



JOMOTSHANGKHA URBAN DEVELOPMENT PLAN 2015-2040



**Department of Human Settlement
Ministry of Works and Human Settlement
Thimphu**

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1. Introduction

Jomotshangkha is a settlement in the south eastern part of Bhutan, which is located in Samdrupjongkhar district. There are four towns in Samdrupjongkhar dzongkhag, namely, Samdrupjongkhar, Dewathang, Samdrupchoeling and Jomotsangkha. The area of Samdrupjongkhar town is 2.08 sq. Km. It had a population of 5,952 with a density of 2,862 persons per sq. km. and sex ratio of 116.5 males per 100 females according to the PHCB 2005. Jomotsangkha has a total area of 165.86 acres with population of 1500 in 2013, in which almost 660 people live in the town core.

A **Shiv Mandir**, popularly known as **Bairakunda Temple** to Indian neighbouring States is also located within the vicinity of the town and attracts hundreds of Indian Tourists annually. The town has a significant characteristic of having a straight road with 15m buffer on either side of it for future road expansion which will connect Samdrup choling (Bangtar) which is 68km far from the Jomotsangkha. A river embankment construction is been identified at the site. The town gets electricity from India but BPC collects the tariff as per the Bhutan electricity tariff rates. A Middle secondary school and one community building are also located inside the town. The town has one BHU grade 1 Hospital with one ambulance. It also has a Dungkhag court with the district office, and only Bhutan Development Bank Limited exists in the town but no ATM facilities are available.

The strategic location of the town, and the multiple roles it has been playing as trading hub and administrative centre have led to accelerated urbanization. The scale of the urban settlement and its importance in the southern part of the country, has led to planned development initiatives being undertaken in the town. An action area plan was prepared in the year 2006-2007. In view of the changed urban milieu, presently the Department of Human Settlement, Ministry of Works and Human Settlements, Royal Government of Bhutan has initiated another exercise of preparing Urban Development Plan for Jomotshangkha in 2016. The plan was approved during the 15th National Consultative Committee on Human Settlement which was held on 13th April 2016.

This small vibrant town has a tremendous amount of tourist potentials as it happens to be in sited in the junction of two other surrounding Indian states and got several viewpoints and tourist attractions which will enhance the economy generation of the existing town. In future there is a possibility of making this town a commercial hub as it will get a good connectivity with Samdrup Choling and will also be planned as a southern most Gateway of Royal kingdom of Bhutan.

1.1 Location

Jomotshangkha is a small satellite town situated at the extreme most part of Bhutan. The town locally known as Diafam is located at the extreme south-eastern brink of the country and in the

tri-junction of Arunachal Pradesh, Assam and Bhutan. The average elevation of the town is 200-300m from the sea level. There is no internal road connectivity through Bhutan.

The existing connection to Jomotshangkha is through India. It takes almost 4-5 hours to reach Jomotshangkha from Samdrup Jongkhar. The nearest railway connectivity is in Assam (Udanganj), 20km far from the border. The nearest settlement is Bajrangay which is 5.7km far from Jomotshangkha town connected through farm roads. The other nearest settlement is Lauri which is about 59km from the town connected partly through farm road and partly is under construction. The distance from Samdrupcholing, Dewathang and Samdrup Jongkhar, the nearest large settlements are 76km, 126km and 144km respectively. The strategic location of the existing town attracts hundreds of tourists from Arunachal Pradesh and Assam daily.

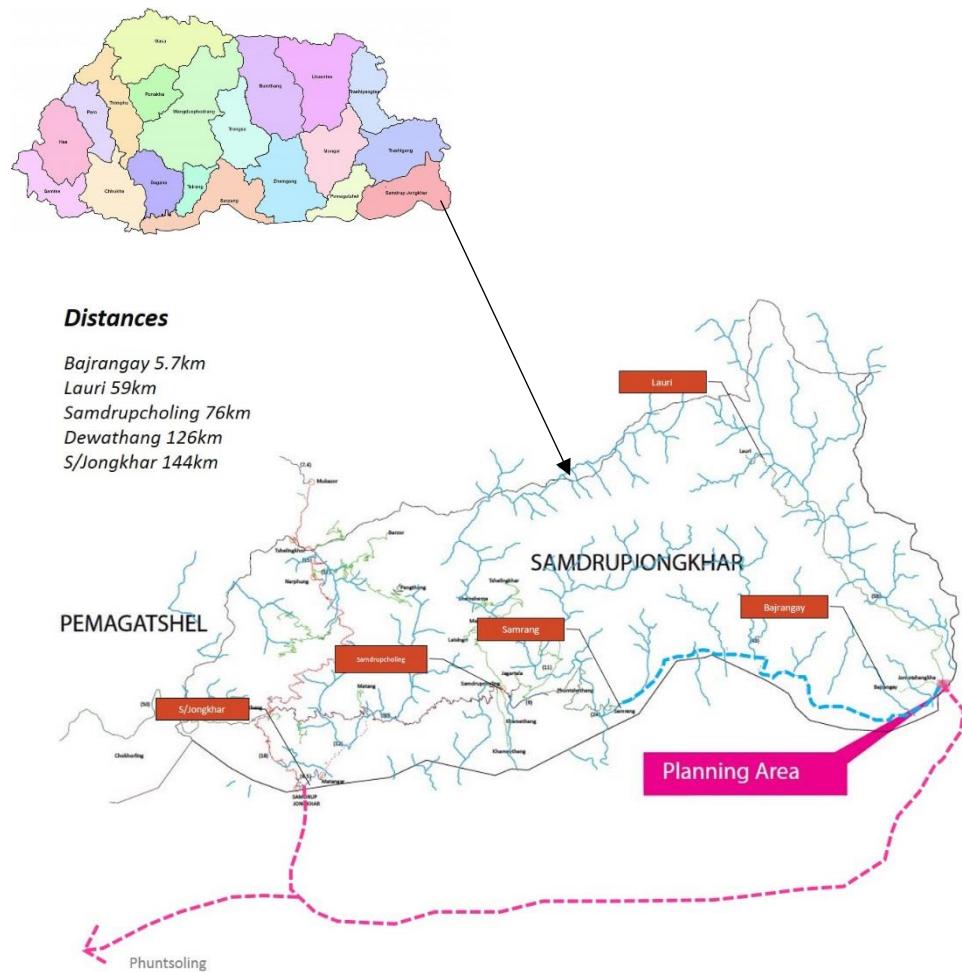


Figure 1: Location Map

This strategically located settlement has meticulously portrayed the prospects of population growth and a growth in the tourism sector. The Jomotshangkha town as itself can be depicted as an “Urban Centre with Development Potential” or a “Destiny of Joy” for the south-eastern part of Bhutan.

1.2 Area

Total Area of the existing town is 167.8 Acre and the number of plots inside the town boundary is about 156, out of which 115 is in the city core mostly commercial in landuse. In the town core only 36 landowners have their Lagthram and other than that 79 landowners don't have their Lagtharm. In the peripheral area there are 41 plots out of which 15 plots belong to private ownerships and 26 plots belongs to Government Institutions and Administration.

2. Existing Scenario

The existing electricity supply is from Bhutan Power Corporation as per the Bhutan Electricity Tariff rate and the existing water supply is within Bhutan only. The existing town has an entry gate with 4.5m wide entry road which goes straight to the north side of the town. The other primary road connects the core which further joins the east-west part of the town.

