



Government of the people's Republic of Bangladesh  
Ministry of Housing and Public Works  
**Urban Development Directorate**  
82 Segunbagicha, Dhaka-1000

**PREPARATION OF DEVELOPMENT PLAN FOR MEHERPUR ZILA**

**REPORT ON ASSIGNMENT- 03**

**Conduct Suitability Analysis of the Project Area Required for Specific  
Sector of Facility**

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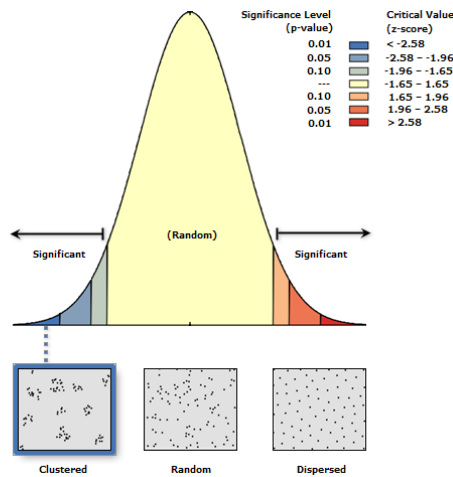
## **Conduct Suitability Analysis of the Project Area Required for Specific Sector of Facility**

Urbanization in secondary towns such as Gangni Pourashava is accelerating, bringing both opportunities and challenges for planners and local authorities. As population pressures mount, the need for coordinated, equitable, and environmentally sustainable urban expansion becomes more critical. This assignment focuses on assessing the current residential structure patterns and identifying suitable areas for future development within the nine wards of Gangni Pourashava. The study employs spatial analysis tools and planning principles to evaluate changes in built structures from 1995 to 2025, analyze neighborhood patterns, and categorize land based on suitability for future population accommodation.

By integrating planning strategies related to land use, infrastructure proximity, environmental protection, and phased implementation, the analysis provides a data-driven basis for guiding sustainable urban growth. A set of thematic maps has also been prepared to visualize spatial constraints and development opportunities aligned with planning criteria. This assignment ultimately aims to support informed decision-making for urban expansion that balances development needs with agricultural productivity, environmental integrity, and infrastructure efficiency.

# 1 Present Residential Pattern

## Present Residential Pattern of Ward 01-

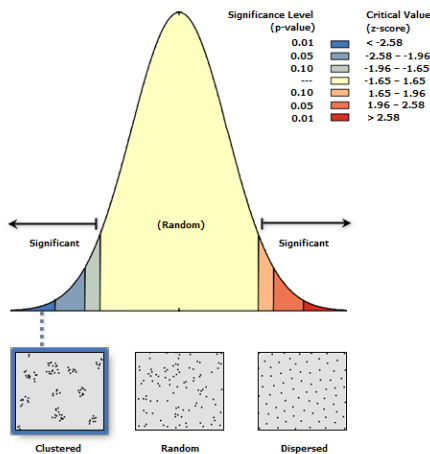


The point pattern in **Ward 1** clearly shows that the points (likely representing some location-based data like population, service points, incidents, etc.) are **grouped tightly in specific areas** rather than being spread randomly or evenly.

This **clustered distribution** indicates that:

- ❖ The points tend to **concentrate in certain locations**, suggesting a **spatial clustering** pattern.
- ❖ There are **empty or less dense areas**, and then pockets of **high-density areas**.

## Present Residential Pattern of Ward 02-

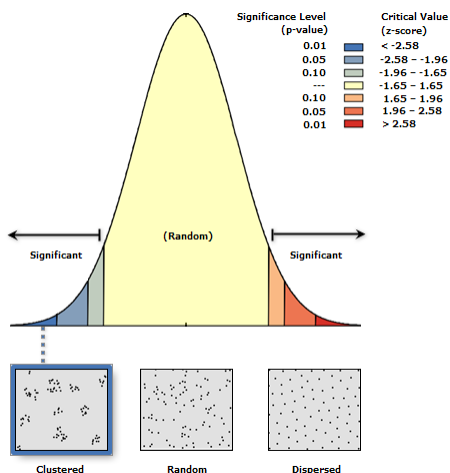


The point features in **Ward 2** appear to be **evenly spaced out across the entire area**, with relatively uniform gaps between them. There is:

- ❖ **No strong clustering or grouping,**
- ❖ **No random scattering, and**
- ❖ **A balanced, consistent distribution.**

This matches most closely with the **"Dispersed"** pattern shown in the diagram (far right box).

## Present Residential Pattern of Ward 03-

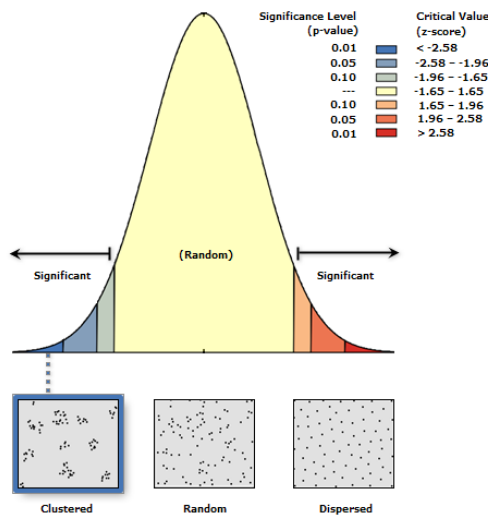


Looking at the spatial point distribution in the Ward 3 image:

- ❖ The points appear to be **heavily concentrated in small, tight groups**, while other areas remain sparse or empty.
- ❖ There is **no uniform spacing** and **no randomness** — instead, multiple **dense clusters** are clearly visible.

This pattern corresponds closely with the **"Clustered"** category shown in the **far left** of the bell curve.

