

Lowhill Township, Lehigh County Annex

Hazard Mitigation Plan Points-of-Contact

Primary:

Brian Carl
Township Administrator
2175 Seipstown Road, Fogelsville, PA 18051
610-285-6660
brian@weisenbergtownship.org

Alternate:

Frank Bartholomew
Emergency Management Coordinator
2175 Seipstown Road, Fogelsville, PA 18051
610-285-6660
fbartholomew@weisenbergfire.com

Municipal Profile

Lowhill Township is a suburban township in the central part of Lehigh County covering 14 square miles, with an estimated population of 2,173 (2010 Census). The Township is bordered by; North Whitehall Township to the east; Heidelberg Township to the north; Lynn Township to the northwest; Weisenberg Township to the southwest; Upper Macungie Township to the south; and South Whitehall Township to the southeast. The villages of Lowhill include Clauseville, Leather Corner Post, Lowhill, Lyon Valley, and Weidasville.

Lowhill Township is drained by the Jordan Creek, which flows west to east and into the Lehigh River.

State Route 100 cross through Lowhill Township from north to south, and is the main transportation route to access Route 22 and Interstate 78, south of the Township, connecting east towards Allentown and / or points north and south along Highway 476. Major east-west roads through the township include Clauseville Road / SR 4003 and Kernsville Road, which also connect east through North Whitehall Township towards Allentown.

Municipal Participation

1. Identify municipal stakeholders to be involved in the planning process such as, floodplain administrator, public works, emergency management, engineers, planners, etc., and include their specific role in the process.

Joe Kalusky, Road master
Role: Public Works

Chris Noll, Engineer
Role: Floodplain data

Brian Carl, Administrator
Role: coordinating, emergency response, pre-planning, hazard identification

Frank Bartholomew, Emergency Management Coordinator
Role: coordinating, emergency response, pre-planning, hazard identification

Municipal Participation – *continued*

2. Identify community stakeholders such as; neighborhood groups, religious groups, major employers / businesses, etc., that will be informed and / or involved in the planning process and describe how they will be involved.

Evacuation Points and Public Education

- Lowhill & Morganland Church
- Northwestern School District
- CLIU School
- New Tripoli Bank
- Creative Kids Daycare

Emergency Response

- Fogelsville, New Tripoli, Tri-Clover, Schnecksville and Germansville Fire Departments
- Cetronia and NOVA EMS
- Pennsylvania State Police

3. Describe how the public **will be engaged** in the current planning process examples, newsletters, social media, etc., **and how they were engaged** since the 2013 Hazard Mitigation Plan.

- Newsletters
- Website
- Information posted at public places

Compliance with the National Flood Insurance Program (NFIP)

Topic	Identify source of information, if different from the one listed.	Additional Comments
1. Staff Resources		
Is the Community Floodplain Administrator (FPA) or NFIP Coordinator certified?	Community FPA	No
Is floodplain management an auxiliary function?	Community FPA	Yes
Provide an explanation of NFIP administration services (e.g., permit review, GGIS, education or outreach, inspections, engineering capability)	Community FPA	Application and plot plans are reviewed against FEMA
What are the barriers to running an effective NFIP program in the community, if any?	Community FPA	N/A