The existing basic services, features and facilities are listed below:

- Jomotshangkha Middle Secondary School
- Bhutan Post
- Animal Husbandry
- Community Center
- Bhutan Telecom
- Manidungkhor (2 Numbers)
- Chorten (2 Numbers)
- Shiva Temple
- Forest Office
- BHU Grade – I
- Dungkhag Administration
- Thrimkhang
- Royal Bhutan Police
- Dungkhag Guest House
- Vegetable Market Sheds
- Vegetable storage room (underutilized)
- Playgrounds (one Public and another inside the school compound)
- Paddy Fields
- Community Pits
- Motorable bridge (under construction)
- Suspension Bridge
- NHDC housing (3 Blocks)
- Spiritual Landmarks
- Royal Insurance corporation of Bhutan

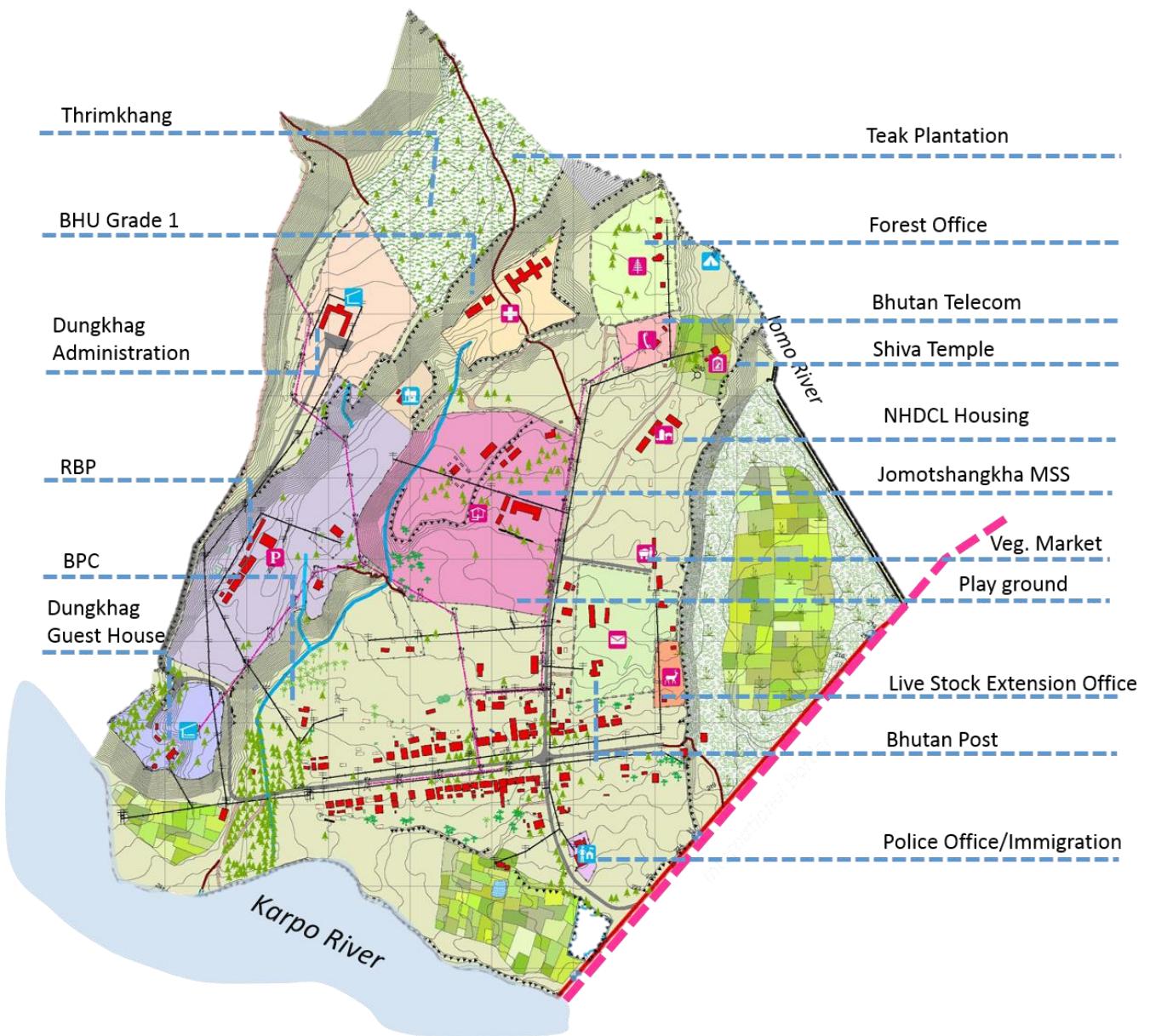


Figure 2: The existing basic services, features and facilities



Figure 2: Existing Scenario



Figure 3: Existing Housing Typology

3. Population

As per the survey conducted by the local committee members, in 2013 there are a total of 1500 people living in this area. Samdrup Jongkhar has an annual growth rate of 1.8 as per the PHCB'05. So the approximate population of Jomotshangkha will be 2655 by the year 2045.

4. Opportunities

The town has huge tourism potential because of the presence of sacred Hindu temple. During peak season around 500-600 tourists visit the place. The town also have many tourism attractions for example: Karpo river, Suspension bridge, Chorten, Picnic areas etc.

The town can be proposed as a service centre for the whole south-eastern part of Samdrup Jongkhar Dzongkhag. The Existing agriculture and animal husbandry can easily be revived. There is also potential for betel nut, Bamboo and banana plantation because of the favorable climate. These prospects can make the town self-sustainable. Along with that, through the development of the Karpo river buffer area to a recreational area, it will not only attract the citizens but also people from the neighboring countries. Being in the tropical climate, there is also major possibilities to harvest rain water and can be used for the kitchen garden and during winter when there is shortage of water supply.



Figure 4: Panoramic view of existing Jomotshangkha town.

5. Earlier Plan Initiative

In the year 2006-2007 an Action Area Plan was prepared by the Ministry of Works and Human Settlement, in that action area plan, 15m buffer along the main road in the core has been kept for future expansion to further connect with Samdrupcholing. The National Cadastral Re-Survey programme for Jomotshangkha has been completed in 2012.

6. Plan Proposal Year

The structure plan was presented to the public and the Dungkhag Administration on 27th January, 2015 but due to the unavailability of the land records, the Local Area Plan preparation could not be proceed. Therefore, after getting the land information and details, the LAP could be prepared, on 4th February, 2016 the LAP was presented to the land owners of Jomotshangkha in presence of Dungkhag Administration and the stakeholders. The plan was approved by the Dungkhag Administration and the land owners of Jomotshangkha.



Figure 5: Photo of Public Consultation Meeting.

7. Jomotshangkha 2015 to 2040, Urban Development Plan

Jomotshangkha Urban Development plan is prepared for a period of 25 years that is from 2015-2040. The plan was approved during the 15th National Consultative Committee on Human Settlement held on 13th April 2016, chaired by Hon'ble Minister of Ministry of Works and Human Settlement, where the plan was endorsed with minor changes for implementation.

The salient features of Jomotshangkha Urban Development Plan are:

- During the Public Consultation on 24/03/2015 with National Land Commission the land owners have agreed to adhere the terms and conditions set in order to develop a town with proper land ownership.

- It has been agreed that only a standard plot size of 2400 Sq.ft for commercial and 4000 Sq.ft for residential will be allotted.
- There will be no land pooling scheme applied to the plan.
- In case of plots with permanent structure, minimum setbacks should be provided to save the permanent structures.
- The peripheral area should be plotted as per the NCRP Land Records.
- As there was sufficient vacant land within the planning boundary, the new land use distribution could be accommodated within the planning area without need of increasing the town boundary.

8. Aims

Jomotshangkha is envisioned to be developed as a Recreational and Tourism hub for the extreme south-eastern part of Bhutan.

- Strengthen Jomotshangkha as an Administrative centre for the extreme south eastern part of Bhutan,
- Promote tourism by creating Active and Passive Recreation and Commercial hubs along Karpo River and the Urban Corridor,
- Promote environment friendly techniques to reduce the temperature of micro climate since the area is very hot and humid,
- Making the town self-sustainable and a holiday destination for the extreme south-eastern part of Bhutan.

9. Objectives

- River embankment of the Karpo River to stabilize the erosion prone areas,
- Utilizing the 30m buffer zone from the river for recreational purposes ,
- Developing the commercial spine as a passive recreational space by enhancing public amenities like planting trees, seating benches, small kiosk for entertainment, places for leisure and children's play area.
- Promoting by-cycle movements inside the main town,
- Enhancing the pedestrian movements and improve the green channelization ,
- Enhance the tourism based activities for maintenance and revenue generation of the town,
- Improving the existing infrastructure in order to cut down on the infrastructural development cost.

