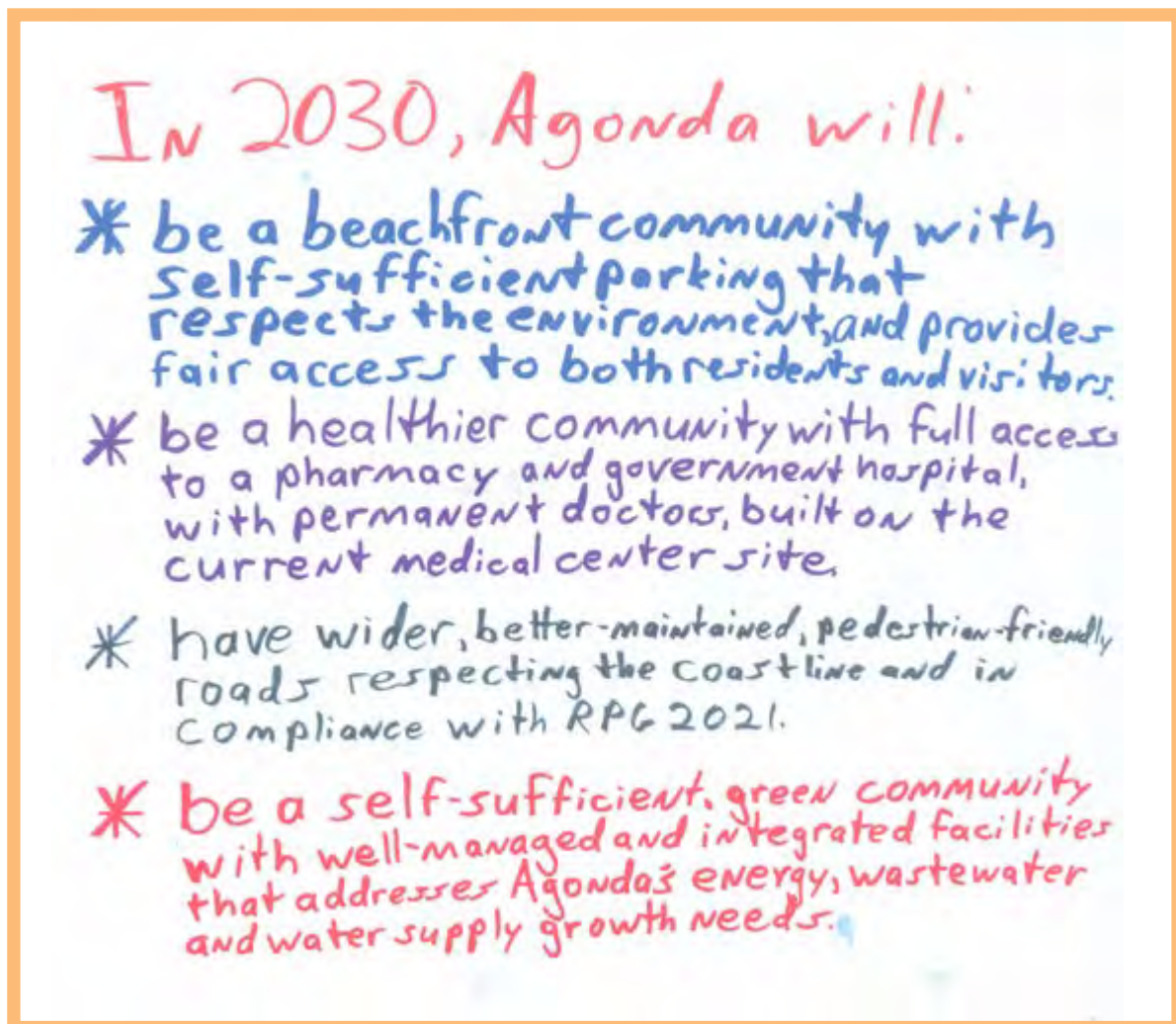

RECOMMENDATIONS FOR LAND USE IN AGONDA VILLAGE

SUMMARY

In 2010, a vision statement was developed to establish the guiding principles and values of what the Village of Agonda wishes to be.

“Agonda will be an environmentally friendly beach front community that is self-sufficient, healthy, and pedestrian friendly.”



GUIDING PRINCIPLES

Improve the quality of life and culture of local Agondans

- Improve access to community facilities
- Provide safe networks for vehicles and pedestrians
- Encourage a healthy and vibrant community life

Protect Agonda's valuable natural environment and resources

- Preserve and promote agricultural uses
- Consider the impact of additional populations during the tourism season on Agonda's natural resources

Protect and preserve the rural character of Agonda

- Formalize and regulate tourism
- Plan and invest in vital infrastructure at an appropriate scale
- Foster respectful relationships between locals and tourists

Issues

In 2011, a series of workshops were conducted with members of the community. Several pressing issues facing Agonda were identified.

These issues should be updated with a regularity to reflect current conditions in the village of Agonda.

Economic development <ul style="list-style-type: none">Lack of local jobs for those with higher educationNo land available for developmentHard to get financing	Circulation <ul style="list-style-type: none">Road congestionParking availabilityLack of lighting and signsWalking paths are not well connected
Tourism <ul style="list-style-type: none">Heritage & history not communicatedNo state/local tourism rulesNeed tourism organization to manageLack of info for visitors	Waste <ul style="list-style-type: none">Hotels do not manage waste properlyLack of facilities to dispose & store wasteNo penalty or enforcement for illegal dumping

EXISTING CONDITIONS

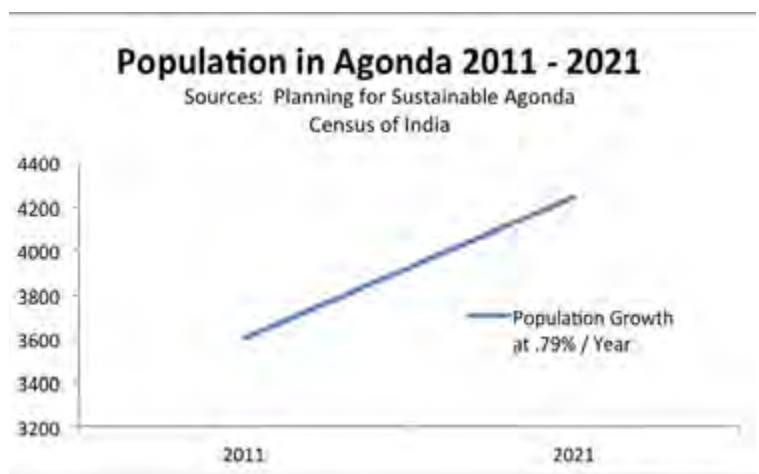
Located in southwestern India and bordered on the west by the Arabian Sea, Goa is the smallest state in the country by both area and population. The Village Panchayat of Agonda is a 15 square km village bordering the coastal Ghat Mountains of South Goa with a population of approximately 3,600. Administratively, Agonda is located in the Taluka of Canacona in the District of South Goa, and is roughly 70 km from Panjim, the capital.



DEMOGRAPHICS

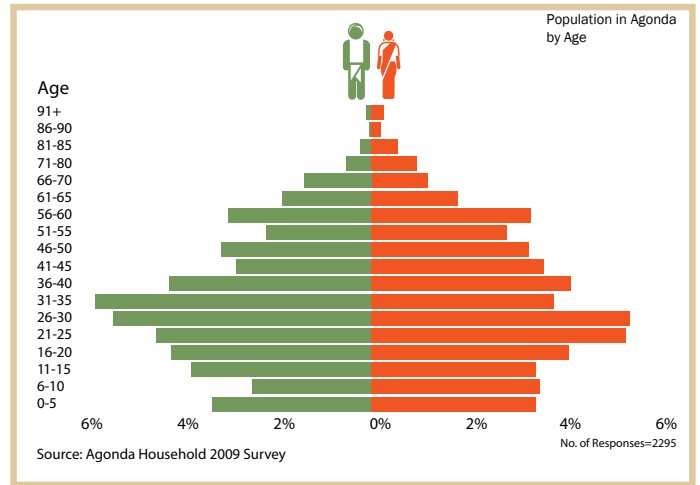
Population

Agonda’s population in 2011 is estimated to be 3,600 with a low population density of approximately 240 persons per sq. km. As a comparison, the average density in all of Goa is approximately 363 persons per sq. km, nearly 25% greater, which is a testament to the rural nature of the village. The majority of Agonda’s live in Ward 2, northwest area off the beach, and Ward 7, located in the center. Agonda’s population is projected to grow to 4,244 by 2021 (Indian Census, Demographic Indicators), an increase of 18%. Tourists and seasonal labor are considered temporary population and are not included in these numbers. Any future planning will also need to include projections on the number of tourists coming to Agonda and also account for tourist concentrations in particular seasons.



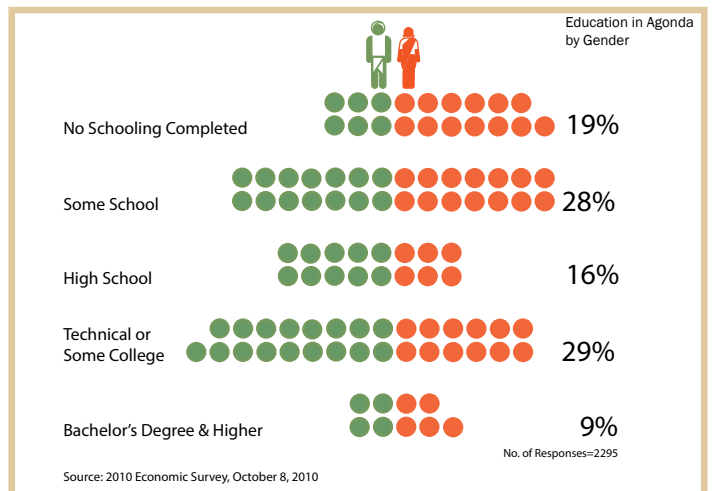
Age

Half of Agonda's population in 2009 was 30 years old and younger, with the largest age cohort being 26 to 30. This generation of young people will play an ever increasing role in Agonda and will have different skill sets and needs than previous generations. Half of the population of Agonda is female, which is important because in rural India women tend to have different roles than men, such as taking charge of household responsibilities. A successful economic development strategy should address the needs of all Agondans, while also taking advantage of their skills.



Education

The 2010 Characteristic Economic Survey showed that many Agondans completed some course of education. Half of the resident population had a post high-school level of education and only one in five did not complete any schooling. The majority of those who completed no schooling were female. The gender gap narrowed somewhat in higher education levels but overall, the prevailing trend was that women in Agonda tended to have lower education levels than men. Agondans between the ages of 16 and 30 tended to be more educated than those older than them. As many as half of the population had education beyond a high school diploma, as opposed to only three in ten of those older than 30 who had a similar level of education in 2010.

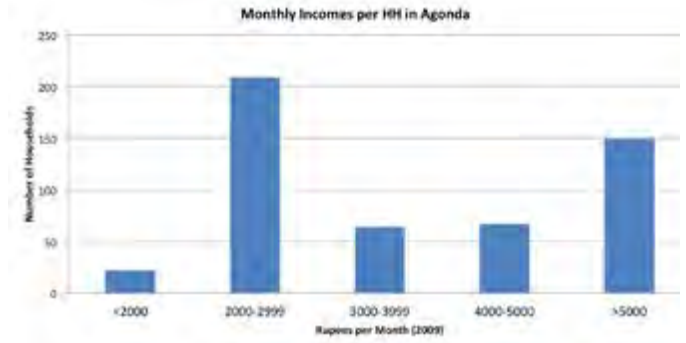


As Agonda's young grow older, planning for the future of Agonda will need to account for the changing skills and demands of a more educated population.

