

Memorandum

Date: November 24, 2014
To: Westville Borough Municipal Working Group
From: Stuart Wallace, LLC

**Re: Mitigation Plan for Four New Jersey Counties
Preliminary Gloucester County Municipal Appendices
Appendix GC.22: Westville Borough, New Jersey**

This document contains the Preliminary Municipal Appendix for your municipality, which is part of the Gloucester County portion of the Mitigation Plan for Four New Jersey Counties.

As discussed during the 1st and 2nd Round Working Sessions earlier this year, Stuart Wallace, LLC (SW LLC) is providing this document for review by the Municipal Working Group and any interested parties. This review process is consistent with the requirements of the Federal Emergency Management Agency (FEMA) and the New Jersey Office of Emergency Management (NJOEM).

Please note the following:

- The review period for the Preliminary Municipal Appendix will conclude no later than Wednesday, December 24, 2014. On or before December 24th, any review comments will need to be compiled by the Municipal Working Group and provided to SW LLC. In addition, page 2 of this memorandum includes a checklist of specific items to be reviewed and/or additional information needed from the Municipal Working Group. This checklist and corresponding information should be completed and provided to SW LLC by December 24th with the compiled review comments.
- Notification should be provided to the public on your municipality's website that the Preliminary Municipal Appendix is available for public review and comment. The following is recommended text to include in this notification:

As part of the on-going update of the Gloucester County Multi-Jurisdictional Hazard Mitigation Plan, a Preliminary Municipal Appendix is available for review that addresses natural hazard mitigation issues for our community. The Preliminary Municipal Appendix can be downloaded from <http://nj4hmp.com> by clicking on "Gloucester County" and then clicking on "Westville Borough". Comments can be submitted via the "Contact Us" page on the website. However, please note that comments must be submitted no later than Wednesday, December 24, 2014.

- A Public Hearing should be scheduled between now and December 24th to allow for comments by the general public and any interested parties. It is recommended that the Public Hearing be scheduled as an agenda item on a regularly scheduled meeting of the municipality's elected officials. However, the municipality may also choose to schedule a special meeting for this purpose.
- It is strongly recommended that the Municipal Working Group meet to review the Preliminary Municipal Appendix between now and December 24th, provide any additional requested information, and compile all review comments for transmittal to SW LLC. Following this memorandum is a sign-up sheet to use for this meeting and a participant information sheet for new members of the Municipal Working Group who participate in the review of the Preliminary Municipal Appendix.

After the review period concludes on December 24th SW LLC will address all comments. Then, unless otherwise indicated by the Municipal Working Group, it is assumed that the Municipal Working Group authorizes the Gloucester County Office of Emergency Management to submit the Municipal Appendix to NJOEM and FEMA for review.

Please provide review comments and completed checklist to:

Fay Makrinos
Email: theofani@gmail.com
Mail: 20 Tulip Lane,
Colts Neck, NJ 07722
Phone: 202.870.0491

Stuart Wallace, LLC

P.O. Box 2001 ♦ Shepherdstown, WV 25443 ♦ 304.377.7586 ♦ sw@stuartwallace.com

Checklist for Preliminary Municipal Appendix – Westville Borough, Gloucester County

The Municipal Working Group should review all the contents of the Preliminary Municipal Appendix to confirm accuracy and applicability to the municipality.

Items highlighted in green throughout the Preliminary Municipal Appendix will be provided by SW LLC prior to submittal of the Draft Municipal Appendix to NJOEM and FEMA or as part of planned workshops later in the project.

In addition, the following items are highlighted in yellow on the indicated pages as SW LLC is requesting confirmation of these specific items and/or additional information to complete the document for submittal to NJOEM and FEMA.

Municipal Working Group Participation

- Page GC.22-2: Per Footnote #3, provide date, sign-up sheet and participant information forms for Municipal Working Group meeting(s) to review the Preliminary Municipal Appendix

Public Participation

- Page GC.22-4: Provide information regarding Public Participation activities in Table GC.22-2, in particular, the highlighted cells in the 2nd and 3rd lines from the bottom
- Page GC.22-4: Confirm notification to the public regarding the Preliminary Municipal Appendix is posted on the municipality website no later than November 25th

Note: See recommended text for website posting on page 1 of this Memorandum.

Critical Facilities

- Page GC.22-11: Review and confirm that to the best of the Mitigation Working Group's knowledge, the Critical Facilities included in Table GC.22-8 represent a complete and comprehensive list of critical facilities in the municipality

Note: Other possible Critical Facilities can include:

- ✓ *Municipal offices and facilities*
 - ✓ *Emergency services*
 - ✓ *Staging areas for emergency operations*
 - ✓ *Shelters*
 - ✓ *Healthcare facilities*
 - ✓ *Schools*
 - ✓ *Municipal utilities*
 - ✓ *Vulnerable populations*
- Page GC.22-12: Confirm / revise facility names for CF-1, CF-5, and CF-8 in Table GC.22-8
 - Page GC.22-12: Confirm / revise Sub-Type for CF-5 in Table GC.22-8
 - Page GC.22-12: Confirm the Public Works Facility (CF-5) has a generator. Confirm whether this generator is shared with the Westville Police Department (CF-3).

SDVR Mitigation Measures

- Page GC.22-14: Confirm / revise mitigation strategy (bulleted list)

Mitigation Measures

- Page GC.22-16: Review and confirm that to the best of the Mitigation Working Group's knowledge, the Mitigation Measures included in Tables GC.22-11 and GC.22-13 represent a complete and comprehensive list of possible risk reduction programs, activities, and projects

Note: Other possible mitigation measures can include:

- ✓ *Areas where recurrent flooding or drainage problems create regular, lengthy disruptions and/or property damage*
- ✓ *Evacuation routes that are subject to flooding or drainage problems*
- ✓ *Manufactured home parks that are subject to flooding or drainage problems and that may not have adequate safe room / shelter capacity*

Note: A good reference to review for ideas about other possible mitigation measures is FEMA's Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards.¹

- Page GC.22-17: Confirm M-6 mitigation measure correctly describes the area requiring mitigation in Table GC.22-12
- Page GC.22-18: Confirm / revise entries for "Responsible Part(ies)" in Table GC.22-12
- Page GC.22-18: Confirm / revise / complete entries for "Priority" in Table GC.22-12

Note: The Municipal Working Group should confirm the priority rankings by evaluating the proposed mitigation measures relative to criteria established by the group and/or by using established evaluation processes.

