



Schuylkill County

2013 Hazard Mitigation Plan Update

Being Prepared for the Next Big Storm



Schuylkill County, Pennsylvania – 2013 Hazard Mitigation Plan Update
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Schuylkill County, Pennsylvania – 2013 Hazard Mitigation Plan Update
Executive Summary

Section 1 Executive Summary

Hazard Mitigation is defined as *“any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards.”* The goal of hazard mitigation planning is to increase the disaster resistance of a community, so that residents, businesses and communities will be less susceptible to future exposures during natural and technological events. Hazard mitigation planning involves several key steps:

- Identifying the hazards that could affect Schuylkill County.
- Profiling the hazard events to determine what area and community assets are most vulnerable to damage from these hazards.
- Estimating losses and prioritizing the potential risks to the County.
- Developing mitigation actions, both municipal and county-wide, to increase resistance to potential hazards.
- Developing an implementation strategy for the mitigation actions.
- Maintaining the HMP on an annual basis.

In response to the Federal Emergency Management Agency’s (FEMA) Disaster Mitigation Act of 2000 (DMA2000), Schuylkill County adopted their first Hazard Mitigation Plan in 2007. DMA2000 required every state, county and city receiving federal mitigation funding to have a Hazard Mitigation Plan. A key component to reducing future losses is to have a clear understanding of what the current hazards are and what steps or strategies may be employed to lessen them. The 2013 Plan Update identifies eleven natural and technological hazards and over 300 action items from the 67 municipalities in Schuylkill County.

Hazards that this plan will address over the next five years are:

- Blight
- Dam Failures and Levees
- Hurricanes and Windstorms
- Wildfires
- Nuclear Events
- Hazardous Materials and Transportation Incidents
- Drought and Water Deficiencies
- Floods
- Mine Subsidence
- Winter Storms
- Tornadoes
- Radon

Of these Hazards, Blight, Winter Storms, Drought and Water Deficiencies, Flooding and, finally, Hurricanes/Windstorms are considered “high risk hazards” in Schuylkill County.

The expected outcome of the 2013 Hazard Mitigation Plan is to increase awareness of current and potential hazards for the county, as well as, save lives, reduce injuries, protect property and prevent or decrease financial losses.



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Executive Summary

The 2013 HMP was a joint effort between several key players:

- Schuylkill County Offices of Planning and Zoning and Emergency Management
- Consultants from Vision Planning and Engineering, LLC, URDC and Borton-Lawson , Inc.
- Schuylkill County Hazard Mitigation Steering Committee
- Municipalities
- Public
- PEMA
- FEMA

One of the most important aspects to updating the HMP was coordinating a Steering Committee to oversee the entire process. Each member brought a unique skill set to the table, and their expertise was utilized from start to finish. The Steering Committee and County staff developed the following goals for the HMP:

HAZARD MITIGATION PLAN GOALS

- Create an organizational structure for accountability to follow through with maintenance of the plan
- Maintain a sense of regional accountability, whereas, a hazard in one municipality may affect another
- Promote actions that support economic development and public/private partnerships within Schuylkill County
- Encourage municipalities, through education, to promote public awareness of current and/or potential hazards within their community
- Strengthen land use and zoning ordinances regarding floodplain regulations
- Identify resources within each municipality
- Foster awareness of specific hazards in an area prior to future development

Municipal involvement was a critical feature in the 2013 HMP. Through workshops and public meetings, municipal officials and residents of Schuylkill County offered valuable feedback and information to make this plan as relevant and effective as possible. Each municipality completed a “Capabilities Questionnaire” which identified critical facilities in high-risk areas, critical facilities damaged from past storms, existing plans and ordinances, staffing capabilities, emergency services and proposed or completed mitigation actions.

The result of such outstanding involvement is a list of more than 300 mitigation action items found in the Mitigation Strategy section. These action items target specific locations within a municipality, detail which hazard the location is susceptible to (i.e. flooding, winter storms), provide a possible mitigation action for the problem area and also a cost estimate for that action. The hazard most prominent on the list of action items is flooding. An example of a problem area would be stream bank erosion which is threatening a municipal roadway. A mitigation action proposed would be to consider stream stabilization for that particular area. Another example of a hazard problem would be that a municipal building flooded in the past. A mitigation action proposed would be to construct a levee or floodwall to alleviate flooding.



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Along with municipal mitigation actions, there are also County-wide actions detailed in the plan. A list of 38 county actions can be found in the Mitigation Strategy section of the HMP. The actions range from specialized training for County employees to enforcing floodplain ordinances to data gathering. The actions were prioritized based on three criteria:

- Life/Safety Impact
- Administrative/Technical Assistance
- Project Cost

Those with a high Life/Safety Impact were given highest priority.

The success of this plan is directly related to its relevancy. Periodic review of the plan will help keep it current, reflecting the changing needs of the community. It is critical that the County, Steering Committee, municipalities and public work to update the plan, monitor progress and conduct periodic evaluations.



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Section 2 Planning Process

Section 2 Planning Process

Contents of this Section

- 2.1 Requirements for the Planning Process
- 2.2 Description of the Planning Process
- 2.3 Involvement in the Update
- 2.4 Multi-Jurisdictional Planning
- 2.5 Meetings

As part of the 2013 Schuylkill County Hazard Mitigation Plan Update, portions of the original Hazard Mitigation Plan (HMP) were preserved.

2.1 Requirements for the Planning Process

Requirement §201.6(a)(3): *Multi-jurisdictional plans (e.g., watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process ... Statewide plans will not be accepted as multi-jurisdictional plans.*

Requirement §201.6(b): *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

Requirement §201.6(c)(1): *[The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

2.2 Description of the Planning Process

The purpose of the Hazard Mitigation Plan Update planning process is provide county officials, staff, and county residents an opportunity to update potential hazards and goals, determine any new mitigation needs and develop necessary mitigation policies and strategies. This section describes this planning process.

The Schuylkill County Hazard Mitigation Plan Update process was conducted over a 7-month period and comprised four main phases: 1) organizing work group and process; 2) assessing hazards, risks, and vulnerability as well as mitigation capability; 3) developing a mitigation strategy; and 4) implementing the plan.



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Phase 1 – Organize Work Group and Process: The first phase involved educating and informing the county, municipalities, and stakeholders about the plan update process. A variety of outreach mechanisms including: Steering Committee meetings, municipal workshops, and public meetings were designed to maximize input into the plan update process. Each of these avenues for involvement served its own purpose and involved a different tier of participation to ensure involvement from local, county, and state levels. Each of these will be discussed in detail in the next section of this chapter.

Phase 2 – Assess Hazards, Risks, Vulnerability, and Capabilities: In this step, information on recent past hazard events that affected Schuylkill County and its municipalities was gathered and specific hazard areas were identified. The hazard identification process included an examination of past occurrences and the probability of future events. The vulnerability analysis identified specific areas including critical facilities that were vulnerable to hazards and included estimates of potential losses. Past and future development trends were also analyzed as part of this step. The plan provided a general description of land uses and development trends in Schuylkill County and identified high hazard areas that were not suitable for future development.

The Mitigation Capability Assessment was conducted to identify the capabilities of each municipality to implement its mitigation actions. The Document Review portion of this assessment identifies areas for coordination and/or improvement and provides a platform to integrate plans and other documents so recommendations and strategies are not in contradiction with one another. It also identifies sections in various documents that address or have the potential to address hazard mitigation issues.

Phase 3 – Develop a Mitigation Plan: Based on data from the hazard, vulnerability, and capability assessment, the mitigation goals were updated. A comprehensive range of specific mitigation actions and projects to reduce the effects of each hazard, with emphasis on new and existing buildings and infrastructure, were developed in this step.

The Plan explored mitigation actions in the following six categories to attain the goals. The categories include:

- preventive measures – such as zoning, floodplain, stormwater, and other ordinances;
- structural projects – such as levees, reservoirs, channel improvements;
- property protection – such as relocation, floodproofing, insurance;
- emergency services – such as warning, sandbagging, evacuation;
- natural resource protection – such as wetlands protection, best management practices;
- public information – such as outreach projects, technical assistance.

While some mitigation actions were more ‘broad’ in nature and covered the entire county, each of the 67 municipalities had at least one or more discrete mitigation actions identified in the plan.

Phase 4 – Implement the Plan: In the final phase, an action plan that described how the mitigation strategies and activities identified would be prioritized, implemented, funded, and



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administered by the county and its municipalities, was developed. Cost estimates and possible funding sources to implement recommended projects were identified. In this phase, the methods to monitor, evaluate, and update the mitigation plan within a five-year cycle were discussed and recommendations on how to incorporate community participation into the plan maintenance process were included.

2.3 Involvement in the Update

The HMP update was a joint effort of the Schuylkill County Planning and Zoning Department and Emergency Management Agency. A Hazard Mitigation Steering Committee for the Plan Update was formed, as well, for the purposes of this planning process. The Steering Committee comprised a total of 21 members who represented various county departments, municipalities, and other stakeholder organizations. The following table (*Table 5.1*) includes the members of the Steering Committee and the agencies represented.

Table 2.1
Schuylkill County Hazard Mitigation Steering Committee Members

Name	Affiliation
John Matz	Schuylkill County EMA, Director
John Blickley	Schuylkill County EMA, Operations and Training Officer
Susan Smith	Schuylkill County Planning and Zoning, Director
Jackie Pellish	Schuylkill County Planning and Zoning, Assistant Planner
Lisa Mahall, P.E.	Schuylkill County Engineer, Real Estate Director
Dan Evans	Schuylkill County Local Emergency Planning Committee, Chairman
Dr. Elinor Madigan	Schuylkill County Local Emergency Planning Committee, Vice Chairman
Bob Carl	Chamber of Commerce, Executive Director
Tony Prudenti	Schuylkill County Planning Commission, Member
John Malinchok	Schuylkill County Planning Commission, Member
Wayne Bowen	North Manheim Township, Supervisor
Amy Batdorf	Schuylkill Municipal Authority, Assistant Director
Kay Jones	Schuylkill VISION, Executive Director
Frank Zukas	Schuylkill Economic Development Corporation, President
Cathy Riotto	Townships Association, Secretary
Mary Labert	Boroughs Association, President
Elizabeth Hinkel	Schuylkill Conservation District, Director
Wayne Lehman	Schuylkill Conservation District, County Natural Resource Specialist
Mike Lonergan	Orwigsburg Borough, Borough Manager
Scott Graver	Schuylkill Haven Borough, Borough Manager
Chad Northcraft	DCNR, Department of Forestry, Fire Management Forester



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Invitations were also sent to the stakeholders from neighboring communities, regional and state agencies, and private organizations, to participate on the Steering Committee and in the plan update process.

Each organization assumed a specific role(s) in the Plan Update process; while the County's Real Estate Department took the lead in the Plan Update Process, the Emergency Management Department headed the administrative end. The Real Estate Department includes the community planning and zoning staff of the County.

- The Schuylkill County Department of Planning and Zoning was responsible for: update of the Hazard Identification and Risk Assessment, GIS analysis and mapping, facilitation of steering committee meetings, coordination of municipal and public involvement, preparation of specific plan components, and plan assembly.
- The Schuylkill County Emergency Management was responsible for: administration of the contract, coordination of meetings, and overall project management.
- The role and involvement of the Steering Committee throughout the Plan Update process was critical in: a) providing ideas, information, data, and contacts; b) providing existing plans and reports; c) identifying hazards; d) updating goals and objectives; e) discussing municipal involvement; f) attending Steering Committee meetings; g) reviewing sections of the draft plan; h) prioritizing projects; and i) publicizing the Plan Update.
- Schuylkill County municipalities were responsible for: attendance at public meetings, input to the capability assessment questionnaire, identification of mitigation projects, and review and comment upon the draft plan.

2.4 Multi-Jurisdictional Planning

Schuylkill County's municipalities were involved at various phases during the Plan Update process. Involvement by the municipalities was exceptional with an 85% participation rate. In September 2012, an introduction letter for the Plan Update was sent by County staff to all jurisdictions in Schuylkill County. The letter explained the Plan Update process and Federal requirements, and detailed the expected level of municipal participation.

The Consultant developed a Mitigation Capability Assessment feedback form that was sent via email or fax to all the municipalities. The feedback form included questions related to: past hazard events; critical facilities in high hazard areas; mitigation projects; and municipal mitigation capabilities (technical and staffing). Consultants and staff sent reminder emails and made follow-up phone calls to encourage municipalities to complete their feedback forms. A total of 51 completed questionnaires were received.

A set of two municipal mitigation workshops was scheduled on September 2012 (with sessions repeated in the afternoon and evening). An invitation was sent to the municipalities via email or fax. A second meeting reminder was sent via e-mails and phone calls were made to the municipalities in advance of the meetings, to further emphasize and encourage their attendance at the workshop.

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The Municipal Workshops was held at the Recreation Center in Schuylkill Haven on the same evening as the first Steering Committee Meeting on September 26, 2013. The workshops were facilitated by the Consultants and provided an opportunity for municipal officials to attend and learn about the plan update, planning process, hazard identification and vulnerability assessment.

Figure 2.1
Municipal Officials at September 2012 Workshop



The purposes of the Workshops were to provide municipalities with an opportunity to become educated on the hazard mitigation planning process. At the workshop, municipal officials:

- Reviewed maps and identified high hazard areas;
- Identified critical facilities within their community;
- Discussed risks and vulnerabilities within their community;
- Identified and discuss potential mitigation projects; and
- Discussed future participation opportunities and next steps.

A series of exhibits were developed for the workshop including maps of critical facilities, floodplains, and steep slopes. Attendees were encouraged to identify issues and mark up maps to indicate specific problem locations. The Consultants shared examples of potential mitigation projects and encouraged the municipalities to recommend additional mitigation projects based on past hazard experiences. The Consultants requested municipal representatives to review the maps and provide feedback on any changes to them.

Each municipality was asked to complete a Questionnaire to assess their capabilities. Responses were provided by 51 municipalities. Follow-up communications were used to seek responses from the municipalities that had not initially responded.

Table 2.2 on the following pages identifies the stages of municipal participation in the Plan Update process.



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Two rounds of communications were sent out to each municipality to explain the process and to ask that they send a representative to the initial Public Workshop Meeting. The results were very successful. Representatives from 57 out of the 67 municipalities attended the Municipal Workshops, as described above. Two sessions were held on the same day to encourage participation by persons who were busy during other times of the day.

At these workshops and through subsequent follow-up communications, 58 out of the 67 municipalities identified mitigation projects or agreed that projects from the 2007 Plan were still valid.

It was also emphasized to the municipalities that their ultimate responsibility would be to adopt the Hazard Mitigation Plan Update, once it is approved by Schuylkill County, in order to remain eligible for specific types of federal post-event financial assistance.

Table 2.2
Schuylkill County Municipal Participation

Municipality	Completed Mitigation Capability Survey	Attended Municipal Meeting on 9/26/12	Identified Hazards and Risks	Developed and Reviewed Mitigation Actions	Attended Public Meeting on 4/2/13	Provided Plan For Review
Ashland Borough	Yes					Yes
Auburn Borough	Yes	Yes	Yes*	Yes*		Yes
Barry Township	Yes	Yes	Yes	Yes	Yes	Yes
Blythe Township	Yes	Yes	Yes	Yes	Yes	Yes
Branch Township	Yes	Yes	Yes*	Yes*	Yes	Yes
Butler Township	Yes	Yes	Yes	Yes		Yes
Cass Township	Yes	Yes	Yes	Yes	Yes	Yes
Coaldale Borough	Yes	Yes	Yes	Yes		Yes
Cressona Borough		Yes	Yes	Yes		Yes
Deer Lake Borough	Yes	Yes	Yes	Yes	Yes	Yes
Delano Township		Yes	Yes	Yes		Yes
East Brunswick Township	Yes	Yes	Yes	Yes	Yes	Yes
East Norwegian Township	Yes	Yes	Yes*	Yes*	Yes	Yes
East Union Township	Yes	Yes	Yes*	Yes*		Yes
Eldred Township	Yes	Yes	Yes	Yes		Yes
Foster Township	Yes	Yes	Yes*	Yes*	Yes	Yes
Frackville Borough	Yes	Yes	Yes	Yes	Yes	Yes
Frailey Township	Yes		Yes	Yes	Yes	Yes
Gilberton Borough	Yes	Yes	Yes	Yes	Yes	Yes
Girardville Borough	Yes	Yes	Yes*	Yes*	Yes	Yes
Gordon Borough	Yes	Yes	Yes	Yes		Yes
Hegins Township	Yes	Yes	Yes	Yes	Yes	Yes



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Municipality	Completed Mitigation Capability Survey	Attended Municipal Meeting on 9/26/12	Identified Hazards and Risks	Developed and Reviewed Mitigation Actions	Attended Public Meeting on 4/2/13	Provided Plan For Review
Hubley Township		Yes	Yes	Yes	Yes	Yes
Kline Township		Yes	Yes	Yes		Yes
Landingville Borough						Yes
Mahanoy City Borough	Yes	Yes	Yes*	Yes*	Yes	Yes
Mahanoy Township		Yes	Yes*	Yes*	Yes	Yes
McAdoo Borough	Yes	Yes	Yes	Yes		Yes
Mechanicsville Borough		Yes	Yes*	Yes*	Yes	Yes
Middleport Borough	Yes	Yes	Yes	Yes	Yes	Yes
Minersville Borough						Yes
Mount Carbon Borough					Yes	Yes
New Castle Township					Yes	Yes
New Philadelphia Borough		Yes	Yes*	Yes*		Yes
New Ringgold Borough	Yes	Yes	Yes	Yes		Yes
North Manheim Township	Yes	Yes	Yes	Yes	Yes	Yes
North Union Township	Yes	Yes	Yes	Yes	Yes	Yes
Norwegian Township						Yes
Orwigsburg Borough	Yes	Yes	Yes	Yes		Yes
Palo Alto Borough	Yes	Yes	Yes*	Yes*		Yes
Pine Grove Borough	Yes	Yes	Yes	Yes	Yes	Yes
Pine Grove Township	Yes	Yes	Yes	Yes	Yes	Yes
Port Carbon Borough	Yes	Yes	Yes	Yes	Yes	Yes
Port Clinton Borough	Yes	Yes	Yes*	Yes*		Yes
Porter Township	Yes	Yes	Yes	Yes	Yes	Yes
Pottsville City	Yes	Yes	Yes*	Yes*	Yes	Yes
Reilly Township	Yes	Yes	Yes	Yes	Yes	Yes
Ringtown Borough	Yes	Yes	Yes	Yes	Yes	Yes
Rush Township	Yes	Yes	Yes	Yes		Yes
Ryan Township	Yes	Yes	Yes	Yes		Yes
Saint Clair Borough	Yes	Yes	Yes*	Yes*	Yes	Yes
Schuylkill Haven Borough	Yes	Yes	Yes	Yes	Yes	Yes
Schuylkill Township	Yes				Yes	Yes
Shenandoah Borough					Yes	Yes
South Manheim Township	Yes	Yes	Yes*	Yes*	Yes	Yes
Tamaqua Borough				Yes	Yes	Yes



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Municipality	Completed Mitigation Capability Survey	Attended Municipal Meeting on 9/26/12	Identified Hazards and Risks	Developed and Reviewed Mitigation Actions	Attended Public Meeting on 4/2/13	Provided Plan For Review
Tower City Borough	Yes	Yes	Yes	Yes	Yes	Yes
Tremont Borough	Yes	Yes	Yes	Yes		Yes
Tremont Township	Yes	Yes	Yes	Yes		Yes
Union Township	Yes	Yes	Yes*	Yes*	Yes	Yes
Upper Mahantongo Township		Yes	Yes	Yes		Yes
Walker Township	Yes	Yes	Yes	Yes	Yes	Yes
Washington Township	Yes	Yes	Yes	Yes		Yes
Wayne Township	Yes	Yes	Yes*	Yes*		Yes
West Brunswick Township	Yes	Yes	Yes	Yes	Yes	Yes
West Mahanoy Township		Yes	Yes	Yes		Yes
West Penn Township	Yes	Yes	Yes	Yes	Yes	Yes

* = The municipality participated in reviewing risks and projects, but did not identify any specific risks or projects.

2.5 Meetings

Kick-Off Meeting

A kick-off meeting was held between the Consultant team and County staff on August 8, 2012 at the Schuylkill County Emergency Management Building in Pottsville. This meeting officially initiated the plan update process. The purpose of the kick-off meeting was discuss the plan update process, municipal participation, Steering Committee participation, data requirements, project schedule, and deliverables.

Steering Committee Meetings

During a meeting on April 11, 2012, the Schuylkill County Board of Commissioners re-established the Hazard Mitigation Steering Committee to guide the Hazard Mitigation Plan Update. The first Committee Meeting was held on 26 September 2012 at the Emergency Management Agency in Pottsville. The following agenda items were covered at this meeting that was facilitated by the Consultant:

- Review of each section of the 2007 Plan with Committee members to determine sections that needed to be updated;
- Discussion of project schedule, and deliverables;
- Discussion and distribution of the mitigation capability questionnaire.

The second Committee meeting was held on November 8, 2012 at the Emergency Management Agency in Pottsville. The Planning staff facilitated the meeting and reviewed the goals and objectives from the 2007 plan.

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The third Committee meeting was held on December 4, 2012 at the Emergency Management Agency in Pottsville. At this meeting, the following items were covered:

- Review of goals and objectives from 2007 plan;
- Discussion of municipal mitigation actions; and
- Discussion of municipal capabilities and results of the mitigation capability questionnaire.

The fourth and final Committee meeting was held on April 2, 2013 at the Schuylkill Haven Recreation Center. At the meeting, the following items were completed:

- Examination of County level mitigation actions from the 2007 plan;
- Prioritization of mitigation actions.
- Development of an implementation strategy for each mitigation action.

Public Meetings

The public involvement program was a critical element in the update of the Schuylkill County Hazard Mitigation Plan. Two Public Meetings was held on April 2, 2013, the same day as the fourth Committee Meeting. The meeting was advertised in the Republican-Herald newspaper and the Schuylkill County Emergency Management Facebook page.



Posters were produced and distributed to each municipality for display in prominent locations. A PowerPoint was developed and presented by the Consultants and the public was provided an opportunity to:



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- Review the results of the updated Hazard Risk and Vulnerability Assessment;
- Review updated goals and objectives;
- Examine options for mitigation actions and projects; and
- Review proposed prioritization criteria for mitigation projects.

2.6 Draft Plan Review

The draft and final updates were made available via the internet on the Schuylkill County website (www.schuylkill.us) for review and comment. Additionally, hard copies of the draft and final plans were made available at the Schuylkill County Emergency Management Office and the Schuylkill County Planning and Zoning Department.

Stakeholders, including local emergency management coordinators, municipal officials, the Schuylkill County Chamber of Commerce, were asked to provide feedback. Adjacent counties were also notified of the availability of the final draft plan for review and comment. A two-week public comment period was opened on July 3, 2013. No public comments were received and only one adjacent county provided minimal feedback via the survey.



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Section 3 Approval and Adoption

Section 3 Approval and Adoption

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3.1 Requirements for Approval and Adoption

Requirement §201.6(c)(5): *The local hazard mitigation plan shall include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan.*

3.2 Approval and Adoption Procedure

Schuylkill County submitted its original Hazard Mitigation Plan to the Pennsylvania Emergency Management Agency (PEMA) for review in 2007. After PEMA and FEMA reviewed and approved the Hazard Mitigation Plan, the Schuylkill County Board of Commissioners and most of the municipal officials within Schuylkill County approved the document via Resolution.

Throughout the 2013 Hazard Mitigation Plan update, the Steering Committee had multiple opportunities to provide comments and feedback. On July 19, 2013 Schuylkill County submitted the initial draft of the Plan Update to PEMA for review and comment.

After addressing PEMA comments, the Update was resubmitted for final consideration and approval by PEMA and FEMA. FEMA provided an approval letter dated [REDACTED] and the Plan Update was forwarded to the Schuylkill County Board of Commissioners for approval for adoption, which occurred on [REDACTED].

3.3 Adoption Resolution

The Schuylkill County Board of Commissioner adopted the original Hazard Mitigation Plan on September 26, 2007. Schuylkill County formally adopted the update of the Hazard Mitigation Plan on [REDACTED]. The resolutions can be found in Appendix E. Subsequent to adoption by the Board of Commissioners, the local municipalities were requested to approve the plan by resolution. Signed resolutions by the municipalities can be found in Appendix F.



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Section 4 Hazard Identification, Profiling, and Ranking

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- 4.2 Summary of Schuylkill County’s Hazard History
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- 4.4 Hazard Ranking

During the 2013 Plan update many parts, such as the historical hazard data, has been retained. As part of the update process, the Steering Committee reviewed the hazards and incorporated changes related to recent hazard events. In addition, the Steering Committee elected to include two new hazards to this plan given their effect on Schuylkill County.

4.1 Requirements for Hazard Identification, Profiling and Ranking

Requirement §201.6(c)(2)(ii): *[The risk assessment shall include a] description of the... location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.*

4.2 Summary of Schuylkill County’s Hazard History

Identification of hazards acts as *the* key component to reducing future losses. The identification of Schuylkill County’s hazards was based on a variety of sources including:

- Review of Federal, state, and local records including Schuylkill County, Pennsylvania, and Federal Emergency Management Agencies, the National Weather Service, National Hurricane Center, USGS, the Pennsylvania Department of Natural Resources, among others



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- Newspaper accounts from the *Pottsville Republican and Evening Herald*
- Input from the Hazard Mitigation Steering Committee, local officials, and the public

According to these records, Schuylkill County has received 12 Presidential Major Disaster Declarations and 16 Gubernatorial Declarations since 1955 (See Table 4.0). An additional 7 Local Declarations have been issued between 2009 and 2012. According to the National Climactic Data Center Storm Events database, since 1950 until 2011, there have been a total of 244 events resulting in 2 fatalities, 5 injuries, and \$11,316,250 in property damage.

Table 4.0
Hazards and Declared Disasters impacting Schuylkill County

Incident Period	Storm	Declaration Type
October 26, 2012 to November 8, 2012	Hurricane Sandy	Presidential Emergency Declaration
May 26, 2012	Flash Flooding	Local Declaration
September 3, 2011 to October 15, 2011	Tropical Storm Lee	Presidential Major Disaster Declaration
July 7, 2011	Severe Thunderstorm and Wind	Local Declaration
May 26, 2011	Tornado EF-1	Local Declaration
May 23, 2011	Tornado EF-1	Local Declaration
April 16, 2011	Flash Flooding	Local Declaration
March 10, 2011	Flooding	Local Declaration
October 12-13, 2009	Flooding	Local Declaration
August, 2007	Hail	SBA - Economic Injury Disaster Loan
April, 2007	Severe Winter Storm	Governor's Proclamation
February, 2007	Severe Winter Storm	Governor's Proclamation
December, 2006	Severe Storms and Tornadoes	SBA - Physical Damage and Economic Injury
November 16, 2006 to November 17, 2006	Severe Storms, Flooding	Presidential Major Disaster Declaration
September, 2006	Tropical Depression Ernesto	Governor's Proclamation
June 23, 2006 to July 10, 2006	Severe Storms, Flooding	Presidential Major Disaster Declaration
September 17, 2004 to October 1, 2004	Tropical Depression Ivan	Presidential Major Disaster Declaration
September, 2003	Hurricane Isabel/Henri	Governor's Proclamation
February, 2003	Severe Winter Storm	Governor's Proclamation



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Incident Period	Storm	Declaration Type
February, 2002	Drought Emergency, Water Shortage	Governor's Proclamation SBA - Economic Injury Disaster Loan
August, 2001	Flooding	Governor's Proclamation
September, 1999	Hurricane Floyd	Governor's Proclamation
July, 1999	Drought Emergency	Governor's Proclamation
April, 1997	Snowstorm	Governor's Proclamation
January 19, 1996 to February 1, 1996	Flooding	Presidential Major Disaster Declaration
January 6, 1996 to January 12, 1996	Blizzard	Presidential Major Disaster Declaration
September, 1995	Drought Emergency	Governor's Proclamation
January 4, 1994 to February 25, 1994	Severe Winter Storm	Presidential Major Disaster Declaration
March 13, 1993 to March 17, 1993	Blizzard, Severe Snowfall and Winter Storm	Presidential Emergency Declaration
July, 1991	Drought Emergency	Governor's Proclamation
November, 1980	Drought Emergency	Governor's Proclamation
February, 1978	Blizzard	Governor's Proclamation
January, 1978	Heavy Snow	Governor's Proclamation
January 29, 1977	Gas Shortage, Severe Winter Weather	Presidential Emergency Declaration
October 20, 1976	Severe Storms, Flooding	Presidential Major Disaster Declaration
September 26, 1975	Severe Storms, Heavy Rains, Flooding (Eloise)	Presidential Major Disaster Declaration
June 23, 1972	Tropical Storm Agnes	Presidential Major Disaster Declaration
February, 1972	Heavy Snow	Governor's Proclamation
August 19, 1969	Severe Storms, Flooding	Presidential Major Disaster Declaration
January, 1966	Heavy Snow	Governor's Proclamation
August 20, 1955	Hurricane Diane (Flood)	Presidential Major Disaster Declaration



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4.3 Overview of the Type and Locations of Hazards Effecting Schuylkill County

As part of the 2013 update, the Steering Committee determined that two additional hazards – blight and nuclear events - be included given their impact on Schuylkill County. The list of hazards included in the updated Hazard Mitigation Plan includes:

- Blight
- Dam Failures and Levees
- Drought & Water Supply Deficiencies
- Floods
- Hazardous Materials and Transportation Incidents
- Hurricanes and Windstorms
- Mine Subsidence
- Nuclear Events
- Tornadoes
- Wildfires
- Winter Storms
- Radon

The following sections profile the 11 hazards listed above, and includes a description of the hazard, location and extent of the hazards, severity of the hazard, impact on life and property, and past occurrences. A scoring system, based on the Pennsylvania All Hazard Mitigation Plan Standard Operating Guide, is then used in Section 4.4 to enumerate a risk factor and characterize the risk each hazard poses to the County. The hazard ranking determined that Blight, Winter Storms, and Flooding are hazards with the highest risk factors.

4.3.1 Blight

Description of the Hazard

In Schuylkill County, “Blight” is regularly identified by municipal officials as substantial issue and a top priority. “Blight” is defined as a vacant property that is a public nuisance; condemned under the municipal code; seriously tax delinquent or abandoned.¹ An abandoned property under current state law consists of any building that has not been legally occupied for at least 12 months and is also a blighted property meeting any of the following²:

- Premises which, because of physical condition or use are regarded as a public nuisance in accordance with the local housing, building, plumbing, fire, and related codes and ordinances, including nuisance and dangerous building ordinances

¹ (Jeri E. Stumpf & Associates, Inc, 2010)

² (Jeri E. Stumpf & Associates, Inc, 2010)



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- Premises which, because of physical condition, use, or occupancy, are considered an attractive nuisance to children, including, but not limited to, abandoned wells, shafts, basements, excavations, and unsafe fences or structures
- A dwelling which, because it is dilapidated, unsanitary, unsafe, vermin-infested condition, or lacking in the facilities and equipment required under the housing code of the municipality, has been designated by the municipal department responsible for enforcement of the code as unfit for human habitation
- A structure which is a fire hazard or is otherwise dangerous to the safety of persons or property
- A structure from which the utilities, plumbing, heating, water, sewage or other facilities have been disconnected, destroyed, removed, or rendered ineffective so that the property is unfit for its intended use
- A vacant or unimproved lot or parcel of ground in a predominantly built-up neighborhood which by reason of neglect or lack of maintenance, has become a place for accumulations of trash and debris or a haven for rodents or other vermin
- An unoccupied property which has been tax delinquent for a period of two years
- A property which is vacant but not tax delinquent and which has not been rehabilitated within one year of the receipt of notice to rehabilitate from the appropriate code enforcement agency

Through recent legislation spearheaded by the now late Schuylkill County Senator James J. Rhoades and now championed by Senator Dave Argall, municipalities now have the availability of new tools and enforcement mechanisms to control and mitigate Blight.

Location and Extent of the Hazard

In fact, Blight conditions could occur anywhere within Schuylkill County however, their prevalence would more likely occur in those municipalities with a greater vacancy rate (occupied/vacant housing) (*See Map 4.0*) and/or those with an older housing stock (*See Map 4.1*).

