

A Deeper Look at Flood Insurance Risk Maps in Orleans Parish

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Introduction

- The Federal Emergency Management Agency's (FEMA) preliminary Flood Insurance Risk Map (FIRM) for Orleans Parish will become effective on September 30th, 2016 replacing the outdated effective map of 1984 (See Figure 1)
- The FIRM is mainly used to determine insurance rates for the national flood insurance program (NFIP), and it is relevant for flood risk management and public policy
- There has been controversy over whether the new FIRM accurately depicts risk, and what it means for Orleans Parish
- The effects of Hurricane Katrina on the people of Orleans illustrate the importance of understanding how socially vulnerable people are affected by flood risk

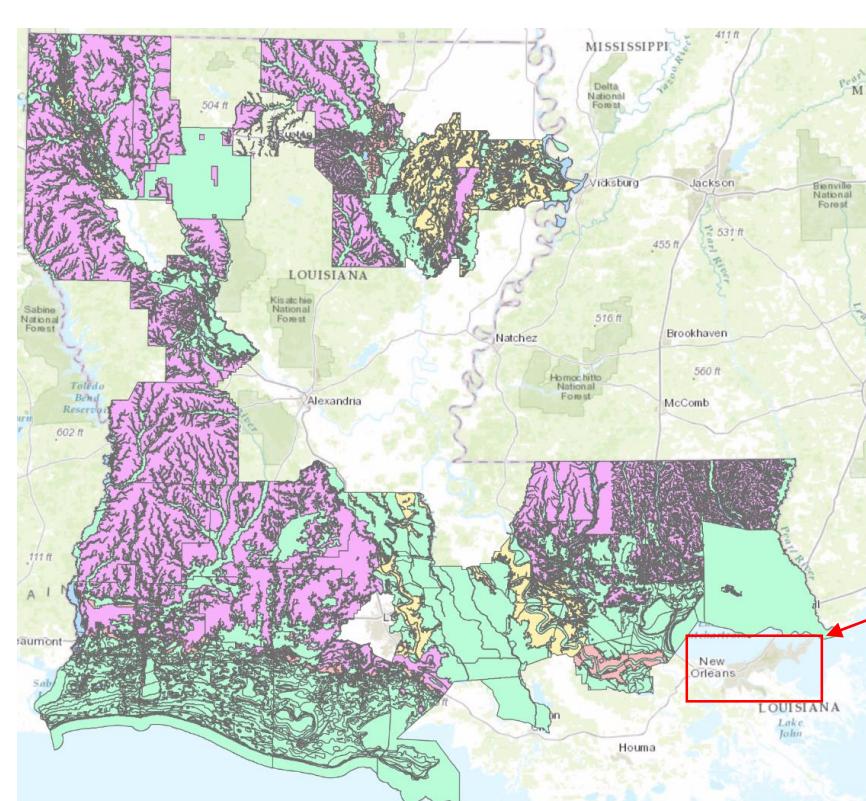


Figure 1: 1984 Louisiana FIRM

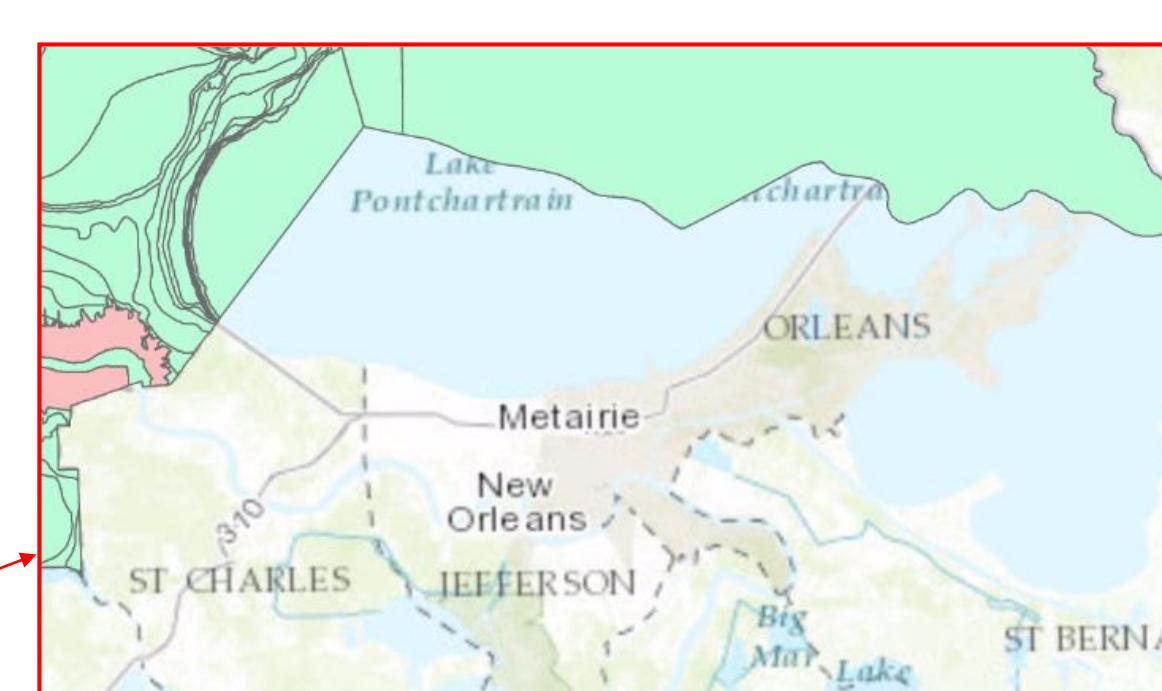


Figure 2: 1984 Orleans Parish FIRM



Image 1: Houses flood after Katrina



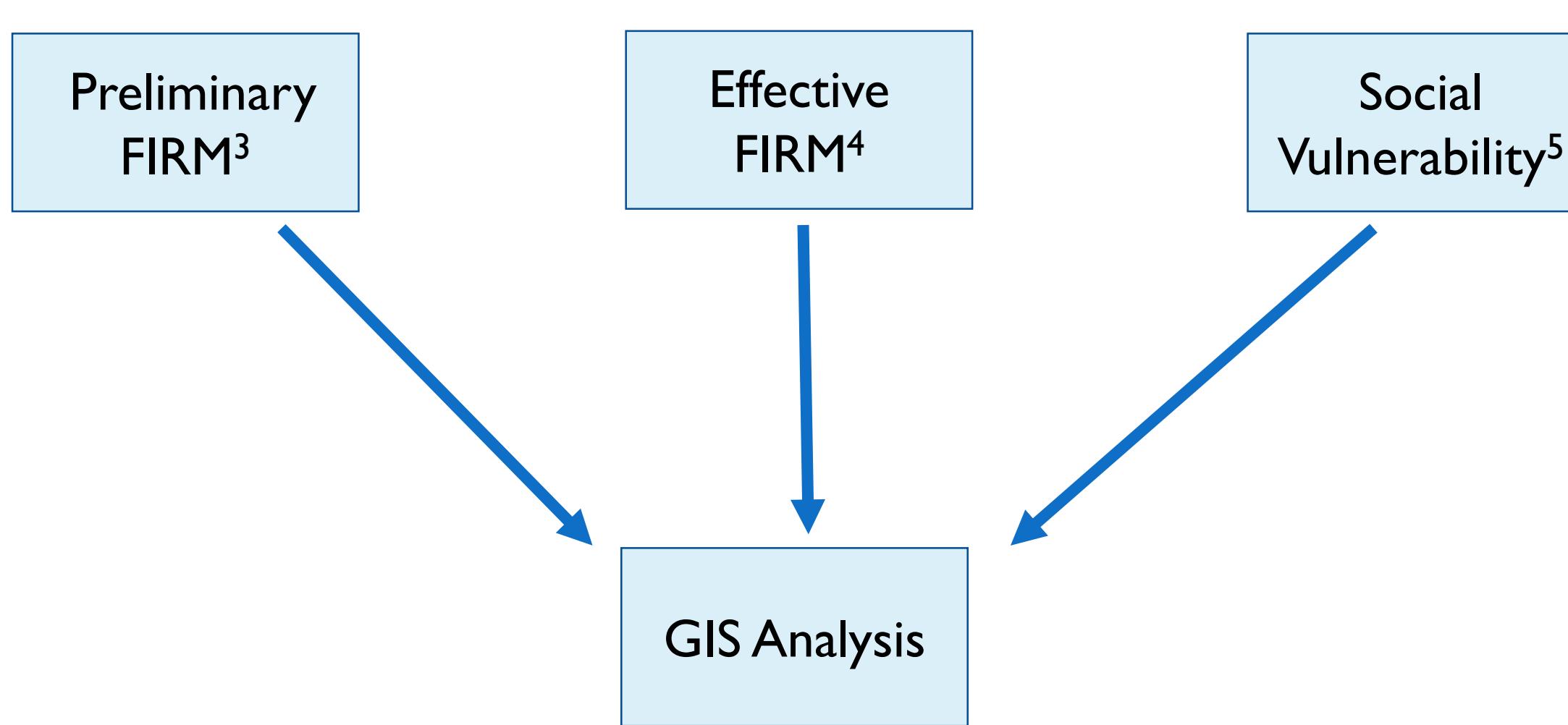
Image 2- Frustration over FEMA after Katrina