General criteria the Municipal Working Group should consider are engineering feasibility, costs versus benefits, and potential environmental impacts.

A more involved evaluation process recommended by FEMA is called "STAPLEE". The acronym incorporates the first letters of the various review criteria including Social, Technical, Administrative, Political, Legal, Economic, and Environmental.

Note: A good reference for information on the STAPLEE process is FEMA's State and Local Mitigation Planning 'how-to' Guide #3: Developing the Mitigation Plan.²

¹ <https://www.fema.gov/media-library/assets/documents/30627>

² <https://www.fema.gov/media-library/assets/documents/4267>, pages 2-12 through 2-20

Mitigation Plan for Four New Jersey Counties
Preliminary Gloucester County Municipal Appendices

November 24, 2014 - Page 4 of 4

- Page GC.22-18: Confirm / revise entries for "Estimated Cost (\$)" in Table GC.22-12
- Page GC.22-18: Confirm / revise entries for "Target Date" in Table GC.22-12
- Page GC.22-18: Confirm / revise entries for "Next Step(s)" in Table GC.22-12
- Page GC.22-20: Confirm / revise entry for "Responsible Part(ies)" in Table GC.22-13
- Page GC.22-20: Confirm / revise / complete entry for "Priority" in Table GC.22-13
- Page GC.22-21: Provide URL or access to copies of Emergency Operations Plan and Stormwater Management Plan

Attachments:

- Municipal Working Group Preliminary Municipal Appendix Review Session Sign-in Sheet
- Municipal Working Group Participant Information Sheet

**Mitigation Plan for Four New Jersey Counties
Municipal Working Group Preliminary Municipal Appendix Review Session Sign-in Sheet**

Westville Borough (Gloucester County)

Date: _____

Location: _____

First Name	Last Name	Department	Position	Signature
Bill	Bittner	Westville Borough Office of Emergency Management	OEM Coordinator	
Christine	Helder	Westville Borough Administration Department	Municipal Clerk	
Robert	Kunkle	Westville Borough Construction Department	Construction Office / Floodplain Administrator	
Jonathan	Bryson	Westville Borough Engineering Department	Borough Engineer	
William	Whinna	Westville Borough Police Department	Chief of Police	
Tyrone	Reeves	Straight-Line Church	Pastor	
Omega	Reeves	Straight-Line Church	Executive Administrator	
Michael	Cerrato		Westville Borough Resident	
Richard	Koestu		Westville Borough Resident	
Christine	Oerlemans		Westville Borough Resident	
Rosalie	Fanelli		Westville Borough Resident	
Vince	Fanelli		Westville Borough Resident	
Dorothy	Jenkins		Westville Borough Resident	
Donald E.	Oerlemans		Westville Borough Resident	
Florence	Ralls		Westville Borough Resident	
Ronald	Ralls		Westville Borough Resident	
John	Smith		Westville Borough Resident	

**Mitigation Plan for Four New Jersey Counties
Municipal Working Group Preliminary Municipal Appendix Review Session Sign-in Sheet**

First Name	Last Name	Department	Position	Signature

First Name:		
Last Name:		
Title:		
Phone Number:		
Email Address:		
Department Name:		
Employment Status (circle one):	Volunteer / Stipend	Salaried
Is your position Federally funded? (circle one):	Yes	No
Number of Years in Current Role:		



Mitigation Plan for Four New Jersey Counties
Gloucester County Municipal Appendices

Appendix GC.22
Westville Borough, New Jersey

Preliminary

November 24, 2014

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Part 1: Overview

Part 1.1: Mitigation Plan for Four New Jersey Counties

The Mitigation Plan for Four New Jersey Counties (NJ4 HMP) incorporates input from approximately ninety (90) participating municipalities in Camden, Cumberland, Gloucester, and Salem Counties. The NJ4 HMP is an update and expansion of the South Delaware Valley Region Multi-jurisdictional Hazard Mitigation Plans that were adopted by all four counties and approved by the Federal Emergency Management Agency in 2010 and 2011.

The NJ4 HMP has two main parts:

- Regional Hazard Mitigation Plan
- County and Municipal Appendices

The Regional Hazard Mitigation Plan includes descriptions and information that is common to all participating NJ4 HMP jurisdictions organized according to the following three main focus areas:

- Planning Process
- Hazard Identification and Risk Assessment
- Mitigation Measures

The Regional Hazard Mitigation Plan also includes Annexes that contain detailed background information for these three focus areas and additional reference materials for the implementation of the NJ4 HMP.

The County and Municipal Appendices include specific information for these same three main focus areas for each of the participating municipalities. Detailed tabulations are included in these Appendices for critical facilities, status of past mitigation activities, and proposed mitigation measures for each municipality.

Part 1.2: Westville Borough (Gloucester County) Municipal Appendix

This Municipal Appendix is focused on Westville Borough in Gloucester County, New Jersey.

The Westville Borough Municipal Working Group recommended the Westville Borough (Gloucester County) Municipal Appendix for adoption on [date to be determined].

The Westville Borough Committee adopted the Municipal Appendix by resolution on [date to be determined].

Region II of the Federal Emergency Management Agency subsequently approved the Municipal Appendix on [date to be determined].

Part 2: Participation

Part 2.1: Municipal Working Group Participation

Part 2.1 includes:

- *Municipal Working Group members including positions in the community, meetings and work sessions attended, and specific contributions to the Municipal Appendix*
- *Municipal positions and organizations that were invited but were not able to participate in the plan update process*
- *Municipal positions and organizations that have been recommended by the Federal Emergency Management Agency (FEMA) as candidates for participation on Municipal Working Groups but do not exist in the municipality*

Table GC.22-1 identifies the Municipal Working Group members. As explained in *Section 2: Planning Process* of the Mitigation Plan for Four New Jersey Counties (NJ4 HMP) Regional Hazard Mitigation Plan, the Municipal Working Groups are comprised of community representatives who worked to make sure mitigation measures included in the Municipal Appendix addressed the risks faced by residents, businesses, and property owners and reflected the priorities of the community. The Working Group will also continue to stay involved during the implementation and maintenance of the NJ4 HMP.