Impact of the Hazard

Quantifying the hazard impact is difficult at this time given the lack of standard recordkeeping by municipalities. However, given the passage of recent legislation, the next update should include data related to the impact. This data would include what the National Vacant Properties Campaign define in their report “Vacant Properties: The True Costs to Communities”³ as the costs that vacant and abandoned properties impose upon communities, including:

- Costs to Municipal Services – Crime, Arson and Accidental Fires, Public Nuisances and Health,
- Decreased Property Values and Tax Revenues – Lost Tax Revenue, Lower Property Values

³ (Campaign, 2005)

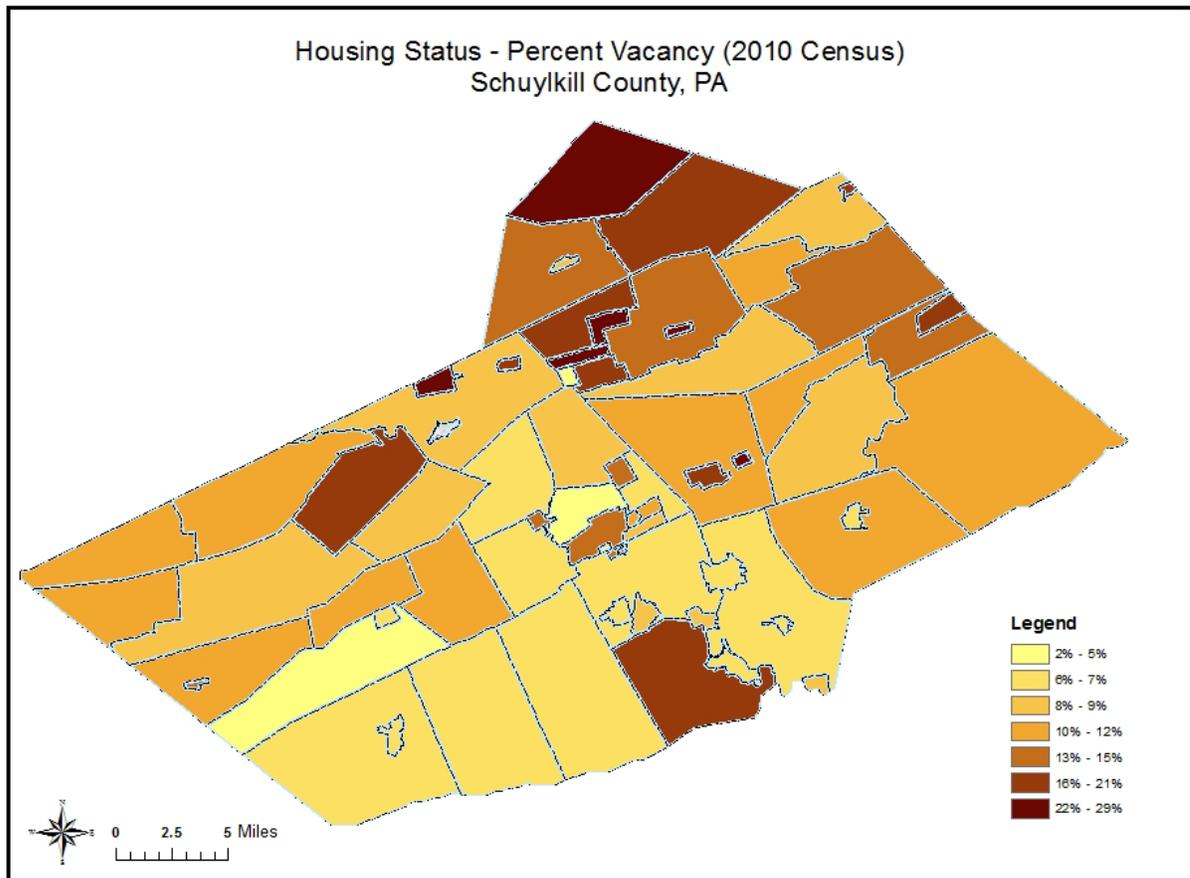
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- Costs to Homeowners – Higher Insurance Premiums, Poorer Quality of Life

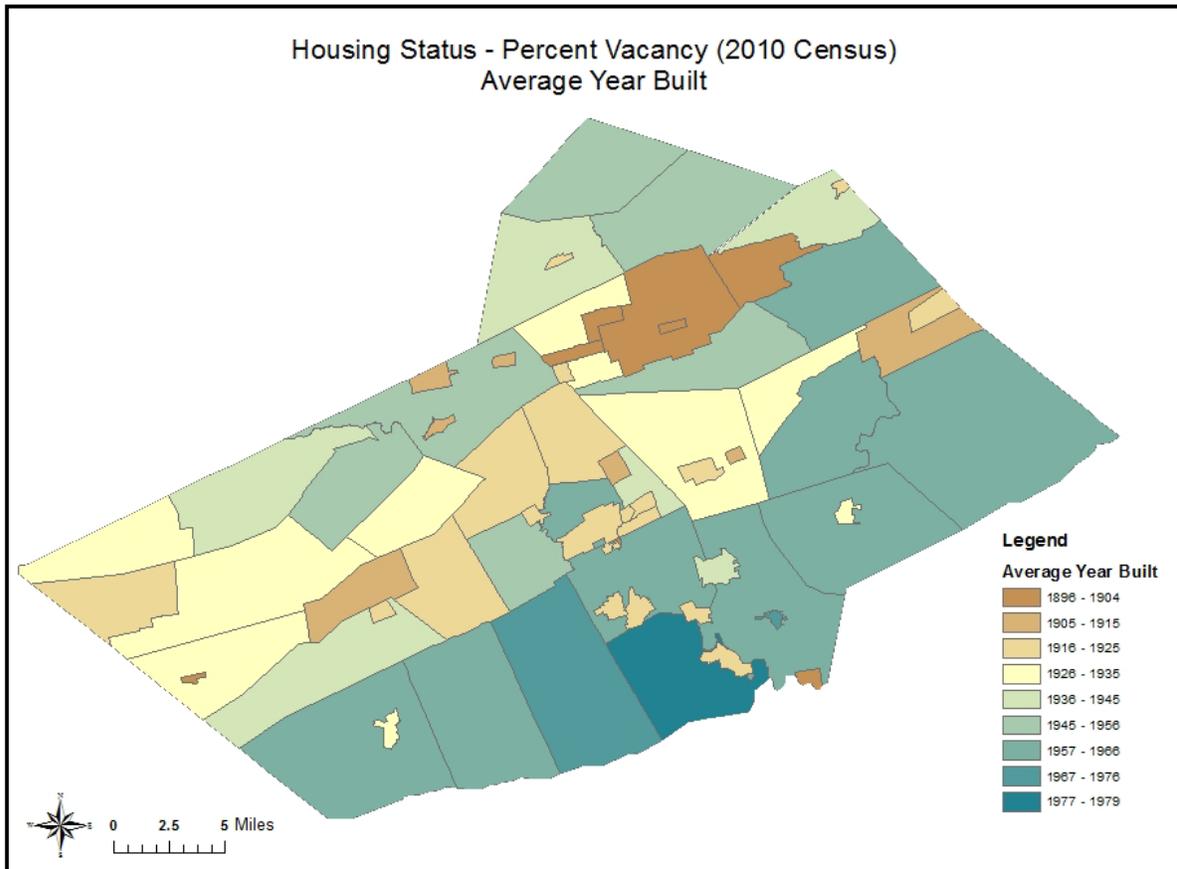
Occurrences of the Hazard

Again, given the lack of standardized recordkeeping, while the county has been affected by blighted conditions of properties, it is difficult to catalog them here.

Map 4.0
Housing Vacancy Rate (%) (Census 2010)



Map 4.1
Age of Housing Stock – Year Built (Schuylkill Tax Assessment)



4.3.2 Dam Failures and Levees

Description of the Hazard

Dams

The Department of Environmental Protection’s (DEP) Regulations, Chapter 105, Dam Safety and Waterway Management defines a hazard potential as Category 1, Category 2 or Category 3 dam.

- Category 1 Dam: a dam where its failure could result in substantial loss of life, excessive economic losses, and substantial public inconvenience.
- Category 2 Dam: Hazard potential category 2 dam is a dam where its failure could result in loss of a few lives, appreciable economic losses, and moderate public inconvenience.
- Category 3 Dam: A dam where its failure could result in significant economic losses, and short-duration public inconvenience.



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Public inconvenience would include a flooded road, washout of a bridge or driveway, disruption of utilities, etc.⁴ DEP further categorizes Dam’s by class based on their impoundment storage capacity and dam height (See Table 4.1). Following these guidelines, there are one A-1, 25 B-1, 14 C-1, 2 C-2, 6 C-3, 48 C-4 dams for a total of 96 dams within Schuylkill County.

Table 4.1
PA DEP Dam Size Classification

Class	Impoundment Storage (Acre-Feet)	Dam Height (Feet)
A	Equal to or greater than 50,000	Equal to or greater than 100
B	Less than 50,000 but greater than 1,000	Less than 1,000 but greater than 40
C	Equal to or less than 1,000	Equal to or less than 40

Levees

Levees are designed to provide a specific level of flood protection. Many levees are designed and constructed to provide protection from a flood with a 1-percent chance of occurrence in any year. Even levees built to the National Flood Insurance Program standard require regular maintenance to retain their intended level of flood protection

Location and Extent of the Hazard

Dams

As described above, a dam’s location may pose a potential risk factor to populated areas downstream of the dam location. There are a total of 96 dams within the county, 40 of which are Category 1 dams, 2 are Category 2 dams, 6 are Category 3 dams, and the remaining 48 are Category 4 dams. The “Inundation Area”, which is required to be delineated as part of an Emergency Operations Plan, is the downstream area that would be flooded or otherwise affected by the failure of a dam or large flows. The County Emergency Management Agency and County Planning Departments are working towards creating a GIS database of the Inundation Areas. Map 4.2 depicts the location of dams within the county.

Levees

There are two levees located within the County (1) the Willow Creek Project in Schuylkill Haven Borough and (2) the Celebration Creek Project in McAdoo Borough.

Impact of the Hazard

Dams

Dams which are considered high hazard are required to submit Emergency Action Plans to the Schuylkill County Emergency Management, among other agencies. During plan development, the dam owner is required to delineate an “inundation area” and identify critical facilities, businesses, and a total population within that inundation area. The total number of residents living in Schuylkill County who are vulnerable to dam failure is 61,438. The total number of structures vulnerable to dam failure is 16,355.

⁴ (Pennsylvania Department of Environmental Protection, 2009)

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As stated above, the County Emergency Management Agency and Planning Department are working towards creation of a GIS database which would create a digital inundation map. In addition to the inundation area features, this database would include the impacts described above. It is anticipated that as part of the annual review of this plan additional information regarding impacts would be included.

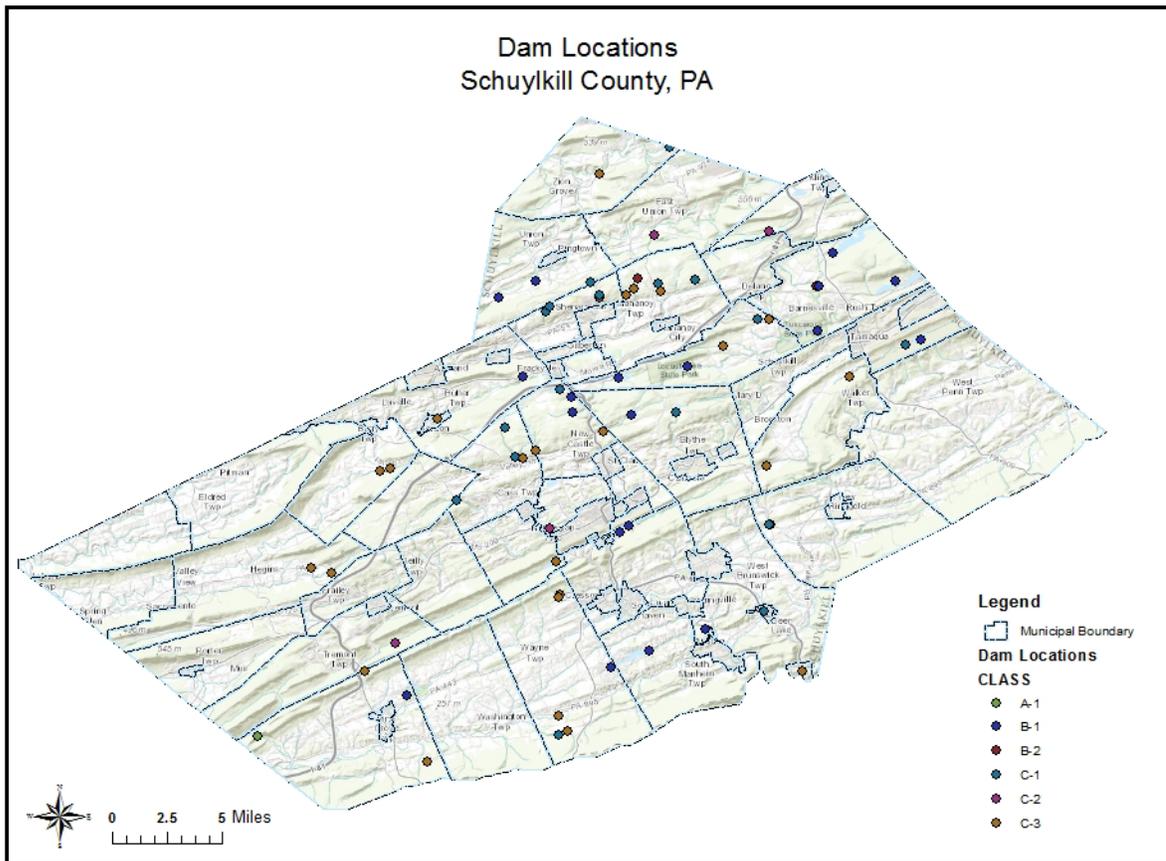
Levees

The Commonwealth of Pennsylvania 2013 State Hazard Mitigation Plan states that within a 2000 foot buffer area of the levees located in Schuylkill County there are 4 Critical Facilities and no Jurisdictional Loss.

Occurrences of the Hazard

To date, no dam or levee failures have occurred in Schuylkill County. During the severe storms in June 2006, dam owners were advised to monitor the conditions of their facilities. A precautionary evacuation was done in areas downstream of Owl Creek reservoir in Tamaqua. The Lebanon Water Authority, owners of the Christian E. Siegrist Dam in Pine Grove Township, monitored the condition of the dam during Tropical Storm Lee.

Map 4.2
Schuylkill County Dam Locations





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Table 4.2
List of Dams within Schuylkill County (Source: PADEP)

Dam Name	Owner	Classification
CHRISTIAN E SIEGRIST	CITY OF LEBANON WATER AUTHORITY	A-1
RINGTOWN NO 5	MUNICIPAL AUTHORITY OF THE BOROUGH OF SHENANDOAH	B-1
LOWER TUMBLING RUN	BOROUGH OF SCHUYLKILL HAVEN	B-1
WASTE HOUSE NO 1	MAHANOEY TOWNSHIP AUTHORITY	B-1
WASTE HOUSE NO 3	MAHANOEY TOWNSHIP AUTHORITY	B-1
GREENWOOD LAKE	DUAL VALLEY RECREATION ASSOCIATION	B-1
POLE RUN NO 4	MAHANOEY TOWNSHIP AUTHORITY	B-1
UPPER TUMBLING RUN	BOROUGH OF SCHUYLKILL HAVEN	B-1
WOLF CREEK RESERVOIR	SCHUYLKILL COUNTY MUNICIPAL AUTHORITY	B-1
KAUFMAN RESERVOIR	SCHUYLKILL COUNTY MUNICIPAL AUTHORITY	B-1
EISENHUTH RESERVOIR	SCHUYLKILL COUNTY MUNICIPAL AUTHORITY	B-1
ASHLAND RESERVOIR	ASHLAND AREA MUNICIPAL AUTHORITY	B-1
RINGTOWN RESERVOIR NO 6	MUNICIPAL AUTHORITY OF THE BOROUGH OF SHENANDOAH	B-1
UPPER OWL CREEK	BOROUGH OF TAMAQUA	B-1
SWEET ARROW LAKE	SCHUYLKILL COUNTY BOARD OF COMMISSIONERS	B-1
INDIAN RUN	SCHUYLKILL COUNTY MUNICIPAL AUTHORITY	B-1
STILL CREEK	TAMAQUA AREA WATER AUTHORITY	B-1
PINE RUN	SCHUYLKILL COUNTY MUNICIPAL AUTHORITY	B-1
AUBURN	DEP	B-1
LOCUST LAKE	DCNR	B-1
LOCUST CREEK (PA-423)	DCNR	B-1
NEIFERT CREEK (PA-422A)	SCHUYLKILL COUNTY BOARD OF COMMISSIONERS	B-1
LITTLE SCHUYLKILL RIVER (PA-422)	SCHUYLKILL COUNTY BOARD OF COMMISSIONERS	B-1
FAWN LAKE	LAKE WYNONAH PROPERTY OWNERS ASSOCIATION	B-1
LAKE WYNONAH	LAKE WYNONAH PROPERTY OWNERS ASSOCIATION	B-1
LAKE SUSQUEHANNA	EAGLE ROCK COMMUNITY ASSOCIATION	B-1
LOWER OWL CREEK	BOROUGH OF TAMAQUA	C-1
RAVEN RUN NO 2	MUNICIPAL AUTHORITY OF THE BOROUGH OF SHENANDOAH	C-1



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Dam Name	Owner	Classification
RAVEN RUN NO 3	MUNICIPAL AUTHORITY OF THE BOROUGH OF SHENANDOAH	C-1
CRYSTAL RUN RESERVOIR	MUNICIPAL AUTHORITY OF THE TOWNSHIP OF BLYTHE	C-1
SILVER CREEK RESERVOIR	MUNICIPAL AUTHORITY OF THE TOWNSHIP OF BLYTHE	C-1
MOUNT LAUREL (MUD RUN)	SCHUYLKILL COUNTY MUNICIPAL AUTHORITY	C-1
MAHANOEY TOWNSHIP NO 2	MAHANOEY TOWNSHIP AUTHORITY	C-1
MINERSVILLE NO 3	MUNICIPAL AUTHORITY OF THE BOROUGH OF MINERSVILLE	C-1
MINERSVILLE NO 4	MUNICIPAL AUTHORITY OF THE BOROUGH OF MINERSVILLE	C-1
MOON LAKE	MOON LAKE ASSOCIATION, INC.	C-1
HOSENSOCK (PA-424)	SCHUYLKILL COUNTY BOARD OF COMMISSIONERS	C-1
KOENIGS CREEK (PA-425)	SCHUYLKILL COUNTY BOARD OF COMMISSIONERS	C-1
LAKE CHOCTAW	EAGLE ROCK COMMUNITY ASSOCIATION	C-1
HAWK MOUNTAIN	HAWK MOUNTAIN COUNCIL, BSA	C-1
PARK PLACE NO 3	HAZLETON CITY AUTHORITY	C-2
DEER LAKE	BOROUGH OF DEER LAKE	C-2
LOFTY RESERVOIR	MAHANOEY TOWNSHIP AUTHORITY	C-3
BRANDONVILLE PUMPING STATION	BOROUGH OF SHENANDOAH	C-3
KUNKELS	MORTON KUNKEL	C-3
STOYERS	BOROUGH OF SCHUYLKILL HAVEN	C-3
WHIPPOORWILL	FRACKVILLE BOROUGH	C-3
AMITY ACRES	NANCY MERINICK	C-3
RABBIT RUN	BOROUGH OF TAMAQUA	C-4
MAHANOEY TOWNSHIP NO 1	MAHANOEY TOWNSHIP AUTHORITY	C-4
MINERSVILLE NO 2	MUNICIPAL AUTHORITY OF THE BOROUGH OF MINERSVILLE	C-4
MINERSVILLE NO 1	MUNICIPAL AUTHORITY OF THE BOROUGH OF MINERSVILLE	C-4
POPLAR CREEK	SCHUYLKILL COUNTY MUNICIPAL AUTHORITY	C-4
UPPER	BOROUGH OF ORWIGSBURG	C-4
PANTHER CREEK	SCHUYLKILL HAVEN WATER AUTHORITY	C-4
CODORUS	CHARLES A. TACELOSKY	C-4



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Dam Name	Owner	Classification
SUPPLY	MAHANOEY TOWNSHIP AUTHORITY	C-4
WOLF CREEK INTAKE	SCHUYLKILL COUNTY MUNICIPAL AUTHORITY	C-4
ADAMS RUN	BOROUGH OF PINE GROVE	C-4
LAKEWOOD	LAKEWOOD PARK ESTATES, LLP	C-4
ROSEMOUNT CAMPGROUND	ROSEMOUNT CAMPGROUND	C-4
PORTER	TOWER CITY BOROUGH AUTHORITY	C-4
NEALE	ALAN GREEN	C-4
INDIAN RUN LOWER	SCHUYLKILL COUNTY MUNICIPAL AUTHORITY	C-4
FREED	DAVID FREED	C-4
VRAJ	PUSHTI MARGIYA VAISHNOV SAMAJ OF NORTH AMERICA	C-4
SEITZINGER	NANCY VILLARREAL	C-4
RED RIDGE LAKE	JOYCE COURNOYER	C-4
ROCK FISH AND GAME POND	KEN KRAUSE	C-4
KOSLOSKY	PAUL A. KOSLOSKY	C-4
SHENANDOAH CREEK	EAST UNION REALTY CORPORATION	C-4
SHENANDOAH CREEK	GIRARD ESTATE, (WESTERN HALF)	C-4
WEST BRUNSWICK	BOROUGH OF ORWIGSBURG	C-4
PORT CLINTON WATER	PORT CLINTON WATER CO-OPPERATIVE ASSOCIATION	C-4
STANHOPE	CAMP PINE GROVE ASSOCIATION	C-4
DELL	HERBERT HENZE	C-4
LOCUST LAKE	DCNR	C-4
OTTO	BONITA OTTO	C-4
YODER-KITCHEN	KURT D. YODER AND DARLENE KITCHEN	C-4
ST NICHOLAS BREAKER	READING ANTHRACITE COMPANY	C-4
RAUCH CREEK TREATMENT PLANT	DEP	C-4
C J HUETHER	CHARLES J HUETHER	C-4
HESS UPPER POND	WILLIAM G. HESS	C-4
HESS LOWER POND	WILLIAM G. HESS	C-4
MARTZS MILL POND	JOHANNA MARTZ	C-4
GANGLOFF POND	GENE GANGLOFF	C-4
FISHERS	ORWIGSBURG WATER AUTHORITY	C-4



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Dam Name	Owner	Classification
BLACKWOOD NO 1	BLACKWOOD, INC.	C-4
HOLDING POND	SHENANDOAH FISH & GAME PROTECTION ASSOCIATION	C-4
FISHING POND	SHENANDOAH FISH & GAME PROTECTION ASSOCIATION	C-4
TAMAQUA DESILTING BASIN	DEP	C-4
RESERVOIR NO. 8	KLINE TOWNSHIP MUNICIPAL AUTHORITY	C-4
SPOTTS	WILLIAM R. SPOTTS, PRESIDENT	C-4
MOORE	HARRY H. MOORE	C-4
FISHER WATERSTEP	WARREN E. MALONE	C-4
AUNGST	SCOTT AUNGST	C-4

4.3.3 Droughts and Water Supply Deficiencies

Description of the Hazard

The Commonwealth uses five parameters to assess drought conditions. These include stream flows (compared to the same time for the period of record); precipitation (departure from normal, 30 year average precipitation); reservoir storage levels in a variety of locations; groundwater elevations (comparing to past month, past year and historic record); and the Palmer Drought Index (a measure of soil moisture computed by the National Weather Service). Post-assessment, the Commonwealth will establish one of four levels of drought preparedness: watch, warning, emergency or local water rationing.

Drought conditions can have an impact on the economic vitality of agriculture. Drought conditions would impact the amount of water available for crops grown for commercial and domestic use. Other impacts could be on the capabilities of firefighters as water shortages may result in water flow and pressure available to combat both wild and structural fires.

The Commonwealth has established levels of drought conditions – watch, warning, and emergency – that serve to create awareness of existing or potential drought related condition so that monitoring, water conservation, or other measures can be employed.

Location and Extent of the Hazard

While drought conditions can affect the entirety of Schuylkill County, those area of the county which are designated as ‘woodlands’ or ‘agricultural’ (*See Map 4.4*) would sustain the highest impact.

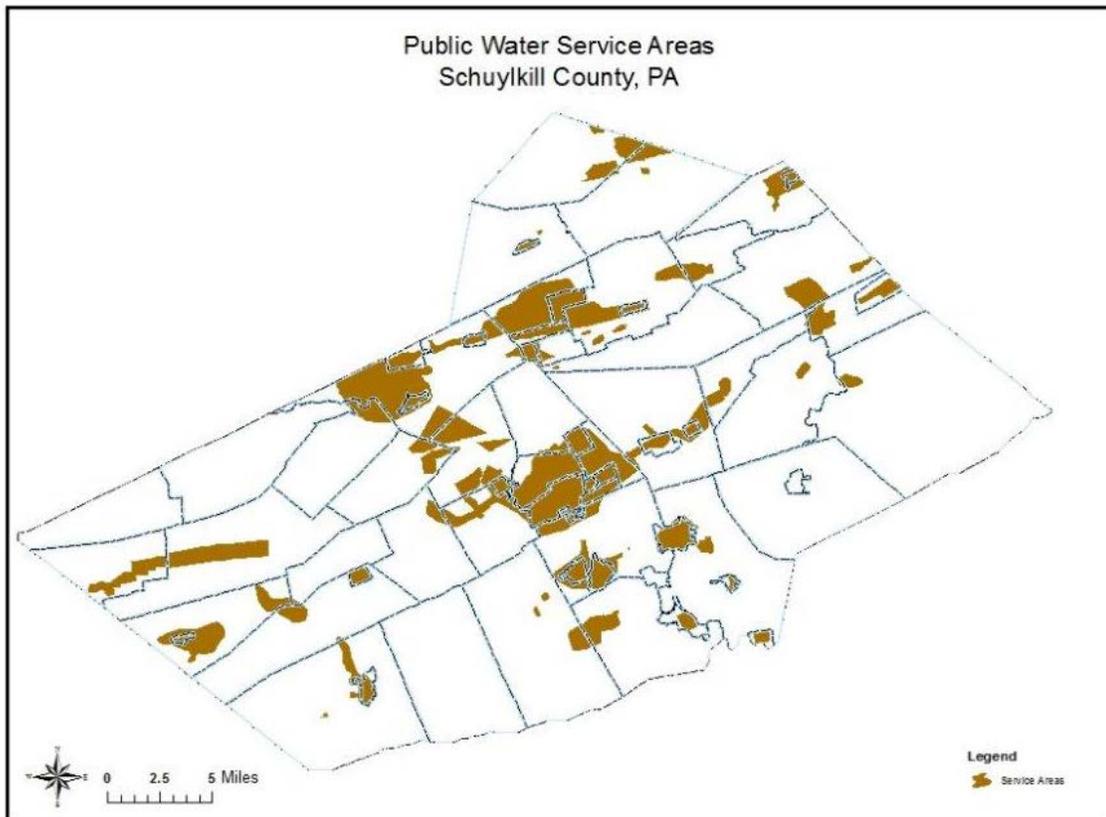
Utilizing the “Existing Land Use” data developed as part of the County’s 2006 Comprehensive Plan and GIS analysis, **a total of 29% of the land area of the County is considered agricultural**. Broad swaths of prime agricultural farmland soils exist in Schuylkill County, throughout low-lying areas, often following significant watershed and generally located near other farmable soils. The largest band of agricultural soil is in the southern part of the county and stretches from its east to west border encompassing large areas

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between Schuylkill Haven to the north, Pine Grove to the west, Auburn to the south, and from Carbon County to the east. Another large band of prime agricultural farmland soil stretches from the westernmost point of Schuylkill County in Upper Mahantongo Township east into Butler Township. There is a third large concentration of prime agricultural farmland in Union and North Union Townships in the north of Schuylkill County. The final large concentration is Ryan and Rush Townships.

Again analyzing the County’s existing land use data, **over 220,000 acres or 44% of the land area of the County is woodlands or forested.** Schuylkill County forests, as classified by the United States Department of Agricultural Forest Service, are located in an area of the state known as the Central Appalachian Broadleaf Forest-Coniferous Forest-Meadow Province. Compared to other land uses in the county, woodlands comprise the largest use. The county has over 9,000 acres of woodlands preserved in the Weiser State Forest along the Second and Blue Mountain ranges. Major woodland areas, located in the central portion of the county, stretch from the western to eastern border of the county. Other woodland areas are located north of Shenandoah Borough in Union, North Union, and East Union Townships.

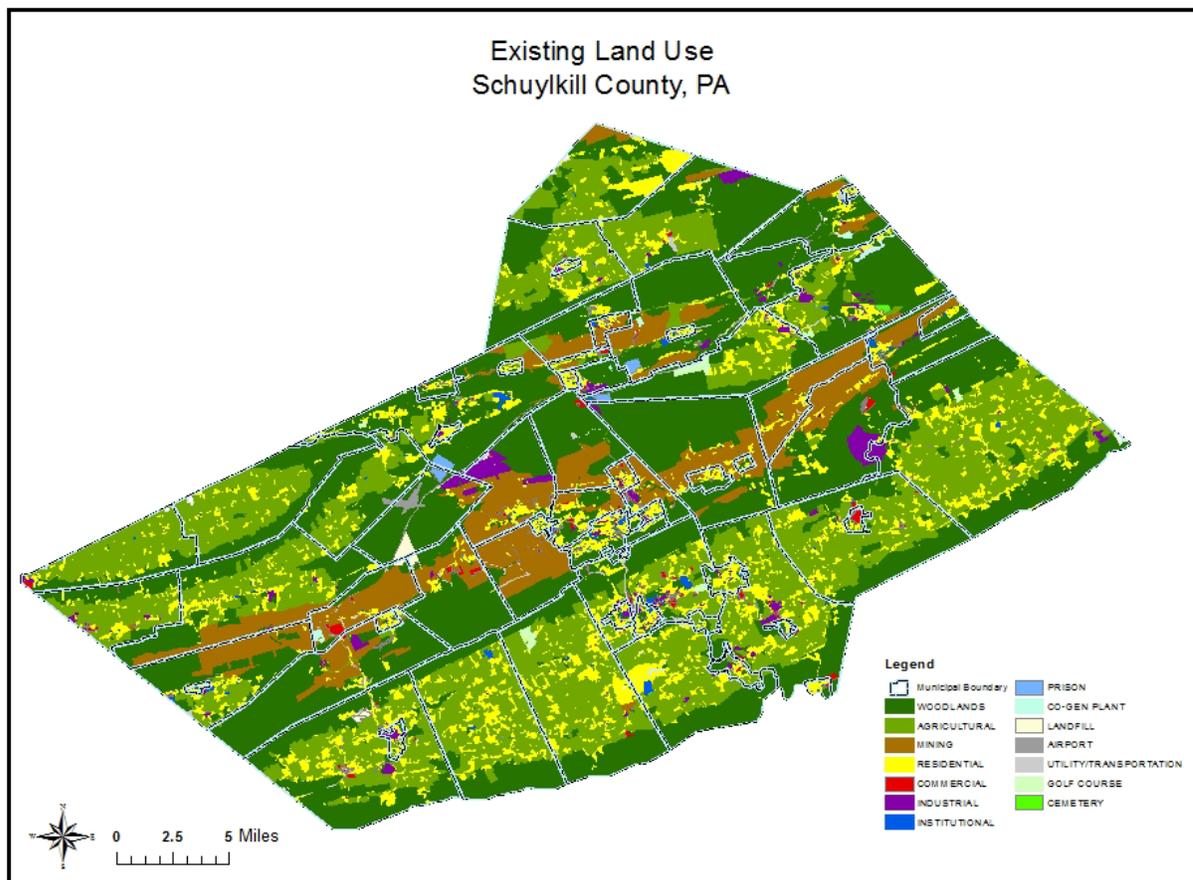
Map 4.3
Public Water Service Areas



Similarly to drought conditions, water supply deficiencies could affect the entire county. However, a Water Supply Study conducted by the County in 2002, generally concluded that based on population estimates and data gathered as part of the study that there is an ample water supply within the County. In part, the purpose of the study was to examine the characteristics and capacity of both large and small community water suppliers throughout the County. They study established that Schuylkill County

residents and businesses receive their water from three main sources: wells, reservoirs and springs. The largest of the suppliers are municipal systems (*See Map 4.3*). The 1999 average daily water usage for Schuylkill County residents and industries was approximately 32.1 MGD.⁵ The water suppliers serviced approximately 138,187 people throughout the County or 91.9% of the population. The remaining 8% is served by private wells. In terms of the water source, 56% of the population received water from a surface source, 43.81% from wells, and 0.08% from springs.

Map 4.4
Existing Land Use



Impact of the Hazard

According to the Spatial Hazard Events and Losses Database for the United States – or SHELDSUS – database hosted by the Hazards and Vulnerability Research Institute at the University of South Carolina, there were 5 drought events totaling over \$44 million in crop damage (*See Table 4.3*).

⁵ (Vitillo Corporation for Schuylkill County, 2002)



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Table 4.3
Drought Events and Crop Damage for Schuylkill County (Source: SHEL DUS)

Start Date	Length (Days)	Total Crop Damage (\$)
7/1/1988	15	2,272,727.27
7/1/1991	30	2,380,952.38
8/1/1991	30	22,727,272.73
7/1/1999	30	16,666,666.67
8/1/1995	30	0.00

Occurrences of the Hazard

As discussed above, Schuylkill County has been affected by drought emergencies. The Governor of Pennsylvania declared five Drought Emergencies in the following years: 1980, 1991, 1995, 1999, and 2002. Water restrictions were imposed and burn bans imposed.

4.3.4 Flooding

Description of the Hazard

Flooding is defined as the accumulation of water within a water body and the overflow of excess water onto adjacent floodplain lands. The floodplain is the land adjoining the channel of a river, stream, ocean, lake, or other watercourse or water body that is susceptible to flooding.

Flooding in Schuylkill County can be the result of hurricanes and tropical storms, thunderstorms and heavy rains, and rapid snowmelt.

