

**CITY OF RAHWAY
HAZARD MITIGATION PLAN
ANNUAL PROGRESS REPORT (2022)**

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October 2022

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1. INTRODUCTION

The City of Rahway participates in the Community Rating System (CRS) program offered by the Federal Emergency Management Agency for communities located in the floodplain. The City's participation in the CRS program is evidence of its intent to consider the impact of future flooding and conduct the appropriate planning to prevent future losses. Participation in the program has resulted in up to a 15% reduction in flood insurance premiums for City residents. One activity completed to obtain this status was the adoption of the FEMA-approved, Union County Multi-Jurisdictional Hazard Mitigation Plan (HMP) in 2012. The HMP was prepared to guide the City in identifying existing hazards and to plan for future mitigation measures to prevent future losses of lives and property due to flooding in the City. The HMP was officially adopted by the Municipal Council of the City of Rahway on February 13, 2012, and the County's 2015 update to the HMP was adopted by the Municipal Council on May 9, 2016.

Once again, Union County is in the process of updating the HMP for Union County and its Municipalities. However, regular HMP meetings were not conducted recently due to New Jersey's pandemic protocols. Instead, on-line meetings were held (on October 14, 2020 and October 15, 2020). As a result, the update process (and related CRS coordination) was delayed. Subsequently, meetings were postponed further as the participating municipalities dealt with the aftermath of Hurricane Ida.

The City must re-apply each year for CRS re-certification in order to receive flood insurance premium discounts. As part of the recertification process, the City must review and report their progress implementing the HMP. This document is a brief report to the Mayor, the City Council, the local media, and the City residents regarding the progress made in implementing the City of Rahway's HMP over the past year. This Annual Progress Report is provided to the City Clerk and Library so that a copy is made available to all residents.

2. PREPARATION & DISSEMINATION

This 2021 Progress Report was prepared by Najarian Associates, whose licensed professional engineers and certified floodplain managers review development permit applications for the City in accordance with relevant federal, state and local requirements. The Report was based on action items outlined within the HMP and an assessment of the City's activities over the past year towards implementing additional action items. The implementation of the additional items Plan has been performed by the Department of Public Works and the Department of Engineering.

The HMP is available to the public at City Hall in the Engineering Department and at the City Library. The annual Progress Report will be issued to the Municipal Council and the Mayor, and was released to the media via the City's semi-annual Rahway Review.

3. MITIGATION PLAN ACTION ITEMS & IMPLEMENTATION

The following are flood-related mitigation actions that have been performed, in addition to the list of Action Items within Appendix 12 of the HMP, and their status of implementation over the past year:

3.1 Preventive

- a) **Action Item:** Preventive measures are included in the City's Flood Damage Prevention Ordinance, re-adopted on November 12, 2002, Stormwater Runoff Control Ordinances, adopted in 1978 with subsequent amendments, the City's Stormwater Management Plan, Stormwater Pollution Prevention Plan, the City's Building Codes, the Open Space and Recreation Plan Element of the City's Master Plan adopted in February of 1997, last updated 2008, and the City's Zoning Ordinance adopted in December of 1997 with subsequent amendments are made part of this plan.

Implementation: *Implementation of this action item is the City's continued commitment to preventive activities through the administration and enforcement of various ordinances through the City's Engineering and Building Departments. The use and development of flood-prone areas is, and will continue to be, limited by these ordinances.*

In addition, the City's Engineering Consultant reviews development applications to ensure compliance with the New Jersey Flood Hazard Area Control Act Rules (N.J.A.C. 7:13) and National Flood Insurance Program (NFIP) requirements.

Periodic review of the Flood Damage Prevention and Stormwater Runoff Ordinances is conducted to ensure their consistency with the best technologies and management practices. The City is continuing the plan to update the existing ordinances in the near future to allow the City to more definitively limit property owner's activities that may change the direction or quantity of stormwater on their properties that may impact downstream or adjacent properties, which the City has identified as having a compounding effect.

- b) **Action Item:** Draft updates to the City's Flood Damage Prevention Ordinances were prepared in 2020. Also, the City's engineering site-plan review ordinances were reviewed and modified in accordance with the updated NJDEP Flood Hazard Area Control Act Rule (N.J.A.C. 7:13). Currently, the updated ordinances are in the process of attorney review. Following this review, they may be formally adopted by the City and applied to all construction located within the floodplain.

