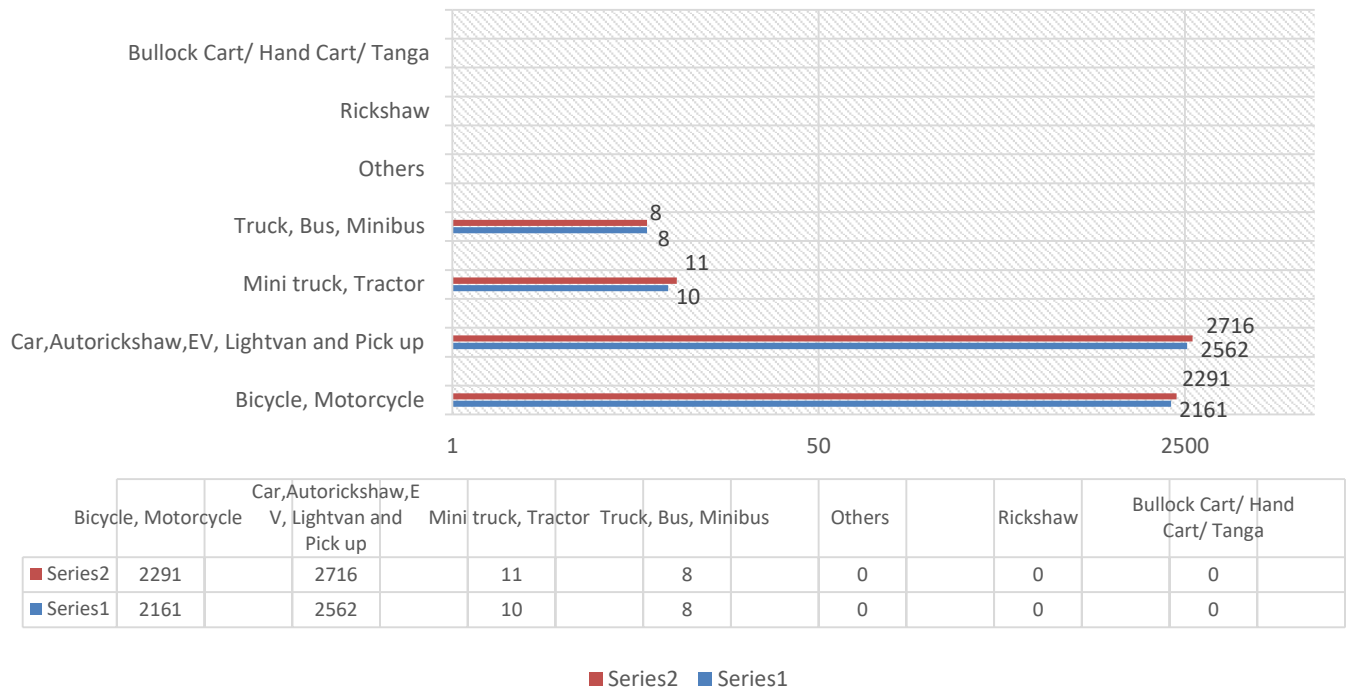
Detail of The Manual Vehicle Count of Location Bhimfedi																				
Year : 2082/83										Station No. : 1										
Road Link : Balkhu-Kulekhani-Bhimfedi-Bhainse (PH-BG-004)										Location : Bhimfedi										
Seasonal Variation factor used for the month october : 1.06																				
Date	Start Time (Hrs)	Motorized Vehicle										Non-motorized Vehicle						Total		
		Bicycle, Motorcycle		Car,Autorickshaw,EV, Lightvan and Pick up		Mini truck, Tractor		Truck, Bus, Minibus		Others		Rickshaw		Bullock Cart/ Hand Cart/ Tanga						
		a	b	a	b	a	b	a	b	a	b	a	b	a	b	a	b	Total		
8/6/2082	9:00:00	100	53	128	131		5	4								232	189	421		
8/6/2082	10:00:00	128	37	231	92	2		5	1							366	130	496		
8/6/2082	11:00:00	88	50	262	95											350	145	495		
8/6/2082	12:00:00	98	50	120	42	2										220	92	312		
8/6/2082	13:00:00	107	29	142	66	3		2	2							254	97	351		
8/6/2082	14:00:00	101	50	156	35			2								259	85	344		
8/6/2082	15:00:00	122	68	135	169	8	2		1							265	240	505		
8/6/2082	16:00:00	90	42	127	144		2		4							217	192	409		
8/6/2082	17:00:00	53	52	140	137	2	5	2	2							197	196	393		
Day 1 Sub-total		887	431	1441	911	17	14	15	10	0	0	0	0	0	0	2360	1366	3726		
Total (8/6/2082)		1318		2352		31		25		0		0		0						
9/6/2082	9:00:00	103	73	178	174	2		2								285	247	532		
9/6/2082	10:00:00	91	47	141	68	1	3				1					233	119	352		
9/6/2082	11:00:00	149	57	172	162			1								322	219	541		
9/6/2082	12:00:00	103	49	248	84	1		1		1						354	133	487		
9/6/2082	13:00:00	87	65	103	182	2			1							192	248	440		
9/6/2082	14:00:00	131	77	113	137											244	214	458		
9/6/2082	15:00:00	105	50	309	115	1		1	1							416	166	582		
9/6/2082	16:00:00	90	35	153	78	2			1							245	114	359		
9/6/2082	17:00:00	115	41	160	118			2	1							277	160	437		
Day 2 Sub-total		974	494	1577	1118	9	3	7	4	1	1	0	0	0	0	2568	1620	4188		
Total (9/6/2082)		1468		2695		12		11		2		0		0						
10/6/2082	9:00:00	190	42	230	90		1	3								423	133	556		
10/6/2082	10:00:00	191	39	227	91	1				1						420	130	550		
10/6/2082	11:00:00	156	46	260	102	2		1								419	148	567		
10/6/2082	12:00:00	115	46	332	91		1									447	138	585		
10/6/2082	13:00:00	157	72	175	107	1		1								333	180	513		
10/6/2082	14:00:00	134	81	163	145		1									297	227	524		
10/6/2082	15:00:00	180	61	161	89		1		1							341	152	493		
10/6/2082	16:00:00	175	42	215	105				1							390	148	538		
10/6/2082	17:00:00	143	54	157	124	2	1									302	179	481		
Day 3 Sub-total		1441	483	1920	944	5	6	5	2	1	0	0	0	0	0	3372	1435	4807		
Total (10/6/2082)		1924		2864		11		7		1		0		0						
11/6/2082	9:00:00	351	37	315	94		1									666	132	798		
11/6/2082	10:00:00	269	45	285	84			1								555	129	684		
11/6/2082	11:00:00	250	43	383	98	1	1									634	142	776		
11/6/2082	12:00:00	220	45	183	89			1								404	134	538		
11/6/2082	13:00:00	149	62	156	110											305	172	477		
11/6/2082	14:00:00	184	46	218	103	1										403	149	552		
11/6/2082	15:00:00	157	53	155	96											312	149	461		