Compliance with the National Flood Insurance Program (NFIP) – *continued*

Topic	Identify source of information, if different from the one listed.	Additional Comments
2. Compliance History		
Is the community in good standing with the NFIP?	State NFIP Coordinator, FEMA NFIP Specialist, or community records	Yes
Are there any outstanding compliance issues (i.e., current violations)?		No?
When was the most recent Community Assistance Visits (CAV) or Community Assistance Contact (CAC)?		I just called FEMA to discuss required info.
Is a CAV or CAC scheduled or needed?		No
3. Regulation		
When did the community enter the NFIP?	NFIP Community Status Book	10/15/1985
Are the Flood Insurance Rate Maps (FIRMs) digital or paper? How are residents assisted with mapping?	Community FPA	Paper / Online
Do floodplain regulations meet or exceed FEMA or State minimum requirements? If so, in what ways?	Community FPA	Meet, based on ordinance requirements and amendments
Describe the permitting process	Community FPA, State, FEMA NFIP	Permit applied for – maps checked
4. Insurance Summary		
How many NFIP policies are in the community? What is the total premium and coverage?	State NFIP Coordinator or FEMA NFIP Specialist	?
How many claims have been paid in the community? What is the total amount of paid claims? How many substantial damage claims have there been?	FEMA NFIP or Insurance Specialist	?
How many structures are exposed to flood risk within the community?	Community FPA or GIS Analyst	Info unavailable
Describe any areas of flood risk with limited NFIP policy coverage	Community FPA or FEMA Insurance Specialist	Info unavailable
5. Community Rating System (CRS)		
Does the community participate in CRS?	Community FPA, State, or FEMA NFIP	No
If so, what is the community's CRS Class Ranking?	Flood Insurance Manual (http://www.fema.gov/floodinsurancemanual.gov)	N/A
What categories and activities provide CRS points and how can the Class be improved?		N/A
Does the plan include CRS planning requirements?	Community FPA, FEMA CRS Coordinator, or ISO representative	N/A

Community Assets

Community assets are defined to include anything that is important to the character as well as the function of a community, and can be described in four categories, they are; people, economy, natural environment and built environment. Please identify the community assets and location under each category.

1. People

- Concentrations of vulnerable populations such as the elderly, physically or mentally disabled, non-English speaking, and the medically or chemically dependent.

Carbon Lehigh Intermediate Unit School

- Types of visiting populations where large numbers of people are concentrated such as visitors for special events and students.

Students – Carbon Lehigh Intermediate Unit
State Game Lands and KOA Campgroup - recreational

2. Economy

Major employers, primary economic sectors such as agriculture and commercial centers where losses would have a severe impact on the community.

School
New Tripoli Bank

Farms throughout township

3. Natural Environment

Those areas / features that can provide protective functions that reduce the magnitude of hazard events such as, wetlands or riparian areas, and other environmental features important to protect.

Hassen Creek
Mill Creek
Misc. unnamed waters & wetlands

Jordan Creek
Switzer Creek

4. Built Environment

- Existing structures such as, concentrations of buildings that may be more vulnerable to hazards based on location, age, construction type and / or condition of use.

We get limited flooding along Jordan

Community Assets – continued

- Infrastructure systems such as water and wastewater facilities, power utilities, transportation systems, communication systems, energy pipelines and storage.

Rt. 100

- High potential loss facilities such as, dams, locations that house hazardous materials, military and / or civilian defense installations.

Sharp Propane

- Critical facilities such as, hospitals, medical facilities, police and fires stations, emergency operations centers, shelters, schools and airports / heliports.

Creative Kids Daycare

- Cultural / historical resources such as, museums, parks, stadiums, etc.

Capability Assessment

Capability	✓ Regulatory ✓ Tools ✓ Programs	Status			Department / Agency Responsible	Effect on Hazard Loss Reduction: - <u>S</u> upports - <u>N</u> eutral - <u>H</u> inders	Change since 2013 Plan? + Positive - Negative	Has the 2013 Plan been integrated into the Regulatory Tool/Program ? If so, how?	How can these capabilities be expanded and improved to reduce risk?	Additional Comments
		In Place	Date Adopted or Updated	Under Development						
1. Planning & Regulatory	Comprehensive Plan	X	1/6/2005		Township Administrator		+			
	Capital Improvement Plan	X			Township Administrator		+			
	Economic Development Plan									
	Continuity of Operations Plan									
	Stormwater Management Plan / Ordinance	X	4/5/2007		Township Administrator		+			
	Open Space Management Plan (or Parks/Rec., Greenways Plan)	X	7/2/2009		Township Administrator		+			
	Natural Resource Protection Plan									
	Transportation Plan									
	Historic Preservation Plan									