### Present Residential Pattern of Ward 04-

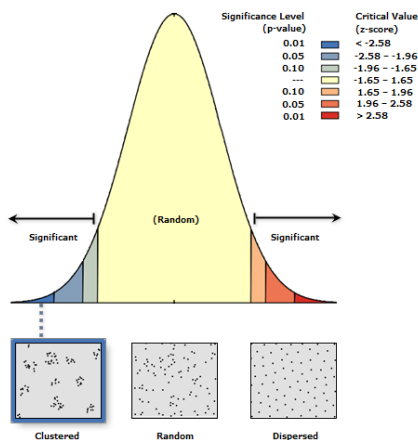


The point features in **Ward 4** appear with relatively uniform gaps between them. There is:

- ❖ The point features in the image are **clearly grouped into small clusters** in certain locations.
- ❖ Some parts of the map are densely packed, while other areas are sparsely populated or empty.
- ❖ This pattern lacks randomness or uniform dispersion and exhibits **distinct clustering**.

This is most similar to the "**Clustered**" example on the **left side** of the bell curve diagram.

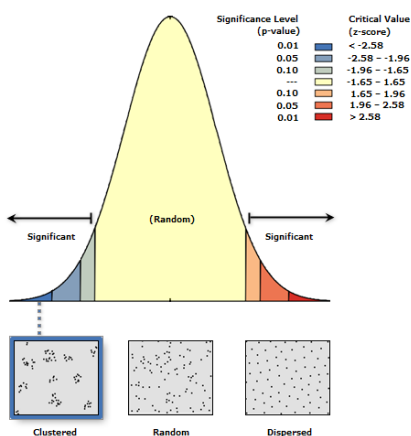
### Present Residential Pattern of Ward 05-



The spatial distribution of point features in **Ward 5** shows a **clear clustered pattern**:

- ❖ Points are **grouped closely together in specific areas**, forming multiple dense clusters.
- ❖ Other parts of the ward are **sparsely populated or empty**, reinforcing the clustering effect.
- ❖ This pattern visually matches the "**Clustered**" category (left side of the bell curve).

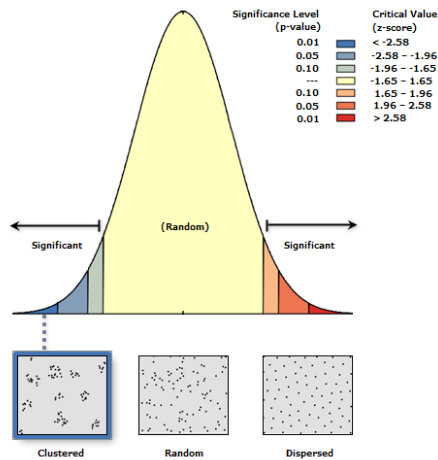
### Present Residential Pattern of Ward 06-



The spatial distribution of point features in **Ward 6** shows a **clear clustered pattern**:

- ❖ Points are **grouped closely together in specific areas**, forming multiple dense clusters.
- ❖ Other parts of the ward are **sparsely populated or empty**, reinforcing the clustering effect.
- ❖ This pattern visually matches the "**Clustered**" category (left side of the bell curve).

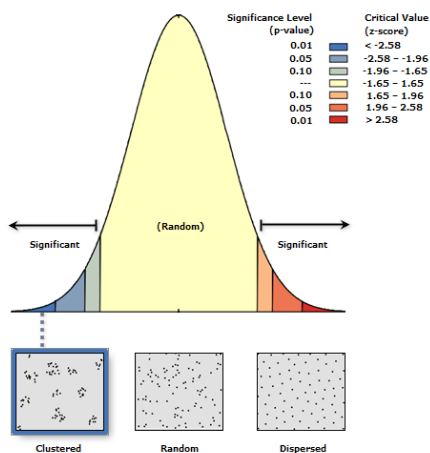
### Present Residential Pattern of Ward 07-



The spatial distribution of point features in **Ward 7** shows a **clear clustered pattern**:

- ❖ Points are **grouped closely together in specific areas**, forming multiple dense clusters.
- ❖ Other parts of the ward are **sparsely populated or empty**, reinforcing the clustering effect.
- ❖ This pattern visually matches the **"Clustered"** category (left side of the bell curve).

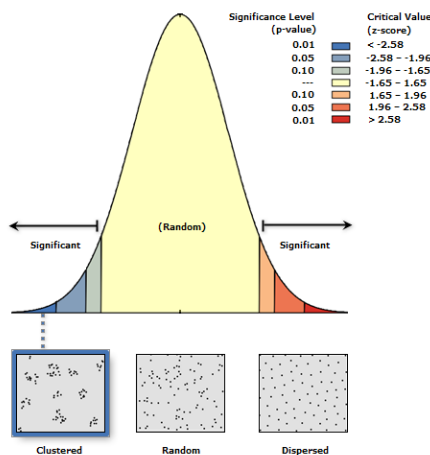
### Present Residential Pattern of Ward 08-



The spatial distribution of point features in **Ward 8** shows a **clear clustered pattern**:

- ❖ Points are **grouped closely together in specific areas**, forming multiple dense clusters.
- ❖ Other parts of the ward are **sparsely populated or empty**, reinforcing the clustering effect.
- ❖ This pattern visually matches the **"Clustered"** category (left side of the bell curve).

### Present Residential Pattern of Ward 09-



The spatial distribution of point features in **Ward 9** shows a **clear clustered pattern**:

- ❖ Points are **grouped closely together in specific areas**, forming multiple dense clusters.
- ❖ Other parts of the ward are **sparsely populated or empty**, reinforcing the clustering effect.

This pattern visually matches the **"Clustered"** category (left side of the bell curve).

