

Commonwealth of Kentucky Enhanced Hazard Mitigation Plan: 2013 Version

MITIGATION STRATEGY

PART I: Hazard Mitigation Goals I

B. Assessing Previous Mitigation Goals; Acknowledgment of Validity and Revision

REQUIREMENT §201.4(c)(3)

The Commonwealth of Kentucky's mitigation strategy shall include a description of the Commonwealth's goals to guide the selection of activities to mitigate and reduce potential losses.

For the 2010 update of its hazard mitigation plan, the Commonwealth of Kentucky articulated the following six (6) goals:

- Goal 1:** Reduce or eliminate injuries or risks to people from natural hazard events.
- Goal 2:** Reduce or eliminate damages or risks to property from natural hazard events.
- Goal 3:** Promote sustainable communities.
- Goal 4:** Enhance state capability to implement a statewide comprehensive hazard mitigation strategy.
- Goal 5:** Increase public and private sector awareness of and support for hazard mitigation education practices as a means of developing a culture of hazard mitigation in Kentucky.
- Goal 6:** Conduct scientific research to promote hazard mitigation [2010 Kentucky State Hazard Mitigation Plan, p. 202].

The 2010 update of the Commonwealth hazard mitigation plan sought to achieve the aforementioned goals by meeting the following objectives:

Regarding Goal 1, The Reduction (or Elimination) of Injuries or Risks to People Resulting from Natural Hazard Events by:

- Promoting the use of early alert systems to warn people of all natural hazard events [**Objective 1.1**].
- Reducing the impacts of hazards on vulnerable populations [**Objective 1.2**].
- Training public officials in natural hazard preparedness [**Objective 1.3**].
- Promoting the installation or construction of tornado safe-rooms within homes or amongst communities [**Objective 1.4**].

Regarding Goal 2, The Reduction (or Elimination) of Damages or Risks to Property Resulting From Natural Hazard Events by:

- Reducing property losses resulting from flooding [**Objective 2.1**].
- Reducing severe repetitive losses and the number of “repetitive loss properties” under the presumption that doing so would reduce the amount of money being paid from the National Flood Insurance Program (NFIP) fund [**Objective 2.2**].
- Increasing the number of communities participating in the National Flood Insurance Program (NFIP) while promoting compliance with the NFIP for those communities already participating [**Objective 2.3**].
- Promoting local government involvement in the Community Rating System (CRS) program in order to promote better floodplain management [**Objective 2.4**].
- Reducing the vulnerability of state-owned facilities and infrastructure to natural hazards [**Objective 2.5**].
- Reducing the vulnerability of Kentucky’s structures and infrastructures to the effects of geologic hazards (which include landslides, earthquakes, sinkhole collapse, subsidence caused by coal mining, et al.) [**Objective 2.6**].
- Encouraging the enforcement of Kentucky’s building codes related to the construction of engineered and residential structures [**Objective 2.7**].
- Making existing manufactured housing more resistant to movement from their sites by high winds and swift floodwaters [**Objective 2.8**].
- Improving the safety of high-hazard dams to minimize the threats associated with dam failure [**Objective 2.9**].

Regarding Goal 3, The Promotion of Sustainable Communities by:

- Providing incentives for mitigation planning and actions [**Objective 3.1**].
- Forming partnerships in order to leverage and share resources [**Objective 3.2**].
- Supporting efforts which will assist with the continuity of critical and business operations [**Objective 3.3**].

Regarding Goal 4, The Enhancement of the Commonwealth's Capability to Implement a Statewide Comprehensive Hazard Mitigation Strategy by:

- Determining if existing state agency programs, plans, and policies are efficient to reduce risk to and vulnerability from natural hazards [**Objective 4.1**].
- Establishing and supporting on-going intra-governmental and intergovernmental coordination amongst the private sector, the public sector, and the general public and between federal, state, regional, and local governments, respectively [**Objective 4.2**].
- Integrating the pre- and post-disaster mitigation functions of the Commonwealth with its response and recovery functions [**Objective 4.3**].
- Reviewing and updating the Commonwealth's risk and vulnerability assessment at least every three (3) years [**Objective 4.4**].
- Coordinating funding resources and opportunities among the Commonwealth's agencies in order to assist both state and local sub-grantees to meet the non-federal match requirements for federal mitigation-related funding sources [**Objective 4.5**].
- Supporting the development and use of building codes and standards designed to reduce vulnerability and risk to all hazards [**Objective 4.6**].
- Supporting the development and enhancement of local capability to mitigate hazards [**Objective 4.7**].
- Promoting new policies to enhance hazard mitigation initiatives [**Objective 4.8**].

