Amman Southern Gate Project Proposal

Visionary Grid Team

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Vision and Concept

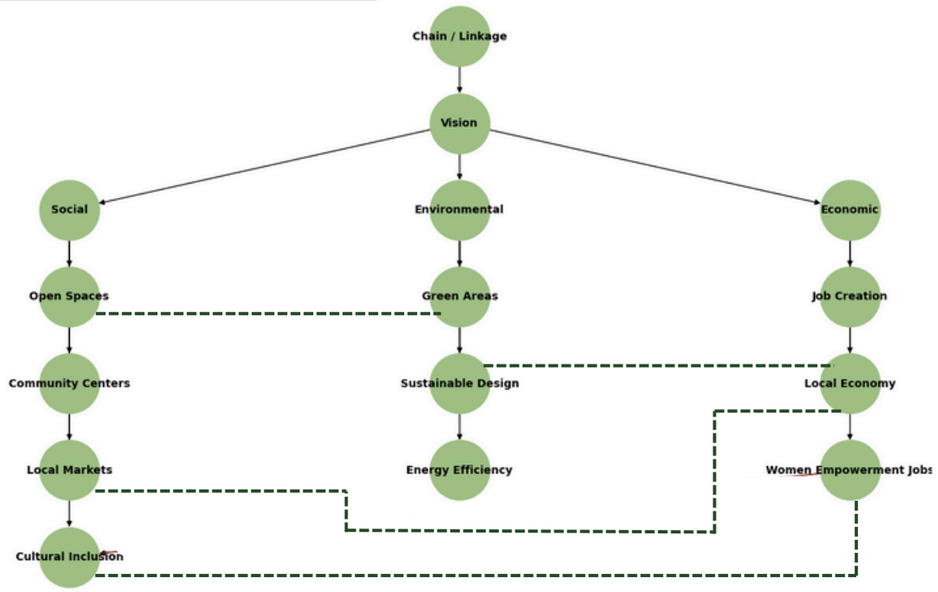
statement vision

A place that links people with nature, culture, and with each other where they can grow and thrive economically in a sustainable environment