Capability Assessment – continued

Capability	✓ Regulatory ✓ Tools ✓ Programs	Status			Department / Agency Responsible	Effect on Hazard Loss Reduction: -Supports -Neutral -Hinders	Change since 2013 Plan? + Positive - Negative	Has the 2013 Plan been integrated into the Regulatory Tool/Program ? If so, how?	How can these capabilities be expanded and improved to reduce risk?	Additional Comments
		In Place	Date Adopted or Updated	Under Development						
1. Planning & Regulatory	Floodplain Management Plan	X			Administration					
	Farmland Preservation	X			County					Lehigh County
	Evacuation Plan									
	Disaster Recovery Plan									
	Hazard Mitigation Plan	X	8/1/13		Administration			N/A		
	Emergency Operations Plan	X	10/1/15		Administration					
	Zoning Regulations	X	5/4/17		Administration					
	Floodplain Regulations	X	2/9/77		Administration					
	NFIP Participation	X	10/15/85		Administration					
	Building Code	X	11/15/01		Administration					
	Fire Code									
Other										

Capability Assessment – continued

Capability	✓ Staff ✓ Personnel ✓ Resources			Department / Agency	Change since 2013 Plan? + Positive - Negative	How can these capabilities be expanded and improved to reduce risk?	Additional Comments
		Yes	No				
2. Administrative & Technology	Planners (with land use / land development knowledge)						
	Planners or engineers (with natural and / or human-caused hazards knowledge)						
	Engineers or professionals trained in building and / or infrastructure construction practices (including building inspectors)	X		Admin			
	Emergency Manager	X		Admin			
	Floodplain administrator / manager						
	Land surveyors	X		Admin			
	Staff familiar with the hazards of the community	X		Admin / Public Works			
	Personnel skilled in Geographical Information Systems (GIS) and / or FEMA's HAZUS program	X		Admin			
	Grant writers or fiscal staff to handle large / complex grants	X		Admin			
	Other						

Capability			Department / Agency	Change since 2013 Plan? + Positive - Negative	How can these capabilities be expanded and improved to reduce risk?	Additional Comments
	Yes	No				
3. Financial Resources	Capital improvement programming		X			
	Community Development Block Grants (CDBG)		X			
	Special purposes taxes		X			
	Gas / Electricity utility fees		X			
	Water / Sewer fees		X			
	Stormwater utility fees		X			
	Development impact fees		X			
	General obligation, revenue, and / or special tax bonds		X			
	Partnering arrangements or intergovernmental agreements	X				
	Other					

Capability Assessment – continued

Capability	✓ Program ✓ Organization	Yes	No	Department / Agency	Change since 2013 Plan? + Positive - Negative	How can these capabilities be expanded and improved to reduce risk?	Additional Comments
4. Education & Outreach	Firewise Communities Certification						
	StormReady Certification						
	Natural disaster or safety-related school programs	X		Fire Department, Emergency Management Coordinator	same	More \$	
	Ongoing public education or information programs such as, responsible water use, fire safety, household preparedness, and environmental education.	X		Fire Department, Administration, Emergency Management Coordinator	same	More \$	
	Public-private partnership initiatives addressing disaster related issues.	X		Fire Department, Administration, Emergency Management Coordinator	same	More \$	
	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	X		Fire Department, Administration	same	More \$	
	Other						

Capability		Degree of Capability			Change since the 2013 Hazard Mitigation Plan? If so, how?	Additional Comments
		Limited	Moderate	High		
5. Self – Assessment	Planning and Regulatory			X	No	
	Administrative and Technical			X	No	
	Financial			X	No	
	Education and Outreach		X		No	

Known or Anticipated Future Development / Redevelopment

Development / Property Name	Type of Development	Number of Structures	Location	Known Hazard Zone	Description / Status
None					

Natural & Non-Natural Event History Specific to Lowhill Township

Type of Event and Date(s)	FEMA Disaster # (if applicable)	Local Damage(s) or Loss(es)
Winter Storm Jonas – 1/2016	DR-4267-PA	Heavy snow and drifting
Pennsylvania COVID-19 Pandemic – 1/2020	DR-4506-PA	Emergency Protective measures to combat COVID-19 Pandemic.

