



## 9.10 Township of Delanco

This section presents the jurisdictional annex for the Township of Delanco.

### 9.10.1 Hazard Mitigation Plan Point of Contact

The following individuals have been identified as the hazard mitigation plan’s primary and alternate points of contact.

Primary Point of Contact	Alternate Point of Contact
Janice Lohr, Assistant Administrator / Municipal Clerk 770 Coopertown Road, Delanco, NJ 08075 856.461.0561 ext. 224 jlohr@delancotownship.com	Michael Templeton, Twp. Committeeman 770 Coopertown Road, Delanco, NJ 08075 856.764.1907 42mtempy55@gmail.com

### 9.10.2 Municipal Profile

Delanco is located in northern Burlington County and is bordered by Beverly City and Edgewater Park to the east, Willingboro to the south, Delran to the south-west and Riverside to the west. The Township borders Pennsylvania to the north. The Township encompasses approximately 3.2 miles and naturally bordered by both the Delaware River and Rancocas Creek. Delanco touches Route 130 and is less than a 15-minute drive to Interstate 295 and the New Jersey Turnpike. According to the 2010 Census, the community's population was 4,283.

The Township Committee is the township's governing body. This elective body is responsible for formulating policies, approving the annual budget and enacting ordinances and resolutions to provide a legislative framework. Beginning in 2002 the Township Committee increased to a five-member committee. This increase in the committee was approved by the voters in the 2000 General Election. The Township Committee consists of a mayor, deputy mayor and three committee members.

### Growth/Development Trends

The following table summarizes recent residential/commercial development since 2013 to present and any known or anticipated major residential/commercial development and major infrastructure development that has been identified in the next five years within the municipality. Refer to the map in 9.10.8 of this annex which illustrates the hazard areas along with the location of potential new development.

**Table 9.10-1. Growth and Development**

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
<b>Recent Development from 2013 to present</b>					
Highpoint at Newton's Landing	Res.	13	John Maher Way; 100.01/50.02 thru 50.8, 2100.12/1 thru 4, 6, 7	Could not locate.	Under Construction
Cornerstone at Delanco	Res.	64/10	Coopertown Road; 2100/1, 2100.12/48	Flood: 1% Event: A-Zone; SLOSH: Category 1; Sea-Level Rise:2 ft. SLR Partial Zone X	Under Construction



Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Mid-Atlantic Logistics Center	Comm.	4	Coopertown Road; 1900/8	Wildfire: High; SLOSH: Category 4	Under Construction
<b>Known or Anticipated Development in the Next Five (5) Years</b>					
Crossings @ Delanco	Res.	261	Coopertown Road	NA	Prelim. Approval

\* Only location-specific hazard zones or vulnerabilities identified.

### 9.10.3 Natural Hazard Event History Specific to the Municipality

Burlington County has a history of natural and non-natural hazard events as detailed in Volume I, Section 5.0 of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities. For the purpose of this plan update, events that have occurred in the County from 2013 to present were summarized to indicate the range and impact of hazard events in the community. Information regarding specific damages is included, if available, based on reference material or local sources. This information is presented in the table below. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

**Table 9.10-2. Hazard Event History**

Dates of Event	Event Type (Disaster Declaration if applicable)	Burlington County Designated?	Summary of Damages/Losses
April 30-May 1, 2014	Heavy Rain and Flooding	N/A	Heavy rain caused considerable poor drainage and creek flooding in northern Burlington County. Rancocas Creek was hit the hardest by flooding. Many roads were flooded and closed. Approximately \$1 million in property damage in the County. While the event impacted the entire County, the Township did not experience significant losses or damages.
June 23, 2015	Severe Storm (DR-4231)	Yes	\$10 million in property damage in the County (\$8 million in Medford, \$1 million in Mt Laurel and \$1 million in Medford Lakes). While the event impacted the entire County, the Township did not experience significant losses or damages.
January 22-24, 2016	Severe Winter Storm (DR-4264)	Yes	Heavy snow fell throughout the County; snowfall totals ranged from 12 inches to 16.4 inches. While the event impacted the entire County, the Township did not experience significant losses or damages.

Notes:

- EM Emergency Declaration (FEMA)
- FEMA Federal Emergency Management Agency
- DR Major Disaster Declaration (FEMA)
- N/A Not applicable

### 9.10.4 Hazard Vulnerabilities and Ranking

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant’s vulnerability to the identified hazards. The following summarizes the hazard vulnerabilities and their ranking in the Township of Delanco. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

#### Hazard Risk/Vulnerability Risk Ranking





The table below summarizes the hazard risk/vulnerability rankings of potential hazards for the Township of Delanco. During the review of the hazard/vulnerability risk ranking, the Township indicated the following:

- Coastal erosion was originally ranked low. The Township has seawalls that are deteriorating and some that are close to collapsing along the Delaware River. This is happening from the ongoing erosion from the wave energy, tides, storms, etc. There are storm water outfalls at these locations and the road (Delaware Ave.) runs parallel to the river. As a result, the municipality changed the ranking for coastal erosion to high.
- Flood was changed from a low hazard to a medium hazard.
- After reviewing what areas would be vulnerable to landslide, the municipality felt the estimated potential loss value was much higher than what could be expected and changed the ranking from high to medium.

**Table 9.10-3. Hazard Risk/Vulnerability Risk Ranking**

Hazard type	Estimate of Potential Dollar Losses to Structures Vulnerable to the Hazard <sup>a, c</sup>	Probability of Occurrence	Risk Ranking Score (Probability x Impact)	Hazard Ranking <sup>b</sup>
Coastal Erosion*	RCV Exposed to CE Hazard Area: \$15,862,028	Frequent	12	High
Drought	Damage estimate not available.	Frequent	30	Medium
Earthquake	100-Year GBS: \$0 500-Year GBS: \$776,057 2,500-Year GBS: \$11,537,751	Occasional	28	Medium
Flood*	1% Annual Chance: \$142,092,069	Frequent	18	Medium
Landslide*	RCV Exposed to Landslide Hazard Area \$1,422,201,479	Occasional	36	Medium
Severe Storm	100-year MRP: \$980,085 500-year MRP: \$8,442,694 Annualized: \$53,304	Frequent	48	High
Severe Winter Weather	1% GBS: \$9,185,599 5% GBS: \$45,927,993	Frequent	51	High
Wildfire	Estimated Value in the Extreme, Very High, and High Hazard Areas: \$1,117,160	Occasional	12	Low

Notes:

- Building damage ratio estimates based on FEMA 386-2 (August 2001)
  - The valuation of general building stock and loss estimates was based on custom inventory for the municipality.  
High = Total hazard priority risk ranking score of 31 and above  
Medium = Total hazard priority risk ranking of 20-30+  
Low = Total hazard risk ranking below 20
  - Loss estimates for the severe storm and severe winter storm hazards are structural values only and do not include the value of contents.
  - Loss estimates for the flood and earthquake hazards represent both structure and contents.
  - The HAZUS-MH earthquake model results are reported by Census Tract.
- \* The Township of Delanco changed the ranking for coastal erosion from low to high, flood from low to medium, and landslide from high to medium.

### National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the Township of Delanco.





**Table 9.10-4. NFIP Summary**

Municipality	# Policies (1)	# Claims (Losses) (1)	Total Loss Payments (2)	# Rep. Loss Prop. (1)	# Severe Rep. Loss Prop. (1)	# Policies in 100-year Boundary (3)
Township of Delanco	102	21	\$67,299.23	1	0	2

Source: FEMA Region 2 2017, 2018

(1) Repetitive loss and severe repetitive loss statistics provided by FEMA Region 2 and are current as of 10/31/2017. Policy and claims statistics current as of 9/30/2018

Please note the total number of repetitive loss properties does not include the severe repetitive loss properties. The number of claims represents claims closed by 9/30/2018.

