



A Geodesign Approach to Community Planning in Barrio Venezuela, Puerto Rico


Community-led design for housing and connectivity

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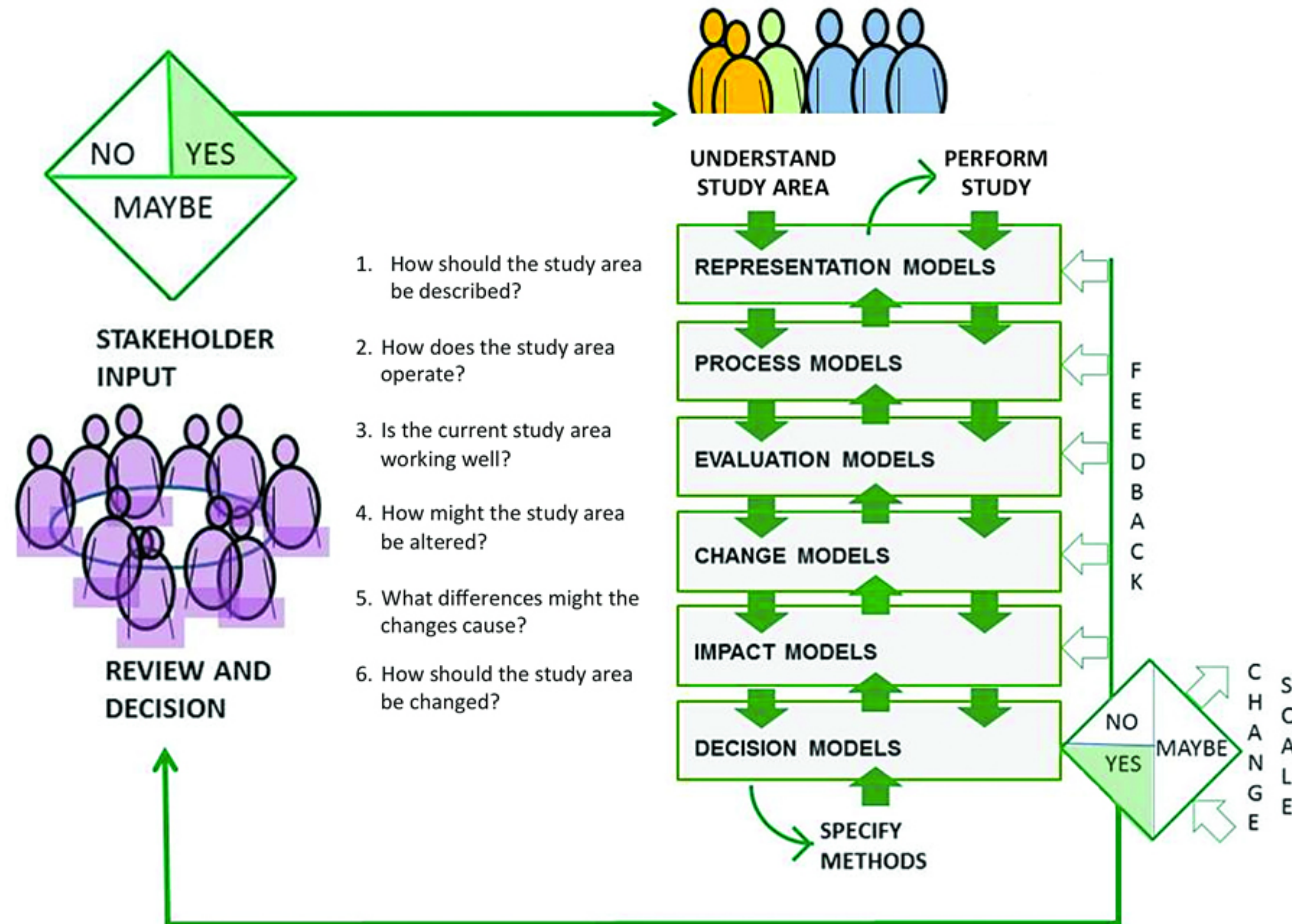


What is Geodesign?