2013 Municipal Action Plan Status

Existing Mitigation Action (from 2013 Hazard Mitigation Plan)		Status					Additional Comments
		No Progress / Unknown	In Progress	Continuous	Completed	Discontinued	
1	Retrofit structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. Phase 1: Identify appropriate candidates for retrofitting based on cost-effectiveness versus relocation. Phase 2: Where retrofitting is determined to be a viable option, work with property owners toward implementation of that action based on available funding from FEMA and local match availability.	X					
2	Purchase, or relocate structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. Phase 1: Identify appropriate candidates for relocation based on cost-effectiveness versus retrofitting. Phase 2: Where relocation is determined to be a viable option, work with property owners toward implementation of that action based on available funding from FEMA and local match availability.	X					
3	Maintain compliance with and good-standing in the NFIP including adoption and enforcement of floodplain management requirements (e.g. regulating all new and substantially improved construction in Special Hazard Flood Areas), floodplain identification and mapping, and flood insurance outreach to the community. Further, continue to meet and/or exceed the minimum NFIP standards and criteria through the following NFIP-related continued compliance actions identified below.		X				
4	Conduct and facilitate community and public education and outreach for residents and businesses to include, but not be limited to, the following to promote and effect natural hazard risk reduction: Provide and maintain links to the HMP website, and regularly post notices on the County/municipal homepage(s) referencing the HMP webpages. Prepare and distribute informational letters to flood vulnerable property owners and neighborhood associations, explaining the availability of mitigation grant funding to mitigate their properties, and instructing them on how they can learn more and implement mitigation. Use email notification systems and newsletters to better educate the public on flood insurance, the availability of mitigation grant funding, and personal natural hazard risk reduction measures. Work with neighborhood associations, civic and business groups to disseminate information on flood insurance and the availability of mitigation grant funding.		X				
5	Begin the process to adopt higher regulatory standards to manage flood risk (i.e. increased freeboard, cumulative substantial damage/improvements).		X				

2013 Municipal Action Plan Status – continued

Existing Mitigation Action (from 2013 Hazard Mitigation Plan)		Status					Additional Comments
		No Progress / Unknown	In Progress	Continuous	Completed	Discontinued	
6	Determine if a Community Assistance Visit (CAV) or Community Assistance Contact (CAC) is needed, and schedule if needed.		X				
7	Have designated NFIP Floodplain Administrator (FPA) become a Certified Floodplain Manager through the ASFPM, and pursue relevant continuing education training such as FEMA Benefit-Cost Analysis.		X				
8	Participate in the Community Rating System (CRS) to further manage flood risk and reduce flood insurance premiums for NFIP policyholders. This shall start with the submission to FEMA-DHS of a Letter of Intent to join CRS, followed by the completion and submission of an application to the program once the community's current compliance with the NFIP is established.		X				
9	Archive elevation certificates		X				
10	Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Section 7.0		X				
11	Complete the ongoing updates of the Comprehensive Emergency Management Plans		X				
12	Create/enhance/ maintain mutual aid agreements with neighboring communities for continuity of operations.			X			
13	Identify and develop agreements with entities that can provide support with FEMA/PEMA paperwork after disasters; qualified damage assessment personnel – Improve post-disaster capabilities – damage assessment; FEMA/PEMA paperwork compilation, submissions, record-keeping			X			
14	Work with regional agencies (i.e. County and PEMA) to help develop damage assessment capabilities at the local level through such things as training programs, certification of qualified individuals (e.g. code officials, floodplain managers, engineers).			X			

Notes:

1. Actions not carried through to the 2018 Action Plan are so noted.
2. To maintain National Flood Insurance Program (NFIP) compliance, actions related to the NFIP were carried through to the 2018 Action Plan even if identified by the municipality as completed.

