Professor Paul Kellermann
3 Scott Building
University Park, PA 16802

Dear Professor Kellermann,

I am writing this letter to request your approval to write a formal report on the topic of floodplain management in Old Lycoming Township. Old Lycoming Township is a township of Lycoming County located outside of the city of Williamsport in central Pennsylvania. In January of 1996, a devastating flood swept through this area resulting in millions of dollars in damage, numerous fatalities, and an awakened sense of insecurity in the residents of this township. The township, located along Lycoming Creek (a tributary of the West Branch of the Susquehanna River), has made attempts in the past to prevent flooding but these attempts have largely failed owing to erroneous assumptions about the flood peaks. This proposal will outline the perilous flood hazard issues facing the residents of Old Lycoming Township and will describe my research plans for investigating the nature and context of the problem. I will offer my plans for developing
possible solutions to the problem, discuss my qualifications for conducting the research, and will provide a schedule on which I will base my research activities.

The Problem

During a three-day period of January 1996, intense rainfall on top of heavy snowpack combined with unseasonably warm temperatures to produce massive flash flooding in Old Lycoming Township. This tragic event is only one example of the many flood events that have devastated this area in recent history. In 1889, a flood of gigantic proportions permanently crippled the vibrant logging industry in Williamsport. Subsequent floods in 1936, 1955, 1972, and 1975 continued to remind residents of the threat they faced by living in a floodplain. The floodplain skirting the west branch of the Susquehanna River that runs through Williamsport attracted settlement because of its fertile soils, level surface, scenic beauty and easy access to water and transportation. Ideally, residents and developers sought to enjoy the wonderful fisheries, scenic view, and flat, fertile land provided by the river and its tributary streams without risk of flooding. The reality of the situation is that residing in the flood plain has left home and business owners vulnerable time and time again to the disastrous floods that continually cripple the region’s economy and communities.

Over the past thirty years, Old Lycoming Township has publicly worked to prevent the property damage and loss of life associated with flooding. The initiatives they have
enacted have been reactive and have focused on structural approaches such as building detention dams, levees, and dikes. I believe that these efforts are short-term solutions that do not necessarily work to prevent future damage or account for the large rainfall events that ultimately cause serious flooding. I feel the enactment of a long-term, comprehensive plan that focuses on channel monitoring, community education, and non-structural flood prevention approaches will more effectively prevent future community damage from floods and will help hazard prevention policy move toward becoming proactive rather than reactive.

I propose to write a formal report outlining the historic flood problem in Old Lycoming Township and proposing possible flood prevention policy changes that will allow the community to more effectively prevent costly property damage and unnecessary loss of life in future floods. The report will be presented to Jerry Walls and Mary Ellen Rogers at the Lycoming County Planning Commission as well as Janet Hall, the township supervisor for Old Lycoming Township and other members of the township government.

**Research Plan**

The problem of flooding in central Pennsylvania is a well-defined one. The focus of my research for my formal report will not be on defining the problem but on reassessing past solutions to the problem using existing monies, data, and infrastructures so that new, effective solutions may be enacted.
Following the 1996 flood in Williamsport, Lycoming County received a grant from the Federal Emergency Management Agency in the amount of three million dollars. Working in conjunction with the Lycoming County Planning Commission, I propose to utilize a portion of these funds to establish two stream gauging stations at either end of Lycoming Creek. These small, relatively inexpensive structures will enable the planners and policy makers in Old Lycoming Township to collect valuable data on stream discharge, velocity, and stage (the elevation of the water surface). The collection and analysis of this stream data will provide the foundation for studies of the calculation of the flood hazard in this township. Utilizing the data from the gauging station, stream hydrographs (plots of discharge rate against time) may be produced that will provide vital data in assessing runoff rates during storm events. This data on runoff is invaluable in assessing the flood threat of a region.

The second step of my proposed research will be to utilize the already existing Geographic Information Systems (GIS) database and floodplain mapping system of the Lycoming County Planning Commission to notify residents along Lycoming Creek of the possible flood risk of the area. Lycoming County planning officials have already established digital maps of Lycoming Creek and the homes in Old Lycoming Township. These maps and data are available to the public, but only upon request. Many homeowners do not think to ask the county for such information and as a result, they remain ignorant of the risk they face by living in a floodplain. I propose to work with the Lycoming County Planning Commission and Old Lycoming Township supervisors to
organize public meetings where flood risk assessments and floodplain mapping results are explained and discussed with community members. The public awareness of this knowledge will help homeowners and developers make better decisions about where to locate present and future residences.

The final step in my proposed research will be to work with the Old Lycoming Township government to establish “greenways” along Lycoming Creek to insure that the development of new businesses, residences, or impervious surfaces (i.e. asphalt and roofing materials) will not be a part of future development of this area. Greenways such as parks and recreations areas that include grass, trees, and other vegetation would not only provide a service to the community but would act to absorb rainfall and thus lessen the amount of water inundating communities during flood events. Impervious surfaces prevent absorption into the soil and thus significantly add to runoff and thus the amount of water available to flood communities. Therefore, greenways along the creek would provide a service to the community, help to prevent the building of future homes along the creek by acting as public areas, and would help to lessen the damaging effects of floods by decreasing storm runoff.

The implementation of these three steps will help to raise community awareness and involvement in hazard prevention issues by building upon existing initiatives. For this reason, I feel that my audience, Jerry Walls, Lycoming County Planning Commission Head, and Mary Ellen Rogers, Lycoming County Hazard Prevention Officer, will find my proposed ideas feasible and effective toward preventing future flood damage.
Schedule

**February 18- February 24:** Wait for Proposal Acceptance; Make Preliminary Phone Calls

**February 25- March 3:** Interview with Jerry Walls, Lycoming County Planning Commission Head

**March 4- March 10:** *Spring Break*

**March 11- March 17:** Interview with Mary Ellen Rogers, Lycoming County Hazard Prevention Officer

**March 18- March 24:** Interview with Janet Hall, Old Lycoming Township supervisor

**March 25- March 31:** Attend Old Lycoming Township Government Meeting; Present Proposed Ideas for Discussion

**April 1- April 7:** Compile Interview Data and Discussions

**April 8- April 14:** Writing and Revision of Formal Report

**April 15- April 21:** Peer Review of Formal Report

**April 22- April 25:** Final Writing and Revision of Formal Report
Qualifications

As part of my undergraduate thesis work, I traveled to Old Lycoming Township in order to speak with residents and government officials about the flooding problem in their area. Through my conversations with these people and my academic studies of hydrology, flood hazard calculation, water resource management, and environmental planning, I have gathered an understanding of the processes involved with stream channels, their flooding cycles, and the human interface with this system. As a result of my research and classes, I have acquired not only a technical and historical understanding of the situation but an intense personal interest in the subject of flood hazards and the complex set of factors associated with defining and preventing such hazards.

I sincerely believe that this research plan will help to raise community awareness of the flood risk in Old Lycoming Township and will help to prevent future damages from floods. I ask that you grant me permission to carry out this research so that I may use my skills and experiences to assist this township in achieving community safety.

Sincerely,

Andrew D. *****