- The geodesign frameworks aims to tackle complex and significant design problems at a geographic level.
 - It requires collaboration as a central principle.
 - Stake holders or the people of the place are for whom a geodesign study is undertaken.
 - They establish the values, propose changes and make the final decision.
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What is Geodesign?



At the center of the framework, along with the people of the place, are the six questions through which a geodesign study is conducted

What is Geodesign?

- Evaluations, change impacts and decisions will be made around 8 systems that represent activities in the AOI.

Housing

**Transportation
Infrastructure**

**Energy
Infrastructure**

**Water
Infrastructure**

**Green
Infrastructure**

Institutional

Agriculture

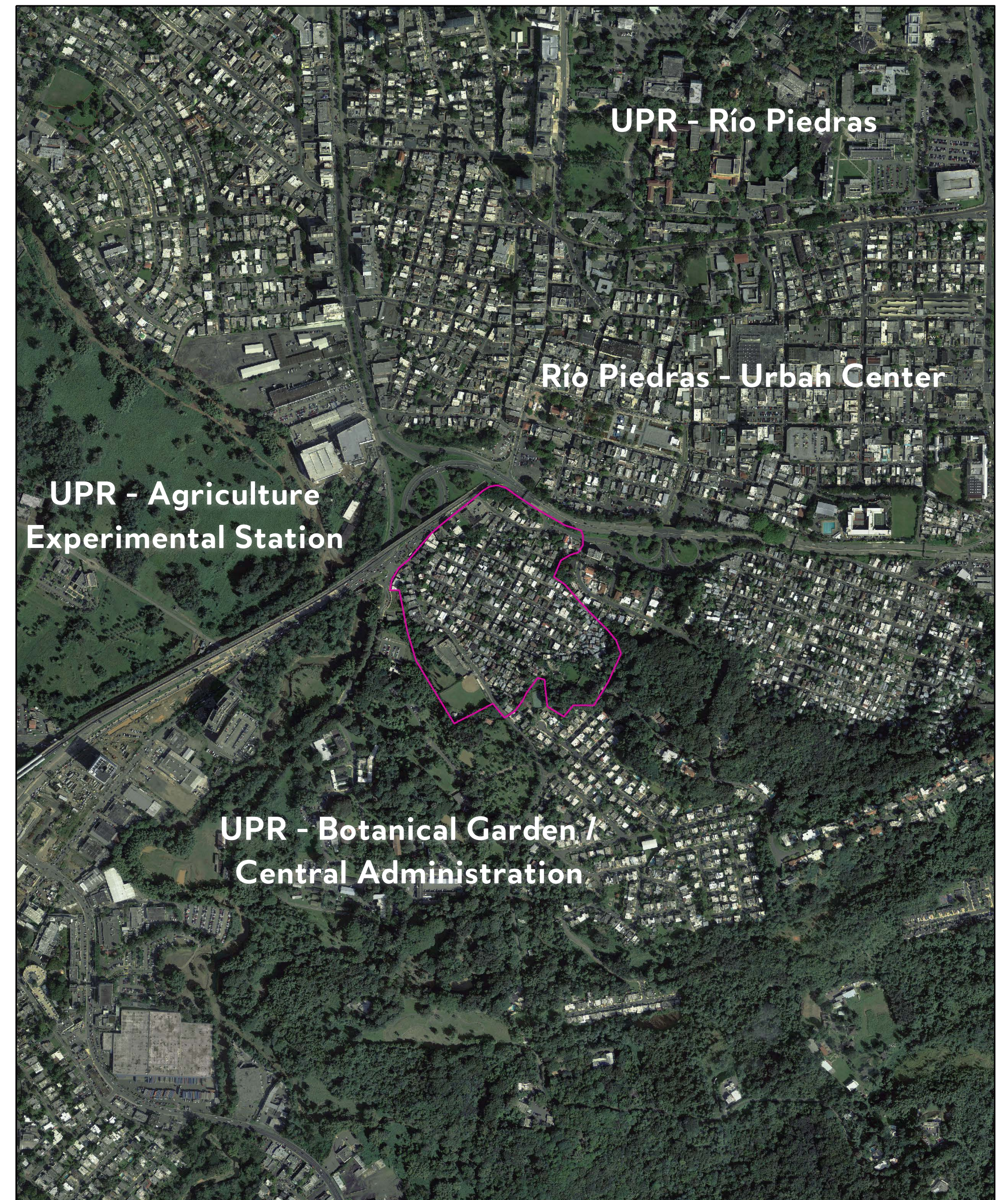
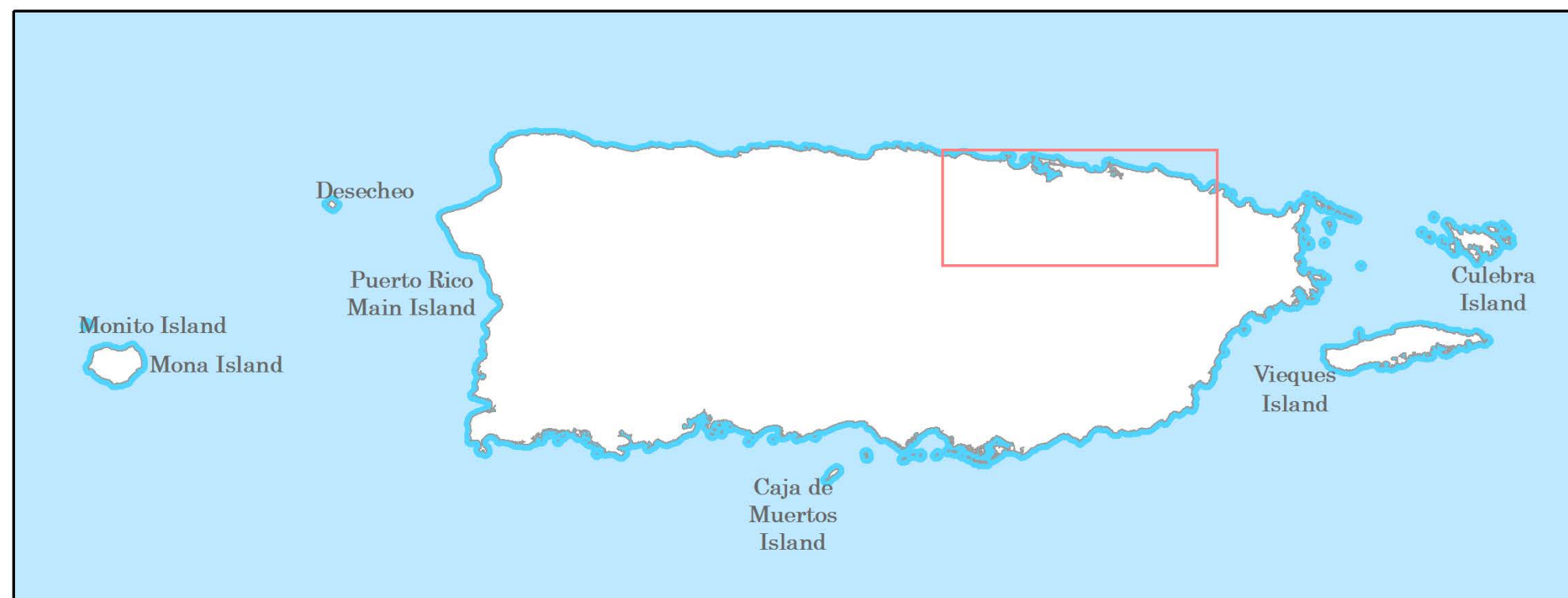
**Commerce and
Industry**