Implementation: *Municipal permit applications will be reviewed for compliance with these updated Ordinances. City professionals will continue to conduct periodic reviews of the Flood Damage Prevention Ordinance to ensure consistency with the best technologies and best management practices.*

- c) **Action Item:** The planned frequency of inspection and maintenance of drainage systems was increased from twice a year to every three months, on or about March 15th, June 15th, September 15th, and December 15th.

Implementation: *Following Hurricane Ida, the City's drainage system was inspected during October 2021 and again during July 2022. Inspection and maintenance of the City's drainage systems are conducted by the Department of Public Works on a routine basis. During these inspections, it was again noted that an outfall pipe at Witherspoon Street has separated due to erosion of the surrounding embankment. The City is awaiting NJDEP permit approval before putting the project out to bid for the appropriate repair to the headwall, piping, and adjacent infrastructure.*

- d) **Action Item:** Work with adjacent municipalities to reduce flooding within the watershed:

Implementation: *The City has been an active participant in the Mayor's Council on Watershed Flood Control Project, which was formed after Hurricane Irene's devastation. The Council works to prevent future flooding, such as entering into an inter-local services agreement with Linden to complete the aforementioned culvert cleaning. The City also has an agreement with Union County for assistance with de-snagging stream quarters at County Bridges. Presently, the City is implementing a new \$75,000 de-snagging program. Additionally, the City is monitoring the Army Corps of Engineers' plan to elevate, buyout and flood-proof a number of structures in the City that are susceptible to tidal flooding. The City is also planning to participate in Woodbridge Township's new program to develop a CRS Watershed Management Plan for the South Branch Rahway River.*

- e) **Action Item:** Warning signage for drivers of flooded underpasses or low intersection points:

Implementation: *Approximately 200 vehicles were lost due to flooding during Hurricane Ida. A significant amount of those vehicles were lost due to drivers attempting to cross underpasses and low elevation intersections that were flooded during the storm. The City authorized a consulting engineer and set aside funding for the design and installation of water depth gauges and warning signs for all areas that receive significant flooding during heavier rain events. The engineering and installation of the signs are anticipated to be complete in 2023.*

- f) **Action Item:** Additional equipment to refine analysis of need to install E. Hazelwood flood gate.

Implementation: *The levee along the west side of the Rahway River and the South Branch of the Rahway River is constructed at elevation 14. The E. Hazelwood Avenue Bridge is at elevation 8 and is the only point along the length of the levee that is below elevation 14. During possible flooding events, the City continuously monitors rainfall intensity, duration and tide levels to determine the possibility of breaching the E. Hazelwood Avenue Bridge. If it is estimated that the bridge will be topped, the flood gate is installed as early as possible.*

It is imperative to accurately analyze the need for the flood gates. Underestimating the need for the flood gates puts the entire area behind the levee at risk for significant flooding as was experienced during Hurricane Ida. Early models for Ida did not indicate the need for the flood gates, however, the predicted rainfall rates and durations changed drastically in the hours before

the storm. Not enough time was left to install the flood gates and the area behind the levee was inundated. Overestimating the need for the flood gates causes the E. Hazelwood Avenue to be closed prematurely or unnecessarily. E. Hazelwood Avenue is a major County Route that is utilized by emergency services.

The flood gate installation analysis relies on data reported from regional resources for tide elevations as well as regional rainfall rates. The only available local data is a physical static depth gauge on the E. Hazelwood Avenue Bridge. In order to read same, City of Rahway staff, must physically go and observe the reading on the gauge. This not only takes valuable staff away from other flood related work but also puts the staff in harm's way as they are in the direct path of potential floodwaters that could overtop the bridge at a moment's notice.

More accurate and timely monitoring of river elevations and rainfall intensity and duration are required to make accurate and safe assessments for the need to install the flood gate. To that end, the City purchased a rain gauge that reports and records total rainfall and intensity. The system can be read over the internet or on handheld devices and also broadcasts various alerts to key OEM personnel. The device was installed at City Hall which is approximately ¼ mile from the bridge. Additionally, the City also purchased an automatic remote read river depth gauge which will provide the City with real-time river elevations at the E. Hazelwood Avenue Bridge. This will eliminate the need to put City staff in harm's way and will provide more accurate readings of the river levels. The City is currently in the process of having same installed on the bridge.

Ultimately, all of these measures have taken place to further prevent the impacts of potential flooding in the City of Rahway while also keeping both the staff and citizens of Rahway safe.