Table GC.22-1: Westville Borough (Gloucester County) Working Group

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Other ³	Contribution ⁴
Bill	Bittner	Westville Borough Office of Emergency Management	OEM Coordinator	☑	☑		Organized Working Group and Work Sessions.
Christine	Helder	Westville Borough Administration Department	Municipal Clerk	☑	☑		Provided municipal documents for review.
Robert	Kunkle	Westville Borough Construction Department	Construction Office / Floodplain Administrator	☑			
Jonathan	Bryson	Westville Borough Engineering Department	Borough Engineer	☑			
William	Whinna	Westville Borough Police Department	Chief of Police	☑			
Tyrone	Reeves	Straight-Line Church	Pastor	☑			
Omega	Reeves	Straight-Line Church	Executive Administrator	☑			
Michael	Cerrato		Westville Borough Resident	☑			

¹ Round 1 Work Session was held on June 26, 2014.

² Round 2 Work Session was held on September 11, 2014.

³ **Note to Municipal Working Group:** Entries in the "Other" column can include Municipal Working Group meeting(s) to review the Preliminary Municipal Appendix.

⁴ Municipal Working Group members reviewed briefing materials in advance of Work Sessions, contributed during Work Sessions, and reviewed the preliminary Mitigation Plan for Four New Jersey Counties. Additional or unusual contributions are noted in the far right hand column of Table GC.22-1.

Part 2: Participation

First Name	Last Name	Department	Position	Round 1 Work Session ¹	Round 2 Work Session ²	Other ³	Contribution ⁴
Richard	Koestu		Westville Borough Resident	<input checked="" type="checkbox"/>			
Christine	Oerlemans		Westville Borough Resident	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Rosalie	Fanelli		Westville Borough Resident		<input checked="" type="checkbox"/>		
Vince	Fanelli		Westville Borough Resident		<input checked="" type="checkbox"/>		
Dorothy	Jenkins		Westville Borough Resident		<input checked="" type="checkbox"/>		
Donald E.	Oerlemans		Westville Borough Resident		<input checked="" type="checkbox"/>		
Florence	Ralls		Westville Borough Resident		<input checked="" type="checkbox"/>		
Ronald	Ralls		Westville Borough Resident		<input checked="" type="checkbox"/>		
John	Smith		Westville Borough Resident		<input checked="" type="checkbox"/>		

The following lists candidate positions and organizations within the community that were extended invitations but could not participate during the development of the Municipal Appendix. These positions and organizations will continue to be extended invitations to participate during subsequent plan implementation and maintenance activities⁵.

- Elected Officials
- Land Use / Economic Development Planner
- Fire
- Emergency Medical Services
- Business Associations
- Major Employers and Businesses
- School Board

The following lists positions and organizations that are generally recommended for consideration as members of the Municipal Working Groups by FEMA but do not currently exist within the community. An invitation to participate will be extended if positions are created or filled and as organizations are formed.

- GIS / IT Specialist
- Transportation Department Directors / Supervisors
- Environmental Organizations
- Non-Governmental Organizations
- Critical Infrastructure and Key Resources
- Healthcare Institutions

⁵ See Section 4: Mitigation Measures of the NJ4 HMP Regional Hazard Mitigation Plan.

Part 2: Participation

Part 2.2: Public Participation

Part 2.2 includes opportunities provided to the public and interested parties in the municipality to participate during the plan update process.

Table GC.22-2 identifies the date, type, and location (where applicable) for opportunities provided to the public and interested parties to participate in the development of the plan update.

Table GC.22-2: Public Participation

Date	Type of Involvement	Location
August 6, 2014	Link to Project Website (http://nj4hmp.com) established	Westville, New Jersey ⁶
August 6, 2014	Flyers posted	Westville Borough Post Office, Library, & Bank
[date]	Information item included on [insert name of elected board and/or appointed groups] agenda identifying opportunities for public participation	[location]
[date]	Public meeting with presentation and open discussion	[location]
[date]	Press release regarding hazard mitigation and plan development issued	[media]
[date]	Citizen Survey posted	[insert website title] ⁷
[date]	Letter sent to local business owners	n/a
[date]	Public outreach	[insert name of venue or public event (e.g., county fair)]
November 25, 2014	Preliminary Municipal Appendix posted to website for public comment	[insert website title] ⁸
[date]	Public hearing included on Westville Borough Committee agenda providing for open discussion, and public comment regarding the Preliminary Municipal Appendix	[location]
[date to be determined in 2015]	Public meeting for plan adoption	[location to be determined]

Public comments and input received for the Preliminary Municipal Appendix were considered by the Municipal Working Group and incorporated into the Draft Municipal Appendix where appropriate. Public comments received during the review of the Preliminary Municipal Appendix **will be** included in Attachment A to the Municipal Appendix along with a brief explanation of how the comments were addressed in the Draft Municipal Appendix.

Public education and outreach is an on-going mitigation measure included in the Municipal Appendix⁹. In addition, public participation will continue to be encouraged during subsequent plan implementation and maintenance activities¹⁰.

⁶ <http://www.westville-nj.com/home/>

⁷ [insert website URL]

⁸ [insert website URL]

⁹ See Mitigation Measure M-1 in Part 4 of the Municipal Appendix.