A geodesign study for Barrio Venezuela



Representation Model

- Located in the Río Piedras Ward of San Juan, capital of the US Territory of Puerto Rico.
- First establish circa 1910 as a workers informal settlement.
- Covers an area of approximately 40 acres.
- Heist elevation point at 180 feet.
- Over the years the community was formalize by local residents upgrading of structures and the provision of utility services and infrastructure.



1936



2010



Process Model: Drivers for Decline

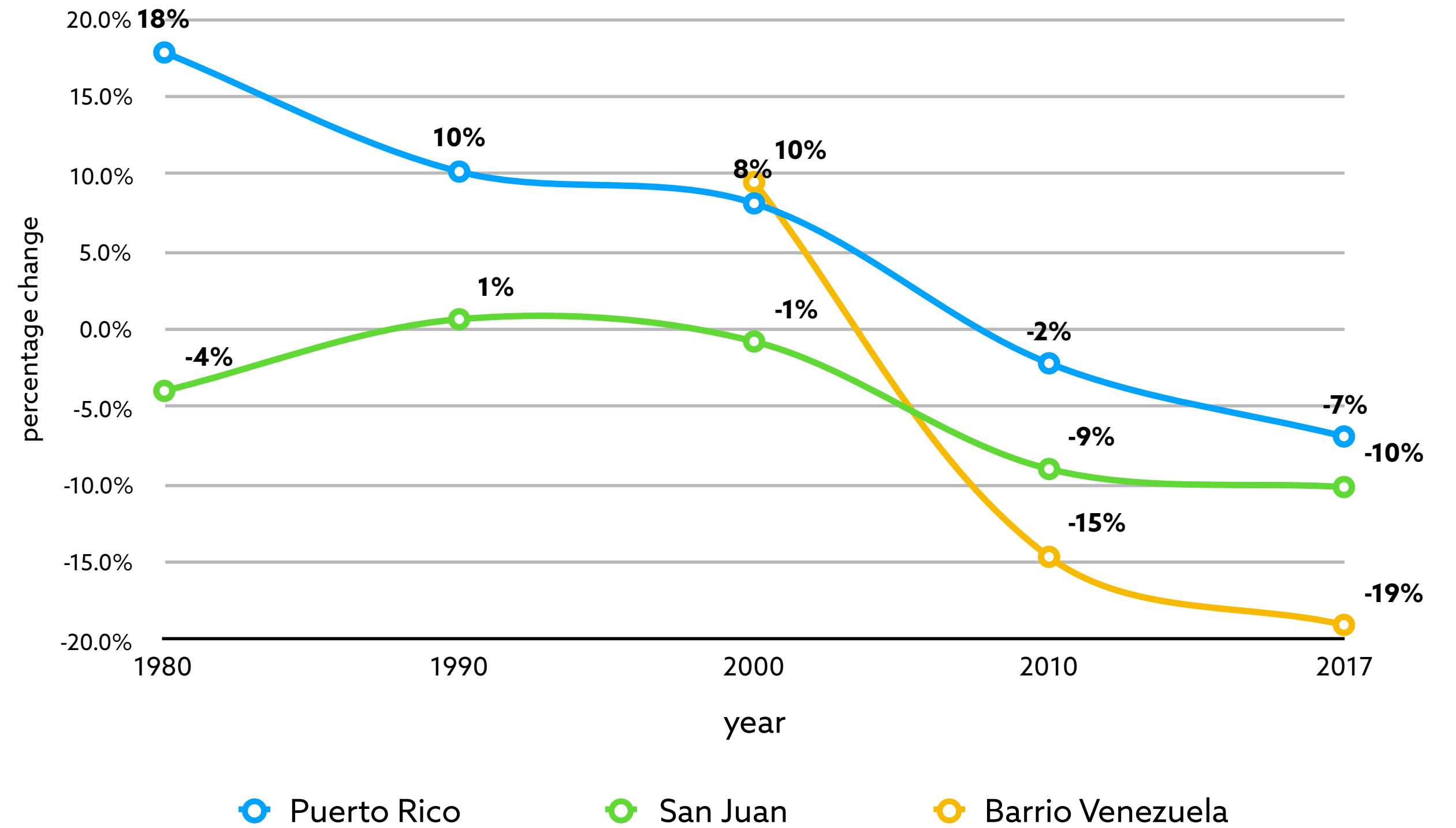


- Economic activities and growth attracted people to the AOI.
- Changing economic conditions, globalization, the end of Federal Tax Incentives, and changes in consumer values began a decline cycle visible in Census data from 2000 onwards.