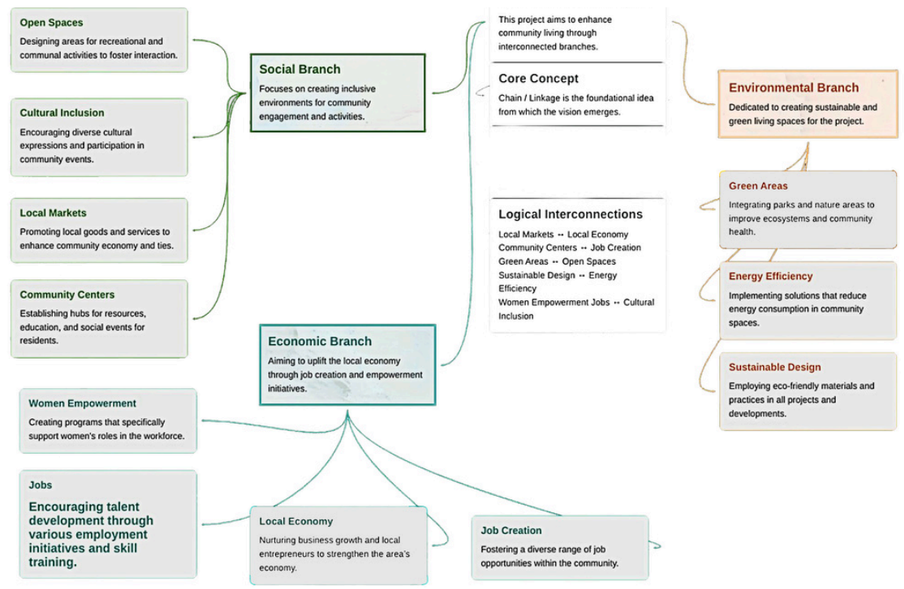
concept

chains
linkage

Mind Map

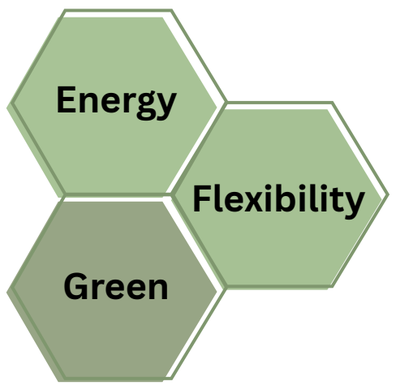


Community-Centered Sustainable Vision



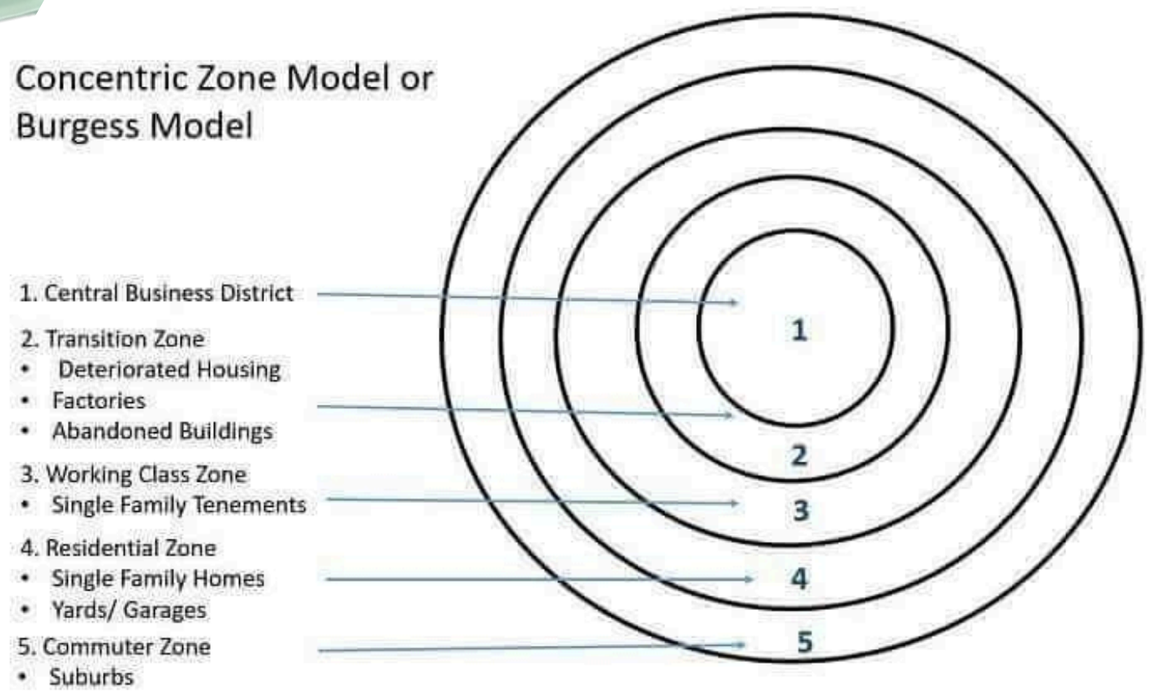
Urban Structure

Sustainability

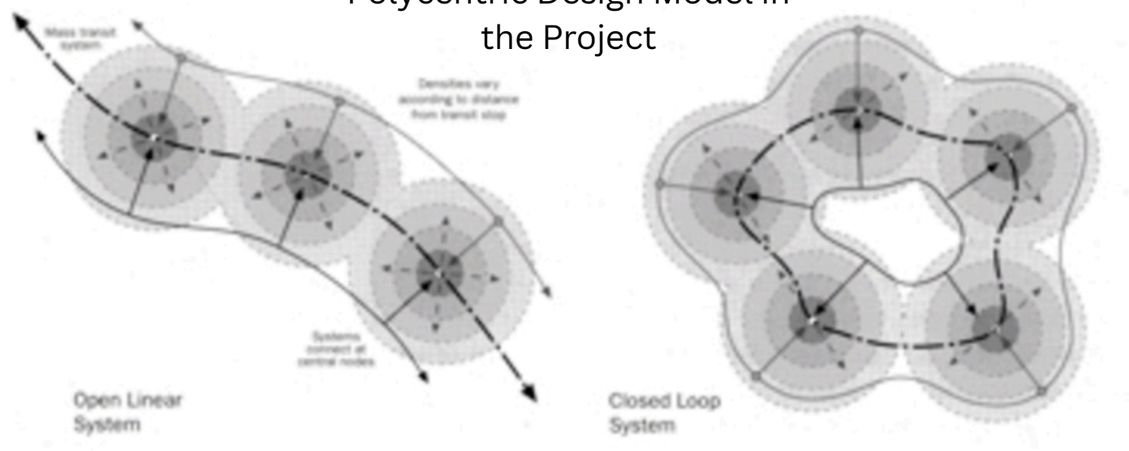


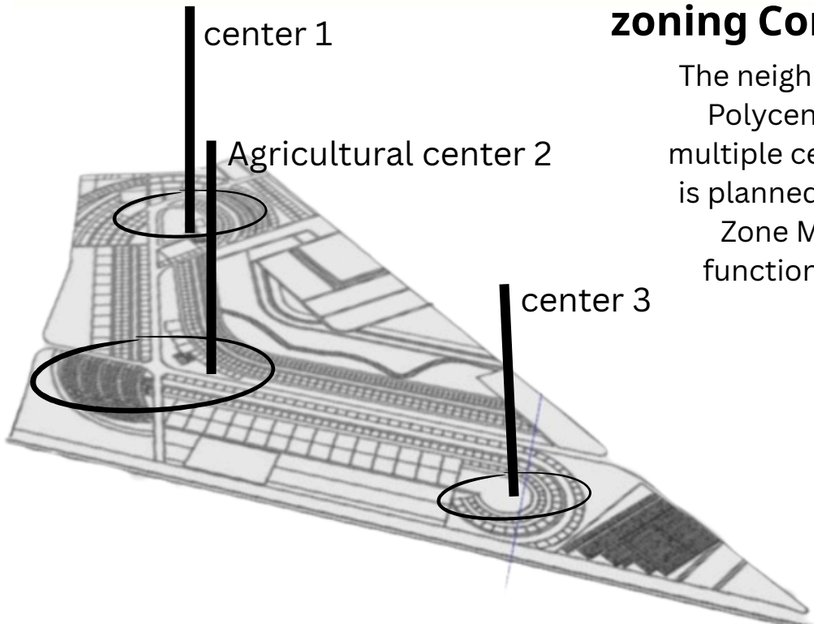
Social Values

Concentric Zone Model or Burgess Model



Polycentric Design Model in the Project



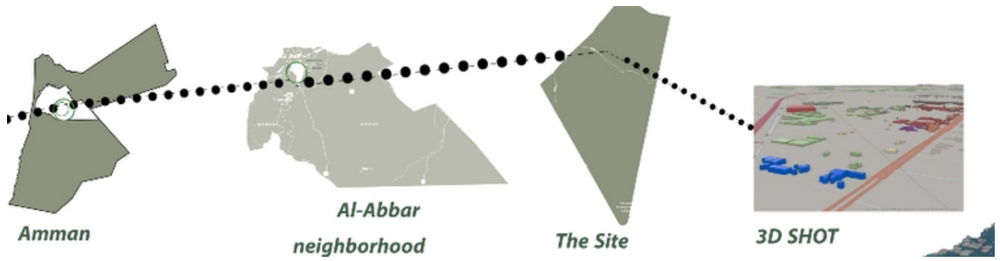


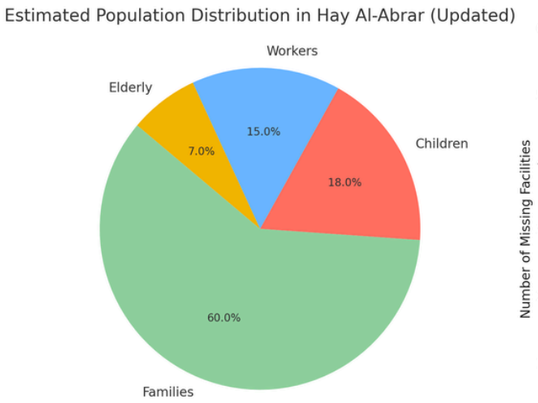
zoning Concept Summary

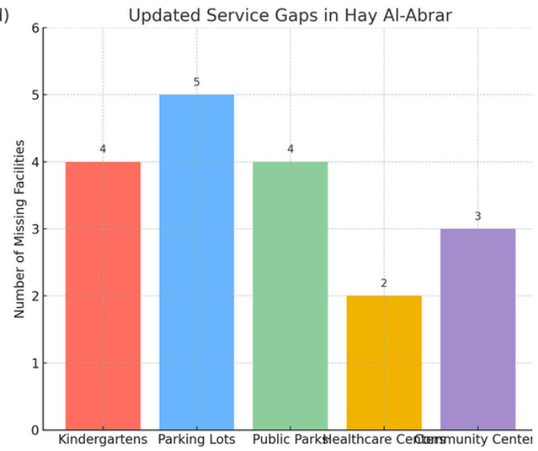
The neighborhood follows a Polycentric Model, with multiple centers. Each center is planned using the Centric Zone Model to ensure functional and balanced spaces.

Context & Analysis

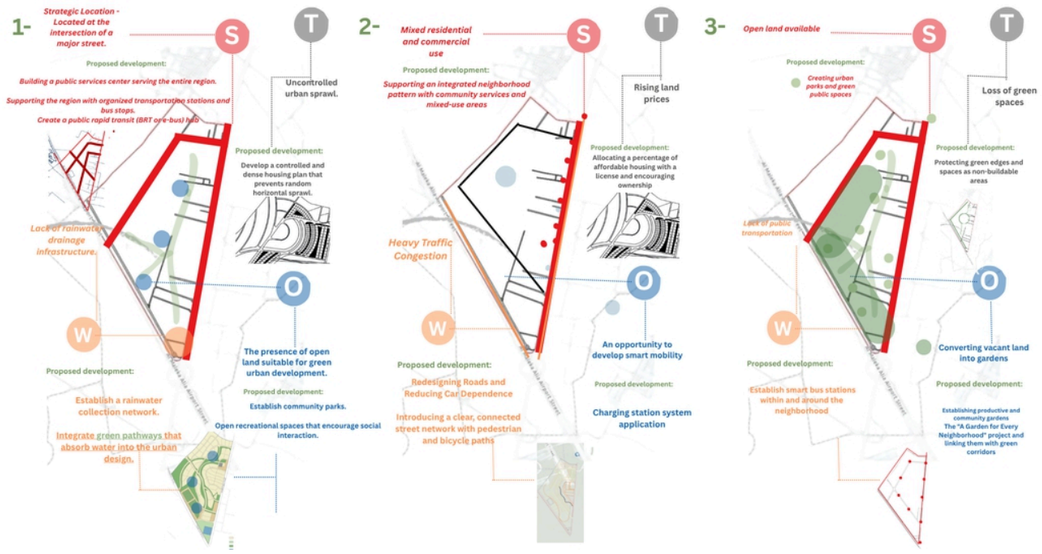
Site location and socio-spatial diagnosis

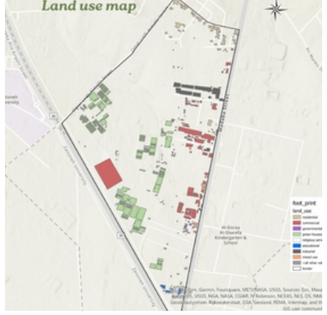




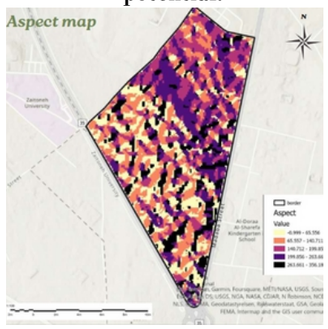


Synthesis Map





7. Land Use Map – Determines vacant and built-up land → Used to identify development potential.



2. Aspect Map – Demonstrates sun and shade directions, important for orienting buildings and planting.

8. Stream Flow Map – Determines precise water flow paths → Helps design natural agricultural and watershed areas.

1. Slope Map – Determines safe construction locations and areas to be left as green spaces.

S

Strategic location at Airport & Madaba Roads.
Easy access to Amman & Queen Alia Airport.
Mixed residential & commercial land use.
Investment potential due to proximity to airport.
Available land for flexible planning.
Existing schools & local shops.
Adaptable urban for sustainable redesign.

W

Severe traffic congestion.
Disorganized street layout.
Lack of public transit & green spaces.
Poor lighting & urban greenery.
No clear urban identity.
Few public facilities & parks.
Weak walkability, no bike lanes.