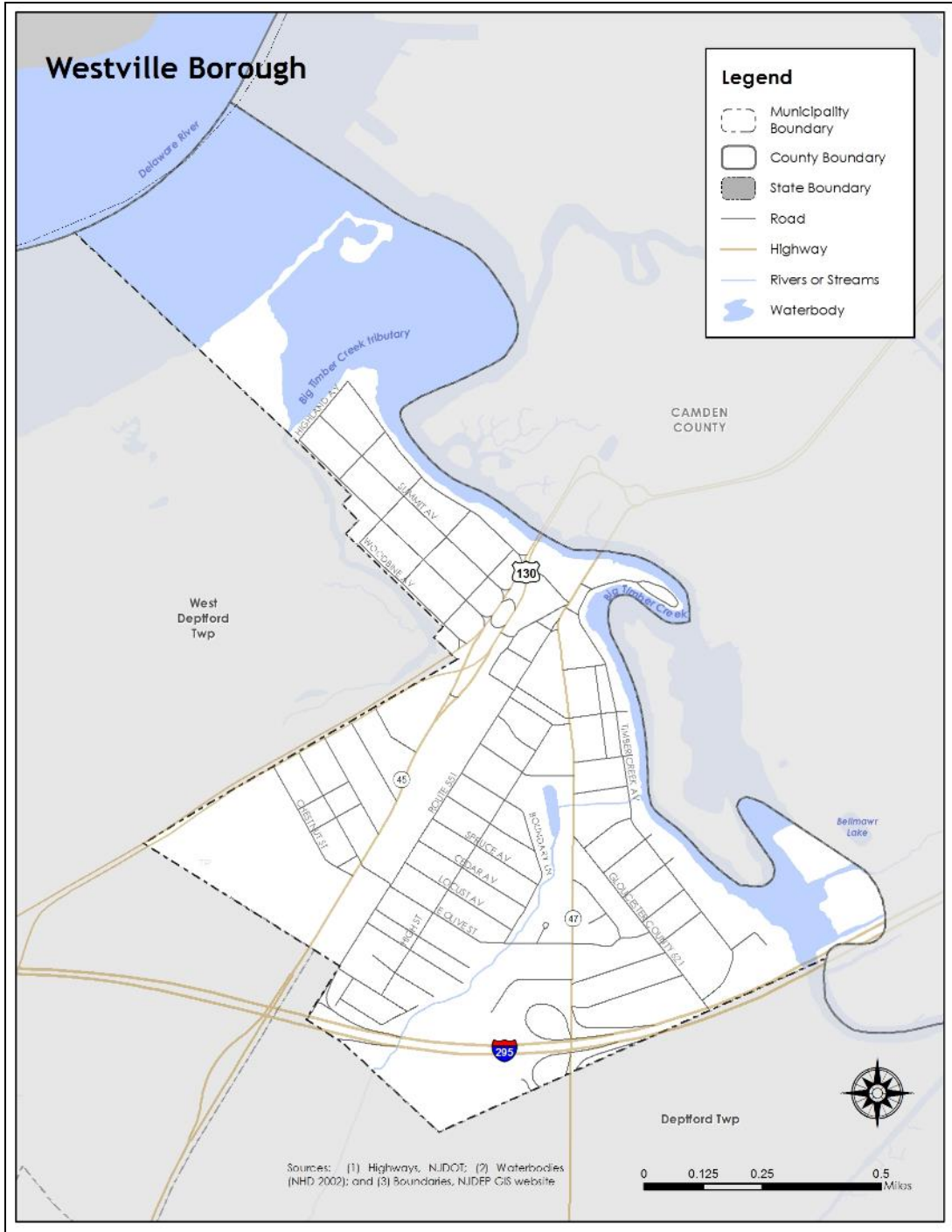
¹⁰ See *Section 4: Mitigation Measures* of the NJ4 HMP Regional Hazard Mitigation Plan.

Part 3: Hazard Identification and Risk Assessment

Westville Borough is a suburban municipality.

Per Figure GC.22-2, the major water courses include the Delaware River and Big Timber Creek, which together form parts of the northern and eastern borders of the municipality respectively. Major transportation routes include Interstate 295 and U.S. Highway 130. The land is predominantly flat.

Figure GC.22-2: Westville Borough Base Map



Part 3: Hazard Identification and Risk Assessment

In addition, Table GC.22-3 is a compilation of demographic information for the municipality and comparison with the county, the four county region, and State of New Jersey.

Table GC.22-3: Westville Borough Demographics
(Source: Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4)

	Westville Borough	Gloucester County	Region	New Jersey
2000 Population	4,500	254,673	974,328	8,414,350
2010 Population	4,288	288,288	1,024,926	8,791,894
Percent Change	-4.71%	13.2%	5.19%	4.49%
Population Density	4,187.0 / sq. mile	895.3 / sq. mile	754.25 / sq. mile	1,195.5 / sq. mile
Land Area	1.02 sq. miles	322.00 sq. miles	1,358.86 sq. miles	7,354.22 sq. miles
% of Population 18 and younger	20.4	24.4	24.1	23.5
% of Population 18 - 64	68.0	63.2	62.7	63
% of Population 65 and over	11.6	12.4	13.2	13.5

Table GC.22-4 illustrates how Westville Borough ranks in the county, the four county region, and New Jersey.

Table GC.22-4: Westville Borough Demographic Rankings

	Gloucester County (total of 24)	Region (total of 90)	New Jersey (total of 566)
Population Rank	17	55	400
Land Area Rank	21	74	463
Population Density Rank	2	18	143
Population Change Rank	23	80	-

Table GC.22-5 includes information related to economic and housing statistics for Westville Borough, Gloucester County, the four county region, and New Jersey.

Table GC.22-5: Westville Borough Economics and Housing
(Source: USDA ERS, Census DP-1, 2010 ACS 5 Year Estimates, DP 3, 4; NJ LWD 2010)

	Westville Borough	Gloucester County	Region	New Jersey
Date Incorporated	April 28, 1914	1686	-	-
Rural / Urban Status	Urban	Urban	Urban	Urban
Median Household Income	\$49,854	\$72,664	\$60,933	\$69,811
Total Number of Housing Units	1,912	109,796	397,990	3,529,033
Occupied Housing Units	1,755	104,271	372,472	3,176,069
Vacant Housing Units	157	5,525	25,518	352,964
Owner Occupied Housing Units	1,137	83,525	266,593	2,126,279
Renter Occupied Housing Units	618	20,746	105,879	1,049,790