ECONOMIC CHARACTERISTICS

Income and Ownership

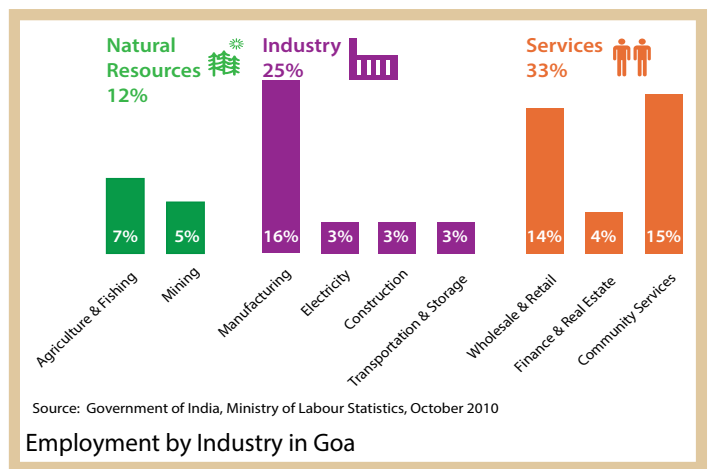
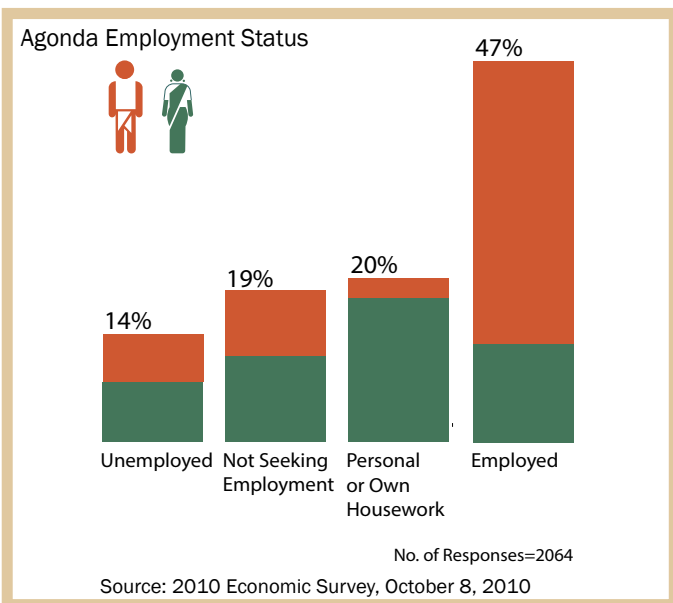
The most common occupation in Agonda is housework, followed by students and then the service and hospitality sector. Most Agondan's make approximately 2,000-2,999 rupees per month. However, the second largest amount of Agondan's makes over 5,000 rupees a month. Most Agondan's own their own home, with only 4 percent of the population as renters.



Employment

According to the 2010 Economic Characteristic Survey, nearly half of Agondans ages 16 and older, or about 1,000 survey responders and their family members, were employed outside their homes. Of those, about half left Agonda in order to get to their place of employment. They tended to be older, compared to those unemployed who are seeking work, and forty five percent had more than a high school education. Nearly four out of five of those employed were men, and the employed women tended to earn lower wages than the men.

The various economic sectors in which they worked are detailed below. Only half of Agonda's population was formally employed, however. One in five Agondans did housework within their homes and the vast majority of them were women. One in four Agondans were not interested in getting employment, whether this may be because they were retired, pursuing an education or possibly because they had given up on the idea of finding work. Agonda's unemployed are discussed in the section below.



A significant portion of the services sector can be accounted for by tourism businesses. The services sector itself was the largest sector in Agonda, employing two out of five Agondans above the age of 16. People employed in the services sector tended to earn more than those employed in other sectors. One in four people are employed in the industrial sector.

Agondan's interested in developing only food production, arts and crafts and small electronics, all industries that could potentially have little negative impact on Agonda's landscape. One in five employees worked in the natural resource sector, with the jobs evenly divided between farming and fishing. Farming and fishing are also industries that Agondan's would like to see developed further.

LAND USE

Agonda is rural in character, with much of the land used for agricultural purposes. The village is currently zoned for as a VP-3 Classification. A large portion of the village is Comunidade land, which is a type of common land left over from the Portuguese.

A portion of the land is also considered Devasthan, or sacred, land. This is concentrated mainly along the connector road.

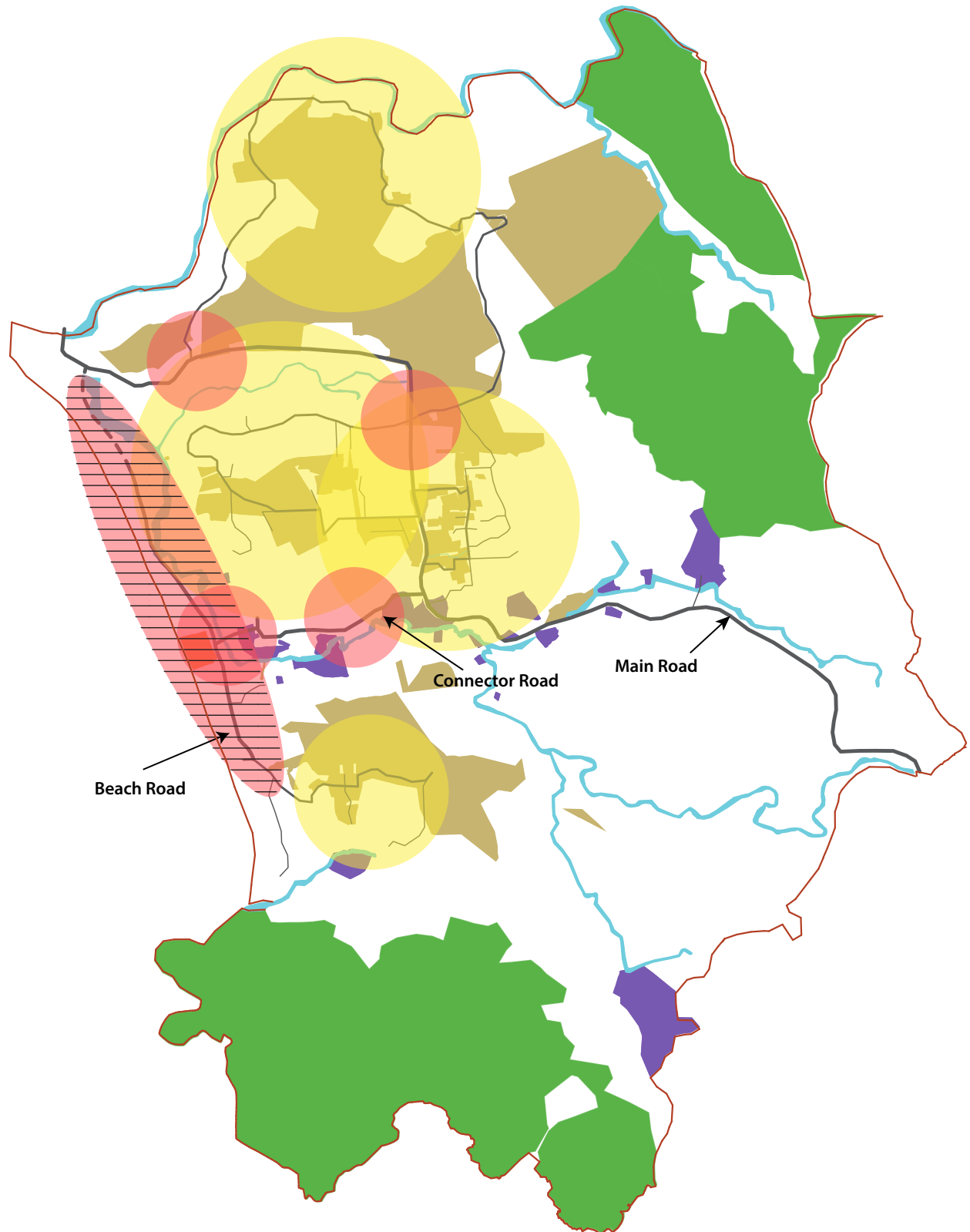
Zones

There are two main residential zones, both looping out from at the center of the Main Road. There are also smaller clusters of residential home at the far end of the beach road and above the village along the mountain loop. Commercial activity is concentrated along three major corridors:







The Beach Road: Businesses along this corridor are there primarily to serve the tourist population. Beach huts and restaurants occupy a large amount of area on each plot, with smaller shops and general stores adding to a near continuous line of business activity along the road.

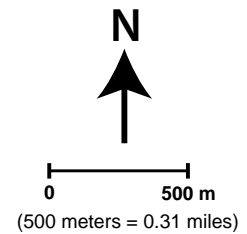
The Main Road: The concentration of businesses is much lower along this corridor than it is along the beach road. Additionally, these businesses cater more to local customers than to tourists. Community facilities, such as the medical dispensary, the main Panchayat office, and athletic fields are also located along this corridor.

The Connector Road: Like the area along the main road, the focus of businesses along this corridor is for local customers. There are also several religious and community facilities along this road.



Existing Land Classification Existing Land Use Zones

- | | |
|--|---|
|  Devasthan |  Residential |
|  Forest |  Commercial |
|  Comunidade |  Mixed Use |



INFRASTRUCTURE AND PUBLIC FACILITIES

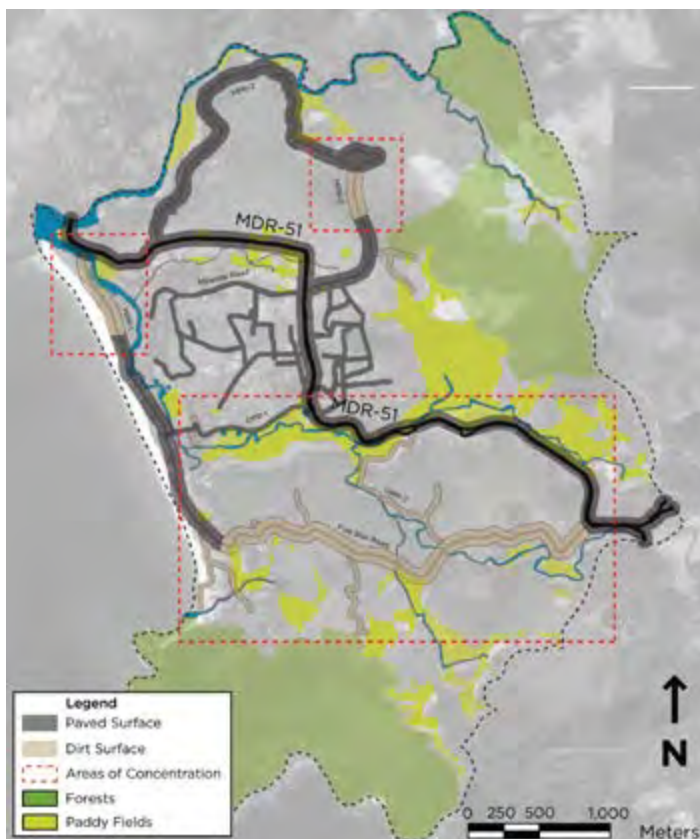
Infrastructure can be thought of as any basic physical or organizational structure that is designed to facilitate the development of society, the economy, or the environment.

Roads

Most paved roads in Agonda are between four and five meters wide, accommodating two lanes, one in each direction. Non-paved roads, like the northern end of MPR-1 and Five Star Road, are narrower than 3 meters at certain points. Many other roads in Agonda are approximately 8 meters wide, which nicely compliments the rural nature of the village. Additionally, the Donal Khazam Bridge regularly receives traffic that exceeds its design in both volume and size. A section of Beach Road directly south of the Donal Khazam Bridge that extends nearly half way to St. Anne's Church is made up mostly of bare rock and dirt.

It is often created, funded, or planned for by the government and can be something as simple as a trashcan, and something as complex as a ferry port or a power station.

This particular section gets quite narrow at times due to the presence of trees in the roadway. While many roads in Agonda are paved, there are some portions of road, particularly in the south, that are not. This can present safety and reliability issues for those who live and work on these roads, especially during the rainy season. Roads that are not paved are more susceptible to heavy rains, which present a problem in the event of an emergency condition that takes place during a time of bad weather.

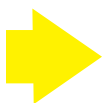


Example of a narrow, paved road in Agonda



Unpaved roads: left- along east bank of the creek, right- extension of the Five Star Road near the waste management facility (see map page 48)

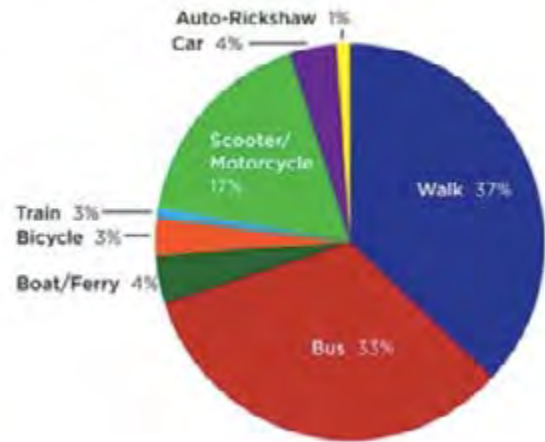
Source: Agonda Framework Report 2011



Modes of Transportation

Circulation is vital for efficient land development. Being able to get from place to place in a safe, reliable, and efficient manner is a key element of economic development and sustainable growth. According to the 2010 Agonda Community Survey, only 4% of residents own their own car. However, many rely on either bus service or ride smaller scooters and motorcycles for transportation. 37% of Agonda's walk as their main mode of transportation. Therefore, strengthening the existing pedestrian network should be a priority for Agonda.

Figure 3.14 Modes of Transportation



Public Facilities

Agonda has many important to the community facilities, including a number of religious places: churches, temples and shrines; public facilities like schools, for example the well-recognized St. Ann's Church, an office of the local Panchayat and a medical dispensary open two days a week. There are also a few unofficial recreational outdoor

spaces that have the potential to be recognized as public playfields or playgrounds. However, some facilities that the village of Agonda still needs for a healthy and safe lifestyle are: information and an evacuation center, a community center, a trade school, and a centralized market with a fresh local produce.



St. Anne's Church and Elementary School



The Boys Elementary School



Temple on the Beach Road, adjacent to the Boys School



Temple hall, adjacent to the Boy's School used for school activities and classes



Panchayat of Agonda Village



Medical dispensary, adjacent to the Panchayat's building, open two days a week



Rangini Temple, one of the few temples in Agonda, located on the Main Panchayat Road.