O

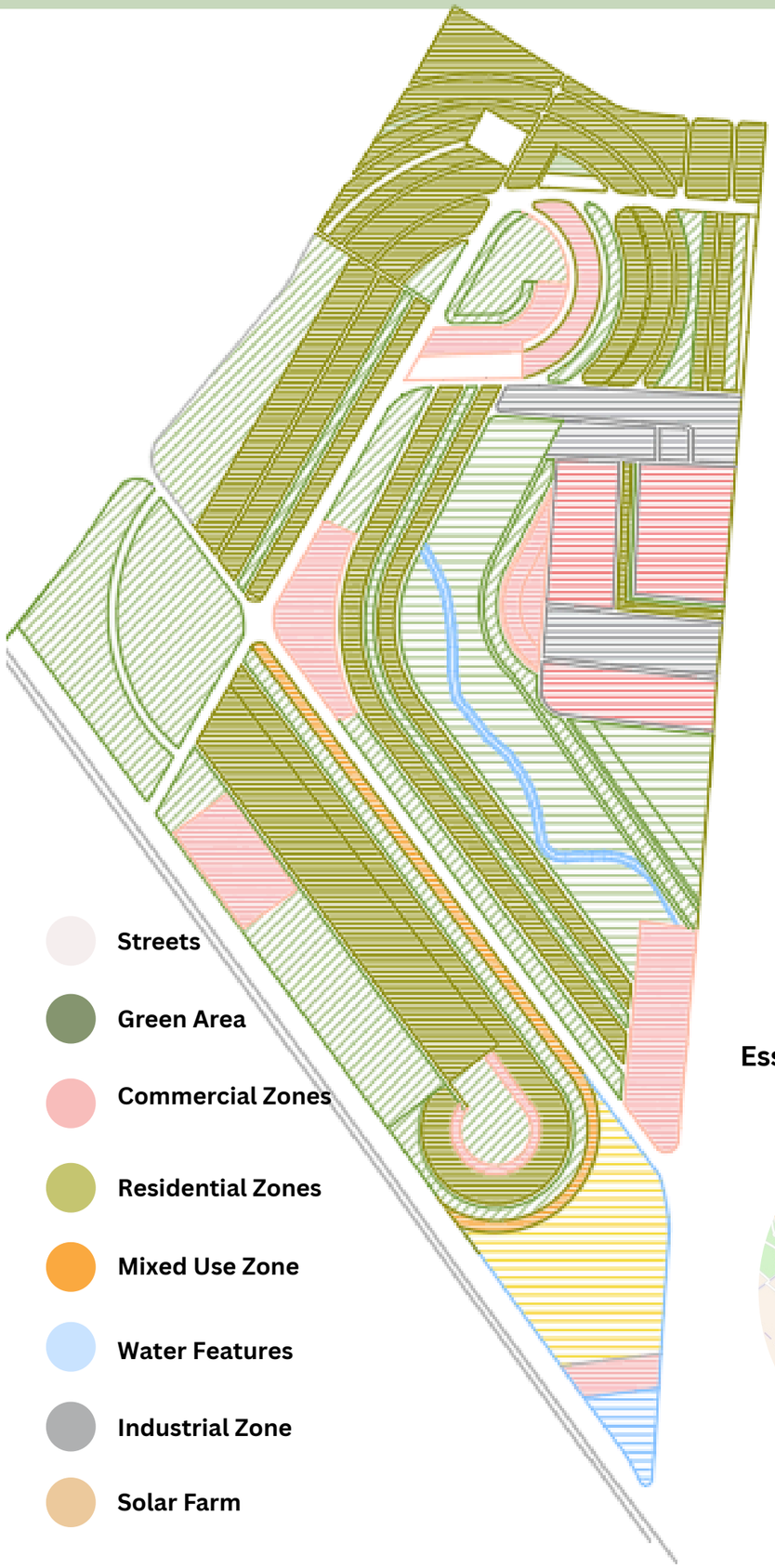
Ongoing development & investment.
Chance to upgrade transport & mobility.
Possibility for e-mobility & shared transport.
Apply smart & green urban models.
Transform empty lots to green parks.
Promote urban farming in vacant land.

T

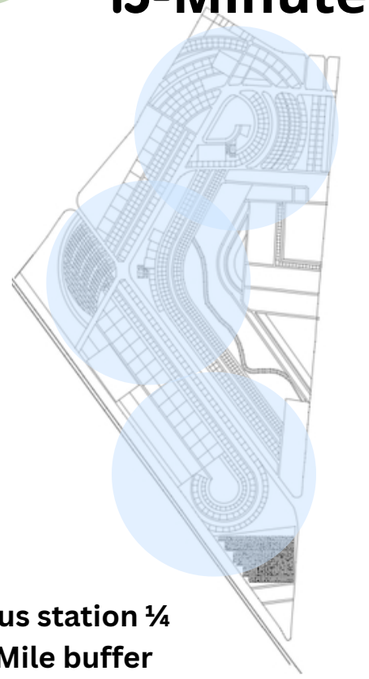
Unregulated, random growth.
Rising property costs.
Pollution & pressure on infrastructure.
Loss of green/open spaces.
Increased car dependency.
Future service failures without planning.

Understanding the socio-spatial dynamics of Al-Abbar is not just a prerequisite for design — it's the key to transforming a neglected gateway into a resilient and inclusive urban future

Land Use & Urban Form

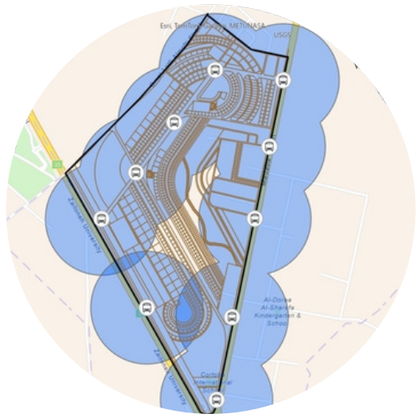


15-Minute City Model

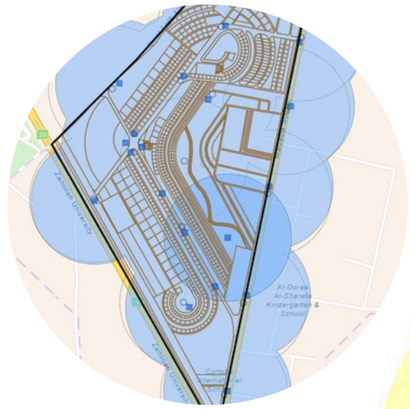


15 minute walk from the main three centers

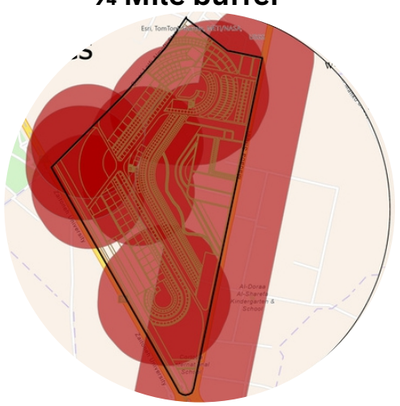
Bus station ¼ Mile buffer



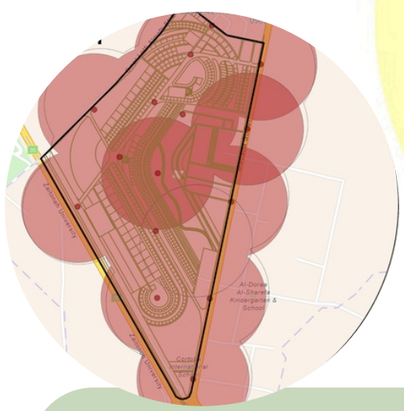
Bicycle parking ¼ Mile buffer



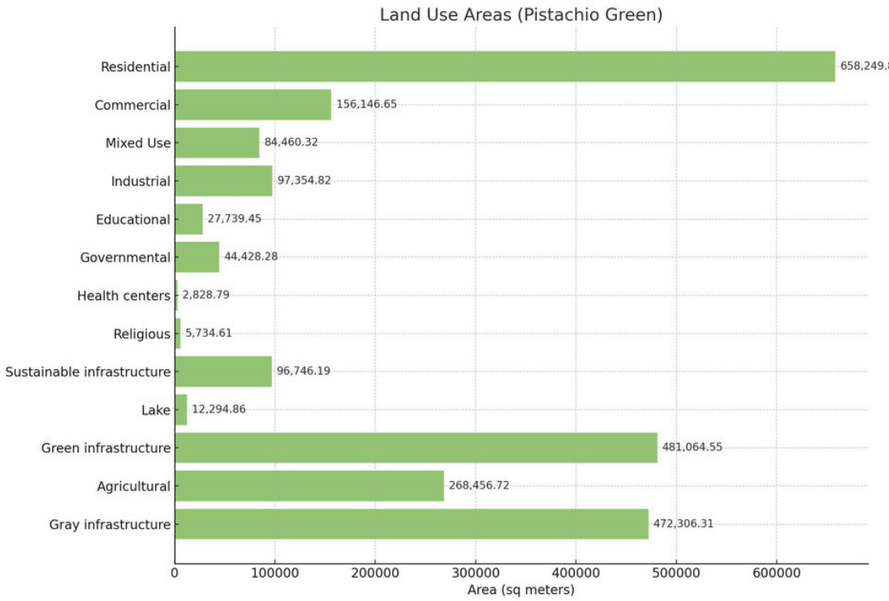
Essential every day Services ¼ Mile buffer