Location and Extent of the Hazard

Schuylkill County is located in two major drainage basins, the Delaware and the Susquehanna, which are principally separated by the Broad Mountain. The Broad Mountain, as described above, separates these two drainage basins, supplying water to both. Generally, hydrologic features and water runoff in the eastern side of the county flow into the Delaware River drainage basin, while flows from the western part of the county reach the Susquehanna drainage basin. *See Map 4.6.*

The principal drainage route on the eastern side of the county consists of the West Branch of the Schuylkill River, the Schuylkill River, and the Little Schuylkill River as they flow generally in a southerly direction. The West Branch of the Schuylkill River and the Schuylkill River merge near Cressona and Schuylkill Haven. These branches merge with the Little Schuylkill River near Port Clinton, before leaving the county at its southern border with Berks County. The West Branch of the Schuylkill River forms in Cass Township to the northwest of the City of Pottsville and originates in a number of streams including Crystal Run, West Creek, Schafer Creek and Indian Run. The Schuylkill River originates west of Tamaqua and flows toward the center of the county along Route 209, merging with the West Branch of the Schuylkill River and Panther Creek north of Schuylkill Haven. Traveling southeast, the Schuylkill River intersects with Red Creek, Plum Creek, and Bear Creek, before merging with the Little Schuylkill River just

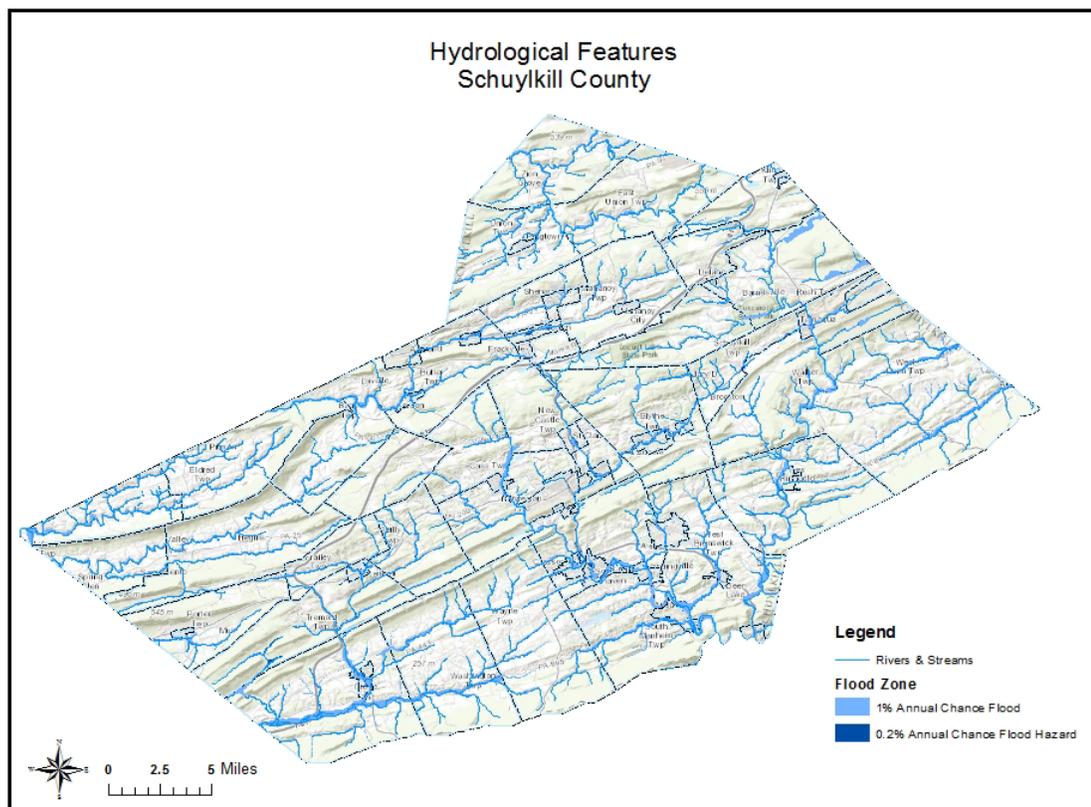
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to the northwest of Port Clinton. The Little Schuylkill River originates north of Tamaqua and is fed by Lofty and Neifert Creeks north of Tamaqua as well as Rabbit Run, Owl Creek, Stump Run, and Brushy Run along the shared borders of Walker, West Penn, and East Brunswick Townships. See Map 4.5

The principal water features of the western side of the county include Mahantongo Creek and Little Mahantongo Creek just south of the county’s northern border with Northumberland County, and Deep Creek and Pine Creek which merge just east of the county’s western border after flowing west on either side of Route 25. All of these water features flow toward the west and leave Schuylkill County along its western border with Dauphin and Northumberland counties. Farther to the south are West Branch Fishing Creek, as well as the Lower Little Swatara Creek, Black Creek, Panther Creek and the Upper Little Swatara Creek, which merge to form the Swatara Creek near the community of Pine Grove before flowing west into Lebanon County. Other less significant water features do exist throughout Schuylkill County, including the Catawissa Creek in East and North Union Townships, as well as Panther Creek near Tamaqua and Mahanoy Creek which runs between Shenandoah and Ashland.

Development in the floodplain is hazardous to life and property, not only on proposed development sites, but also in existing developed areas downstream. These areas may be subjected to unexpected changes in stream channel location or in flood heights and velocities. The 100-Year and 500-Year Floodplain areas in Schuylkill County have been identified by FEMA through the National Flood Insurance Program (NFIP) (See Map 4.5).

Map 4.5
Hydrological Features

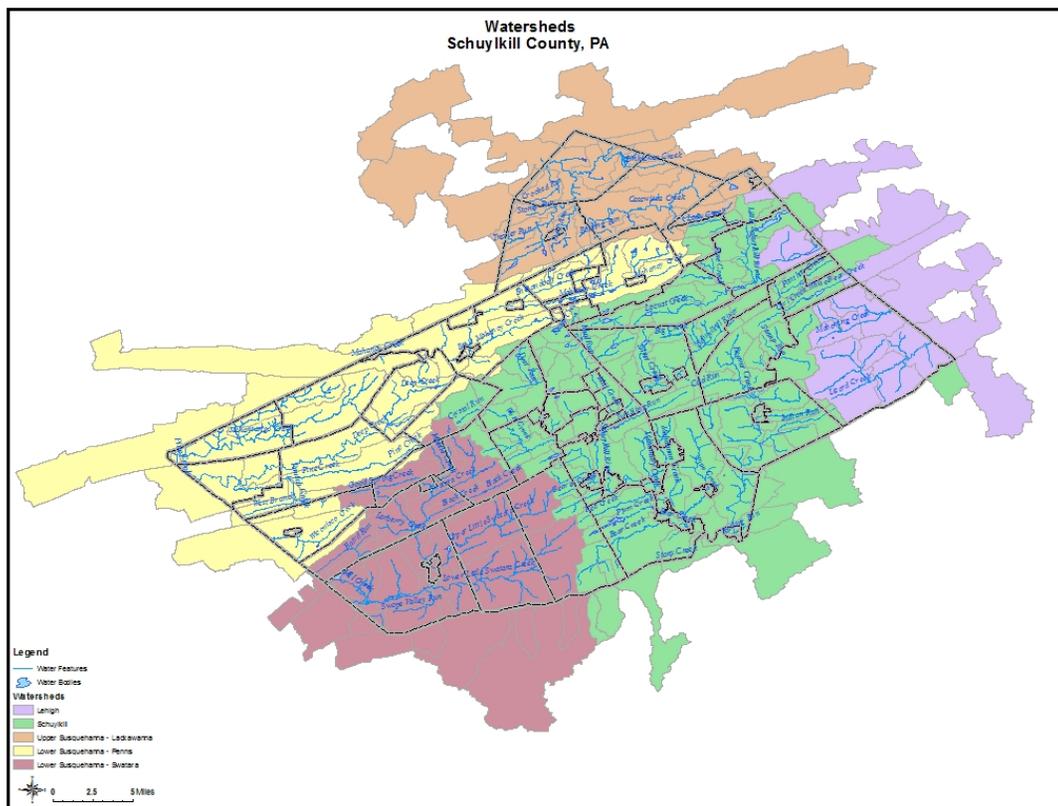


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The most extensive floodplains occur in the lowland areas where stream gradients are less, where there is generally flat land adjacent to or near streams, creeks and drainages and where the valleys are wider than in the mountains. Notable 100-Year floodplain areas include land in the southwestern part of Schuylkill County adjacent to the Upper Swatara Creek and the Lower Little Swatara Creek and their convergence near the community of Pine Grove into Swatara Creek. Small pockets of land around and within Pine Grove are located in the 500-Year floodplain.

In the northwestern part of Schuylkill County 100-Year floodplains follow the Mahantongo and Little Mahantongo Creeks, Mahanoy Creek near the community of Gordon, and Pine and Deep Creeks in the vicinity of Route 25. In the northern part of Schuylkill County, 100-Year floodplains surround the Little Catawissa Creek and the Catawissa Creek as they meander through North and East Union Townships. In the southeast, 100-Year floodplains follow Panther Creek as it runs through the town of Tamaqua and the Little Schuylkill River and some of the smaller streams (known as runs) that feed into it as it travels southwest from Tamaqua. Finally, from the center of the county running southeast, is the Schuylkill River. It is surrounded by a 100-Year floodplain for the majority of its passage through the communities of Middleport, New Philadelphia, Port Carbon, Mechanicsville, Schuylkill Haven, Auburn, and, finally, Port Clinton on Schuylkill County's southern border. There are pockets of land that are located in the 500-Year floodplain along the upper reaches of the Schuylkill River in Port Carbon, along the enlarged Schuylkill River in Schuylkill Haven and nearby Cressona, and throughout the final curves of the Schuylkill River as it reaches Port Clinton and flows south into Berks County.

Map 4.6
Watersheds





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Surface water area in Schuylkill County is not extensive. There are only a few lakes and reservoirs, including Lake Hauto in Rush Township and Sweet Arrow Lake in the southwest, near Pine Grove. However, the total area and widespread pattern of stream courses and their related floodplains are noteworthy.

Impact of the Hazard

The National Climatic Data Center database lists 39 flooding events for the period of 1995 to 2012, with property damages slightly more than \$8.2 million. Section 5 of this plan includes a much more detailed discussion of flood impacts in the County.

Occurrences of the Hazard

Major floods occurred in Schuylkill County in 1936, 1955, 1972, 1975, 1993, 1996, 2004, 2006, and 2011.

- **1936 (Heavy Snowfall and Snowmelt):** In 1936, a heavy snowfall in the winter of 1935 and 1936 coupled with an early and rapid snowmelt throughout February resulted in widespread flooding.
- **1955 (Hurricane Diane):** As a result of Hurricane Diane in 1955, the Tamaqua area was severely impacted resulting in several million dollars in damage and the loss of one life.
- **1972 (Tropical Storm Agnes):** Tropical Storm Agnes of 1972 combined with a non-tropical low to produce widespread rains of 6 to 12 inches with local amounts of 14 to 19 inches. The National Weather Service documented that flood peaks along the Schuylkill River were in excess of the 100-year recurrence frequency levels.
- **1975 (Hurricane Eloise):** In 1975, Hurricane Eloise caused severe flooding throughout the County.
- **1993 (Heavy Rain and Snowmelt):** In November 1993, areas throughout the county experienced flooding due to a combination of torrential downpours and snowmelt.
- **1996 (Heavy Snowfall and Snowmelt):** On January 16, 1996, about 1 week after the “Blizzard of 1996” dumped as much as 40 inches of snow in Pennsylvania, snow pack with water equivalents of 3 to 5.5 inches remained on the ground (*Source: National Weather Service*). Beginning on January 19, conditions favorable for flooding developed when rainfall, locally in excess of 3 inches and accompanied by temperatures as high as 62°F and winds gusting to 38 miles per hour, moved over Pennsylvania and saturated the snow pack. The intense rainfall, combined with water from the rapidly melting snow pack, resulted in the generation of large volumes of runoff that moved quickly towards rivers and streams. Small and large watersheds responded rapidly to the intense rainfall and rapid snowmelt events, and consequently, stages and discharges in streams peaked during the short time span of January 19th to January 21st.
- **2004 (Tropical Depression Ivan):** According to newspaper reports from the *Pottsville Republican and Evening Herald* and from records at the Schuylkill County Emergency Agency, Tropical Depression Ivan delivered rainfall totals in excess of 6 inches in September, 2004. Flooding was primarily contained to the Pine Grove Borough area along the Swatara Creek. The National Weather Service – Advanced Prediction Service documents a historic crest on the Swatara Creek

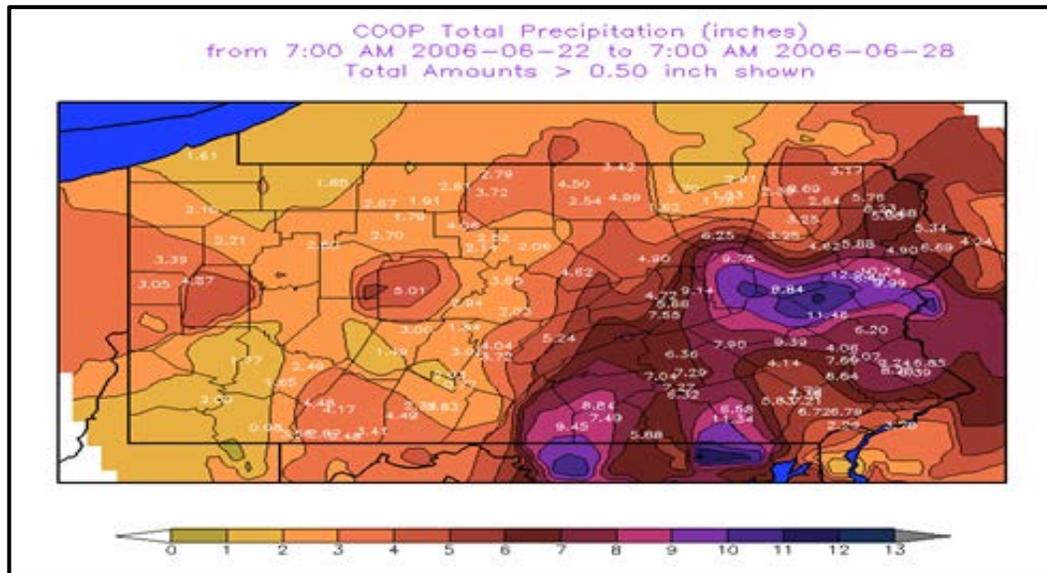
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at Harpers Tavern – south of the Borough of Pine Grove in Lebanon County – of 17.36 feet on September 19, 2004. Flood stage is 9 feet and a major flood stage is 15 feet. Pine Grove Borough evacuated 370 residents and more than 100 homes were damaged. In addition to Pine Grove, the Boroughs of Gordon, Landingville, Schuylkill Haven, Tremont, Mount Carbon and Gilberton experienced flooding to a lesser degree.

- 2006 (Heavy Rainfall)** Heavy rain associated with a stalled frontal boundary, interacting with the remnants of a weak tropical system, caused flash flooding throughout central and eastern Pennsylvania from June 27 through June 28. Some locations of the Commonwealth received up to 13 inches of rain with resultant local and ultimately widespread flooding on major streams and rivers. In Schuylkill County, 15 inches of rain fell over a span of 3 days (*See Figure 4.1*). Many municipalities experienced flooding levels not seen since Tropical Depression Agnes in 1972. Gilberton, Port Carbon and Schuylkill Haven Boroughs sustained the greatest damage to both public property and infrastructure and private property. Numerous roads and bridges were closed due to flood waters. A portion of State Route 924, approximately one mile north of Frackville collapsed and resulted in several vehicles driving into the hole. One mass care center and several reception centers were opened. There were two injuries associated with the flash flooding, but no deaths.

Figure 4.1

Total Precipitation for the period of 6/22/2006 to 6/28/2006 (Source: National Weather Service)



- 2011 (Heavy Rainfall):** Flooding occurred on March 10, 2011 largely in Pine Grove Borough and Pine Grove Township along the Swatara Creek. Heavy rainfall accumulating to 2 to 4 inches combined with snowmelt produced significant flooding. The National Weather service recorded a crest at Harpers Tavern along the Swatara Creek in Lebanon County south of Pine Grove Borough and Pine Grove Township at 14.32 on March 11, 2011. This is just shy of the major flood stage of 15 feet. There was one reported fatality as a result of this event. A 74 year old man drove onto a flooded portion of Route 645 (Geary Wolfe Road) in Pine Grove Township. The man's car was

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swept off of the roadway. Despite efforts by Pennsylvania State Police and first responders, the man had already drowned in his truck.

- 2011 (Tropical Storm Lee):** The remnants of tropical storm Lee lumbered up the Appalachian Mountains and interacted with a quasi-stationary east-west frontal boundary producing extremely heavy rainfall over central Pennsylvania and New York State. More than 15 inches of rainfall caused the Swatara Creek to swell to 24 feet. The combined impacts of the rain, focused over the Susquehanna Valley, produced catastrophic flooding⁶. The municipalities in the Swatara Creek watershed – particularly Pine Grove Borough and Pine Grove Township - and the Klingerstown area of Upper Mahantongo Township were impacted the greatest. Numerous water rescues on Interstate 81, a trailer court in Pine Grove Township, and along Pottsville Street in Pine Grove Borough were conducted. There was a report of a person forcing his way into a private home to save his wife, child and himself from rapidly rising flood waters. The aftermath of Tropical Storm Lee was particularly devastating to the greater Pine Grove community, which had experienced a series of significant flooding events since Tropical Storm Ivan in 2004. The Pine Grove Business Association’s damage survey indicated 90% of its 50 businesses were impacted with either physical damage or business disruption. Two of the borough’s major employers were permanently closes, a consequence that precipitated a 37% drop in employment.⁷ Because of the significant economic impact, the municipalities in the Upper Swatara Watershed received assistance from FEMA’s Long Term Recovery group to develop a Recovery Strategy.

Figure 4.2

Pine Grove Borough entering the Borough from the east on SR 443 over the Swatara Creek (TS Lee)



⁶ (Grumm, Richard H.)

⁷ (FEMA, PEMA, 2012)

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Figure 4.3
Pine Grove Borough/Township entering the Borough from the north on SR 125 over the Swatara Creek (TS Lee)



Figure 4.4
Pine Grove Township Runoff (TS Lee)



Figure 4.5
Pine Grove Township (SR 125 Utility Workers and Road Washout (TS Lee)



4.3.5 Hazardous Materials and Transportation Incidents

Description of the Hazard

Hazardous Materials incidents have occurred within Schuylkill County in both fixed industrial settings and during transport.

Schuylkill County has 194 facilities that have submitted Tier II reports listing a total of 614 chemicals for Reporting Year 2011 (See Table 4.5). These facilities include both SARA Planning Facilities and Reporting Facilities. Planning Facilities are those where the facility stores or uses extremely hazardous substances (EHSs) which exceed either 500 pounds or the Threshold Planning Quantity (TPQ), whichever is lower. Facilities covered by the requirements of SARA Title III must submit an emergency and hazardous chemical inventory form to the LEPC, the SERC, and the local fire department annually. The Schuylkill County Local Emergency Planning Committee (LEPC) is responsible for receiving this information at the county level. The LEPC develops off-site emergency response plans for planning facilities, provides emergency responders with information on these plans and training, and distributes chemical inventory information to the public.

In addition to the facilities located within the County, there are 3 facilities in Carbon County and 6 in Dauphin County whose vulnerability zones extend in Schuylkill County and pose a threat.



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Table 4.5
Number of SARA Facilities and Total Chemicals for Reporting Year 2011

	SARA Planning Facilities	Reporting Facilities
Total Facilities	83	111
Non-Exempt	47	101
Exempt	36	10
Total Chemicals	295	319
Non-Exempt	236	294
Exempt from Fees	59	25

The transportation network of Schuylkill County consists of two main north-south highways and an Interstate Highway that runs northeast to southwest through the county with a total of 137 miles of major motor vehicle traffic routes. According to data compiled by PennDOT, Bureau of Rail Freight there is approximately 80 miles of active freight rail systems within the county. In 2011, the Schuylkill County Emergency Management Agency conducted a Hazardous Materials Commodity Flow Study⁸. The purpose of a Commodity Flow Study is to document the transportation of hazardous materials across a transportation network. This report found that:

- 3.6% of all observed commercial vehicles were placarded
- Approximately 10% of the placarded vehicles observed appeared to be locally transported
- Class 3 – Flammable Liquids accounted for the largest volume of placarded hazardous materials (41%)
- Liquid tank carriers were the most common type of vehicle (48%)
- Utilizing a linear weighting approach, the identified hazard rank for motor transport is identified as (high to low): Flammable and Combustible Liquids, Compressed Gasses, Corrosives, Explosives, Other Regulated Materials, Oxidizers and Organic Peroxides, Flammable Solids, Poisons, and Radioactive Materials
- A total of 636 hazardous materials movements per day can be predicted by motor carriers in Schuylkill County based on the estimated worst case scenario. This represents a total of a minimum of 636,636lbs, or 318 tons of hazardous materials moving through 137 miles of major roadway each day

⁸ (Cocciardi and Associates for Schuylkill County, 2011)

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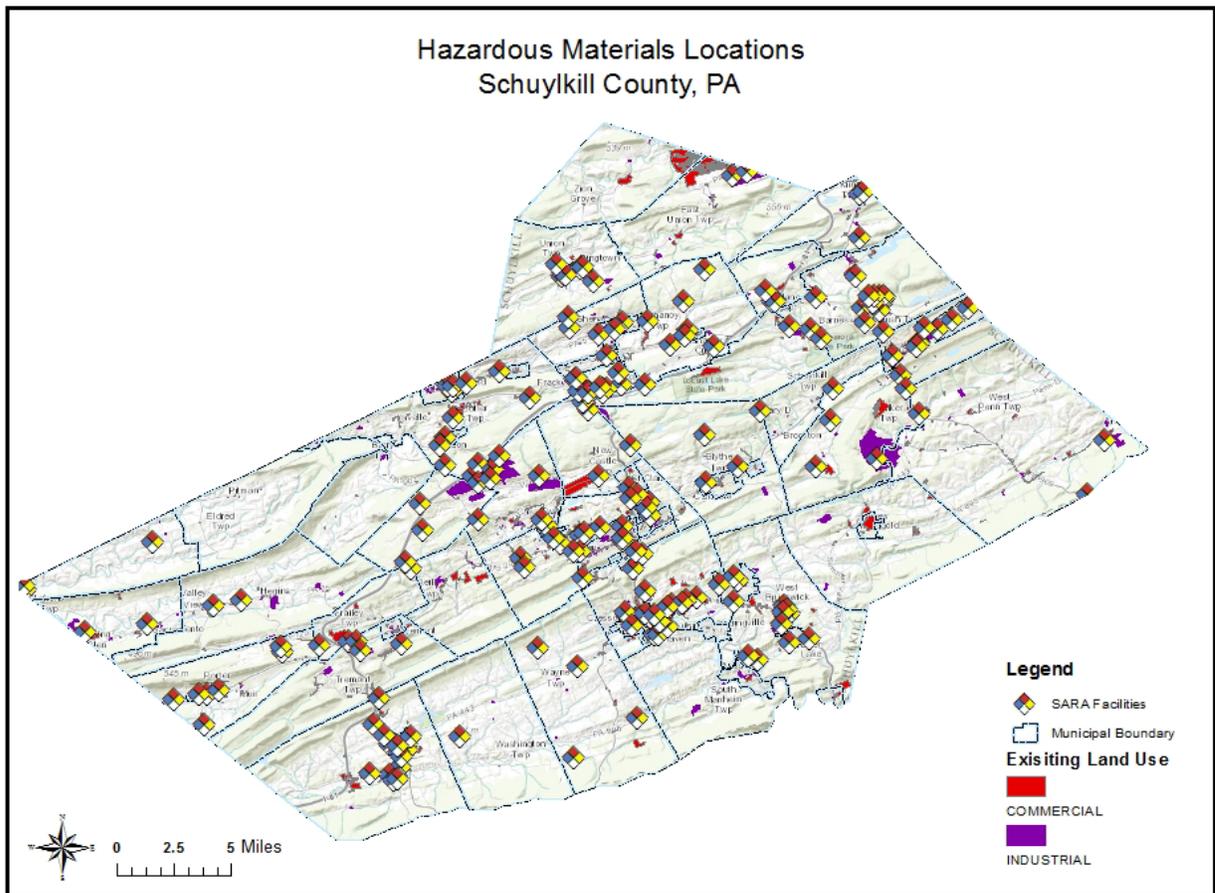
- Approximately 14 hazardous materials incidents (from motor transport units transporting HAZMAT in placardable quantities) per year can be expected

Location and Extent of the Hazard

Tier II facilities are located throughout the county (*Map 4.7*). As part of the planning process, a primary and secondary vulnerability radius around the facility is designated based on both the quantity and type of materials. The vulnerability zone represents a “level of concern” for health effects. Planners use this information to assess the possible consequences of an incident.⁹ While Tier II facilities are not located within every municipality, almost all municipalities are within either a primary and/or secondary vulnerability radius.

The largest flow of placarded hazardous materials in Schuylkill County is along the I-81 corridor¹⁰. Municipalities with any of the following major highways may also have the potential of a hazard event: US 209 and State Routes 25, 54, 61, 125, 183, 309, 325, 339, 443, 501, 645, 895, 901, 924.

Map 4.7
Hazardous Materials Locations



⁹ (FEMA)

¹⁰ (Cocciardi and Associates for Schuylkill County, 2011)



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Impact of the Hazard

There are no known deaths, injuries, or property damage from these incidents in Schuylkill County.

Occurrences of the Hazard

According to the Schuylkill County Emergency Management Agency, there have not been any occurrences of the hazard of any note.

4.3.6 Hurricanes and Windstorms

Description of the Hazard

By the time most tropical hurricanes reach Pennsylvania, they do not satisfy the definition of a tropical hurricane (75 mph winds). However, the residuals of tropical hurricanes such as riverine flooding can be extensive. Likewise, high winds can have two significant effects: widespread debris due to damaged and downed trees and power outages. Typically, the worst wind events are associated with summer thunderstorms and as a result of hurricanes.

Location and Extent of the Hazard

A hurricane can affect any area within Schuylkill County; however, due to the typical result of hurricanes in Schuylkill County – riverine flooding – the areas more likely to be effected would be those within the 100-year and 500-year floodplain. Riverine flooding and its impact have been previously discussed. *Map 4.8* illustrates the wide-scattered locations of wind events within the County (1961 to 2011). The source of this data is the National Weather Service Storm Data Wind Database.

Impact of the Hazard

SHELDUS enumerates property and crop damage for three hazard types: “Wind”, “Wind – Winter”, and “Hurricanes” for a total of in property damage and in crop damage for events

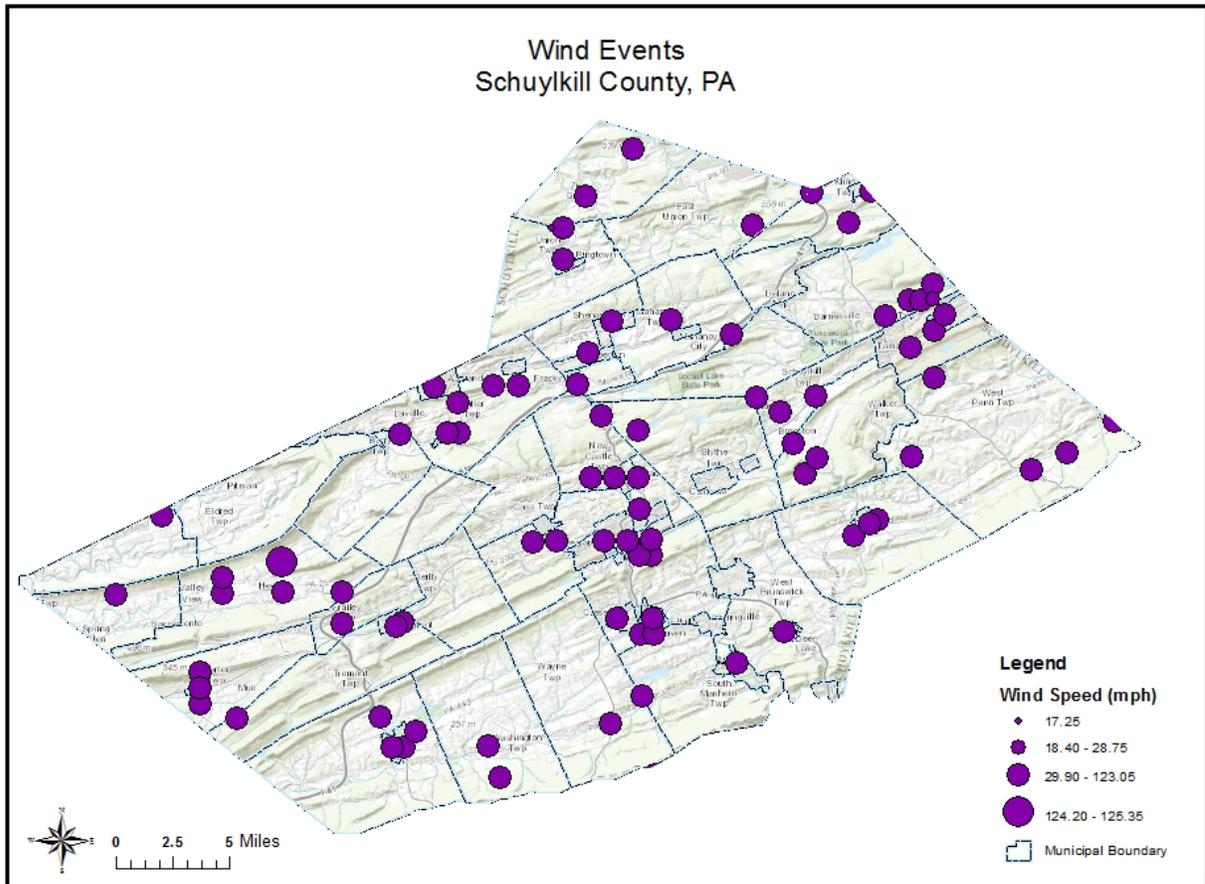
Table 4.6
Wind Property and Crop Damage for Schuylkill County (Source: SHELDUS)

Hazard Type	Number of Events	Property Damage (\$)	Crop Damage (\$)
Wind	34	391,120.28	315.92
Wind, Winter	15	51,031.16	15.52
Hurricanes	2	242,424.25	15.15
<i>Totals</i>	<i>51</i>	<i>684,575.69</i>	<i>346.59</i>

Occurrences of the Hazard

According to the National Weather Service Storm Data Wind Database, there have been a total of 152 wind events within the County from 1961 to 2011.

Map 4.8
Wind Events



4.3.7 Mine Subsidence

Description of the Hazard

Subsidence may be natural or related to mining activities. Areas underlain by coal, or other minerals may become susceptible to subsidence. When subsidence occurs in developed areas they can cause severe property damage, injury and loss of life, disruption of utilities, and damage to roadways. Mine Subsidence can be defined as movement of the ground surface as a result of readjustments of the overburden due to collapse or failure of underground mine workings. Surface subsidence features usually take the form of either sinkholes or troughs.