Recreational field located on the Main Panchayat Road, about a quarter mile south from the Panchayat's building

ENVIRONMENTAL FEATURES

Agonda's most pronounced environmental features include Agonda Beach stretching north-south approximately 2.5 km, the Bandhara River which empties into the Arabian Sea at the northern end of the beach and includes extensive mangrove estuaries, and the protected and preserved forests along the slopes of the two mountains which are

located at Agonda's northern and southern Panchayat limits. Agonda is also home to seasonal turtle nesting, fish populations in the estuaries and coastline, a large bat population in the north and productive paddy/khazan lands through Agonda's center and eastern limits.

“Our environmental features such as turtle nesting, mangroves, forests and mountain views, are some of our best as well as our most threatened assets.”



Agonda Beach

1.1 Coastal Management Zones

1.2 Eco-Belts

1.3 Agricultural Land Trusts

OVERVIEW

Throughout the participatory workshops held at St. Anne's Church from 2010 to the present, Agondans expressed concerns about how land uses impact the quality of Agonda's environment. Zoning, green infrastructure, and conservation tools like easements and land trusts are implementable methods to protect Agonda from the impacts of development and growth. Zones separate land by the intended use type or expected impact of the use type on the environment. Green infrastructure has the ability to avoid negative impacts on the environment—from development and storm water, and conservation has the ability to retain land for a particular use or non-use protection.

In particular, the **Coastal Management Zone Plan** introduced in the Regional Plan for GOA 2021, if enforced, has the potential to manage development near waterways. The plan could shape continued tourism growth and development along the road away from the coast. Instead of an overly saturated strip, between the Bandhara River and the Coast, tourism could develop more evenly along the road and tourism could grow utilizing more sustain-

able practices.

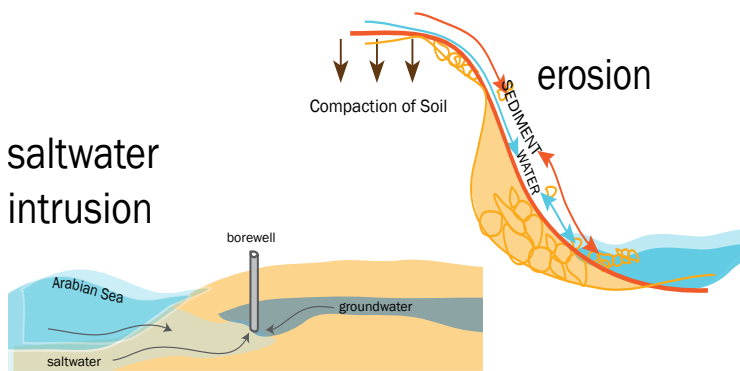
Similarly, Eco-Zones were identified in the RPG-21 and are further emphasized with the recommendation to establish **Eco-Belts**. In Agonda, the zones could be further identified as belts, strips or buffers that run throughout the village and not just in designated zones. The Eco-Belts are characterized as greenbelts and bluebelts. Greenbelts are strips of parkland - formal or informal that have the potential to buffer uses, provide environmental benefits, or simply offer recreation space. Bluebelts are storm water management features that complement the natural environment along wetlands, rivers, creeks, and coasts.

Agricultural land trusts are recommended due to Agonda's need to conserve agricultural land. Land trusts are agreements where one party agrees to hold ownership of land in protection for the entire community. In Agonda a private land owner could make an agreement with the city to forever keep their property in agricultural use or non-development use that does not take away from its agricultural viability.

1.1 COASTAL MANAGEMENT ZONE

Issue:

Agonda is threatened with deterioration of the natural environment along the coast resulting in continued saltwater intrusion of bore wells, erosion, and flooding as well as a host of climate related issues - sea level rise and exposure to more unpredictable weather events.



RECOMMENDATION:

Enforce Coastal Management Zone Plan

“In Agonda, the entire Agonda village is classified as CRZ-I except built up areas which are classified as CRZ-III.” (COASTAL REGULATION ZONE NOTIFICATION IN INDIA, 1996).

The Coastal Management Zone Plan limits the development of land in the Coastal Regulation Zone I (CRZ I), defined as all land within 500 meters of the High Tide Line (HTL) and 100 meters from any tidal creeks, and the Coastal Regulation Zone III (CRZ III), are defined as coastal zones in rural areas and enforce no development within 200 meters. Though not recognized in the Goa Coastal Management Zone Plan, Agonda also has areas that could be classified as CRZ III, which are areas that have been developed up to the coastline with approach roads and other utilities.

CRZ I protects against the mining of sand, altering of sand dunes in any way, construction unless a waterfront use (ie fishing), dumping of waste or release of effluent.

CRZ III allows for agriculture, horticulture, gardens, pastures, parks, play fields, forestry.

Note: CRZ II zones are not found in the village of Agonda.

The objective of the Coastal Management Zone Plan is to **protect Agonda** and its people. Agonda needs to be protected against erosion, slope denudation, saltwater intrusion of groundwater, flooding and saltwater ruin of agricultural land, loss of plant and fish biodiversity. The people of Agonda need to ensure access to the natural elements of their community—the beach, the riverbanks, etc. as well as be protected against flooding, loss of fishing or agricultural heritage, and loss of groundwater for drinking and washing purposes. (See Design Guidelines for Planting Native Vegetation in the CRZ I and CRZ III).

The Coastal Management Zone Plan calls for a balance of the built environment and the natural environment—both of which Agonda depends on heavily. The built environment provides structures and shelters, roads provide connections to work and family and daily needs, and hotels bring tourism and with tourism possible economic generation.

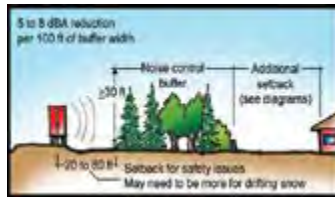
Process: Encourage the Panchayat to adopt the Coastal Management Plan, Encourage planners to educate the community and hoteliers—possibly convene a coastal conference to discuss best method of enforcement + incentivizing abiding by the zone regulations.

WHO TO INVOLVE:

- Panchayat
- Planners + Community
- Hoteliers

Development Considerations:

COMPATIBILITY & BUFFERS



- Facilities in the Coastal Regulation Zones along the coast and Bandhara River should be water dependent uses.
- Neighboring facilities need to be compatible with protection of the Coastal Zones.
- The Coastal Regulation Zones provide protection from certain uses, especially a use that has a potentially negative impact on the coastal environment.

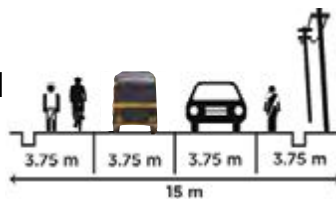
STORM WATER MANAGEMENT



(See Design Recommendations chapter 5).

- Coastal Regulation Zones aid in managing storm water by protecting the natural ecology of the coast and river.
- Impervious surfaces (roads/pavement) should be limited in the Coastal Regulation Zones to aid in the land's ability to manage water and prevent erosion.

TRANSPORTATION NETWORKS



- Improve coastal and river access points that require minimal construction and abide by the Coastal Regulation Zones.
- Coastal Regulation Zones are most appropriate for foot traffic and limited vehicle access to further protect the environment.

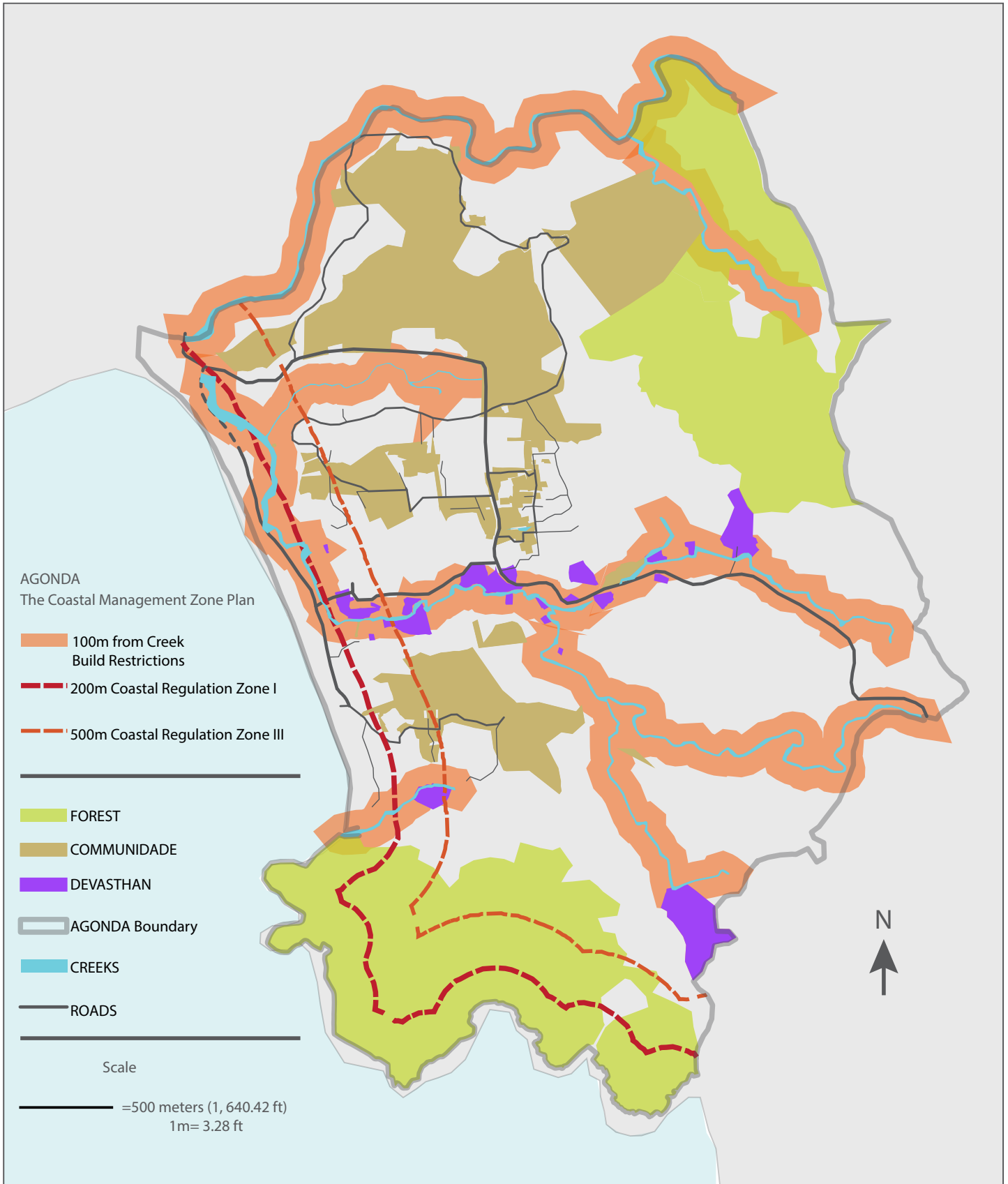
COASTAL DEVELOPMENT



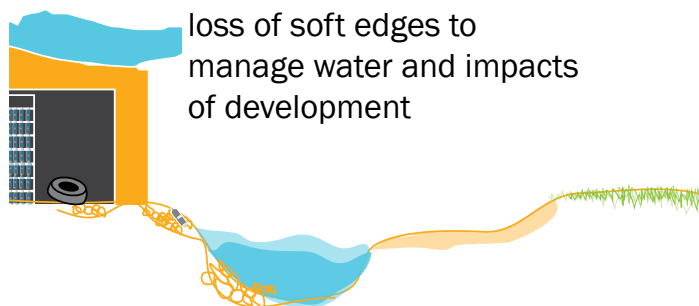
- With the Coastal Regulation Zones in mind, Agonda should decide the future of beach front development.
- The Coastal Regulation Zones protect the environment and Agondan inhabitants in the case of a disaster--i.e. cyclone, tsunamis.
- The Coastal Regulation Zones, if enforced protect against further groundwater salinization and erosion.

Impact: Enforcement of the Coastal Management Zone plan may affect several Devasthan held land plots, some Comunidade held land plots, and many individual and family property owners along the coast.

1.1 COASTAL MANAGEMENT ZONE



1.2 ECO-BELTS



RECOMMENDATION: Implement Eco-Belts, inclusive of greenbelts & bluebelts

The implementation of Eco-Belts will include **greenbelts** comprising of all forests, conservation lands, parks, informal recreation spaces, sacred spaces, mangroves, paddy fields, khazan lands, wildlife sanctuaries, playgrounds and **bluebelts** inclusive of rivulets, rivers, streams, water channels/sluices and dikes, sand dunes.

The objective of the Eco-Belts is to protect natural and semi-natural environments from the impacts of development and development itself. The Eco-Zone Belts can serve as buffers between conservation lands or valued natural entities and development, which lessen the impacts of development— pollution, erosion, and loss of shade that provides cooling.