Part 3: Hazard Identification and Risk Assessment

	Westville Borough	Gloucester County	Region	New Jersey
Building Permits	0	716	1,554	13,535
Largest Industry	Educational Services, and health care and social assistance	Educational Services, and health care and social assistance	Educational services, and health care and social assistance	Educational services, and health care and social assistance

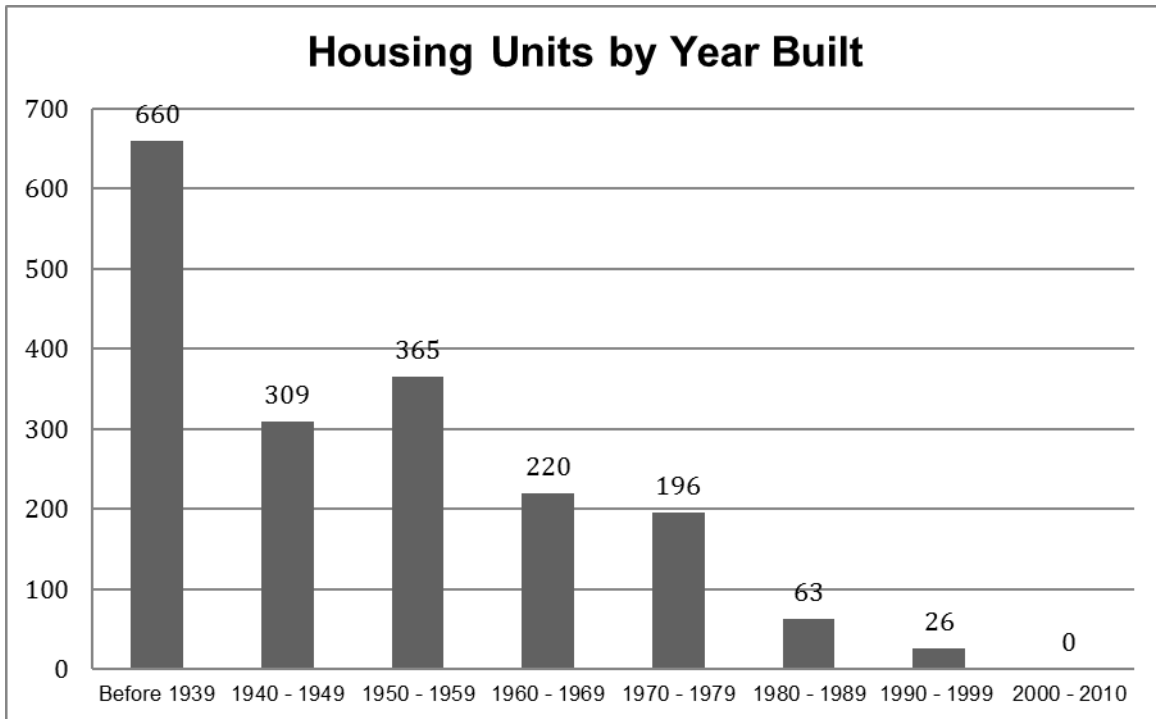
Table GC.22-6 illustrates how Westville Borough ranks in the county and the four county region.

Table GC.22-6: Westville Borough Ranking (Economics and Housing)

	Gloucester County (total of 24)	Region (total of 90)
Median Household Income Rank	23	75
Vacant Housing Rank	12	42
Renter Occupied Housing Rank	10	37
Building Permits Rank	23	86

Figure GC.22-3 4 illustrates development patterns in Westville Borough by examining housing units by year built. About 35% of homes in Westville Borough were built prior to 1939.

Figure GC.22-3: Westville Borough Housing Units by Year Built
(Source: 2010 ACS 5 Year Estimates, DP 4)



Part 3: Hazard Identification and Risk Assessment

Part 3.2: Hazard Priorities

Part 3.2 includes hazard priority determinations per the Municipal Working Group.

As a key step in the Hazard Identification and Risk Assessment (HIRA) process, the twelve (12) natural hazards identified in the NJ4 HMP¹ were discussed during the Municipal Working Group Work Sessions and the relative priority of these hazards was identified. The Municipal Working Group rated the hazards as follows:

High Priority

- Coastal Erosion & Sea Level Rise
- Flood
- Severe Weather – Summer

Moderate Priority

- Earthquake
- Extreme Temperature: Cold & Hot
- High Wind
- Severe Weather – Winter

Low Priority

- Dam Failure
- Drought
- Levee Failure
- Wildfire

One additional hazard was discussed but was not considered applicable to the municipality:

- Geologic Hazards

¹ See *Section 3: Hazard Identification and Risk Assessment*.

Part 3: Hazard Identification and Risk Assessment

Part 3.3: Hazard Mapping

Part 3.3 includes cross references to hazard inventory and risk assessment mapping included in the NJ4 HMP Regional Hazard Mitigation Plan.

Table GC.22-7 provides information regarding hazard inventory mapping included in *Section 3: Hazard Identification and Risk Assessment* of the NJ4 HMP Regional Hazard Mitigation Plan that support the Hazard Identification and Risk Assessment (HIRA) for the Municipal Appendix. The indicated maps correspond to high and moderate priority hazards as determined by the Municipal Working Group.

Table GC.22-7: Supporting Mapping and Exhibits

Figure #	Hazard	Map	HIRA Contribution
Figure RP.3-X	Earthquake	Earthquakes Epicentered in the Region 1783 – 2014	Identify locations where earthquakes have occurred in the past in the region
Figure RP.3-X	Flood	FEMA Flood Hazard Zones (DFIRM)	Identify areas subject to periodic flooding
Figure RP.3-X	Flood	FEMA Flood Hazard Zones Preliminary Work Map (PWM)	Identify areas subject to periodic flooding (work-in-progress for revisions to effective FIRM)
Figure RP.3-X	Flood	FEMA Flood Hazard Zones Changes Since Last FIRM	Identify differences in FEMA flood zone designations between DFIRM and PWM
Figure RP.3-X	Flood	FEMA Flood Hazard Zones – Water Surface Elevation Change	Identify differences in anticipated water surface elevations due to flooding between DFIRM and PWM
Figure RP.3-X	Flood (Storm Surge)	Coastal Flood Loss Atlas – SLOSH Model Maximum of Maximum	Identify areas where increased inundation due to sea level rise may occur

The following hazards are not referenced as these hazards occur uniformly across the municipality and have the same potential impact on all properties and assets:

- Drought
- Extreme Temperatures – Cold and Hot
- High Wind
- Severe Weather – Summer
- Severe Weather – Winter

Part 3: Hazard Identification and Risk Assessment

Part 3.4: Critical Facilities Inventory and Hazard Exposure Assessment

Part 3.4 includes:

- *Inventory information for municipal critical facilities*
- *Hazard exposure analysis results for municipal critical facilities*

Consistent with the process described in Section 3 of the NJ4 HMP Regional Hazard Mitigation Plan, Table GC.22-8 contains updated inventory information for municipal critical facilities including cross-references to related mitigation measures identified in Part 4 of the Municipal Appendix.