10. Land Suitability Study

Land Suitability analysis is carried out to identify developable land available within the Planning boundary. The slope analysis studies the surface of the land and groups land parcels under different slope categories. It helps identifying land for development and preservation. Generally slopes less than 30% is considered suitable for development. Since Jomotshangkha is mostly flat compared to other towns in Bhutan, most of the area is developable with almost 90 percent of the area with slope gradient less than 20%. Land falling under steep slopes, cliffs, under forest cover, conservation area and environmentally fragile areas are identified as protected area. These areas, although not suitable for development, can form part of the neighbourhood's open space system and enhance the quality of urban life. (or farming activities can be done in these protected areas).

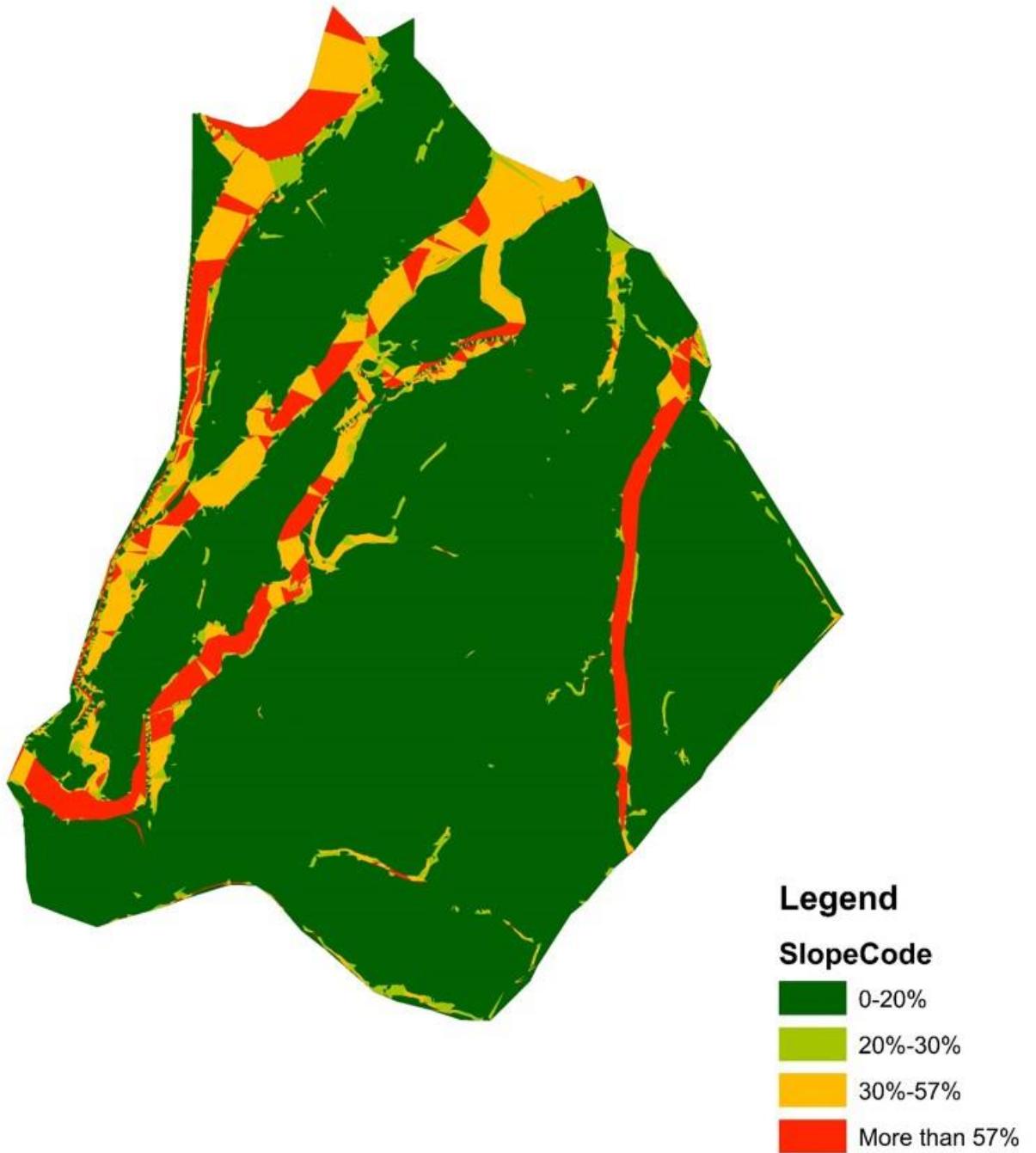


Figure 6: Slope gradient

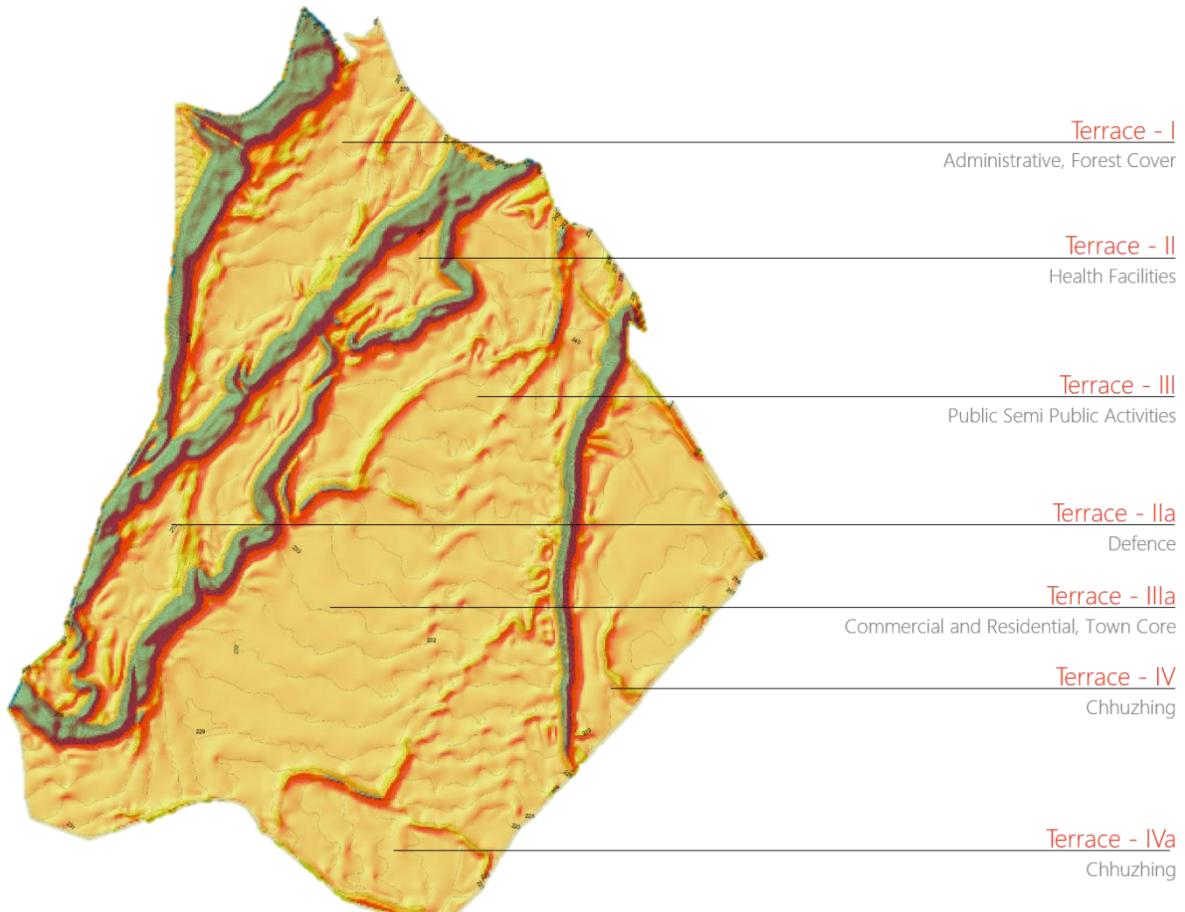


Figure 6: Slope analysis

Jomotsangkha is generally flat when compared with other areas in Bhutan. The area is divided into several terraces. The upper terrace is mainly with administrative area for example Thrimkhang and Dungkhag office. The second terrace is with BHU and Royal Bhutan Police. The next terrace in the north is mainly with public semi public facilities like school and temple. The main core area is mainly commercial area with shops and restaurants. The lower two terraces are mainly with agriculture activities.