Issue:

Natural resources need protection for ecoservice benefits—storm water management, sediment control, contaminants and pollution filtering, as well as their ability to provide shade, cooling, a place to recreate and foster improved public health.

Greenbelts ensure that there is access to passive and active recreation as in the field on the main road or the informal play space along the creek in Desaiwaduu. They can also provide clean air, provide or protect existing walking paths, protect wildlife habitat, prevent overcrowding.

Bluebelts serve as natural and man-made storm water management infrastructure - drainage corridors that interface with as creeks, dikes, sluices and paddy fields and valleys to retain storm water (See Design Guidelines for Bioswales, Earthen Dikes, and Wetland Protection). The purpose of bluebelts is to prevent flooding damage, erosion and its cascading effects, filter polluted water before it is released into creeks, rivers, and the sea, and potentially provide wildlife habitat and access to open space for Agondans to enjoy.

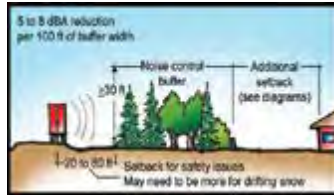
Process: Identify areas that are eco-sensitive that could be protected under greenbelts or bluebelts as well as small corridors or slices of developing areas that can be protected and serve the function of open space and pollution prevention or storm water management infrastructure.

WHO TO INVOLVE:

- Panchayat
- Planners + Community
- Hoteliers

Development Considerations:

COMPATIBILITY & BUFFERS



- Eco-belts act as buffers between two facilities or land uses that may not be compatible.
- Eco-belts provide protection from negative impacts on the land by offering respite from development.

STORM WATER MANAGEMENT



(See Design Recommendations chapter 5).

- Bluebelts aid in managing storms and floods by providing natural and man-made storm water management infrastructure.
- Impervious surfaces (roads/pavement/buildings) should be limited within Eco-belts to aid in the land's ability to manage water and prevent erosion.

CONSERVATION LANDS



- Eco-belts provide protections for conservation lands that should not be developed for ecological reasons.
- Eco-belts create a system that connects conservation lands—encouraging continuous access and habitat protection for wildlife and plants.

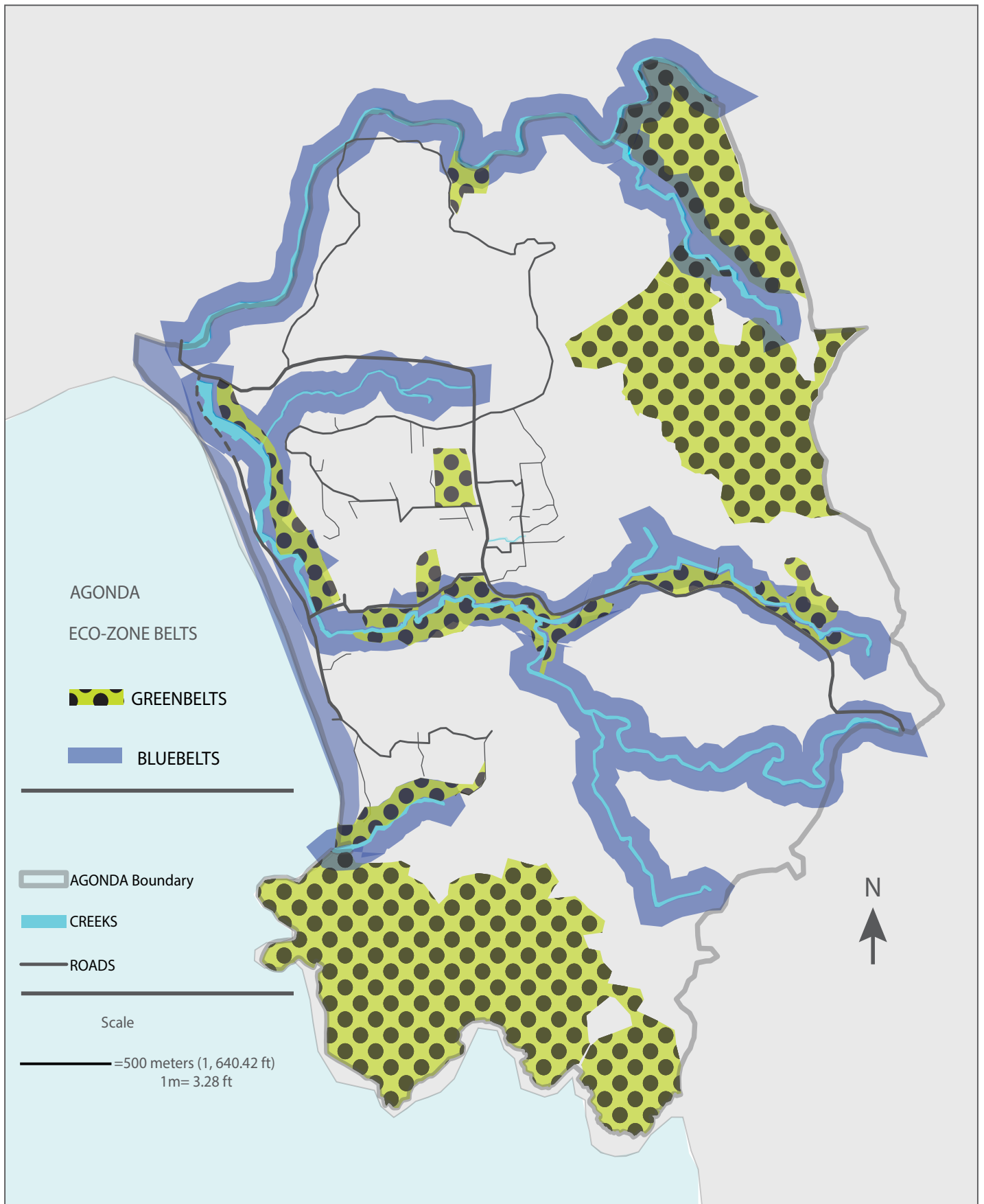
CLUSTERED DEVELOPMENT



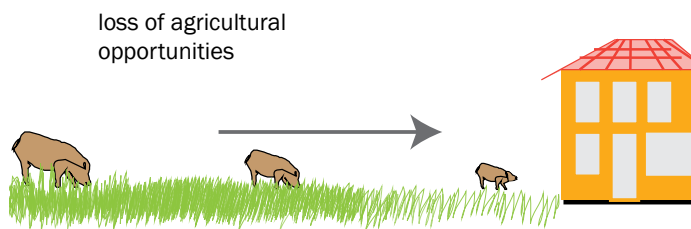
- Eco-belts encourage facilities to cluster and further support not using virgin land for development.
- Eco-belts encourage clustered development with the aim of minimizing the affects of traffic and waste.

Impact: Establishing Eco-belts may affect several Devasthan held land plots, some Comunidade held land plots, and many individual and family property owners throughout the village.

1.2 ECO-BELTS



1.3 AGRICULTURAL LAND TRUSTS



Issue:

Agricultural land which is not currently under the Comunidade may be threatened by commercial ventures, hoteliers, and potential public infrastructure project ventures.

RECOMMENDATION:

Establish and incentivize Agricultural Land Trusts

The creation of Agricultural Land Trusts would assist the Panchayat, Comunidade, Devasthan or individually owned lands to be put into conservation and protection as agricultural land in perpetuity. The Agricultural Land Trust could operate as the Panchayat acquiring and owning land to be used only for agriculture use and protection. Individual entities could also voluntarily sign their land into an agricultural use only agreement. The Agricultural Land Trust would work to conserve existing paddy/khazan lands and other land used for additional agricultural purposes such as palms, livestock, processing of food or products grown on site, etc.

The Agricultural Land Trust would ensure that the farming heritage in Agonda would remain, even against threats from development and tourism. The Agricultural Land Trusts would symbolize a commitment to traditional agricultural heritage as well as the potential to capitalize off the value, agri-tourism or other entrepreneurial ventures such as food processing that add value to **local agriculture**.

In a state like Goa that imports 50% of its subsistence food, Agricultural Land Trusts could also aim to ensure a local source of food for Agondans and protect against food insecurity. By increasing locally grown food and reducing food imports, Agonda would be supporting its local economy, have more control over whether chemicals are used or not in production, and promote local sustainable development goals.

Currently most of the traditional agriculture—paddy fields, khazan lands, and even other agriculture spaces exist along creeks—sometimes directly in the floodplain. Therefore, most agricultural land would be protected from development by both the CMZP and the Agricultural Land Trust.

Establishing an Agricultural Land Trust in AGONDA will need:

- Governmental support
- Partnerships with funders or foundations
- Community recognition of the importance of conserving land for agriculture

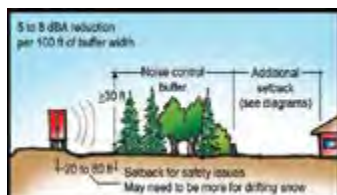
Process: Identify ownership of all productive and potential agricultural land in Agonda. Panchayat and Comunidade to organize agreements on putting land into trusts, current farmers and those involved in agriculture must be engaged to realize value and potential of the Agricultural Land Trust.

WHO TO INVOLVE:

- Panchayat + Comunidade
- Planners + Community
- Hoteliers + Businesses

Development Considerations:

COMPATIBILITY & BUFFERS



- Agricultural Land Trusts support existing agricultural uses and ensure future use is compatible.
- Agricultural Land Trusts can provide further protections to creeks and other natural features in Agonda.

CONSERVATION LANDS



- Agricultural Land Trusts protect agricultural lands from dissimilar use that threatens its historical use.
- Agricultural Land Trusts treat agricultural land as conservation land, limiting development to structures and use that support agriculture.

STORM WATER MANAGEMENT



- Natural storm water features are largely surrounded by or made up of agricultural lands, and thus both would be protected by the Agricultural Land Trusts.
- Agricultural Land Trusts would ensure impervious surfaces are kept to a minimum to further assist in water management and erosion prevention.

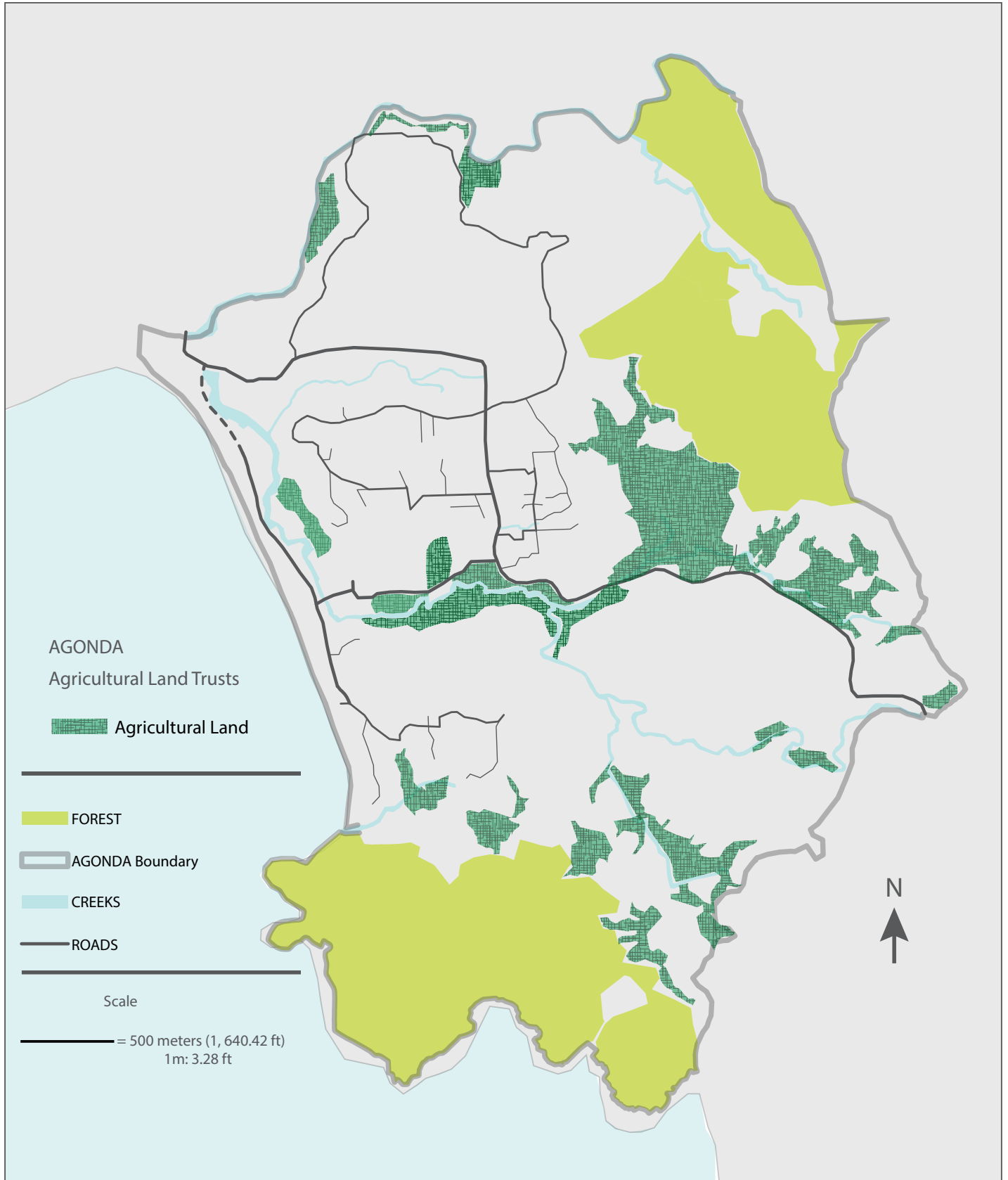
CLUSTERED DEVELOPMENT



- Agricultural Land Trusts limit potential land available for development/redevelopment, therefore, encouraging alternatives to land development and facility use.
- Agricultural Land Trusts protect Agonda's agricultural heritage by encouraging clustered development that allows agriculture to consist its own cluster.