Objectives

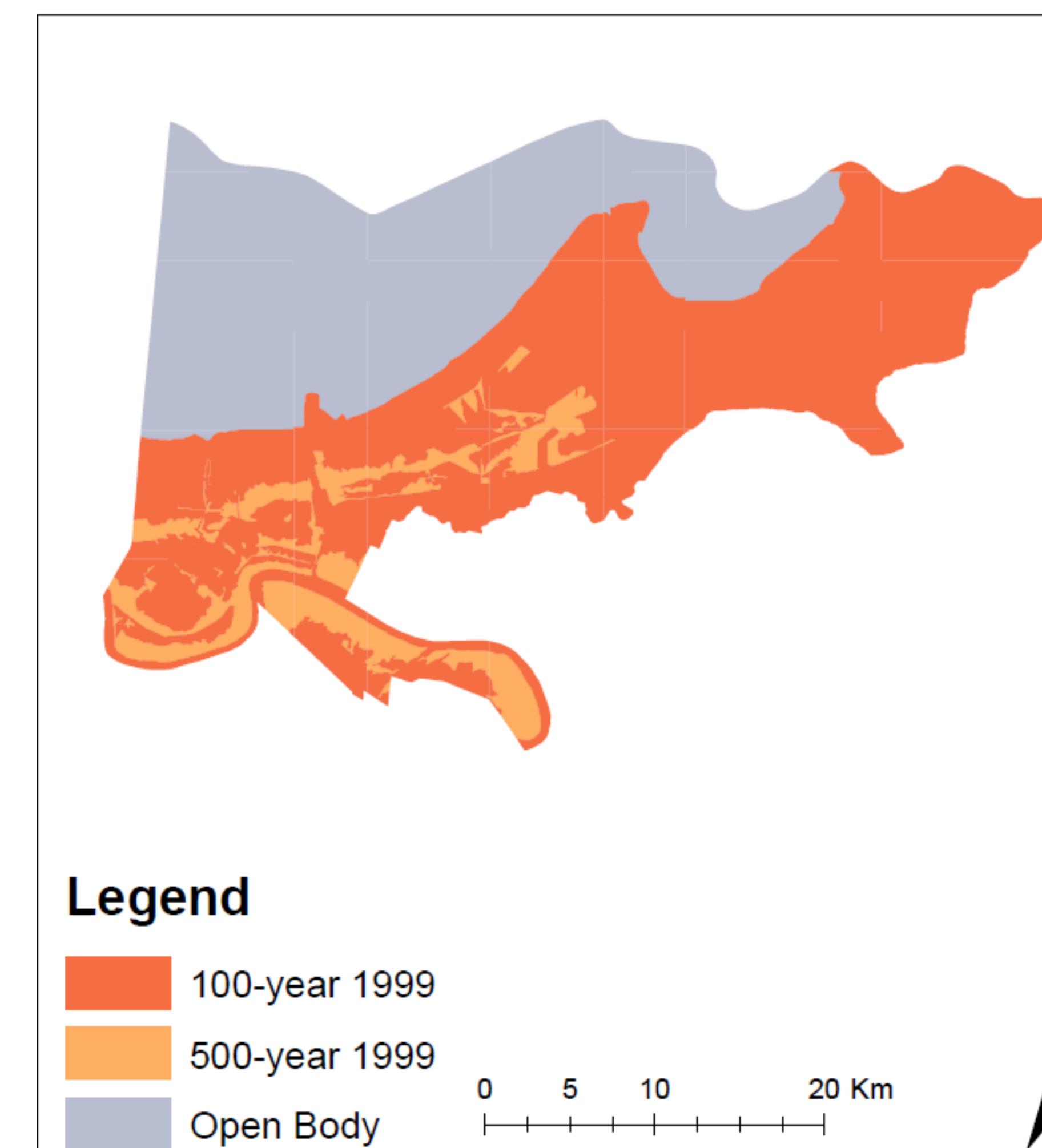
- Compare effective map to preliminary map in order to assess change in size and locations of flood plains
- Compare social vulnerability map with new FEMA map to interpret how socially vulnerable people may be affected by FIRM
- Assess accessibility of FEMA's flood map and social vulnerability data