(2) Total building and content losses from the claims file provided by FEMA Region 2.

(3) The policies inside and outside of the flood zones are based on the addresses geocoded from the FEMA Region 2 policy file – 10/31/2017.

Notes: FEMA noted that where there is more than one entry for a property, there may be more than one policy in force or more than one GIS possibility.

A zero percentage denotes less than 1/100th percentage and not zero damages or vulnerability as may be the case.

### Critical Facilities

The table below presents Hazards United States (HAZUS) – Multi-Hazards (MH) estimates of the damage and loss of use to critical facilities in the community as a result of a 1-percent annual chance flood event. These facilities are not owned or controlled by the Township.

**Table 9.10-5. Potential Flood Losses to Critical Facilities**

Name	Type	Exposure		Potential Loss from 1% Flood Event	
		1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage
269 - Pennington Park Structure	County Building		X	-	-
275 - Pennington Park Yard & Outside	County Building		X	-	-
399 - Rhawn Property - Main House	County Building		X	-	-
437 - Rhawn Property - Shed - Delanco Township	County Building		X	-	-
Delanco Light Rail Station – New Jersey Transit property	Light Rail		X	-	-

Source: FEMA 2017, Burlington County

Note: - = Damages not calculated by HAZUS-MH v4.0

These facilities are not owned or controlled by the Township. Responsibility for these facilities falls on the County and New Jersey Transit.

### Other Vulnerabilities Identified

The municipality has identified the following vulnerabilities within their community:

- Flood: Frequent
- Severe Storm: Frequent
- Severe Winter Storm: Frequent
- Coastal Erosion: Frequent
- Wildfire: Occasional





- Drought: Frequent
- Earthquake: Rare
- Landslide: Occasional

The municipality identified the following areas of concern:

- Bogg’s Run (aka, Bogg’s Ditch) is a natural drainage originating in Edgewater Park. The outflow of Bogg’s Run at the Delaware River was modified by the Corps of Engineers in the 1940’s and 1950’s when CDF’s #13 & #13a were built (where the Riversedge residential development is now located). The Bogg’s Run outflow is now restricted and easily clogged with river debris. This is the United States Army Corps of Engineers’ responsibility. The upper section of Bogg’s, east of Burlington Avenue, is within an easement to the Veterans Administration to ensure runoff from the Beverly National Cemetery. The Bogg’s drainage passes under the NJT tracks through an undersized and easily clogged culvert. Impeded runoff floods residential property along Perkins Lane in Edgewater Park.
- The “canal” at Delanco’s West Avenue Trail Park extends east and north through Beverly. The canal was built by the Corps in the early 1960’s when ground water was blocked from the natural flow to the river after CDF’s 13A & 14 were built. The canal outflow at the Delaware River in Beverly is often blocked by debris and silting, resulting in restricted flow, higher water tables, and recurring basement flooding to the adjacent residential neighborhood.
- The Beverly Sewerage Treatment Plant provides water treatment services to Beverly and Delanco. This is a critical facility along the Delaware River.
- Delanco Township has experienced significant river shoreline erosion and loss of land along its Delaware River shore. Nearly 1000 feet of riverfront seawall has collapsed. An additional several hundred feet of seawall is threatened.
- Wildfire is unlikely, but if coupled with drought, this would generate a risk with large forested areas at both ends of Delanco (Hawk Island [120 acres] & West Ave. Park [50+ acres]) close to dense residential neighborhoods.
- FEMA flood scenarios (1.0% & 0.2%) would impact Burlington Avenue (at Rancocas Creek & at Bogg’s Ditch) and Cooper Street (Hickory Street to Pennsylvania Avenue / RR tracks), with significant effect on evacuation routes, emergency services (FD / EMS) and relief access. All three roads into Delanco would be covered by floodwaters.
- Delanco – Riverside Bridge would be affected by FEMA flooding scenarios (1.0% & 0.2%; aka 100yr & 500yr) as both bridge approaches would be inundated. Significant flooding or flood debris could damage the bridge or mechanical function (movable swing bridge), severing a vital transportation connection. Currently spring and storm flood tides inundate and block the bridge approach from Riverside.

### 9.10.5 Capability Assessment

This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

#### Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Township of Delanco.



**Table 9.10-6. Planning and Regulatory Tools**

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
<b>Planning Capability</b>				
Master Plan	Yes (2009)	Local	Land Use Board	-
Capital Improvements Plan	Yes (2017)	Local	Township Committee	-
Floodplain Management / Basin Plan	Yes (2017)	Local	Township Committee	-
Stormwater Management Plan	Yes (2006)	Local	Township Committee	-
Open Space Plan	Yes (2009)	Local	Township Committee & JLUB	Incorporated in Master Plan 2009
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	Yes (2006)	Local	Township Committee	Chapter 65
Economic Development Plan	Yes	Local	Township Committee	Incorporated in Master Plan 2009
Comprehensive Emergency Management Plan	Yes (2011)	Local	Office of Emergency Management	-
Emergency Operation Plan	Yes (2011)	Local	Office of Emergency Management	-
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	Yes (2009)	Local	-	-
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	-	-	-	-
<b>Regulatory Capability</b>				
Building Code	Yes (2012)	State & Local		State Uniform Construction Code Act (N.J.S. 52:27D-119 et seq.)
Zoning Ordinance	Yes (2003, amended in 2017)	-	-	Chapter 110: Zoning
Subdivision Ordinance	Yes (2003, amended in 2011)	-	-	Chapter 100: Subdivision of Land
NFIP Flood Damage Prevention Ordinance	Yes (2017)	Federal, State, Local	-	Chapter 65, Ordinance 2017-15
NFIP: Cumulative Substantial Damages	No	-	-	-
NFIP: Freeboard	Yes (2017)	State, Local	-	Chapter 65, Ordinance 2017-15
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	Yes	Local	Land Use Board	Chapter 91: Site Plan Approval



Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Stormwater Management Ordinance	Yes (2006)	-	-	Chapter 249: Stormwater Management
Municipal Separate Storm Sewer System (MS4)	Yes (2006)	-	-	Chapter 239
Stormwater Program Ordinances <ul style="list-style-type: none"> <li>• Pet waste</li> <li>• Litter Control</li> <li>• Improper Disposal of Waste</li> <li>• Wildlife Feeding</li> <li>• Yard Waste Collection</li> <li>• Illicit Connection</li> <li>• Private Storm Drain Retrofitting</li> <li>• Refuse Container / Dumpster (optional)</li> </ul>	Yes	Local	-	Chapter 249 Article I: Improper Disposal of Waste, Article II: Pet Waste, Article III: Wildlife Feeding, Article IV: Yard Waste Collection, Article V: Illicit Connections, Article VI: Litter Control; Chapter 247 Article I: Private Storm Drain Retrofitting; Chapter 245 Article II: Refuse Containers and Dumpsters
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	-	-
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	No	-	-	-

### Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Township of Delanco.

**Table 9.10-7. Administrative and Technical Capabilities**

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
<b>Administrative Capability</b>		
Planning Board	Yes	Joint Land Use Board
Mitigation Planning Committee	Yes	Township Committee / JLUB / OEM
Environmental Board/Commission	Yes	Environmental Advisory Board
Open Space Board/Committee	Yes	Recreation Commission
Economic Development Commission/Committee	Yes	Economic Advisory Council
Maintenance programs to reduce risk	Yes	Twp. Committee / DPW / OEM
Mutual aid agreements	Yes	-
<b>Technical/Staffing Capability</b>		
Planner(s) or engineer(s) with knowledge of land development and land management practices	Yes	Environmental Resolutions, Inc.
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Environmental Resolutions, Inc.
Planners or engineers with an understanding of natural hazards	Yes	Environmental Resolutions, Inc.



