

# MANGGAHAN FLOODWAY

## A HOUSING & REHABILITATION PROJECT

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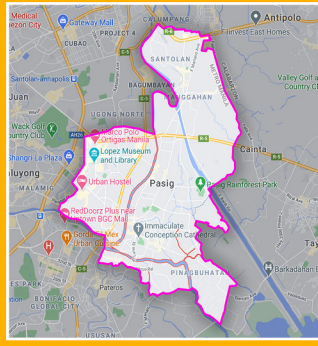


### 02 Site Brief History

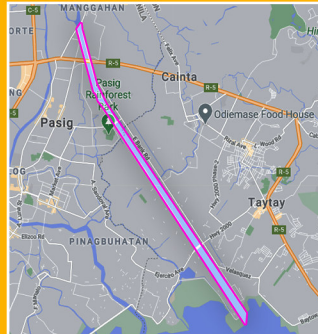
Over the years almost 40,000 families are situated along the east and west banks of the floodway. As a result, the effectiveness of the floodway has been reduced. As Typhoon Ondoy struck the Philippines in 2009, it managed to produce one month's worth of rain in Metro Manila in less than 24 hours. The rainwater, that was supposed to flow easily through the floodway, was clogged due to the houses situated along the banks, as well as trashes that were disposed irresponsibly. The flash flood took lives, properties, and possession of the residents living in low-lying areas. As a means of addressing the devastation, the government decided to relocate those living in informal settlements along the banks. However some were moved over 60 miles away from Manila which meant the people had to abandon or leave their families, jobs, and schools behind. After over a decade, in November 2020, another typhoon has struck again, leaving residents yet again devastated.

### 01 Introduction

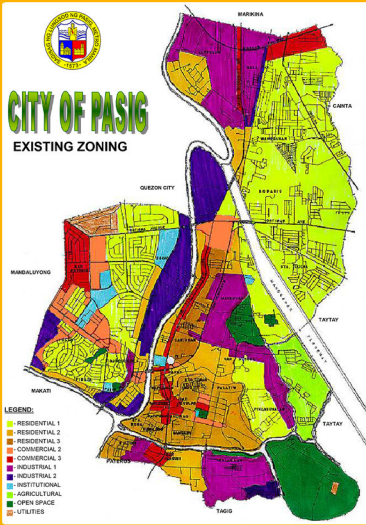
The Manggahan Floodway is an artificial water channel that extends 10 km long across Pasig City, Cainta and Taytay Rizal. It was constructed in 1986 and it is used to reduce the flooding in Metro Manila by redirecting water flow from Marikina River to Laguna de Bay-a temporary reservoir (DPWH, 2018). The floodway was supposed to function together with the Paranaque Spillway Project, however it was cancelled. The floodway is said to be 250m wide and 18m deep, arranged to carry 2,400 m<sup>3</sup>/s of water directed to Laguna Lake. It is a project gearing towards the purpose of being the main flood water control system of Metro Manila should the Marikina Control Gate Structure (MCGS) is completed.



Pasig City Map



Manggahan Floodway



Pasig City Zoning

### 04 Site Overview

#### Strengths - Opportunities

The existing community within the area can be utilized to maximize the social interactions along the banks of the floodway.

#### Strengths - Threats

By setting strict rules and regulation as well as education to be provided to the community, drainage clogging by way of trash littering will be eliminated and flood will be prevented.

#### Weakness - Opportunities

Creating active and participatory social spaces as well as public housing for the informal settlers, will help produce a more productive community.

#### Weakness - Threats

Designing creative ways to segregate and collect wastes from the residents in the area will minimize the possibility of flooding along the banks of the floodway.

### 03 Scope of the Project

The project stretches across the city of Pasig, Cainta, and Taytay, but it is mainly focused in Pasig since most of the Manggahan Floodway is in that city. Based on the existing zoning ordinance of the Pasig City, residential-1 structures are abundant near the banks of the floodway.

### 05 Design Concept

#### Rehabilitate, Repurpose, & Innovate.

**Rehabilitating** means to restore something that has been damaged back to its former condition by undergoing specific changes. These changes will **repurpose** the area to have other functions that will be beneficial, not just for the cities around it, but rather for the whole Metro Manila. Since there are already **extensive advancements in science and technology**, having an **innovation** implemented in the project will be essential.