Regarding Goal 5, The Increase in Public and Private Sector Awareness of and Support For Hazard Mitigation Education Practices by:

- Developing a tool for dissemination of information related to hazard mitigation [**Objective 5.1**].
- Developing and promoting outreach strategies designed to educate about the Commonwealth's hazards, risks, and vulnerabilities, and mitigation actions applicable to addressing them [**Objective 5.2**].
- Identifying and encouraging the incorporation of available hazard mitigation education and outreach programs/products [**Objective 5.3**].
- Improving public knowledge of hazards and the protective measures against them so that individuals can appropriately respond during hazard events [**Objective 5.4**].

Regarding Goal 6, The Conducting of Scientific Research In Order to Promote Hazard Mitigation by:

- Leveraging the existing relationship between KYEM, UK-HMGP, and CHR; continuing to establish partnerships with public and private research universities throughout Kentucky (in order to enhance and support the securing of funding, contracts, and mitigation opportunities); enhancing research infrastructure; and assessing Kentucky's vulnerability to natural hazards [**Objective 6.1**].
- Collaborating with FEMA's Emergency Management Institute (EMI) and Kentucky's public and private universities 1) to develop higher education curriculums (multiple single curriculum) designed primarily to educate professionals in emergency management, and 2) to integrate hazard mitigation curricula into existing tertiary-level career programs [**Objective 6.2**].
- Fostering the continued development and improvement of existing research centers and laboratories within Kentucky's public research universities by aiding and supporting efforts to secure funding and research contract opportunities that will enhance in-state capabilities to conduct hazard mitigation-related research [**Objective 6.3**].
- Improving information concerning hazards, especially database development/maintenance and map production [**Objective 6.4**].

Kentucky's 2010 hazard mitigation plan update sought to address these goals-cum-objectives with the following mitigation action items that were intended to address the tabulated hazards from which Kentucky was vulnerable:

Table 4-1: Kentucky's 2010 Update Mitigation Actions

Action	Action Number	Short, Middle, or Long Term	Hazard(s) Addressed
Use eligible funds from the HMGP and other sources to assist communities in the purchase and installation of indoor and outdoor warning systems, including, but not limited to, weather-alert radios, telephone "ring-down" systems and outdoor warning sirens.	1.1.1	Long Term	Severe Storm, Dam Failure, Earthquake, Hail, Tornado
Identify vulnerable populations through the risk assessment.	1.2.1	Short Term	All Hazards
When funding permits target FEMA mitigation funds for projects that benefit vulnerable populations.	1.2.2	Long Term	All Hazards
Assist where possible to include mitigation activity in emergency management training.	1.3.1	Mid Term	All Hazards
Provide information to the general public and the housing industry through publications and electronic resources about the value of residential and non-residential safe rooms, as well as guidelines and criteria for their construction.	1.4.1	Long Term	Tornado, Severe Storm, Hail
Where resources permit and eligibility criteria can be met, make FEMA mitigation funds and other funding sources available for grants to communities interested in construction of residential and non-residential safe rooms.	1.4.2	Long Term	Tornado, Severe Storm, Hail
Promote the purchase of flood insurance for structures vulnerable to flooding.	2.1.1	Long Term	Flood, Dam Failure
Where communities and citizens express a desire to participate, and as funding resources permit, prevent or reduce damages to structures through elevation, acquisition/demolition or other flood protection means, using available FEMA and other mitigation funds.	2.1.2	Long Term	Flood

Action	Action Number	Short, Middle, or Long Term	Hazard(s) Addressed
Where communities express a desire to participate and as funding resources permit, prevent or reduce flood prone property through the design and construction of minor engineered water management projects, using available FEMA and other mitigation funds.	2.1.3	Long Term	Flood
Improve the information on the repetitive-loss list by visiting the sites of these properties to verify and correct the data on the list.	2.2.1	Long Term	Flood
Provide information through outreach to floodplain managers and local officials about the repetitive losses suffered at these locations.	2.2.2	Long Term	Flood
Improve the information on the <u>severe</u> repetitive-loss list by visiting the sites of these properties to verify and correct the data on the list.	2.2.3	Long Term	Flood
Provide information through outreach to floodplain managers and local officials about the repetitive losses suffered at these locations.	2.2.4	Long Term	Flood
Educate community leaders and floodplain managers about the program, its value to a community, and how to manage and enforce it.	2.3.1	Mid Term	Flood
Conduct community assessment visits and floodplain audits on a regular basis, including after major flooding events to promote the value of quality participation in the programs.	2.3.2	Mid Term	Flood
Increase inter-agency communication to create better understanding among state and federal agencies about the impact of the NFIP and floodplain management and to tap the expert resources of other agencies for these efforts.	2.3.3	Long Term	Flood
Prioritize communities with a greater flood hazard, more flood insurance policies and population growth, as well as enforcement and program management capabilities.	2.4.1	Long Term	Flood