## Neighborhood Pattern Overview-

Ward No	Neighborhood Pattern
Ward No 01	Clustered
Ward No 02	Clustered
Ward No 03	Clustered
Ward No 04	Clustered
Ward No 05	Clustered
Ward No 06	Clustered
Ward No 07	Clustered
Ward No 08	Clustered
Ward No 09	Clustered

## 2 Structure Analysis (1995 to 2025)

Ward No	Structure Type	Before 2018	After 2018	Change Observed	Change Category
Ward no 01	Katcha	87	116	29	
	Pucca	397	175	-222	Decrease but still dominant
	Semi-pucca	1022	139	-883	Significant decrease
	Tin-shed	629	139	-490	Decrease but still dominant
Ward no 02	Katcha	50	74	24	
	Pucca	490	141	-349	Decrease but still dominant
	Semi-pucca	656	154	-502	Sharp decrease
	Tin-shed	423	150	-273	Decrease but still dominant
Ward no 03	Katcha	58	25	-33	Moderate decrease
	Pucca	473	185	-288	Decrease but still dominant
	Semi-pucca	845	140	-705	Sharp decrease
	Tin-shed	691	175	-516	Sharp decrease
Ward no 04	Katcha	21	6	-15	Moderate decrease
	Pucca	637	88	-549	Sharp decrease
	Semi-pucca	917	71	-846	Significant decrease
	Tin-shed	252	17	-235	Decrease but still dominant
Ward no 05	Katcha	44	22	-22	Moderate decrease
	Pucca	387	87	-300	Decrease but still dominant
	Semi-pucca	756	75	-681	Sharp decrease
	Tin-shed	377	67	-310	Decrease but still dominant
Ward no 06	Katcha	24	56	32	
	Pucca	346	160	-186	Moderate decrease
	Semi-pucca	624	125	-499	Decrease but still dominant
	Tin-shed	304	95	-209	Decrease but still dominant
Ward no 07	Katcha	61	50	-11	Moderate decrease
	Pucca	393	216	-177	Moderate decrease
	Semi-pucca	717	167	-550	Sharp decrease

	Tin-shed	337	139	-198	Moderate decrease
<b>Ward no 08</b>	Katcha	29	25	-4	Moderate decrease
	Pucca	465	116	-349	Decrease but still dominant
	Semi-pucca	556	57	-499	Decrease but still dominant
	Tin-shed	219	34	-185	Moderate decrease
<b>Ward no 09</b>	Katcha	82	118	36	
	Pucca	465	271	-194	Moderate decrease
	Semi-pucca	1011	201	-810	Significant decrease
	Tin-shed	739	209	-530	Sharp decrease

### 3 Planning Strategy for Sustainable and Equitable Urban Expansion

To achieve sustainable and equitable urban growth while preserving agricultural productivity, environmental integrity, and infrastructure efficiency, the following strategic measures have been outlined:

#### 3.1 Agricultural Land Protection

**Strategy:** Designate highly productive agricultural land (particularly 3-crop and 4-crop areas) as non-developable zones.

**Rationale:** Lands capable of producing multiple harvests annually are vital for local food security and rural livelihoods. Protecting these areas from urban encroachment ensures long-term agricultural sustainability and guards against the irreversible loss of fertile soil.

#### 3.2 Conservation of Waterbodies

**Strategy:** Preserve all existing ponds, canals, wetlands, and natural drainage systems.

**Rationale:** These waterbodies are essential for stormwater management, ecological balance, irrigation, and groundwater recharge. Preventing their encroachment reduces urban flood risks and safeguards ecosystem services critical to both rural and urban resilience.

#### 3.3 Upgrading Informal Settlements

**Strategy:** Relocate residents of katcha (temporary or informal) housing into planned, serviced residential zones.

**Rationale:** Informal settlements often lack access to water, sanitation, roads, and drainage infrastructure. Structured relocation will enhance living conditions, reduce health and environmental risks, and promote inclusive urban development by integrating underserved populations into formal urban areas.

#### 3.4 Road-Oriented Development

**Strategy:** Encourage residential and mixed-use development within 100 meters of existing road infrastructure.

**Rationale:** Development near existing roads minimizes the need for new road construction, optimizes public service delivery, and supports compact, walkable urban form. This approach also improves access for emergency and municipal services.

#### 3.5 Plot Size Regulation

**Strategy:** Establish a minimum residential plot size of 1.5 kathas (approximately 1,080 sq ft).



**Rationale:** Standardized small plots facilitate affordable, efficient housing while supporting higher residential densities. This ensures each household retains adequate space for basic amenities, utilities, and future upgrading.

### 3.6 Phased Development Approach

**Strategy:** Implement urban expansion in 5-year phases (e.g., 2025, 2030, 2035, 2040, 2046), guided by land suitability and service availability.

**Rationale:** Phased implementation enables responsive, need-based development that aligns with infrastructure capacity, population growth, and fiscal planning. It also allows for adaptive management based on the performance and lessons of earlier phases.

### 3.7 3.7 Environmental Safeguards

**Strategy:** Restrict development in flood-prone, ecologically sensitive, or agriculturally significant zones.

**Rationale:** Avoiding high-risk or high-value natural areas reduces vulnerability to climate hazards and ensures land use aligns with long-term resilience and conservation objectives.

### 3.8 Strategic Development Priorities

**Strategy:** Prioritize development in low-density, underutilized zones with existing infrastructure and minimal agricultural value.

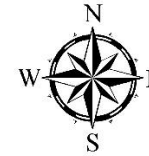
**Rationale:** Focusing initial urban expansion in partially serviced and non-productive areas maximizes cost-efficiency, accelerates housing delivery, and avoids conflict with critical environmental and agricultural resources.

Based on the above planning criteria, a series of thematic maps have been prepared to visually guide and support the proposed strategies for sustainable urban expansion. These maps illustrate the spatial distribution of key features such as high-yield agricultural lands, existing waterbodies, informal housing clusters, road networks, flood-prone zones, and underutilized low-density areas. Each map is aligned with specific strategy components (Sections 3.1 to 3.8) and collectively serves as a spatial decision-making tool to prioritize development areas, restrict environmentally sensitive zones, and plan infrastructure-efficient urban growth. The maps are attached herewith for reference and policy application.

#### **Map Description:**

The maps present a spatial assessment of residential development suitability based on planning criteria outlined in Section 3.0. It categorizes land within Ward 01 into five suitability classes: **More Suitable**, **Suitable**, **Moderate**, **Less Suitable**, and **Very Less Suitable**, using a color gradient from orange to dark blue. These classifications are based on multiple factors including proximity to existing roads, presence of waterbodies, existing built-up areas, and ecological or agricultural constraints. Areas marked in **orange and yellow** indicate high potential for future residential expansion due to existing infrastructure access and lower environmental or land use conflicts. In contrast, **blue zones** represent environmentally or infrastructurally constrained areas where development should be avoided. The map also integrates base features such as ward boundaries, existing structures, road networks, and waterbodies, providing a comprehensive tool for identifying priority development zones within Wards in alignment with sustainable urban growth strategies.