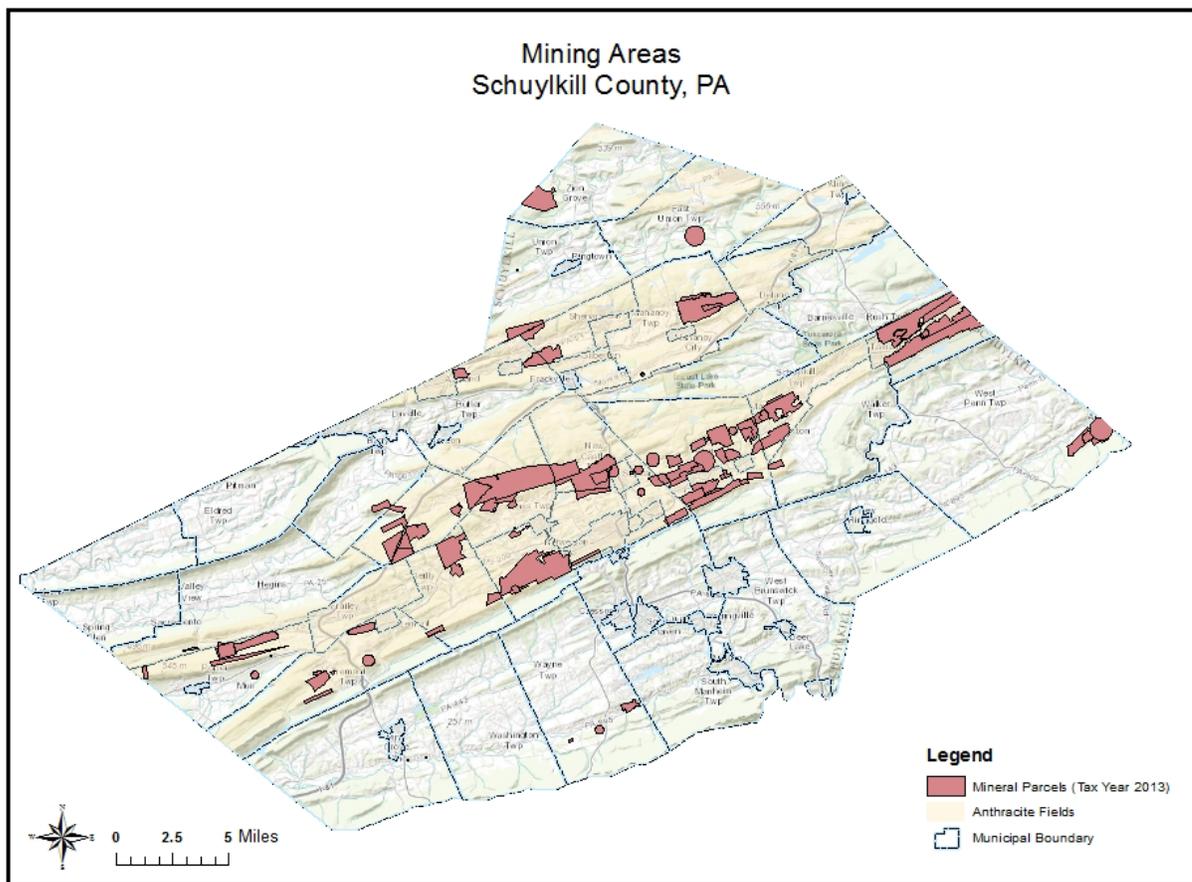
Location and Extent of the Hazard

Schuylkill County is a significant part of the coal region that is located in southeastern Pennsylvania. The hard coal, or anthracite, beds are located in several narrow bands that run northeasterly between the Blue Mountain and the Susquehanna River. The region is divided into three fields – southern, middle, and northern. The southern field was the first to be developed and its central part is known as the Pottsville District. In the fields, the coal lies in dozens of seams, or “veins,” some only a few inches thick and

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unworkable and some as much as 40 feet thick. In the county, anthracite occurs in a large number of veins, one above the other, separated by thicker or thinner beds of slate and shale. In Schuylkill County, there are two predominant bands of anthracite coal (*See Map 4.9*). The first is located in the north central part of the county and runs west to east from Butler Township to Kline Township. The other area is located in the central portion of the county and runs from the western county border with Dauphin County to Coaldale and Tamaqua at the border with Carbon County. A smaller area occurs in the northern part of the county in East Union and North Union Townships. The predominance for subsidence will be in those areas of the county located of one of the three fields described above. Map 4.9 also depicts Mineral Parcels for the Tax Year 2013. These “mineral parcels” represent mine operations which are taxed by the Schuylkill County Tax Assessment Office based on the permit issued by the PADEP.

Map 4.9
Mining Areas



Impact of the Hazard

The impact of mine subsidence could be easily illustrated and quantified for this plan update through the number of claims and total claims issued through the Mine Subsidence Insurance Program at PADEP. However, that information is not attainable by the County from PADEP due to privacy issues.

Occurrences of the Hazard

There have been past incidents of subsidence occurring throughout the County. In 1984, a serious disaster occurred in Llewellyn when a blazer (pickup truck) fell 70 feet into a mineshaft, killing five persons. The Mahanoy City area experienced difficulty during the floods of 1996 when a creek was diverted to protect the town. In January 1999 a hole opened on the Sharp Mountain in Pottsville that was twenty to twenty-five (20-25) feet wide and fifteen (15) feet deep, later doubling in size. During the flooding event of June 2006, a large subsidence occurred in Schuylkill when a fifty feet wide hole opened on State Route 924 between Frackville and Shenandoah. The depth of the hole was approximately 30 feet and continued to erode over subsequent days. Immediately following the subsidence, two (2) vehicles drove into the open hole, severely injuring the occupants and creating a substantial safety hazard for responding emergency services. During the period of repair, traffic was detoured many miles to avoid the area. There were additional instance of subsidence related to the flooding event.

Figure 4.6
Subsidence on SR 924 as a result of flooding (2006)



4.3.8 Nuclear Incidents

Description of the Hazard

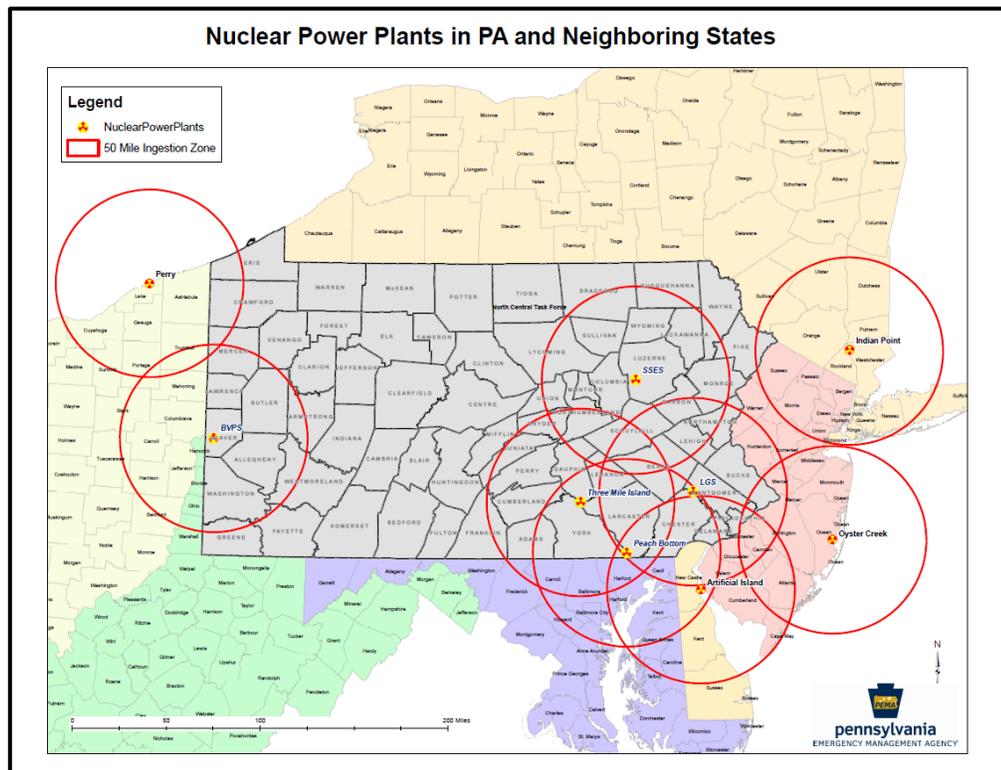
In the event of an evacuation from Luzerne and Columbia Counties because of an incident at PPL Susquehanna, LLC and/or Bell Bend or Dauphin County because of an incident at Three Mile Island, Schuylkill County would provide mass care support for the evacuees. Additionally, Schuylkill County lies wholly within the 50-mile radius ingestion exposure pathway emergency planning zone (EPZ) relative to

the PPL Susquehanna, LLC and/or Bell Bend and partially within the 50-mile radius of the Three Mile Island Nuclear Generating Station and Limerick Nuclear Generating Station. In the event of a radioactive release from one of the above mentioned sources, the deposition of radio contaminants on crops, other vegetation, bodies of surface water, and ground surfaces could occur and result in the ingestion of contaminated food products, milk and water. Affected counties have the responsibility to take protective actions in the event that a radiological incident causes contamination of human food and animal feeds. Emergency response operations within the ingestion exposure pathway EPZ involve the identification of areas in which food and/or water may have become contaminated. Once contaminated areas are identified, protective actions will be taken to minimize further contamination in those areas and to place restrictions appropriate for protecting the public health upon the use of contaminated food or water.

Location and Extent of the Hazard

Figure 4.7 depicts Schuylkill County’s relation to the 50-mile ingestion zones for PPL Susquehanna, LLC and/or Bell Bend and partially within the 50-mile radius of the Three Mile Island Nuclear Generating Station and Limerick Nuclear Generating Station. All of the municipalities would be included within at least two of the ingestion zones.

Figure 4.7
Proximity of Schuylkill County to Generating Stations and Inclusion in Ingestion Zones



Occurrences of the Hazard

While there is no history of note for this hazard, it should be mentioned that Schuylkill County participates in annual federally required and evaluated nuclear power plant exercises.

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4.3.9 Radon

Description of the Hazard

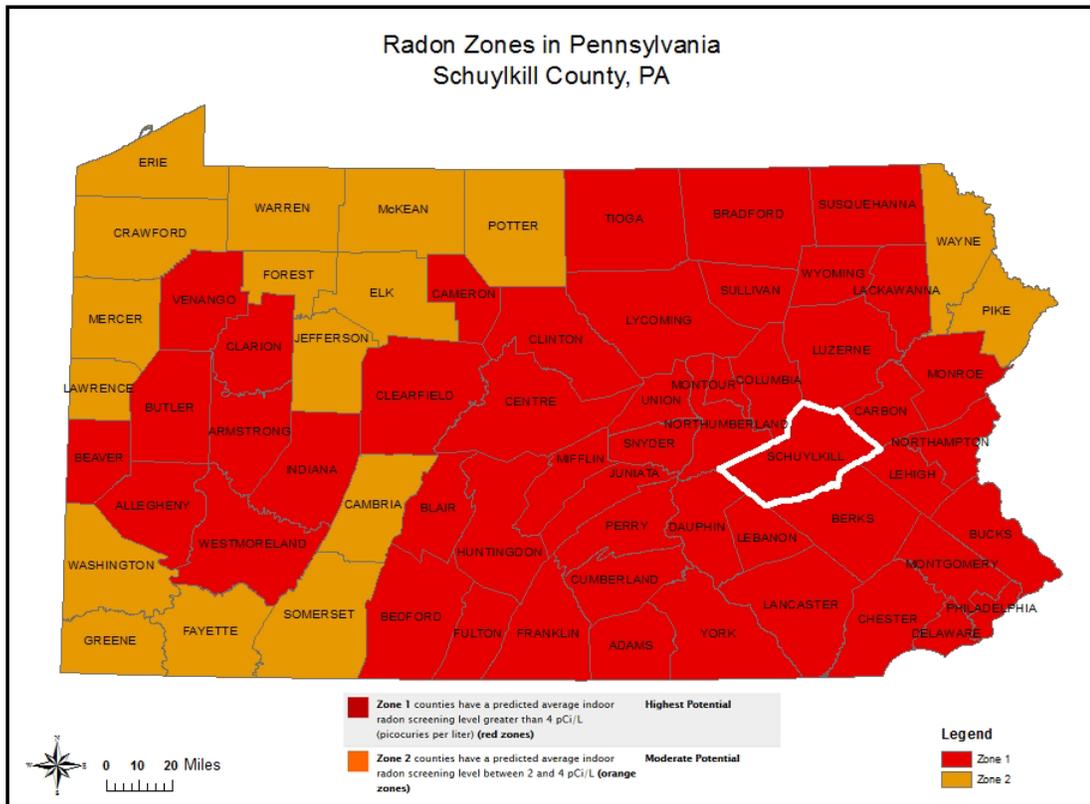
Radon is a tasteless, odorless, colorless, naturally occurring radioactive gas. It comes from the breakdown of uranium in rocks and soil. Radon enters the home through hollow block walls, cracks in the foundation floor and walls, and openings around floor drains, pipes and sump holes. After smoking, radon is the second leading cause of lung cancer, and is estimated to cause 21,000 deaths in the United States annually. An estimated 40% of Pennsylvania homes have radon levels greater than the EPA guideline of 4 picocuries per liter (pCi/L).

Location and Extent of the Hazard

Pennsylvania – including Schuylkill County - is particularly impacted by radon because the state is situated over the Reading Prong, a geologic formation of uranium-rich metamorphic rocks and fault zones that produce high radon in indoor air and ground water.

The EPA defines zones that identify the radon potential. Zone 1 counties have a predicted average indoor radon screening level greater than 4pCi/L. Zone 2 counties have a predicted average radon screen level between 2 and 4 pCi/L. Schuylkill County has been identified as a Zone 1 county (*See Map 4.10*)

Map 4.10
Radon Zones in Pennsylvania (Source: EPA)





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Occurrences of the Hazard

The PA DEP receives and publishes radon test data (by zip code) from the certified radon and testing community. The data is qualified as all short-term test methods, dates from 1/1/1990 to 12/31/2011, for the following house types: 2-story, 3-story, ranch, split-level, bi-level, cape cod, raised ranch, and contemporary. The data in Table 4.7 represents radon concentration measurements conducted under “closed house” conditions. This type of data would in general show higher results compared to measurement made over an entire year, under “normal living” conditions. DEP reports the “closed house” condition testing results because they represent the vast majority of testing conducted in Pennsylvania.

For reference, the EPA has established their action level at 4.0 pCi/L and they have estimated that the national average indoor radon concentration is 1.3 pCi/L. The average indoor concentration in Pennsylvania basements is about 7.1 pCi/L and 3.6 pCi/L on the first floor.

NOTE: In the table below, a “blank” or “-” means that there was insufficient data to report a result.

**Table 4.7
Radon Concentration Measures (PA DEP)**

Zip Code	Location	# of Test	Basement		# of Test	First Floor	
			Max Result (pCi/L)	Avg Result (pCi/L)		Max Result (pCi/L)	Avg Result (pCi/L)
17901	Pottsville	686	158.3	11.9	64	20.5	4.1
17921	Ashland	70	194.6	25.3	-	-	-
17922	Auburn	345	360.1	20.2	42	91.7	12.6
17923	Branchdale	-	-	-	-	-	-
17925	Brockton	-	-	-	-	-	-
17929	Cressona	-	-	-	-	-	-
17930	Cumbola	-	-	-	-	-	-
17931	Frackville	90	41.0	6.6	-	-	-
17933	Friedensburg	-	-	-	-	-	-
17934	Gilberton	-	-	-	-	-	-
17935	Girardville	-	-	-	-	-	-
17936	Gordon	-	-	-	-	-	-
17938	Hegins	49	84.1	17.0	-	-	-
17941	Klingerstown	-	-	-	-	-	-
17943	Lavelle	-	-	-	-	-	-
17944	Llewellyn	-	-	-	-	-	-
17945	Locustdale	-	-	-	-	-	-
17946	Lost Creek	-	-	-	-	-	-
17948	Mahanoy City	-	-	-	-	-	-
17949	Mahanoy Plane	-	-	-	-	-	-



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Zip Code	Location	# of Test	Basement		# of Test	First Floor	
			Max Result (pCi/L)	Avg Result (pCi/L)		Max Result (pCi/L)	Avg Result (pCi/L)
17951	Mar Lin	-	-	-	-	-	-
17952	Mary D	-	-	-	-	-	-
17953	Middleport	-	-	-	-	-	-
17954	Minersville	64	114.1	16.6	-	-	-
17957	Muir	-	-	-	-	-	-
17959	New Philadelphia	36	150.8	31.1	-	-	-
17960	New Ringgold	102	187.6	22.9	-	-	-
17961	Orwigsburg	450	406.5	9.5	49	24.9	4.0
17963	Pine Grove	151	138.0	14.7	-	-	-
17964	Pitman	-	-	-	-	-	-
17965	Port Carbon	-	-	-	-	-	-
17966	Ravine	-	-	-	-	-	-
17967	Ringtown	56	95.5	21.4	-	-	-
17968	Sacramento	-	-	-	-	-	-
17970	Saint Clair	-	-	-	-	-	-
17972	Schuylkill Haven	335	120.0	16.4	45	53.3	9.7
17974	Seltzer	-	-	-	-	-	-
17976	Shenandoah	-	-	-	-	-	-
17978	Spring Glen	-	-	-	-	-	-
17979	Summit Station	-	-	-	-	-	-
17980	Tower City	-	-	-	-	-	-
17981	Tremont	-	-	-	-	-	-
17982	Tuscarora	-	-	-	-	-	-
17983	Valley View	-	-	-	-	-	-
17985	Zion Grove	32	100.3	13.7	-	-	-
18202	Hazleton	343	87.4	7.8	82	23.0	2.6
18211	Andreas	49	147.0	16.9	-	-	-
18214	Barnesville	60	447.5	34.5	-	-	-
18218	Coaldale	40	32.3	5.0	-	-	-
18220	Delano	-	-	-	-	-	-
18231	Kelayres	-	-	-	-	-	-
18237	McAdoo	74	15.0	3.7	-	-	-
18240	Nesquehoning	101	32.3	5.1	-	-	-



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Zip Code	Location	# of Test	Basement		# of Test	First Floor	
			Max Result (pCi/L)	Avg Result (pCi/L)		Max Result (pCi/L)	Avg Result (pCi/L)
18241	Nuremberg	31	18.3	6.0	-	-	-
18242	Oneida	-	-	-	-	-	-
18245	Quakake	-	-	-	-	-	-
18248	Sheppton	-	-	-	-	-	-
18252	Tamaqua	297	162.9	14.6	48	35.5	4.9
19549	Port Clinton	-	-	-	-	-	-

4.3.10 Tornadoes

Description of the Hazard

Damaging winds typically are associated with tornadoes. Isolated “downburst” or “straight-line” winds associated with any common thunderstorm can also cause extensive property damage. Tornadoes are classified as a rotating column of wind that extends between a thunderstorm cloud and the earth’s surface. Tornado activity normally spans from April to July but tornadoes can occur at any time throughout the year. Strong tornadoes may be produced by thunderstorms and are often associated with the passage of hurricanes.

The high winds associated with these events are the cause of wide spread power and utility outages. According to Martha Herron, PPL Regional Affairs Director, PPL Electric Utilities performs Distribution line tree trimming annually system-wide on a five year cycle to complete all circuits north of the Blue Mountain and five years south of it. Vegetation clearing work on transmission lines is performed annually system-wide on a three year cycle to complete all of the work.

Location and Extent of the Hazard

Tornado events are not specific to any particular area within the County. Rather, a tornado could strike in any part of the County, and at any time, and could cause as much or as little damage as possible for the given magnitude event.

Impact of the Hazard

The National Climactic Data Center, Storm Events Database reports a total of 11 events from 1953 to 1996 totaling over \$2.58 million in property damage and resulting in 3 injuries.

Occurrences of the Hazard

Schuylkill County has had 14 recorded tornadoes since 1950, as reported by the Storm Prediction Center. However, the National Climatic Data Center Storm Events Database only has data on the impact of 11 recorded tornadoes in the county. According to the National Climatic Data Center Storm Events Database, a significant severe weather outbreak occurred across central Pennsylvania during the afternoon and evening hours of May 26, 2011. A total of 6 tornadoes were confirmed across



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Pennsylvania. A NWS survey team confirmed a long-track EF1 tornado via PSP helicopter in Schuylkill County.¹¹ The tornado touched down about one-half mile west of Cressona in North Manheim Township along Beaver Creek Rod. The tornado produced a sporadic path of damage spanning approximately 17 miles, lifting and touching down several times before finally dissipating about 1 mile northeast of Kepner in West Penn Township. Approximately 20 residential homes were damaged, 4 of which suffered major damage. In addition, 12 barns and outbuildings were damaged. The tornado downed more than 1000 trees, with the bulk of the damage occurring to the east of Schuylkill Haven north of Route 443 through North Manheim, West Brunswick and East Brunswick Townships. Significant tree damage was also observed in Connor and Hecla. Property damage totaled about \$250,000. There were no injuries or fatalities.

A National Weather Service storm team found evidence that a small EF1 tornado touched down just south of Brockton in Walker Township on May 23, 2011. The National Climatic Data Center reports that the tornado appeared to dissipate on the property along Kettle Rd. A large awning/roof was removed from a home. A barn was completely leveled. Across Kettle Rd, another home lost portions of its roof from the wind. Moderate damage to the house was also sustained from flying debris from the collapsed barn across the road. The downburst winds next encountered a home and several barns along Catawissa Rd over a mile to the east. Significant roofing loss was noted at two barns on the west side of Catawissa Rd, and one on the east side of the road. This marked the end of the concentrated downburst damage path. Property damage totaled about \$20,000. There were no injuries or fatalities.

In December 2006 a tornado near Halifax in Dauphin County caused widespread outages in 911 trunk lines in all area of Schuylkill west of I-81. In 1992, a funnel cloud “touched down” in the McAdoo/Kline Township areas causing an estimated \$1.2 million in damages. Washington Township (Village of Rock), suffered property loss in 1993 due to a tornado. A tornado also occurred on May 11, 1996. The storm had a path width of ¼ mile with a damage width of about one and one half (1 ½) miles. The tornado, later classified by the National Weather Service as a F1, lasted for approximately ten (10) miles. While most of the damage occurred in areas where residential homes were not, there was still damage that was inflicted upon the homes on the villages of Brockton and Mary D (Schuylkill Twp), where the tornado struck. Two mobile homes were completely demolished, siding, awnings, and tiles were ripped off roofs and in one case a roof of a three story home was completely lifted off and deposited behind a house across the street. At least one hundred fifty (150) homes were damaged and several received structural damage due to trees that suffered the tornado’s destruction.

¹¹ (National Climatic Data Center, 2013)

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Figure 4.8
Damage to Home on Seven Stars Rd, North Manheim Township (May 26, 2011)



Figure 4.9
Damage along Seven Stars Rd, North Manheim Township (May 26, 2011)



4.3.11 Wildfires

Description of the Hazard

The Northeast Regional Strategy Committee prepared a report titled “The National Cohesive Wildland Fire Strategy: Northeast Regional Risk Analysis Report (November 1, 2012)”¹² that has identified a set of feasible alternative approaches and options for addressing the Cohesive Strategy (Wildfire)Goals in the Northeast U.S. In the Risk Analysis of this report, the following is noted for the Northeast Region:

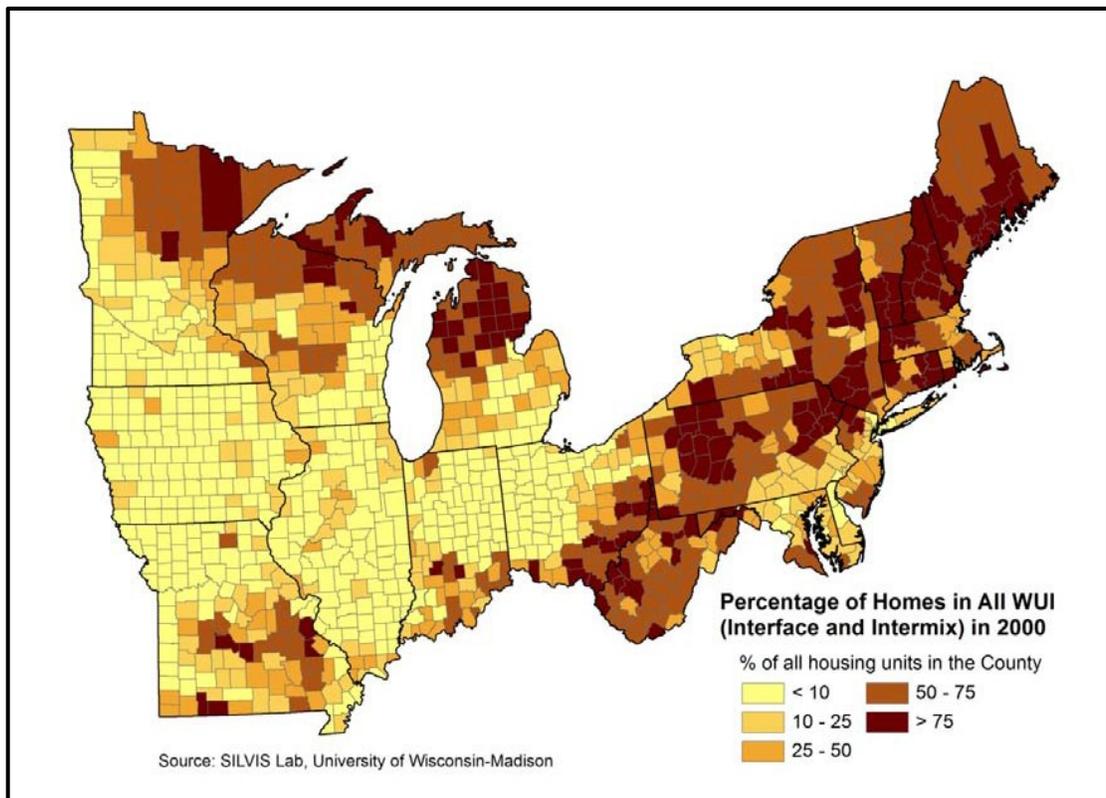
- Accidental fire and arson is the primary cause (of wildfires) in the region. According to the PA Bureau of Forestry, 98% of Pennsylvania wildfires are started by people.
- Large destructive wildfires occur infrequently as compared to other parts of the nation
- Seasonal and drought conditions often create wildfire hazards in the region
- Wildland fire management responsibilities are characterized by a patchwork of jurisdictions and ownership, and often more than one agency may be involved in the management of wildland fire

¹² (For13)

incidents

- The highest proportion of land in the Wildland Urban Interface (WUI) – where the houses meet or intermingle with undeveloped wildland vegetation – is in the east. According to the Figure 4.10, which is included in the Report, Schuylkill County has a percentage of homes in all WUI of greater than 75%.

Figure 4.10
Percentage of Homes in All WUI (Interface and Intermix) in 2000



Location and Extent of the Hazard

As discussed under the Drought hazard, **over 220,000 acres or 44% of the land area of the County is woodlands or forested.** Compared to other land uses in the county, woodlands comprise the largest use (See Map 4.4).

PA DCNR identifies and ranks municipalities' risk to wildfire. Table 4.6 identifies those municipalities within Schuylkill County with a "medium" or "high" risk for wildfire.

Impact of the Hazard

Schuylkill County does not typically experience the large scale wildfires generally associated with the western states. According to the Department of Conservation and Natural Resources, Bureau of Forestry from 2003 - 2007 there have been 201 fires in Schuylkill County which covered a total burn area of 712.03 acres. Estimated damages from these fires included:



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- Timber damages: \$63,620
- Watershed damages: \$21,225
- Recreation damages: \$5,445

DCNR has logged no reports of loss to structures due to wildfires as most fires are remote but are fueled by considerable amounts of debris.

Occurrences of the Hazard

According to the DCNR District 18 Fire Forester there have been over 750 fires in Schuylkill since 1978. There is no cost data associate with that and the number may be inaccurate due to poor reporting practices in the past.

Table 4.8
Municipalities with Medium or High Risk to Wildfire (Source PA DCNR)

Municipality	Risk	Hazard	Value	Total Points
Barry	Medium	Medium	Medium	6
Blythe	High	High	High	9
Branch	High	High	High	9
Butler	High	High	High	9
Cass	High	High	Medium	8
Delano	High	High	High	9
East Norwegian	Medium	High	Medium	7
East Union	High	High	High	9
Eldred	Medium	High	High	8
Frailey	Medium	High	High	8
Hegins	Medium	High	High	8
Hubley	Medium	Medium	High	7
Kline	High	High	High	9
Mahanoy	High	High	High	9
New Castle	High	High	Medium	8
North Union	High	High	High	9
Norwegian	Medium	High	Medium	7
Porter	Medium	Medium	High	7
Reilly	Medium	High	High	8
Rush	High	High	High	9
Schuylkill	Medium	High	High	8
Tremont	Medium	High	High	8
Union	High	High	High	9
Upper Mahantongo	Medium	Medium	High	7
West Mahanoy	High	High	High	9



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4.3.12 Winter Storms

Description of the Hazard

Winter Storms occur on the average of five times a year in Pennsylvania; every county in the Commonwealth is subject to severe winter weather. The impacts of winter storms are minimal in terms of property damage and long-term effects. The most notable impact from winter storms is the damage to power distribution networks and utilities.

Severe winter storms have the potential to inhibit normal functions of the community. Governmental costs for this type of event are a result of the needed personnel and equipment for clearing streets. Private sector losses are attributed to lost work when employees are unable to travel. Homes and businesses suffer damage when electric service is interrupted for long periods of time. Health threats can become severe when frozen precipitation makes roadways and walkways very slippery, when there are prolonged power outages, or if fuel supplies are jeopardized. Occasionally, buildings may be damaged when snow loads exceed the design capacity of their roofs or when trees fall due to excessive ice accumulation on branches. The primary impact of excessive cold is increased potential for frostbite, and potentially death as a result of over-exposure to extreme cold. Some of the secondary effects presented by extreme/excessive cold are a danger to livestock and pets, and frozen water pipes in homes and businesses.

Location and Extent of the Hazard

The potential for winter storms is uniform – with the same degree of exposure - for all of Schuylkill County.

Impact of the Hazard

Severe winter storms do not have particular impacts in any one geographical section of the county. The SHEL DUS database lists a total of 96 events spanning the period of 1971 to 2009 with a cumulative property damage of \$335,430.09. Winter Storm events may disrupt communication and power due to downed lines from high winds and icing. There is also a high potential for disruption to transportation routes.

Occurrences of the Hazard

Schuylkill County experienced major storms in 1972, 1977, 1978, 1981, 1983, 1993, 1994, 1996, 2003, 2005, 2006 and 2007. In 1993, 1994, 1996 and 2003, 2005 and 2006 Presidential Declarations of Disaster were issued. Through these federally assisted storms, millions of dollars have been recovered for local communities. Severe ice storms have also been recorded in Schuylkill County. These storms have left some areas without power and/or heat. County highways have been closed up to four days as a result of winter storms. During the past 24 years, seven emergency declarations were issued as a result of winter storms (1972, 1977 (severe winter weather coupled with a gas storage emergency), 1978, 1993, 1994, 1996 and 2003.

- **1996:** As a result of the 'Blizzard of 1996' Schuylkill County received anywhere from sixteen (16) to thirty-two (32) inches of snow. Emergency services throughout the County were unable to continue normal operations. Most road travel, including travel on major highways, was impossible due to high winds causing snow drifts. One fatality was reported in the county. The



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victim suffered a heart attack while shoveling snow. The National Guard was called upon to help transport people to hospitals either to work or for various treatments. According to Schuylkill County 911 call records, between the 8th and the 11th of January 1996, there were four (4) residential properties that suffered structural damage from collapse and two (2) unknown type structures that received damage.

- **2007:** The Valentine’s Day Storm was a complex and wide-reaching winter storm moved from the Mid-Mississippi Valley into the Tennessee Valley on Tuesday the 13th of February, and into the Mid Atlantic and New England on the 14th and 15th of February. The storm produced very heavy snow across Northcentral Pennsylvania, and a snow and sleet mix for the Central and Southern counties. Significant amounts of freezing rain also occurred Tuesday night and Wednesday morning. In Schuylkill County, this storm caused major interruptions of transportation along the Interstate 81 corridor. Severe cutbacks in available equipment, poor planning and follow-through by numerous state agencies compounded the problems of motorists, transportation companies, municipalities, and the County.

4.4 Hazard Ranking

Various national, regional and local sources were used to identify and classify different hazards for Schuylkill County. While all hazards affecting Schuylkill County are profiled in this plan, because this is a county-level hazard mitigation plan, only those hazards that are of the most concern countywide are the focus of a more detailed assessment in Section 5.

The County used the Risk Factor Approach contained within the Pennsylvania Hazard Mitigation Plan Standard Operating Guide as the basis for ranking hazards within the county. This Risk Factor approach looks at 5 categories:

- **Probability:** What is the likelihood of a hazard event occurring in a given year
- **Impact:** In terms of injuries, damage or death, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?
- **Spatial Extent:** How large of an area could be impacted by a hazard event? Are impacts localized or regional?
- **Warning Time:** Is there usually some lead time associated with the hazard event? Have warning measures been implemented?
- **Duration:** How long does the hazard event usually last?

Risk Factor values are obtained by assigning varying degrees of risk to the five categories identified above. Each degree of risk is assigned a value ranging from 1 to 4 and a weighing factor.¹³ To calculate the Risk Factor value for a given hazard, the assigned risk value for each category is multiplied by the weighing factor and the sum of all five categories equals the final Risk Value as shown in the equation below. Flooding, which causes more economic loss than Blight and Winter Storms, is ranked #3 because Blight and Winter Storms have a much larger

¹³ (Michael Baker Jr. Inc for PEMA, 2010)



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spatial extent in terms of area of land affected and a higher probability of occurrence than flooding.

Risk Factor Value = [(Probability x .30) + (Impact x .30) + (Spatial Extent x .20) + (Warning Time x .10) + (Duration x .10)]

Table 4.9 lists the hazards, risk value and final Risk Factor value (from highest to lowest risk factor). The Risk value was determined through Staff input.

**Table 4.9
 Risk Value and Final Risk Factor by Risk Factor Value**

Hazard	Probability	Impact	Spatial Extent	Warning Time	Duration	Risk Factor Value
Blight	4	3	4	1	4	3.40
Winter Storms	4	2	4	1	2	2.90
Flooding	2	3	3	3	4	2.80
Hurricanes and Windstorms	2	2	4	4	2	2.60
Nuclear	1	3	3	4	4	2.60
Droughts and Water Supply Deficiencies	2	2	4	1	4	2.50
Hazardous Materials and Transportation Incidents	2	2	3	4	2	2.40
Wildfires	2	2	3	4	2	2.40
Dam Failures	1	3	2	2	4	2.20
Mine Subsidence	1	2	3	4	2	2.10
Tornadoes	1	2	2	4	1	1.80



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Section 5 Risk Assessment

Contents of this Section

- 5.1 Requirements for the Risk Assessment
- 5.2 Flood Hazard Risk Assessment
 - 5.2.1 Past Losses
 - 5.2.2 NFIP Participation and Claim Information
 - 5.2.3 Repetitive Loss Data
- 5.3 Estimate of Potential Losses
- 5.4 Future Development

This subsection of the Plan provides estimates of future flood losses, i.e. risk. Each of the loss calculations is based on best available data, but they must be considered estimates because highly detailed engineering studies were not performed as part of this planning process.