Resources	Is this in place? (Yes or No)	Department/ Agency/Position
NFIP Floodplain Administrator (FPA)	Yes	Construction Official
Surveyor(s)	Yes	Environmental Resolutions, Inc.
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Environmental Resolutions, Inc.
Scientist familiar with natural hazards	Yes	Environmental Resolutions, Inc.
Emergency Manager	Yes	Municipal OEM
Grant writer(s)	Yes	Environmental Resolutions, Inc.
Staff with expertise or training in benefit/cost analysis	Yes	Environmental Resolutions, Inc.
Professionals trained in conducting damage assessments	Yes	Twp. Construction official. Chief, Washington Fire Company (Delanco FD).

### Fiscal Capability

The table below summarizes financial resources available to the Township of Delanco.

**Table 9.10-8. Fiscal Capabilities**

Financial Resources	Accessible or Eligible to Use (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state Funding Programs	Yes
Open Space Acquisition funding programs	Yes
Other	-

### Community Classifications

The table below summarizes classifications for community program available to the Township of Delanco.

**Table 9.10-9. Community Classifications**

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	NP	N/A	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	NP	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	NP	-	-
Storm Ready Certification	NP	N/A	N/A



Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Firewise Communities classification	NP	N/A	N/A
Natural disaster/safety programs in/for schools	TBD	-	-
Organizations with mitigation focus (advocacy group, non-government)	NP	-	-
Public education program/outreach (through website, social media)	Yes	-	-
Public-private partnership initiatives addressing disaster-related issues	NP	-	-

Note:

- N/A Not applicable
- NP Not participating
- Unavailable

The classifications listed above relate to the community’s ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community’s capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule
- The ISO Mitigation online ISO’s Public Protection website at <https://www.isomitigation.com/ppc/>
- The National Weather Service Storm Ready website at <http://www.stormready.noaa.gov/index.html>
- The National Firewise Communities website at <http://firewise.org/>

### Self-Assessment of Capability

The table below provides an approximate measure of the Township of Delanco’s capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

**Table 9.10-10. Self-Assessment Capability for the Municipality**

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?) *	Moderate	High
Planning and regulatory capability		X	
Administrative and technical capability		X	
Fiscal capability		X	
Community political capability			X
Community resiliency capability			X
Capability to integrate mitigation into municipal processes and activities		X	





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## National Flood Insurance Program

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### NFIP Floodplain Administrator (FPA)

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Thomas Casey, Construction Official

### Flood Vulnerability Summary

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The Township of Delanco does not maintain inventories of properties that have been damaged by flooding or property owners who are interested in mitigation. The FPA did not have knowledge of any structures that have required Substantial Damage. The FPA indicated that there are currently no residents interested in elevation.

### Resources

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The FPA assumes the responsibilities of floodplain administration for the Township of Delanco in conjunction with support staff. NFIP administration services and functions provided to residents of Delanco include plan review, inspections, assessments, and consultation to Township officials. The Township provides education and access to FEMA information regarding flood hazards / risk or flood risk reduction through municipal website and annual Community Day event. The FPA stated there are currently no barriers to running an effective floodplain management program and feels adequately supported and trained to fulfill his responsibilities as the municipal floodplain administrator. The FPA would consider attending continuing education and certification training on floodplain management if it were offered in the future.

### Compliance History

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The Township is in good compliance with the NFIP. The date of the most recent Community Assistance Visit is unknown.

### Regulatory

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The Township of Delanco's floodplain management ordinance (Flood Damage Prevention Ordinance 2017-15, Chapter 65, adopted December 2017) meets the minimum requirements set by FEMA and the State of New Jersey. The FPA indicated that there are other local ordinances, plans, or programs that support floodplain management. The Township has considered enrolling in the CRS program and indicated they would attend a CRS seminar if it was offered locally.

## Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

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For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures.

### Planning

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**Hazard Mitigation:** The Township of Delanco actively participated in the 5-year update of the Burlington County Hazard Mitigation Plan. The Township continues to support the implementation, monitoring, maintenance, and updating of the plan.

**Master Plan:** The Township of Delanco's Master Plan was adopted on January 6, 2009. It includes elements for land use, circulation, historic preservation, capital improvements, and open space and recreation..

**Land Use:** Land use is discussed as an element in the Master Plan. Goals in the Master Plan include:





- Enhance and redevelop older residential areas.
- Create new residential neighborhoods in appropriate locations.
- Preserve and enhance the town's traditional residential village character and provide appropriate buffers between the mixed-use village from more intensive industrial uses along the railroad.
- Encourage development that respects existing development intensities, densities and patterns and environmental constraints.
- Discourage illegal apartment conversions that create higher residential densities, overcrowding, insufficient parking and other detrimental conditions and promote the rehabilitation of structures to their original single-family character.
- Reuse vacant land and underutilized sites.
- Encourage the creation of infill commercial development along Burlington Avenue in appropriate locations.
- Continue to reexamine ordinances regarding industrial, commercial and residential development requirements and provisions, i.e. setbacks, minimum area landscaping, parking, buffers etc.
- Encourage the development of green buildings; and have Delanco Township lead by example by constructing LEED-certified buildings.

**Stormwater Management:** Stormwater management is discussed as an element in the Master Plan. Stormwater management goals include:

- Reduce flood damage, including damage to life and property.
- Minimize, to the extent practical, any increase in stormwater runoff from any new development or redevelopment.
- Reduce soil erosion from any development or construction project.
- Assure the adequacy of existing and proposed culverts and bridges, and other instream structures.
- Maintain groundwater recharge where feasible.
- Prevent, to the greatest extent feasible, an increase in non-point pollution.
- Maintain the integrity of stream channels for their biological functions, as well as for drainage.
- Minimize pollutants in stormwater runoff from new and existing development to restore, enhance, and maintain the chemical, physical, and biological integrity of the waters for the State, to protect public health, to safeguard fish and aquatic life and scenic and ecological values, and to enhance the domestic, municipal, recreational, industrial, and other uses of water.
- Protect public safety through the proper design and operation of stormwater basins.
- Maintain and enhance water quality so that all waterways meet surface water quality standards for fishing and swimming.
- Promote Stormwater Management practices that retain stormwater on site.
- Retrofit existing storm systems that discharge to waterways.
- Promote land use, site design, and stormwater practices to allow stream base flows to approximate pre-development conditions.
- Identify methods to equitably distribute water supplies while encouraging water conservation and reuse.
- Develop regional distribution systems for water reuse.

### Regulatory and Enforcement (Ordinances)

The Township of Delanco's codebook can be found online at <https://ecode360.com/DE0379?needHash=true>.

**Flood Damage Prevention:** The purpose of the flood damage prevention ordinance (Chapter 65 of the municipal code) is to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

- Protect human life and health.
- Minimize expenditure of public money for costly flood control projects.



- Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public.
- Minimize prolonged business interruptions.
- Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains.
- Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas.
- Ensure that potential buyers are notified that property is in a flood area.

**Land Use Procedures Ordinance:** The Township's Land Use Procedures Ordinance (Chapter 50) establishes the members and practices of the Joint Land Use Board.

**Zoning Ordinance:** The Township's Zoning Ordinance (Chapter 110) establishes general regulations and district regulations.