## Suitable Location for Increasing Population of Gangni Pourashava (Ward 01)



### Legend

- Gangni Ward Boundary
- Existing Road
- Existing Structure
- Existing Waterbody
- Hat Bazar

### Suitable Location For New Residential Area

- More Suitable
- Suitable
- Moderate
- Less Suitable
- Very Less Suitable

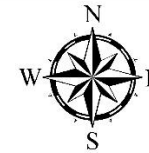
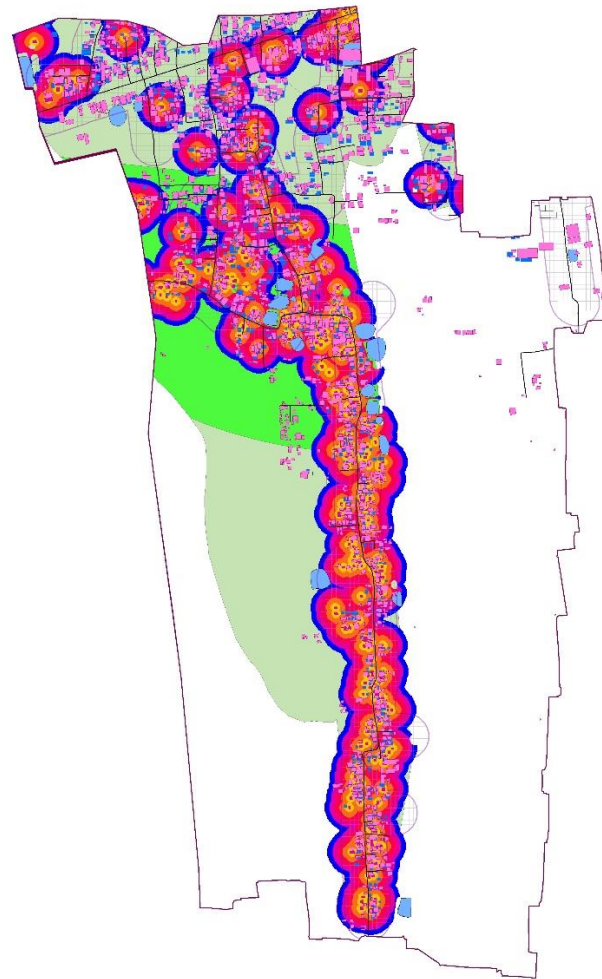
### Broad 350

- 1
- 0
- 1



Figure 1 Suitable Location fZAor Residential Area of Gangni Pourashava (Ward 01)

## Suitable Location for Increasing Population of Gangni Pourashava (Ward 02)



### Legend

- Gangni Ward Boundary
- Existing Road
- Existing Structure
- Existing Waterbody
- Hat Bazar

### Suitable Location For New Residential Area

- More Suitable
- Suitable
- Moderate
- Less Suitable
- Very Less Suitable

### Broad\_350

- 1
- 0
- 1



Figure 2 Suitable Location for Residential Area of Gangni Pourashava (Ward 02)