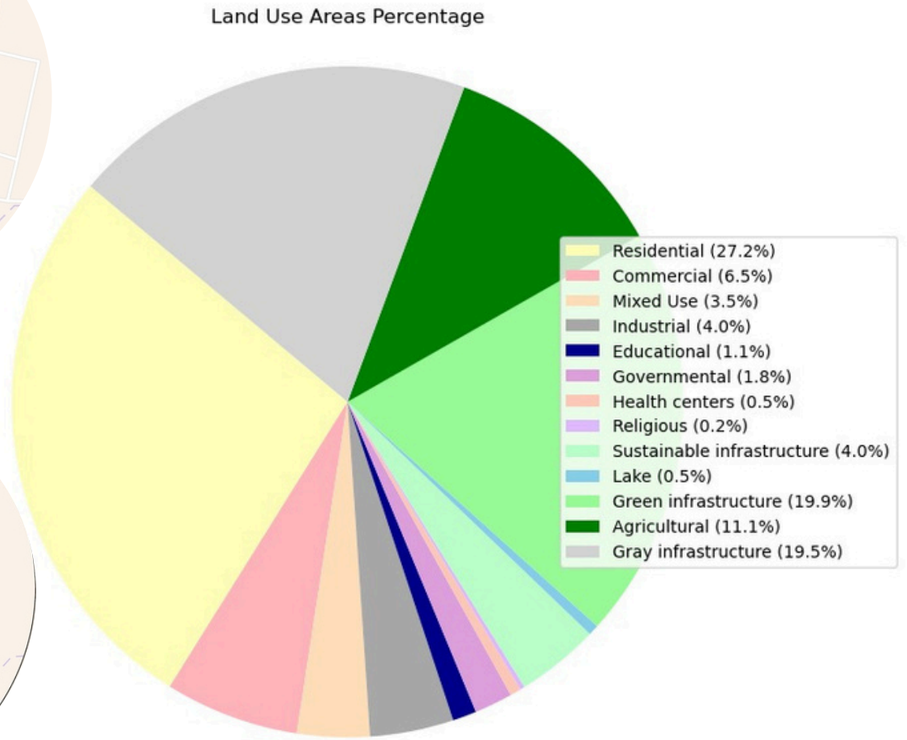


Bicycle rent stations ¼ Mile buffer



Area

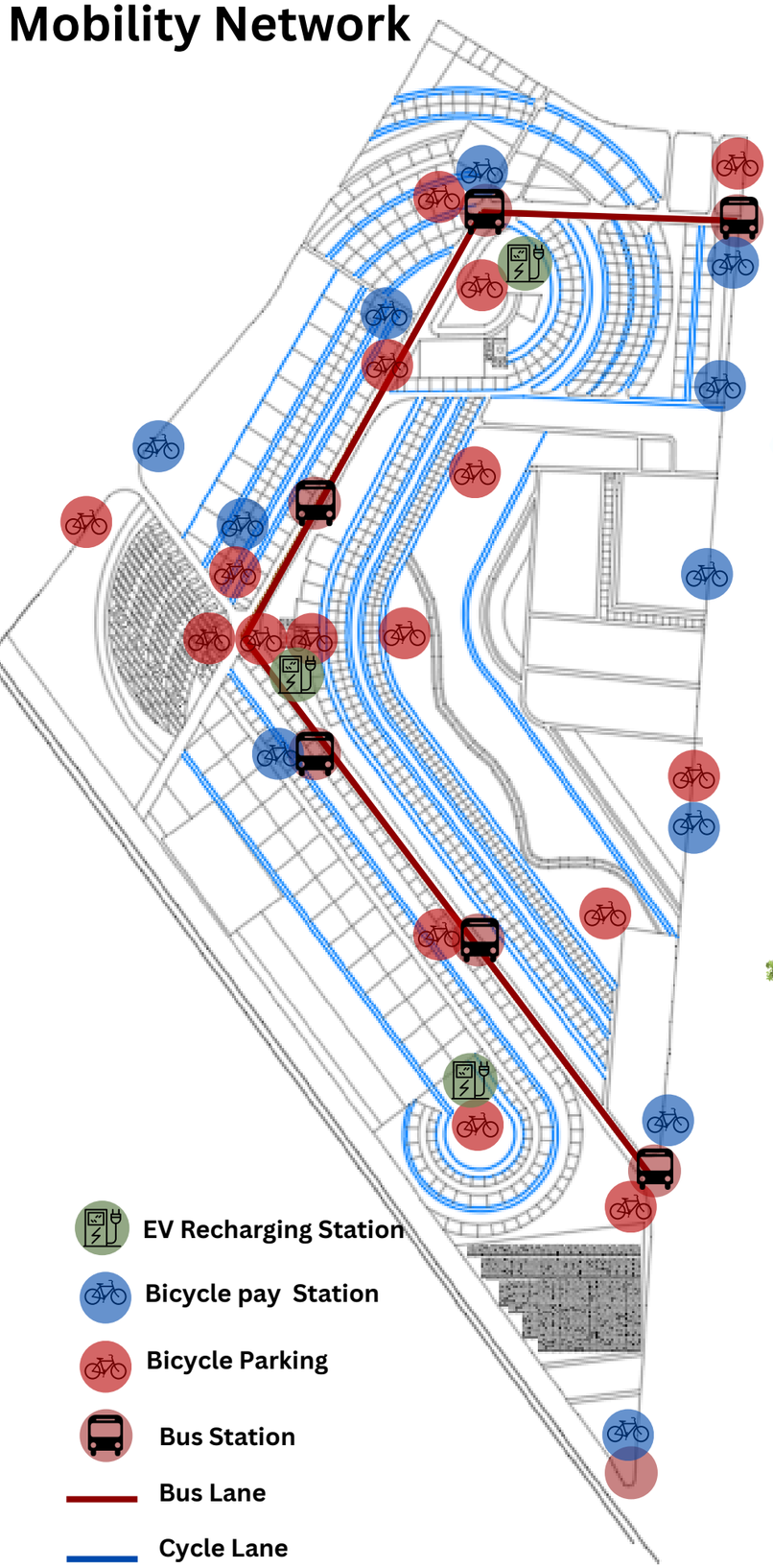


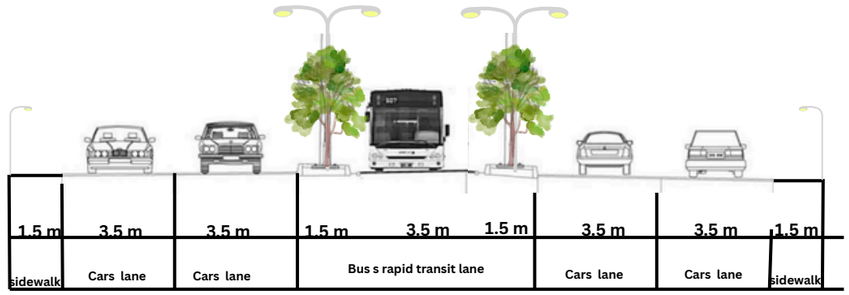


The land use distribution supports a mixed and balanced urban form, where residential, green, and service functions are accessible within a 15-minute wal

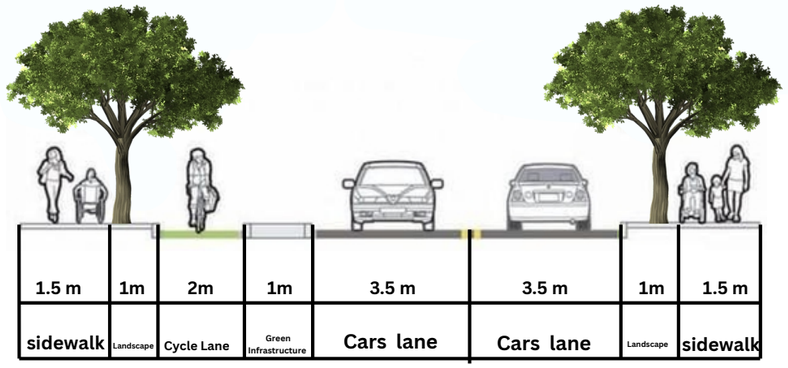
Urban Design & Mobility

Mobility Network



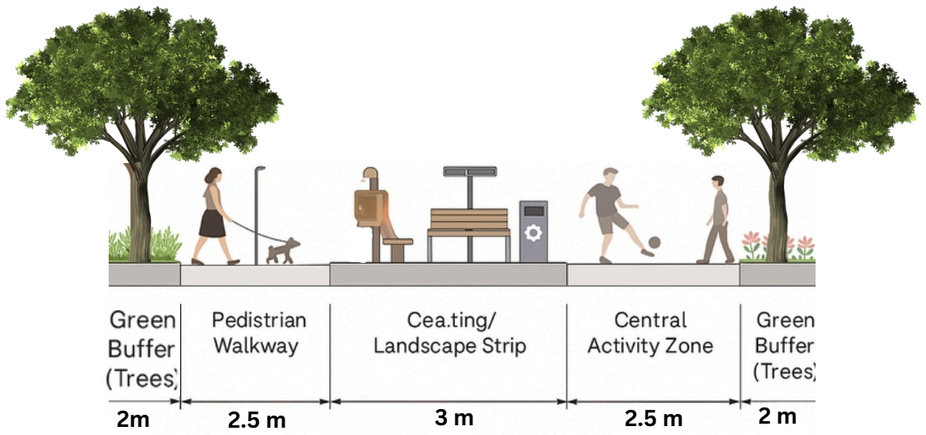


Main Street Section



1.5 m	1m	2m	1m	3.5 m	3.5 m	1m	1.5 m
sidewalk	Landscape	Cycle Lane	Green Infrastructure	Cars lane	Cars lane	Landscape	sidewalk

