

| <b>Term</b>                                  | <b>Definition</b>  |
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| <b>100-year storm</b>                        | A storm that has a 1.0 percent chance of occurring in any given year.  |
| <b>500-year storm</b>                        | A storm that has a 0.2 percent chance of occurring in any given year. <sup>1</sup>   |
| <b>Active/passive floodproofing measures</b> | Active floodproofing (or emergency) measures require manual operation and are effective when sufficient warning time is provided to mobilize the personnel and equipment necessary to implement them. Passive measures do not require manual operation.  |
| <b>CDBG Program and CDBG-DR Program</b>      | <p>The Community Development Block Grant (CDBG) program is a United States Department of Housing and Urban Development (HUD) program that provides communities with resources to address a wide range of unique community development needs. The CDBG-Disaster Recovery (DR) program is specifically for disaster recovery assistance, granted by HUD to help cities, counties, and states recover from Presidentially declared disasters, especially in low-income areas.<sup>2</sup></p> <p>New York City is the grantee for CDBG-DR funds for the devastation from Hurricane Sandy.</p> |
| <b>Closure Structures</b>                    | Closure structures are floodgates across a street or sidewalk that is deployed during a storm event.   |
| <b>Coastal Protection Initiative 21</b>      | This initiative of the Community Rebuilding Resiliency Plans (CRRP) calls for an integrated flood protection system for targeted areas of protection in Lower Manhattan, including the Lower East Side from East 14th Street to Battery Park City. This initiative also expressed the City's commitment and support for the Rebuild by Design competition (see below), which ultimately shaped the proposed project.   |

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<sup>1</sup> Hurricane Sandy was a 700-year storm, with a 0.14 percent chance of occurring in any given year.

<sup>2</sup> <http://portal.hud.gov>

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| <b>Critical Infrastructure</b>                             | The assets, systems, and networks, whether physical or virtual, so vital to an area that their incapacitation or destruction would have a debilitating effect on security, economic stability, public health or safety, or any combination of the above.   |
| <b>Design Storm Event</b>                                  | An extreme coastal storm event (the 100-year flood event with Sea Level Rise projections to the 2050s <sup>3</sup> ) to which the proposed project provides level of protection.   |
| <b>Drainage Design Storm</b>                               | The storm event for which the drainage management concept is designed to manage. This storm is a two-year (a storm that has a 50 percent chance of occurring every year), second quartile National Oceanic and Atmospheric Administration (NOAA) Atlas 14 24-hour rainfall event <sup>4</sup> coincident with a 100-year surge tide that lasts a period of twelve hours.   |
| <b>East Side Coastal Resiliency (ESCR) Design Criteria</b> | ESCR design criteria includes: planning for protection against the 100-year flood event for the Federal Emergency Management Agency (FEMA)-designated special flood hazard area, including consideration of the 90th percentile projections of sea-level rise to the 2050s; protecting critical open space amenities from design storm events and sea level rise; preventing surge from entering the existing sewer system; analyzing interior drainage requirements and managing hydraulic flooding; designing resiliency into the system such that surge events exceeding design do not result in catastrophic failure; and designing capacity for future system adaptation. |
| <b>Flood Insurance Rate Maps (FIRMs)</b>                   | The official map of a community on which FEMA has delineated both the special flood hazard areas and the risk premium zones applicable to a neighborhood or community.   |
| <b>Flood Protection System</b>                             | A series of measures that together work to protect from storm events but are otherwise minimally intrusive during non-storm periods. The proposed system includes the following components: levees, floodwalls, closure structures, and water and sewer infrastructure components.   |
| <b>Floodplain</b>  | <p>The area adjacent to a stream, river or coastline that may flood.</p> <p>The 100-year floodplain represents a geographical area with a 1.0 percent or greater chance of flooding in any given year. The 500-year floodplain represents a geographical area with a 0.2 percent chance of flooding in any given year.</p>   |

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<sup>3</sup> Sea level rise estimate represents the 90th percentile value for 2050 as presented by the New York City Panel on Climate Change. See Chapter 2, “Project Alternatives,” for additional details on design principals and sea level rise.

<sup>4</sup> National Oceanic and Atmospheric Administration (NOAA) Atlas 14 design rainfall events are based on statistical analysis of historical rainfall records for the northeast region.

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| <b>Floodwall</b>           | Narrow, vertical structures that are designed to withstand both tidal storm surges and waves. They are typically constructed of steel, reinforced concrete, or a combination of materials with a reinforced concrete cap.   |
| <b>I-wall</b>              | I-walls are vertical flood protection structures with a below-grade foundation that are designed to withstand storm surge and wave forces. In profile view, the wall is I-shaped and is typically constructed of steel, reinforced concrete, or a combination of materials, has a reinforced concrete cap.  |
| <b>Interceptor</b>         | A large diameter sewer that receives flow from smaller sewer lines and conveys it to a wastewater treatment plant, sometimes via a pump station.  |
| <b>Interceptor Gates</b>   | Interceptor gates are large gates that control flow through the interceptor (see above). Interceptor gates would be sited to the north and south of the protected area to isolate flow in the interceptor from the protected area.  |
| <b>Isolation Gates</b>     | Isolation gates are components of the drainage management concept that isolate the sewer system in the protected area aimed at reducing storm surge waters from entering the sewer system through the outfall pipes or other access points in the existing sewer infrastructure.  |
| <b>L-wall</b>              | L-walls are a vertical flood protection structure with a below-grade foundation designed to withstand storm surge and wave forces. This system can also handle more intensive forces (such as vessel impacts) and can be constructed to greater heights (including extension of heights at future dates). The foundation is typically constructed of concrete, and a vertical stem extends at one end of the slab creating an “L” shape in cross-section.   |
| <b>Levee</b>               | A levee is an earthen structure with a core of compacted fill material, capped with a layer of stiff clay to resist erosion from storm waves and currents, and a stabilizing and landscaped top layer. Levees can be designed to varying widths and slopes depending on the availability of horizontal space, but the limiting maximum slope for flood protection is considered to be 4 feet horizontal to 1 foot vertical; this is also an acceptable grade for both pedestrian access and maintenance. To avoid seepage, the levee has an interior “cutoff wall” that is constructed of either a stiff clay, or slurry. |
| <b>Non-storm Condition</b> | Non-storm conditions are defined as typical day-to-day conditions without the occurrence of a design storm event. These non-storm conditions may include typical dry weather as well as typical rainfall events without storm surge tides that exceed a 100-year storm tide.  |