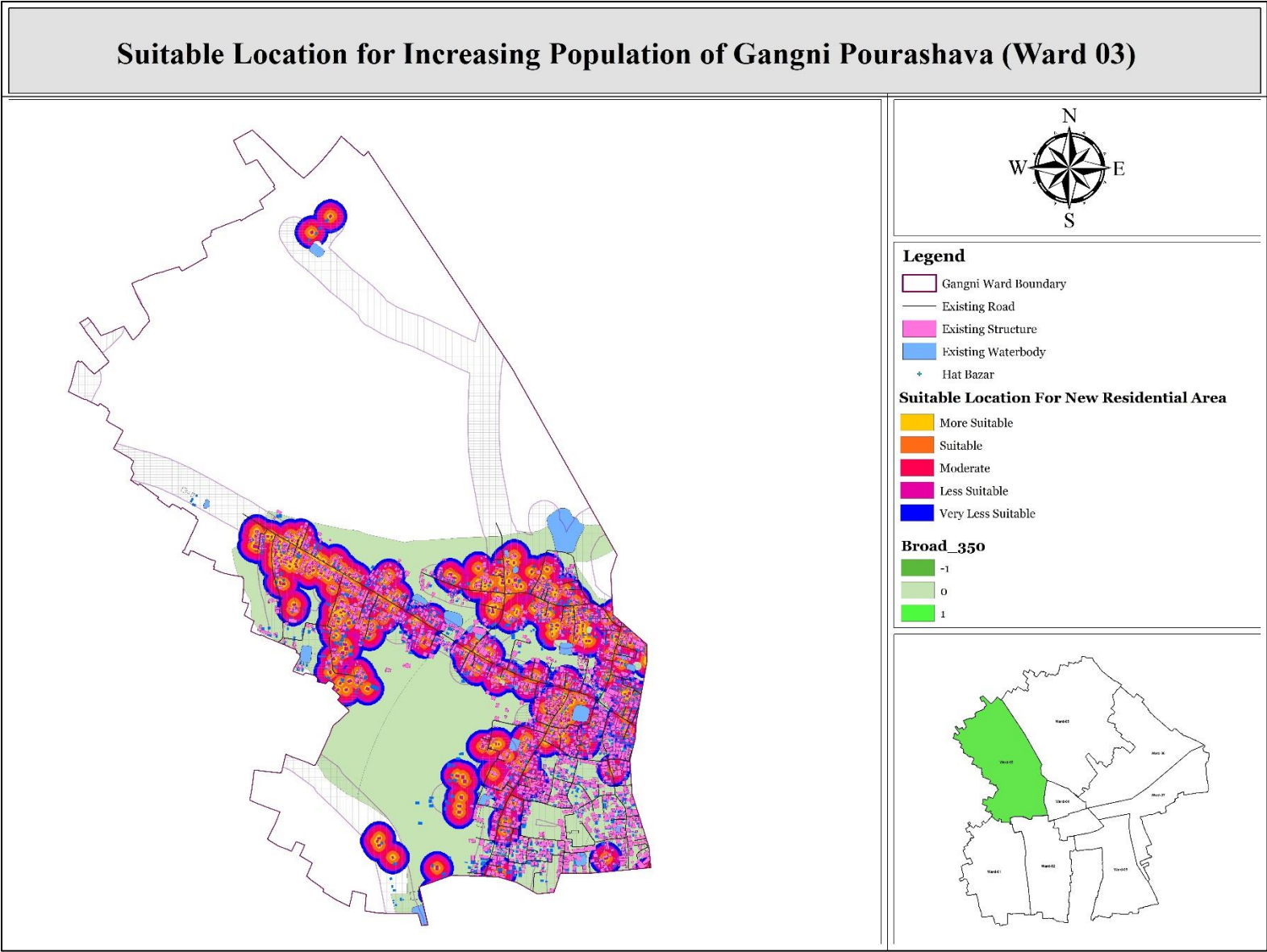


Figure 3 Suitable Location for Residential Area of Gangni Pourashava (Ward 03)



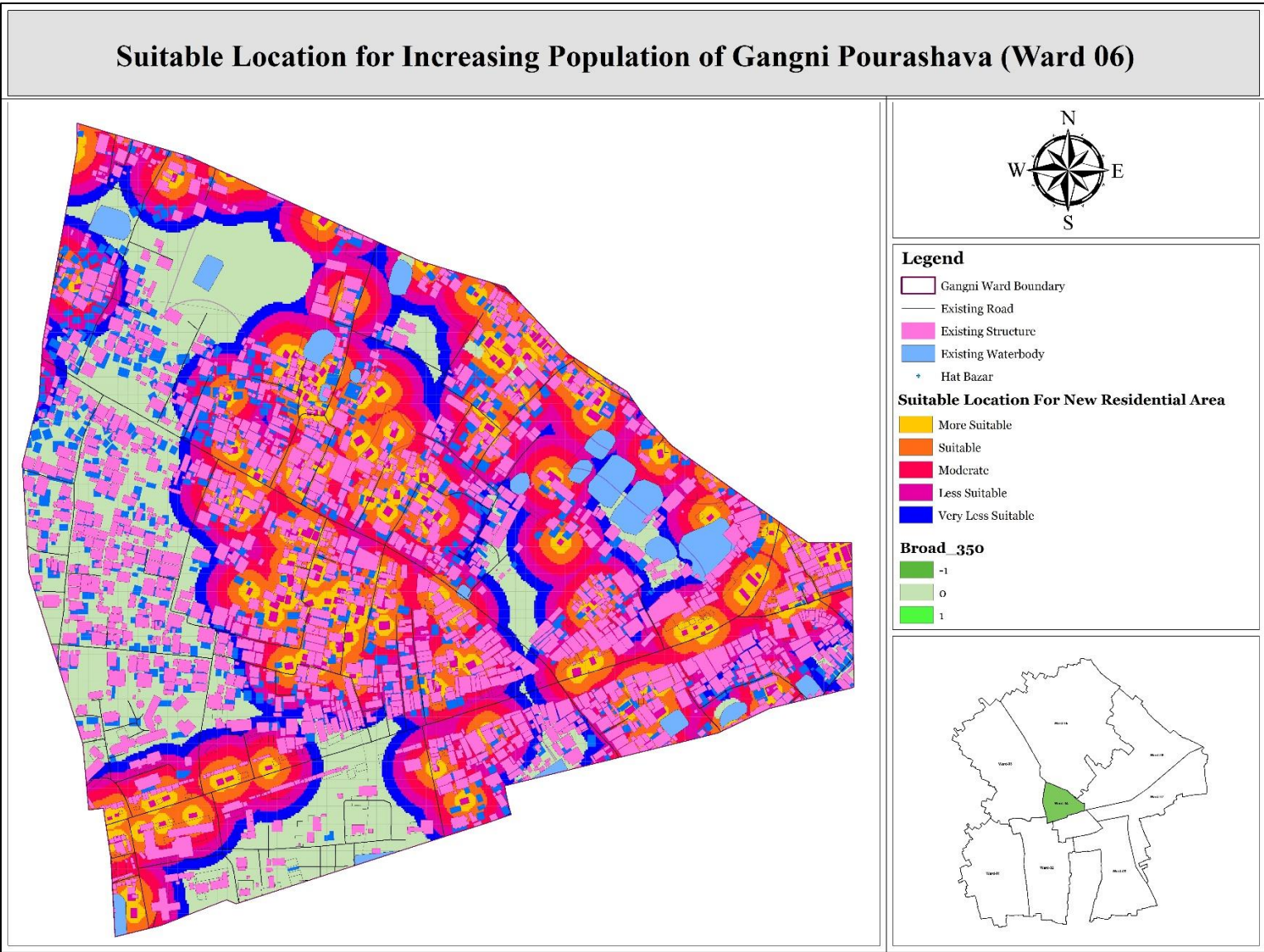


Figure 4 Suitable Location for Residential Area of Gangni Pourashava (Ward 04)