Methods

- We used Geographic Information System (GIS), ArcMap 10.3.1, in order analyze the changes in flood plain zones and to compare these zones with social vulnerability (SV) maps
- We combined query results to examine relationships among the FIRMS and SV Maps
- We used intersect methods to find areas of commonalities and difference within the three different datasets

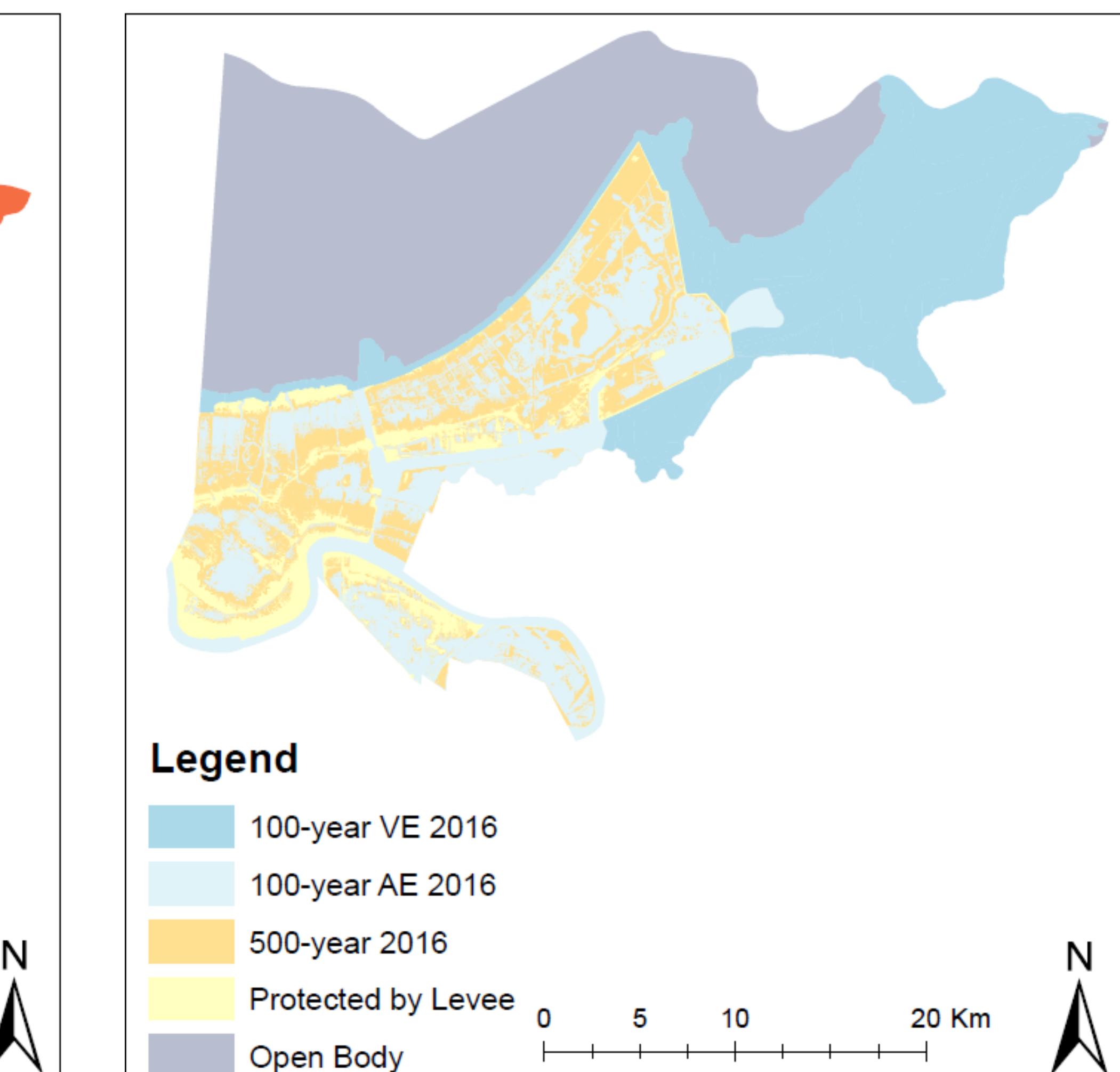


Results (GIS Analysis)