5.1 Requirements for the Risk Assessment

Requirement §201.6(c)(2)(ii): *[The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.*

5.2 Flood Hazard Risk Assessment

The most significant natural hazard facing Schuylkill County in terms of its cumulative probability and impact is flooding. The structures most at risk are those located within a floodplain. This assessment evaluates the parcels with structures that are at least partially located in a 100-year floodplain. Based on GIS mapping, 7,850 properties with structures are at least partially located in the 100-year floodplain in Schuylkill County. Note that building footprint mapping is not available to compare to the floodplain boundary. Therefore, it is not known whether the structures are actually in the floodplain. Further discussion of this limitation is provided below. Estimated market values for these structures are approximately \$526 million (*Table 5.1*). Note again that this market value is based on the assessed value with a base year of 1996 established by the Schuylkill County Tax Assessment Bureau during the re-assessment of properties of Schuylkill County. The types of structures on the floodplain parcels include residential, commercial, agricultural and industrial.

It is important to note that the methodology used in this assessment has its limitations. Using the GIS Flood data was overlaid with the County tax parcels. Market values were then calculated for all structures located on parcels within the floodplain boundary. Vacant parcels in the floodplain had no values assigned to them. One of the limitations of the methodology is that the County GIS can currently only identify



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whether a *parcel* is in the floodplain but *not a structure*. The GIS does not contain building footprints. Therefore, while some of the structures themselves may not actually be in the floodplain, their market values are included in the calculation. Further, market values do not translate into potential losses. The methodology does not consider building contents, economic impacts or job losses. It is not known whether any of the existing structures may already be flood proofed or elevated, and therefore, would not be impacted by a 100-year flood. Better data is needed to evaluate this type of impact.

5.2.1 Past Losses

The most recent significant flooding event occurred during Tropical Storm Lee and the Flooding of June 2006. As a result of Tropical Storm Lee, PEMA and FEMA documented:

- 805 Individual Assistance registrations
- 18 Home Acquisition requests
- 4 temporary housing units occupied

This was for a total assistance of \$4,216,855 including:

- \$2,060,893 in Housing Assistance
- \$1,762,000 in US Small Business Administration Loans
- \$179,462 in Public Assistance and \$214,499 in Other Needs Assistance

The Upper Swatara Recovery Strategy¹⁴ documented the following as a result of Tropical Storm Lee:

- 120 residents were sheltered during Tropical Storm Lee
- 24 homes were condemned by Pine Grove Borough
- 90% of Pine Grove Borough's 50 businesses were impacted with physical damage or destruction
- There was total loss of 250 jobs within the Borough
- A major employer within the Borough, Guilford Mills, indicates they sustained \$35 million in loss.

As a result of the June 2006 flood, there were a 515 claims submitted for a total of \$11,583,370. Municipalities hardest hit and with over \$1 million of property damage were the boroughs of Pine Grove, Port Carbon and Schuylkill Have and the township of Pine Grove.

5.2.2 NFIP Participation and Claim Information

All 67 municipalities within Schuylkill County participate in the National Flood Insurance Program. FEMA recently updated the FIRM maps for Schuylkill County, however, as of the writing of this plan update a Final Letter with a Map Effective Data has yet to be issued.

¹⁴ (FEMA, PEMA, 2012)



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Table 5.1
Risk Value and Final Risk Factor by Risk Factor Value

Municipality	Policy Information as of 12/31/12			Loss Statistics (1978 to 2012)				
	Policies In-Force	Insurance In-Force whole \$	Premium In-Force	Total Losses	Closed Losses	Open Losses	CWOP Losses	Total Payments
Ashland Borough	14	1,810,400	13,742					
Auburn Borough	9	1,403,100	6,337	5	3	0	2	9,502.57
Barry Township	8	1,332,800	5,933		6	0	2	136,609
Blythe Township	5	268,400	2,578	3	2	0	1	10,074
Branch Township	2	175,800	1,447	4	2	0	2	5,215
Butler Township	9	1,578,400	13,410	1	0	0	1	0
Cass Township	7	1,724,400	11,362	6	5	0	1	130,183
Cressona Borough	26	2,753,100	20,444	13	10	0	3	47,398
Delano Township	1	27,500	333					
East Brunswick Township	8	1,231,000	7,632	2	2	0	0	20,357
East Norwegian Township	3	104,400	1,705					
East Union Township	5	1,138,000	2,006	2	2	0	0	20,357
Eldred Township	2	180,600	1,726					
Frackville Borough	8	742,000	6,969	7	7	0	0	47,089
Frailey Township	1	210,000	343					
Gilberton Borough	16	582,400	5,646	12	9	0	3	184,784
Girardville Borough	53	2,570,900	22,469	27	23	0	4	120,943



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Municipality	Policy Information as of 12/31/12			Loss Statistics (1978 to 2012)				
	Policies In-Force	Insurance In-Force whole \$	Premium In-Force	Total Losses	Closed Losses	Open Losses	CWOP Losses	Total Payments
Gordon Borough	36	2,670,300	25,346	21	16	0	5	204,565
Hegins Township	2	280,000	586	2	1	0	1	1,202
Hubley Township	5	751,000	4,162					
Kline Township	1	56,000	564					
Landingville Borough	7	743,600	4,498	9	5	0	4	128,051
Mahanoy City Borough	4	633,300	3,324	1	1	0	0	3,692
Mahanoy Township	2	700,000	810	1	1	0	0	1,091
McAdoo Borough	14	1,074,200	9,261	10	10	0	0	56,575
Mechanicsville Borough				3	2	0	1	1,139
Middleport Borough	11	923,100	6,870	11	8	0	3	57,959
Minersville Borough	52	6,416,900	52,944	21	13	0	8	127,379
Mount Carbon Borough				1	0	0	1	0
New Castle Township	1	280,000	343	1	1	0	0	14,296
New Philadelphia Borough	20	1,361,100	12,738	6	5	0	1	25,676
New Ringgold Borough	6	701,100	6,592	4	3	0	1	44,457
North Manheim Township	20	47,055,000	30,947	11	8	1	2	80,780
North Union Township	2	583,000	4,034	1	1	0	0	215
Orwigsburg Borough	45	6,394,600	47,626	18	14	0	4	77,002
Pine Grove Borough	157	18,076,800	161,673	217	197	1	19	8,420,731



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Municipality	Policy Information as of 12/31/12			Loss Statistics (1978 to 2012)				
	Policies In-Force	Insurance In-Force whole \$	Premium In-Force	Total Losses	Closed Losses	Open Losses	CWOP Losses	Total Payments
Pine Grove Township	54	7,285,000	47,578	50	44	1	5	4,982,341
Port Carbon Borough	113	8,971,000	81,942	82	77	0	5	1,286,358
Port Clinton Borough	21	1,985,700	15,039	12	10	0	2	288,973
Porter Township	2	378,000	571					
Pottsville, City of	7	2,110,000	7,733	4	3	0	1	489,171
Reilly Township	6	1,624,700	2,289	1	0	0	1	0
Ryan Township	3	980,000	1,211					
Schuylkill Haven Borough	104	11,326,400	97,695	79	70	0	9	2,112,995
Schuylkill Township	2	421,800	2,407	3	2	0	1	104,388
Shenandoah Borough	36	2,362,900	26,458	8	3	0	5	5,722
South Manheim Township	8	1,261,700	7,258	5	5	0	0	101,093
St. Clair Borough	122	8,367,000	72,579	35	26	0	9	196,408
Tamaqua Borough	118	13,541,400	111,668	40	29	0	11	275,039
Tower City Borough	2	315,000	841	3	2	0	1	5,128
Tremont Borough	41	3,879,600	35,144	26	19	0	7	258,967
Tremont Township	3	139,900	1,486					
Union Township	4	715,000	2,431	5	4	0	1	28,736
Upper Mahantongo Township	30	2,549,600	21,549	43	37	0	6	945,065

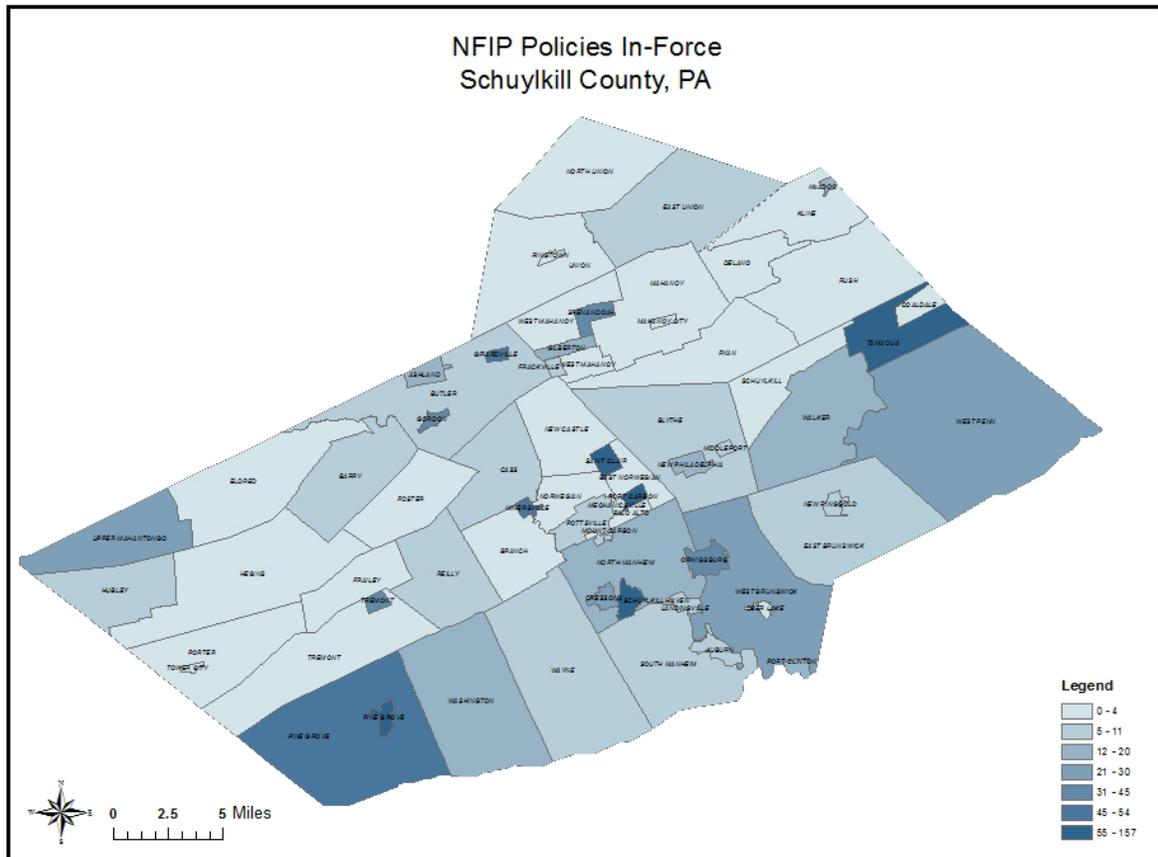


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Municipality	Policy Information as of 12/31/12				Loss Statistics (1978 to 2012)				
	Policies In-Force	Insurance In-Force whole \$	Premium In-Force	Total Losses	Closed Losses	Open Losses	CWOP Losses	Total Payments	
Walker Township	16	3,532,000	37,831	1	0	0	1	0	
Washington Township	14	1,861,700	13,428	2	2	0	0	164,302	
Wayne Township	9	1,690,800	5,493	3	3	0	0	38,223	
West Brunswick Township	27	5,485,800	26,410	10	9	0	1	68,945	
West Mahanoy Township				2	1	0	1	394	
West Penn Township	27	3,725,400	28,013	3	1	0	2	7,732	
Totals	1,335	191,406,200	1,145,420	838	705	3	138	21,338,930	

Table 5.1 shows both the Policy Information as of 12/31/12 and Loss Statistics (from 1978 to 2012) by municipality. NFIP has paid over \$21 million for 838 losses for the period of 1978 to 2012. There are a total of 1,335 policies with at total insured of \$11,406,200. Map 5.1 clearly illustrates a pattern of the demographics of the areas of the county within the floodplain – the housing stock is generally older than the average age within the county and, further, that is likely that many of these properties are not mortgaged – thus *not* requiring a Flood Insurance policy.

**Map 5.1
NFIP Policies In-Force**



5.2.3 Repetitive Loss Data

NFIP Policy claims data for repetitive flood loss properties was also used to determine recorded flood losses from past events. The NIP defines repetitive loss properties as those that have received at least two NFIP insurance payments of more than \$1,000 each in any rolling ten-year period. As of 2012, Schuylkill County had 86 such properties (Source: FEMA). Of this total, there are 70 residential and 16 non-residential properties.

Table 5.2 summarizes the NFIP claims value and number of claims statistics for both residential and non-residential repetitive loss properties. The table shows that 65% of the total payments has been associated with non-residential claims while the majority (80%) of the paid claims has been for residential properties.



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Table 5.3
Summary of Residential and Non-Residential Repetitive Loss Statistics

Property Type	Building Payment (\$)	Contents Payments (\$)	Total Payments (\$)	# of Claims	Average
Residential	2,944,321	1,627,436	4,571,757	162	28,221
Non-Residential	5,044,975	3,487,024	8,531,999	40	213,300
Total	7,989,296	5,114,460	13,103,756	202	64,870

Table 5.3 indicates that the Borough of Pine Grove has the highest number of repetitive loss properties in Schuylkill County. As of 2012, Pine Grove Borough had a total of 40 repetitive loss properties is also ranked first in total dollar value of claims and number of paid claims. The table indicates that Pine Grove Borough is followed by its neighbor – Pine Grove Township. These numbers are indicative of the recent and recurring incidents in the greater Pine Grove Area.

While only 3 properties have been affected in Schuylkill Haven Borough, the total payments are the third highest within the County. This is the result of 6 of the 8 losses being non-residential properties.

Table 5.4
Summary of Residential NFIP Repetitive Loss Statistics, Schuylkill County;
Ordered by Number of Repetitive Loss Properties (then Total Payments) in each Municipality

Municipality	# of Properties	Property Payments (\$)	Contents Payment (\$)	Total Payments (\$)	# of Claims
Pine Grove Borough	40	3,905,780	2,653,436	6,559,216	107
Pine Grove Township	9	2,627,192	2,207,826	4,835,018	21
Upper Mahantongo	5	69,957	46,125	116,082	10
Tremont Borough	4	154,591	19,390	173,980	10
Schuylkill Haven	3	814,086	147,961	962,047	8
Cass Township	2	89,750	2,404	92,154	4
Tamaqua	2	44,900	0	44,900	4
Port Carbon	2	44,131	0	44,131	4
Girardville	2	25,111	1,860	26,971	4
Orwigsburg	2	14,840	1,817	16,657	4
Landingville	1	53,268	0	53,268	2



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Municipality	# of Properties	Property Payments (\$)	Contents Payment (\$)	Total Payments (\$)	# of Claims
Wayne	1	38,223	0	38,223	3
Auburn	1	11,634	19,521	31,155	4
Ringtown	1	13,069	14,121	27,190	3
Norwegian Township	1	20,795	0	20,795	2
New Philadelphia	1	13,082	0	13,082	2
South Manheim	1	11,885	0	11,885	2
Cressona	1	11,301	0	11,301	2
Barry Township	1	10,074	0	10,074	2
McAdoo	1	8,522	0	8,522	2
Ashland	1	7,106	0	7,106	2

5.3 Estimate of Losses

5.3.1 Estimated Losses Based on HAZUS-MH Flood Hazard Model

The HAZUS-MH Flood Hazard Model was used to establish an estimate of losses within Schuylkill County. A Level 1 analysis was completed a stream drainage area of 1.0 square miles and a return period of 100 years. The entirety of Schuylkill County defines the study region.

Based on this analysis, there are an estimated 66,185 buildings in the region with a total building replacement value (excluding contents) of \$10,454 million dollars (2006 dollars). Approximately 92.59% of the buildings and 72.96% of the building value are associated with residential housing.

HAZUS estimates that about 1,606 buildings would be at least moderately damaged. This is over 49% of the total number of buildings in the scenario. There are an estimated 359 buildings that would be completely destroyed.

The total economic loss estimated in this analysis is 933.85 million dollars, which represents 20.45% of the total replacement value of the scenario buildings.

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with the inability to operate a business because of the damage sustained during the flood. The total building related losses were 927.62 million dollars. 1% of the estimated losses were related to the business interruption of the region. The residential occupancies made up 34.39% of the total loss.

The model estimates that at least 14 fire stations, 5 police stations, and 4 schools would have a loss of use based on the parameters of the analysis.



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HAZUS estimates that a total of 76,818 tons of debris would be generated. If the debris tonnage were converted to an estimated number of truckloads, 3,073 truckloads (@25 tons/truck) would be required to remove the debris.

The complete HAZUS-MH Flood Event Report can be found in Appendix G.

5.3.2 Estimated Losses Based on County Tax Assessment Data

The most significant natural hazard facing Schuylkill County in terms of its cumulative probability and impact is flooding. The structures most at risk are those located within a floodplain. This assessment evaluates the parcels with structures that are at least partially located in a 100-year floodplain. Based on GIS mapping, 8,653 properties with structures are at least partially located in the 100-year floodplain in Schuylkill County. Note that building footprint mapping is not available to compare to the floodplain boundary. Therefore, it is not known whether the structures are actually in the floodplain. Further discussion of this limitation is provided below. Estimated market values for these structures are approximately \$172 million (*Table 5.5*). Note again that this market value is based on the assessed value with a base year of 1996 established by the Schuylkill County Tax Assessment Bureau during the re-assessment of properties of Schuylkill County. The types of structures on the floodplain parcels include residential, commercial, agricultural and industrial.

It is important to note that the methodology used in this assessment has its limitations. Market values were calculated for all structures located on parcels within the floodplain boundary. Vacant parcels in the floodplain had no values assigned to them. One of the limitations of the methodology is that the County GIS can currently only identify whether a *parcel* is in the floodplain but *not a structure*. The GIS does not contain building footprints. Therefore, while some of the structures themselves may not actually be in the floodplain, their market values are included in the calculation. Further, market values do not translate into potential losses. The methodology does not consider building contents, economic impacts or job losses. It is not known whether any of the existing structures may already be flood proofed or elevated, and therefore, would not be impacted by a 100-year flood. Better data is needed to evaluate this type of impact.

Table 5.5
Fair Market Value of Parcels with Improvements by Property Type in the 100-year Floodplain

Municipality	Total # of Parcels	Residential/ Agricultural Parcel Value	Commercial Parcel Value	Industrial Parcel Value	Total
Ashland, Borough of	120	1,104,240	1,293,235	580,190	2,977,665
Auburn, Borough of	36	584,255	252,085		836,340
Barry, Township of	59	1,134,380	2,625		1,137,005
Blythe, Township of	64	689,390	288,235		977,625
Branch, Township of	42	476,010	1,362,960		1,838,970
Butler, Township of	139	2,988,295	2,886,885	706,025	6,581,205



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Municipality	Total # of Parcels	Residential/ Agricultural Parcel Value	Commercial Parcel Value	Industrial Parcel Value	Total
Cass, Township of	55	755,380	930,960		1,686,340
Coaldale, Borough of					
Deer Lake, Borough of	26	832,285	166,430		998,715
Delano, Township of	21	212,640	17,815	118,735	349,190
East Brunswick, Township of	64	1,372,515	320,515		1,693,030
East Norwegian, Township of	32	364,355	1,309,345	2,872,470	4,546,170
East Union, Township of	31	540,795	67,025		607,820
Eldred, Township of	65	1,189,860	284,225		1,474,085
Foster, Township of					
Frackville, Borough of	54	889,650	1,284,500		2,174,150
Frailey, Township of	27	150,015	107,255	1,266,010	1,523,280
Gilberton, Borough of	245	1,210,875	198,665	59,085	1,468,625
Girardville, Borough of	391	2,703,085	852,145		3,555,230
Gordon, Borough of	135	2,074,200	929,135	758,065	3,761,400
Hegins, Township of	128	2,922,155	360,965	1,538,280	4,821,400
Hubley, Township of	65	1,210,985	3,166,350	123,255	4,500,590
Kline, Township of	6	195,305	2,075	28,565	225,945
Landingville, Borough of	20	335,940	98,315		434,255
Mahanoy City, Borough of	4	14,365	56,350		70,715
Mahanoy, Township of	38	183,255	5,553,125	433,170	5,986,295
McAdoo, Borough of	151	2,061,150	433,980	18,255	2,513,385
Mechanicsville, Borough of					
Middleport, Borough of	68	858,460	278,905		1,137,365
Minersville, Borough of	173	1,861,605	1,064,030		2,925,635
Mount Carbon, Borough of	2		269,495		269,495
New Castle, Township of	1		43,275		43,275
New Philadelphia, Borough of	178	2,016,685	664,470	26,980	2,708,135
New Ringgold, Borough of	43	732,510	557,745		1,290,255



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Municipality	Total # of Parcels	Residential/ Agricultural Parcel Value	Commercial Parcel Value	Industrial Parcel Value	Total
North Manheim, Township of	187	4,759,175	14,696,155	783,495	20,238,825
North Union, Township of	82	1,982,080	318,875	66,815	2,367,770
Norwegian, Township of	9	20,965	2,007,730	1,590,480	3,619,175
Orwigsburg, Borough of	140	3,568,435	2,273,855	306,320	6,148,610
Palo Alto, Borough of	3		229,525	131,300	360,825
Pine Grove, Borough of	365	4,734,545	3,419,330	4,147,800	12,301,675
Pine Grove, Township of	348	8,394,160	2,968,830	1,606,265	12,969,255
Port Carbon, Borough of	332	4,359,545	1,732,900	2,231,370	8,323,815
Port Clinton, Borough of	98	1,970,165	217,915	42,490	2,230,570
Porter, Township of	52	1,210,080	1,835,390	714,105	3,759,575
Pottsville, City of	42	218,210	3,128,405	12,230	3,358,845
Reilly, Township of	33	266,505	123,415	2,510	392,430
Ringtown, Borough of	9	124,075	61,735		185,810
Rush, Township of	148	6,672,270	1,427,840	85,765	8,185,875
Ryan, Township of	31	654,660	97,630		752,290
Shenandoah, Borough of	528	2,626,770	10,453,605	503,300	13,583,675
Schuylkill Haven, Borough of	448	6,336,740	9,039,035	1,998,885	17,374,660
Schuylkill, Township of	3	46,545	74,110		120,655
South Manheim, Township of	122	3,705,245	156,430	86,720	3,948,395
St. Clair, Borough of	649	7,305,765	4,294,730	29,190	11,629,685
Tamaqua, Borough of	764	7,718,175	11,815,530	97,925	19,631,630
Tower City, Borough of	14	206,070			206,070
Tremont, Borough of	234	2,604,305	3,223,475	475,285	6,303,065
Tremont, Township of	33	645,420	553,655		1,199,075
Union, Township of	64	1,485,735	202,175		1,687,910
Upper Mahantongo, Township of	126	1,890,120	620,665	3,323,875	5,834,660
Walker, Township of	109	2,774,330	393,990	563,925	3,732,245
	242	6,796,070	1,170,245		7,966,315



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Municipality	Total # of Parcels	Residential/ Agricultural Parcel Value	Commercial Parcel Value	Industrial Parcel Value	Total
Wayne, Township of	221	7,174,305	4,019,340	474,955	11,668,600
West Brunswick, Township of	261	7,217,380	1,869,030	5,383,825	14,470,235
West Mahanoy, Township of	4	23,600	56,650		80,250
West Penn, Township of	469	12,433,160	2,458,840	307,950	15,199,950
Total	8653	61,221,140	90,344,055	19,688,455	171,253,650

5.4 Future Development

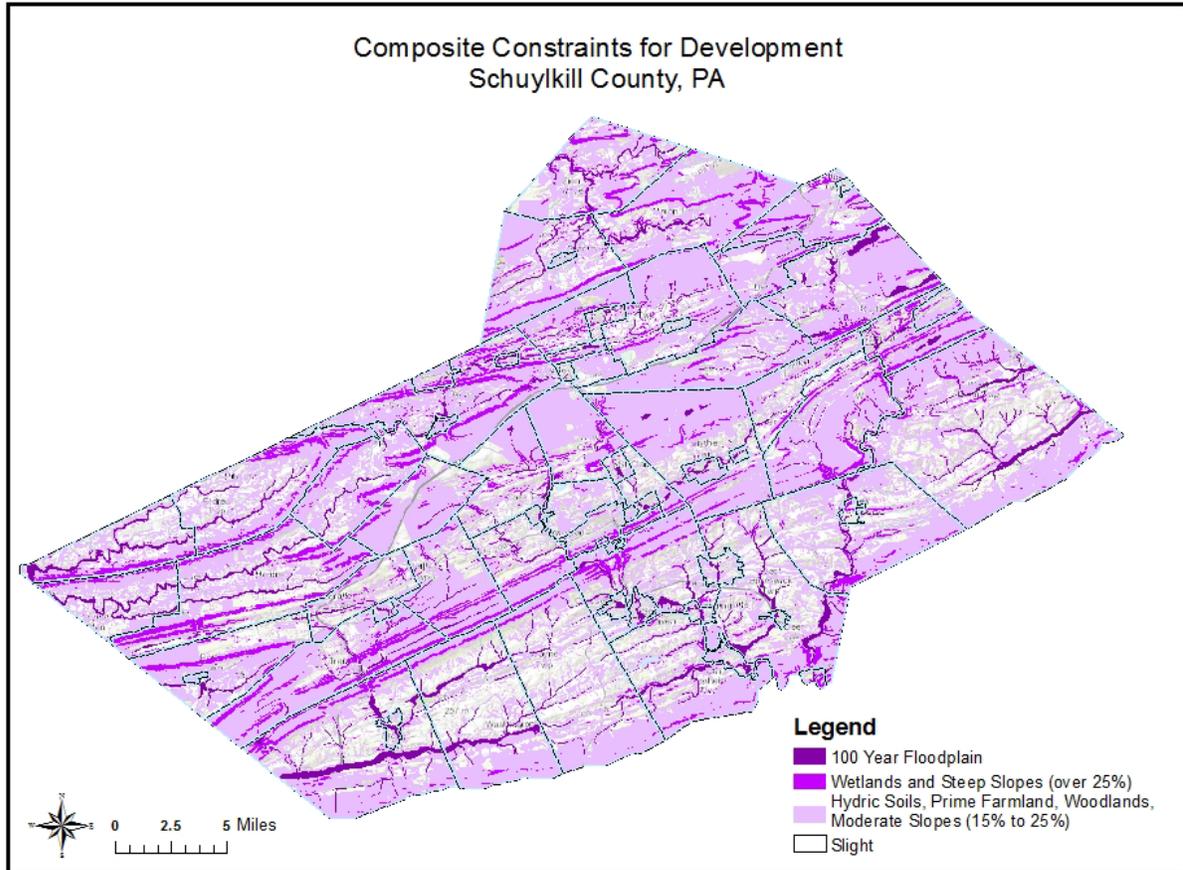
To identify areas of future development in Schuylkill County, the 2006 Comprehensive Plan was reviewed as part of the Plan Update. As part of the planning process for the Comprehensive Plan, the natural resource information was combined and synthesized to illustrate the relative level of constraints affecting various areas of Schuylkill County (*Map 5.2*). These features, including floodplains, wetlands, slopes, woodlands and hydric soils, represent environmentally sensitive natural and scenic resources as well as potential constraints for future development.

Floodplains and wetlands, and the waterways around which they often cluster, are generally precluded from development due to the flood risk and the substantial and still evolving regulatory framework that controls the degree and type of disturbance permitted in these areas. Floodplains and wetlands qualify as being very severe constraints for development.

Steeply sloped areas pose severe constraints for most development, while woodlands and hydric soils represent moderate constraints for development. The balance of the county has only slight development limitations.

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Map 5.2
Constraints on areas of Future Developments





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Section 6 Document Review and Capability Assessment

Section 6 Document Review and Capability Assessment

Contents of this Section

- 6.1 Requirements for the Capability Assessment
- 6.2 Document Review
- 6.3 Capability Assessment

In order to develop a comprehensive and implementable mitigation strategy it is important to perform a mitigation capability assessment. The capability assessment helps identify existing gaps, conflicts and/or shortcomings that may need to be addressed through future mitigation actions and helps to ensure that proposed mitigation actions are practical while considering the municipalities' capacity to implement these actions. It also examines the mitigation actions that have been completed or in-progress actions that merit continued support and enhancement through future efforts.

This mitigation capability assessment consists of two parts:

1. **Document Review** - an inventory of the County's existing planning and regulatory tools and a review and incorporation of existing plans and other technical information as appropriate;
2. **Municipal Capability Assessment** - an analysis of municipal capacity from a planning, policy, staffing, and training standpoint.

Note: Sections of this document review have been derived from the 2007 plan and updated where applicable.

6.1 Requirements for the Capability Assessment

Requirement §201.6(b): Review and incorporate, if appropriate, existing plans, studies, reports, and technical information.

6.2 Document Review

The purpose of the document review as part of this planning process is tri-fold:

- To identify existing county initiatives
- To provide an inventory and review of sample plans and ordinances and identify sections in these documents that address hazard mitigation related issues
- To provide a platform to integrate plans and other documents so that recommendations in various plans are not in contradiction with one another (e.g., objectives of the hazard mitigation plan and comprehensive plan).

The Consultants reviewed the existing County's Comprehensive Plan, Open Space and Greenway Plan,



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Transportation Improvement Inventory, Land Use Controls (Zoning and Subdivision Regulations), Stormwater Regulations, Sediment and Erosion Control Regulations, and Emergency Operations Plan and summarized their connections with hazard mitigation.

2006 Schuylkill County Comprehensive Plan

The most recent County Comprehensive Plan was developed and adopted by the County in 2006. The Plan identifies the direction for the future development of the county derived from exploring alternative development patterns. The Comprehensive Plan identifies the goals and policies and lays out an implementation strategy to achieve the goals of the Plan in the areas of open space conservation, roadway corridor planning, traffic management, historic preservation, infrastructure planning, and mine reclamation planning.

The environmental protection element identifies specific areas in the county that are environmentally sensitive, including floodplains, wetlands, aquifer recharge and wellhead areas, and includes other critical natural features and stormwater management. The Plan recommends land use regulation revisions to provide incentives for clustered residential development and conserve woodlands in order to maintain an overall low intensity of development through large portions of the county designated as open space and resource protection areas

The following objectives in the Comprehensive Plan speak directly or indirectly to hazard mitigation issues, particularly in the area of resource management:

- Ensure that development occurs in ways that minimize degradation of natural and cultural environments.
- Protect environmentally sensitive areas of the county.
- Protect groundwater, floodplains, wetlands, mature woodlands, steep slopes, prime farmland, orchards, habitats of rare and endangered species, and other environmental features.

The following recommendations are relevant to the Hazard Mitigation Plan Update:

Zoning and Land Use Techniques

- Promote residential clustering through the preparation of model zoning ordinances and their adoption by municipalities.
- Devise model zoning provisions consistent with the housing element of the Comprehensive Plan; present to each municipality.
- Promote innovative techniques to reduce housing sprawl including agricultural zoning, cluster development, and small-lot single family detached and mixed structural types constructed in growth areas.
- Promote innovative approaches to reducing housing costs, including performance subdivision regulations, streamlined approvals process and provisions for residential conversions, accessory apartments and shared housing.
- Promote rehabilitation and selective redevelopment of housing in existing communities.



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Stormwater Management

- Assist municipalities in preparing estimates of stormwater runoff.
- Assist municipalities in evaluating the capacities of stormwater facilities.
- Assist municipalities in developing stormwater management programs- coordinate the programs.
- Assist the municipalities in preparing Act 167 stormwater management plans by watershed.
- Review, have revised as necessary, and approve the stormwater management plans per Act 167.
- Work with the municipalities to conduct watershed studies to focus on potential effects of land development upon discharge rates into creeks and streams, and develop model subdivision and land development regulations to assure that developments minimize off-site stormwater runoff, increase on-site infiltration, minimize off-site discharge of pollutants, and encourage natural filtration functions.

Wetlands

- Direct development away from wetlands;
- Encourage cluster development on higher ground that surrounds wetlands;
- Purchase wetlands that are important to protecting local floodplains or ecological systems.

OPTIONS FOR INCORPORATING HAZARD MITIGATION PRINCIPLES INTO THE COMPREHENSIVE PLAN

- Consider developing a goal and a policy to discourage development in high hazard areas and environmentally sensitive areas;
- Consider developing a goal and a corresponding objective to improve community safety and reduce risk to community residents and property from natural hazards.
- While the Comprehensive plan presents a large number of goals and objectives, and recommendations that are robust, it must be ensured they are implemented and adhered to on a continuous basis through an annual report card.

2006 Schuylkill County Open Space and Greenway Plan

The need for an Open Space and Greenway Study was identified in order to promote the importance of the County's open spaces, ensure a high quality of life for residents, and protect natural resources within the county and to address the concern of gradual encroachment of these spaces as land continues to be developed. One of the Plan's goals is to protect environmentally sensitive areas of the county by protecting groundwater, floodplains, wetlands, mature woodlands, steep slopes, prime farmland, orchards, habitats of rare and endangered species, and other environmental features. The plan also calls for the protection of culturally significant areas of the county by preserving historic resources.