2018 Mitigation Action Plan

Mitigation Action		Mitigation Technique Category	Hazard(s) Addressed	Priority (H / M / L)	Estimated Cost	Potential Funding	Lead Agency / Department	Implementation Schedule	Applies to New and / or Existing Structures
1	<p>Retrofit structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. Phase 1: Identify appropriate candidates for retrofitting based on cost-effectiveness versus relocation.</p> <p>Phase 2: Where retrofitting is determined to be a viable option, work with property owners toward implementation of that action based on available funding from FEMA and local match availability.</p>	Structure & Infrastructure	Flood	Medium	High	FEMA Mitigation Grant Programs and local budget (or property owner) for cost share	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from PEMA, FEMA	Long-term (depending upon funding)	Existing
2	<p>Purchase, or relocate structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority.</p> <p>Phase 1: Identify appropriate candidates for relocation based on cost-effectiveness versus retrofitting.</p> <p>Phase 2: Where relocation is determined to be a viable option, work with property owners toward implementation of that action based on available funding from FEMA and local match availability.</p>	Structure & Infrastructure	Flood	Medium	High	FEMA Mitigation Grant Programs and local budget (or property owner) for cost share	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from PEMA, FEMA	Long-term (depending upon funding)	Existing

2018 Mitigation Action Plan – continued

Mitigation Action		Mitigation Technique Category	Hazard(s) Addressed	Priority (H / M / L)	Estimated Cost	Potential Funding	Lead Agency / Department	Implementation Schedule	Applies to New and / or Existing Structures
3	Maintain compliance with and good standing in the NFIP including adoption and enforcement of floodplain management requirements (e.g. regulating all new and substantially improved construction in Special Hazard Flood Areas), floodplain identification and mapping, and flood insurance outreach to the community. Further, continue to meet and/or exceed the minimum NFIP standards and criteria through the following NFIP-related continued compliance actions identified below.	Local plans & Regulations	Flood	High	Low	Municipal Budget	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from PEMA, ISO FEMA	Ongoing	New & Existing

2018 Mitigation Action Plan – continued

	Mitigation Action	Mitigation Technique Category	Hazard(s) Addressed	Priority (H / M / L)	Estimated Cost	Potential Funding	Lead Agency / Department	Implementation Schedule	Applies to New and / or Existing Structures
4	<p>Conduct and facilitate community and public education and outreach for residents and businesses to include, but not be limited to, the following to promote and effect natural hazard risk reduction: Provide and maintain links to the HMP website, and regularly post notices on the County/municipal homepage(s) referencing the HMP webpages. Prepare and distribute informational letters to flood vulnerable property owners and neighborhood associations, explaining the availability of mitigation grant funding to mitigate their properties, and instructing them on how they can learn more and implement mitigation. Use email notification systems and newsletters to better educate the public on flood insurance, the availability of mitigation grant funding, and personal natural hazard risk reduction measures. Work with neighborhood associations, civic and business groups to disseminate information on flood insurance and the availability of mitigation grant funding.</p>	Education & Awareness	All Hazards	High	Low-Medium	Municipal Budget	Municipality with support from Planning Partners, PEMA, FEMA	Short-term	N/A
5	<p>Begin and/or continue the process to adopt higher regulatory standards to manage flood risk (i.e. increased freeboard, cumulative substantial damage/improvements).</p>	Local plans & Regulations	Flood	High	Low	Municipal Budget	(Via Mun. Engineer/NFIP Floodplain Admin.) w/ support from PEMA, FEMA	Short-term	New & Existing

2018 Mitigation Action Plan – continued

Mitigation Action		Mitigation Technique Category	Hazard(s) Addressed	Priority (H / M / L)	Estimated Cost	Potential Funding	Lead Agency / Department	Implementation Schedule	Applies to New and / or Existing Structures
6	Determine if a Community Assistance Visit (CAV) or Community Assistance Contact (CAC) is needed, and schedule if needed.	Local plans & Regulations	Flood	Medium	Low	Municipal Budget	NFIP Floodplain Administrator with support from PA DEP, PEMA, FEMA	Short-term	N/A
7	Have designated NFIP Floodplain Administrator (FPA) become a Certified Floodplain Manager through the ASFPM and/or pursue relevant continuing education training such as FEMA Benefit-Cost Analysis.	Local plans & Regulations	Flood	High	Low	Municipal Budget	NFIP Floodplain Administrator	Short-term (depending upon funding)	N/A
8	Participate in the Community Rating System (CRS) to further manage flood risk and reduce flood insurance premiums for NFIP policyholders. This shall start with the submission to FEMA-DHS of a Letter of Intent to join CRS, followed by the completion and submission of an application to the program once the community's current compliance with the NFIP is established.	Local plans & Regulations	Flood	Medium	Low	Municipal Budget	NFIP Floodplain Administrator with support from PA DEP, PEMA, FEMA	Short-term	N/A
9	Obtain and archive elevation certificates for NFIP compliance.	Local plans & Regulations	Flood	High	Low	Municipal Budget	NFIP Floodplain Administrator	Ongoing	N/A
10	Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Section 7.0	All Categories	All Hazards	High	Low – High (for 5-year update)	Local Budget, possibly FEMA Mitigation Grant Funding for 5-year update	(via mitigation planning Poc's) w/ support from Planning Partners (through their POC),PEMA	Ongoing	New & Existing