**NJDEP Municipal Stormwater Regulation Program:** New Jersey Department of Environmental Protection issued the statewide municipal stormwater permits that became effective January 1, 2018 and authorizes stormwater discharges from municipal separate storm sewer systems (MS4s) to the waters of the state. Municipalities that have been issued a Notice of Authorization (NOA) to discharge under the Tier A (urban and coastal municipalities) or Tier B (more rural municipalities) master general permit must develop and implement a stormwater program. The first New Jersey Pollutant Discharge Elimination System (NJPDES) permit authorizing discharges from MS4 municipalities became effective in 2004 (subsequently renewed in 2009 and now in 2018), so most municipalities have developed stormwater programs; however, the 2018 permit requires municipalities to maintain a stormwater management plan and enforce stormwater ordinances to address development and redevelopment consistent with the Stormwater Management rules at N.J.A.C 7:8, as well as implementation of additional requirements. For more information on the municipal stormwater regulation program, see [http://www.nj.gov/dep/dwq/msrp\\_home.htm](http://www.nj.gov/dep/dwq/msrp_home.htm). Delanco is a Tier A municipality.

**Stormwater Management:** Chapter 249 of the municipal code discusses stormwater management. The chapter is intended to regulate the feeding of wildlife, disposal of waste, including pet solid waste, yard waste collection, litter, and other waste and pollution that may find its way into stormwater runoff in order to improve, preserve and protect the water quality of waters and streams within the Township and surrounding communities that may be downstream from the Township so as to protect the health safety and welfare of the public. This chapter also regulates connections to the municipal separate storm sewer system (MS4) operated by the Township and establishes penalties for violations of the provisions of this chapter.

### Operational and Administration

**Mutual Aid Agreements:** The Township maintains mutual aid agreements with neighboring communities for continuity of operations.

**Information Sharing:** The Township is working with Burlington County to improve municipal communications systems to include information sharing with the county and surrounding municipalities. The Township also utilizes Swift911 to share information with residents.

**Floodplain Administrator:** The Township promotes the participation of the Floodplain Administrator within the hazard mitigation planning process and other plans and activities.

**Joint Land Use Board:** The Delanco Township Joint Land Use Board serves as both a planning board and a zoning board of adjustment pursuant to the provisions of N.J.S.A.40:55D-25d and has been established in accordance with the provisions set forth in N.J.S.A.40:55D-1 et seq. The Joint Land Use Board is authorized to



adopt such rules and regulations as may be necessary to carry into effect the provisions and purposes of the land use chapters of the Delanco Code. The nine-member board meets each March 2019 at 7:00PM in the Municipal Court Room. Please check the current meeting schedule for specific meeting dates.

**Historic Preservation Advisory Board:** The Delanco Historic Preservation Advisory Board (HPAB) was created by a resolution of the Delanco Township Committee on April 4, 2005. Its purpose is to:

- Create an inventory of historic sites within the municipality and gather information with regard to their historic character.
- Recommend and prioritize historic sites for potential acquisition within the municipality, whether through the recently adopted open space tax approved by the voters or other funding.
- Recommend any lesser means of preservation that may be instituted to ensure the continuation of historic sites.
- Promote the history of Delanco Township and its historic sites.

**Environmental Advisory Board:** The Delanco Environmental Advisory Board advises the Mayor and Township Committee as to the ecological considerations of the Township. The Board meets on the first Thursday of each March 2019 at 7:00PM in the Municipal Building. The Board is made up of five members, one of which is a member of the Shade Tree Commission and one of which is a member of the Planning Board.

**Economic Advisory Council:** The purpose of the Economic Advisory Council's purpose is to:

- To promote the economic growth of the Township of Delanco.
- To plan, implement and inform the community and surrounding areas about economic growth, business and opportunity within the Township of Delanco.
- To make recommendations to the Township Committee with regard to economic, business and related issues impacting the Township.
- To submit a semiannual report to the Township Committee regarding its activities over the prior six months and, if requested, appear before the Township Committee for the discussion of same.

**Shade Tree Commission:** The mission of the Delanco Shade Tree Commission, founded on October 12, 1971 is as follows:

- Serve as volunteer advocates for the incorporation of trees and green spaces in the Township.
- To maintain and preserve the trees on township property.
- To facilitate the planting of new trees in public venues.
- To educate the public with regard to the care and benefits of trees in their environment.
- To remain informed, accredited, and active in the future planning of the Community Forest.

The Shade Tree Commission meets the fourth Wednesday of every March 2019, with the exception of November and December, at Town Hall, 770 Coopertown Road.

## **Funding**

The Township of Delanco plans to add a line item for mitigation project funding in the municipal budget for and look at mitigation actions when allocating funding in the future. The Township also plans to add a line item for mitigation project funding in the Capital Improvement Budget in the next five years. The Township has provided funding for mitigations projects that have been identified in the hazard mitigation plan and plans to provide protection for buildings and infrastructure in high hazard areas.



## Education and Outreach

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The Township conducts and facilitates public education and outreach for residents and businesses to promote natural hazard risk reduction on hazard mitigation and disaster preparedness. Natural disaster/safety programs take place in schools. The Township maintains a municipal website (<http://www.delancotownship.com/>) where they post information regarding upcoming community events, important municipal decisions, and information about the municipality. The website also contains website links to NJ & Federal emergency preparedness sites. The Township's Police and Fire Departments also maintain Facebook pages and the Police Department maintains a Twitter page.

Burlington County utilizes the Swift911 Emergency Notification system. Swift911 is used in order to keep residents informed during fires, outages, floods, hurricanes, evacuations, road closures and more. All notifications are delivered for the sole purpose of delivering emergency messages and public notifications that are time sensitive in order to increase the safety and security. This service is also extended to the 40 municipalities within Burlington County, including the Township of Delanco.

### 9.10.6 Mitigation Strategy and Prioritization

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This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritization.

#### Past Mitigation Initiative Status

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The following table indicates progress on the community's mitigation strategy identified in the 2013 Plan. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under 'Capability Assessment' presented previously in this annex.



Table 9.10-11. Status of Previous Mitigation Actions

Action Number	2013 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
DCO-1	Bogg's Run - implement improvements to increase the capacity of culverts at the Light Rail Line and Burlington Avenue	Lead: Delanco OEM, Edgewater OEM Support: USACE, County OEM, NJ Transit	No Progress	1. 0% complete 2. NJ Transit responsibility; low priority for NJT.” 3. No funding secured	1. Include in 2019 HMP 2. See table 9.10-13 3. N/A
DCO-2	Perform seawall repairs on Delaware Riverfront	Township Committee	In Progress	1. 0% complete 2. NJDEP regulations, changing policy have inhibited progress. Permitting & review in progress. 3. No funding secured	1. Include in 2019 HMP 2. See table 9.10-13 3. N/A
DCO-3	Perform drainage improvements at Hickory St.	Township Committee	No Progress	1. 0% complete 2. Funding allocated 3. No funding secured	1. Include in 2019 HMP 2. See table 9.10-13 3. N/A
DCO-4	Purchase new OEM phone system	Township Committee	In Progress	1. 95% complete 2. N/A 3. N/A	1. Include in 2019 HMP 2. See table 9.10-13 3. N/A
DCO-5	Establish Street Tree inspection program and implement removal of dangerous trees	Township Committee	In Progress	1. 5% complete 2. N/A 3. N/A	1. Include in 2019 HMP 2. See table 9.10-13 3. N/A
DCO-6	Evaluate benefits of participating in CRS program	Twp. Committee; Planning	In Progress	1. Review and Revisions to Ordinances 2. N/A 3. NA	1. Include in 2019 HMP 2. See table 9.10-13 3. N/A
DCO-7	Conduct and facilitate community and public education and outreach for residents and businesses to promote natural hazard risk reduction to include: <ul style="list-style-type: none"> <li>Disaster preparedness</li> <li>Hazard mitigation</li> </ul>	Municipality with support from Planning Partners, County Planning, NJOEM, FEMA	In Progress	1. 5% complete 2. Ongoing 3. N/A	1. Discontinue 2. 3. Ongoing capability