Local Street Section



Pedestrian Path Section

Public Realm Experience

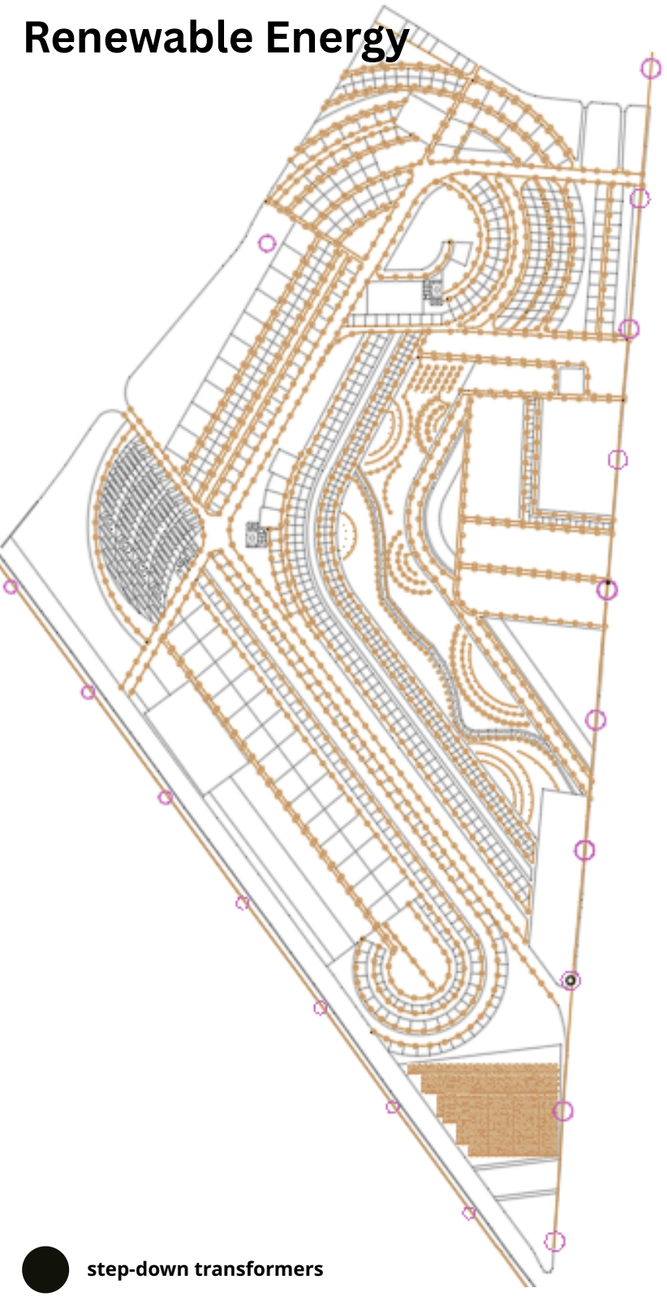
Landscape Design

The impact of design on sustainability and mobility

The network is designed to cover 90% of the neighborhood with shaded pedestrian walkways that provide access to schools, markets, and essential services in less than 15 minutes.

Environmental Strategy

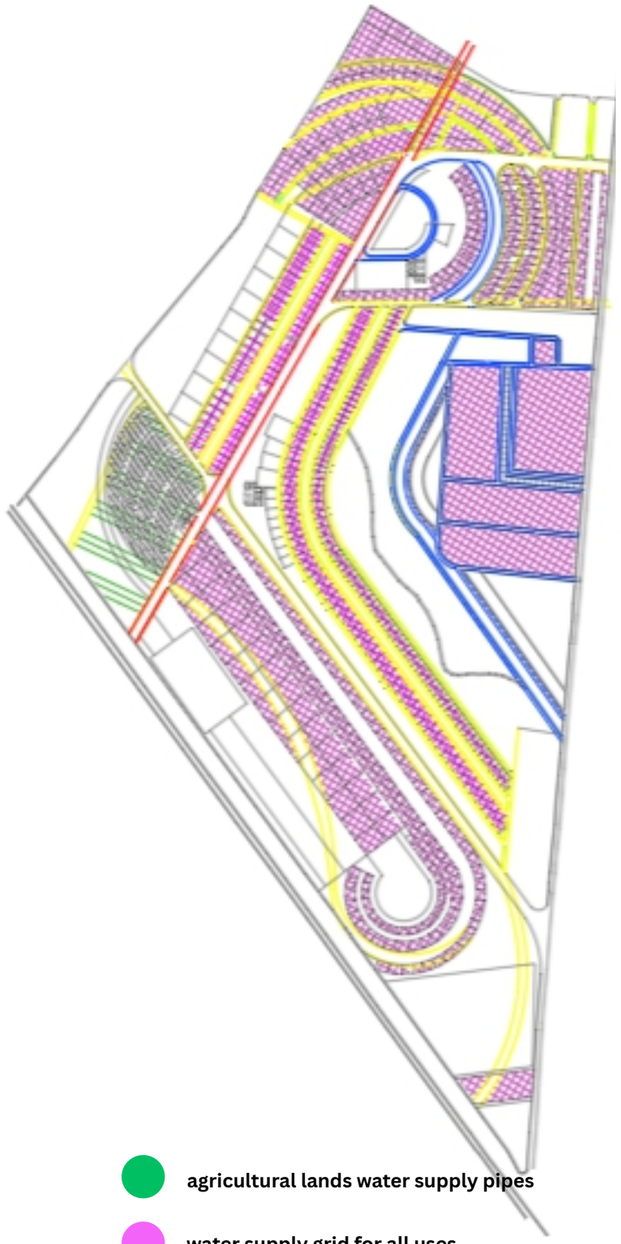
Renewable Energy



- step-down transformers
- High-Voltage towers
- Distribution & lightning Poles
- Solar Panels

10 hectare land solar farm , with an annual power of 10.5 MWh , all panels are oriented to south , with an angle of 30.75 degrees with respect to horizontal axis .

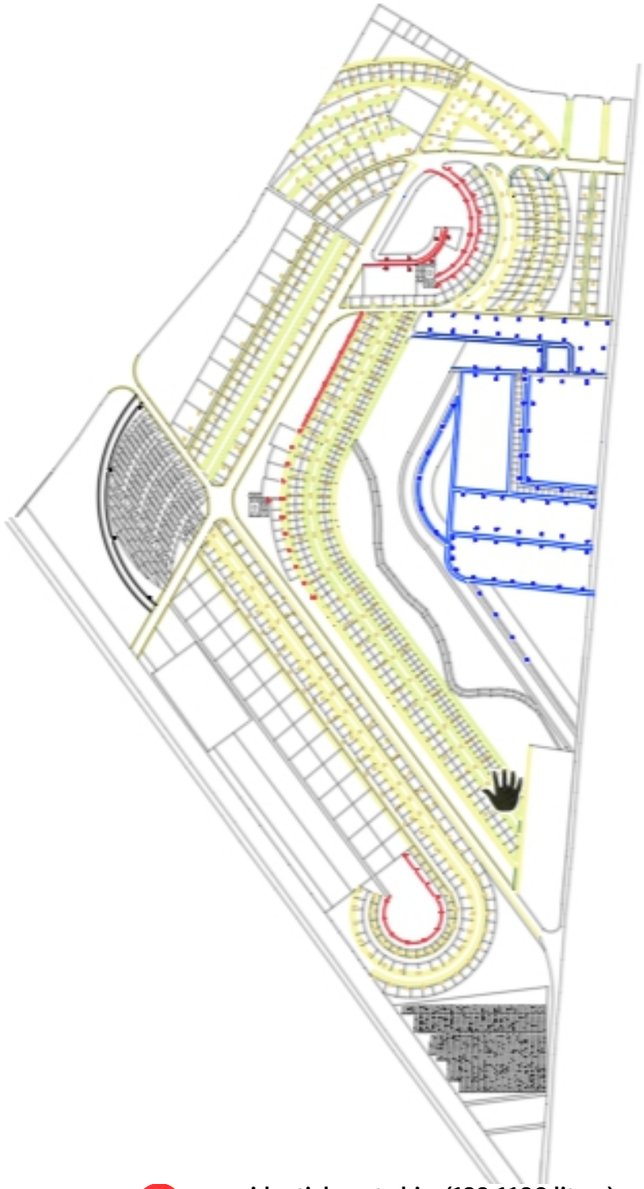
Water Management



- agricultural lands water supply pipes
- water supply grid for all uses
- water primary pipes
- water main pipe feeding all primaries
- industrial , commercial & mixed-use water supply main pipes

The main pipe is being fed by water station located in north in Yadodeh neighborhood , this pipe feeds other secondary pipes that are used for all uses, and distributed to water grid .