### 06 Project Objectives

- 1 To conceptualize a solution that will improve the existing major problems of the site;
- 2 To establish a sustainable community;
- 3 To enhance the existing housing community, as well as the future housing projects of the area, and the lifestyle of the people.

### 07 Design Objectives

- 1 To rehabilitate and repurpose the banks of the floodway as means for flood protection;
- 2 To maximize the local resources available, as well as innovation;
- 3 To relocate informal settlers to a safer place, and improve the sustainability of their home.

### 09 Design Considerations

**Health & Safety**

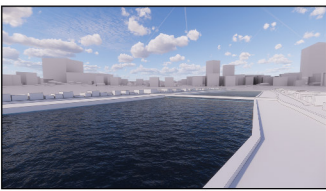
**Functionality**

**Sustainability**

**Efficiency**

**Human Factor**

**Technology**

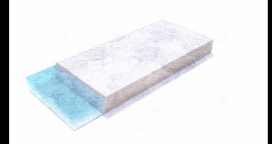


### 10 Design Strategies

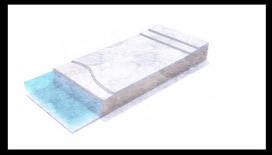
- 1 Relocate the residents, living along the banks of the floodway, to a safer, and sustainable home within the area;
- 2 Clear the banks from any obstruction that can clog the floodway;
- 3 Design the banks to be an active and cultural space for social interaction;
- 4 Provide green open spaces to utilize resilient plants;
- 5 Provide temporary commercial spaces that can be an opportunity for the residents to work;
- 6 Include innovations that can help reduce the flooding problem.



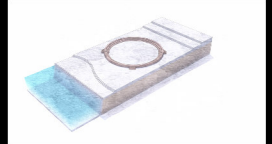
### 08 Evolution of Form



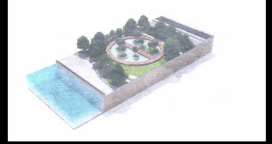
**1** Restore the floodway to its original state. Clearing any debris, trash, or plants that block the passage of the water along the stretch of the floodway.



**2** Provide levels to increase water capacity of the floodway giving allowance for possible increase in flood water volume.



**3** Design social spaces to maximize the potential of the informal settlers that currently reside along the banks of the floodway.



**4** Integrate landscaping to boost the local biodiversity of the area, producing a more vibrant and healthy environment.





# THE HOUSING PROJECT

About 4.5 million are either homeless or living in informal settlements over a total population of 106 million in the Philippines (Chandran, 2018). People are being forced out of their home because of government expansions and industry boom thus, settling into a place that poses danger to their health where they are also constantly evicted. Resettlements are being processed but a study said that people are more likely to go to urban cities than be transferred to a rural area, which is also far from their job and livelihood. Hence, leaving almost 115,000 rural public housing empty. Since the construction of Manggahan Floodway, a lot of families have moved to its embankments for their new home, to which they are informally settled. Often before, during calamities and disasters, they are the ones greatly affected. Especially with the lack of floodway capacity, flooding through their houses during typhoons is already a normal situation. Thus, a proposal for a social housing that is suitable for its users as well as with consideration of their lifestyle and place settlement.

The proposed social housing has a modular approach which can be applied anywhere and in any project. It aims to cultivate better the life of the informal settlers by giving them a place not only a shelter, but a home not far from their original settlement, and also applying innovations to establish and promote sustainability. Integrating renewable energy and urban farming on site, dwellers are lifted off the burden of bills and other fees while still having a healthy and safe environment.

Specifically for the Manggahan Floodway dwellers, there are two (2) chosen sites to where the proposed social housing will be. One (1) will be built along West Bank Road, cor. F. Legaspi, Pasig City and along East Bank Road, front of Velasco Avenue near Ramos Villages.



The creation of the Manggahan Floodway was a crucial project which had a huge potential in terms of decreasing the already severe and dangerous flooding issue within the NCR region. The main purpose of the floodway is to divert excess water directly from the Pasig and Marikina Rivers channelled towards the Laguna Lake. However, the floodway is not being utilized to its main purpose as well as its potential due to the huge amount of informal settlers that currently reside along the banks of the floodway. Addressing the current problems that are present in the floodway as well as the area's strengths, weaknesses, opportunities and strengths, there were three concepts to which we saw potential in terms of the redevelopment of the floodway. These are the Climate Resiliency, Social Interactions and Biodiversity.

# THE FLOODWAY REHABILITATION