Action Number	2013 Mitigation Action	Responsible Party	Status (In progress, No progress, Complete)	Describe Status 1. Please describe what was accomplished and indicate % complete. 2. If there was no progress, indicate what obstacles/delays encountered? 3. If there was progress, how is/was the action being funded (e.g., FEMA HMGP grant, local budget)?	Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
DCO-8	Improve municipal communications systems to include information sharing with county and surrounding municipalities.	Municipality with support from County, NJOEM and FEMA	In Progress	1. 100% Complete. Using Swift 911 system and also communication with the county through their radio and pager alerts 2. N/A 3. N/A	1. Discontinue 2. N/A 3. Ongoing capability
DCO-9	Obtain and install backup power sources at critical facilities.	Municipality with support from County, NJOEM and FEMA	In Progress	1. 50% Complete. Firehouse, Muni bldg., Schools have backup power 2. 3.	1. Include in 2019 HMP 2. Certify backup power to critical bldg circuits. 3. N/A
DCO-10	Create/Enhance/Maintain Mutual Aid agreements with neighboring communities for continuity of operations	Municipality with support from County, NJOEM, FEMA and surrounding communities	In Progress	1. Ongoing 2. N/A 3. N/A	1. Discontinue 2. N/A 3. Ongoing capability
DCO-11	Continue to support the implementation, monitoring, maintenance, and updating of this Plan through participating in the 5 year Plan Update	Municipality with support from Planning Partners, County Planning, NJOEM, FEMA	In Progress	1. Ongoing 2. N/A 3. N/A	1. Discontinue 2. N/A 3. Ongoing capability
DCO-12	Promote the participation of Floodplain Administrator within the planning process and other activities.	Municipality with support from County, NJOEM and FEMA	In Progress	1. Ongoing 2. N/A 3. N/A	1. Discontinue 2. N/A 3. Ongoing capability
DCO-13	Enhance resilience to severe storms by joining the NOAA "Storm Ready" program.	Municipality with support from County, NJOEM and FEMA	No Progress	1. 0% 2. N/A 3. N/A	1. Include in 2019 HMP 2. See table 9.10-13 3. N/A
DCO-14	Provide public education and outreach on proper installation and/or use of backup power	Municipal Clerk	No Progress	1. 0% 2. N/A 3. N/A	1. Include in 2019 HMP 2. See table 9.10-13 3. N/A



### Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Township of Delanco has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2013 Plan:

- None identified

### Proposed Hazard Mitigation Initiatives for the Plan Update

The Township of Delanco participated in a mitigation action workshop in March 2018 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013).

Table 9.10-12 summarizes the comprehensive-range of specific mitigation initiatives the Township of Delanco would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing your actions as ‘High’, ‘Medium’, or ‘Low.’ The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.10-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.



Table 9.10-12. Proposed Hazard Mitigation Initiatives

Initiative	Mitigation Initiative	Critical Facility (Yes/No)	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Delanco - 1 (former DCO-1)	Bogg's Run – Phase implement improvements to increase the capacity of culverts at the Light Rail Line and Burlington Avenue	No	Flood	1	Lead: USACE, NJ Transit, County, State Support: Municipality	High	High	USACE, VA, NJ Transit	Long Term	Medium	NSP	NR
T. Delanco - 2 (former DCO-2)	Perform seawall repairs on Delaware Riverfront	No	Flood	1, 3	Township Committee	High	High	Municipal Budget, federal, state programs with local or county match	Medium	High	SIP	SP, PP, NR
T. Delanco - 3 (former DCO-3)	Perform drainage improvements at Hickory St.	No	Flood	1, 2	Township Committee	High	High	Municipal Budget, HMA programs with local or county match	Medium	High	SIP	ES
T. Delanco - 4 (former DCO-4)	Purchase new OEM phone system	No	Flood, Storms, All Emergency Situations	1, 6	Township Committee	Medium	Medium	Municipal Budget, HMA programs with local or county match	Short	Medium	ISP	SP
T. Delanco - 5 (former DCO-5)	Establish Street Tree inspection program and implement removal of dangerous trees	No	Flood, Storms, All Emergency Situations	1, 2, 6	Township Committee	Medium	Medium	Municipal Budget, HMA programs with local or county match	Short	Medium	SIP	NR, PP, PR
T. Delanco - 6 (former DCO-6)	Evaluate benefits of participating in CRS program	No	All	1, 2, 3, 4, 5, 6	Twp. Committee; Planning	Medium	Low	Twp./Public	OG	Medium	LPR	PR, PI





Initiative	Mitigation Initiative	Critical Facility (Yes/No)	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
T. Delanco - 7 (former DCO-9)	Certify backup power to critical building circuits.	Yes	All Hazards	1, 3, 6	Municipality with support from County, NJOEM and FEMA	Medium	Medium	HMA grants, Municipal Budget	Short Term	Medium	SIP	ES
T. Delanco - 8	Enhance resilience to severe storms by joining the NOAA "Storm Ready" program.	No	Severe Storm	1, 3	Municipality with support from County, NJOEM and FEMA	Medium	Low	Municipal Budget	Short Term DOF	Medium	EAP	PI
T. Delanco - 9 (former DCO-1)	Provide public education and outreach on proper installation and/or use of backup power	No	Severe Storm	1, 5	Municipal Clerk	Medium	Low	Municipal Budget	Short	High	LPR EAP	PI
T. Delanco - 10	The Township will continue to promote and support non-structural flood hazard mitigation alternatives for at risk properties within the floodplain, including those that have been identified as Repetitive Loss (RL) and Severe Repetitive Loss (SRL), such as acquisition/relocation or elevation depending on feasibility. The parameters for this initiative would be: funding, benefits versus cost, and willing participation of property owners.	No	Flood	1, 2, 3, 4	Municipality	High	High	HMGP, PDM, Municipal Budget	Short Term DOF	High	SIP	PR PP
T. Delanco - 11	Ensure that new development pays its fair share of improvements to the storm sewerage system necessary to accommodate increased flows from the development.	No	All Hazards	1, 2	Municipality with support from Planning, Code Enforcement	High	Low	Municipal Budget	Short Term DOF	High	LPR	PR
T. Delanco - 12	Coordinate flood prevention projects w/Beverly, Delanco, Edgewater Park; Bogg's Run, DSA/BSA	No	Flood	1-1 3-1	Lead: USACE Support: Delanco,	High	Low	Federal	Medium	High	LPR	PR, PP, NR, SP





Initiative	Mitigation Initiative	Critical Facility (Yes/No)	Hazard(s) Mitigated	Goals Met	Lead and Support Agencies	Estimated Benefits	Estimated Cost	Sources of Funding	Timeline	Priority	Mitigation Category	CRS Category
	Plant, West Avenue / Memorial Drive "canal". Address shared flooding concerns.				Beverly, & Edgewater Park							
T. Delanco – 13	Bogg's Run; Clearing of lower section, Burlington Avenue to river, USACE responsibility. Deadfalls & debris restrict outflow causing upstream flooding to residential property.	No	Flood	1	Lead: USACE Support: Delanco & Edgewater Park	High	High	USACE, County Bridge Commission	Long Term	Medium	NSP	PP, NR, SP

**Notes:**

Not all acronyms and abbreviations defined below are included in the table.

