Coastal Resilience, Long Island, USA

Coastal Resilience Project:
The purpose of the Coastal Resilience project is to provide communities with easy access to information to assist in coastal planning, zoning, acquisition, and other management decisions regarding resources at risk from sea level rise and coastal hazards. One of the principal products of the project is a spatially explicit tool that provides forecasts of inundation on the south shore of Long Island under different sea level rise scenarios. The aim of this web mapping tool is to provide communities with easy access to information for their planning, zoning, acquisition and permitting decisions.

Category: Economic Loss

General Description:
Economic loss is the value of estimated building damage (replacement cost) by census block based on different storm and sea level rise conditions. The modeled storm surge and sea level rise flood depths were used as input to FEMA's HAZUS-MH Flood Model to arrive at estimated building damages. All scenarios assume estimated current (2006 $) replacement cost or building values for all building occupancy types (e.g. residential, commercial, industrial, government, etc.). Values are reported in thousandths. The maximum scale these data are displayed is 1:100k due to issues of data accuracy.

Source: FEMA HAZUS-MH 2008

Caveats and limitations:
The user should always be aware that numbers produced by software models such as **HAZUS** are to be used with a certain degree of caution. Uncertainty within the results can be introduced from a number of sources including the use of national datasets to represent local conditions, simplifications within the model introduced to allow the model to have flexibility with Level 1 users, and errors introduced as part of the mathematical processing within the software code. Finally, user input can also have a great affect on the uncertainty associated with the results. At this time, the flood model does not provide the user with an assessment or "treatment" of uncertainty. As a planning tool, the consistency and value of the results developed by **HAZUS** cannot be understated. When properly used, the results developed by **HAZUS** can allow a user to identify and manage the flood hazard especially as it relates to development trends and the management of fiscal resources.

Process:
HAZUS was used to calculate estimated building damage values for flooding events that were either only episodic (i.e. storms) or episodic combined with a future sea level, or permanent inundation. Two of the result scenarios do not have estimated damages because in these instances, permanent inundation was not modeled in **HAZUS**. However, we did examine permanent inundation in **HAZUS** to determine which census blocks would be affected – these affected areas were used to indicate areas of possible mitigation for summarizing results.

HAZUS can estimate flood losses for building stock (including contents and inventory), infrastructure, and the population exposed to the flood hazard. Consequently, the **HAZUS** flood model uses a comprehensive inventory in estimating losses. This inventory serves as the default when a user does not have better data available. The inventory consists of a proxy for the general building stock in the continental United States. The model also contains national data for essential facilities (e.g., police stations), high potential loss facilities (e.g., dams), selected transportation (e.g., highway bridges) and lifeline systems (e.g., potable water treatment plants), demographics, agriculture products (e.g., corn), and vehicles. This inventory is used to estimate damage (%), and the direct economic losses for some elements (i.e., the general building stock) or the associated impact to functionality for essential facilities.

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