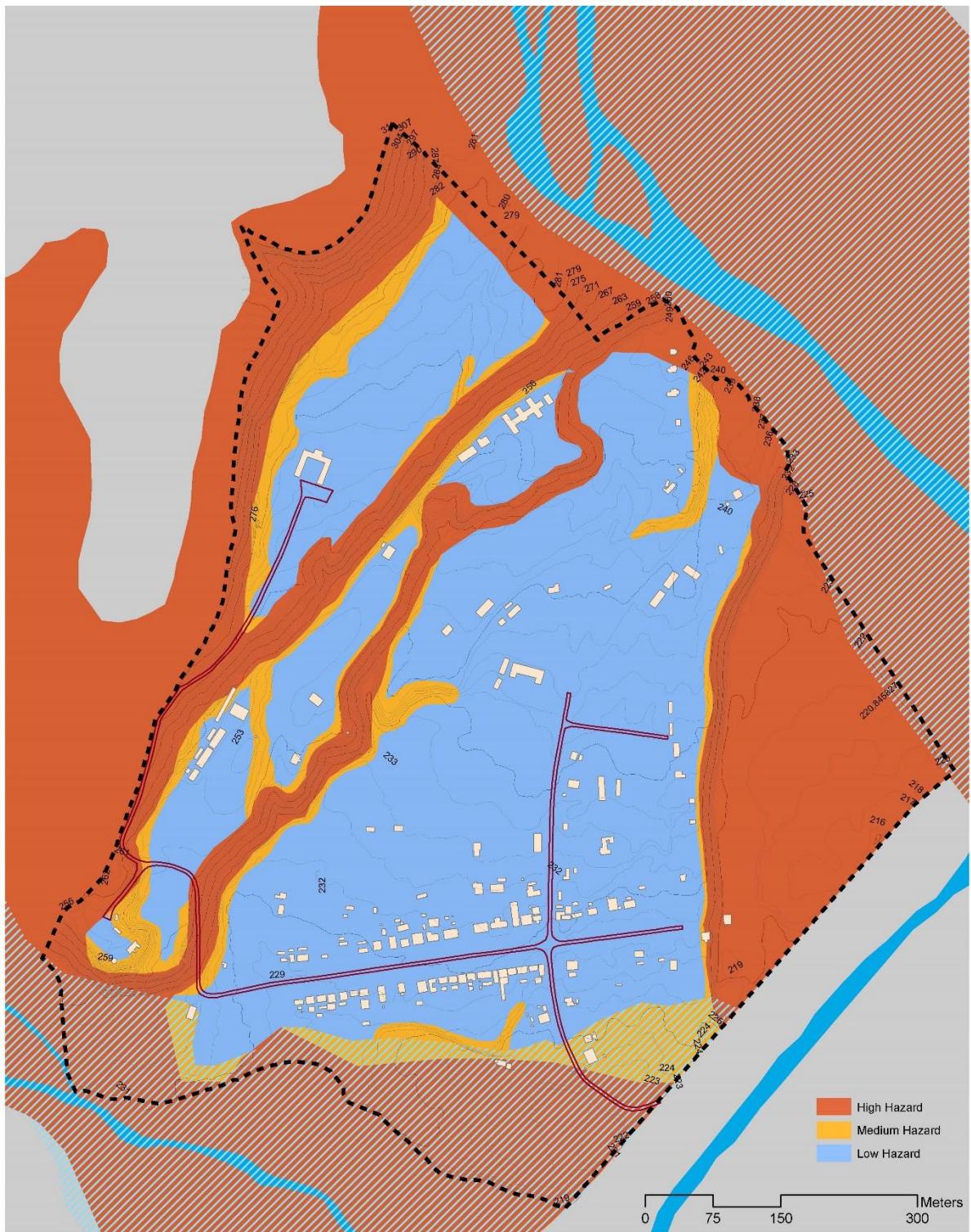


Figure 6: Hazard map

11. Plot Ownership



Figure 7: Plot ownership Details.

Total Number of Plots (Core) – 119

With registered Thram – 37

With unregistered Thram – 82

Total Number of Plots (Periphery) – 42

Private– 16

Government– 26

12. Concepts

The plan is envisaged to have a green city concept with emphasizing self-contained community surrounded by green belts. With commercial at the core surrounded by other facilities and agriculture activities. The whole town will be connected with green channels and different eco-technologies like river front, community open spaces, cycling etc will be encouraged.



- Commercial Zone along the central spine
- Surrounded by residential activities
- Improve agricultural activities
- Tourism based development
- Cycling
- Passive and active recreational spaces
- River front development
- Picnic garden
- Adequate service facilities

13. Planning Principal and Dimensions

12.1. Interactive

The first and foremost aspect is to make the town interactive. Till now the town is sort of dead. People do not interact with each other. The main reason behind is because there are no dedicated place for gathering and at night when the weather is pleasant with cold breeze, there are no street lights. In a way the town can encourage crimes. So it is utterly important to make the town interactive so that people know and help each other.



Figure 8: No dedicated social area plus no street lights.

12.2. Green

Second aspect is to make the town as green as possible because Jomotshangkha is mostly hot and dry over the year. In summer it goes upto 40-42 degree Celsius, in a way it becomes almost impossible to walk around during the day.

12.3. Culture

Third dimension is to improvise Bhutanese culture in the town. As Jomotshangkha must be only town in Bhutan, which does not have any traditional glimpse except for the religious structures. The town should have its own identity and image to attract people not only from nearby settlement but also from other countries and even from different parts of Bhutan.

12.4. Connectivity

Another important aspect is to improve the connectivity to and within the town. Till now it is almost alienated and have no direct connectivity within Bhutan, which is the main reason why the town is under developed.

12.5. Sustainability

The final element for Jomotshangkha is to make the town sustainable. Even when Jomotshangkha gets connected with other settlement in future, it will still be expensive to import daily goods. Therefore, it is very important to make the town self-sustainable.

Now if we put together all the aspects, first thing we have proposed is to have a market garden. Market garden generally means where people can come and grow their own vegetables and sell and earn from it.



Figure 9: Market Garden

Till now the town does not have a soul. To make the town more friendly and interactive, it is important to give the town a common gathering space something like a town hall. Where people can come enjoy the cultural functions and even perform, where it will give a completely eye-catching appearance for the tourist. Another visual experience has been proposed which is completely new in Bhutan is a Flag garden, which ultimately not only increase the cultural significance but also it will improve the appearance of the town. As hoisting a prayer flag is in our culture and tradition.



Figure 10: Flag Garden

And as with all the plans in Bhutan it is most important to incorporate the traditional features in the structures, which at present Jomotshangkha doesn't have. Another important aspect is to increase the green footprint instead of the concrete and bitumen roads. More green means it gives more cooling effect to the town.



Figure 11: Green Footprint

And finally the connectivity, connectivity doesn't only mean to provide roads but also to give a chance for the town to be opened for real estate market, tourism sector, bringing the community together and obviously the required infrastructures.



Figure 12: Connectivity

Therefore, by proposing all these aspects that have shown above, it will ultimately make the town self-sustainable.

14. Sun and Wind Direction

As Jomotshangkha is extremely hot, it is important to study the sun and wind direction for the shadow direction and cooling effect. In summer when the sun is harsh, the wind goes from south to the north, whereas in winter, the sun is bit pleasant and the winter breeze comes from north to the south. So by studying the wind direction, the flag garden locations and open spaces are proposed strategically to improve the local environment and climate.