Action	Action Number	Short, Middle, or Long Term	Hazard(s) Addressed
Continue a partnership with University of Louisville and the CHR to provide outreach, development of floodplain management publications, and promotional materials.	2.4.2	Short Term	Flood
Increase inter-agency communication to create better understanding among state and federal agencies about the impact of the CRS and to tap the expert resources of other agencies for these efforts.	2.4.3	Mid Term	Flood
Establish hazard mitigation priorities for retrofitting of existing state critical facilities and infrastructure based upon risk and vulnerability assessment.	2.5.1	Short Term	Earthquake, Flood, Hail, Karst/Sinkhole, Mine Subsidence, Landslide, Severe Storm, Severe Winter Storm, Tornadoes, Extreme Heat
Ensure that state facilities and infrastructure are located, designed and constructed to complement / support local priorities as defined in the Local Mitigation Strategies.	2.5.2	Long Term	All Hazards
Visit sites of interest, such as landslide location after heavy rains, when requested by individuals or agencies affected by geologic hazards in order to gather information on the hazard and disseminate it to other agencies with regulatory or programmatic interests in mitigating the effects of these hazards.	2.6.1	Long Term	Earthquake, Karst/Sinkhole, Mine Subsidence, Landslide
Part I. - Use funds available through HMGP, the Pre-Disaster Mitigation Program and any other available funding source for the following types projects: The voluntary acquisition and demolition of geologically-threatened structures which meet the required benefit and cost analysis, and other requirements of the funding agency, and the restriction of future development on the land. Such projects permanently eliminate damages in the areas of the project.	2.6.2 PART I	Long Term	Earthquake, Karst/Sinkhole, Mine Subsidence, Landslide

Action	Action Number	Short, Middle, or Long Term	Hazard(s) Addressed
PART II. - The retrofitting of existing structures, which meet any required benefit / cost analysis and other requirements of the funding agency, against structural or non-structural damages from geologic hazards, particularly earthquakes.	2.6.2 PART II	Long Term	Earthquake, Karst/Sinkhole, Mine Subsidence, Landslide
Promote land use planning for geologically high risk areas.	2.6.3	Long Term	Earthquake, Karst/Sinkhole, Mine Subsidence, Landslide
Where funding permits, conduct outreach activities with local jurisdictions to provide technical assistance in the proper enforcement of building codes.	2.7.1	Mid Term	Earthquake, Flood, Severe Storm, Severe Winter Storm, Tornado, Wildfire
Where funding permits, conduct training seminars and workshops for local building enforcement officials.	2.7.2	Mid Term	Earthquake, Flood, Severe Storm, Severe Winter Storm, Tornado, Wildfire
Through outreach and education, encourage the creation of local building enforcement capabilities in communities that currently do not have them.	2.7.3	Mid Term	Earthquake, Flood, Severe Storm, Severe Winter Storm, Tornado, Wildfire
Explore the possibilities of a state-required builder-licensing program to include continuing education, insurance or builders and mediation of disputes over the quality of construction.	2.7.4	Short Term	Earthquake, Flood, Severe Storm, Severe Winter Storm, Tornado, Wildfire
Explore possible opportunities for financial incentives for owners of manufactured housing to secure their homes to their sites.	2.8.1	Mid Term	Flood, Severe Storm, Severe Winter Storms, Tornado
Examine and evaluate the need for emergency action plans, including impact area / inundation maps, for KY's high hazard dams.	2.9.1	Long Term	Dam Failure, Flood
Examine the issues related to how unregulated development below a dam can change its designation from low or moderate to high hazard, thus necessitating an improvement to the dam or its removal.	2.9.2	Long Term	Dam Failure, Flood