\*Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CRS Community Rating System
- DPW Department of Public Works
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- HMA Hazard Mitigation Assistance
- N/A Not applicable
- NFIP National Flood Insurance Program
- OEM Office of Emergency Management

Potential FEMA HMA Funding Sources:

- FMA Flood Mitigation Assistance Grant Program
- HMGP Hazard Mitigation Grant Program
- PDM Pre-Disaster Mitigation Grant Program
- RFC Repetitive Flood Claims Grant Program (discontinued in 2015)
- SRL Severe Repetitive Loss Grant Program (discontinued in 2015)

Timeline:

- Short 1 to 5 years
- Long Term 5 years or greater
- OG On-going program
- DOF Depending on funding

Costs:

Where actual project costs have been reasonably estimated:

- Low < \$10,000
- Medium \$10,000 to \$100,000
- High > \$100,000

Where actual project costs cannot reasonably be established at this time:

- Low Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.

Benefits:

Where possible, an estimate of project benefits (per FEMA's benefit calculation methodology) has been evaluated against the project costs, and is presented as:

- Low= < \$10,000
- Medium \$10,000 to \$100,000
- High > \$100,000

Where numerical project benefits cannot reasonably be established at this time:

- Low Long-term benefits of the project are difficult to quantify in the short term.





Costs:

- Medium** Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
- High** Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Benefits:

- Medium** Project will have a long-term impact on the reduction of risk exposure to life and property, or project will provide an immediate reduction in the risk exposure to property.
- High** Project will have an immediate impact on the reduction of risk exposure to life and property.

Mitigation Category:

- **Local Plans and Regulations (LPR)** – These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- **Structure and Infrastructure Project (SIP)** - These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- **Natural Systems Protection (NSP)** – These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- **Education and Awareness Programs (EAP)** – These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities

CRS Category:

- **Preventative Measures (PR)** - Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- **Property Protection (PP)** - These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- **Public Information (PI)** - Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- **Natural Resource Protection (NR)** - Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- **Structural Flood Control Projects (SP)** - Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- **Emergency Services (ES)** - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities



Table 9.10-13. Summary of Prioritization of Actions

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community	Total	High / Medium / Low
T. Delanco - 1 (former DCO-1)	Bogg's Run - implement improvements to increase the capacity of culverts at the Light Rail Line and Burlington Avenue	1	1	0	1	0	1	1	1	1	0	1	0	1	0	9	Medium
T. Delanco - 2 (former DCO-2)	Perform seawall repairs on Delaware Riverfront	1	1	0	1	1	1	1	1	1	1	1	0	1	0	11	High
T. Delanco - 3 (former DCO-3)	Perform drainage improvements at Hickory St.	1	1	0	1	1	1	1	1	1	1	1	0	1	1	12	High
T. Delanco - 4 (former DCO-4)	Purchase new OEM phone system	1	1	0	0	1	1	0	0	1	1	1	1	0	1	9	Medium
T. Delanco - 5 (former DCO-5)	Establish Street Tree inspection program and implement removal of dangerous trees	1	1	1	0	1	1	0	1	1	0	1	0	0	0	8	Medium
T. Delanco - 6 (former DCO-6)	Evaluate benefits of participating in CRS program	1	1	1	1	1	1	-1	1	1	-1	1	1	0	1	9	Medium
T. Delanco - 7 (former DCO-9)	Certify backup power to critical building circuits.	1	0	1	1	1	1	1	0	1	1	1	1	1	0	11	High
T. Delanco - 8 (former DCO-13)	Enhance resilience to severe storms by joining the NOAA "Storm Ready" program.	1	1	1	1	1	1	-1	1	1	-1	1	1	0	1	9	Medium
T. Delanco - 9 (former DCO-14)	Provide public education and outreach on proper installation and/or use of backup power	1	1	1	1	1	1	1	0	1	0	0	1	0	0	9	Medium
T. Delanco - 10	The Township will continue to promote and support non-structural flood hazard mitigation alternatives for at risk properties within the floodplain, including those that have been identified as Repetitive Loss (RL) and Severe Repetitive Loss	1	1	0	1	1	1	-1	0	1	1	1	0	1	0	7	Medium





**Table 9.10-13. Summary of Prioritization of Actions**

Mitigation Action / Project Number	Mitigation Action/Initiative	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community	Total	High / Medium / Low
	(SRL), such as acquisition/relocation or elevation depending on feasibility. The parameters for this initiative would be: funding, benefits versus cost, and willing participation of property owners.																
T. Delanco - 11	Ensure that new development pays its fair share of improvements to the storm sewerage system necessary to accommodate increased flows from the development.	0	1	0	1	1	1	-1	0	1	1	1	0	1	0	6	Medium
T. Delanco - 12	Continue multi-jurisdictional planning discussions between Beverly, Delanco, and Edgewater Park to develop projects to address shared flooding concerns.	1	1	1	0	1	1	1	0	1	1	0	1	1	1	11	High
T. Delanco - 13	Bogg's Run; Clearing of lower section, Burlington Avenue to river, USACE responsibility. Deadfalls & debris restrict outflow causing upstream flooding to residential property.	1	1	0	1	1	1	1	1	1	0	1	1	1	1	12	High

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions.





### **9.10.7 Future Needs to Better Understand Risk/Vulnerability**

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None at this time.

### **9.10.8 Hazard Area Extent and Location**

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Hazard area extent and location maps have been generated for the Township of Delanco that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Township of Delanco has significant exposure. These maps are illustrated in the hazard profiles within Section 5.4, Volume I of this Plan.

### **9.10.9 Additional Comments**

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None at this time.