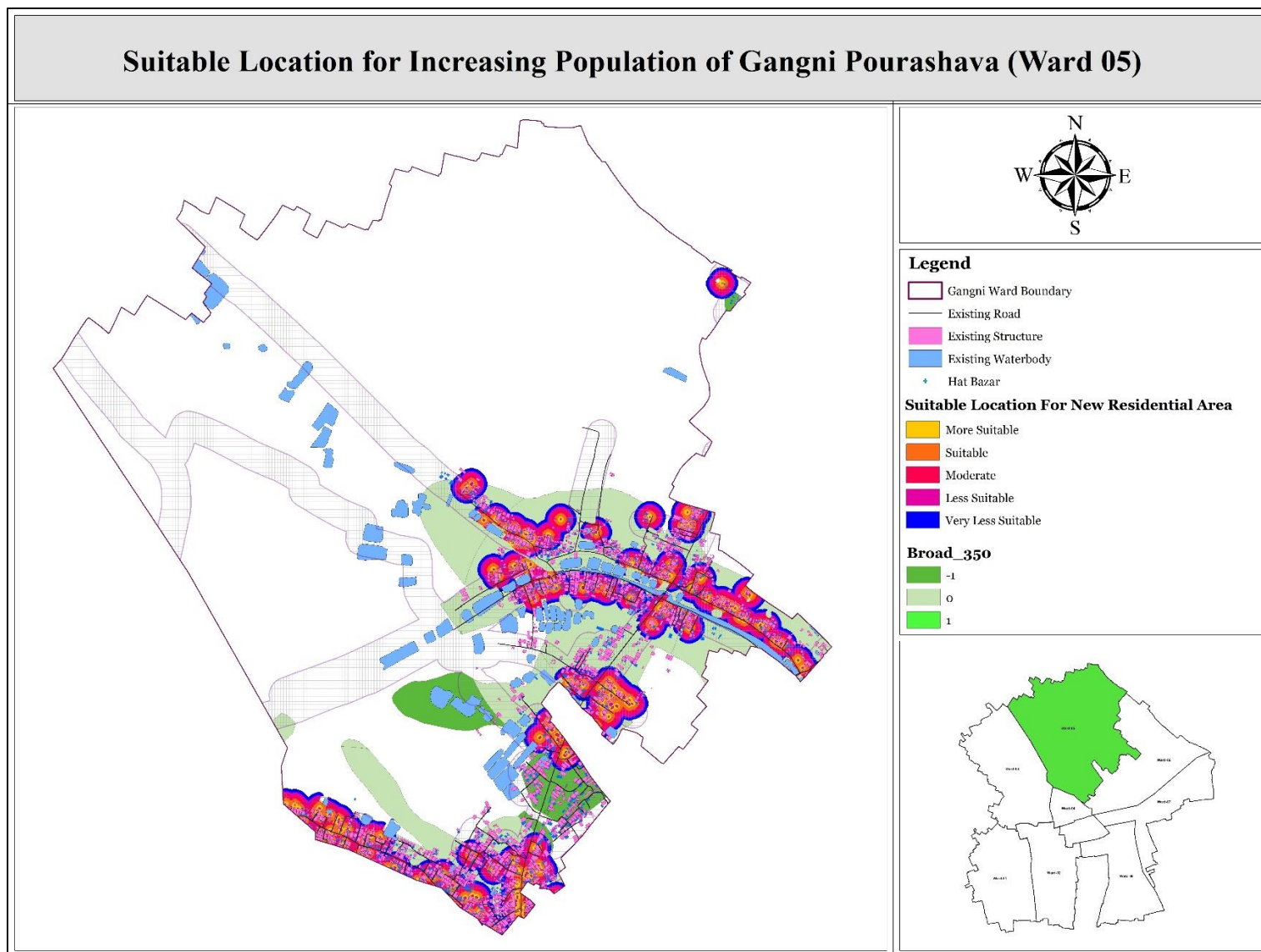


Figure 5 Suitable Location for Residential Area of Gangni Pourashava (Ward 05)

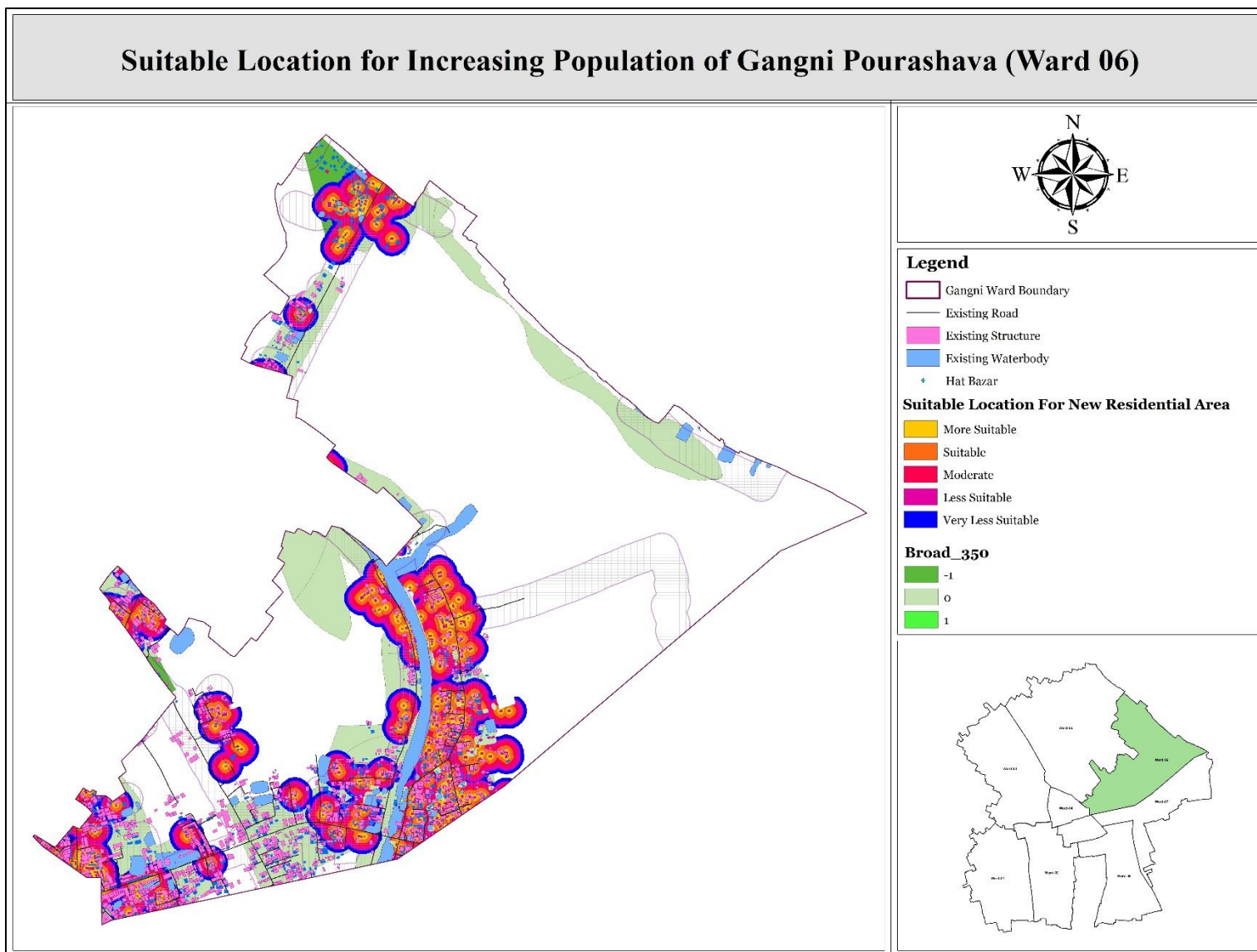


Figure 6 Suitable Location for Residential Area of Gangni Pourashava (Ward 06)