Action	Action Number	Short, Middle, or Long Term	Hazard(s) Addressed
Investigate the use of tax incentives to promote smart development in hazard-prone locations.	3.1.1	Long Term	Dam Failure, Earthquake, Flood, Karst/Sinkhole, Landslide, Mine Subsidence, Wildfire
Provide FEMA mitigation grant opportunities for communities who develop, maintain, and update their hazard mitigation plans.	3.1.2	Long Term	All Hazards
Establish a working system in which local governments can work together to promote and encourage smart development.	3.2.1	Mid Term	Dam Failure, Earthquake, Flood, Karst/Sinkhole, Landslide, Mine Subsidence, Wildfire
As funding permits; provide grants to communities for utility protection measure projects including electrical, water, and sanitary sewer.	3.3.1	Long Term	Dam Failure, Drought, Earthquake, Flood, Hail, Karst/Sinkhole, Land, Dam Failure, Drought, Earthquake, Flood, Hail, Karst/Sinkhole, Landslide, Mine Subsidence, Severe Storm, Severe Winter Storm, Tornado, Wildfire
As funding permits, provide grants to communities for mitigation activities involving transportation systems.	3.3.2	Long Term	Dam Failure, Earthquake, Flood, Karst/Sinkhole, Landslide, Mine Subsidence
As funding permits; provide grants to communities for the purchase of generators and generator hook ups for critical facilities.	3.3.3	Long Term	Dam Failure, Earthquake, Flood, Hail, Severe Storm, Severe Winter Storm, Tornado
Review the existing state agency programs, plans and policies every three years.	4.1.1	Long Term	All Hazards

Action	Action Number	Short, Middle, or Long Term	Hazard(s) Addressed
Incorporate State policies into the State Hazard Mitigation Plan.	4.1.2	Long Term	All Hazards
Invite interested or needed agencies to join the State Hazard Mitigation Team.	4.2.1	Long Term	All Hazards
Hold bi annual meetings of the State Mitigation Team or in post disaster setting as necessary.	4.2.2	Long Term	All Hazards
Promote the gathering and archiving of data by local governments on the types and amount of damages after a natural hazard event.	4.3.1	Long Term	All Hazards
Establish criteria for risk and vulnerability assessment of state-owned critical facilities and infrastructure.	4.5.1	Short Term	All Hazards
Update the inventory of state-owned facilities.	4.5.2	Long Term	All Hazards
Inventory critical facilities and infrastructure that are leased.	4.5.3	Mid Term	All Hazards
Inventory identified vulnerable structures from the ADD's structure point data sets when complete.	4.5.4	Mid Term	All Hazards
Continue the state's cost-share on the Hazard Mitigation Grant Program.	4.6.1	Long Term	All Hazards
Develop guidelines for enhancing local community risk and vulnerability assessments.	4.8.1	Long Term	All Hazards

Action	Action Number	Short, Middle, or Long Term	Hazard(s) Addressed
Where resources permit, provide technical assistance to local governments in establishing, enhancing, standardizing, and implementing local mitigation strategies.	4.8.2	Long Term	All Hazards
Identify effective local regulatory approaches to hazard mitigation.	4.8.3	Long Term	All Hazards
Identify pre and post disaster mitigation related funding opportunities for local communities throughout the state.	4.8.4	Long Term	All Hazards
Identify mitigation best practices for pre and post disaster hazards mitigation activities.	4.8.5	Long Term	All Hazards
Encourage the integration of applicable hazards mitigation objectives from the local mitigation strategies into local comprehensive plans.	4.8.6	Long Term	All Hazards
Review and update local hazard mitigation plans at a minimum of every five (5) years.	4.8.7	Long Term	All Hazards
Build a website for KyEM and local planners to use during plan updates that could be used for data transfer, public outreach, and project management.	5.1.1	Long Term	All Hazards
Develop brochures defining hazards and mitigation funding opportunities.	5.2.1	Long Term	All Hazards
As resources permit, develop a public awareness campaign on the benefits of pre and post disaster mitigation through the dissemination of mitigation success stories or best practices.	5.2.2	Long Term	All Hazards
Develop a strategy for working with the print, electronic and broadcast media to disseminate mitigation education and outreach material.	5.2.3	Long Term	All Hazards

Action	Action Number	Short, Middle, or Long Term	Hazard(s) Addressed
As requested hazard mitigation staff will conduct workshops, training, and seminars on hazard mitigation techniques, grant program funding, planning, and benefit cost analysis.	5.2.4	Long Term	All Hazards
As resources allow, maintain an ongoing education and outreach effort to educate public and private schools about the importance of hazard mitigation.	5.3.1	Long Term	All Hazards
As resources allow, maintain an ongoing education and outreach effort to educate elected officials about the importance of hazard mitigation to include in an annual report to the legislature and other appropriate officials.	5.3.2	Long Term	All Hazards
As resources allow, maintain an ongoing education and outreach effort to educate the general public about the importance of hazard mitigation.	5.3.3	Long Term	All Hazards
Promote the design of a functional statewide emergency responders communication system.	5.4.1	Long Term	All Hazards
Promote NIMS compliancy so that local governments communicate more efficiently during large scale, multi-jurisdictional events.	5.4.2	Long Term	All Hazards
Establish a catalog of KY's hazards and mitigation research studies.	6.1.1	Long Term	All Hazards
Establish access and / or interchange privileges with pertinent resource centers throughout the country and internationally.	6.1.2	Long Term	All Hazards
Recommend the creation of a memorandum of collaboration with FEMA and KY public and private universities for designing higher ed. Curriculum for EM professionals, including the hazard mitigation and related fields.	6.2.1	Mid Term	All Hazards