11/6/2082	16:00:00	113	41	162	127	1	1									276	169	445		
11/6/2082	17:00:00	77	40	102	120	1			1							180	161	341		
Day 4 Sub-total		1770	412	1959	921	4	3	2	1	0	0	0	0	0	0	3735	1337	5072		
Total (11/6/2082)		2182		2880		7		3		0		0		0						
12/6/2082	9:00:00	172	45	310	72		1	1								483	118	601		
12/6/2082	10:00:00	258	28	310	66			1								569	94	663		
12/6/2082	11:00:00	205	31	250	37											455	68	523		
12/6/2082	12:00:00	152	44	149	110		1									301	155	456		
12/6/2082	13:00:00	246	54	194	110											440	164	604		
12/6/2082	14:00:00	245	54	185	107											430	161	591		
12/6/2082	15:00:00	246	64	196	120											442	184	626		
12/6/2082	16:00:00	252	70	149	120				1							401	191	592		
12/6/2082	17:00:00	187	34	105	130		1	1								293	165	458		
Day 5 Sub-total		1963	424	1848	872	0	3	3	1	0	0	0	0	0	0	3814	1300	5114		
Total (12/6/2082)		2387		2720		3		4		0		0		0						
13/6/2082	9:00:00	401	41	291	70											692	111	803		
13/6/2082	10:00:00	570	58	292	65											862	123	985		
13/6/2082	11:00:00	682	54	317	51											999	105	1104		
13/6/2082	12:00:00	414	26	243	91											657	117	774		
13/6/2082	13:00:00	410	39	197	74			1								608	113	721		
13/6/2082	14:00:00	340	48	192	107											532	155	687		
13/6/2082	15:00:00	323	32	174	129	1			2							498	163	661		
13/6/2082	16:00:00	203	50	155	125											358	175	533		
13/6/2082	17:00:00	169	30	141	125	1	1									311	156	467		
Day 6 Sub-total		3512	378	2002	837	2	1	1	2	0	0	0	0	0	0	5517	1218	6735		
Total (13/6/2082)		3890		2839		3		3		0		0		0						
14/6/2082	9:00:00	181	30	135	45											316	75	391		
14/6/2082	10:00:00	205	40	193	51											398	91	489		
14/6/2082	11:00:00	225	41	180	39											405	80	485		
14/6/2082	12:00:00	220	35	161	47											381	82	463		
14/6/2082	13:00:00	176	45	146	55											322	100	422		
14/6/2082	14:00:00	204	52	128	49		1									332	102	434		
14/6/2082	15:00:00	167	33	103	37				2							270	72	342		
14/6/2082	16:00:00	150	34	79	42	1										230	76	306		
14/6/2082	17:00:00	95	23	49	46											144	69	213		
Day 7 Sub-total		1623	333	1174	411	1	1	0	2	0	0	0	0	0	0	2798	747	3545		
Total (14/6/2082)		1956		1585		2		2		0		0		0						
Total		12170	2955	11921	6014	38	31	33	22	2	1	0	0	0	0	24164	9023	33187		
Grand Total		15125		17935		69		55		3		0		0		33187		33187		
Average Daily Traffic (ADT)		2161		2562		10		8		0		0		0		4741		4741		
Composition (%)		46%		54%		0%		0%		0%		0%		0%		100%		100%		
Total ADT Exc. MC & Rickshaw		-		2562		10		8		0		-		0		2580		2580		
Composition Exc. MC & Rickshaw(%)		-		99.30%		0.39%		0.31%		0.00%		-		0.00%		100.00%		100.00%		
Average Annual Daily Traffic(AADT)		2291		2716		11		8		0		0		0		5025		5025		
AADT Exc. MC & Rickshaw		-		2716		11		8		0		-		0		2735				
PCU Factors		0.5		1		1.5		3		6		6		6						
AADT in PCUs		1145		2716		16		25		0		0		0		3902		3902		
AADT in PCUs Exc. MC & Rickshaw		-		2716		16		25		0		-		0		2757		2757		
Note :																				
Direction a : Balkhu to Bhainse																				
Direction b : Bhainse to Balkhu																				