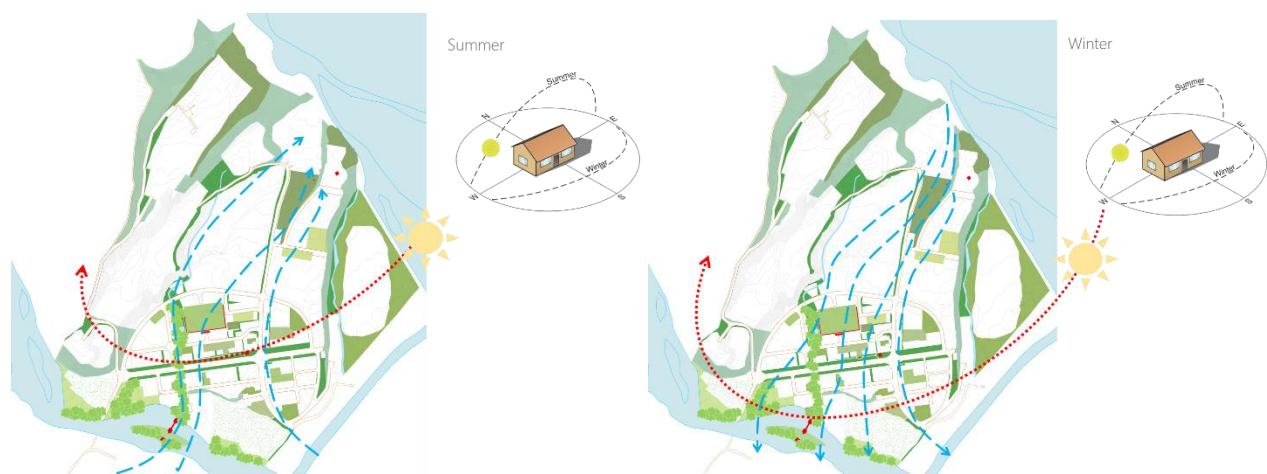


Figure 13: sun & wind direction

14. Precinct Plan

Legend

Plots

- Proposed Registered Plots
 - Chhuzhing Plots
 - Revenue Plots (Commercial)
 - Revenue Plots (Residential)
 - Proposed Institutional
 - Proposed Service Plots
 - Proposed Building

Greens



Figure 14: Precinct Plan



Figure 14: Proposed Amenities

15.1. Commercial:

The existing core area presently has mostly small landholding. During the planning process a 2400 sq.ft plots were given to the commercial license holders as per National Land Commission directives. The core area along the main street has been kept commercial. However, Residential activity is allowed except for the ground floor.

15.2. Chhuzhing:

There are few plots with agricultural activities towards the Karpo river. Adequate irrigation water should be provided for the cultivation.

15.3. Revenue Plots:

In the past, every plan has faced problem during the implementation due to lack of budget. Therefore, many plan has been left unimplemented and the town did not develop. However, in Jomotshangkha, capitalizing on available state land, Revenue plots both residential and commercial plots are provided which can be leased out for housing to the real estate developer and ultimately it will generate revenue for the plan implement process and for the development of infrastructure within the town.

15.4. Institutional:

Jomotshangkha already has many organizations inside the planning boundary. However, a Kindergarten, town hall and library has been proposed near the proposed lake. All the structures should face the lake in order to enhance the town character.

15.5. Recreational:

The existing football ground has been enhanced with proper circulation system, gallery, parking areas, Sport complex with basketball play area and swimming pool facilities. An open area theatre (OAT) has also been provided opposite to the football ground which will connect the upper terraces through a contour steps. This is to encourage minimal damages to the slope. A stall area is provided next to the OAT where residents can open temporary food stalls or for selling handicrafts. A hotel space has also been identified in the proposed plan, as presently, the town doesn't have any accommodation facilities.

There are several green open spaces that have been provided with different functions to bring the community together. Market gardening concept has also been proposed, as presently almost every individual has kitchen garden. Although, cultivating vegetables will be challenging in future as the plot sizes are relatively small, the proposed market garden areas can be used for vegetable farming and to improve the local economy.

Apart from that, picnic garden and river front recreational facilities are also proposed along the Karpo river. This facility will also help to attract more tourist and ultimately improve the economy.

A bazam is proposed to connect the island on karpo river. This will also help to attract more tourists and improve the cultural identity of the town. Although, this is proposed to be constructed once the town is completely developed.

15.6. Services:

A fuel station has been proposed near the existing workshop area. The area is most suitable as it is near the proposed integrated check post and away from the existing commercial core area. The location of workshop has been shifted to the other side of the river as per Dungkhag Administration request. However, due to the unavailability of the topographical and cadastral information of the other side of Karpo River, the department has recommended the Dungkhag to carry on the survey and feasibility study prior to the implementation. The Dungkhag has identified the area for workshop and industrial facilities.

A bypass road is proposed along the river karpo to connect the surrounding settlements and also to avoid heavy vehicular movement inside the town.

15.7. Core Area



Figure 15: Core Plan

- The existing 10-15 meters buffer in the core area has been preserved and proposed as flower garden, it will add to the identity of the town and gives a significant visual appearance for the localities and to the tourists as well.
- The stream has been channelized and converted into a lake garden with recreational activities, which will further connect it to the river at the south.
- Jomotshangkha does not have any major traditional iconic features, therefore, a bazam has been proposed to connect the nearby island where one small chorten has been proposed and dedicated as recreational space and picnic area.
- Near the suspension bridge, it has a beautiful teak tree plantation, which has been proposed as a picnic garden with a ticketing system for maintenance.
- The existing transformer is right in the middle of the town, which was discuss and agreed with the stakeholders that it will be relocated to a safer place.

- Market garden and community open spaces have been proposed in different places for the community.
- As the plots are relatively small, the individual septic tank has not been encouraged. A community septic tank has been provided at the lower level.



Figure 16: Proposed green spaces

The proposed green spaces or recreational open spaces in Jomotshangkha are all interlinked and connected with pedestrian path and cycle track.

15.8 Town Heart



Figure 17: Proposed Town heart

The town heart, which is mainly the lake garden starts from the contour steps, the open air theatre, lake garden and to the river island with proposed bazam and chorten. A town hall and library has been proposed on the either side of the road passing through the town heart which will make the junction visually vibrant. This area will form as a social gathering place, where people from all walks of life can come and enjoy the scenic beauty of the place and it will also make a unique identity for Jomotshangkha town.

15.9. Open Air Theatre & River Front Development



Figure 19: Proposed OAT & River front development.

- A small environmentally friendly OAT has been proposed with maximum green.
- The riverfront development along the river Karpo buffer zone, with proper infrastructures like, sitting benches, lighting, food stalls, play area etc.

16. Road Design.

The road in the core or the main street has parking on both the side of the road, and for other secondary roads, block parking has been proposed.

16.1. Main street road

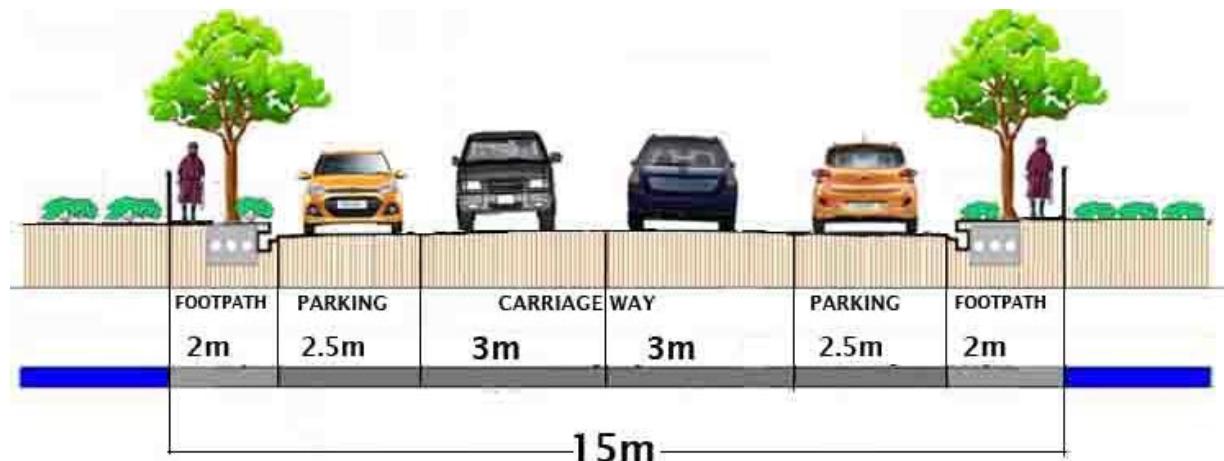


Figure 20: Road section of the 15m ROW

In the 15m ROW, 2m pedestrian path on both the side, 2.5m vehicle parking on both the side and 6m carriage way.