3.2 Property Protection

a) Action Item: Maintenance and Mitigation of Flood Control Project

Implementation: *The City will continue its on-going maintenance of the Flood Control Project which includes:*

- 1. Re-leveling the levee – **complete***
- 2. Replacement of sluice gates along the levee and tide gates – preliminary design completed (Oct. 2020); final design awarded in 2021 and repair/replacement anticipated in spring, 2023*
- 3. Vegetation control – continues annually*
- 4. Elevation of generators and float controls at storm stations – **complete***
- 5. Service and/or repair of sluice gates at storm stations – **complete***
- 6. Flood control panels and dedicated tools are stored in one vehicle to efficiently install the flood panels as needed – **complete***
- 7. Elevate pumps controls at the stormwater pump stations – **complete***

b) Action Item: Mitigation of Municipal Buildings

Implementation: *The City has completed construction in 2014 to perform the following mitigation projects:*

1. *City Hall and Rahway Police Department – replace existing generator and elevate same above flood level; provide mobile connector for emergency generator hook-up; install sewer check valve to eliminate basement flooding – **complete***
2. *Dock Street Sanitary Sewer – replace existing generator and elevate same above flood level; raise electrical controls above flood level – **complete***
3. *Maple Ave Firehouse – replace existing generator – **complete***
4. *Main Street Firehouse – provide mobile connector for emergency hook-up – **complete***
5. *Recreation Center – replace gymnasium hardwood floor with vinyl floor, which is more flood-resistant – **complete***
6. *Acquire traffic signal and trailer-mounted emergency generators – **complete***

c) **Action Item:** Acquisition and/or elevation of properties in floodplain areas

Implementation: *In the aftermath of Super-storm Sandy, the NJDEP entered in an agreement with the City to acquire 32 flood-prone properties through New Jersey’s Green Acres/Blue Acres programs and convert them to open space. As a result, 25 of these properties were acquired and converted to open space since 2016 -- including 18 properties that had experienced repeated flood losses.*

The City also previously acquired two properties on West Grand Avenue through CDBG and Green Acres grants to convert to open space, both of which were demolished in 2015. Elevation grants have been received from the RREM program for properties that were substantially damaged during Hurricane Sandy. In 2016, properties at 1508 Lawrence Street, 1037 Main Street, and 1540 Totten Street were elevated.

Since Hurricane Ida, the City has been actively promoting the Blue Acres programs for those properties within the SFHA that were significantly impacted by the Storm. The City has been documenting properties that have submitted letters of interest to the NJDEP and has actively pursued discussions with the DEP to explore various options for how to potentially use properties that may ultimately be acquired for additional flood mitigation.

3.3 Emergency Services

- a) **Action Item:** Emergency service activities for the City of Rahway are included in the Emergency Operations Plan approved as of May 23, 1996 by the State of New Jersey Office of Emergency Management. The Plan is administered by the City’s OEM and is the responsibility of the City’s OEM and the owners/operators of major or critical facilities including Merck & Co., UMC, Rahway Hospital and the Rahway Housing Authority. These activities include coordination amongst all emergency service personnel such as the Police Department, Fire Department, First Aid Squad, County and State OEM, Rahway Hospital, Public Works and other agencies that would be called upon during a flood emergency. The readiness of these agencies in an emergency is reviewed by the City’s OEM.

Implementation: *The City continues to conduct yearly Emergency Flood Control Drills to test the response and functioning of the Emergency Operations Plan for the City’s flood control levee*

project during significant flood events. The drill is a valuable tool to identify any potential aspects of the Emergency Operations Plan that are in need of modification. Since the drills have been conducted on a yearly basis and adjustments have been made, the response time has dropped from 4-hours to only 1-hour, including setup of the entire flood gate system. In addition, the City has upgraded their emergency response vehicles.

3.4 Structural Projects

- a) **Action Item:** The process of getting the Rahway River Flood Control Levee accredited includes the repair and/or replacement of the tide and sluice gate systems. The tide and sluice gate system's operation are crucial to the levee's functionality during storm events and controlling flow of flood waters.