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| <b>Overland Flooding</b>   | Flooding caused by a storm surge coupled with a high tide that exceeds the elevation of the coastal topography or from a rapid rainfall event before stormwater is either captured by the sewer system or flows by gravity to a nearby waterbody.  |
| <b>Parallel Conveyance</b> | Parallel conveyance is a component of the drainage management concept that conveys combined sewer flow to the interceptor, reducing the risk of inland flooding during a storm surge event.  |
| <b>Project Area One</b>    | One of the two project areas comprising the location of the proposed project alignment. Project Area One extends from Montgomery Street on the south to the north end of John V. Lindsay East River Park (East River Park) at about East 13th Street. Project Area One consists primarily of the Franklin Delano Roosevelt East River Drive (the FDR Drive) right-of-way, a portion of Pier 42 and Corlears Hook Park as well as East River Park. The majority of Project Area One is within East River Park and includes four existing pedestrian bridges across the FDR Drive to East River Park (Corlears Hook, Delancey Street, East 6th Street, and East 10th Street Bridges) and the East Houston Street overpass. |
| <b>Project Area Two</b>    | One of the two project areas comprising the location of the proposed project alignment. Project Area Two extends north and east from Project Area One, from East 13th Street to East 25th Street. In addition to the FDR Drive right-of-way, Project Area Two includes the Con Edison East 13th Street Substation and the East River Generating Station, Murphy Brothers Playground, Stuyvesant Cove Park, Asser Levy Recreational Playground, the VA Medical Center, and in-street segments along East 20th Street, East 25th Street, and along and under the FDR Drive.  |
| <b>Protected Area</b>      | The area protected from flooding inland of the flood protection system with the proposed project. The area that would be protected under the proposed project includes lands within the Federal Emergency Management Agency (FEMA) 100-year special flood hazard area (SFHA). In addition, the protected area also takes into consideration the 90th percentile projection of sea level rise to the 2050s.   |
| <b>Proposed Project</b>    | The East Side Coastal Resiliency Project (proposed project) involves the construction of a coastal flood protection system along a portion of the east side of Manhattan and related improvements to City infrastructure.  |

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| <b>Rebuild by Design</b>                                       | In June 2013, HUD launched Rebuild by Design (RBD), a multi-stage planning and design competition to promote resiliency in the Hurricane-Sandy-affected region. The winning proposal for Manhattan was named “the Big U” and focused on a flood protection system around Manhattan from West 57th Street, south to the Battery, and up to East 42nd Street.  |
| <b>Recreational Amenities</b>                                  | Recreational amenities include indoor and outdoor sporting and leisure facilities, children’s play areas and open space (e.g., soccer field, playground, basketball court, swimming pool).   |
| <b>Regulator</b>   | A component of the sewer system that controls the flow to outfalls to minimize combined sewer overflows (CSOs). Regulators serve three principal purposes: (1) to divert flow in the combined sewers to the large diameter interceptor that conveys flow to the wastewater treatment facility; (2) to prevent overloading of the interceptor and downstream treatment works during high flow events; and (3) to divert flow in excess of the system’s capacity to CSO outfalls.                      |
| <b>Resilient Infrastructure</b>                                | Infrastructure designed to withstand, adapt to, and recover from extreme weather events.<br><br>In the context of the proposed project, resilient infrastructure would reduce the risk to coastal flooding, and provide social and environmental benefits to the community through improvements in public amenities.   |
| <b>Roller Floodgate</b>  | A roller floodgate is a closure structure that is deployed in anticipation of a storm event. It consists of a gate with a single or double line of wheels that is moved into the closed position prior to a storm event and is in the open position during non-storm periods.  |
| <b>Special Initiative for Rebuilding and Resiliency (SIRR)</b> | A New York City task force that analyzed the impacts of Hurricane Sandy on the City’s buildings, infrastructure, and people to assess climate change risks in the medium (2020s) and long (2050s) terms and outlined strategies for increasing resiliency citywide. The SIRR analysis resulted in the report <i>PlaNYC: A Stronger, More Resilient New York</i> , released in June 2013, and containing CRRPs for five particularly vulnerable neighborhoods in the City, including Lower Manhattan. |

**Storm Surge**

A storm surge is an extreme tide in conjunction with an astronomical and/or meteorological condition over and above the normal predicted astronomical tides. Storm surge should not be confused with storm tide, which is defined as the water level rise due to the combination of storm surge and the astronomical tide.

**Swing Floodgate**

A swing floodgate is a closure structure that is deployed in anticipation of a storm event. It consists of a gate with a hinged door that is moved into the closed position prior to a storm event and is in the open position during non-storm periods.

**Tide Gate**

A tide gate is installed within an outfall to prevent tidal backflow into the sewer system due to high tides and storm surges.

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