Process Model: Drivers for Decline



Population change 1980 to 2017



Process Model: Drivers for Decline

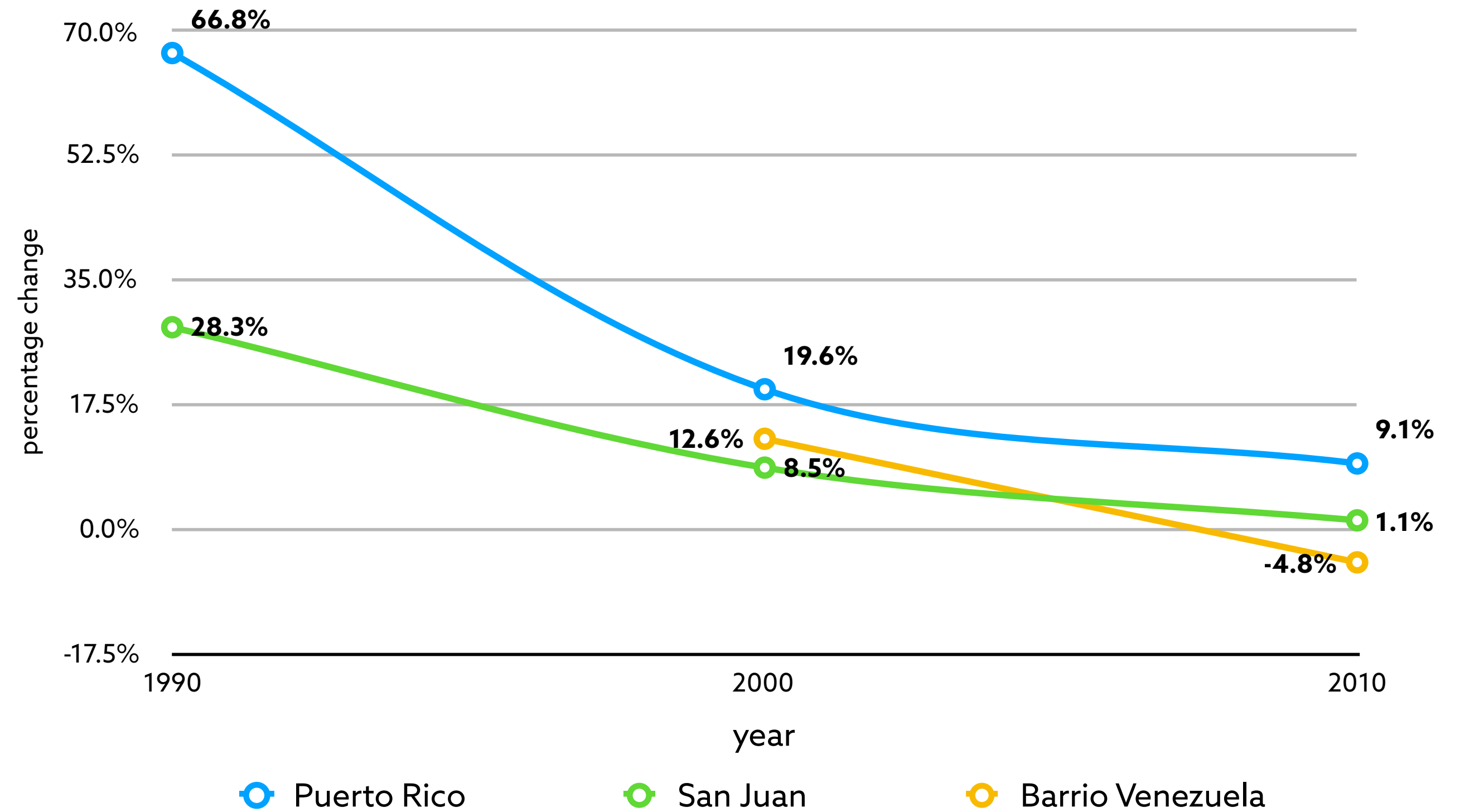


- Barrio Venezuela reflects the pattern of Puerto Rico's significant loss of population, losing 31% of its population between the years 2010 and 2017, from 1,436 residents to 995.