Implementation: *The City selected an engineering consultant to initiate the design of the repair and/or replacement of the Rahway River Flood Control Levee tide and sluice gate systems.*

- b) **Action Item:** Stormwater management system upgrade and improvement projects

Implementation: *The City is in the midst of developing a stormwater management system upgrade and improvement project and determining the locations and order of improvements. Stormwater systems are also evaluated and repaired every year (as necessary) in connection with the roadway improvement projects. The City recently completed several restoration projects to portions of the stormwater management system that were damaged as a result of prolonged erosion or as a result of Hurricane Ida. This includes the complete replacement of the Lower Alden Creek headwall and creek banks near the border with the City of Linden. Additional improvements include the replacement of the embankment for the stormwater control structure near Block 7, Lot 5 and removal of significant silt and sediment from the pipes downstream as a result of the partial failure. The stormwater conveyance system that is controlled by the structure is a major artery of the storm network that conveys stormwater runoff from the west side of Rahway towards the South Branch of the Rahway River. The control structure and embankment are immediately upstream of the portion of the system that underpasses the Amtrak/NJ Transit rail line. The embankment for the structure was severely damaged during Hurricane Ida and led to a partial blockage of the pipes that lead underneath the rail lines. Failure to take immediate action may have led to a catastrophic condition with major impact to the rail transportation line.*

3.5 Public Information Activities

The City's CRS program includes public information activities. These activities include assistance in obtaining information on Elevation Certificates, map information, outreach projects, maintaining flood protection information at the Public Library, availability of flood information on the City's website, and hazard disclosure and flood protection assistance provided by the City's Floodplain Manager/Consulting Engineer and Building Inspector. In 2021, the City's CRS program was expanded to include additional activities for the public outreach, GIS mapping, website resources, and FIRM maintenance elements. The City's Stormwater Pollution Prevention Plan also includes public information activities, in accordance with the City's NJPDES Permit requirements.

- a) **Action Item:** Substantial public information and public outreach is required as part of the CRS Program, for which the City exceeds those requirements and conducts additional outreach. Outreach has been accomplished by sharing of existing information on flood hazards in the City through new mediums including the City’s Cable Television Station, Website and social media.

Implementation: *The City has continued its public information services and outreach programs. Specifically, yearly notice letters have been sent to owners of property within the floodplain and those recorded as “repetitive loss” properties. The notification letters discuss flood protection, insurance, and the assistance services available to them.*

In conjunction with the community outreach program, the City normally publishes a comprehensive article in the locally circulated “Rahway Review” that is distributed to residents 2 to 4 times per year, covering subjects such as stormwater runoff, flood risks, flood insurance, flood safety, and the flood warning system. Relevant FEMA maps and flood information is continually made available to City residents on the City’s website, in the City’s Public Library, and at City Hall. Additionally, as a courtesy to City residents, the City Engineer’s Office responds to all telephone and written correspondence with regard to questions about the location of flood areas and flood protection measures. Additionally, the City’s OEM team provides Nixle alerts to all registered users prior to weather activity that is predicted to cause flooding in the area based on information provided by NOAA.

- b) **Action Item:** Revisions to the current regulatory maps (FEMA’s Flood Insurance Rate Map – FIRM) should be adopted to identify the true hazards of flooding in the City of Rahway. These maps should display the removal of flood-prone properties that were acquired/demolished by the City/NJDEP and account for new structural flood control projects implemented by the Army Corps.

Implementation: *Currently, the City has been notified by FEMA that they are conducting a new Coastal Re-study modeling effort, and that FEMA will be providing new Preliminary FIRMs in 2024.*

4. DELAYS IN IMPLEMENTATION

Both the Covid-19 pandemic, and Hurricane Ida impacts, delayed some of the City’s HMP initiatives during the past two years, including public meetings, coordination and the preparation of this report. Nevertheless, the City’s maintenance of flood control projects is nearing completion, as is the City’s Green Acres/Blue Acres property acquisition/removal program.

5. NEW PROJECT RECOMMENDATIONS

As noted above, the City recently appropriated additional funding for de-snagging streams and has recommended expanding these operations. Such recommendations are being incorporated into the County's updated All Natural Hazard Mitigation Plan.

Also, the City is in the process of updating both its Flood Damage Prevention Ordinances and Site Plan Review Ordinances. These updates will provide consistency with current NJDEP rules and regulations, and assure compliance with NFIP and CRS requirements.

Moreover, several CRS activities are being expanded/added so that the City may become more resilient to flooding, and upgrade its CRS rating. These activities include the following:

- expanded public outreach activities;
- improved GIS mapping of CRS floodplain mapping data for the City;
- expanded collection of all earlier flood insurance rate maps and flood data;
- an updated NFIP claims database, which is being used to prepare a new Repetitive Loss Area Analysis for the City;
- adding a drainage system maintenance activity; and
- Created a web portal to access real-time, River stage data at two USGS gaging stations in the City.

These new/expanded CRS activities will help the City reduce the number of properties that are flooded and provide additional CRS credits towards flood insurance discounts.