Legend

- 100-year 1999
- 500-year 1999
- Open Body



Legend

- 100-year VE 2016
- 100-year AE 2016
- 500-year 2016
- Protected by Levee
- Open Body

Figure 4 - 2016 Preliminary Flood Risk Insurance Map

- A large proportion of the map is categorized as 100-year flood
- Only two categories present
- Not a great deal of detail

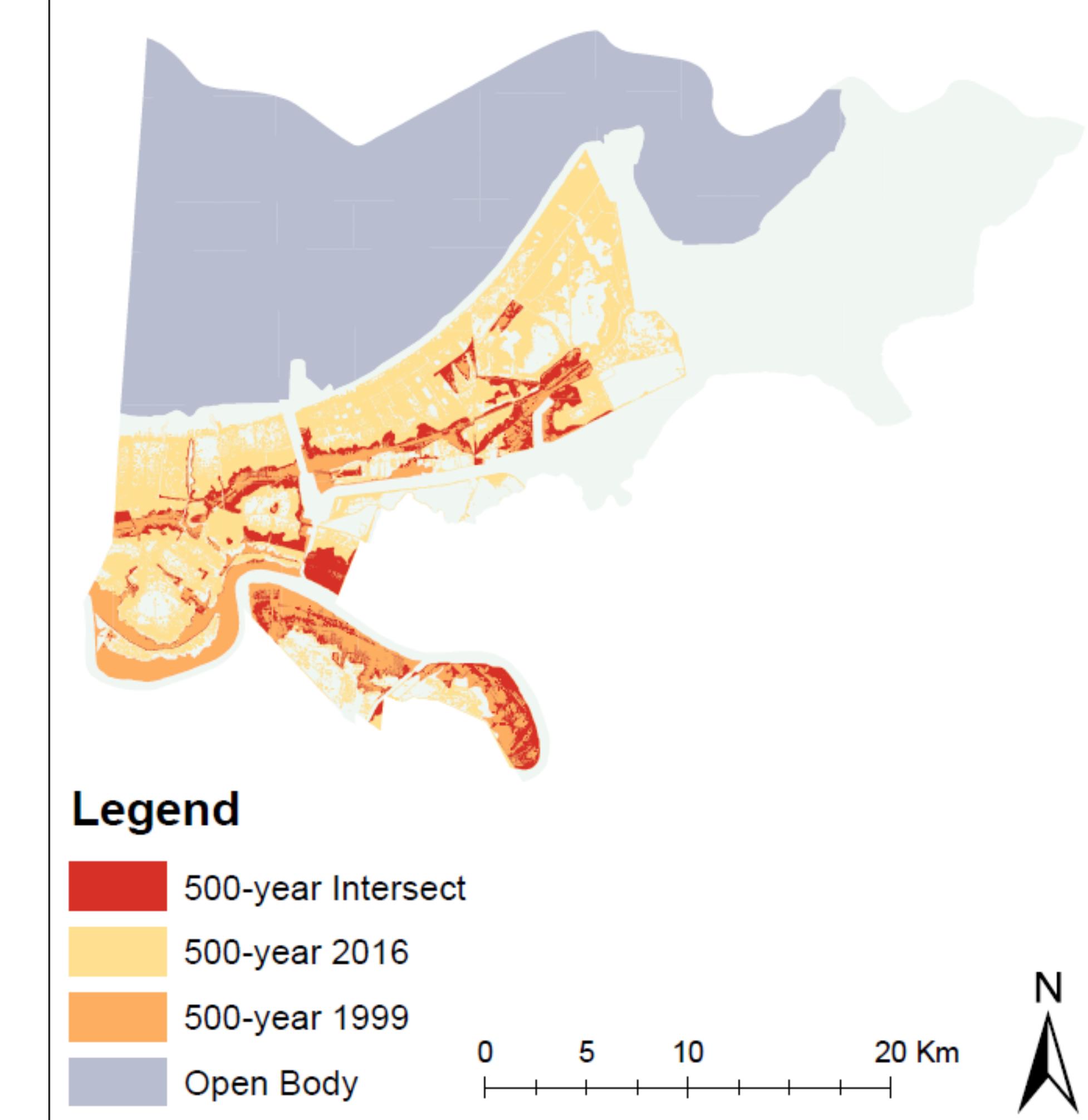


Figure 5 - 100-year Intersect between 1999 and 2016

- Large area categorized as 100-year in 1999 is not in 2016
- Small areas that did not exist in 1999 map are present in 2016
- There are commonalities of 100-year flood especially in the coast

Discussion

- The 100-year and 500-year floodplains in 1999 have decreased size in 2016
- 100-year floodplains in 1999 are categorized as AE and VE in 2016 and some areas have changed to a 500-year floodplain