General recommendations and policies from the Plan that are relevant to hazard mitigation include the following:



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- Prepare and promote the adoption of model ordinances and design guidelines for the retention of stormwater from new development and for temporary and permanent sedimentation and erosion control.
- Initiate watershed studies with the participation of relevant municipalities.
- Encourage cluster development to create open space buffers to manage the impact of adjacent uses and can focus development in a defined area.
- Provide incentives in the form of density bonuses to encourage landowners to develop compact arrangements of dwelling units, rather than widely spread development to reduce the potential land area disturbed in development.
- Subject areas with flood prone soils to all of the development restrictions of the land within the 100-year floodplain.
- Provide long-term wetlands protection by directing development away from these areas, by encouraging clustered construction on higher ground surrounding wetlands, and by purchasing wetlands important to protecting local floodplains or ecological systems.
- Develop a policy toward environmentally sensitive areas to discourage development wherever possible to prevent destruction of important resources or to protect residents of the county.

**OPTIONS FOR INCORPORATING HAZARD MITIGATION PRINCIPLES INTO THE
OPEN SPACE, GREENWAY, AND OUTDOOR RECREATION PLAN**

- Ensure the above recommendations are implemented and adhered to on a continuous basis.

Land Use Controls

Preventative measures are important for local communities as they are a cost-effective means of reducing the probability of future losses to residents. Plans and ordinances that assist with minimizing impacts of hazards on Schuylkill County's residents through preventative measures include zoning and subdivision ordinances, floodplain management regulations, stormwater management plans, and the comprehensive plan.

The County's 67 municipalities include 36 townships, 30 boroughs, and 1 city. Over half of the municipalities do not have their own zoning or subdivision and land development ordinances. These municipalities rely on the County to administer activities related to zoning, subdivision of land and approval of land development. Currently the County administers the subdivision and land development ordinance for 33 municipalities and administers a zoning ordinance for 32 municipalities (*Table 5.1*). The remainder of the municipalities maintains independent zoning and subdivision regulations.

Zoning Ordinance

A zoning ordinance is an important tool that regulates how land should be developed. A zoning ordinance typically includes: 1) use of land and structures and the height and bulk of structures; 2) density of population and intensity of land and structural use; and 3) provision for yards and



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setbacks. Development is regulated by dividing the community into zones or districts and setting specific development parameters for each of these districts.

The County's Zoning Ordinance was updated in December 2010. 34 of the 67 municipalities in the County have their own Zoning Ordinances. The remaining 33 are governed by the County's Zoning Ordinance

**OPTIONS FOR INCORPORATING HAZARD MITIGATION PRINCIPLES INTO
MUNICIPAL ZONING ORDINANCES**

- Restrict development on very steeply sloped lands that would require very steep roads and driveways, in order to improve emergency vehicle access during snowy and icy conditions.

Subdivision Regulations

The Schuylkill County Subdivision and Land Development Ordinance was adopted in February 2009. Of the County's 67 municipalities 34 municipalities have their own Subdivision and Land Development Ordinances. The remaining 33 municipalities use the County's Subdivision and Land Development Ordinance.

The following design standards and specifications pertain to hazard mitigation:

- Stormwater management facilities are required be designed to provide a minimum one foot of freeboard above the maximum 100-year water surface elevation for post-development.
- Post-development peak flows cannot exceed pre-development peak flows for 2, 10, 25, and 50-year return period design storms. Post development volume cannot exceed the pre-development volume for the 2 year 24 hour design storm.
- Open channels must be able to convey post-development runoff from a 10-year design storm within their banks with a minimum half-foot freeboard and not create a hazard to any persons or property.
- Freeboard, the difference between the design flow elevations in the emergency spillway and the top of the settled detention basin embankment must be one and one half feet at a minimum.
- Fills, when placed adjacent to natural watercourses or constructed channels must have suitable protection against erosion during periods of flooding.
- All drainage structures, culverts, boxes, grates, etc., must conform to the current specifications of the Pennsylvania Department of Transportation.
- All erosion and sediment control structures and other devices shall conform to the requirements of the Department of Environmental Protection Erosion and Sediment Control Manual in its latest edition.



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Table 6.1
Municipal Subdivision and Zoning Regulations as Governed by the County or Maintained by the Municipality

Municipality	Governed by County Code		Maintains Independent Code	
	Subdivision	Zoning	Subdivision	Zoning
Ashland, Borough of	■	■		
Auburn, Borough of	■	■		
Barry, Township of	■	■		
Blythe, Township of			■	■
Branch, Township of			■	■
Butler, Township of			■	■
Cass, Township of			■	■
Coaldale, Borough of			■	■
Deer Lake, Borough of	■			■
Delano, Township of		■	■	
East Brunswick, Township of			■	■
East Norwegian, Township of	■	■		
East Union, Township of			■	■
Eldred, Township of	■	■		
Foster, Township of			■	■
Frackville, Borough of	■	■		
Frailey, Township of	■	■		
Gilberton, Borough of	■	■		
Girardville, Borough of	■	■		
Gordon, Borough of	■	■		
Hegins, Township of			■	■
Hubley, Township of			■	■
Kline, Township of			■	■
Landingville, Borough of	■	■		
Mahanoy City, Borough of	■	■		
McAdoo, Borough of	■			■
Mechanicsville, Borough of	■	■		
Middleport, Borough of	■	■		
Minersville, Borough of	■	■		
Mount Carbon, Borough of	■	■		
New Castle, Township of			■	■
New Philadelphia, Borough of	■	■		
New Ringgold, Borough of	■	■		



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Municipality	Governed by County Code		Maintains Independent Code	
	Subdivision	Zoning	Subdivision	Zoning
North Manheim, Township of			■	■
North Union, Township of	■	■		
Norwegian, Township of			■	■
Pine Grove, Borough of	■	■		
Pine Grove, Township of			■	■
Port Carbon, Borough of	■			■
Port Clinton, Borough of	■	■		
Porter, Township of	■	■		
Pottsville, City of			■	■
Reilly, Township of	■	■		
Ringtown, Borough of			■	■
Rush, Township of			■	■
Ryan, Township of			■	■
Shenandoah, Borough of			■	■
Schuylkill Haven, Borough of			■	■
Schuylkill, Township of			■	■
South Manheim, Township of			■	■
St. Clair, Borough of			■	■
Tamaqua, Borough of			■	■
Tower City, Borough of	■	■		
Tremont, Borough of	■	■		
Tremont, Township of		■	■	
Union, Township of	■	■		
Upper Mahantongo, Township of	■	■		
Walker, Township of			■	■
Washington, Township of	■	■		
Wayne, Township of			■	■
West Brunswick, Township of			■	■
West Mahanoy, Township of			■	■
West Penn, Township of			■	■



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OPTIONS FOR INCORPORATING HAZARD MITIGATION PRINCIPLES INTO SUBDIVISION REGULATIONS

- Work with the municipalities to ensure that their individual SALDO regulations and/or Stormwater Ordinances are robust and are closely aligned with the recommendations of the Hazard Mitigation Plan.
- Encourage the County to review amendments to municipal zoning and subdivision ordinances against the County's Hazard Mitigation Plan.
- Encourage the County to conduct an Act 247 review on a new subdivision plans submitted by municipalities with their own SALDOs, as well as against the County's Hazard Mitigation Plan.

Building Codes

A Building Code sets construction standards for the minimum acceptable level of safety for buildings in a community. This code is also important in mitigating the impact of non-flood hazards on new buildings. Hazard protection standards for all new and improved or repaired buildings can be incorporated into the local building code. These standards typically include criteria to ensure that the foundation will withstand flood forces and that all portions of the building subject to damage are above or otherwise protected from flooding.

The Uniform Construction Code (UCC) sets uniform standards for construction of new residential and commercial structures and certain renovations to existing buildings and became fully effective in 2004. The UCC also contains minimum construction standards for wind loads and snow loads to ensure the strength of structures and the ability to withstand storms. The installation and anchoring of manufactured homes are required to meet specific UCC criteria as well. The main purpose of the Act is to provide for the protection of life, health, property and the environment and for the safety and welfare of the consumer, general public and the owners and occupants of buildings and structures.

The UCC is enforced locally in 65 municipalities. The effective date of the Code used in all municipalities was between April and July 2004 (with or without amendments). The Commonwealth Department of Labor and Industry enforces the UCC on behalf of the remaining 2 municipalities (Wayne Township and Mount Carbon Borough). Local municipalities are not allowed to modify or add to the Statewide UCC.

OPTIONS FOR INCORPORATING HAZARD MITIGATION PRINCIPLES INTO THE BUILDING CODE

- The UCC is not a retroactive code, and does not include older buildings. Only pre-existing structures are subject to the codes that exist at the time of construction. Therefore, when there are major additions to structures, they must be brought up to the current code's standards.
- Explore requirements for older buildings that are more vulnerable to damage from natural hazards to be brought up to the current code's standards.
- To make sure that existing buildings are properly maintained to reduce their vulnerability to hazards and to protect their occupants, municipalities should consider adopting and enforcing part or all of the International Property Maintenance Code. Among other provisions, the Property Maintenance Code requires the installation of working smoke detectors and requires proper repair of building walls, windows, roofs and porches.



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Floodplain Development Regulations

The preliminary Digital Flood Insurance Rate Maps (DFIRMs) for Schuylkill County were released in July 2011 and August 2012. The DFIRMS include cross sections (with flood elevations) and the 100-year floodplain boundaries, (as well as floodway limits, if applicable). The final effective DFIRM date is projected to be January 2014.

Floodplain development regulations protect building and infrastructure from damage and prevent development in areas that will increase the flood risk to surrounding buildings or cause other problems.

Floodplain regulations in Pennsylvania are governed by the Floodplain Management Act, which requires local municipalities to adopt minimum standards to maintain resident eligibility for Federal flood insurance.

All 67 municipalities are participants in the National Floodplain Insurance Program and regulate building within the Floodplain with a Floodplain Management Ordinance. All floodplain regulation is handled at the municipal rather than at the county level. Every municipality has its own floodplain regulation that is a part of a zoning ordinance or a separate ordinance. Almost all municipalities use the State model ordinance, which includes the minimum regulations necessary to comply with FEMA and State regulations. The State regulations are mainly concerned about hazardous materials storage within flood prone areas.

Of the 67 municipalities, only two (Coaldale Borough and Mahanoy Township) do not have 100-year floodplains. All the other 65 municipalities have areas that lie within the 100-year floodplain. A total of 35 out of the 67 municipalities have base flood elevations and 26 municipalities have floodways. A total of 19 municipalities have AE zones without floodways. No municipalities have AO, AH, or V zones. A detailed breakdown of the municipalities can be found in the Ordinance Level Worksheet completed by the Region III RiskMAP PTS contractor at:

https://www.rampp-team.com/documents/pennsylvania/olw/olw_schuylkill_pa.pdf

The Community Rating System

The goal of the Community Rating System (CRS) program is to provide incentives for communities to go beyond the minimum floodplain management requirements in order to develop extra measures to provide protection from flooding. The incentives are in the form of premium discounts. The CRS is administered by FEMA's National Flood Insurance Program (NFIP). Under the CRS, flood insurance premiums for properties in participating communities are reduced to reflect the flood protection activities that are being implemented. A community receives a CRS classification based upon the credit points it receives for its activities. It can take on a wide range of activities that reduce flood losses.

There are ten CRS classes. A community that does not apply for the CRS or that does not obtain the minimum number of credit points is a class 10 community. For CRS participating communities, flood insurance premium rates are discounted in increments of 5 percent; i.e., a Class 1 community would receive a 45 percent premium discount, while a Class 9 community would receive a 5 percent discount (a Class 10 is not participating in the CRS and receives no discount).



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Communities earn credit points based on 18 creditable activities that are organized under the following four categories:

- Public information (advising residents about flood hazard, flood insurance, and ways to reduce flood damage)
- Mapping and regulations (provide increased protection to new development including preserving open space, enforcing higher regulatory standards, and managing stormwater)
- Flood damage reduction activities (for areas in which existing development is at risk and include activities such as, credit also given provided for a comprehensive floodplain management plan, relocating or retrofitting flood prone structures, and maintaining drainage systems)
- Flood preparedness (flood warning, levee safety, and dam safety programs)

As of October 1, 2011, there were over a thousand communities in the United States in the CRS (class 9 and below). The Commonwealth of Pennsylvania had 29 CRS communities that included boroughs, townships, and cities. To date are no municipalities in Schuylkill County participating in the CRS program.

OPTIONS FOR INCORPORATING CRS INTO A LOCAL FLOODPLAIN MANAGEMENT PROGRAM

- The County should identify one or two municipalities and assist them in joining the CRS program.
- The County should identify the municipalities with the largest number of flood-prone buildings, and assist them in achieving some of the CRS standards. This could result in lower flood insurance premiums, as well as managing flood risks.

Stormwater Management

Stormwater management regulations address the run-off of stormwater from new developments onto other properties and into floodplains. Development outside a floodplain can contribute significantly to flooding problems; when land is developed, the natural ground cover is replaced and runoff is increased. Thus, in order to prevent stormwater from flooding roads and buildings, storm sewers and ditches are constructed to transport the water effectively.

Stormwater management regulations require developers to build retention or detention basins to minimize the increases in the run-off rate caused by impervious surfaces and new drainage systems. The goal is to ensure minimal increases in the rate of stormwater discharge after development, in comparison to the site's conditions prior to development.

The Stormwater Management Act - Act 167 was passed in 1978. Act 167 requires counties to prepare stormwater management plans by watershed. State funding for Act 167 Stormwater Plan preparation has been greatly reduced, but hopefully will be re-funded in the future. The Act 167 plan serves to maintain existing peak runoff rates throughout a watershed as land development continues to take place. This process does not solve existing flooding problems although it may prevent these problems from getting worse. A key objective of each plan is to coordinate the stormwater management decisions of the watershed municipalities. Implementation of each plan is through mandatory municipal adoption of ordinance provisions consistent with the plan.



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Most stormwater regulations are in place at the municipal level, and most erosion and sedimentation regulations are in place at the State level. A total of 13 Act 167 study areas have been designated within Schuylkill County. Act 167 plans have been completed for the following watersheds: Mahoning Creek, Lizard Creek, Nesquehoning Creek, and Mauch Chunk Creek in the eastern section of the county and the Wiconisco Creek watershed in the western section of the county.

**OPTIONS FOR INCORPORATING HAZARD MITIGATION PRINCIPLES INTO
STORMWATER MANAGEMENT REGULATIONS**

- Complete plans for the remaining eight watersheds in the County.
- Provide for proper long-term operation and maintenance of stormwater management facilities within the land development and subdivision ordinances.
- Work closely with municipalities to address these issues in the development approval process to assure that stormwater facilities are maintained over the long-term.
- Continue to coordinate the stormwater management decisions of the municipalities that are participants in the stormwater watershed plans.
- Distribute copies of the State DEP Model Stormwater Regulations, and encourage municipalities to adopt it, if they do not already have modern stormwater regulations in place.

2000 Schuylkill County Water Supply Study

The Schuylkill County Planning Commission developed a Water Supply Study in 2002. The study identified community and central water systems and existing service areas, water source, source yield, treated storage and usage. The study identified all public water supply systems in the county and developed goals and objectives for water suppliers. Recommendations included replacing old water mains, and improving their operational structure in order to become more efficient and consolidation of smaller systems. The study also identified activities that have the potential to degrade or contaminate the water system.

OPTIONS FOR INCORPORATING HAZARD MITIGATION PRINCIPLES INTO THE WATER SUPPLY STUDY

- Encourage municipalities to enact zoning regulations that will help to protect public water supplies, such as: 1) requiring minimum setbacks for buildings, paving and storage from river and creek banks, and 2) minimizing new business development that involves use and storage of hazardous substances in locations near public water wells and reservoirs.
- Train local fire departments and equip them to quickly respond to hazardous material spills in order to protect water supplies.
- Post signs to identify public water supplies along major roads, and to encourage persons to quickly report any spill by calling 911.

Erosion and Sediment Control

Erosion and sedimentation is regulated comprehensively by the State. The municipality's primary role is



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to make sure that Erosion and Sediment Control Plans are submitted by developers to the County Conservation District, which oversees most of its administration.

Capital Improvements Program

The Capital Improvements Program helps: 1) distribute the costs of projects realistically over a number of years; 2) recognize the scarcity of the local financial resources and the increased competition for the tax dollar; and 3) maximize the various financial resources available to the individual municipalities. Several municipalities do not have a capital improvements program.

OPTIONS FOR INCORPORATING HAZARD MITIGATION PRINCIPLES INTO A CAPITAL IMPROVEMENTS PROGRAM

- Consider developing a Capital Improvements Program to provide a logical and orderly sequence for undertaking the recommendations and providing a schedule for actions recommended in the various Plans.
- The CIP could include improvements related to: bridges and municipal/government buildings, public utilities, community facilities, economic development, public works, and hazard mitigation.

Mutual Aid Agreements

All 67 municipalities within Schuylkill County have signed a Mutual Aid Agreement. Schuylkill County has a Mutual Aid Agreement in place with the Taskforce Counties as well as all adjacent counties that are not part of the East Central Pennsylvania Taskforce.

6.3 Capability Assessment

Organizational Capabilities

Schuylkill County Emergency Services

Schuylkill County manages two primary emergency services: 9-1-1 and the Emergency Operations Center. The County operates a 9-1-1 center on behalf of all 67 municipalities and is responsible for the dispatch of all police, fire and emergency medical calls with the exception of requests for Pennsylvania State Police. In the event of an impending emergency or disaster Schuylkill County may activate the Emergency Operations Center. The purpose of the EOC is to manage the emergency response and coordinate the distribution of resources to a disaster/incident at the local level. When activated, the EOC is in communication with the 9-1-1 Center to ensure coordination of activities.

Schuylkill Board of County Commissioners

The Schuylkill Board of County Commissioners consists of three County Commissioners whose role is primarily administrative in nature with legislative or policy-making powers. They are vested with selective policy-making authority to provide certain local services and facilities including fiscal management on a countywide basis. The County Commissioners also have the authority to amend the County Zoning Ordinance and the County Subdivision and Land Development Ordinance, which



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apply to municipalities that have not adopted their own ordinances.

East Central Pennsylvania Task Force

The mission of the East Central Pennsylvania Task Force is to provide a centralized organization responsible for developing, coordinating and equipping emergency response organizations represented in the regional Taskforce area; training, preparation, assistance and equipment necessary in the disaster preparedness and prevention; and emergency response to and recovery from a real or threatened act of terrorism or Weapons of Mass Destruction event. The Taskforce includes Schuylkill County, as well as, Berks, Columbia, Luzerne, Montour, Northumberland, and Wyoming Counties.

Since its inception, the Taskforce has developed regional assets which are available to all of the counties within the Taskforce including:

- Air Monitoring Teams with locations in the County at Tamaqua, Pottsville, Frackville, Sacramento and Pine Grove
- Decontamination Teams with locations in the County at Pottsville, Minersville and Tamaqua
- Heavy Rescue Team with locations in the County at Orwigsburg, Pottsville, Mahanoy City, Ryan Township
- Squad 1 (specialized Disaster Response Team) supported by Columbia and Luzerne counties
- Reading Bomb Squad located in Berks County
- Incident Management Team, which is a Taskforce wide team

Local Emergency Planning Committee

The Local Emergency Planning Committee of Schuylkill County was created as a direct result of Congress passing Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986. The mission of the LEPC focuses on the development of plans to minimize emergency situations related to the release of a hazardous material. This committee works to ensure appropriate response to a release of a hazardous material and creates a forum to foster knowledge of chemical related hazards and protective measures.

The LEPC is responsible for the following tasks. It:

- Identifies the chemicals stored, used and/or manufactured in the communities of Schuylkill County and determines the health risks that those chemicals pose to the public
- Develops a comprehensive emergency plan for each facility and keeps the plans current
- Receives information about accidental chemical releases
- Collects, manages, and provides public access to information on hazardous chemicals in the communities of Schuylkill County
- Develops training programs to enhance emergency response capabilities
- Educates the public about risks from accidental and routine releases of chemicals and works with facilities to minimize these risks.



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Voluntary Organizations Active in Disaster (VOAD)

The Voluntary Organizations Active in Disaster is a humanitarian association of independent voluntary organizations who are active in all phases of a disaster. The organization's mission is to foster efficient, streamlined service delivery to people affected by disaster, while eliminating unnecessary duplication of effort, through cooperation in the four phases of disaster: preparation, response, recovery, and mitigation.

Informational Capabilities

Websites

The County's Emergency Management website www.scema.org is intended to deliver information to the public, municipalities, and the media, particularly during times of a disaster event. The website acts as a resource or tool for municipalities, emergency service providers, industry, schools and the public in general and contains information on the various aspects of emergency planning (pandemic planning, business continuity planning, school planning, etc.), emergency responders (police, fire, EMS, and special responders), and LEPC.

The County's Planning website accessed through the County's general website of www.co.schuylkill.pa.us is intended to deliver basic planning information as well as information on the County's zoning and subdivision ordinances. This website also includes links to a variety of plans including the Comprehensive Plan, Open Space and Greenway Plan, and the Water Study.

Social Media

While both the County Emergency Management Agency and Planning Department use Social Media (i.e. Facebook, Twitter), the Emergency Management Agency uses Social Media to a greater extent. EMA's following increased three-fold during Hurricane Sandy due to posts regarding power outages and road closures.

National Weather Service StormReady

Schuylkill County participates in the National Weather Service StormReady program, which serves communities through preparation to save lives from the onslaught of severe weather through better planning, education, and awareness. The County engages in outreach campaigns to educate the public on disaster preparedness. The majority of these campaigns are coordinated through the Citizen Corp Council, the Community Emergency Response Team and the American Red Cross and Senior Corps of Schuylkill County.

Citizen Corps Council

The County's Citizen Corps Council was created the Schuylkill County Commissioners in August 2005. Its mission is to harness the power of every individual through education, training, and volunteer service to make communities safer, stronger, and better prepared to respond to the threats of terrorism, crime, public health issues, and disasters of all kinds. As it relates to Public Education and Outreach, the Citizen Corps Council developed the following action plan:

- Attend community events and provide emergency preparedness information through public display to the general public



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- Provide emergency preparedness outreach and presentations to community groups, including the elderly, children, and citizens with special needs
- Provide brochures and newsletters to be displayed in public buildings to assist in educating the public
- Coordinate with the local media to provide public service announcements when applicable.

Community Emergency Response Team

The Community Emergency Response Team (CERT) program helps train people to be better prepared to respond to emergency situations in their communities. During emergency situations, CERT members can provide critical support to first responders, provide immediate assistance to victims, and organize spontaneous volunteers at disaster sites. CERT members can also help with non-emergency projects that improve the safety of the community. The Schuylkill County CERT Team has provided training to the public, participated in the Tamaqua Elm Street Project, and assisted in the development of a Crime Watch Program.

American Red Cross and Senior Corps of Schuylkill County

The local chapter of the American Red Cross and the Senior Corps of Schuylkill County teamed together as part of the Red Cross Ready Campaign. The campaign focuses on training and preparedness issues in general.

Technical and Technological Capabilities

The technical and technological capabilities can be outlined in three broad categories: emergency service measures, GIS related, and web-based databases.

Emergency Service Measures

Emergency service measures include the Emergency Alert System and monitoring systems.

Emergency Alert System (EAS): The EAS is an alert system for disseminating emergency information and warnings to the general public within Schuylkill County using cable and broadcast. It allows state and local officials to quickly send out important area specific state and local information.

Monitoring Systems: The County uses several monitoring systems to disseminate emergency information and warnings. These systems include: SEVAN, PEIRS, PA Star System, RACES, IFLOWS, NOAA Weather Radios, and 800 Mhz Statewide Radio.

- **SEVAN** (Satellite Emergency Voice Alerting Network) is the ‘voice’ side of the satellite warning system that allows PEMA, counties, regional offices and cities to communicate directly in real time regardless of the status of the telephone system. Warning messages are routinely broadcast by PEMA using this system.
- **PA STAR** (Pennsylvania Statewide Telecommunication and Alerting System) is a computer network that uses satellite-based technology and the latest computer server and client systems. The system allows data sharing, reporting and textual and graphics communications to flow unimpaired between users connected to the system.
- **PEIRS** (Pennsylvania Emergency Incident Reporting System) is used by the county to



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report incidents to PEMA and the Office of Homeland Security that threaten the safety, security, health, welfare and property of the citizens of the county.

- **RACES** (The Radio Amateur Civil Emergency Services) is a group of amateur radio operators who donate their time during emergency situations. They provide communication to fire, police and other agencies that need assistance.
- **IFLOWS** (Integrated Flood Observing and Warning System) relies on radio reporting rain and stream gauges which provide rainfall and stream level data via radio and satellite to counties, State Emergency Operations Center, PEMA Area Offices and the National Weather Service. Actual rainfall is compared with NWS Flash Flood Guidance (FFG) and alarms are triggered at various preset levels related to the FFG. The FFG estimates the number of inches of rainfall for given durations required to produce flash flooding in the county. These estimates are based on current soil moisture conditions. Note, in urban areas, less rainfall is required to produce flash flooding.
- **NOAA Weather Radio All Hazards** (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from a nearby National Weather Service office. NWR broadcasts National Weather Service warnings, watches, forecasts and other hazard information 24 hours a day. NWR also broadcasts warning and post-event information for all types of hazards including natural and man-made (such as chemical releases or oil spills) and public safety (such as AMBER alerts or 911 Telephone outages).
- **800 Mhz Radio System** provides two-way voice and data communications for all county and State agencies. The primary function of this system is to provide redundant communications between the county and the partner agency facilities in the event that the primary means of communication becomes interrupted.
- **National Weather Service Advanced Hydrologic Prediction Services** provides a web-based portal to stream gauges, providing river observations and forecasting. The County utilizes two gauges in County (Schuylkill River @ Landingville and Swatara Creek @ Pine Grove) as well as the gauge located in Lebanon County at Swatara Creek @ Harpers Tavern for emergency response and planning.

Geographic Information Systems

A Geographic Information System (GIS) is useful for managing spatial information. GIS is a set of tools (hardware, software and people) used to collect, manage, analyze and display spatially referenced data. Schuylkill County has been and continues to incorporate GIS into existing planning and emergency operations. Schuylkill County uses GIS technology in a variety of departments. Specific to the emergency operations, the EOC is equipped with 2 GIS licenses. GIS is used to: track the allocation of resources; provide hard copy maps illustrating the scope of the event, staging areas, evacuation routes, etc.; assist with planning efforts; display incident status to EOC staff; and prepare for and collect damage assessment information. The deployment of GIS has and will continue to transition from a purely desktop/advanced environment to a more ubiquitous reliance on GIS in a web based form.

GIS has been invaluable asset in helping identify areas that area vulnerable to hazards. Existing GIS layers such as tax parcels, floodplains, critical facilities, coal, soils, land use, and other datasets were used for the vulnerability analysis for the 2007 Hazard Mitigation Plan as well as this Plan Update.



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GIS was also used to provide estimates of areas of public assistance (PA) and individual assistance (IA) after Hurricane Ivan in 2004, the flooding of 2006 and 2011. Road closures are also tracked with GIS.

Web-Based Databases

The County utilizes several web-based databases to assist with mitigation, preparedness and response. These include the Tier II Database, the Special Needs Database, a Resource Database, RSAN, and Knowledge Center.

- The County is currently using the **PA Tier II System (PATTS)**. PATTS provides state and local officials with specific information on hazardous chemicals present at a facility during the prior calendar year for use in emergency planning and response. The County has also archived the Tier II Database which was also used to track hazardous material information in the County. This site allows businesses and industries to log in to a secure section of the server and input or update the facility's Tier II data. This process is a paperless alternative to the traditional method of filing the annual Tier II reports required by Federal and State legislation. This site also allows the chief officers of emergency groups to have access to TIER II data for the facilities in their response area. This is a great resource as the data can be accessed either at the station or while on the scene of an incident.
- The **Special Needs Database** was developed through the East Central Counter Terrorism and is used to collect information about private citizens with Special Needs. County residents can log in and enter information regarding themselves or someone who they know who may be likely to require additional assistance during an emergency, particularly in the event that large-scale evacuation is necessary. This segment of the population includes individuals who are deaf, blind, bedridden, mentally impaired, without radio or television, or lacking transportation necessary to evacuate. The information is confidential and used by Emergency Response Personnel during an emergency to locate and promptly assist those with special needs.
- A **Resource Database** developed through the East Central Counter Terrorism Taskforce, is an inventory of all resources in the Taskforce area including personnel, equipment, and materials. The personnel component includes a credentialing feature.
- **RSAN** is a mass notification system that will allow subscribers to immediately contact individuals during a major crisis or emergency. The Roam Secure Alert Network delivers important emergency alerts, notifications and updates residents on all their devices. When an incident or emergency occurs, authorized senders will instantly notify residents using the Roam Secure Alert Network on real-time updates, instructions on where to go, what to do, or what not to do, who to contact and other important information. To date, the County EMA has deployed this for limited use among the emergency services community.
- **Knowledge Center** is a virtual EOC that provides an intuitive, daily use tool to aid Emergency Managers to prepare, respond, and recover from large-scale incidents such as floods and chemical spills and monitor significant planned events.



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Fiscal Capabilities

The municipalities within the County receive most of their revenue through property tax revenue and intergovernmental contributions (Federal and state pass-through dollars) or grants. It is unlikely that any of the communities could easily afford to provide the funds needed for hazard mitigation projects. While the majority of the grant programs are available at the state or Federal level, the Community Development and Block Grant program, administered by the County is a source of funding available to the municipalities for stormwater projects and demolition projects. Generally, CDBG funds must be used to eliminate blight or to serve areas with a concentration of low- or moderate-income residents. State and Federal programs available to the local municipalities include: Growing Greener program administered through PA Department of Environmental Protection and the Hazard Mitigation Assistance Program (pre and post disaster) which can be used to fund projects such as acquisition, demolition, flood-proofing, elevation, etc.

6.4 Municipal Capability Assessment

A detailed questionnaire was developed and distributed to all 67 municipalities in Schuylkill County to gather information on their plans, policies and ordinances, critical facilities, staffing, and training. The survey results have been divided into the six categories listed below.

- Critical Facilities
- Type of Response Service
- Municipal Plans and Policies
- Mitigation Actions
- Staff Capabilities
- Training

The following subsections provide a brief summary and table of the survey results for each category listed above. To decrease the length of the tables, many of them have been shorted to exclude the municipalities that did not respond to questions as well as those municipalities that answered no to all categories within a question. As a result, the tables are of varying length and do not include all municipalities for each table. A complete copy of the survey results is included in Appendix H at the end of this report.

Critical Facilities

As part of the survey, respondents were asked if critical facilities such as hospitals and fire stations had been damaged from prior hazard events.

- A total of 24 municipalities did not respond to this question. It should be noted that many municipalities do not have police stations or hospitals within their borders.
- Of those that responded, 33 municipalities stated there have been no past damages to critical facilities, such as police and fire stations, hospitals, and schools.



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- Of those who responded, 9 municipalities reported damages to Police and/or Fire Stations, while 32 municipalities reported no damage to these facilities.
- No municipalities reported damages to hospitals or schools.
- Of those who responded, 6 municipalities indicated past damages have occurred to critical facilities other than police/fire stations, hospitals, and schools.

Table 6.2 provides a summary for the 14 municipalities in Schuylkill County that indicated police stations, fire stations, hospitals, schools, or other critical facilities had been damaged from past hazard events. Several municipalities provided detailed descriptions of past damages to critical facilities. For example, Blythe Township indicated the 2006 flood damaged the Good Will Hose Company Fire Station in Cumbola, Pennsylvania. Review of the municipality comments indicated that most of the critical facility damages in Schuylkill County have been caused by prior flooding events.

It should be noted that the table summarizes the critical facilities portion of the survey results and does not include municipalities that indicated there have been no damages to critical facilities or did not respond to the question. See Appendix H for a complete copy of the survey results.

Table 6.2
Critical Facilities Damaged by Past Hazard Events (As reported on the Municipal Questionnaire)

Municipality	Police and Fire Stations	Hospitals	Schools	Other Critical Facilities	Hazard Event Causing Damage
Blythe, Township of	Yes	-	-	-	Flooding at fire station. The 2006 flood damage to Good Will Hose Company in Cumbola to oil burner, entrance door, and equipment.
Cass, Township of	Yes	-	-	Yes	The existing Township/Police Station Floods during high rain events. Water damage to Child Development Center.
Deer Lake, Borough of	Yes	-	-	-	Damage to critical facilities has occurred as a result of flooding from heavy rain.
East Union, Township of	Yes	-	-	Yes	Heavy rain and flooding caused damage to the municipal building/police station.
Frackville, Borough of	Yes	-	-	Yes	Winter Storms, Ice Storms, Severe Thunder Storms have damaged critical facilities in the past.
Frailey, Township of	-	-	-	-	State owned bridge blocked with debris, and flooded township roads, and private homes/yards.
Gilberton, Borough of	-	-	-	Yes	Flooding has occurred at the sewer treatment facility and storm water pump house.
Mahanoy City, Borough of	Yes	-	-	-	The 2006 flood.