16.2. Primary Road

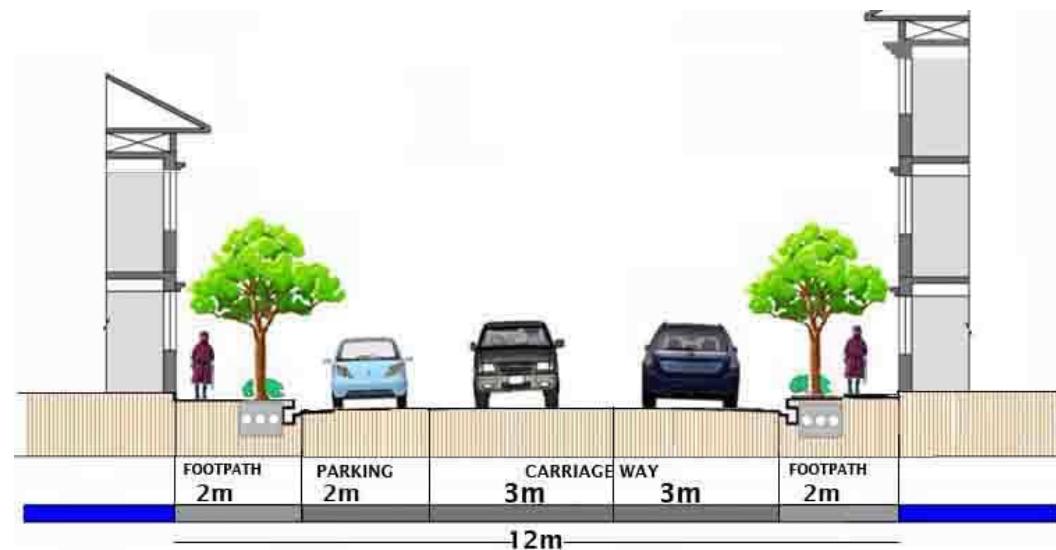


Figure 21: Road section of the 12m ROW

16.3. Secondary Road

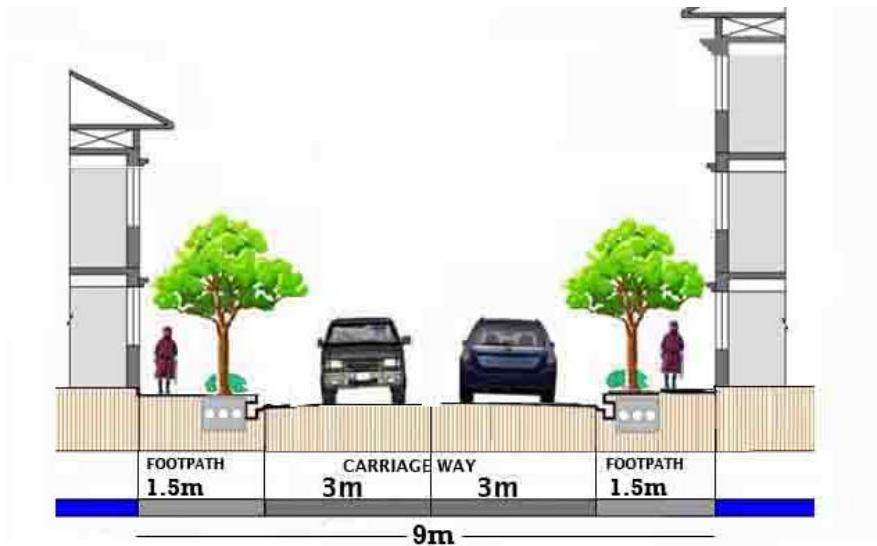


Figure 221: Road section of the 9m ROW

16.4. Access Road

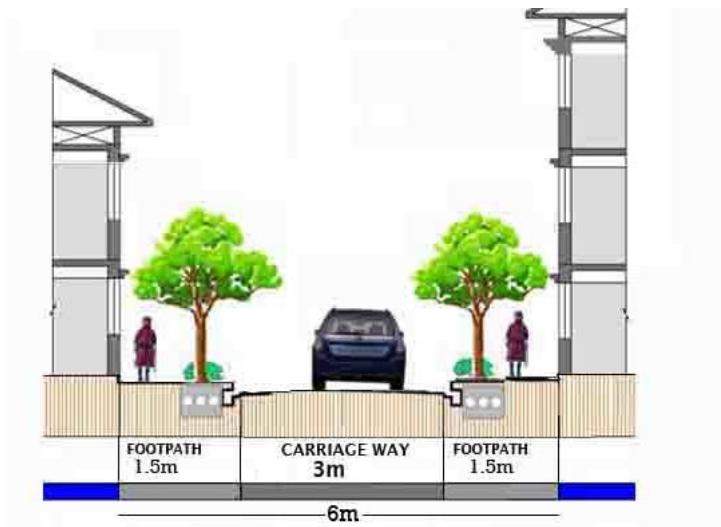


Figure 23: Road section of the 6m ROW

17. Development Control Regulation

Apart from the conventional regulations for any town where monotonous growth has been noticed. To avoid that situations few options have been given to the plot owners whether to occupy more space or ground or less coverage on ground and more stories. This concept has been derived from the Floor Area Ratio theory. The individual gain though this available option has also been mentioned. In doing so, the town will have variety of building forms and height which eventually eliminate the repetition of the same structures. Traditional architectural guidelines should strictly be followed for the buildings. The detail regulations has been highlighted in table 1. Outside staircase, boundary wall / fencing is strictly prohibited to construct. The setback area around the structures should be permeable in nature instead of concrete paving. Rain water harvesting is also mandatory to install in individual household level.

17.1. Implementation and Monitoring

- The Dungkhag Administration shall be the Implementing authority while the MoWHS shall be the sole Competent Authority
- All utility agencies will have to seek approval from the Dungkhag Administration for laying of utility infrastructure in a coordinated manner.
- All development shall have to seek approval or permit from the Dungkhag Administration.
- Deviation from the approved proposal or drawing or permit shall not be considered.
- The Dungkhag Administration shall impose fines or penalties to any individual or developer or proponent of project if found violating these rules and any other relevant laws.

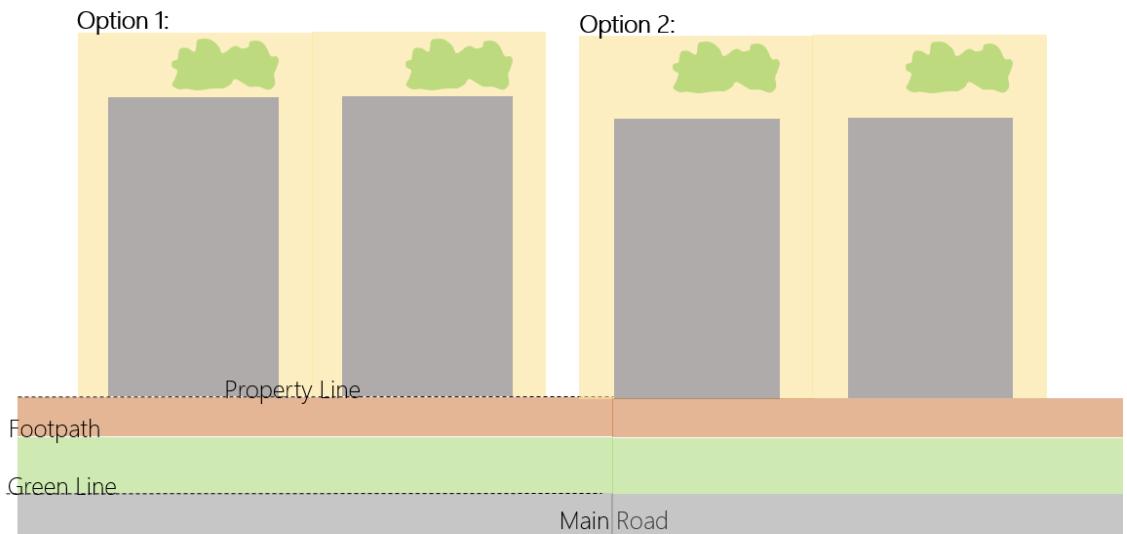
Type	Ground Coverage (Maximum)	Side	Front	Back (not facing the road)	Building Width	No. of Floors	Floor Area	Gain
Commercial (Facing Main Road)	67%	1.5	0 or 0.5	2	9*16.5	2	297	134%
	56%	2	0 or 0.5	3	8*15.5	3	372	168%
Combined Structure (Facing Main Road)	63%	3	0 or 0.5	3	18*15.5	3	837 & 418 individual	188%
Commercial (Facing Secondary Road)	63%	1.5	1.5	1.5	9*15.5	2	279	126%
Residential	47%	3	3	3	14*12.5	3	525	142%
Institutional	40%	3	3	3		2		
Religious	20%							
Service	40%	3	5	5		1		
E-1 (Conservation Green Area)	No development zone Locally available trees to be planted in coordination with the Dzongkhag Forestry office.							
E-2 (Local green spaces/ community open spaces)	Development not permitted except for recreational purposes							