Figure 9.10-1. Township of Delanco Hazard Area Extent and Location Map 1

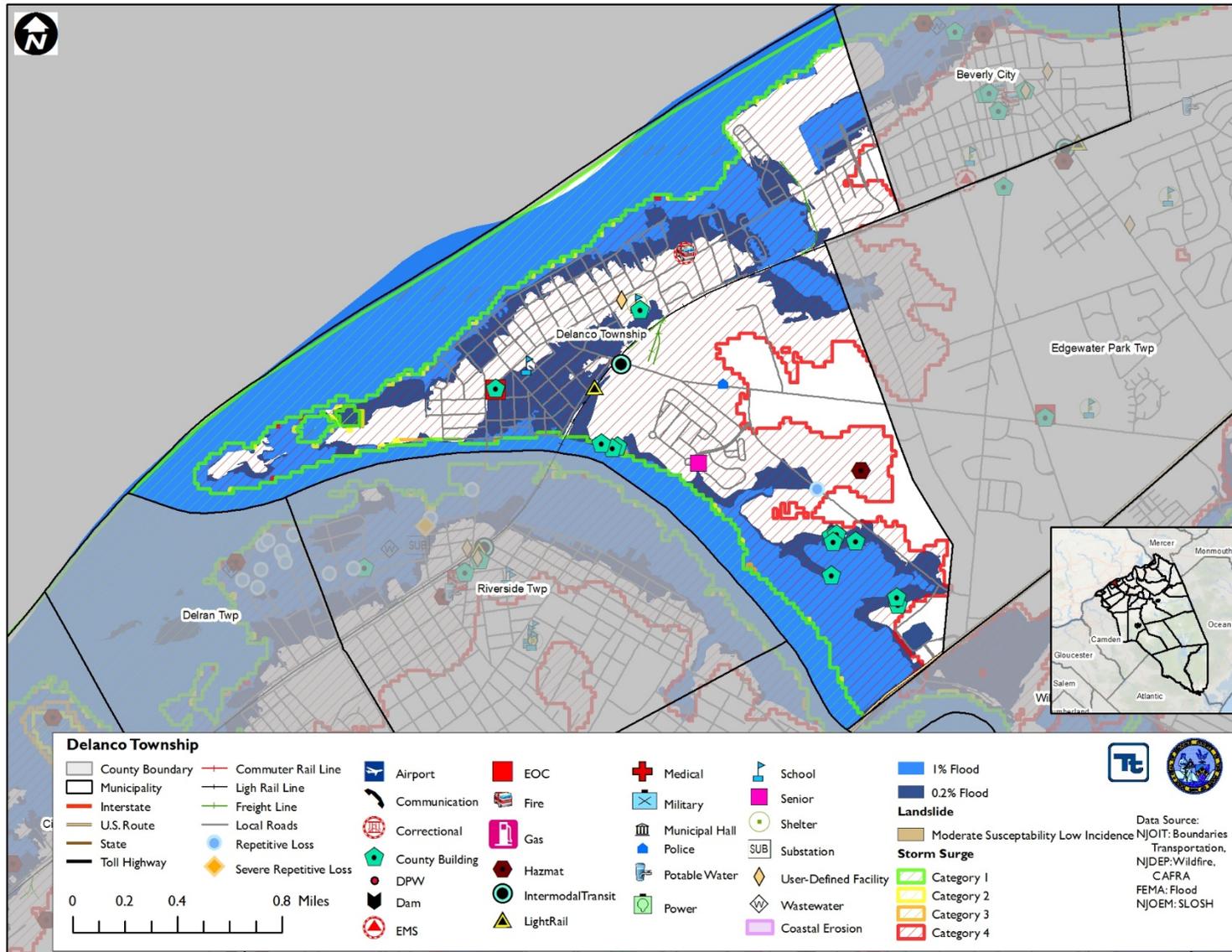
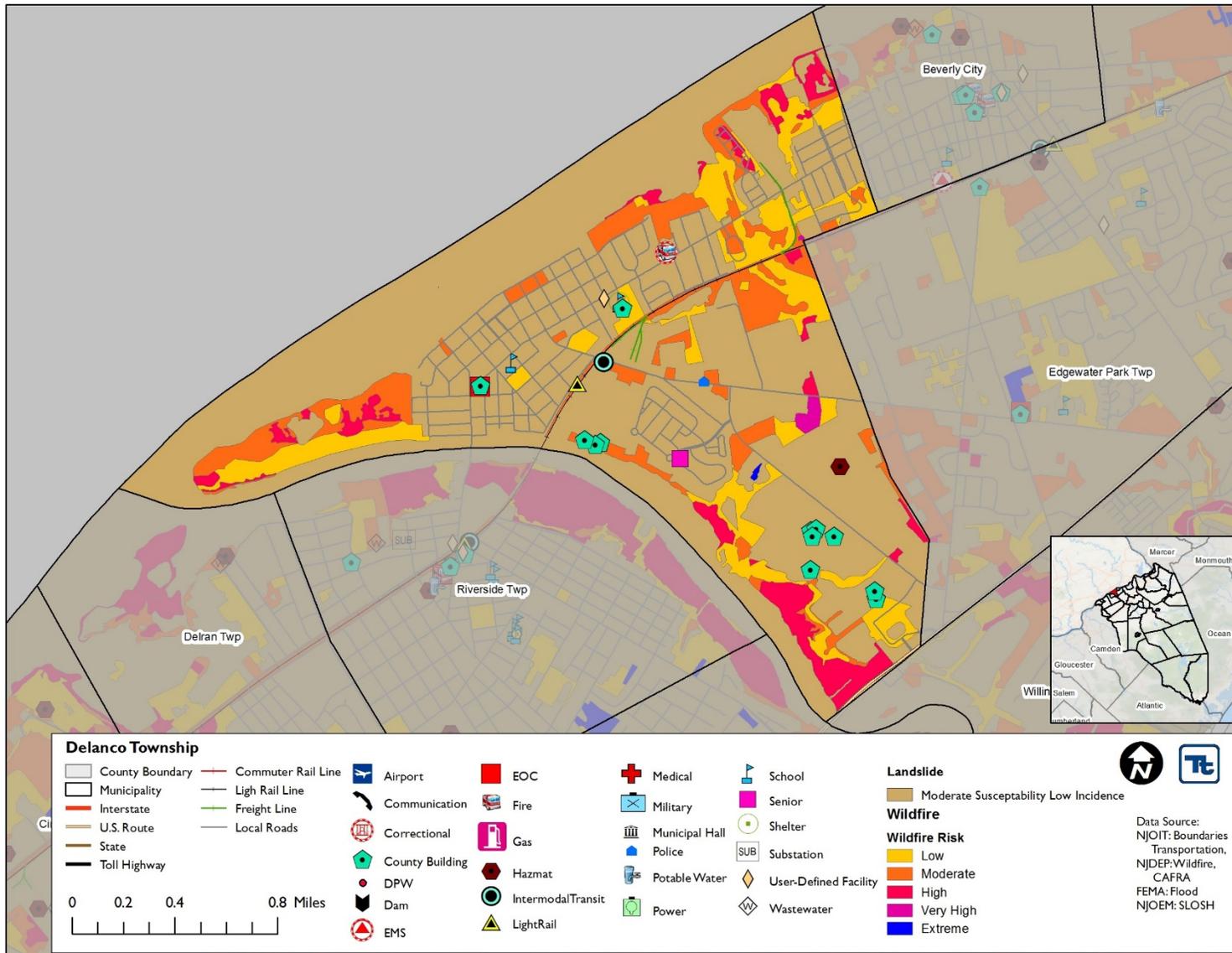




Figure 9.10-2. Township of Delanco Hazard Area Extent and Location Map 2





**Action Number:**

T. Delanco – 1 (former DCO-1)

**Mitigation Action/Initiative:**

Bogg's Run - implement improvements to increase the capacity of culverts at the Light Rail Line and Burlington Avenue

Assessing the Risk	
<b>Hazard(s) addressed:</b>	Flood, Severe Storm
<b>Specific problem being mitigated:</b>	Bogg's Run (aka, Bogg's Ditch), a natural drainage was modified by the Corp of Engineers in the 1940's & 1950's when the adjacent CDF's #13 & 13A were built (where the Riversedge residential development is now located). This is Corps responsibility. The upper section of Bogg's, east of Burlington Avenue, appears to be within an easement to the Veterans Administration to ensure runoff from the National Cemetery. The Bogg's drainage passes under the NJT tracks through an undersized and easily clogged culvert. Impeded runoff floods residential property along Perkins Lane in Edgewater Park.
Evaluation of Potential Actions/Projects	
<b>Actions/Projects Considered (name of project and reason for not selecting):</b>	No action: problem continues Replace culvert with higher bridge: not feasible
Action/Project Intended for Implementation	
<b>Description of Selected Action/Project</b>	Culverts at the Light Rail Line and Burlington Avenue will be improved through methods such as increased culvert size, realignment, etc. in order to increase the capacity of the culverts and reduce flooding at Boggs Run
<b>Action/Project Category</b>	NSP
<b>Goals Met</b>	1
<b>Critical Facility (Y/N)</b>	No
<b>Benefits (losses avoided)</b>	High
<b>Estimated Cost</b>	High
<b>Priority*</b>	Medium
Plan for Implementation	
<b>Responsible Organization</b>	Lead: Delanco OEM, Edgewater OEM Support: USACE, County OEM, NJ Transit
<b>Local Planning Mechanism</b>	Hazard mitigation planning, stormwater planning
<b>Potential Funding Sources</b>	Municipal Budget, HMA programs with local or county match
<b>Timeline for Completion</b>	Long Term
Reporting on Progress	
<b>Date of Status Report/ Report of Progress</b>	