Recycling and waste

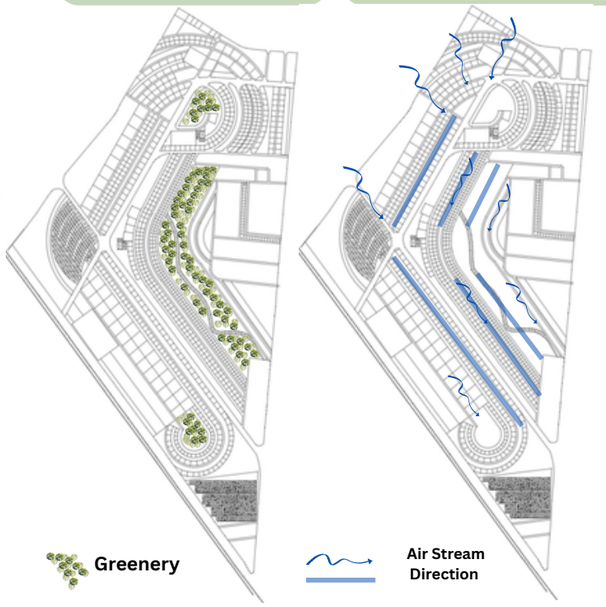


- residential waste bins(120-1100 liters)
- commercial waste bins (660-3200 liters)
- industrial waste bins (1100-5000 liters)
- agricultural waste bins (660-5000 liters)

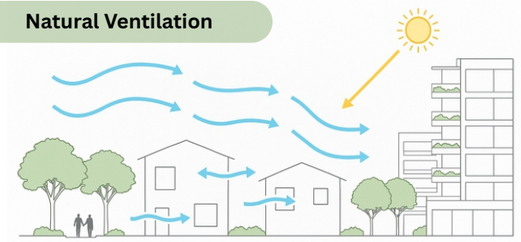
Residetial bins are spaced every 100 m, Commercial use bins are spaced every 50m, industrial use bins are spaced every 200 m and the agricultural is spaced every 300 m

climate adaptation

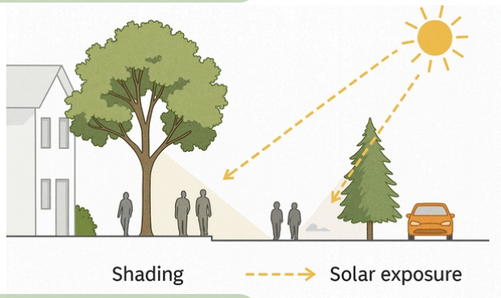
Green Cooling Impact | Natural Ventilation



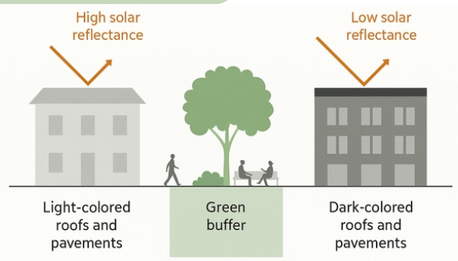
Natural Ventilation



Solar Exposure & Shading



Building Materials & Albedo



Together, these passive strategies enhance the microclimate, reduce energy consumption, and support thermal comfort for all users across the sit

Community Impact

"What if a public square could replace isolation with inclusion?"

Before:

Design elements that enhance interaction.

Family Hub
Creating spaces for families to gather

Interactive Gardens
Gardens that encourage participation

Small Youth
A space for young people to socialize

Community Library
A resource for lifelong learning

82%
said they want shaded spaces to gather

Project impact after implementation

- → Residents start using the spaces
- → Community activities
- → Sense of belonging + Increased property value

After:

Project impact after implementation

public parks

SCHOOL DEMONSTRATION GARDEN

Spaces in front of shopping malls

Artisan Center

PICK-YOUR-OWN PRODUCE SHOP

SHORT TERM
Local residents begin to use newly developed public spaces

People start spending time in shaded areas, parks, and walking paths.

MID TERM
Community events and social gatherings

Organized activities such as local markets, youth workshops, or family days begin to emerge.

LONG TERM
Sense of belonging + Increased property values

Residents feel more connected to their neighborhood.

The improved environment leads to higher property values.

Objective: To demonstrate how the project changes the lives of residents.

Innovation & Resilience

"Smart isn’t about tech — it’s about timing, tools, and people."

Urban Design Innovation

The project is smart and resilient.

1-Community Bio-Station (Bio-Diversity Hub)

The Future Biodiversity Station is a local education and research center focused on native plants, sustainable agriculture, and environmental awareness. It serves as a living laboratory and ecological sanctuary, offering workshops, planting activities, and guided tours, engaging schools and families in protecting native species and fostering an understanding of urban nature.

2-Expansion Zones for Strategic Growth

The southern and eastern edges are designated for future mixed-use or vertical expansion, supporting population growth through smart housing and innovative business hubs. These strategic zones will feature walkable designs, eco-friendly housing, green corridors, and adaptable infrastructure to meet community needs

3-Tech-Enabled Public Services

Digitized infrastructure, including smart lighting, waste monitoring, and mobile service dashboards, improves urban governance, safety, and efficiency. Real-time controls and automation enhance transparency, responsiveness, and accessibility.

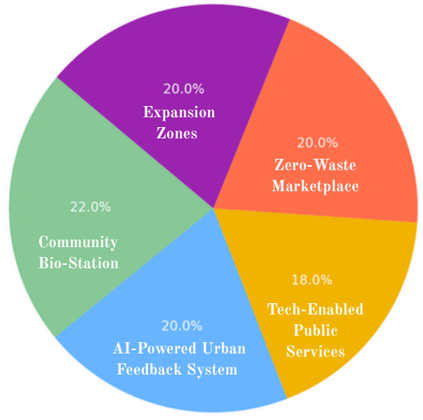
4-Zero-Waste Neighborhood Marketplace

A sustainable zero-waste market promotes reuse, recycling, and responsible consumption through local produce, bulk goods, and plastic-free packaging. It supports a circular economy, reduces waste and emissions, and encourages green entrepreneurship.

5-AI-Powered Urban Feedback System

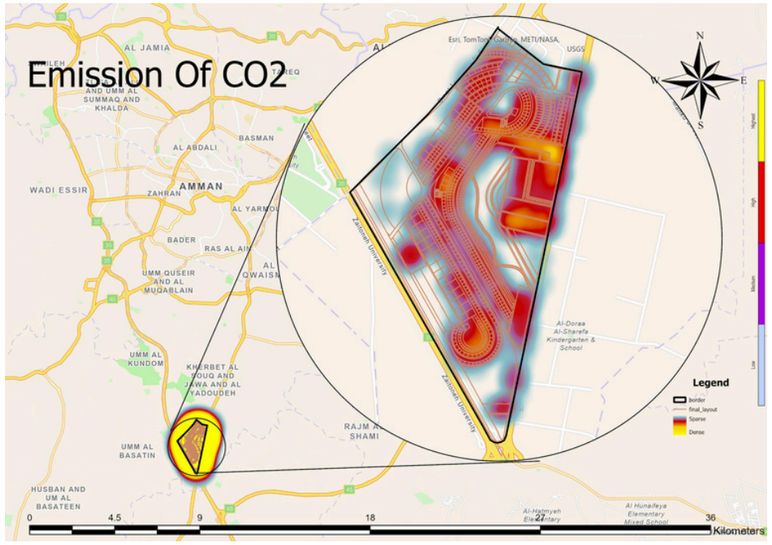
An AI-powered system monitors data, energy consumption, and waste to suggest continuous improvements in services and infrastructure. By leveraging real-time input from sensors and mobile apps, it enables cities to better meet residents' needs. Additionally, a smart grid system powered by AI optimizes energy distribution and enhances sustainability.

Impact of Strategic Urban Interventions on the Neighborhood

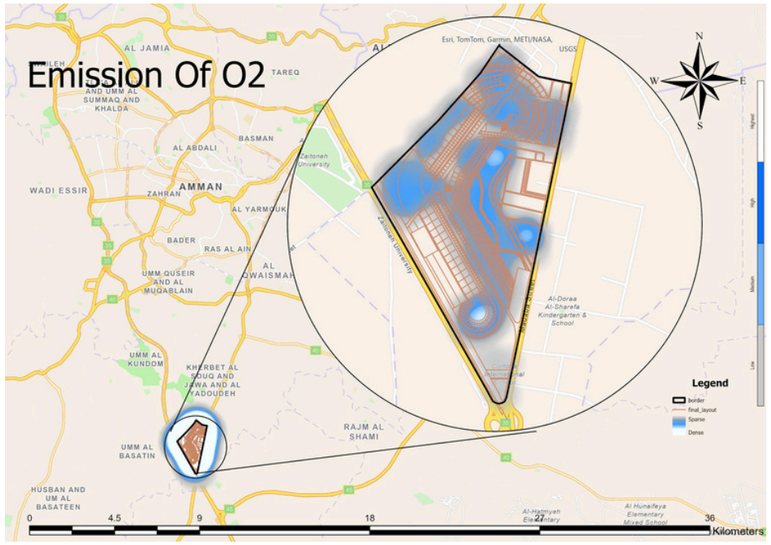


Enhances environmental awareness, promotes native biodiversity, and engages the community in sustainable .practices	22%	Community Bio-Station
Supports population growth through walkable, mixed-use .developments and adaptable infrastructure	20%	Expansion Zones
Improves safety, waste control, and energy use with smart, .automated infrastructure	18%	Tech-Enabled Public Services
Encourages local production, reduces waste, and .strengthens the circular economy	20%	Zero-Waste Marketplace
Optimizes infrastructure with real-time data to respond to .residents’ needs efficiently	20%	AI-Powered Urban Feedback System