Process Model: Drivers for Decline



Housing Occupancy change 1980 to 2010



Process Model

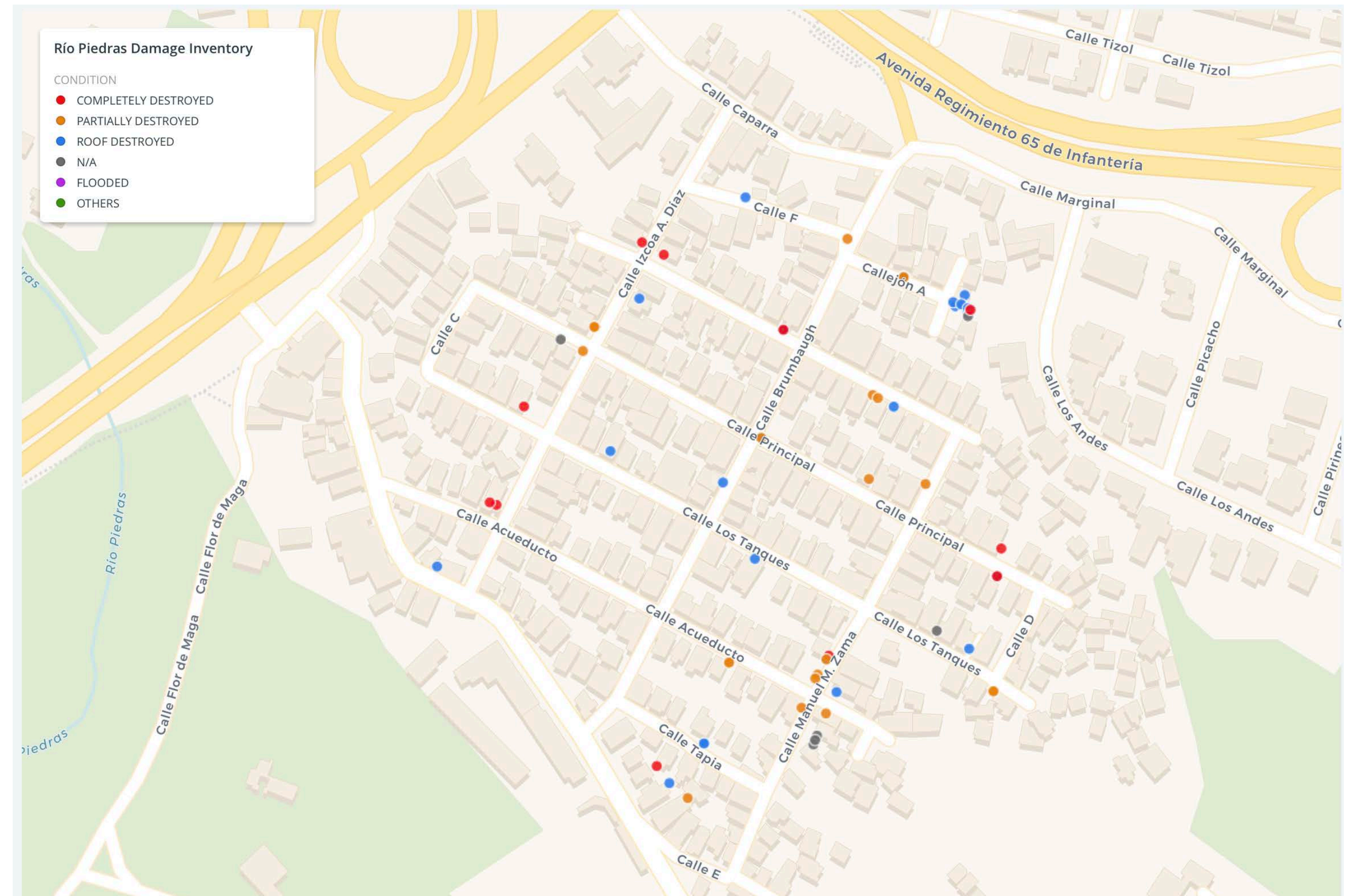
- Large parts of the AOI present vacancy rates greater than 20% of housing units.