Impact: Introducing an Agricultural Land Trust may involve inclusion of privately held land and family properties along the creeks.

1.3 AGRICULTURAL LAND TRUSTS



2.0 ACCOMMODATE GROWTH

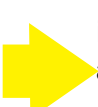
1.1 RESIDENTIAL USES

1.2 COMMUNITY FACILITIES

1.3 BUSINESS AND INDUSTRIES

OVERVIEW

It is projected that by 2021, Agonda’s population will grow from 3,600 to over 4,100 residents; and it is also assumed, that there will be more short and long term visitors coming to Agonda. With more people settling in Agonda, the existing problems pertaining to the whole Agenda community may intensify. Accommodation for growth is one of the main guiding principles developed with and for Agondans.



There are three major geographic communities distinguished in Agonda: the beachfront community, the hillside community in the immediate vicinity of the east bank of the creek, and the upland community along the main Panchayat road. Each community has different geographic characteristics and natural challenges like: influence of the ocean tides and ocean inundation during the wet season in the coastal areas (the beachfront communities), building construction and infrastructure challenges on steeper slopes, shortage of water for public use and agricultural vegetation in the flat upland areas. Each community is also characterized by different land use patterns and population density. The beachfront strip has the most commercial character of all communities during the tourist season. Some temporary commercial structures and semi-permanent hotels are the most prominent

in this area. However, well – established public facilities: the St. Ann’s Church and Elementary school, the Boys School as well as a few stationary markets and residences are also interwoven in the land use fabric. The hillside communities stretch along the hills running through Agonda in the north-south orientation, and the most populated area is situated in the “fork” between the estuary of the creek and the Panchayat road loop coming down from the uphill. They have much more residential character with some commercial activities along the connecting roads like the Five Star Road and the east-west Connector Road linking the Main Road with the Beach Road (see existing conditions map page 14 and the road networks map page 48). The upland communities have the least residential density with few residential clusters near the Panchayat and along the MPR-2 road, presenting some opportunities with adding more residences in those areas.

The beachfront and hillside communities with larger population densities may not be suitable for additional residences because of flood hazards. The annual floods or larger events like tsunamis may cause major destruction of fresh water sources (water salinization) and of permanent structures. Similarly, more development tourism industry is not advised within the flood zones.

Development of tourism in the beachfront communities is not only hazardous because of flooding possibility; it also causes oversaturation and overflow of hotels and tourist-catered businesses in the beachfront communities that permanently change the village character of Agonda, and prevent the residents from accessing the beach during the high tourism season.

With the residential expansion, it is also expected, that some small manufacturing businesses could thrive in Agonda, fostering the local trade, production of goods and provision of jobs. Based on the existing land use patterns, natural resources and cultural heritage of Agenda, businesses like food and dairy production, arts and crafts and small-scale manufacturing among others could thrive. Therefore, utilizing the guiding principles addressing the immediate and long-

term needs of Agonda's community expressed during the consecutive workshops should take a priority in order to achieve a healthy and self-sustaining model community. Those needs include: community facilities, better road networks, a waste management system, solutions for impeding tourism, better mechanism protecting and promoting agricultural an special zones, preserving local heritage and initiation of locally based and community driven businesses. All planning towards meeting the aforementioned needs and should be done with the community's participation. The set of land use guidelines developed below addressing issues related to population growth is based on the feedback from Agonda's community and is meant to help with solidifying the steps towards Agenda's vision of sustainability.

Agonda Projected Development

	2011	2021	Number increase	Scenario	Land use implications	Environmental implications	
PEOPLE	POPULATION	3600	4100	500	The increased population will result from addition of new children to the village as well as some new residents settling in the village.	RESIDENTIAL USES More rental and ownership-based housing will be necessary to accommodate the new households INFRASTRUCTURE New housing established on previously undeveloped land, can require provision of road, water, sewage, energy and waste management infrastructure. The new residential areas can also add to the vehicular traffic on some roads jeopardizing pedestrian safety and as well as jeopardize unique traits of special zones or view corridors.	New housing necessary to accommodate the new households of Agonda can raise multiple environmental issues if not managed properly like: -INCREASED WASTE STREAM -INCREASED WATER AND ENERGY USAGE -INCREASED POLLUTION FROM MORE CARS AND FROM HOUSEHOLDS -ENCROACHMENT OF DEVELOPMENT AND PEOPLE ONTO OR NEAR SPECIAL AND PROTECTED ZONES
	HOUSEHOLDS	1038	1182	144			
	HOUSES	1385					
FACILITIES	PRIMARY SCHOOLS	4	5 or more	1		new schools will most likely be necessary in the developing residential areas experiencing shortage of schools	
	HIGH SCHOOLS	2			Population growth and residential expansion may cause the need for new schools over time.	new schools may be necessary within undeveloped but prone to development zones (soft sites), that are experiencing residential expansion	New schools, just like the new houses may call for environmental siting considerations
	PLAYGROUNDS	3					
	RECREATIONAL FIELDS	1 (formal)	2	1	Whether fast or slow pace of the population growth, having playgrounds and recreational fields contribute to a better public health in any settlement.	The increased number of residents in Agonda, especially those of young age, will require more access to recreational spaces. Siting recreational fields and parks do not carry heavy land use implications, however, it needs to be done strategically by looking at population density, environment and proximity to special and preserved lands.	Scenic unpaved pathways and recreational parks can be a tool in protecting special character zones like the creek and ocean edges, view corridors and vistas or prime community lands.
	MEDICAL DISPENSARY	1	1		The community has requested the clinic to be available 5-7 days a week.	Current medical dispensary building is sufficient to accommodate the medical staff and patients. However, as the future development progresses, a building a local clinic might be required.	
	CHURCHES AND TEMPLES	7				Because more community spaces are needed, new and existing religious facilities should consider sharing their space for other community oriented uses like: community centers, meeting, exhibition, celebration or educational spots.	
	COMMUNITY CENTER	0	1 or more		Agonda lacks a community center where various groups could meet together, and where local community life could be celebrated.	Accommodation of a community center will require some land and access, and should be situated strategically within the high population zones. However, a community center could be also a part of another facility like a religious institution or a school.	
	SEASONAL AND YEAR ROUND FRESH PRODUCE MARKETS	2	4 or more	2	Currently, Agonda lacks central markets that sell fish, dairy and local fresh produce seasonally or all year round. With increased population, and promotion of residential development and tourism away from the shore, it will be required to provide venues for selling the local food produce.	Provision and siting of food markets, both seasonal and permanent ones, should be driven by the proximity to the marketplace-the residential uses, proximity to commercial corridors as well as access to the main roads.	Seasonal farmers markets can promote local food production, protect the agricultural land from being developed and encourage the hoteliers to shop for their food supply within Agonda.
COMMERCIAL/INDUSTRIAL USES	MICRO-INDUSTRIES	0 (formal)	Further study required to determine suitable forms of micro-industries and their promotion in Agonda		Examples of micro-industries can vary from small scale hand-made arts and crafts making, local specialty food production, or other special produce making like coconut oil, pottery, basket weaving; to large scale recycling, fruit and vegetable production, etc. Some necessary industries or businesses should serve the population of Agonda and its needs in terms of produce that is currently underserved or job opportunities that are desired by people.	Establishment of micro-industries in Agonda should follow a set of land use guidelines that can maximize the potential for creating smaller in scale manufacturing businesses without jeopardizing already established residential, agricultural or special character zones. Certain types of micro-industries can co-exist with others, as well as near some commercial corridors creating clusters promoting specialization of produce, jobs and markets.	Spread of micro-industries and establishment of micro-industrial zones can harm Agonda's natural environment, special and preserved zones; it can deplete clean water and energy supply.
	ECO-TOURISM/FOOD PRODUCTION/ARTS AND CRAFTS BUSINESSES - IN ASSOCIATION WITH TRAINING CENTERS	0 (formal)	Further study required to determine suitable forms of eco-tourism and its promotion in Agonda		Abundance of farmland, variety of wildlife and the necessity to preserve both without separating them from the visitors of Agonda reinforce the opportunities to promote eco-tourism and local food production. Agonda's heritage in crafts-making can also improve economic development; however, the craftsmanship and local food production would need to be reinforced by training Agonda's workforce. Currently, Agonda lacks trade schools and specialized training centers.	Food production businesses could occur on the already existing farmland utilizing the green belts and land trusts. Eco-tourism mechanisms would control the spread of tourism while protecting farmland and wildlife of Agonda.	Food production and eco-tourism can contribute to protecting farmland and wildlife of Agonda.

2.1 RESIDENTIAL USES



RECOMMENDATION: Offset for increasing density of residential uses and provide more residential uses.

Various sustainable practices and land use mechanisms could address the need for new housing for the growing population of Agonda while preventing increasing density in some other areas of the village, specifically those near the creek area, both along the beach front and on the north-east slope from the creek. There may be over a 100 new households created by 2021. The current family structure, land subdivision or housing-sharing availability can not determine where all those households have to reside; some will stay in their family homes, some will need new housing and some will come from outside of Agonda and will need both land and new housing. It is however known from the feedback of the workshop participants, that the areas adjacent to the creek are becoming over-developed with housing settlements. The Agondans have also expressed their desire for exploring new residential zones for housing development.

Issue:

Addition of over 500 people by 2021 to the number of Agonda's inhabitants may lead to the need for additional housing over-populated residential uses in some parts of Agonda.

One of the first steps in establishing solutions for housing availability could be to determine **soft sites** for building new residences. These soft sites are suitable lands for new development in the form of smaller or larger **clusters** (concentrations) of housing units that do not interfere with special and preserved zones, are easily accessible, and are away from the CMZ's. Citing soft sites needs to follow the development considerations. Another indirect strategy for creating housing in Agonda may be to **sustain existing residences** and residential clusters from the encroachment of tourism and commercial development.

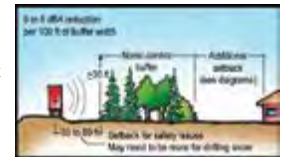
The more concentrated tourism and commercial development, the less space for residential uses in the prime areas of Agonda. Tourism and commercial development should follow their own set of guidelines without undermining residential neighborhoods. Additionally, allowing **infill** strategies in the less dense areas of development would strengthen the residential zones and clusters of housing.

Development Considerations:

Site Selection

- Choose sites away from CMZ's (Coastal Management Zones) to avoid flooding and fresh water salinization.
- Choose flatlands (outside of coast) and moderate slopes to protect structures from flush floods or soil erosion. (See Chapter 1.1 in Design Recommendations)
- Build outside of special/preserved zones as well as outside of prime agricultural zones.

COMPATIBILITY & BUFFERS



CONSERVATION LANDS



Built Environment

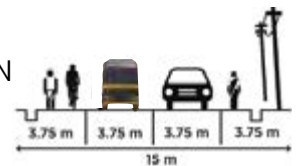
- Prioritize infill development in the less dense residential areas
- Consider “clustering” of residential uses (creating denser residential areas) instead of allowing spread onto an undeveloped land.
- Build near other compatible uses like institutional or commercial ones.

CLUSTERED DEVELOPMENT



- Consider existing road network/water supply system as well as some pedestrian circulatory networks that can be potentially expanded.

TRANSPORTATION NETWORKS



- Consider (and build away from) special and preserved zones setting boundaries for the developments.

CONSERVATION LANDS



- Utilize abandoned structures for residential, rental or ownership-based development. (There are multiple abandoned hotel structures which, could be turned into rental housing in consultation with the Panchayat)

Process:

Estimate and Assess

- Determine current housing availability and possible housing shortage within the next 8 years.
- Siting the future development areas may be guided by the development considerations listed as well as projection trends for other uses like the micro - manufacturing, tourism, and commercial uses
- Create conceptual land use plans for community feedback.

Progress

- Maintain community cooperation on developing, implementing and approving the development plan
- Establish guiding land development policies for residents and outsiders to follow while purchasing/developing land for residential uses
- Provide a trained Panchayat staff to provide support and guidance on development policies

Maintain

- Seek periodic stakeholder's and community feedback
- Monitor the trends in tourism and economic development as well as new demographic projections
- Maintain reviews of the plan over the period of time based on changes in population trends, prices of land and economic development needs.