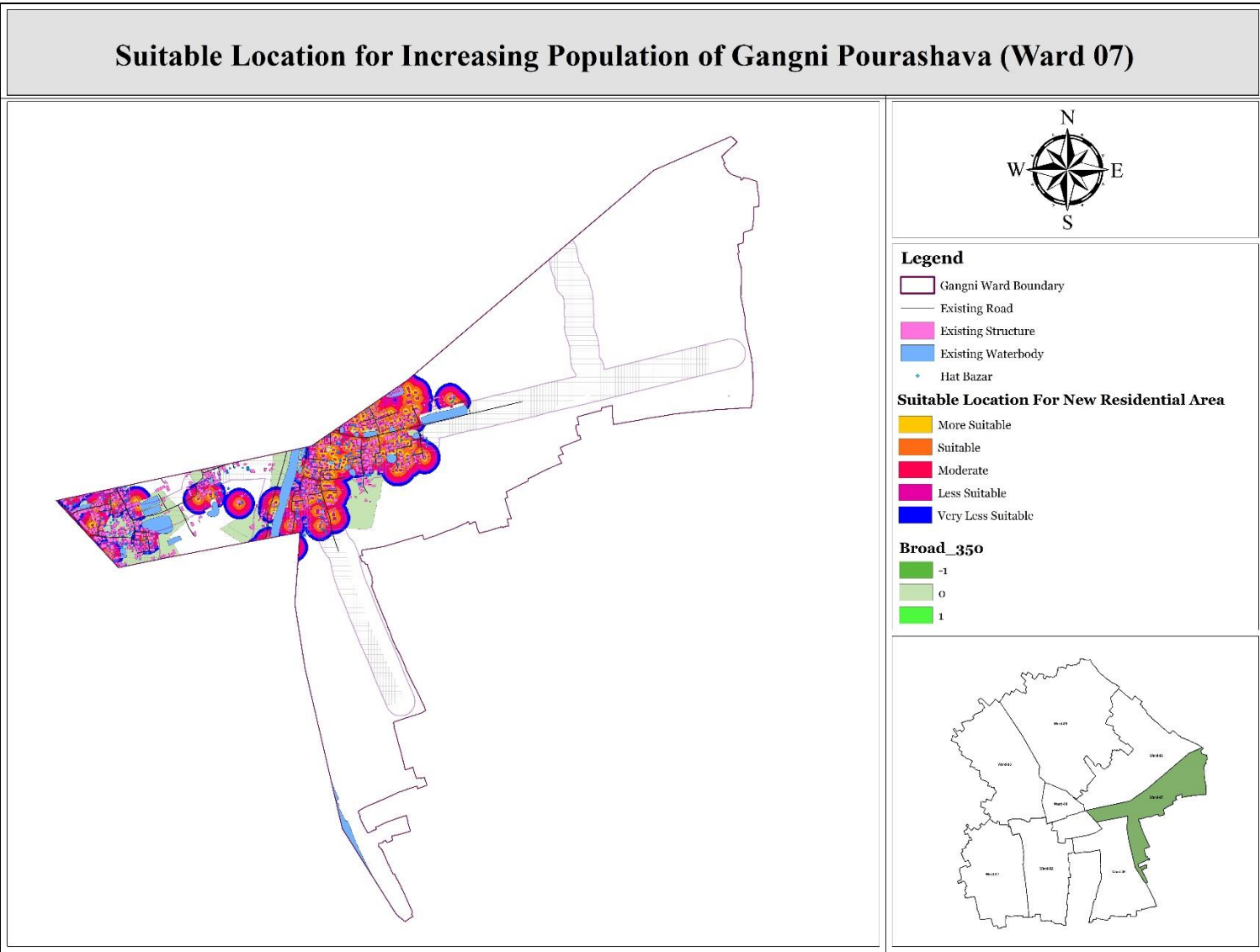


Figure 7 Suitable Location for Residential Area of Gangni Pourashava (Ward 07)