2018 Mitigation Action Plan – continued

Mitigation Action		Mitigation Technique Category	Hazard(s) Addressed	Priority (H / M / L)	Estimated Cost	Potential Funding	Lead Agency / Department	Implementation Schedule	Applies to New and / or Existing Structures
11	Complete the ongoing updates of the Comprehensive Emergency Management Plans	Local plans & Regulations	All Hazards	High	Low	Local Budget	Municipality with support from PEMA	Ongoing	New & Existing
12	Create/enhance/maintain mutual aid agreements with neighboring communities for continuity of operations.	All Categories	All Hazards	High	Low	Local Budget	Municipality with support from surrounding municipalities and County	Ongoing	New & Existing
13	Develop and maintain capabilities to process FEMA/PEMA paperwork after disasters; qualified damage assessment personnel – Improve post-disaster capabilities – damage assessment; FEMA/PEMA paperwork compilation, submissions, record keeping.	Education & Awareness	All Hazards	Medium	Medium	Municipal budget	Municipality with support from County, PEMA, FEMA	Short-term	N/A
14	Work with regional agencies (i.e. County and PEMA) to help develop damage assessment capabilities at the local level through such things as training programs, certification of qualified individuals (e.g. code officials, floodplain managers, engineers).	Education & Awareness	All Hazards	Medium	Medium	Municipal budget, FEMA HMA grant programs	Municipality with support from County, PEMA	Short-term (depending upon funding)	N/A
15	Devise an employee vaccination and immunization plan to prevent an outbreak within the municipal employee ranks.	Local plans & Regulations	Pandemic and Infectious Disease	Low	Unknown	Municipal Budget	County EMA	Unknown at this time	N/A
16	Devise a municipal continuity of operations plan to keep essential services running in the event that a significant portion of the workforce is affected.	Local plans & Regulations	Pandemic and Infectious Disease	Low	Unknown	Municipal Budget	County EMA	Unknown at this time	N/A

2018 Mitigation Action Plan – continued

	Mitigation Action	Mitigation Technique Category	Hazard(s) Addressed	Priority (H / M / L)	Estimated Cost	Potential Funding	Lead Agency / Department	Implementation Schedule	Applies to New and / or Existing Structures
17	Provide education and outreach to residents regarding how to prevent the spread of invasive species, including quarantine procedures.	Education & Awareness	Invasive Species	Medium	Unknown at this time	Municipal Budget	Agriculture Department	Ongoing	N/A

Notes:

Estimated Costs:

- Where actual project costs have been reasonable estimated: Low = < \$10,000; Medium = \$10,000 to \$100,000; High = > \$100,000;
- Where actual project costs cannot reasonably be established at this time:
 - Low** = Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.
 - Medium** = Could budget for under existing work plan, but would require a reapportionment of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.
 - High** = Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Potential Funding (FEMA HMA):

- **BRIC** = Building Resilient Infrastructure and Communities
- **FMA** = Flood Mitigation Assistance Grant Program
- **HMGP** = Hazard Mitigation Grant Program
- **HSGP** = Homeland Security Grant Program
- **EMPG** = Emergency Management Performance Grant

Implementation Schedule:

- **Short Term** = 1 to 5 years
- **Long Term** = 5 years or greater
- **DOF** = Depending on Funding

Applies to New and/or Existing Structures:

- **N/A** = Not Applicable