Table GC.22-9 contains results of overlaying critical facility locations with identified hazard inventory information for use in critical site and facility assessments per Mitigation Measure M-2 (see Part 4 of the Municipal Appendix).

Hazards that apply to all critical facilities in the NJ4 region and will automatically be included in the proposed critical site and facility assessment process include:

- Earthquake
- High Winds
- Severe Weather – Summer
- Severe Weather – Winter

Hazards that do not relate to the proposed critical site and facility assessment process include:

- Drought
- Extreme Temperatures – Cold and Hot

As a result, these six (6) hazards are not included in the critical facility exposure assessment in Section 3 of the NJ4 HMP Regional Hazard Mitigation Plan.

Part 3: Hazard Identification and Risk Assessment

Table GC.22-8: Westville Borough (Gloucester County) Critical Facilities Inventory

CF #	Name	Type	Sub-Type	Address	Co-located CF #	Shelter (Y/N)	Generator (Y/N)	Comments	Mitigation Measure #
CF-1	Borough Hall	Municipal	Administrative	165 Broadway, Westville		N	Y		
CF-2	Emergency Operations Center	EOC	Co-located Facilities	165 Broadway, Westville	CF-1	N	Y		
CF-3	Westville Police Department	Law Enforcement Facilities	Stations	114 Crown Point Road, Westville		N	Y		
CF-4	Westville Fire Department	FireStation	Stations	23 West Olive Street, Westville		Y	Y		
CF-5	Public Works	Public Works	Combined Administrative Office, Maintenance / Work Area, Equipment / Material Storage, and Fueling Station	114 Crown Point Road, Westville	CF-3	N	Y		
CF-6	Parkview Elementary School	Schools	Public Schools	101 Birch Avenue, Westville		N	N		M-4
CF-7	St. Anne's Parish Parking Lot	Emergency Staging Areas	Parking Lot	Highland Avenue and Route 45		N ²	N/A		
CF-8	Parking Lot	Emergency Staging Areas	Parking Lot	114 Crown Point Road, Westville		N ²	N/A		

² Parking lots are utilized by Westville Borough residents during flood events to protect private property.

Part 3: Hazard Identification and Risk Assessment

Table GC.22-9: Westville Borough (Gloucester County) Critical Facilities Hazard Exposure³

CF #	Name	Increased Inundation +1 Foot	Increased Inundation +2 Foot	Increased Inundation +3 Foot	Dam Failure	Flood – FIRM Zone V	Flood – FIRM Zone A	Flood – FIRM Zone 0.02%	Storm Surge – Category 1	Storm Surge – Category 2	Storm Surge – Category 3	Storm Surge – Category 4	Levee Failure	Wildfire Wildland High Density Urban Interface	Wildfire Extreme / High Fuel Level Risk
CF-1	Borough Hall	N/A	N/A	N/A	N/A								N/A	N/A	N/A
CF-2	Emergency Operations Center	N/A	N/A	N/A	N/A								N/A	N/A	N/A
CF-3	Westville Police Department	N/A	N/A	N/A	N/A								N/A	N/A	N/A
CF-4	Westville Fire Department	N/A	N/A	N/A	N/A								N/A	N/A	N/A
CF-5	Public Works	N/A	N/A	N/A	N/A								N/A	N/A	N/A
CF-6	Parkview Elementary School	N/A	N/A	N/A	N/A								N/A	N/A	N/A
CF-7	St. Anne's Parish Parking Lot	N/A	N/A	N/A	N/A								N/A	N/A	N/A
CF-8	Parking Lot	N/A	N/A	N/A	N/A								N/A	N/A	N/A

³ **Note to Municipal Working Group:** SW LLC will include results for the Critical Facility Exposure Analysis for all hazards in the Draft Municipal Appendix submittal to NJOEM and FEMA. These results will not alter the existing mitigation measures in Part 4 of this Municipal Appendix but will be the basis for the site and facility assessments to be undertaken by the municipality under Mitigation Measure M-2.

Part 4: Mitigation Measures

Part 4.1: Mitigation Goals and Strategy

Part 4.1 includes:

- *Goal statements reviewed and approved by the Municipal Working Group based on goals included in the Southern Delaware Valley Region (New Jersey) Multi-Jurisdictional Hazard Mitigation Plans (SDVR HMPs) approved by FEMA in 2010 and 2011 for Camden, Cumberland, Gloucester, and Salem Counties*
- *Overarching strategy for the municipality's mitigation program*

Goals were originally established by the Southern Delaware Valley Region Hazard Mitigation Steering Committee and validated by the four County Hazard Mitigation Working Groups in response to risk and capability assessment results.

As part of the plan update process, these goals were reviewed and edited by the Municipal Working Group for use in the Municipal Appendix. All mitigation measures in the Municipal Appendix are related to at least one of these four goal statements.