**Action Number:** T. Delanco – 1 (former DCO-1)

**Mitigation Action/Initiative:** Bogg's Run - implement improvements to increase the capacity of culverts at the Light Rail Line and Burlington Avenue

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Reduce or eliminate the need to close roads due to flooding; allows residents and emergency personnel to access this area of the township during heavy rain or flood events
<b>Property Protection</b>	1	Reduces or eliminates flooded roadways and damages caused by flooding
<b>Cost-Effectiveness</b>	0	
<b>Technical</b>	1	Project is technically feasible
<b>Political</b>	0	
<b>Legal</b>	1	
<b>Fiscal</b>	1	Funded through the municipal budget; grant funding where needed/applicable
<b>Environmental</b>	1	
<b>Social</b>	1	
<b>Administrative</b>	0	
<b>Multi-Hazard</b>	1	Flood, Severe Storm
<b>Timeline</b>	0	
<b>Agency Champion</b>	1	
<b>Other Community Objectives</b>	0	
<b>Total</b>	9	
<b>Priority (High/Med/Low)</b>	Medium	



**Action Number:** T. Delanco – 2 (former DCO-2)  
**Mitigation Action/Initiative:** Perform seawall repairs on Delaware Riverfront

Assessing the Risk	
<b>Hazard(s) addressed:</b>	Flood, Severe Storm
<b>Specific problem being mitigated:</b>	Seawall is degraded and in need of repair
Evaluation of Potential Actions/Projects	
<b>Actions/Projects Considered (name of project and reason for not selecting):</b>	<ol style="list-style-type: none"> <li>1. No action: Seawall continues to degrade</li> <li>2. Remove seawall: Protection of seawall is lost</li> <li>3. Implement green infrastructure to restore natural floodplain function – May be insufficient space for green infrastructure to be effective</li> </ol>
Action/Project Intended for Implementation	
<b>Description of Selected Action/Project</b>	The seawall along the Delaware River will be repaired. During repairs, possible opportunity for future improvement will be investigated.
<b>Action/Project Category</b>	SIP
<b>Goals Met</b>	1, 3
<b>Critical Facility (Y/N)</b>	Existing
<b>Benefits (losses avoided)</b>	High
<b>Estimated Cost</b>	High
<b>Priority*</b>	High
Plan for Implementation	
<b>Responsible Organization</b>	Township Committee
<b>Local Planning Mechanism</b>	Hazard mitigation planning
<b>Potential Funding Sources</b>	Municipal Budget, HMA programs with local or county match
<b>Timeline for Completion</b>	Medium
Reporting on Progress	
<b>Date of Status Report/ Report of Progress</b>	



**Action Number:** T. Delanco – 2 (former DCO-2)

**Mitigation Action/Initiative:** Perform seawall repairs on Delaware Riverfront

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	
Cost-Effectiveness	0	
Technical	1	
Political	1	Political support to complete project
Legal	1	Township has legal authority to complete
Fiscal	1	Municipal budget to fund project
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	0	
Agency Champion	1	
Other Community Objectives	1	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	



**Action Number:** T. Delanco – 3 (former DCO-3)  
**Mitigation Action/Initiative:** Perform drainage improvements at Hickory St.

Assessing the Risk	
<b>Hazard(s) addressed:</b>	Flood, Severe Storm
<b>Specific problem being mitigated:</b>	Hickory Street has poor drainage and is prone to urban flooding issues.
Evaluation of Potential Actions/Projects	
<b>Actions/Projects Considered (name of project and reason for not selecting):</b>	1. No action - Current problem continues 2. Relocate Hickory St. - Not feasible 3. Install green infrastructure for increased storage capacity – May be insufficient space for adequate effectiveness
Action/Project Intended for Implementation	
<b>Description of Selected Action/Project</b>	Drainage along Hickory Street will be improved through various possible measures including stormwater system upgrades and natural infiltration.
<b>Action/Project Category</b>	SIP
<b>Goals Met</b>	1, 2
<b>Critical Facility (Y/N)</b>	No
<b>Benefits (losses avoided)</b>	High
<b>Estimated Cost</b>	High
<b>Priority*</b>	High
Plan for Implementation	
<b>Responsible Organization</b>	Township Committee
<b>Local Planning Mechanism</b>	Hazard mitigation planning, stormwater planning
<b>Potential Funding Sources</b>	Municipal Budget, HMA programs with local or county match
<b>Timeline for Completion</b>	Medium
Reporting on Progress	
<b>Date of Status Report/ Report of Progress</b>	



**Action Number:** T. Delanco – 3 (former DCO-3)

**Mitigation Action/Initiative:** Perform drainage improvements at Hickory St.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
<b>Life Safety</b>	1	Reduce or eliminate flooding and allow roadway to remain open. This allows residents and emergency personnel to access this area of the township during flood events.
<b>Property Protection</b>	1	Reduce or eliminate structural damage as a result of flooding in this area
<b>Cost-Effectiveness</b>	0	
<b>Technical</b>	1	
<b>Political</b>	1	
<b>Legal</b>	1	
<b>Fiscal</b>	1	
<b>Environmental</b>	1	
<b>Social</b>	1	
<b>Administrative</b>	1	
<b>Multi-Hazard</b>	1	Flood, Severe Storm
<b>Timeline</b>	0	
<b>Agency Champion</b>	1	
<b>Other Community Objectives</b>	1	
<b>Total</b>	12	
<b>Priority (High/Med/Low)</b>	High	



**Action Number:** T. Delanco – 7 (former DCO-9)  
**Mitigation Action/Initiative:** Certify backup power to critical building circuits.

Assessing the Risk	
<b>Hazard(s) addressed:</b>	All Hazards
<b>Specific problem being mitigated:</b>	Critical facilities lack backup power source
Evaluation of Potential Actions/Projects	
<b>Actions/Projects Considered (name of project and reason for not selecting):</b>	<ol style="list-style-type: none"> <li>1. No action - Current problem continues</li> <li>2. Solar panels - Weather dependent, costly</li> <li>3. Wind turbines – weather dependent, costly</li> </ol>
Action/Project Intended for Implementation	
<b>Description of Selected Action/Project</b>	The Township will purchase and install backup power sources (generators) at critical facilities to sustain critical function during power outages.
<b>Action/Project Category</b>	SIP
<b>Goals Met</b>	1, 3, 6
<b>Critical Facility (Y/N)</b>	Yes
<b>Benefits (losses avoided)</b>	Medium
<b>Estimated Cost</b>	Medium
<b>Priority*</b>	High
Plan for Implementation	
<b>Responsible Organization</b>	Municipality with support from County, NJOEM and FEMA
<b>Local Planning Mechanism</b>	Hazard mitigation planning
<b>Potential Funding Sources</b>	HMA grants, Municipal Budget
<b>Timeline for Completion</b>	Short Term
Reporting on Progress	
<b>Date of Status Report/ Report of Progress</b>	



**Action Number:** T. Delanco – 7 (former DCO-9)

**Mitigation Action/Initiative:** Certify backup power to critical building circuits.

Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	0	
Cost-Effectiveness	1	
Technical	1	Technically feasible
Political	1	Political support to complete project
Legal	1	
Fiscal	1	
Environmental	0	
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	Short term project – to be completed within five years
Agency Champion	1	
Other Community Objectives	0	
<b>Total</b>	11	
<b>Priority (High/Med/Low)</b>	High	