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Municipality	Police and Fire Stations	Hospitals	Schools	Other Critical Facilities	Hazard Event Causing Damage
Pine Grove, Borough of	Yes	-	-	-	In 9/2011 Flood, North End Fire Company sustained extensive flood damage to building and equipment. They were unable to operate from the building during the height of flooding.
Pine Grove, Township of	Yes	-	-	-	Flooding at Ravine Fire Co. damaged portable equipment.
Port Carbon, Borough of	Yes	-	-	-	The June 2006 Flooding damaged the Fire Station engine room.
Port Clinton, Borough of	-	-	-	Yes	Borough playground on at least 4 occasions has been flooded and experience damage. Gas line leak in Borough about 10 years ago which was repaired by Sunoco Pipeline Personnel, Mountain Fire in spring of 2012 at south end of Borough, Gas line explosion in the 1950s on Broad Street.
Schuylkill Haven	Yes	-	-	-	The flood of 2006 damaged a fire company. The fire company building was flooded with a large amount of water and the building was inoperable for some time.
Walker, Township of	No	No	No	Yes	Heavy rain leading to flooding.

Type of Response Service

As part of the survey, the municipalities were asked to indicate if they have police, fire and emergency management coordination services. All municipalities that completed the survey indicated that they had these services. A summary of the response service portion of the survey is provided below.

- A total of 23 municipalities did not respond to this question. All municipalities in Schuylkill County have protection by the State Police if they do not have their own full-time police force. Of those who responded, 29 municipalities stated they had police response services.
- Of those who responded, 39 municipalities reported fire response services.
- Of those who responded, 44 municipalities indicated they had an emergency management coordinator.



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Table 6.3 provides a summary for the 46 municipalities that indicated having police or fire services or an emergency management coordinator. The 23 municipalities that did not answer the question were not included in the table. See Appendix H for a complete copy of the survey results.

Table 6.3
Type of Response Services by Municipality (As reported on the Municipal Questionnaire)

Municipality	Police	Fire	Emergency Management Coordinator
Ashland, Borough of	■	■	■
Auburn, Borough of		■	■
Blythe, Township of	■	■	■
Branch, Township of	■	■	■
Cass, Township of	■	■	■
Coaldale, Borough of	■	■	■
Deer Lake, Borough of		■	■
East Brunswick, Township of		■	■
East Norwegian, Township of	■	■	■
East Union, Township of	■	■	■
Eldred, Township of		■	■
Foster, township of	■	■	■
Frackville, Borough of	■	■	■
Frailey, Township of		■	■
Gilberton, Borough of	■	■	■
Girardville, Borough of	■	■	■
Hubley, Township of		■	■
Mahanoy City, Borough of	■	■	■
McAdoo, Borough of	■	■	■
New Ringgold, Borough of		■	■
North Manheim, Township of		■	■
North Union, Township of	■	■	■
Orwigsburg, Borough of	■	■	■
Pine Grove, Borough of	■	■	■
Pine Grove, Township of		■	■
Port Carbon, Borough of	■	■	■
Port Clinton, Borough of		■	■



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Municipality	Police	Fire	Emergency Management Coordinator
Pottsville, City of	■	■	■
Reilly, Township of	■	■	■
Ringtown, Borough of	■	■	■
Rush, Township of	■	■	■
Ryan, Township of	■	■	■
Schuylkill Haven	■	■	■
South Manheim, Township of			■
St. Clair, Borough of	■	■	■
Tower City, Borough of	■	■	■
Tremont, Borough of	■	■	■
Tremont, Township of			■
Union, Township of	■	■	■
Walker, Township of	■	■	■
Washington, Township of			■
Wayne, Township of		■	■
West Brunswick, Township of		■	■
West Penn, Township of	■	■	■

Municipal Plans and Policies

This Municipal Plans and Policies subsection has been divided into the two categories: Floodplain Ordinance and Stormwater Management Ordinance. As mentioned earlier in this section, all 67 municipalities are participants in the National Flood Insurance Program (NFIP), and all regulate building development within the floodplain with a Floodplain Management Ordinance. A current program is being completed to work with municipalities to update their floodplain ordinances as needed and to put into effect updated floodplain maps from FEMA.

Floodplain Ordinance

- A total of 21 municipalities did not respond to this question. In some cases, the survey was completed by municipal officials who were not familiar with their floodplain regulations.
- Of those who responded, 12 municipalities stated they had a freeboard requirement, while 25 municipalities stated they did not have a freeboard requirement.
- Of those who responded, 23 municipalities stated they have restrictions upon new development or substantive improvements to structures in the floodplain, while 16 municipalities stated they did not have development restrictions.



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- Of those who responded, 16 municipalities stated they had restrictions for fill in the floodplain, while 22 municipalities stated they did not have fill restrictions.
- Of those who responded, 17 municipalities stated they had critical facilities protection requirements, while 20 municipalities stated they did not have requirements for the protection of critical facilities.
- Of those who responded, seven municipalities stated they had incentives for cluster development, while 31 municipalities stated they did not have cluster development incentives.

A summary of the policies related to flooding for the 40 municipalities in Schuylkill County that have these type of development restrictions are shown in Table 6.4 below. The table excludes the 21 municipalities that did not answer this question or answered no to all policy questions related to the floodplain ordinance. See Appendix H for a complete copy of the survey results.

Table 6.4
Municipal Floodplain Ordinance Development Restrictions (As reported on the Municipal Questionnaire)

Municipality	Freeboard Requirement	New/ Substantial Development Restrictions	Floodplain Fill Restrictions	Critical Facility Protection	Cluster Development Incentives
Ashland, Borough of	Yes	No	Yes	Yes	No
Auburn, Borough of	Yes	Yes	No	Yes	No
Blythe, Township of	No	Yes	Yes	Yes	No
Branch, Township of	No	No	No	No	No
Cass, Township of	Yes	Yes	Yes	No	No
Coaldale, Borough of	No	No	No	No	No
East Brunswick, Township of	No	No	No	No	No
East Norwegian, Township of	No	Yes	Yes	Yes	Yes
East Union, Township of	No	No	No	No	No
Foster, township of	No	No	No	No	No
Frackville, Borough of	No	No	No	No	No
Frailey, Township of	No	Yes	No	No	No
Gilberton, Borough of	Yes	Yes	Yes	Yes	Yes
Hubley, Township of	No	Yes	No	No	No
McAdoo, Borough of	No	No	No	No	No
New Ringgold, Borough of	No	No	No	No	No
North Manheim, Township of	No	No	No	Yes	No



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Municipality	Freeboard Requirement	New/ Substantial Development Restrictions	Floodplain Fill Restrictions	Critical Facility Protection	Cluster Development Incentives
North Union, Township of	No	No	No	No	No
Orwigsburg, Borough of	Yes	No	No	Yes	Yes
Pine Grove, Borough of		Yes			
Pine Grove, Township of	No	Yes	Yes	Yes	No
Port Carbon, Borough of	No	No	No	No	No
Port Clinton, Borough of	Yes	Yes	Yes	Yes	No
Pottsville, City of	No	No	No	No	No
Reilly, Township of	Yes	Yes	Yes	Yes	Yes
Ringtown, Borough of	No	Yes	No	Yes	No
Rush, Township of	Yes	Yes	Yes	Yes	No
Ryan, Township of	Yes	Yes	Yes	Yes	Yes
Schuylkill, Township of	No	Yes	Yes	No	No
Schuylkill Haven	No	Yes	Yes	No	No
South Manheim, Township of	No	No	No	Yes	No
St. Clair, Borough of	No	Yes	No	No	No
Tower City, Borough of	Yes	Yes	Yes	Yes	No
Tremont, Borough of	Yes	Yes	Yes	Yes	Yes
Tremont, Township of	No	Yes	No	No	No
Union, Township of	No	No	No	No	No
Washington, Township of	No	No	No	No	No
West Brunswick, Township of	No	Yes	Yes	Yes	Yes
West Penn, Township of	Yes	Yes	Yes	No	No

Stormwater Management Ordinance

- A total of 26 municipalities did not respond to this question.
- Of those who responded, eight municipalities stated they had a separate stormwater ordinance while 24 municipalities stated they did not have a separate ordinance. In some cases, stormwater requirements are placed in a municipality’s or the county’s subdivision and land development ordinance.
- Of those who responded, 11 municipalities reported they had an Act 167 Stormwater Management Plan/Ordinance.



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- Of those who responded, 19 municipalities indicated they had stormwater requirements in their Subdivision and Land Development Ordinance (SALDO), while 17 municipalities said they did not. Presumably, many of the remainder rely upon stormwater requirements in the County SALDO if they do not have their own SALDO).
- Of those who responded, 12 municipalities reported they had Emergency Spillway Design Specifications for Detention Basins/Stormwater Control Facilities.

A summary of the policies related to stormwater management for the 40 municipalities in Schuylkill County that have these type of policies in place are shown in Table 6.5 below. Note that the table excludes the 21 municipalities that did not answer this question or answered no to all policy questions related to stormwater management. See Appendix H for a complete copy of the survey.

Table 6.5
Municipal Stormwater Regulations (As reported on the Municipal Questionnaire)

Municipality	Act 167 Stormwater Management Plan/Ordinance	Separate Stormwater Ordinance	Subdivision and Land Development Ordinance	Specified release rates for peak rate control required (e.g. Act 167 stormwater management districts, 75% release rate, etc.)	Emergency Spillway Design Specifications for Detention Basins/stormwater Control Facilities
Ashland, Borough of	No	No	No	No	No
Auburn, Borough of	No	No	No	No	No
Blythe, Township of	No	Yes	Yes	Yes	Yes
Branch, Township of	No	No	No	No	No
Cass, Township of	No	No	Yes	No	Yes
Coaldale, Borough of	No	No	No	No	No
East Brunswick, Township of	Yes		Yes	Yes	
East Norwegian, Township of	Yes		Yes	Yes	
East Union, Township of	No	No	Yes	No	No
Foster, township of	No	No	Yes	Yes	Yes
Frackville, Borough of	Yes	Yes	Yes	No	No
Frailey, Township of	No	No	No	No	No
Gilberton, Borough of	No	No	No	No	No
Hubley, Township of	No	No	Yes	No	No
McAdoo, Borough of	No	No	No	No	No
New Ringgold, Borough of	Yes	No	Yes	Yes	Yes
North Manheim, Township of	No	Yes	No	Yes	Yes



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Municipality	Act 167 Stormwater Management Plan/Ordinance	Separate Stormwater Ordinance	Subdivision and Land Development Ordinance	Specified release rates for peak rate control required (e.g. Act 167 stormwater management districts, 75% release rate, etc.)	Emergency Spillway Design Specifications for Detention Basins/stormwater Control Facilities
North Union, Township of	No	No	No	No	No
Orwigsburg, Borough of	No	Yes	No	Yes	
Pine Grove, Borough of	No				
Pine Grove, Township of	Yes	No	Yes	No	No
Port Carbon, Borough of	Yes	Yes	Yes	Yes	Yes
Port Clinton, Borough of	No	No	No	No	No
Pottsville, City of	Yes	Yes	Yes	Yes	
Reilly, Township of	Yes		Yes	Yes	
Ringtown, Borough of	No	No	Yes	Yes	No
Rush, Township of	No	No	Yes	Yes	Yes
Ryan, Township of	No	No	Yes	No	No
Schuylkill, Township of	No	No	No	No	No
Schuylkill Haven	No	No	Yes	No	No
South Manheim, Township of	No	Yes	No	Yes	
St. Clair, Borough of	No	No	Yes	No	No
Tower City, Borough of	Yes		No	No	No
Tremont, Borough of	No	No	No	No	No
Tremont, Township of	No	No	No	No	No
Union, Township of	No	No	No	No	No
Washington, Township of	No	No	No	No	No
West Brunswick, Township of	No	No	Yes	Yes	Yes
West Penn, Township of	Yes		Yes	Yes	Yes

Mitigation Actions

As part of the survey, each municipality in Schuylkill County was requested to provide information about ongoing or proposed mitigation projects. Of the 67 municipalities, 38 identified potential mitigation projects. The following table (Table 6.6) summarizes proposed mitigation projects for the 37 municipalities that identified potential projects. Many of the respondents indicated property protection projects such as acquisition or elevation of structures while others referenced structural projects. This



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table is followed by a summary of the survey results related to several different mitigation action categories including: prevention, property protection, emergency services, structural projects, natural resource protection, and public awareness and outreach.

Table 6.6
Potential Municipal Mitigation Projects (As reported on the Municipal Questionnaire)

Municipality	Proposed Mitigation Projects
Ashland, Borough of	Remove debris from waterway in Oakland Avenue area to alleviate threat of flooding. Remove some blighted homes in Borough.
Blythe, Township of	Property protection is an area of concern and Public outreach
Branch, Township of	Nothing at the current time.
Cass, Township of	Future mitigation project the township would like to complete is the purchase/acquisition of several properties on Oak Lane, the possibility of dredging portions of the Schuylkill River, enlarge culvert pipe under Oak Lane and the railroad, complete the Woodside Road stormwater projects phase III and IV, clear and line swales located along Schaeffer's Hill Road and Thomaston Road. The Township is currently considering creating an Emergency Operations Center in at least one location in the Township. Schaeffers hill drainage at the flood plane to clean out old swales. Hecksherville area at Thomaston.
Coaldale, Borough of	East Phillip Street project between East Street and Borough line. Install storm sewer piping, end wall and inlets to alleviate an existing infrastructure deficiency resulting in periodic flooring of East Phillips Street with associated payment base repair and a surface course overlay to the existing roadway which has deteriorated from the inadequate drainage.
East Brunswick, Township of	Bridge Repair at Wild Turkey Lane and Cold Run Bridge.
East Norwegian, Township of	Property protection emergency services.
East Union, Township of	Ongoing mitigation and correction of streets that are prone to flooding 2. Improvement of stormwater systems in populated areas of the township.
Eldred, Township of	Must talk with township supervisors.
Frackville, Borough of	Improving Whipplewill Dam and protection or mitigation of localized street flooding.
Gilberton, Borough of	Pump House Upgrades Mahanoy Creek Cleaning.
Girardville, Borough of	Property protection-try to eliminate or cut back on flooded basements. Public outreach.
Hubley, Township of	Unaware of any projects at present but typically we would look at emergency services.
McAdoo, Borough of	Stormwater Infrastructure improvement within the Borough.
North Manheim, Township of	1. Upgrading catch basins & stormwater pipes throughout Township to alleviate stormwater back up and flooding. 2. Stream dredging near Green Tree Drive Bridge
North Union, Township of	Move ditches and install pipes.



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Municipality	Proposed Mitigation Projects
Orwigsburg, Borough of	Culvert replacement at Long Avenue. Current facility is inadequate for water flows in heavy rain events. Tunnel repairs West Market Street. Water flows between two homes and is undermining both foundations.
Pine Grove, Borough of	Property Protection Projects: 1. Stream clean up - clean debris from stream running through borough. 2. Establish/Develop floodplains - looking at developing several areas as floodplains to divert floodwaters from properties in the borough. 3. Storm Drain System upgrade/maintenance - Storm drain system is decades old and has sustained damage from flooding.
Pine Grove, Township of	Looking to construct an EOC/evacuation center. Looking to start an outreach program to have residence more aware of disasters that affect the Pine Grove area. Would like to have DEP dredge out local streams of sediment that was deposited during the 9/11 flooding.
Port Carbon, Borough of	Floodplain management Property Protection
Port Clinton, Borough of	New 911 Radio system upgrade for Fire Co. Emergency Responders Stream Bank Restoration Rattling Run.
Pottsville, City of	Property Protection Emergency services.
Reilly, Township of	Sedimentary manipulation and wall stabilization on muddy creek this will allow water flow to be uninhibited relieving flooding issues resulting from 2006 flooding in Branchdale this project should be listed in current mitigation plan
Ringtown, Borough of	Under Emergency Services, The Borough would like to purchase a generator large enough to power our water treatment facility in the event of a power outage due to storm conditions. In the past we have had power outages that lasted a few days. Under Public Outreach, We would also like to be able to have a call system put in place that would allow us to send out a pre-recorded message to our residents in case of any type of emergency, weather, flooding, snow emergency, water emergency, etc.
Rush, Township of	Installation and upgrade of various storm sewer facilities
Ryan, Township of	Structural projects for bridges and roads.
Schuylkill Haven	Property protection, through the use of an emergency pump station with force main in the event of a flooding situation.
South Manheim, Township of	1.Pipe work on Summer Hill Road to control water run-off. 2. Hickory Lane - pipework to control water run-off.
St. Clair, Borough of	Public Outreach including providing information to the residents in the floodplain areas of the need to maintain flood insurance. Property Protection-surface water is running down the Burma Road onto East Hancock Street. During heavy rains the surface water is flowing into low level structures.
Tower City, Borough of	Public Outreach: Make the public more aware of any oncoming mitigation concerns. Property Protection: Repair, improve and enhance drainage.
Tremont, Borough of	Remove an existing un-used stone bridge to allow water to flow through the steam easier. Install higher retaining walls along spring street to contain high water.
Tremont, Township of	Cleaning out streams. Rerouting run-off water on roads.
Union, Township of	Nothing at the current time.
Walker, Township of	Nothing at the current time.



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Municipality	Proposed Mitigation Projects
Washington, Township of	Removal of debris and sedimentation from bridges on two specific roadways subject to flooding. 1. Trophy Drive 2. Covered Bridge Road
Wayne, Township of	Emergency Services and Public outreach.
West Brunswick, Township of	1) Pine Creek Drive Bridge - Install rock barrier at base of structure to minimize scouring action. 2) Provide emergency power back up at Municipal Building to positively render emergency services for township residents. 3) Cooperate with FEMA to inform floodplain prone residents of current FIRM requirements.

Property Protection

- A total of 22 municipalities did not respond to this question.
- Of those that responded, 34 municipalities stated they completed no property protection projects (which means they answered no to all categories).
- Of those who responded, nine municipalities reported property protection measures including buyouts, elevation of structures and floodwalls, while 33 municipalities reported that they had not conducted any measures for property protection.
- Of those that responded, four municipalities indicated they have conducted prior buyout projects (such as acquisition and relocation).
- Of those that responded, two municipalities (Borough of Port Clinton and Branch Township) reported prior elevation projects.
- Of those that responded, two municipalities (Borough of Port Clinton and Schuylkill Haven) reported conducting floodproofing projects.
- Of those that responded, three municipalities reported constructing berms and/or floodwalls.

A summary of the mitigation actions related to property protection for the municipalities in Schuylkill County are shown in Table 6.7 below. The table provides a summary of the property protection results and does not include 21 municipalities that did not respond to the question or the 33 municipalities that answered no to all categories. See Appendix H for a complete copy of the survey results.



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Table 6.7
Property Protection Municipal Mitigation Actions (As reported on the Municipal Questionnaire)

Municipality	Buy-outs (acquisition and relocation)	Elevation of structures	Floodproofing	Berms/ floodwalls	Location of Project and Year Completed
Branch, Township of	No	Yes	No	No	
Cass, Township of	Yes	No	No	No	The Township has submitted an application to FEMA for four buyouts, but has not been accepted at this time.
Gilberton, Borough of	Yes	No	No	No	Gilberton, Mahanoy Plane
Pine Grove, Borough of	Yes		No	No	Approximately 12 properties will be bought out by FEMA (SEP 2011 flooding) in North Pine Grove.
Pine Grove, Township of	Yes	No	No	No	Geary Wolf Road project. Currently working with FEMA on buy-out.
Port Clinton, Borough of	No	Yes	Yes	Yes	Elevated several properties to meet FEMA/PEMA regulations. One property funded buys FEMA/PEMA to elevate residence around 2008. Rattling Run 2006 Streambank stabilization.
Schuylkill Haven	No	No	Yes	Yes	Rehabilitation of existing floodwall, currently in progress.
St. Clair, Borough of	No	No	No	Yes	Started many years ago. Damages that occurred in the 2006 flood were repaired in 2007 along Mill Creek.
Tremont, Borough of	No	No	No	Yes	Spring Street (2011).

Structural Projects

- A total of 25 municipalities did not respond to this question.
- Of those that responded, 41 municipalities stated they had not completed any structural mitigation projects.
- None of the respondents indicated structural projects related to levees or critical facility structures.



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- Of those who responded, only two municipalities indicated constructing retention or detention basins.

A summary of the structural mitigation actions for the two municipalities in Schuylkill County that have completed structural projects are shown below in Table 6.8. The remaining municipalities either indicated no to these type of structural projects or did not respond to this question. See Appendix H for a complete copy of the survey results.

Table 6.8
Structural Municipal Mitigation Actions (As reported on the Municipal Questionnaire)

Municipality	Levees	Retrofit projects for critical facility structures	Retention/detention basins	Location and Year Completed
Schuylkill Haven	No	No	Yes	Constructed a 5-acre detention area adjacent to Schuylkill River in 2012 to be utilized as a holding area in high rain events.
West Brunswick, Township of	No	No	Yes	Pinebrook - 1978; Pines Development - 2008; Deer Lake Drive In - 2009; Ernst Trucking - 2011.

Emergency Services

- A total of 23 municipalities did not respond to this question.
- Of those that responded, 28 municipalities stated they had not completed any structural mitigation projects.
- Of those who responded, 11 municipalities indicated completing emergency service mitigation actions related to hazard warnings (such as sirens, reverse 911, etc.)
- Of those who responded, 13 municipalities reported emergency service actions related to hazard response.
- Of those who responded, 26 municipalities reported emergency service actions related to post disaster recovery (cleaning streets, debris removal), while 15 municipalities stated they did not have actions related hazard response.
- Of those who responded, 11 municipalities stated completing emergency service actions related to Critical Facilities Protection (power stations, water/sewer facilities, police, fire EMS, hospitals).

A summary of the emergency services actions for 30 municipalities in Schuylkill County that have completed mitigation actions related to emergency services are shown below in Table 6.9. The



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remaining municipalities either indicated no to these type mitigation projects or did not respond to this question. See Appendix H for a complete copy of the survey results.

Table 6.9
Emergency Services Municipal Mitigation Actions (As reported on the Municipal Questionnaire)

Municipality	Hazard warning	Hazard response	Post disaster recovery	Critical Facilities Protection	Location and Year Completed
Cass, Township of		Yes	Yes		The township has received some funding from FEMA as result from the 2011 flood for mitigation of several small projects and one large project.
Coaldale, Borough of	Yes	No	No	No	
East Brunswick, Township of	Yes	Yes	Yes	No	
East Union, Township of	Yes	Yes	Yes	Yes	Multiple locations throughout municipality in 2011.
Eldred, Township of	No	No	Yes	No	2011 Bull Road and Creek Road.
Foster, Township of	No	No	Yes	Yes	Foster Township Sewer, Foster Police Department, Mount Pleasant Hose Co.
Frackville, Borough of	Yes	Yes	Yes	Yes	Throughout the Borough; Dates completed include 3/2011 6/2011 9/2011.
Frailey, Township of	No	Yes	Yes	No	09//2011
Gilberton, Borough of	No	No	No	Yes	Projects include the Gilberton Pump House and Mahanoy Plane Sewer Plant.
Girardville, Borough of	No	Yes	Yes	No	
Hubley, Township of			Yes	Yes	
Mahanoy City, Borough of	No	No	No	No	
McAdoo, Borough of	Yes	No	Yes	No	Areas within the Borough affected by the rain event on May 26, 2012
North Manheim, Township of	No	No	Yes	No	Tornado in 2011. Street Clearing (trees/debris).



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Municipality	Hazard warning	Hazard response	Post disaster recovery	Critical Facilities Protection	Location and Year Completed
North Union, Township of	No	No	Yes	No	05//2012
Orwigsburg, Borough of	Yes	No	Yes	No	Reverse 911 installed in 2011. Clean up after several storm events.
Pine Grove, Borough of	Yes	Yes	Yes	No	Sirens located at local fire houses. September, 2011 flooding.
Pine Grove, Township of	No	Yes	Yes	No	Currently working on increasing capabilities of EOC, street clearing and repair as soon as floodwaters permitted, 2011.
Port Carbon, Borough of	Yes	Yes	Yes	Yes	2006 Flooding.
Port Clinton, Borough of	Yes	Yes	Yes	Yes	
Ringtown, Borough of	No	No	Yes	Yes	
Rush, Township of	No	No	Yes	Yes	Township-wide 2006, 2010, 2011, 2012
Ryan, Township of	No	No	Yes	No	Municipal wide - 2011
Schuylkill Haven	Yes	Yes	Yes	No	
South Manheim, Township of	No	No	Yes	No	Throughout Township, debris was removed and cleaned up after the 2006 flood.
St. Clair, Borough of	Yes	Yes	Yes	Yes	
Tremont, Borough of	No	Yes	Yes	No	Clay Street EOC activation completed in 2011/2012. Debris removal in 2011/2012.
Tremont, Township of	No	No	Yes	No	Township, 2011
Washington, Township of	No	No	Yes	No	Various roadways within township: September 2011
West Brunswick, Township of	No	No	Yes	No	Various township roads: June and November 2006
West Penn, Township of	No	Yes	Yes	Yes	02//2012



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Natural Resources

- A total of 24 municipalities did not respond to this question.
- Of those that responded, 40 municipalities stated they had not completed any mitigation actions related natural resource.
- Of those who responded, two municipalities indicated completing mitigation projects related to wetlands protection.
- Of those who responded, three municipalities indicated completing mitigation projects related to erosion and sedimentation control.

A summary of the natural resource mitigation actions for the three municipalities in Schuylkill County that have completed these type of actions are shown below in Table 6.10. The remaining municipalities either indicated no to these type of projects or did not respond to this question. See Appendix H for a complete copy of the survey results.

Table 6.10
Natural Resources Municipal Mitigation Actions (As reported on the Municipal Questionnaire)

Municipality	Wetlands Protection	Erosion and Sedimentation Control	Location and Year Completed
Frailey, Township of	No	Yes	September and October 2011. Good Spring Creek.
West Brunswick, Township of	Yes	Yes	Ongoing with new development.
West Penn, Township of	Yes	Yes	Various township bridges completed in 2010, 2011, and 2012.

Public Outreach

- A total of 23 municipalities did not respond to this question.
- Of those that responded, 35 municipalities stated they had not completed any mitigation actions related public outreach.
- Of those who responded, seven municipalities stated they have completed public outreach projects such as newsletters and brochures.
- None of the municipalities who responded indicated completing outreach projects related to environmental education programs.
- Of those who responded, three municipalities indicated completing outreach projects related to the promotion of flood insurance.

A summary of the public outreach mitigation actions for the nine municipalities in Schuylkill County that have completed these type of actions are shown below in Table 6.11. The remaining municipalities either indicated no to these type of projects or did not respond to this question and were therefore not included in the table. See Appendix H for a complete copy of the survey results.



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Table 6.11
Public Outreach Municipal Mitigation Actions (As reported on the Municipal Questionnaire)

Municipality	Outreach projects (newsletters, brochures)	Environmental education programs	Promotion of flood insurance sales	Location and Year Completed
Blythe, Township of	No	No	Yes	2008 meeting at Goodwill Hose Company in Cumbola with residents in flood zone area.
Foster, Township of	Yes	No	No	
Girardville, Borough of	Yes	No	No	
Port Carbon, Borough of	Yes	No	No	
Port Clinton, Borough of	Yes		Yes	
Schuylkill Haven	Yes	No	No	Ongoing through quarterly newsletters.
St. Clair, Borough of	No	No	Yes	Yearly newsletter starting in 2011
Tremont, Borough of	Yes	No	No	Clay Street 2011/2012
West Brunswick, Township of	Yes	No	No	Newsletter 2000 and 2002

Staff Capabilities

- A total of 22 municipalities did not respond to this question.
- A total of 47 municipalities responded to the question indicating whether the staff capabilities were in house or contracted.
- Of those that responded, 30 municipalities stated they have a floodplain administrator and 13 municipalities stated they didn't have a floodplain administrator. (Note – In many cases, the Township Engineer, Construction Official or Zoning Officer enforces the floodplain ordinance, but may not be commonly identified as the floodplain administrator.)
- Of those that responded, 39 municipalities stated they have a building inspector and four municipalities stated they didn't have a building inspector. (Note – Under State law, a municipality has options to enforce the construction codes, including using an independent inspection service).
- Of those that responded, 32 municipalities stated they have a site plan reviewer and ten municipalities stated they didn't have a site plan reviewer. (Note – In most municipalities, this role is filled by the Zoning Officer for small projects and by the Municipal Engineer for larger projects).
- Of those that responded, 29 municipalities stated they had a surveyor. (Note – Surveyors are typically contracted on an as needed basis.)



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- Of those that responded, 15 municipalities stated they have a GIS Specialist and 23 municipalities stated they didn't have a GIS Specialist. (Note – Most municipalities in Schuylkill County rely upon the County or their Municipal Engineer for computerized mapping and other GIS work).

A summary of the staff capabilities for municipalities in Schuylkill County that responded to the question are shown below in Table 6.12. For each category, the table indicates whether municipalities have in house staff capabilities or the speciality is contracted. The remaining 22 municipalities not included in the table did not respond to the question. See Appendix H for a complete copy of the survey results.

Table 6.12
Staff Capabilities (As reported on the Municipal Questionnaire)

Municipality	Floodplain Administrator	Building Official/ Inspector	Site Plan Reviewer	Surveyor	GIS Specialist
Ashland, Borough of	In house	In house	None	None	None
Auburn, Borough of	Contract	Contract	Contract	Contract	Contract
Blythe, Township of	In house	Contract	Contract	Contract	Contract
Branch, Township of	In house	In house	Contract	None	None
Cass, Township of	None	Contract	Contract	Contract	Contract
Coaldale, Borough of	None	None	None	None	None
East Brunswick, Township of	None	None	None	None	None
East Norwegian, Township of	In house	In house	In house	In house	In house
East Union, Township of	Contract	Contract	Contract	Contract	Contract
Eldred, Township of	None	In house	In house	None	None
Foster, township of	None	Contract	Contract	Contract	None
Frackville, Borough of	Contract	In house	Contract	Contract	Contract
Frailey, Township of	In house	In house	In house	In house	Blank
Gilberton, Borough of	In house	In house	None	None	None
Girardville, Borough of	Contract	In house	Contract	Contract	Contract
Hubley, Township of	In house	Contract	In house	Contract	None
Mahanoy City, Borough of	Contract	Contract	Contract	Contract	Contract
McAdoo, Borough of	In house	Contract	Contract	Contract	Contract
New Ringgold, Borough of	None	Contract	Contract	Contract	None
North Manheim, Township of	Contract	Contract	Contract	Contract	None
North Union, Township of	In house	In house	None	None	None



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Municipality	Floodplain Administrator	Building Official/ Inspector	Site Plan Reviewer	Surveyor	GIS Specialist
Orwigsburg, Borough of	Contract	Contract	Contract	None	None
Pine Grove, Borough of	None	Contract	Contract	None	None
Pine Grove, Township of	Contract	Contract	Contract	Contract	None
Port Carbon, Borough of	Contract	Contract	None	Contract	None
Port Clinton, Borough of	In house	Contract	Contract	Contract	None
Pottsville, City of	None	None	None	None	None
Reilly, Township of	None	Contract	None	None	Contract
Ringtown, Borough of	Contract	Contract	Contract	Contract	Contract
Rush, Township of	Yes	In-house and Contract	In-house and Contract	In-house and Contract	In-house and Contract
Ryan, Township of	Contract	Contract	Contract	Contract	Contract
Schuylkill, Township of	None	None	None	None	None
Schuylkill Haven, Borough of	In house	In house	In house	Contract	None
South Manheim, Township of	Contract	Contract	Contract	None	None
St. Clair, Borough of	In house	In house	Contract	Contract	Contract
Tower City, Borough of	In house	In house	In house	Contract	None
Tremont, Borough of	In house	In house	Contract	Contract	Contract
Tremont, Township of	In house	Contract	Contract	Contract	Contract
Union, Township of	None	Contract	None	Contract	None
Washington, Township of	None	Contract	None	None	None
Wayne, Township of	None	Contract	In house	Contract	None
West Brunswick, Township of	Contract	Contract	Contract	Contract	None
West Penn, Township of	Contract	Contract	Contract	Contract	Contract

Training

- A total of 25 municipalities did not respond to this question.
- Of those that responded, 25 municipalities stated they had not completed any training related to GIS, floodplain management, or building inspection.
- Of those that responded, six municipalities stated they had GIS training and 34 municipalities had not had this training.
- Of those that responded, ten municipalities stated they had training related to floodplain management/NFIP regulations and 29 municipalities had not had this training.



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- Of those that responded, 13 municipalities stated they had training related to building inspection/code administration and 30 municipalities had not had this training. It should be noted that many municipalities rely upon independent firms for their construction inspection services, and those staff-persons are required to complete their own training under State law.

Table 6.13 below summarizes the training that has been completed for the 19 municipalities in Schuylkill County that have some type of staff training relate to GIS, floodplain management, or building inspection. The table also captures specific staff training that has been completed by several of the municipalities. The remaining municipalities were not included in the table and either indicated no to all categories of training or did not respond to this question. See Appendix H for a complete copy of the survey results.