- **Goal 1: Improve education and outreach efforts** regarding potential risk of natural hazards and appropriate mitigation measures that can be used to reduce risk (including programs, activities, and projects)
- **Goal 2: Improve data collection, use, and sharing** to reduce the risk of natural hazards
- **Goal 3: Improve capabilities and coordination** at municipal and county levels to plan and implement hazard mitigation measures
- **Goal 4: Plan and implement projects** to mitigate identified natural hazards, known problems, and areas of concern

Based on these goals, the results of the NJ4 HMP Regional Hazard Mitigation Plan HIRA, and experience of participants in the plan update process, the Municipal Working Group identified an overarching strategy for mitigation:

- Focus on projects to address known problems or areas of concern for critical facilities and vulnerable populations as additional initial risk reduction efforts
- Provide opportunities for residents and property owners to access available information about risk reduction and mitigation measures, in particular for Repetitive Flood Loss properties.
- Identify additional areas of concern for critical facilities and vulnerable populations for future plan updates
- Institutionalize hazard mitigation into municipal activities and programs through regular interactions of the Municipal Working Group and better integration of related regulatory programs and planning initiatives
- Stay informed regarding changing conditions and related improvements in hazard and risk data due to future natural hazard events and increasing understanding of the effects of climate change and use the information as part of periodic evaluations of and refinements or additions to the municipality's mitigation program

The mitigation measures described in Parts 4.3 through 4.5 of the Municipal Appendix reflect this strategy.

Part 4: Mitigation Measures

Part 4.2: SDVR HMP Mitigation Measures

Part 4.2 includes the status of mitigation measures identified for the municipality in the SDVR HMP.

Known problems and areas of concern were the basis for mitigation measures identified in the SDVR HMP. In cases where these problems and concerns still existed at the time of the plan update, the related SDVR HMP mitigation measures were candidates for inclusion in the Municipal Appendix.

Table GC.22-10 identifies the status of mitigation measures included in the SDVR HMP. These entries were based on information provided by the Municipal Working Group. In some cases, the SDVR HMP mitigation measures were carried over as part of the Municipal Appendix as indicated in the “Comments” column and the far right-hand column of Table GC.22-10.

Table GC.22-10: Status of Westville Borough (Gloucester County) SDVR HMP Mitigation Measures

Mitigation Action, Program, or Project	Status	Comments	Mitigation Measure # (Notes A & B)
N/A	N/A	Westville Borough did not participate in the SDVR Hazard Mitigation Plan. Therefore, there are no mitigations measures that were previously identified for the municipality.	N/A

Table GC.22-10 Notes:

- A. See Tables GC.22-11 and GC.22-12 for municipal (M-#) mitigation measures
- B. See Table GC.22-13 for multi-jurisdictional (MJ-#) mitigation measures

Part 4: Mitigation Measures

Part 4.3: Municipal Mitigation Measures – Identification

Part 4.3 includes brief descriptions of mitigation measures that are considered the sole responsibility of the municipality.

Table GC.22-11 includes the list of mitigation measures that are considered the responsibility of the municipality. These mitigation measures:

- Reflect the goals and strategy identified in Part 4.1
- Include projects carried over from SDVR HMPs as detailed in Part 4.2
- Include new projects, programs or activities identified by the Municipal Working Groups including measures to address known problems or areas of concern for critical facilities and vulnerable populations
- Address Repetitive Flood Loss (RL) and Severe Repetitive Flood Loss Properties (SRL)¹ if applicable

Table GC.22-11 includes:

- Brief description of the mitigation action, program or project
- Hazard(s) addressed by the measure
- Relevant goal(s) addressed by the measure
- Whether the measure pertains to existing or new structures or both

Table GC.22-11: Westville Borough (Gloucester County) Municipal Mitigation Measures Identification

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
M-1	Identify and pursue outreach and education opportunities to inform municipal residents, businesses, and property owners regarding: <ul style="list-style-type: none"> • Current hazards and risks • Changing conditions and actions that may reduce / increase risk • Best practices for hazard mitigation at the individual or property level.² 	All	Goal #1	Both
M-2	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	All	Goal #2	Existing
M-3	Conduct regular Municipal Working Group meetings consistent with the plan maintenance program and the Municipal Adoption Resolution.	All	Goal #3	Both
M-4	Install permanent backup power generator at Parkview Elementary School (CF-6).	All	Goal #4	Existing
M-5	Conduct study to determine flood and erosion remedial related mitigation measures along Woodbine Avenue and Lake Martha.	Flood	Goal #4	Existing

¹ See Section 3: Hazard Identification and Risk Assessment and related portions of Annex D of the NJ4 HMP Regional Hazard Mitigation Plan for a description of RL and SRL properties.

² For example, individual property owners can be informed about back-up power alternatives such as initial battery back-up for power disruptions.

Part 4: Mitigation Measures

#	Mitigation Action, Program, or Project	Hazard(s)	Goal (s)	Existing or New Structures
M-6	Elevate / acquire homes along Big Timber Creek, particularly around Route 41 bridge.	Flood	Goal #4	Existing
M-7	Elevate / acquire homes on Edge Water Avenue.	Flood	Goal #4	Existing
M-8	Address identified Repetitive Flood Loss Properties.	Flood	Goal #4	Existing

Part 4: Mitigation Measures

Part 4.4: Municipal Mitigation Measures – Implementation

Part 4.4 includes a tabulation of relevant aspects related to the implementation of the municipal mitigation measures.

Table GC.22-12 includes information identified by the Municipal Working Group:

- Part(ies) responsible for following up with implementation of the measure
- Priority for implementation considering a range of criteria³
- Project Type to help determine funding options and implementation mechanisms at the municipal level⁴
- Estimated Cost, including estimates provided by the Municipal Working Group or approximate ranges for projects that are in early stages of development
- Target Date, indicating desired completion dates assuming availability of funding
- Next step(s) anticipated to implement the identified mitigation measures at the municipal level

Table GC.22-12: Westville Borough (Gloucester County) Municipal Mitigation Measures Implementation

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-1	Identify and pursue outreach and education opportunities.	Municipal OEM		Public Outreach and Education	Staff time commitment	On-going	<ul style="list-style-type: none"> ▪ Work with County Working Group to identify resource needs and availability.⁵ ▪ Identify target audience(s).
M-2	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers		Data Acquisition and Management	Staff time commitment	On-going	Review critical facility list and establish priorities, procedures, and tentative time schedule for conducting site and facility surveys. ⁵
M-3	Conduct regular Municipal Working Group meetings.	Municipal OEM and Municipal Working Group		Capabilities and Coordination	Staff time commitment	On-going	Establish regular Municipal Working Group membership, reporting requirements, and meeting / work session schedule. ⁵
M-4	Install permanent backup power generator at Parkview Elementary School (CF-6).	Municipal OEM and School Board		Back-up Power Generator	< \$100K	One to three years	Conduct project scoping. ⁵

³ See *Section 4: Mitigation Measures* and related portions of Annex E of the NJ4 HMP Regional Hazard Mitigation Plan for a description of evaluation criteria considered by the Municipal Working Group.