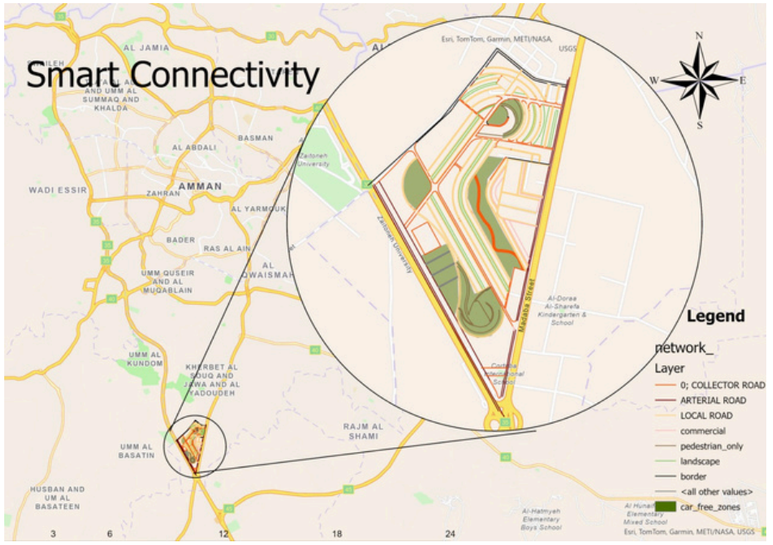
GIS Analysis for Climate Resilience



Distribution of carbon dioxide emissions within a neighborhood
Benefit: Identifies high-emission areas to reduce pollution through improved transportation, increased afforestation, or the development of environmentally friendly buildings.

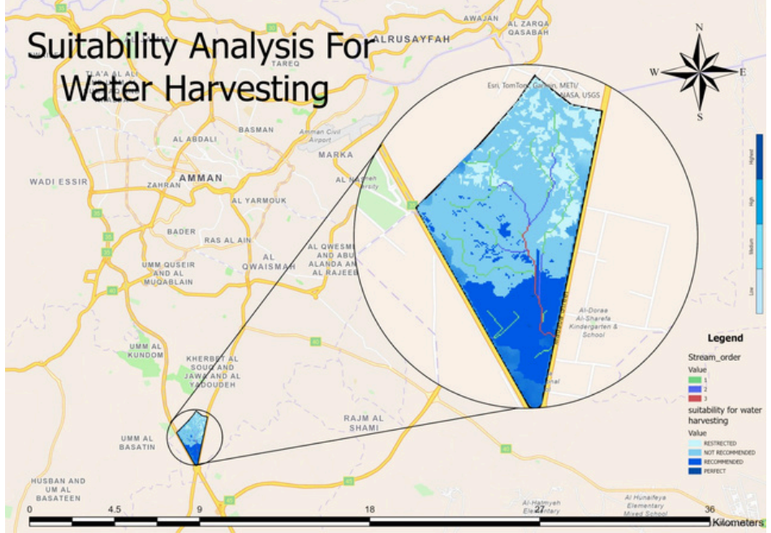


Distribution of oxygen production (mostly from green spaces and vegetation)
Benefit: Highlights areas that contribute to improved air quality, helping plan for increased green space in other areas.

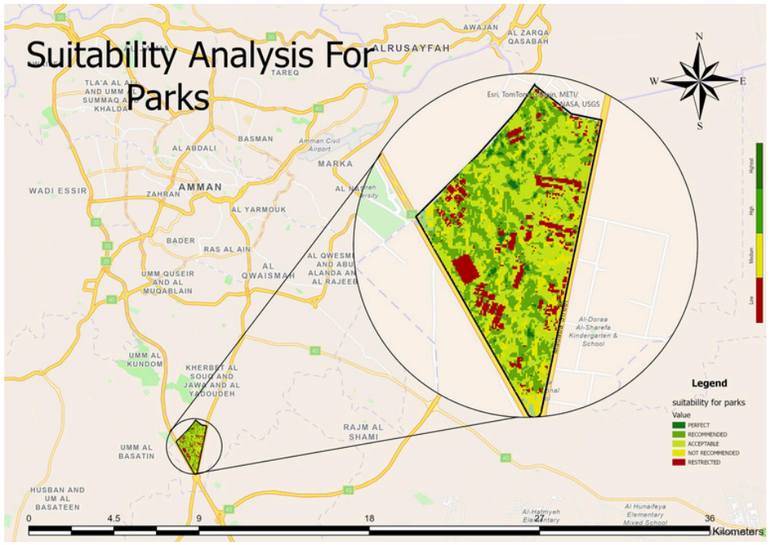


Smart road networks and connections between neighborhood areas (such as highways, quiet lanes, and pedestrian and bicycle paths)
Benefit: Enhances mobility and reduces reliance on private vehicles, contributing to reduced emissions and enhanced neighborhood resilience.

Distribution of buildings that use recycled materials
Benefit: Indicates the trend toward sustainable construction and reducing the environmental footprint of construction within a neighborhood.



Suitability of areas for rainwater harvesting
Benefit: Helps identify suitable locations for water harvesting systems, enhancing water security and reducing pressure on traditional resources.



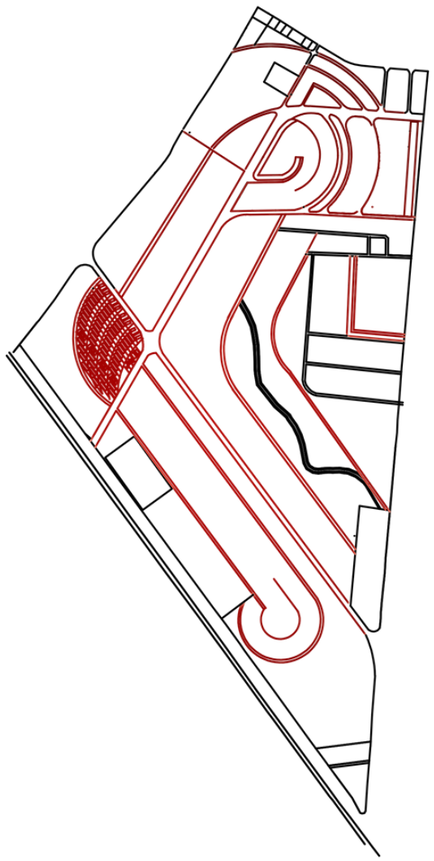
Areas most suitable for public parks
Benefit: Directing green planning toward areas of greatest need or feasibility, which enhances residents' health and quality of life and reduces urban heat.

These maps show how GIS maps helped demonstrate the impact on the neighborhood when implementing the vision to enhance the neighborhood's resilience to climate change by reducing pollution, increasing green spaces, improving smart infrastructure, and enhancing resource management.

Implementation Overview

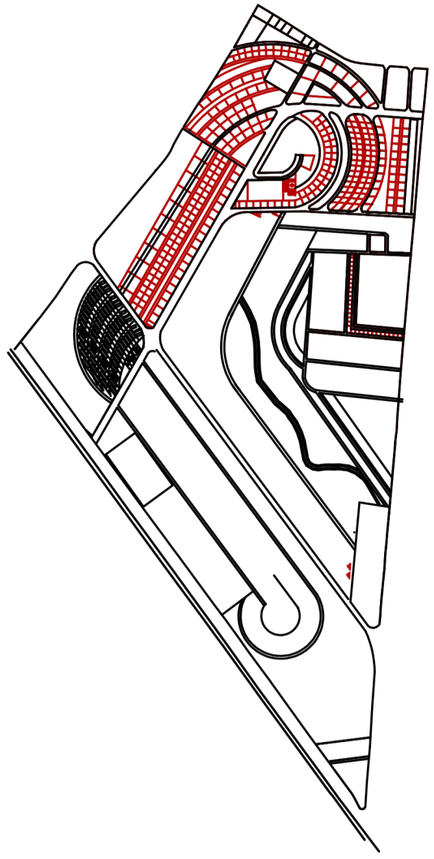
TIME LINE

SHORT-TERM (0-1)YEARS



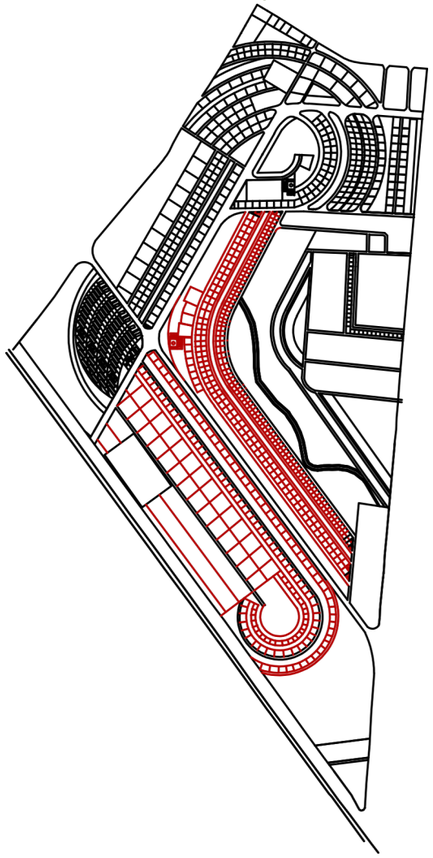
- Prepare the infrastructure: water, electricity, sewage, and pedestrian pathways.
- Construct the main roads only, to ensure basic accessibility and phase-based development.
- Start with the green open spaces to encourage early social interaction.
- Begin the development of the agricultural areas and plastic greenhouses.
- Set up the first local market kiosk to support local farmers and connect them with residents.