Table 1: Development Control Regulation for Jomotshangkha Town

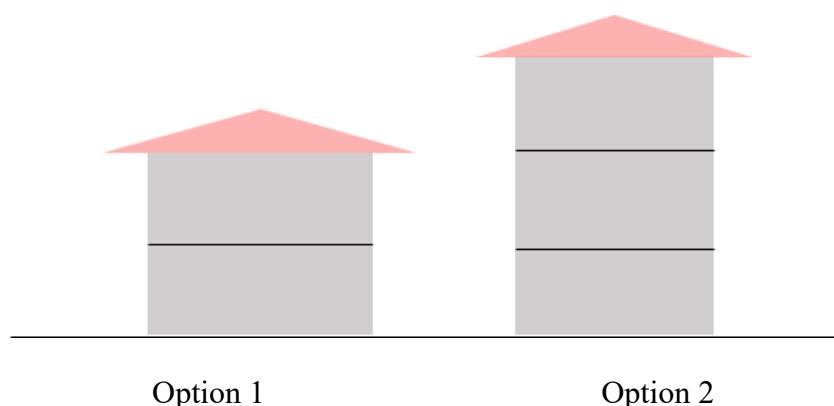
The diagrams below will explain the table 1 in detail.

17.1. Building (Property facing the main road)

- Commercial building: 2400 Sq.ft / 222.967 Sq.m
- No attic
- No plot level parking



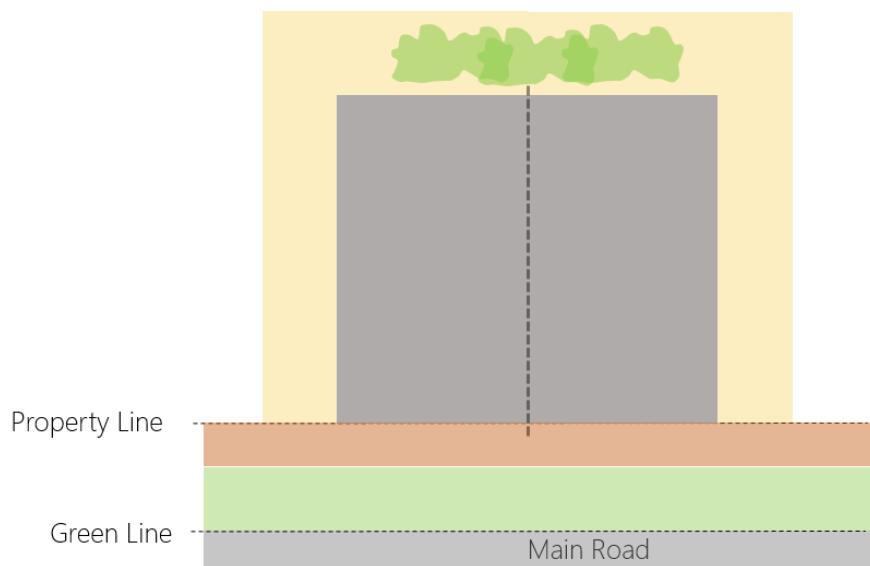
Options	Ground Coverage	Side Set back	Front Set back	Back (not facing the road)	Building Dimensions	Number of Floors	Floor Area	Gain
Option 1	67%	1.5	0 or 0.5	2	9*16.5	2	297	134%
Option 2	56%	2	0 or 0.5	3	8*15.5	3	372	168%



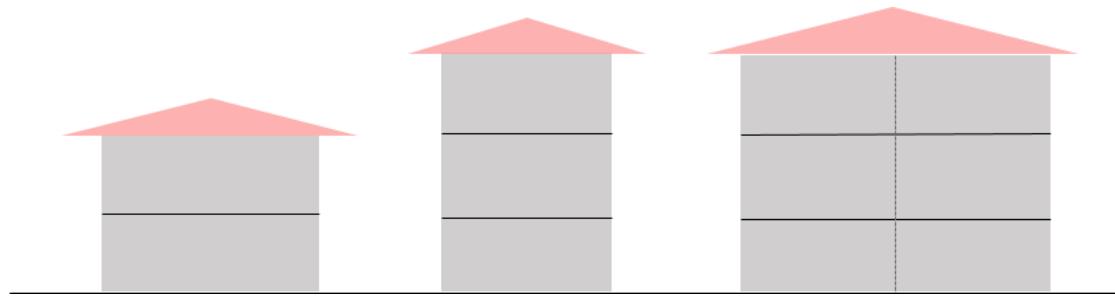
17.2. Building (Property facing the main road)

- Commercial building: 2400 Sq.ft / 222.967 Sq.m * 2
- No attic
- No plot level parking
- Maximum structures can be combine = 2

Option 3: Combined Structure



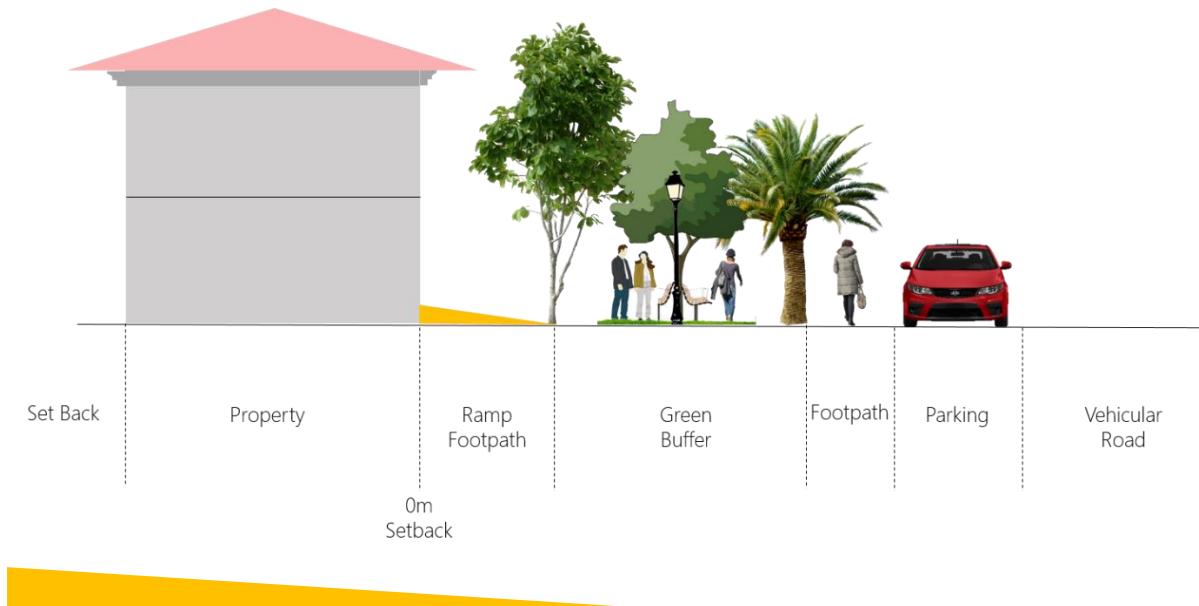
Ground Coverage	Side	Front	Back (not facing the road)	Building Width	Number of Floors	Floor Area	Gain
63%	3	0 or 0.5	3	18*15.5	3	837 & 418 individual	188%