⁴ See *Section 4: Mitigation Measures* and related portions of Annex F of the NJ4 HMP Regional Hazard Mitigation Plan for a description of project types and related information regarding funding options and implementation mechanisms.

⁵ **Note to Municipal Working Group:** Workshops conducted by SW LLC as part of the NJ4 HMP planning process will include information relevant to these project types.

Part 4: Mitigation Measures

#	Mitigation Action, Program, or Project	Responsible Part(ies)	Priority	Project Type	Estimated Cost (\$)	Target Date	Next Step(s)
M-5	Conduct study to determine flood and erosion remedial related mitigation measures along Woodbine Avenue and Lake Martha.	Municipal OEM and Public Works Department	High	Private Property Flood Mitigation	< \$50K	One to three years	Develop scope of work for engineering study and procure professional consulting services.
M-6	Elevate / acquire homes along Big Timber Creek, particularly around Route 41 bridge.	Municipal OEM and Public Works Department		Private Property Flood Mitigation	\$100K - \$1M	Three to five years	Identify mitigation options including eligible activities per FEMA HMA programs. ⁵
M-7	Elevate / acquire homes on Edge Water Avenue.	Municipal OEM and Public Works Department		Private Property Flood Mitigation	\$100K - \$1M	Three to five years	Identify mitigation options including eligible activities per FEMA HMA programs. ⁵
M-8	Address identified Repetitive Flood Loss Properties.	Floodplain Administrator		Private Property Flood Mitigation	Staff time commitment	Six months	Prior to initiating landowner contacts, identify flood insurance implications and mitigation options including eligible activities per FEMA HMPA programs. ⁵

Part 4: Mitigation Measures

Part 4.5: Multi-Jurisdictional Mitigation Measures

Part 4.5 includes brief descriptions of mitigation measures that require multiple jurisdictions to implement.

During the Municipal Working Group Work Sessions, the Municipal Working Group identified some SDVR HMP mitigation measures as well as new areas of concern as mitigation measures where implementation requires participation or leadership from other levels of government, including county, state, and federal agencies. These multi-jurisdictional mitigation measures are included in Table GC.22-13.

Section 4: *Mitigation Measures* of the NJ4 HMP Regional Hazard Mitigation Plan describes multi-jurisdictional implementation strategies in detail. Section 4 identifies multi-jurisdictional mitigation measures that Municipal Working Groups believe are partly or wholly the responsibility of County agencies have been referred to the County Working Group for consideration. As part of the mitigation measures in the County Appendix to the NJ4 HMP Regional Hazard Mitigation Plan, the County Working Group will be working with the municipalities to identify:

- Specific responsibilities amongst different level(s) of government to address these problem areas
- Mitigation measures or related projects which may address the described problem areas that are already acknowledged as County responsibilities including identifying the appropriate County agency or department taking the lead role and status of implementing these mitigation measures
- Which, if any, additional mitigation measures the member agencies of the County Working Group will assume responsibility to implement

Table GC.22-13: Westville Borough (Gloucester County) Multi-Jurisdictional Mitigation Measures

#	Problem Description	Hazard(s) Addressed	Goal Addressed	Applies to Existing or New Structures	Responsible Party	Priority
M-1	Improve drainage at State Route 45 and railroad.	Flood	Goal #4	Both	Municipal OEM, NJDOT	
MJ-2	Improve drainage on Willow Drive between High Street and Broadway (County Route 551).	Flood	Goal #4	Existing	Municipal OEM, Gloucester County DPW	
MJ-3	Maintain duckbill valves along Broadway (County Route 551).	Flood	Goal #4	Existing	Municipal OEM, NJ DOT	

Part 4: Mitigation Measures

Part 4.6: Capabilities and Coordination

Part 4.6 includes:

- *Cross references to relevant information and recommendations in the NJ4 HMP Regional Hazard Mitigation Plan regarding improving capabilities and coordination at the municipal level*
- *Plans and programs included in the development of Plan Integration recommendations in the NJ4 HMP Regional Hazard Mitigation Plan*

The update of the SDVR HMP included reexamining municipal hazard mitigation capabilities; potential for improving capabilities and coordination within and between jurisdictions; and, plan integration considerations. *Section 4: Mitigation Measures* and related portions of Annex F of the NJ4 HMP Regional Hazard Mitigation Plan include summary observations and recommendations⁶ concerning:

- Hazard mitigation planning and mitigation measure implementation capabilities at the regional, county, and municipal levels
- Coordination within municipal governments, between municipal governments and their communities, and between municipal, county, and state agencies responsible for hazard mitigation
- Integration of hazard mitigation data, goals, measures, and/or recommendations with existing plans and programs at the municipal level

Specific documents obtained during the plan update process from the Municipal Working Group that were incorporated into these observations and recommendations regarding plan integration include:

- Zoning Ordinance
- Zoning Map⁷
- Master Plan Reexamination and Recommendations (2008)
- Stormwater Control Ordinance⁸
- Flood Damage Prevention Ordinance⁹
- Land Use and Development Ordinance¹⁰
- Emergency Operations Plan – Base Plan
- Stormwater Management Plan

⁶ **Note to Municipal Working Group:** Workshops conducted by SW LLC as part of the NJ4 HMP planning process will include sessions on improving capabilities and coordination at the municipal level.

⁷ <http://www.westville-nj.com/assets/forms/Downloadable-Forms/westvillezoningmap11x172009.pdf>

⁸ <http://ecode360.com/14177307#14177307>

⁹ <http://ecode360.com/14175357#14175357>

¹⁰ <http://ecode360.com/14175633#14175633>