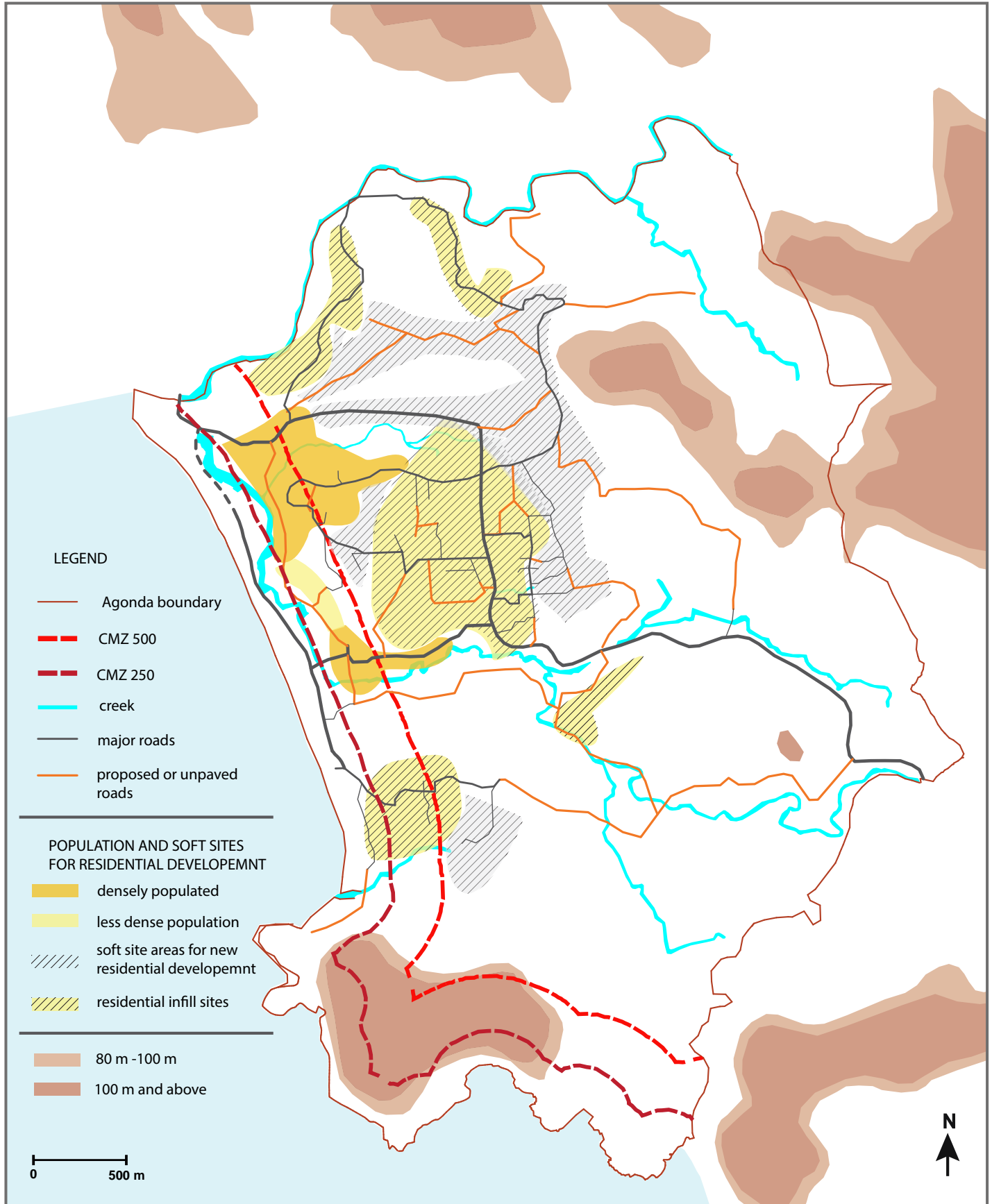
WHO TO INVOLVE:

- Panchayat + Community Groups

- Panchayat + Community Groups

- Panchayat + Community Groups
+ Regional Planners

2.1 RESIDENTIAL USES - soft sites



2.2 COMMUNITY FACILITIES

Issue:

Currently, the Agonda community lacks a formal community center where people and various groups can gather and discuss issues pertaining to them. Agonda also lacks a disaster management center; a fully serviced clinic and a fresh produce market place where local food growers, dairy producers and fishermen can sell their produce.



RECOMMENDATION: Provide Agondans with community spaces to gather for activities, community group meetings, as well as provide facilities of evacuation, healthcare and information purposes.

The residents of Agonda have expressed that currently; the village lacks appropriate number of facilities that could enable Agondans to lead a healthy, safe, sociable and empowered community life. While there is a need for a number of community facilities, those that are of immediate need include: a community center, a disaster information and evacuation center, fresh food and produce markets, recreational fields and parks and a fully operating healthcare clinic.

Siting community facilities may be guided by development considerations suggested below.

Practices for obtaining community space for the beach front and creek area communities that fall within the CMZ's are more specific, since the CMZ regulations forbid the spread of development and building new facilities. Here, the existing facilities like the schools and religious places should consider **sharing community space** with other appropriate community uses. In addition, the **use of temporary or seasonal space** within, but not limited to, the CMZ's could prove beneficial in hosting

activities like the farmers markets or open-air community gathering events.

In the areas outside of CMZ's, the new community spaces can be sited based on the development considerations. Appropriate **soft sites** for community spaces are those, which can serve concentrations of residences lacking any community spaces, particularly in those communities that are the most populated in the immediate vicinity to the creek. Soft sites also consider proximity to the road, sewage, water and energy infrastructure as well as proximity to other compatible uses. Easy road access is particularly important when determining the disaster management center. In addition, **re-purposing** some abandoned or unused structures found in Agonda for community uses could be an affordable and sustainable way to obtain the necessary facilities.

2.2 COMMUNITY FACILITIES - specific siting considerations

Facility	Where it is needed	Where it should be sited
COMMUNITY CENTER (in conjunction with other community uses like: a trade school, performance center, disaster information center, library)	In the beachfront and the upland communities	<p>The beachfront community should seek existing facilities to share their space for a community center, for example, the St. Ann's school could host community meetings and gatherings during the off-school time.</p> <p>The upland communities should site their center near the Panchayat main road because of an easy road access, the proximity to other community uses like the medical dispensary and the proximity to other compatible uses like the recreational field and the commercial activities near the road that already drive some traffic. A community center near the Panchayat could also reinforce the Panchayat's participation in the community life. Abandoned hotel structures found on the hill in the vicinity of residential developemnt and near two schools could also be considered for repurposing for community uses like trade and training schools for adults.</p>
DISASTER MANAGEMENT CENTER	Central for the whole village	Away from the CMZ's, in the uphill area. With easy road access.
FRESH PRODUCE MARKET	In the beachfront and the upland communities	<p>The beachfront community can muster an open space near the beachroad or near existing community facilities like the St. Ann's School or the Boy's School for seasonal farmers markets selling fresh fish, dairy and food produce.</p> <p>The upland communities are in need of a permanent and central fresh produce market which could be sited near the Panchayat's main road or in the vicinity of Farmalnd Trusts and food production zones.</p>
RECREATIONAL FIELD OR PARK	In the beachfront and the upland communities	<p>The beachfront community should consider creating playgrounds near the existing schools.</p> <p>The upland communities can utilize their informal recreational fields, particularly those near the creek, as well as some special zones with beautiful vistas in the uphill area to protect them from developemnt.</p>

Development Considerations:

Site Selection

- ❑ Build new facilities outside outside of floodplain zones to avoid flooding and fresh water salinization
- ❑ Build on flatlands (outside of coast) and moderate slopes to protect structures from flush floods or soil erosion
- ❑ Promote reinforcing existing facilities in the established communities within the CMZ's instead of building new structures
- ❑ Promote temporary and seasonal community uses within the CMZ's
- ❑ Utilize green energy and water harvesting techniques

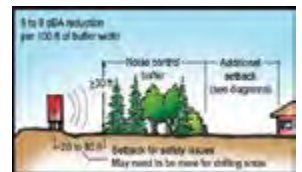
CONSERVATION LANDS



CLUSTERED DEVELOPMENT



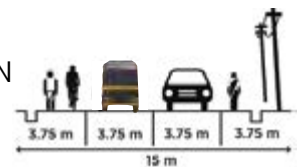
COMPATIBILITY & BUFFERS



Built Environment-Infrastructure

- ❑ Build near existing road networks and infrastructure
- ❑ Provide an evacuation center within an easy route access
- ❑ Re-purpose abandoned structures (hotels, homes) for community uses (through buying out the property with public money or through other legal means)

TRANSPORTATION NETWORKS

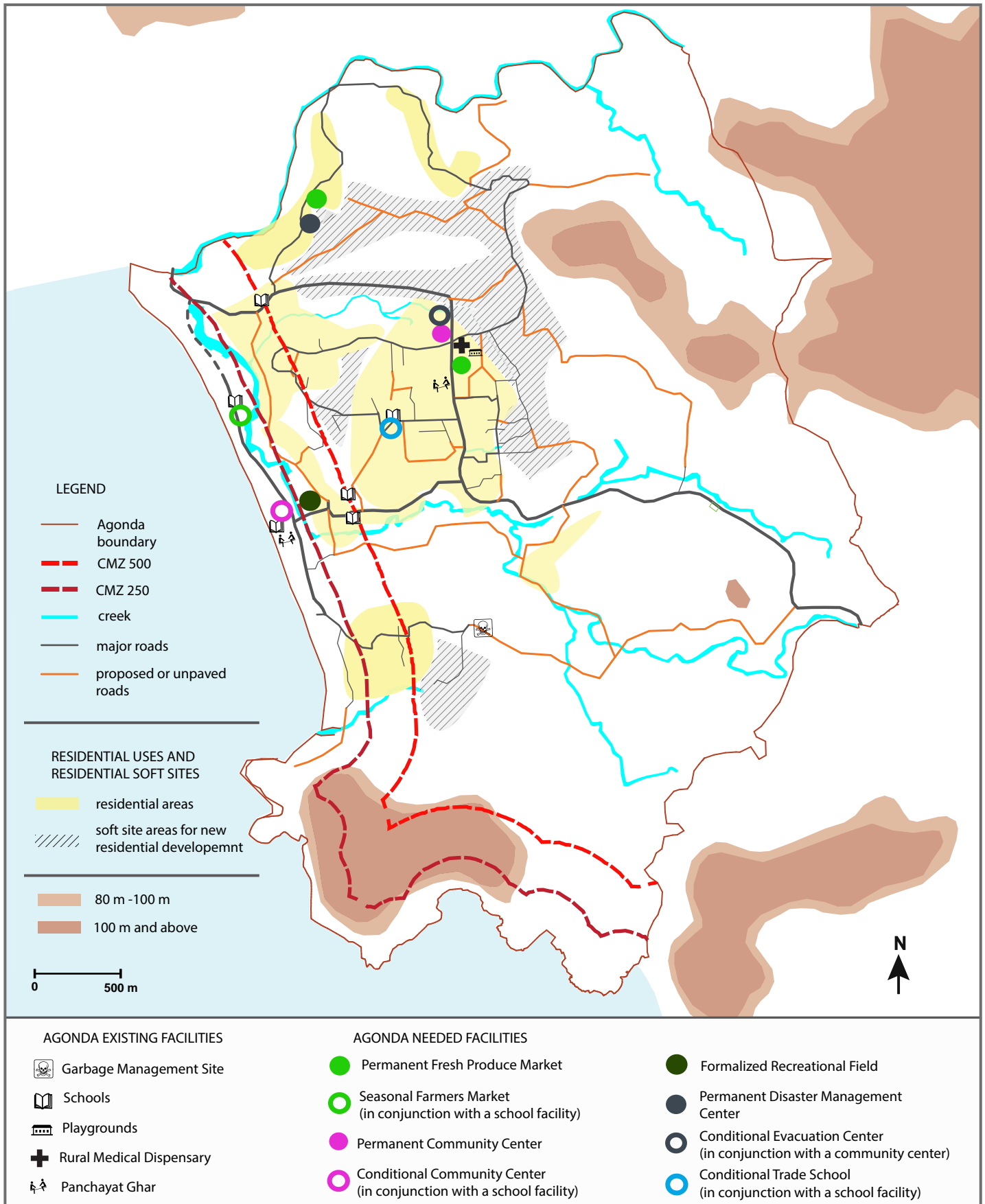


Process: Prioritizing community facilities may be one of the first steps in meeting all adequate needs for Agonda. Agondans have expressed that a community center and a central food market are among main facilities they need. Siting facilities with the input from all stakeholders would be needed taking into consideration land uses, road access and residential development projections. During siting, existing facilities should be looked at for possible sharing of uses, such as: existing schools with proposed community centers or a proposed community center with proposed evacuation center.

WHO TO INVOLVE:

- Panchayat
- Community Groups + Community
- Institutions

2.2 COMMUNITY FACILITIES - proposed sites



2.3 BUSINESS AND INDUSTRIES

Issue:

Current employment opportunities in Agonda rely mostly on hospitality businesses, housework and fishing. Without promoting new businesses utilizing local heritage, farmland and allowing micro-manufacturing, these employment scenario could remain unchanged.