MEDIUM-TERM (1-3)YEARS



- Build the first main center as a prototype that represents all planned elements across the entire site (residential, commercial, sustainable, and social features).
- Start residential units near existing homes to avoid separation and allow natural expansion.
- After 1–1.5 years of living, conduct surveys to get user feedback and improve the design before continuing with the remaining centers and entering the long-term phase.
- Finish internal pedestrian routes and car-free commercial zones.
- Expand agricultural areas and upgrade greenhouses.
- Launch community events to boost social interaction.
- Build a sewing workshop to engage women and locals, along with housing for clean, light industries (soft industries) that produce no pollution.

LONG-TERM (3-6)YEARS



- Construct the remaining two main centers based on feedback and adjustments from the first center experience.
- Complete all remaining residential zones and services across the site.
- Fully activate the commercial and community areas within each center.
- Expand clean light industries and increase job opportunities for locals.
- Maintain and improve agricultural production and local market systems.
- Continue hosting cultural and social events to strengthen long-term community bonds.
- Monitor sustainability systems and upgrade when needed for better performance and efficiency.

Main Construction Phases

- Infrastructure & main roads
- First center + pilot housing
- Agricultural & green spaces
- Remaining centers + full residential
- Final services & industries

Stakeholders

Implementing Entities

- Greater Amman Municipality – Responsible for local planning and implementation.
- Yarmouk Water Company – In charge of sewage networks and water management.
- Jordan Ministry of Environment – Ensuring project sustainability and natural resource protection.
- Jordan Ministry of Water and Irrigation – Particularly focused on water reuse initiatives.
- German Agency for International Cooperation (GIZ) – Main funder of sustainable sewage projects in South and East Amman (funding started in 2019 and is ongoing).
- KfW Development Bank (German Reconstruction Bank) – Funding sewage projects in areas such as Al-Yadudah, Wadi Al-Seer, and Naour (projects started around 2018-2019, with phases continuing until 2024-2025).
- Local community organizations and women's groups – Participating in supporting and managing community agricultural and soft industry projects.
- Wastewater management and water treatment companies – Designing and implementing sewage systems and water reuse for agriculture.

Expected Implementation Years:
2018-2025: Phases of sewage projects implementation in South and East Amman, including Al-Yadudah.
2023-2026: Expansion and improvement of water reuse networks and sustainable agriculture.

Challenges & Solutions

→ Weak sewage infrastructure
Solution: Align with national projects (GIZ & KfW) to ensure coverage.
→ Low public awareness
Solution: Conduct workshops and surveys to engage the community.
→ High infrastructure costs
Solution: Use phased planning, starting with essential services.
→ Risk of social separation
Solution: Start near existing homes and create shared spaces.
→ Limited funding for local activities
Solution: Partner with NGOs and ministries to support farming and soft industries.

Final Summary Board

Building Use

1. Category A Housing – Premium family homes.
2. Category B Housing – Mid-range residential units.
3. Category C Housing – Student housing for nearby universities, promoting diversity.
4. Category D Housing – Affordable homes for factory workers.
5. Rural-Style Homes – With private farming plots, acting as a transition from agricultural to residential zones.
6. Mixed-Use Buildings – Combining residential, commercial, and community functions.
7. Light Industries – Such as dairy, embroidery, and tailoring workshops to empower women and preserve local culture.
8. Yadoudeh Zoo & The Jordan Zoo – Connected by a shared public park.
9. Existing Mixed-Use Area – Along Madaba Street, including offices.
10. Agricultural Lands – Preserved for farming and green space.
11. Main Central Parks – Key public green areas.
12. Solar Panels – For sustainable energy generation.
13. Water Collection Lake – For treated water reuse.
14. Expanded School – Includes agricultural education and a kindergarten with a plant-learning path.
15. Health Center – Centrally located to serve all residents.
16. Cultural Center – With indoor/outdoor sports facilities and swimming pools.
17. Church – Serving the 6% Christian community as part of social inclusion.
18. Mosques – Distributed near parks for spiritual and reflective spaces.
19. Pedestrian-Only Commercial Zones – Encourage walking, social interaction, and leisure-focused retail.
20. Car-Accessible Commercial Zones – For daily needs, especially for seniors or those who prefer driving.
21. Revitalized Valley – Landscaped and paved with a filtration system to ensure cleanliness and safety.
22. Shared Backyards – Encourage neighborly interaction through communal gardening.
23. Greenhouses – With fruits, vegetables, and flowers; includes self-pick shops to support local farmers.
24. Agricultural Exhibitions – Located in the farming zone for plant lovers and hands-on learning.

building use for the commercial zone (number 20 and 19)

Service	Center 1	Center 2	Center 3	Pedestrian Only A	Pedestrian B	Required Units	Frequency per Population	Distance Between Units
Bakery	1	1	1	1	1	5	1 per 3,000–5,000 people	Every 500–800 meters
Grocery/Small Supermark	1	1	1	1	1	5	1 per 2,500–3,000 people	Every 300–500 meters
Fruits and Vegetables	1	1	1	1	1	5	1 per 5,000 people	Every 600–800 meters
Butcher	1	1	1	1	1	3	1 per 6,000–8,000 people	About every 1 km
Dairy Products Shop	1	1	1	1	1	3	1 per 6,000–8,000 people	About every 1 km
Pharmacy	1	1	1	1	1	3	1 per 5,000–8,000 people	Every 1–1.2 km
Café/Tea & Coffee Kiosk	1	1	1	1	1	3	1 per 4,000–6,000 people	Every 700–900 meters
Sweets Shop	1	1	1	1	1	3	1 per 8,000–10,000 peop	Every 1.5–2 km
Women's Salon	1	1		1	1	3	1 per 4,000–5,000 people	Every 800 m – 1 km
Men's Salon	1	1		1	1	3	1 per 4,000–5,000 people	Every 800 m – 1 km
Stationery/Bookstore	1	1	1	1	1	3	1 per 10,000 people	Every 1.5–2 km
Mobile & Electronics Shop	1	1	1	1	1	3	1 per 8,000–10,000 peop	Every 1.5–2 km
Shawarma/Falafel Kiosk	1	1	1	1	1	5	1 per 4,000–5,000 people	Every 700–900 meters
Plant Nursery/Flower Shop	1	1	1	1	1	2	1 per 12,000–15,000 peop	Every 2–2.5 km
Small/Branch Commercial	1	1	1	1	1	3	1 per 5,000–6,000 people	About every 1 km
Study Café				1	1	2	1 per 10,000 people	Every 500–800 meters
Regular Café	1	1	1	1	1	5	1 per 4,000–5,000 people	Every 700–900 meters

This Sustainable Neighborhood is Planned to Accommodate an Expected Population of 6000 Residents .

How the Project Fulfills the C40 Principles (sustainability)

Principle	Project Application
1. Low Carbon	Renewable energy, passive cooling, and solar design reduce emissions.
2. Green Spaces	Tree-lined streets and parks support biodiversity and wellbeing.
3. Active Mobility	Dedicated walking and cycling paths within a 15-min neighborhood.
4. Mixed Use	Integrated housing, markets, and services to reduce travel demand.
5. Inclusive & Affordable	Accessible public spaces and programs for youth, women, and families.
6. Local Culture	Celebration of local identity through community hubs and events.
7. Climate Resilience	Urban cooling, rainwater management, and heat-resilient design.
8. Circular Resources	Water reuse systems, and low-waste strategies.
9. Health & Wellbeing	Quiet green areas and shaded walkways to improve mental and physical health.
10. Community Engagement	Design rooted in contextual analysis and people-centered strategies.

Cost Estimate

NAME	AREA- LENGH	MATERIAL TYPE	QUINTITY (M,M2,M3)	COST ($)
LANDSCAPE	750,000 M^2	INTERLOCK TILES + SOIL	450,000M^2 300,000M3	15 millions $
ROADS	500,000M^2	ASPHALT LAYERS + SUBBASE	75,000M3 100,000M3	9 millions $
SEWAGE NETWORK	65,000M	PVC PIPES + CONCRETE MANHOLS (EVERY 40 M ONE MANHOL)	65,000M 1,600PCS	3 millions $
RAINWATER PIPES	65.000M	Pvc pipes + concrete manhols (every 40 m one manhol)	65,000M (length) 1,600PCS	2.7 millions $
IRRIGATION SYSTEM	750,000M	PVC Class 6\ D= 20-32 mm	750,000 M	6.9 millions $
BUILT UP AREA	1,076,943 M^2	CONCRETE, STEEL REBARS,AAC BLOCKS	376,930 M3 48,460 TONNES 161,541 M3	900 millions $
SOLAR FARM + ELECTRICITY GRID	100,000M^2	POLYCRYSTALLINE SILICON	24,585 PANELS	8 MILLIONS $

Total cost = 944 millions $