Table 6.13
Training (As reported on the Municipal Questionnaire)

Municipality	GIS	Floodplain management/ NFIP regulations	Building inspection/ code administration	Specific Staff Training
Blythe, Township of	Yes		Yes	
Branch, Township of	No	No	Yes	Building code official.
East Norwegian, Township of	Yes	Yes	Yes	
East Union, Township of	No	No	Yes	Three Code Enforcement Officers and a Health Officer.
Frackville, Borough of	Yes	Yes	Yes	EMA Coordinator and Codes Enforcement
Frailey, Township of	Yes	Yes	Yes	
Girardville, Borough of	No	Yes	Yes	
Hubley, Township of	No	No	Yes	Building Code Official.
Mahanoy City, Borough of	Yes	Yes	No	
McAdoo, Borough of	No	No	No	
North Union, Township of	No	Yes	No	Dianne Thompson
Orwigsburg, Borough of	No	Yes	No	Borough Manager
Port Clinton, Borough of	No	Yes	No	
Pottsville, City of	No	No	Yes	We have a code enforcement officer.
Rush, Township of	Yes	Yes	Yes	One of more Township Supervisors
Schuylkill Haven, Borough of	No	No	Yes	Code officer.
South Manheim, Township of	No	No	No	Contracted services used.
St. Clair, Borough of	No	Yes	Yes	Borough Secretary Roland Price & Building Inspector Jerry Farro
Tower City, Borough of	No	No	Yes	Sgt. John Boyer, TCPD



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Conclusion

Most municipalities in Schuylkill County have limited populations and municipal budgets, and therefore have limited in-house staff resources. For complex and technical matters, most rely upon their contracted Municipal Engineers and Construction Officials, with assistance from the staff of Schuylkill County. It is important to identify a person at the municipal level who is responsible for enforcing floodplain regulations and that there is a strict process in place to make sure that compliance with the floodplain regulations is checked as part of all construction permits, including for smaller features such as sheds and detached garages that can still obstruct floodwaters. A campaign to educate municipal officials on floodplain regulations is also useful.



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Section 7 Mitigation Strategy

Section 7 Mitigation Strategy

Contents of this Section

- 7.1 Requirements for the Mitigation Strategy
- 7.2 Local Hazard Mitigation Goals
- 7.3 2007 Plan Mitigation Initiatives
- 7.4 Identification and Analysis of Mitigation Actions (County Level)
- 7.5 Multi-Jurisdiction Mitigation Actions (Municipal Level)

The mitigation strategy serves as the long-term road map to reduce the potential losses, vulnerabilities and shortcomings identified in the risk assessment chapter. A typical mitigation strategy includes a list of goals and objectives and mitigation actions to address the goals and objectives, that are then prioritized, based on the community's requirements. The mitigation strategy in this Plan comprises the following five subsections:

- Local Hazard Mitigation Goals
- Identification and Analysis of Mitigation Actions (County level)
- Multi-jurisdictional Mitigation Actions (Municipal level)
- Implementation of the National Flood Insurance Program

7.1 Requirements for the Mitigation Strategy

Requirement §201.6(c)(3): *The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.*

Requirement §201.6(c)(3)(i): *[The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.*

Requirement §201.6(c)(3)(ii): *[The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.*

Requirement: §201.6(c)(3)(iii): *[The mitigation strategy section shall include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.*



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Requirement §201.6(c)(3)(iv): For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.

7.2 Local Hazard Mitigation Goals

For the purposes of this Plan, goals are defined as general policy guidelines or broad statements that represent a vision for Schuylkill County. The goals for this planning process have been developed in close coordination with the Steering Committee based on the original goals in the 2007 Hazard Mitigation Plan as well as findings of the hazard identification and risk assessment and mitigation capability assessments. At Steering Committee meetings held on November 8th and December 4th, 2012, the original goals from the 2007 plan were reviewed and edited as needed and new goals were added to the list of goals. These goals are designed to serve as the basis for the mitigation actions at the county and municipal levels.

2013 GOALS

- Create an organizational structure for accountability to follow through with maintenance of the plan.
- Maintain a sense of regional accountability, whereas, a hazard in one municipality may affect another.
- Promote actions that support economic development and public/private partnerships within Schuylkill County.
- Encourage municipalities, through education, to promote public awareness of current and/or potential hazards within their community.
- Strengthen land use and zoning ordinances regarding floodplain regulation.
- Identify resources within each municipality.

7.3 2007 Plan Mitigation Initiatives

The Steering Committee reviewed the county-wide mitigation strategies listed in the 2007 Plan, which were found to be varying in status (i.e. in progress, on-going, completed, and not applicable). In an effort to better articulate the needs of the County through the mitigation strategy, the Steering Committee opted to abandon the 2007 list and revise on-going and in progress strategies and incorporate new and additional strategies.

7.4 Identification and Analysis of Mitigation Actions (County Level)

In formulating the Mitigation Strategy, the following six mitigation categories were explored for attaining the plan's goals. They include: Prevention, Property Protection, Natural Resource Protection, Structural Projects, Emergency Services, and Public Information and Awareness. These categories formed the basis of the mitigation actions in the Plan Update. Descriptions of these categories and examples for each category are included below:



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1. Prevention

Preventative activities are those that are performed to keep hazard related issues from exacerbating in the community. They are effective in reducing a community's future vulnerability, particularly in areas where development has not occurred. Examples of preventative activities include: zoning and subdivision regulations; building code; hazard mapping; open space preservation; floodplain regulations; stormwater management; drainage system maintenance; and capital improvements programming.

2. Property Protection

Property protection measures include those actions that can be undertaken by private homeowners so their structures can: better withstand hazard events, be removed from hazardous locations, or can be insured to cover potential losses. Examples include: acquisition; relocation; building elevation; critical facilities protection; retrofitting (i.e., wind proofing, flood proofing, seismic design standards, etc.); insurance; and safe room construction.

3. Natural Resource Protection

Natural resource protection activities include those actions that can reduce the impact of hazards by preserving or restoring the function of natural systems. Natural systems that can be classified as high hazard areas include floodplains, wetlands and barrier islands. Thus, natural resource protection can serve the dual purpose of protecting lives and property while enhancing water quality or recreational opportunities. These actions are usually implemented by parks, recreation or conservation agencies. Examples include: floodplain protection; fire resistant landscaping; erosion and sediment control; wetland restoration; habitat preservation; and slope stabilization.

4. Structural Projects

Structural mitigation projects are designed to reduce the impact of hazards by building new structures or hardening existing structures. Structural projects are usually designed by engineers and managed or maintained by public works staff. Examples include: reservoirs; levees, dikes, and floodwalls; detention and retention basins; channel modification; and storm sewer construction.

5. Emergency Services

Although emergency services are not necessarily considered mitigation techniques, these services minimize the impact of a hazard on people and property. Actions taken immediately prior to, during, or in response to a hazard event include: warning systems; search and rescue operations; evacuation planning and management; and flood fighting techniques.



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6. Public Information and Awareness

Public Information and awareness activities are conducted to advise and educate residents, business owners, potential property buyers, and visitors about hazards and mitigation techniques that can be used to protect lives and property. Examples of measures used to educate and inform the public include: outreach and education; training; demonstrations; real estate disclosure; and hazard expositions.

Mitigation actions have been developed for the entire County as well as for each participating jurisdiction. The mitigation actions that have been developed can be implemented through a variety of local tools such as changes in ordinances and policies, staff time, capital improvements budgets, and applying for grant funding.

The mitigation actions that were developed were based on results from the risk assessment and the mitigation capability analysis, input from the Steering Committee, actions recommended in the 2007 Plan, recent past hazard occurrences, and problems identified at the municipal workshops.

The tables that follow identify County-level mitigation actions. The projects are described, refer to the hazard(s) mitigated and the specific goal and objective(s) addressed, lead agency for implementation, and possible funding sources.

Table 7.1
County-wide Mitigation Actions for the 2013 Plan Update

Hazard Addressed	Lead Agency for Implementation	Mitigation Action	Possible Funding Source	Approx. Cost
<i>Achievable in the Short-Term</i>				
All hazards	County Emergency Management Agency	Review mutual aid agreements (municipal as inter county) and recommend changes as required.	No funding necessary	Staff Time
All hazards	County Emergency Management Agency	Review and evaluate facilities, equipment, personnel and other resources needed to support emergency response annually.	No funding necessary	Staff Time



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Hazard Addressed	Lead Agency for Implementation	Mitigation Action	Possible Funding Source	Approx. Cost
<i>Achievable in the Short-Term</i>				
All hazards	County Emergency Management Agency and Planning Department	Establish webpages where presentations, training documents and webinars can be posted. This will allow municipal officials to access to the information at their own schedule and at their own pace.	No funding necessary	Staff Time
All hazards	County Emergency Management Agency and Planning Department	Monitor and evaluate mitigation actions annually and update the hazard mitigation plan every five years to reflect changes in development after a major hazard event.	No funding necessary	Staff Time
All hazards	County Emergency Management Agency, Planning Department and Conservation District	On an annual basis, conduct Municipal Officials Training and/or State-sponsored training courses to address hazard mitigation topics, such as: damage assessment after natural disasters, stormwater management, mutual aid agreements among emergency providers and municipalities, public disaster assistance, hazard mitigation grant assistance, CIP, and tools to address blight.	No funding necessary	Staff Time
All hazards	County Grant Writing	Advocate for municipalities to find alternate methods of funding to the Hazard Mitigation Grant Program.	No funding necessary	Staff Time
All hazards	County Planning Department	Train additional County personnel on the use of the County's GIS system to support emergency operations.	County funds	Staff Time
All hazards	County Tax Assessment Department	Map new developments as plans are approved for the purpose of emergency and land use planning.	No funding necessary	Staff Time



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Hazard Addressed	Lead Agency for Implementation	Mitigation Action	Possible Funding Source	Approx. Cost
<i>Achievable in the Short-Term</i>				
Drought	County Planning Department	Include language in the County Zoning Ordinance (for 34 municipalities) and the 33 municipal ordinances on measures to: enhance the concept of defensible space practice; and minimize impervious surfaces to reduce the impacts of drought.	No funding necessary	Staff Time
Blight	Municipalities	Use legal tools (land bank legislation, conservatorship) that have been provided through recent State laws to reduce the number of blighted properties.	No funding necessary	Staff Time
Flood	County Emergency Management Agency, Planning Department, and Conservation District	Develop an understanding that more clearly lays out responsibilities among County agencies on their roles associated with floodplain management.	No funding necessary	Staff Time
Flood	County Emergency Management Agency	Improve real-time information on stream flow (particularly during flood conditions) through placement of additional stream gauges throughout the county. During flood conditions, use this information to project peak flood levels and to warn the public and emergency service providers.	EMPG	TBD
Flood	County Emergency Management Agency and Department of Planning	Enroll County staff in Hazard Mitigation and Floodplain Management courses, which may include on-line webinars to minimize costs.	County Funds	Staff Time
Flood	County Planning Department	Introduce a virtual one-stop shop for property owners and municipalities who have flooding problems and expand the Department's mission to provide advice to municipalities on flood hazards, availability of flood insurance, and flood protection methods.	No funding necessary	Staff Time



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Hazard Addressed	Lead Agency for Implementation	Mitigation Action	Possible Funding Source	Approx. Cost
<i>Achievable in the Short-Term</i>				
Flood	Municipalities	Encourage municipalities to update their stormwater regulations as needed. A model PA DEP stormwater ordinance is available online that can be used.	No funding necessary	Staff Time
Flood	Municipalities	Where acquisition is not feasible advise homeowners of a preferred mitigation alternative such as elevation or flood proofing.	No funding necessary	Staff Time
Wildfires	DCNR Bureau of Forestry, Municipalities	Enroll municipalities in the Firewise program. Encourage municipalities to reduce the vulnerability of critical facilities to wildfires by: increasing buffers and introducing defensible spaces; identifying farm roads, service roads, and other private access corridors in high hazard areas that could be used as fire breaks; and providing assistance to the County Emergency Management to identify vulnerable structures.	No funding necessary	Staff Time
Wildfire	Municipalities	Cooperate with local water authorities, including mapping water source data and mapping locations of water sources needed during fires (such as ponds and dry hydrants).	No funding necessary	Staff Time
Radon	LEPC, Schuylkill County Board of Realtors	Partner with the Schuylkill County Board of Realtors to raise awareness on the potential hazard of radon to prospective home buyers in Schuylkill County.	TBD	TBD



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Hazard Addressed	Lead Agency for Implementation	Mitigation Action	Possible Funding Source	Approx. Cost
<i>Achievable in the Medium-Term</i>				
All hazards	County Conservation District	Coordinate open space protection efforts with other entities and land protection groups for the preservation of areas where the hazard level is high.	No funding necessary	Staff Time
All hazards	County Emergency Management Agency	Assign and train additional County employees to assist the Emergency Operations Center staff, so they can be called upon in the event of major emergencies.	County funds	Staff Time
All hazards	County Emergency Management Agency	Assist municipalities in the preparation and maintenance of Emergency Operations Plans.	EMPG	TBD
All hazards	County Emergency Management Agency	Foster relationships with other counties, so that Schuylkill County may utilize mutual aid in Emergency Operations Center positions, including GIS.	No funding necessary	Staff Time
All hazards	County Emergency Management Agency	Determine appropriate methods to conserve water. Initiate a water conservation program.	No funding necessary	Staff Time
All hazards	County Emergency Management Agency, Planning Department, and Conservation District	Provide assistance to municipalities in implementing individual hazard mitigation actions. All hazards	County funds	Staff Time
All hazards	County Planning Department	Develop a GIS Strategic Plan for providing greater access to GIS data and tools for both emergency and land use planning.	County funds	50,000



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Hazard Addressed	Lead Agency for Implementation	Mitigation Action	Possible Funding Source	Approx. Cost
<i>Achievable in the Medium-Term</i>				
All hazards	Municipalities	Continue enforcement of the Statewide Uniform Construction Codes. Municipalities should also consider adopting part or all of the International Property Maintenance Code, which will help make sure that existing buildings are properly maintained to resist damage.	No funding necessary	Staff Time
All hazards	County Planning Department and municipalities	Work with the municipalities to integrate the County's Hazard Mitigation Plan into the municipalities' Comprehensive Plans, Subdivision and Land Development Ordinances, and Zoning Ordinances, and other similar documents by advising them on the principles and strategies for safe development.	No funding necessary	Staff Time
Flood	County Conservation District	Use the "Pine Grove Area/Upper Swatara Watershed Recovery Strategy" as a model and example for similar strategies in other watersheds throughout the county.		TBD
Flood	County Conservation District	Implement the "Pine Grove Area/Upper Swatara Watershed Recovery Strategy".		TBD
Flood	County Emergency Management Agency and Planning Department	Standardize and improve the system of flood damage reporting. This process should use FEMA's Model Data Capture standards, including use of geographic information systems (GIS, which includes computerized mapping) by the county and municipalities.	HMA	
Flood	County Planning Department	Amend the County Zoning Ordinance to include measures to: enhance the concept of defensible space practice, and consider requiring applicants with property in the 100 year Floodplain to receive approval for building from the municipality prior to issuance of a County zoning permit application.	No funding necessary	Staff Time



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Hazard Addressed	Lead Agency for Implementation	Mitigation Action	Possible Funding Source	Approx. Cost
<i>Achievable in the Medium-Term</i>				
Blight	County Planning Department, County Assessment Office, County Emergency Management Agency	Identify, evaluate, and document the condition of blighted properties.	No funding necessary	Staff Time
Flood	Municipalities	Ensure the proper enforcement of municipal Floodplain Ordinances.	No funding necessary	Staff Time
Flood	County Planning Department and Conservation District	Work with the individual municipalities to be firmly committed to continued compliance with the NFIP by regulating development and redevelopment through the adoptions of provisions that meet or exceed the minimum NFIP requirements. Work with municipalities to ensure that there are no deficiencies when the Community Assistance Visits are conducted to ensure continued compliance.	FEMA HMA	TBD
Tornado	County Solid Waste Office	Develop a Debris Management Plan to include quick “Help Sheets” built upon various types of events (such as EF 1 or EF 2 tornadoes).	County funds	\$50,000
Flood, earthquake, wind	County Planning Department	Incorporate local data in HAZUS models.	County funds	Staff Time
Wildfire	County Emergency Management Agency, Planning Department, and Conservation District	Identify and implement incentives to encourage municipal officials to participate in training.	No funding necessary	Staff Time



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Hazard Addressed	Lead Agency for Implementation	Mitigation Action	Possible Funding Source	Approx. Cost
<i>Achievable in the Medium-Term</i>				
Drought	Municipalities, County Planning Department	Work the municipalities to acquire data on the locations of individual wells.	No funding necessary	Staff Time

Hazard Addressed	Lead Agency for Implementation	Mitigation Action	Possible Funding Source	Approx. Cost
<i>Achievable in the Long-Term</i>				
Flood	Municipalities	Acquire, elevation, relocate or wet or dry proof non-residential structures to mitigate from flood damages.	HMA	TBD
Flood	Municipalities	Over the long-term, if funding becomes available, prepare stormwater management plans for watersheds where they have not been completed.	PADEP	TBD
Flood	Municipalities	Encourage municipalities to enroll in the Community Rating System (CRS). This program offers reduced flood insurance rates within a municipality that takes specific steps to reduce their flood risks.	HMA	TBD

The Steering Committee developed specific criteria to prioritize the county-wide actions. The Steering Committee agreed on the following three criteria which involved addressing the following questions:

Social Considerations – Life/Safety Impact

- Will the project have minimal, direct or significant impact on the safety of businesses, residents and properties?
- Will the proposed action adversely affect one segment of the population?
- Will the project be a proactive measure to reduce a particular risk or risks?



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Administrative Considerations – Administrative/Technical Assistance

- Is there sufficient staff currently available to implement the project?
- Is training required for the staff to implement this project?

Economic Considerations – Project Cost

- What is the approximate cost of the project

For each criterion, the level of importance (high, medium, or low) was determined and corresponding points were assigned, as indicated in Table 7.2.

**Table 7.2
Evaluation Criteria for Project Prioritization**

Criteria	Points	High	Points	Medium	Points	Low
Life/Safety Impact	10	Significant impact on public safety for businesses, residents and/or properties	6	Direct impact on businesses, residents and/or properties	2	Minimal/negligible impact on businesses, residents and/or properties
Administrative/Tech Assistance	5	No additional staff or technical support needed to implement action	3	Some administrative and technical support needed to implement action	1	Significant administrative and technical support needed to implement action
Project Cost	5	Low cost (<\$25,000)	3	Moderate cost (\$25,000-\$100,000)	1	High cost to implement (>\$100,000)

Points were then assigned to each action and totaled, in order to determine the ranking of projects of actions as shown in Table 7.3. Generally, actions with a high total score have a significant impact, require little additional resources, and have a low project cost. Conversely, low scoring projects have a minimal impact, require significant administrative support, and require a large cost to implement. Table 7.3 is sorted by High to Low prioritization.



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Table 7.3
Ranking of County-Wide Mitigation Actions

Mitigation Action	Life Safety Score	Admin/Tech Assistance Score	Project Cost Score	Total Score
Work with the individual municipalities to be firmly committed to continued compliance with the NFIP by regulating development and redevelopment through the adoptions of provisions that meet or exceed the minimum NFIP requirements. . Work with municipalities to ensure that there are no deficiencies when the Community Assistance Visits are conducted to ensure continued compliance.	10	5	5	20
Improve real-time information on stream flow (particularly during flood conditions) through placement of additional stream gauges throughout the county. During flood conditions, use this information to project peak flood levels and to warn the public and emergency service providers.	10	3	3	16
Enroll municipalities in the Firewise program. Encourage municipalities to reduce the vulnerability of critical facilities to wildfires by: increasing buffers and introducing defensible spaces; identifying farm roads, service roads, and other private access corridors in high hazard areas that could be used as fire breaks; and providing assistance to the County Emergency Management to identify vulnerable structures.	6	5	5	16
Partner with the Schuylkill County Board of Realtors to raise awareness on the potential hazard of radon to prospective home buyers in Schuylkill County.	6	5	5	16
Identify, evaluate, and document the condition of blighted properties.	6	5	5	16
Where acquisition is not feasible advise homeowners with a preferred mitigation alternative such as elevation or flood proofing.	10	1	3	14
Acquire, elevation, relocate or wet or dry proof non-residential structures to mitigate from flood damages.	2	5	5	12



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Mitigation Action	Life Safety Score	Admin/Tech Assistance Score	Project Cost Score	Total Score
Monitor and evaluate mitigation actions annually and update the hazard mitigation plan every five years to reflect changes in development after a major hazard event.	2	5	5	12
On an annual basis, conduct Municipal Officials Training and/or State-sponsored training courses to address hazard mitigation topics, such as: damage assessment after natural disasters, stormwater management, mutual aid agreements among emergency providers and municipalities, public disaster assistance, hazard mitigation grant assistance, CIP, and tools to address blight.	2	5	5	12
Advocate for municipalities to find alternate methods of funding to the Hazard Mitigation Grant Program.	2	5	5	12
Standardize and improve the system of flood damage reporting. This process should use FEMA's Model Data Capture standards, including use of geographic information systems (GIS, which includes computerized mapping) by the county and municipalities.	2	5	5	12
Develop an understanding that more clearly lays out responsibilities among County agencies on their roles associated with floodplain management.	2	5	5	12
Assign and train additional County employees to assist the Emergency Operations Center staff, so they can be called upon in the event of major emergencies.	2	5	5	12
Map new developments as plans are approved for the purpose of emergency and land use planning.	2	5	5	12
Use legal tools (land bank legislation, conservatorship) that have been provided through recent State laws to reduce the number of blighted properties.	2	5	5	12



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Mitigation Action	Life Safety Score	Admin/Tech Assistance Score	Project Cost Score	Total Score
Cooperate with local water authorities, including mapping water source data and mapping locations of water sources needed during fires (such as ponds and dry hydrants).	2	5	5	12
Incorporate local data in HAZUS models.	2	5	5	12
Review mutual aid agreements (municipal as inter county) and recommend changes as required.	2	5	5	12
Assist municipalities in the preparation and maintenance of Emergency Operations Plans.	2	5	5	12
Review and evaluate facilities, equipment, personnel and other resources needed to support emergency response annually.	2	5	5	12
Work with the municipalities to integrate the County’s Hazard Mitigation Plan into the municipalities’ Comprehensive Plans, Subdivision and Land Development Ordinances, and Zoning Ordinances, and other similar documents by advising them on the principles and strategies for safe development.	2	5	5	12
Amend the County Zoning Ordinance to include measures to: enhance the concept of defensible space practice, and consider requiring applicants with property in the 100 year Floodplain to receive approval for building from the municipality prior to issuance of a County zoning permit application.	2	5	5	12
Coordinate open space protection efforts with other entities and land protection groups for the preservation of areas where the hazard level is high.	2	5	5	12
Determine appropriate methods to conserve water. Initiate a water conservation program.	2	5	5	12



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Mitigation Action	Life Safety Score	Admin/Tech Assistance Score	Project Cost Score	Total Score
Foster relationships with other counties, so that Schuylkill County may utilize mutual aid in Emergency Operations Center positions, including GIS.	2	5	5	12
Encourage municipalities to update their stormwater regulations as needed. A model PA DEP stormwater ordinance is available online that can be used.	2	5	5	12
Work the municipalities to acquire data on the locations of individual wells.	2	5	5	12
Over the long-term, if funding becomes available, prepare stormwater management plans for watersheds where they have not been completed.	6	3	1	10
Develop a Debris Management Plan to include quick “Help Sheets” built upon various types of events (such as EF 1 or EF 2 tornadoes).	2	5	3	10
Implement the “Pine Grove Area/Upper Swatara Watershed Recovery Strategy”.	2	5	3	10
Use the “Pine Grove Area/Upper Swatara Watershed Recovery Strategy” as a model and example for similar strategies in other watersheds throughout the county.	2	5	3	10
Enroll County staff in Hazard Mitigation and Floodplain Management courses, which may include on-line webinars to minimize costs.	2	3	5	10
Train additional County personnel on the use of the County’s GIS system to support emergency operations.	2	3	5	10



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Mitigation Action	Life Safety Score	Admin/Tech Assistance Score	Project Cost Score	Total Score
Encourage municipalities to enroll in the Community Rating System (CRS). This program offers reduced flood insurance rates within a municipality that takes specific steps to reduce their flood risks.	6	1	1	8
Include language in the County Zoning Ordinance (for 34 municipalities) and the 33 municipal ordinances on measures to: enhance the concept of defensible space practice; and minimize impervious surfaces to reduce the impacts of drought.	2	3	3	8
Establish webpages where presentations, training documents and webinars can be posted. This will allow municipal officials to access to the information at their own schedule and at their own pace.	2	3	3	8
Identify and implement incentives to encourage municipal officials to participate in training.	2	3	3	8
Continue enforcement of the Statewide Uniform Construction Codes. Municipalities should also consider adopting part or all of the International Property Maintenance Code, which will help make sure that existing buildings are properly maintained to resist damage.	2	3	3	8
Develop a GIS Strategic Plan for providing greater access to GIS data and tools for both emergency and land use planning.	2	3	3	8
Provide assistance to municipalities in implementing individual hazard mitigation actions. All hazards	2	1	3	6
Ensure the proper enforcement of municipal Floodplain Ordinances.				



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7.5 Multi-Jurisdictional Mitigation Actions (Municipal Level)

In addition to the above actions developed for Schuylkill County, mitigation actions have been provided for each municipality. Multi-jurisdictional plans require all municipalities to have at least one mitigation action to be included in the hazard mitigation plan. Appendix C contains a list of municipal actions which includes a description of the problem, a corresponding mitigation action, the hazard mitigated by the action, an approximate cost, and project timeline. These actions were developed in the same manner as the county-level projects and draw heavily from the municipal workshop, suggestions from local representatives via email and feedback forms.

The projects are simply listed in alphabetical order by municipality. For the purposes of funding, a benefit-cost analysis should be conducted. The projects will be prioritized as individual municipalities prepare applications for specific funding agencies for particular projects. The overall timeline for the completion of projects is dependent on available funding and involvement and commitment by the municipality.

Given that the flood hazard is of one of the highest priorities in the County and the large number of actions developed to address flooding, this Plan suggests a system to prioritize and organize the flood projects within each community.

- **High priority:** public infrastructure (sewage treatment plants, water supply plants, electric and gas facilities) and critical facilities (hospitals, schools, day care, nursing homes, emergency shelters, emergency services, government buildings, public utilities, communications and transportation). These facilities have been categorized as high priority as their continued operation is vital to the functioning of the municipality.
- **Medium Priority:** acquisitions and flood proofing/elevation of buildings in the 100-year floodplain.
- **Low Priority:** Storm drainage improvements including culverts and inlets. Non-floodplain projects.



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Section 8 Plan Maintenance

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- 8.3 Method and Schedule for Updating the Plan
- 8.4 Incorporation into Existing Planning Mechanisms
- 8.5 Continued Public Involvement

8.1 Requirements for Plan Monitoring and Maintenance

Requirement §201.6(c)(4)(i): *The plan maintenance process shall include a section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle*

Requirement §201.6(c)(4)(ii): *The plan shall include a process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.*

Requirement §201.6(c)(4)(iii): *The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.*

Through ongoing maintenance, the Hazard Mitigation Plan can remain a highly effective planning tool. Federal guidelines require that plan maintenance include a method and schedule for monitoring, evaluating and updating the Hazard Mitigation Plan. The Hazard Mitigation Plan should incorporate a process by which local governments can incorporate the requirements of the mitigation plan into other planning mechanisms.

Undeniably, an insufficiency between the 2007 Hazard Mitigation Plan and this update was and is the lack of plan monitoring and maintenance. It has been identified that this occurred due to specifying the “Community Planner” as the sole individual responsible for plan maintenance. This “Community Planner” position was a grant-funded position responsible for the update to the Comprehensive Plan and was eliminated sometime after the grant-funding expired.

The proposed method – specifically the partnership between Schuylkill County Planning and Emergency Management, as well as, the continuation of a Planning Committee – is intended to assure a successful plan implementation.

This section also describes how the Hazard Mitigation Plan will be incorporated into other planning mechanisms. And, finally, continued public involvement must be addressed.



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8.2 Method for Monitoring the Plan

Plan Maintenance requires an ongoing effort to monitor and maintenance of the Hazard Mitigation Plan. Monitoring will occur for three purposes:

- Maintain the currency of hazard and risk information
- Ensure that mitigation projects and actions reflect the priorities of the County and the Hazard Mitigation Planning Committee
- Comply with FEMA and Commonwealth requirements for Plan Maintenance and maintain Schuylkill County’s eligibility for federal disaster assistance and mitigation grants.

Ideally, the task of monitoring the Plan would be a full-time job, done by one person employed by the County. Utilizing a specific Hazard Mitigation position would allow the County to keep a closer eye on ongoing and completed mitigation projects throughout the municipalities, as well as, provide the municipalities with a more direct line of contact through the next five years. This would also hold both the County and municipalities more accountable for implementing the Hazard Mitigation Plan. As it is unlikely that a Hazard Mitigation position is feasible, monitoring of the Hazard Mitigation Plan will be a joint effort between the Schuylkill County Planning Office and the Schuylkill County Emergency Management Agency.

In addition, County staff will seek approval from the Schuylkill County Board of Commissioners to transition the Hazard Mitigation Plan *Steering* Committee to a *Planning* Committee. Transitioning to a Planning Committee will help ensure that the Hazard Mitigation Plan is being continuously monitored.

8.3 Method and Schedule for Updating the Plan

While the Schuylkill County Planning Office and the Emergency Management Agency will work jointly, the Planning Office shall assume the lead for planning efforts. Evaluation and update of the plan will take place through:

- Annual submission of Progress Reports by the municipalities
- Annual Progress Evaluation or “Report Card” to be completed by Planning and Emergency Management Agency staff
- Annual update of the County GIS and other supporting data to reflect scope of disaster
- Annual review by the Planning Committee
- Review post-event as necessitated
- 5-Year Update to be submitted to PEMA and FEMA unless a disaster or other circumstances necessitate and earlier update

The local municipalities will submit progress reports including timelines and funding opportunities for any hazard mitigation actions. The municipal report will include revisions in, additions, or modifications to municipal projects.



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County staff will prepare a “Report Card” identifying progress made on plan recommendations and county-wide mitigation actions in the previous 12 months. County staff will all update supporting data, including GIS data, to reflect existing conditions or new events.

Staff from both offices will convene the Planning Committee on an annual basis to review the progress made on municipal and county mitigation actions, and evaluate the implementation of the Hazard Mitigation Plan. This annual review, to be held near the anniversary of the plan approval date, will include:

- Review of the Municipal and County Progress Reports
- Recommendations regarding the composition of the Planning Committee
- Completion of a report to be presented to the Schuylkill County Board of Commissioners and all local officials

Following a disaster declaration, the Hazard Mitigation Plan will be reviewed as necessary in response to any “lessons learned” or to address specific circumstance arising from the event. In the event that a disaster declaration warrants a re-examination of mitigation projects and strategies, it will be the responsibility of the County Emergency Management Coordinator to recommend a special meeting of the Planning Committee.

Although review of the Hazard Mitigation Plan will occur annually, a formal revision of the Plan will be produced, at a minimum, every five years. Factors, which will be considered during the update, include:

- New development in identified hazard areas
- An increased exposure to hazards
- An increase or decrease in the capability to address hazards
- Changes to federal or state requirements

During the five-year update process, the following questions will be considered as criteria for assessing the effectiveness and appropriateness of the Hazard Mitigation Plan:

- Do the goals address the current and future conditions?
- Has the probability or impact of the risks changed?
- Are the current resources appropriate for implementing the Plan?
- Are there implementation problems?
- Have the outcomes occurred as expected?
- Did the Steering Committee, local municipalities, and other stakeholders participate in the Hazard Mitigation Plan implementation process as expected?

Following the five-year review, any plan amendments will be forwarded to the Schuylkill County Board of Commissioners and the local municipalities with a recommendation to adopt the revised Plan.



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8.4 Incorporation into Existing Planning Mechanisms

Since the 2007 approval of the Hazard Mitigation Plan, the County has learned some valuable lessons - particularly those learned as a result of the flooding event from Hurricane Irene and Tropical Storm Lee and the subsequent short-term and long-term recovery process. Key among those lessons is the value of moving beyond the serious disconnect that often exists between such hazard mitigation planning and other local planning activities. This plan update strongly emphasizes a link between hazard mitigation and land use planning as evidenced by the document review (*See Section 6*) and county-wide mitigation strategies (*See Section 7*).

As part of the Act 247 Municipal Review process, the Schuylkill County Planning Office will review and provide comments regarding consistency between the Hazard Mitigation Plan and local planning documents (i.e. Comprehensive Plans, Zoning Ordinances, Subdivision and Land Development Ordinances).

Although the Hazard Mitigation Plan exists now as a standalone plan, it is intended that the Hazard Mitigation Plan will be incorporated as a companion document to an update to the County Comprehensive Plan slated to occur in 2016.

8.5 Continued Public Involvement

Public involvement is an integral part of the planning process for the Hazard Mitigation plan through the use of surveys, public workshops and meetings. Other efforts will be undertaken annually to involve the public in the maintenance, evaluation, and update process as necessary. These efforts may include:

- Providing updates to local municipal officials through email and training
- Posting updates on the County website and through social media (Facebook, Twitter)
- Issuing media releases to advise the public of any maintenance, updates, or periodic review activities taking place
- Making available the Hazard Mitigation Plan on the County website
- Partnering with other stakeholder organization who conduct public awareness activities (i.e. Local Emergency Planning Committee, Planning Commission)