RECOMMENDATION: Allow establishment of locally-based, sustainable business in Agonda.

In the community planning workshops conducted with the Agondan community, the village residents have expressed the need for more employment opportunities as well as new ways to encourage local business to grow. Large number of youths, relatively high level of education among the younger group of population, stable homeowner population, transportation network in place as well as the local heritage, farmland and natural environment are one of the many assets that can facilitate different kinds of businesses.

In the 2011 Agonda community workshop, the participants have determined the “desired” industries that are suitable for Agonda, those included: agriculture and fishing, food processing, artisan (craftsmanship), manufacturing, and public facilities industries. The three main sectors chosen for siting are based on the responders’ preference.

Food production associated with agri-tourism and local food supply strategies can be one of the focus areas for business. Since Agonda lacks fresh produce markets or farmers markets, the local hoteliers travel outside of the village to seek larger quantities of food supply. Also the upland communities lack such access to fresh produce markets. Food production by the local farmers and agri-tourism business owners needs to be encouraged by creating market places where food could be sold. Siting agri-related businesses, for example eco-

farms or dairy farms, needs to be aligned with the **agricultural lands**, as well as special and protected zones and land trusts where agricultural activity is allowed. Such businesses should also consider **proximity to the roads and local food markets**.

Micro-manufacturing and related fields like light industries and pharmaceuticals, also have many advantages for establishment in Agonda. Available land and educated workforce are just some examples. For appropriate siting of micro-manufacturing uses, **road access** and **proximity to fresh water and residential development** should be considered. The more noxious the use, the further it should be situated from the residences, prime agricultural lands and fresh water.

Arts and crafts are non-environmentally invasive activities. However, for successful utilization of local arts and crafts heritage in economic sustainability, certain practices should be implemented. Many locals possess the skills and traditions of crafts-making. However, lack of space for making and selling crafts disables this kind of activity to become an economic development strategy. Spaces for making, selling and learning about crafts can be easily interwoven into the **residential and commercial fabric** of the community. Local **community facilities** could be utilized into providing space and to promote arts and crafts.

Development Considerations:

Food Production and Processing

- Within easy road access
- Near possible market areas
- Near or within agricultural land

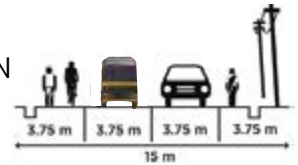
Micro-Manufacturing

- Within easy road access
- Access to fresh or grey water, but not at the cost of water for residential uses
- For heavy manufacturing, site further away from the residential developments, prime lands or special and preserved zones or sensitive natural habitats

Arts and Crafts

- May be sited within residential or commercial development
- Should consider utilizing space of existing institutions (schools) for the purpose of visibility and selling of arts and crafts

TRANSPORTATION NETWORKS



CONSERVATION LANDS



CLUSTERED DEVELOPMENT

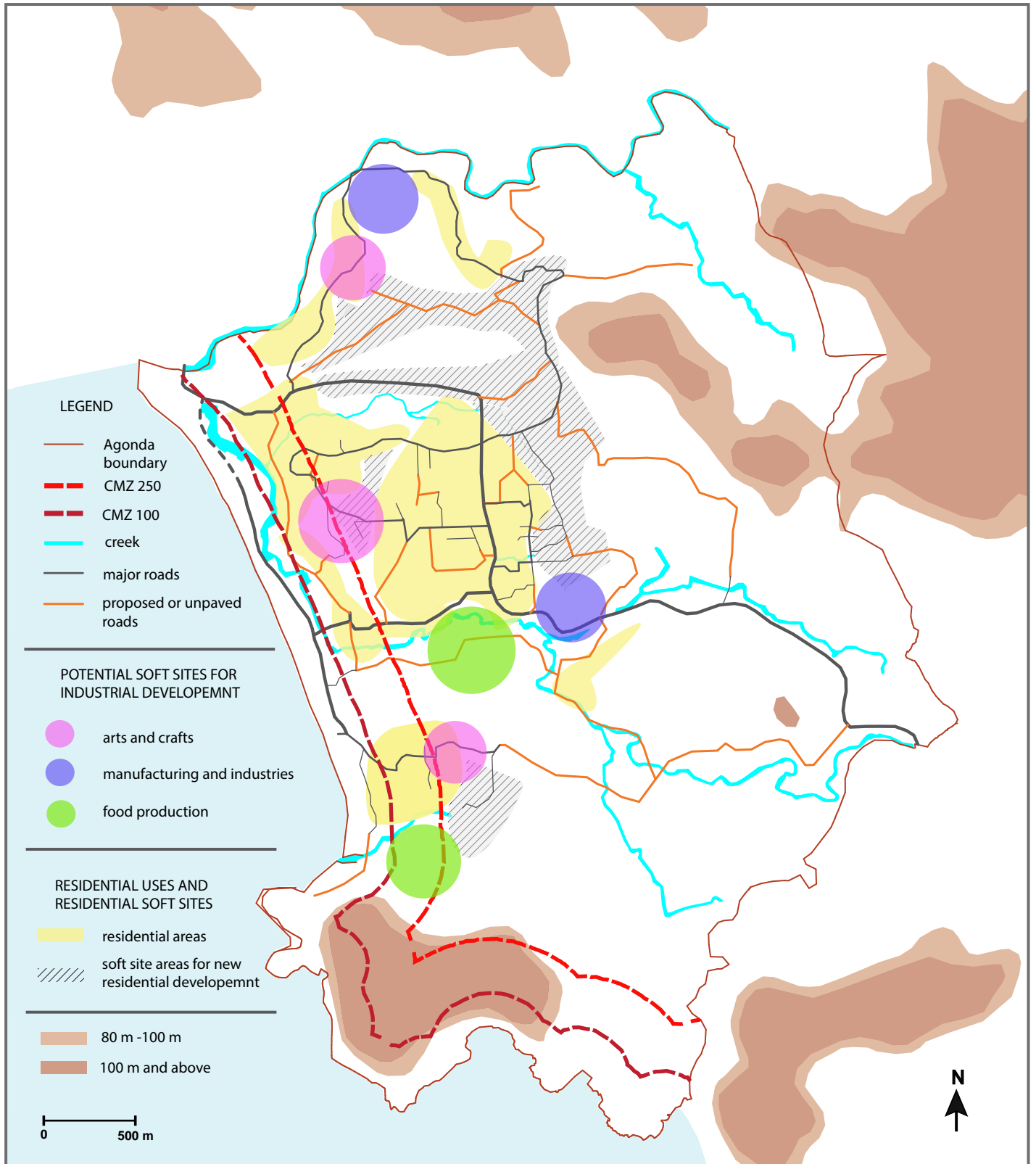


Process: One of the first steps to enable sustainable businesses in Agonda would be to analyze the strengths and attributes of the village including: individual craftsmen, potential business owners, farmers as well as land uses suitable for siting industries and businesses. Land use plan in coordination with the village would need to be then developed to establish shorter and longer implementation strategies for businesses. Arts and crafts as well as food production use could be integrated more easily, but allowing micro-manufacturing and heavier industries requires a thorough assessment to ensure viability and protection from negative environmental and socio-cultural impacts.

WHO TO INVOLVE:

- Panchayat
- Community Groups + Community
- Farmers
- Business Owners

2.3 BUSINESS AND INDUSTRIES - proposed sites



2.1 Improve Existing Road Network

2.2 Improve Pedestrian Networks

2.3 Parking

OVERVIEW

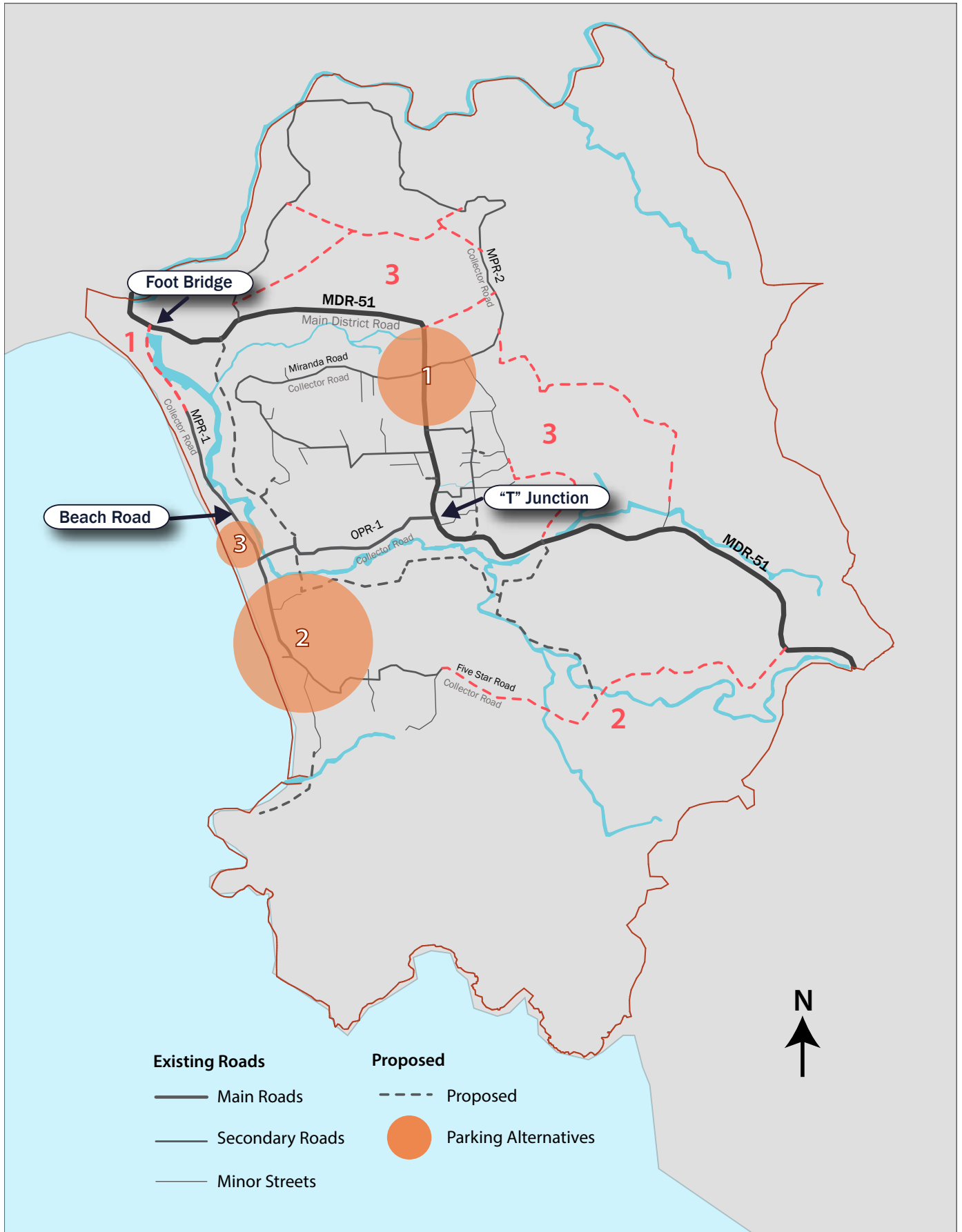
Transportation is an essential element of a land use and economic development plan. Transportation networks allow goods to move in and out and connect people to jobs. Well-built streets can improve property values. Recommendations for transportation networks generally seek to improve mobility and accessibility. Mobility refers to the movement of people and goods, while accessibility refers to the ease with which people can connect to needed services, and employment. Mobility generally translates to faster movement from point A to point B, while accessibility is improved linkage of destinations. When introducing circulation improvements for Agonda, it is important to keep both of these goals in mind. Many plans seek to resolve automobile congestion issues and parking woes, but other important issues to consider are the needs of those who walk and use transit (who need space to walk safely on the road), health issues, and energy sustainability.

It is also important to consider the effects of improving mobility for automobiles. The demand for driving on the roads is more elastic than it would seem, and improvements to the road network will increase demand for driving, while making roads less “driver friendly” and including infrastructure for other modes of travel will lower demand for driving and may encourage the use of alternative modes. Similarly, additional free parking may increase the demand for driving. An increase in driving means

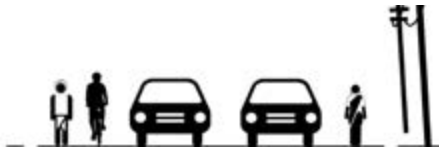
an increase in pollutants in the air, and those who live near busy travel corridors will breathe more of this emitted particulate matter. More vehicles on the road also means a greater dependence on oil in Agonda. Streets that are fast and friendly to cars may lead to cars using Agonda’s roads as a “through roads,” zipping through without stopping. These sorts of roads may be out of keeping with Agonda’s village character. Our recommendations suggest ideas for meeting the needs for improved roads as well as scaling back on roads to prevent increasing car usage in Agonda while keeping all road users in mind.