- A majority of 500-year floodplains in 1999 are categorized as 'protected by levee' in 2016

Take-Away

- Overall, the new FIRM indicates that a larger amount of area in Orleans parish is less prone to flooding than before
- However, FEMA does not take into account climate change, specifically sea level rise, when predicting the risk of flooding
- Additionally, the FIRM assumes that the levee system is sound

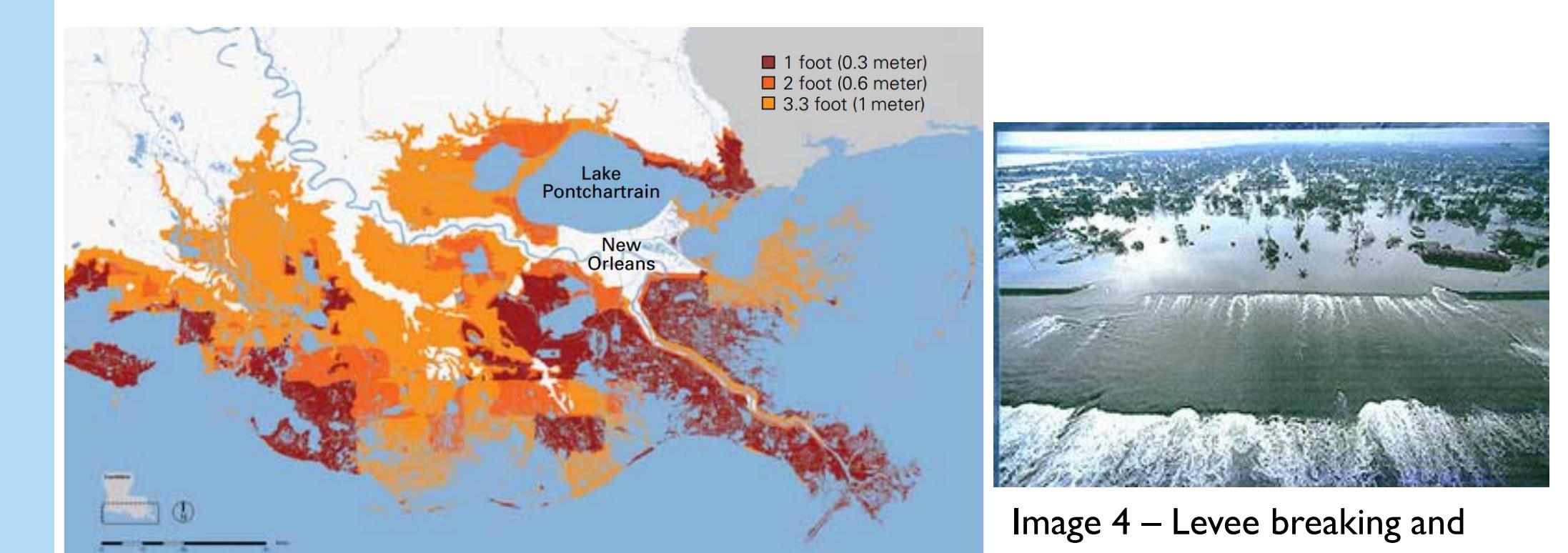


Image 3 – depicts 1 to 3.3 feet relative sea level rise predictions by 2100 for New Orleans

- When trying to access the data, we ran into many obstacles
 - FEMA does not provide the digitized 1984 FIRM
 - Difficulty receiving requested information from FEMA
 - FEMA was unable to provide SV data from their online SV Map