Option 1

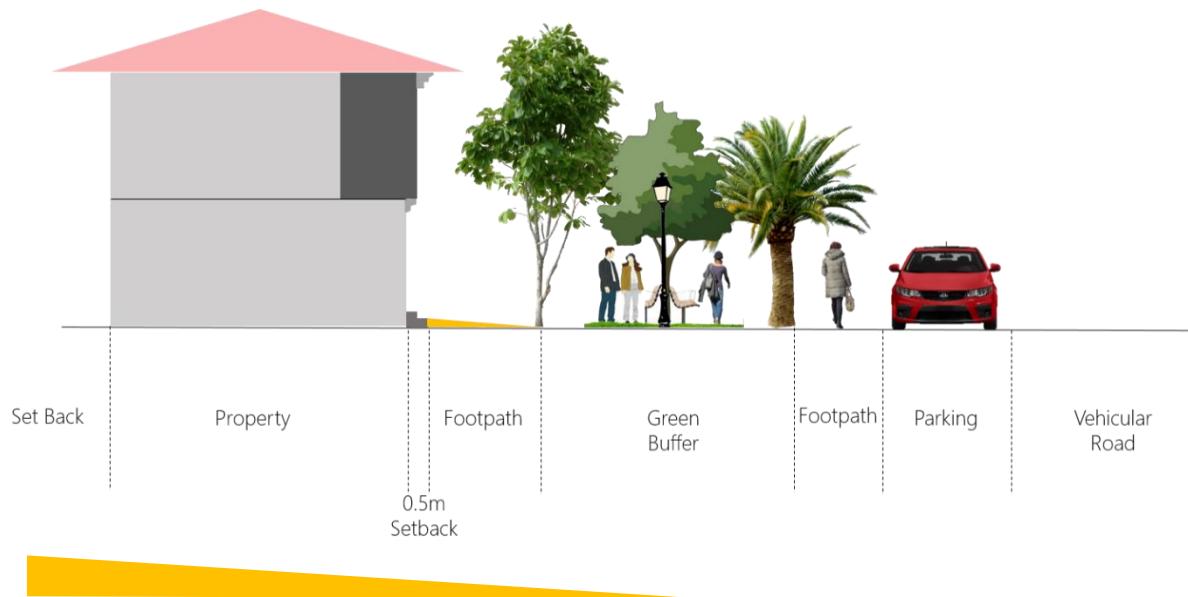
Option 2

Option 3



- 1:10 Slope
- User friendly for Differently abled and elderly
- Restrict Water during monsoon

Figure 24: Town core section- Property to the road with zero front set-back

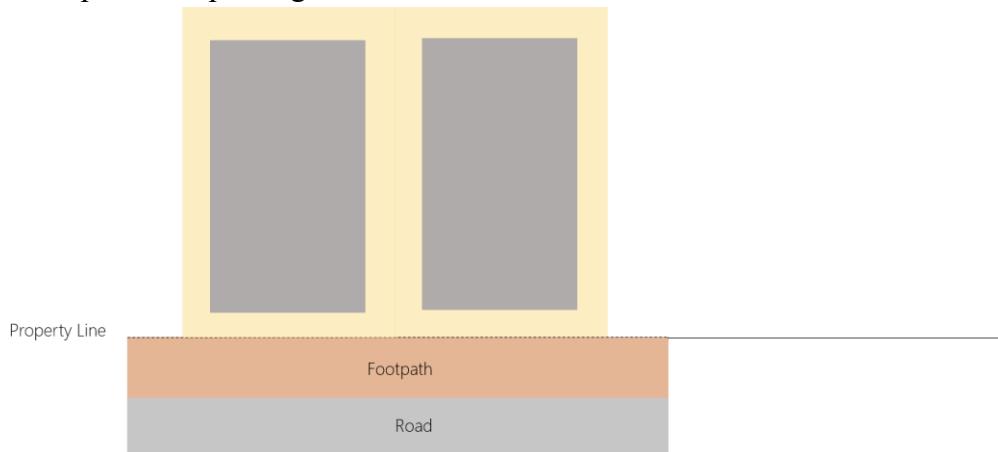


- 1:10 Slope
- User friendly for Differently abled and elderly
- Restrict Water during monsoon

Figure 35: Town core section- Property to the road with 0.5m front set-back

17.3. Building (Property facing the Secondary road)

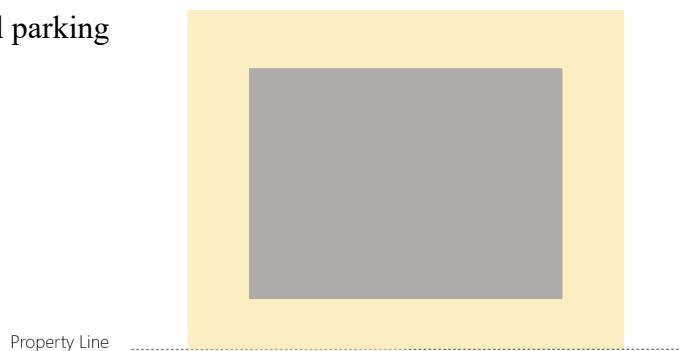
- Commercial building: 2400 Sq.ft / 222.967 Sq.m
- No attic
- No plot level parking



Ground Coverage	Side	Front	Back (not facing the road)	Building	Number of Floors	Floor Area	Gain
63%	1.5	1.5	1.5	9*15.5	2	279	126%

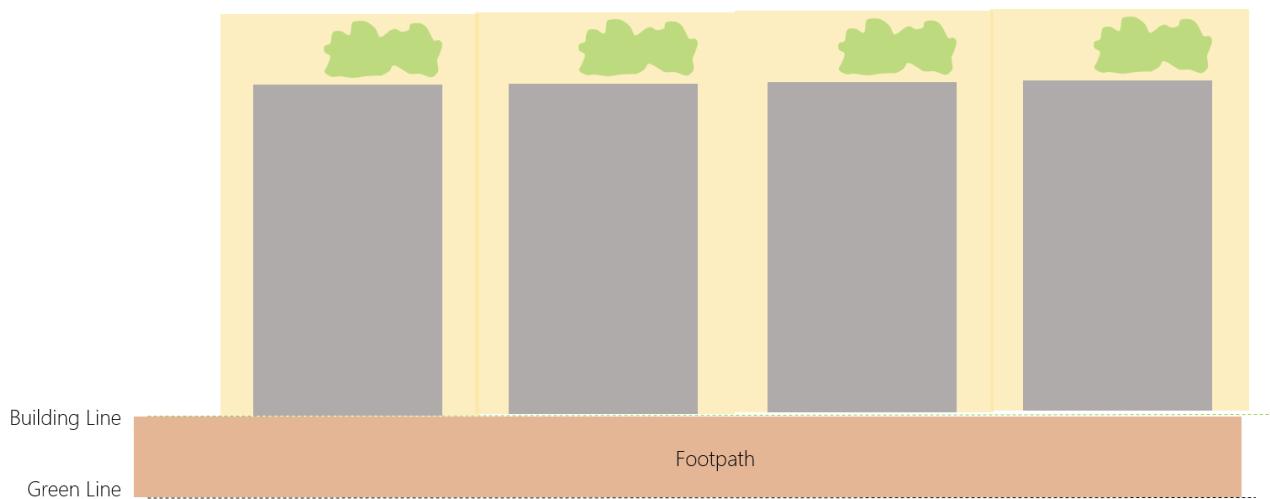
17.4. Building

- Residential building: 4000 Sq.ft / 371.612 Sq.m
- No attic
- Plot level parking



Ground Coverage	Side	Front	Back (not facing the road)	Building Width	Number of Floors	Floor Area	Gain
47%	3	3	3	14*12.5	3	525	142%

17.5. Property line and Building line



- Vehicular entry permissible only during emergency
- No boundary wall
- No individual septic tank
- No Plot level parking

17.6. Outside Staircase