Roads need to be improved with knowledge of future land development in mind. A current example of this issue is that the proposed Agonda waste management site is located on a Five Star Road connected only to the beach road (see map). Siting such a facility would significantly increase traffic on the beach road. Unless more traffic on the beach road is a desired outcome, either the roads leading to the site must be improved and connected to a more suitable, high capacity road or the site must be changed. Such considerations must be kept in mind when building on new residential sites. Development leads to more road users, and people will want to move into homes that are well connected to a road network that will take them to work.

Improving Connectivity and Access



3.1 ROAD NETWORKS



RECOMMENDATION: Improve circulation around and access to the road network in Agonda, relieving current choke points for cars and providing additional capacity so that the flow of goods and people through will not be restricted. New roads and improved roads should be at least wide enough for two average sized cars to pass one another.

Issue:

As it is currently built, the beach road lacks connections to outside roads, limited by a narrow bridge leading to a game of chicken for anyone trying to enter from the north, a road to the south that doesn't connect back to the larger road network, and only one viable point of access to the beach for cars. The beach is a major attraction, and it is only easy to get there if you are on the beach road, so the main access point becomes congested.

SUGGESTED ROAD IMPROVEMENTS:

1. Improve conditions at the north end of the beach road
 - a. Widen the foot bridge at the north end of the beach road
 - b. Pave the beach road from the bridge to the current paved area
2. Connect beach road to the main road via a new connector road on the southern end
 - a. If waste management or light industrial is sited on this road as planned, there needs to be a road to accommodate the vehicle traffic generated at the site
3. Improve road connectivity throughout current residential zones.
 - a. New roads in residential areas as indicated on the map

PROS

CONS

Improving connections to the beach road will alleviate the choke point at the T junction between the beach road and the main road.	More cars may choose to use the beach road as a through road, since it will now be a convenient shortcut through Agonda.
More roads will provide improved freedom of movement for drivers in Agonda.	More convenient roads will induce more demand for driving, increasing the amount of trips made by car, congestion, and pollution from cars.
If roads are built with amenities for pedestrians, new roads will make walking more convenient by providing quicker routes.	If new or improved roads are built as roads are currently built in Agonda, with no amenities for walkers, it will be a lost opportunity.
Better connections will raise the value of property away from the T junction, encouraging development at the north and south ends of the beach road.	Effects of new development will have to be carefully managed so that Agonda's character can be preserved and that it remains within what is allowed under the CMZ.

Process:

- Determine possible paths for the south road based on a traffic study
- Take into consideration soft sites for future development and current proposed sites
- Set up a funding element with hoteliers
- Prioritize investments

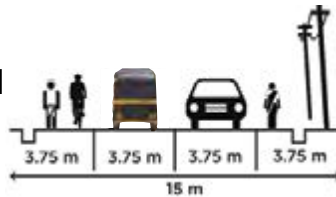
WHO TO INVOLVE:

Since **hoteliers** stand to gain much by improving road conditions, they can be “road stewards”, paying into a collective fund for road maintenance

Hotel developers seeking any kind of special exceptions may be requested to provide road improvements that will be necessary because of their hotel (at a “rational nexus” to the demand created)

Development Considerations:

TRANSPORTATION NETWORKS



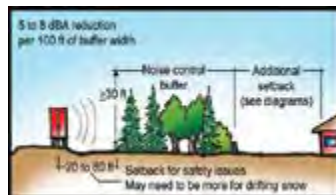
- Improve accessibility and mobility for users of all modes of transportation

CLUSTERED DEVELOPMENT



- Improving existing roads and building roads near existing and proposed development will encourage clustering, keeping development from spreading into adjoining farmland.

COMPATIBILITY & BUFFERS



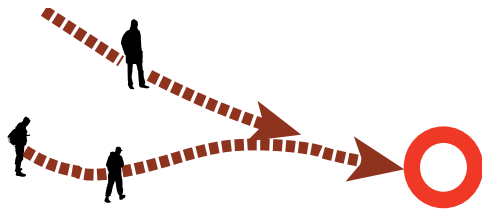
- Connecting the beach road to the main road at the south end will divert traffic from the possible industrial uses (see map of proposed sites for businesses and industries, chapter 2.3) and waste management site, providing a traffic buffer for residential and commercial areas.

WASTE MANAGEMENT



- Improved transportation networks will improve accessibility for waste management vehicles. Improved residential roads will allow for easier trash pick-up and the proposed road connecting the beach road to the main road will allow for waste to be trucked out of Agonda.

3.2 PEDESTRIAN NETWORKS



RECOMMENDATION: Improve pedestrian networks in Agonda by creating additional pedestrian links and adding pedestrian facilities to existing roads. Actively encourage people to explore the village on foot.

Issue:

Pedestrian networks are underdeveloped. The 2011 report determined that 78% of trips in Agonda included walking. This means that many people are pedestrians, even if that is not their primary method of getting around. If walking becomes more pleasant and safe, car trips will decrease and the use of more environmentally friendly methods of transportation like walking and transit will increase.

Alternative 1:

Walking paths could allow for connections to other roads about every quarter mile. There is a stretch of beach road that runs for at least one mile without connecting to any other road, making it relatively inaccessible. There could be at least one new pedestrian foot bridge across the creek. Improved and new roads could include sidewalks or nearby walking paths to further strengthen these networks.

PROS

CONS

This type of connection is necessary to encourage walking, since pedestrians like to take the shortest, most direct route	It may be expensive to find and procure additional right-of-way for pedestrian paths
If it is easier to get to the beach from hotels off of the beach road, more people will be willing to stay at locations away from the beach, taking some pressure off of development on the beach road and making development outside the CMZ more palatable.	Maintenance of these paths will incur additional expenses.
Improved pedestrian networks will encourage people to leave their cars at home, lowering congestion for those who choose to drive and reducing pollution from cars	

Process:

- Study current pedestrian circulation, including counts of pedestrians along roads as well as the mapping of informal walking paths
- Determine where the public has the right of way, and where it may need to be procured to provide access
- Identify the range of walking needs – for instance, school commutes, scenic spots for walking for pleasure that could connect to the network, and shopping corridors.
- Start a “walking club” amongst those who are interested in identifying walking issues in Agonda

WHO TO INVOLVE:

- The Panchayat
- Hoteliers
- A group of citizens ready to tackle this issue

3.2 PEDESTRIAN NETWORKS

Alternative 2: Close the beach road to large vehicles (i.e. larger than an auto-rickshaw) during the tourist season, allowing for improved pedestrian access to the commercial area. The road would be open during certain hours for deliveries and other necessary services. The road would remain open to emergency vehicles and personnel at all times. Auto-rickshaws and scooters could provide luggage service for tourists.

PROS

A more pedestrian friendly beach road would encourage pedestrians to walk further, past more storefronts, encouraging them to spend more money in Agonda

Closing off the beach road to larger vehicles will discourage its use as a through corridor, making it available to Agondans as well as visitors.

Traffic in Agonda will be mitigated because making this road more friendly to pedestrians will reduce driving demand in general.

A pedestrian street could lead to a better public marketplace for local entrepreneurs to sell their wares.

CONS

Closing the road to cars may pose seasonal inconvenience to residents who drive, as they will have limited access to travel or park on the road.

People who usually drive to shops and other services along the beach may be discouraged if they do not have a viable alternate method of reaching the shops

Making deliveries at “off hours” can be difficult to schedule, as someone must be present at the business to receive these deliveries

If not carefully managed, the additional open space could be utilized for other less desirable activities

Process:

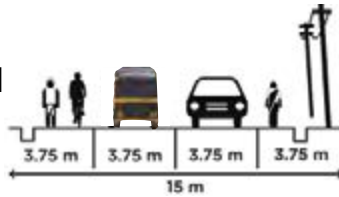
- Perform a traffic impact study for the closing of the road
- Create a Business Improvement District funded by the local businesses and hoteliers, who would benefit most from improvements to the beach road
- Perform public outreach to determine how citizens feel about the seasonal closure of the road

WHO TO INVOLVE:

- The Panchayat
- Hoteliers
- Citizens

Development Considerations:

TRANSPORTATION NETWORKS



Better pedestrian networks benefit all transportation modes:

- Walkers
- Transit users (who must walk to bus stops)
- Drivers (who must walk from their parking spots to their destination).

STORM WATER MANAGEMENT



- Pedestrian paths can be constructed out of more porous paving material than heavily used roads, so they will be more effective in managing storm water than roads paved with asphalt.

COASTAL DEVELOPMENT



- Improving pedestrian networks will allow for less car use in the CMZ's, which will protect sensitive environmental habitats from negative impacts.

CLUSTERED DEVELOPMENT



- Improved pedestrian networks make it easy to get around in clustered development settings. Since buildings are located in close proximity, most trips can be made on foot. New paths will make these trips safer and will make walking more desirable.



Issue:

Agonda’s residents and taxi operators need additional parking access because of limited availability in high demand areas.

RECOMMENDATION: Develop parking in a way that respects Agonda’s character. Areas that are important to preserve should be minimally disturbed by paving. A study needs to be undertaken to determine areas of high parking demand.

Alternative 1: A large off-site park-and-walk/ride areas could be designed at several locations near the Panchayat with travel services to the beach road. At least one bus should stop at these sites. Additional amenities, like a restroom, taxi stand, information station, and a scooter rental could be included at the site. Programming ideas like these could be studied to determine what would be best for the community while attracting visitors. The parking may be offered for free to incentivize parking there over other places. Permeable pavement would be used. Free shuttles may be operated to the Church on Sunday. This option is most attractive if the beach road is closed to large vehicles.

PROS

CONS

Drivers would be able to park both in a busy section of town with services and recreation and reach the beach road.	It can be difficult to change people’s perception to use an off-site lot when there is available roadside parking. If people are able to drive to the beach road and find parking, they will be unlikely to use the lot.
These park-and-walk/ride locations would take pressure off of neighborhood parking	
This lot could also accept excess demand caused if the beach road is closed to large vehicles. The site would allow those who want to travel to the beach a convenient place to drop off their vehicle.	
If commercial activity along the main road expands, this lot can be used by shoppers	

Alternative 2 (studied but not a feasible option): A beach-front parking lot could be added at the south end of the beach with a taxi stand that would be open during the tourist season. Programming options like restrooms, changing stations, and information stations could be explored. During the tourist season, the town could charge a small fee for use of the lot and allow free use during the off-season. This would allow the town to collect a public benefit from the strong tourist industry around the beach-front. Consider design standards for paving.

PROS

CONS

A lot near the beach would leave more street parking open for Agondans, as the bulk of tourists would likely opt to park as close to the beach as possible.	This option is not feasible, as it is not permitted under the CMZ. Storm water runoff from the parking lot must be diverted and treated to avoid polluting Agonda’s creek and ocean
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3.3 PARKING

Alternative 3: During the tourist season, the church could open its lot to parking when it is not being used for church events.

PROS	CONS
The church already has a large space available for parking	The Church is a privately owned site
The church is centrally located	This area could also be used for play for the children at the school - citizens will need to determine which use is more needed

Alternative 4: Small “pocket” parking lots could be added around the town as needed. A study would need to be done to determine the best locations for these lots, or groups of neighbors could apply to develop a lot. These lots would be planted aesthetically in keeping with Agonda’s character.

PROS	CONS
This method would be minimally invasive, determining small areas that can accept parking and instituting lots.	It may involve developing unutilized land for parking, which may be undesirable if Agondans want to preserve this land

Alternative 5: Develop on-street parking in commercial areas by widening roads and studying current roads to see where a lane can be given up and devoted to parking. If this parking is in very high demand, the town should charge for it to ensure turnover of cars so the businesses have spaces available for customers.

PROS	CONS
On-street parking creates a barrier between pedestrian sidewalk and traffic, creating a safer pedestrian environment.	If no new pedestrian infrastructure is developed, on-street parking will take up the spaces currently used by pedestrians or take up the available space where pedestrian networks could have been improved.
Provides convenient access to on-street entrances, which is good for both shopkeepers and shoppers.	Widening roads is a high cost venture. Costs include paving as well as potentially purchasing easements if a widening project encroaches on private property.
	Slows traffic as cars stop to parallel park, increasing congestion.

Development Considerations:

STORM WATER MANAGEMENT



- The impact of paved areas on storm water runoff must be managed.
- The effect of the location and design of parking on storm water absorption must be considered to prevent polluted runoff from entering Agonda's water bodies.

COASTAL DEVELOPMENT



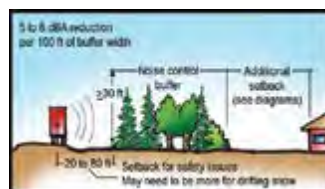
- See storm water management above - these issues are amplified in a coastal area.

CONSERVATION LANDS



- Parking alternatives need to be chosen with the goal of avoiding farmlands, forest, and other conservation lands and environmental habitats..

COMPATIBILITY & BUFFERS



- Parking lots are generally not aesthetically pleasing, and buffers need to be integrated to prevent negative impacts.
- Landscaped parking lots with plantings can be an effective way to buffer these lots from other uses.