Table 2: Weekly traffic volume on Balkhu-Kulekhani-Bhimphedi-Bhainse (PH-BG-004)

Category	8/6/2082	9/6/2082	10/6/2082	11/6/2082	12/6/2082	13/6/2082	14/6/2082
Cat 1 (Motorcycle/Bicycle)	1318	1468	1924	2182	2387	3890	1956
Cat 2 (Car,Autorickshaw,E V, Lightvan and Pick up)	2352	2695	2864	2880	2720	2839	1585
Cat 3 (Mini truck, Tractor)	31	12	11	7	3	3	2
Cat 4 (Truck, Bus, Minibus)	25	11	7	3	4	3	2
Cat 5(Others (JCB))	0	2	1	0	0	0	0
Cat 6(Rickshaw)	0	0	0	0	0	0	0
Cat 7(Bullock Cart/ Hand Cart/ Tanga)	0	0	0	0	0	0	0
<b>Total</b>	<b>3726</b>	<b>4188</b>	<b>4807</b>	<b>5072</b>	<b>5114</b>	<b>6735</b>	<b>3545</b>



## ADT and AADT plot of Bhimphedi Junction



Series 1 = Average daily Traffic

Series 2 = Average annual daily traffic

Figure 1: ADT and AADT plot of Bhimphedi Junction

## **4.0 Conclusion**

Traffic survey of study area has been conducted in line with international best practice of using trained and experienced personnel, use of adequate data collection material and timing of 7days weekly and 9 hours' daily. The survey presents weekly traffic volume in four (7) vehicle categories. Thus, the findings of this survey are a veritable tool to understanding the baseline traffic situation along the surveyed route and also as for journey management purposes during Further construction and operation of the route .