Year	Housing units	Occupied	Vacant	Percent Vacant
2010	600	517	83	14%
2017	704	493	211	30%



Process Model: Drivers for Decline

- In 2017 Hurricane events compounded housing conditions problem in the AOI.
- After Hurricane María, 85 homes where severely damaged or completely destroyed



Evaluation Model

- An Evaluation Model will serve as a guide to locate the best areas for each design initiative.
- Evaluation of the 8 systems on this study will follow a five criteria scale to determine their geographic suitability in different within the AOI.

System:

Description of Evaluation:

Feasible	Suitable	Capable	Not Appropriate	Existing
Category description	Category description	Category description	Category description	Category description

Evaluation Model

System: Housing

Description of Evaluation: Evaluation of areas regarding their housing vacancy, structure condition, accessibility, slope and flood risk

Feasible	Suitable	Capable	Not Appropriate	Existing
Areas of housing vacancy of more than 40%, poor existing housing conditions, excellent accessibility to transportation and services, moderate slopes and no flood risk.	Areas of housing vacancy of more than 35%, poor existing housing conditions, good accessibility to transportation and services, moderate slopes and no flood risk.	Areas of housing vacancy of more than 25%, fair existing housing conditions, moderate accessibility to transportation and services, moderate slopes and no flood risk.	Areas of housing vacancy of less than 25%, good existing housing conditions, limited accessibility to transportation and services, high slopes or in flood prone areas.	Areas of existing housing activities that are in adequate areas and in good conditions.

Change Model

Changes in the AOI are driven by the people of the place. The geodesign team can also guide this process and facilitate proposals.

Housing

- Demolition of vacant and deteriorated structures to repurpose lots into activities for other systems.
- Development of new housing units in new vacant lots.

Green Infrastructure

- Repurposing vacant lots into green infrastructure like parks and community garden.
- Development of rooftop garden.

Energy Infrastructure

- Development of new energy infrastructure on rooftops and vacant lots.

Change Model

Stakeholders	Type	Position	Influence
People of Venezuela	Community	Better quality of life	Weak
Municipality of San Juan	Local Government	Fiscal expenditures as a tool for electoral politics.	Strong
Puerto Rico Territorial Government	Government	Fiscal expenditures as a tool for electoral politics.	Strong
Community Board	Community / Private	Pressure for the development of a up to date development and rehabilitation plan for Río Piedras and its communities.	Weak
Development Trust	Community / Private	Growing exposure to the trust for fund acquisition. Promoters of a quality of life program.	Weak
University of Puerto Rico	Government	Suffering financial crisis. Position regarding community and its development is unknown.	Weak



Impact Model



Impact models in a geodesign study are used to establish metrics and assess the benefits and cost of the proposed changes. These impacts can vary from study to study but would include some of the following areas:


- Programatic
 - Functional
 - Organizational
 - Economic
 - Environmental
 - Social
 - Cultural
 - Lega
-



Outcomes



Outcomes of the study will include:

- Identifying areas where physical, decline or services condition make it not suitable for housing.
 - Identifying of areas where physical, decline and/or services make it possible for new housing and other activities to be established.
 - Identifying areas for physical connectivity between residents and areas of economic and ecosystem services .
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Outcomes



Outcomes of the study will include:

- Capturing the people of the place's vision about how these spaces should be reconfigured.
 - Listing projects and policy proposals.
 - Consensus building.
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Outcomes

Comprehensive Planning Method

Lack of fast updating leading to fast obsolescence of plans

Standardized methodology requiring an extensive inventory

Little integration among planning phases and no feedback

Time consuming and expensive: too much emphasis on diagnosis, little time for proposals

Difficult community engagement on a voluntary basis for such a long period

Little or no knowledge of goals or projects of a plan by the community

Final products: technical reports

Final plan oriented

Geodesign Framework

Opens system allowing for simultaneous inputs and outputs

Easily adapted method according to the study area reality

Repeating iterations among phases of why, how, when and where to intervene

Simplified diagnosis reducing time and money consumption

Simultaneous and collaborative decision-making process with immediate evaluation of alternative solutions and their impacts

Transparency: democratization of the planning process

Simple diagrams and easy to understand color-coded maps

Decision making process oriented