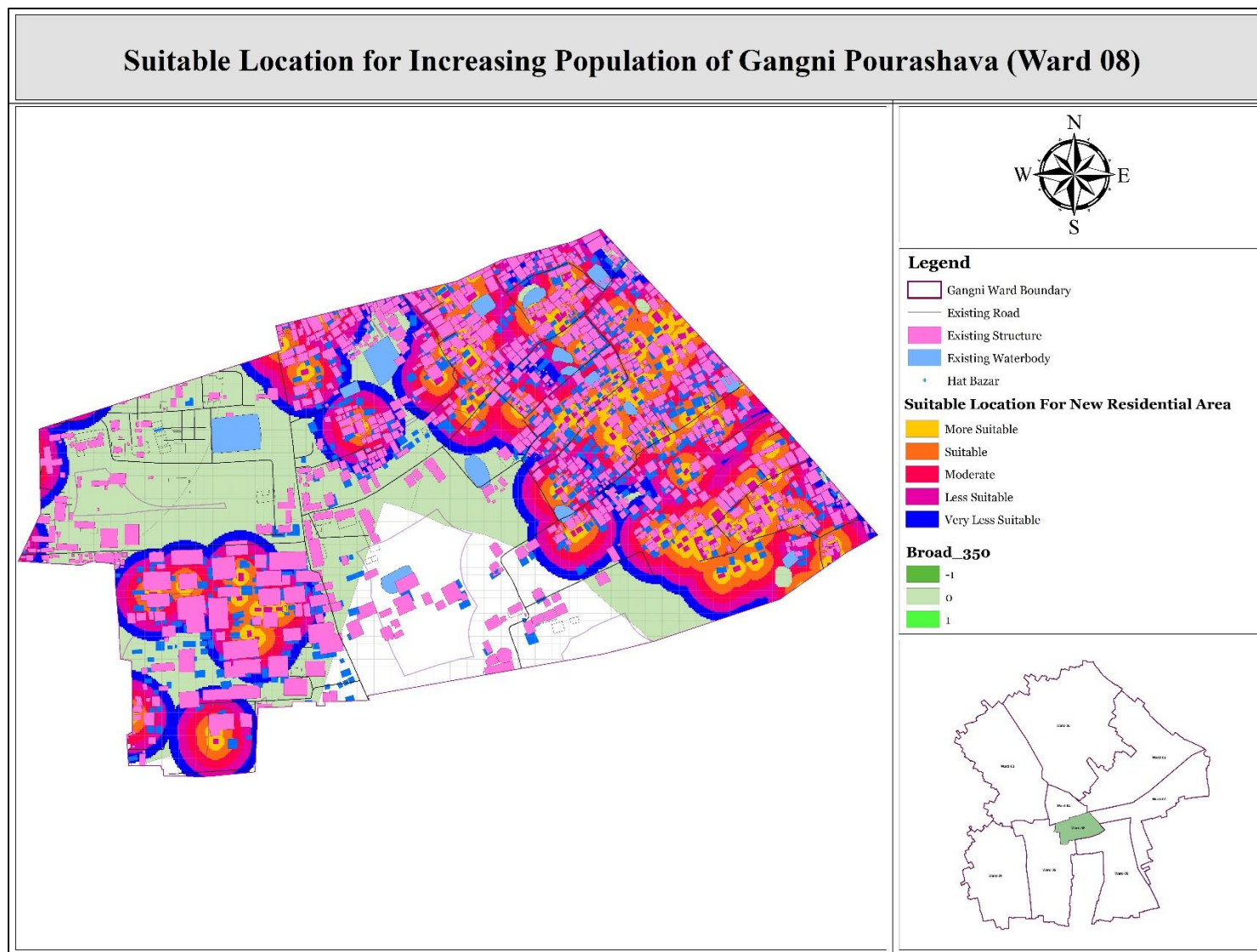


Figure 8 Suitable Location for Residential Area of Gangni Pourashava (Ward 08)

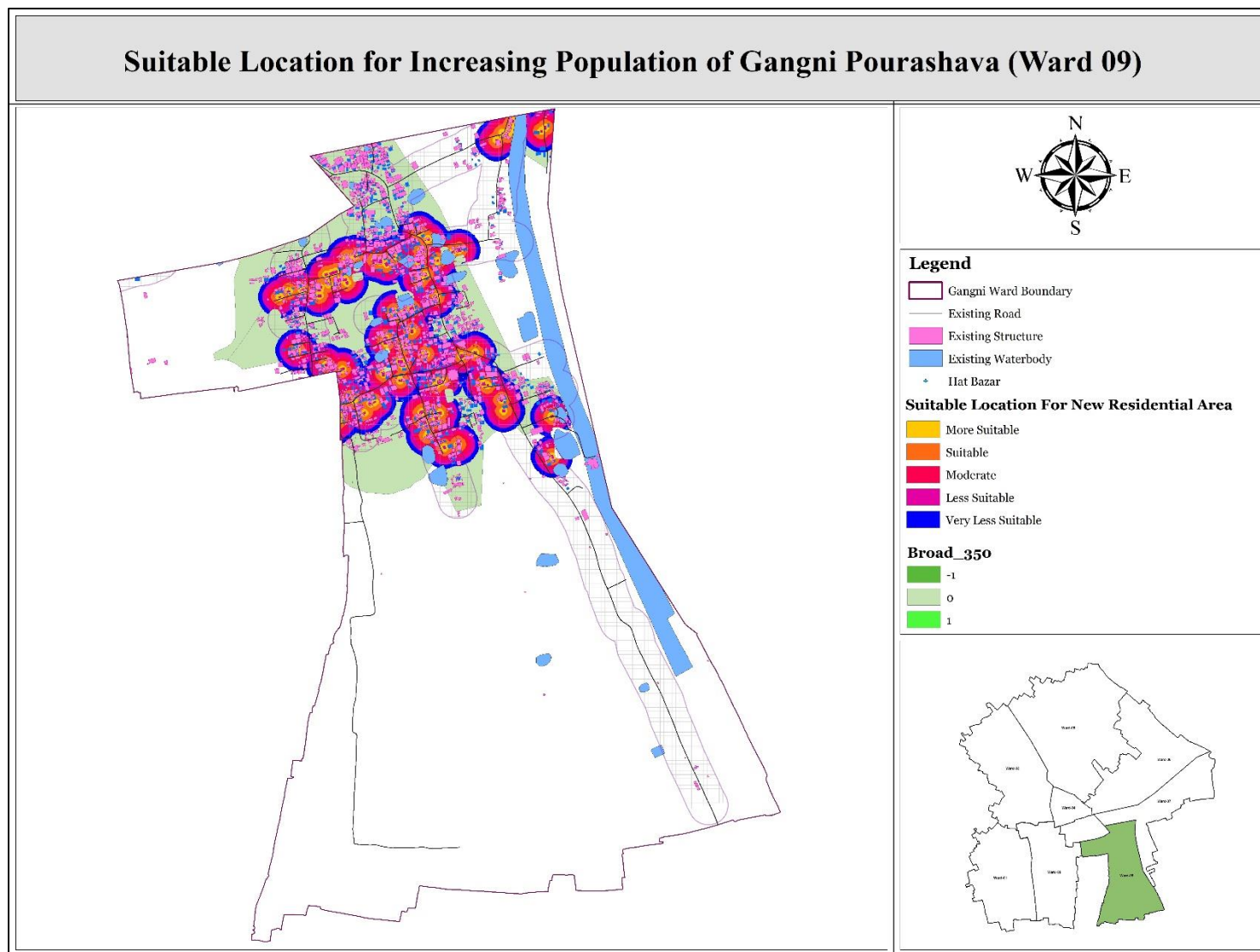


Figure 9 Suitable Location for Residential Area of Gangni Pourashava (Ward 09)