Next Steps

- Quantitative analysis of GIS data
- Expand on social vulnerability characteristics and continue to investigate it in relation to flood plain
- Create a data repository to improve accessibility

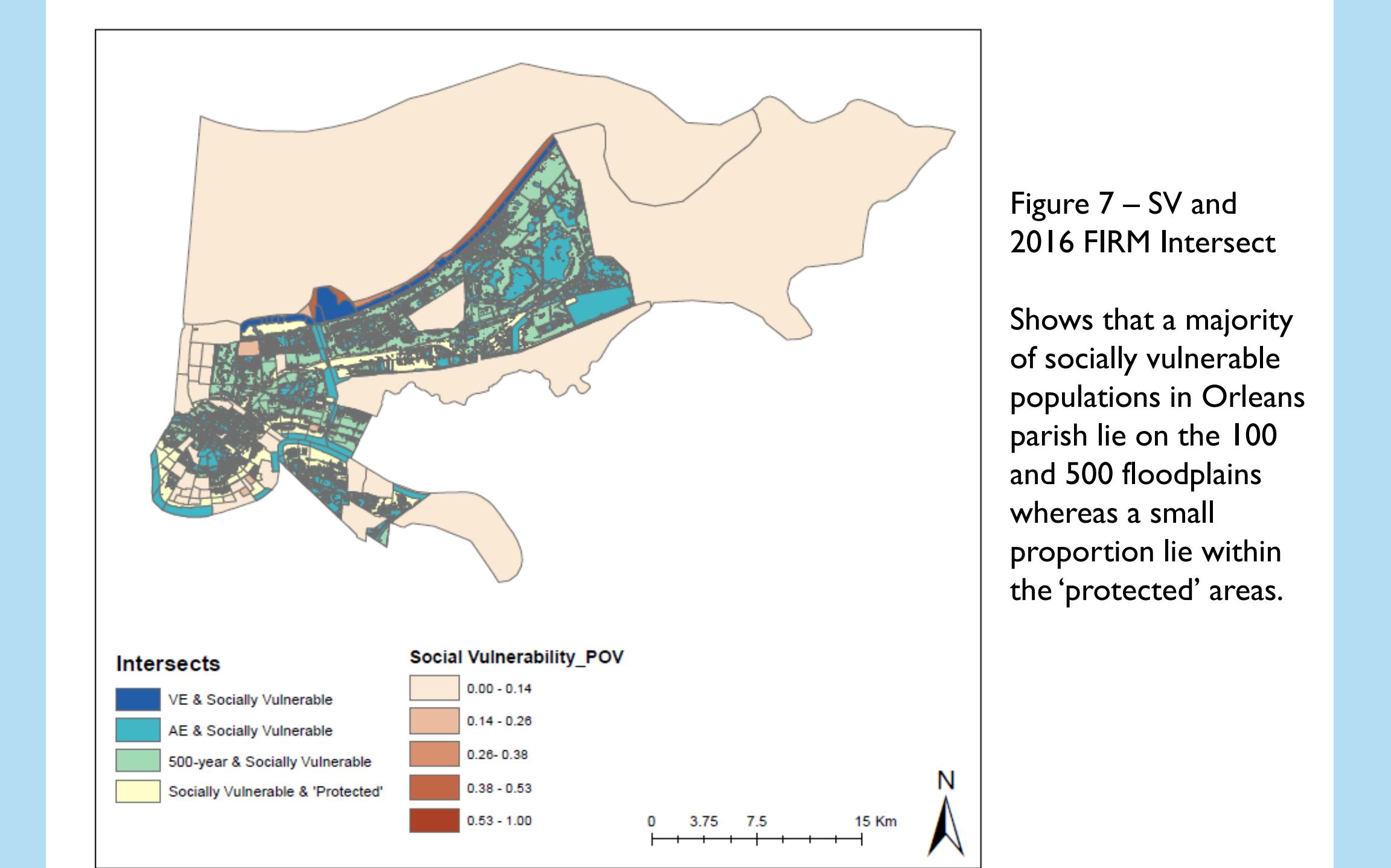


Figure 7 – SV and 2016 FIRM Intersect

Shows that a majority of socially vulnerable populations in Orleans parish lie on the 100 and 500 floodplains whereas a small proportion lie within the 'protected' areas.

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