Action	Action Number	Short, Middle, or Long Term	Hazard(s) Addressed
Participate in education program course development.	6.2.2	Mid Term	All Hazards
Update and modernize KY's flood maps and flood insurance studies in order to improve the information on current maps and studies, and to provide mapping where there currently is none.	6.4.1	Long Term	Dam Failure, Flood
Continue to work with FEMA to prioritize communities for new mapping based on population growth and number of flood insurance policies.	6.4.2	Long Term	Dam Failure, Flood
Continuously update the database of information and knowledge of KY's geologic hazards through research work such as that done by KGS, the University of KY, Dept. of Geological Sciences and USGS.	6.4.3	Long Term	Earthquake, Karst/Sinkhole, Landslide, Mine Subsidence
Monitor, update, and maintain seismic activity using the KY Seismic and Strong Motion Network.	6.4.4	Long Term	Earthquake

It should be emphasized that many of the abovementioned goals, their objectives, and the actions intended to meet the goals-cum-objectives are administrative in focus and would normally not be implemented with hazard mitigation projects (even if some of the above objectives could be pursued with requests for federal assistance from other sources).

The following table summarizes which of the Commonwealth of Kentucky's non-planning mitigation projects and projects currently *pending review* aligned with which 2010 mitigation *goal* via a specified *objective*. While the table below represents a summary, the individual projects comprising the aggregate numbers displayed below are detailed in **Appendix 4-1**, which also includes in which county and city and under which Area Development District (ADD) each either "closed-out" or "withdrawn" project or project "pending review" was completed/is awaiting the ability to be completed was placed. From the summary, however, a criticism and assessment of the 2010 update of the Commonwealth of Kentucky's hazard mitigation plan (and of state-wide planning generally) will be obvious. The obvious criticism, thusly, will be the motivation for the revision of Kentucky's hazard mitigation goals, subsequent actions, and how those actions are to be developed, prioritized, and implemented. The criticism/assessment will center on the concept of *deductive planning* introduced earlier in this hazard mitigation plan.

For reminder, *deductive planning* refers, essentially, to the act of planning *for*, in this case, Kentucky's local jurisdictions. Using "deductive" as it describes reasoning, *deductive planning* describes the creation of a general plan whose components, conclusions, mechanisms, products, et al. will be specified downward toward Kentucky's local jurisdictions. *Deductive planning* is defined in contrast to *inductive planning*: That the individual plans (and components, conclusions, mechanisms, products of other plans) are aggregated to create a general plan. Also, it should be noted that effective planning requires **both** *deductive* and *inductive* planning. But, the distinction is drawn through these neologisms for this 2013 update of Kentucky's hazard mitigation plan in order to posit and articulate *when* deductive vis-à-vis inductive planning should occur. And, again, this need to distinguish between types of planning results from effective assessment of Kentucky hazard mitigation goals and objectives.

REMEMBER:
Deductive Planning

VS.

Inductive Planning

Table 4-2: Of 32 Objectives, 5 Objectives Were Evaluable Using Mitigation Projects

GOAL	OBJECTIVE	PROJECT TYPE	# OF PROJECT ¹ TYPE
Goal 1: Reduce or Eliminate Injuries or Risks to People from Natural Hazard Events.	1.1: Promoting the Use of Early Alert Systems	Ringdown System	3
		Weather Radio	2
		Siren	24
Goal 2: Reduce or Eliminate Damages or Risks to Property from Natural Hazard Events	1.4: Promoting the Installation of Tornado Safe Rooms in Homes and the Construction of Community Tornado Shelters	Safe Room	52
Goal 2: Reduce or Eliminate Damages or Risks to Property from Natural Hazard Events	2.1: Reducing Property Losses from Flooding	Acquisition	59
		Drainage/Elevation ²	40
	2.6: Reducing the Vulnerability of Kentucky's Structures and Infrastructure to the Effects of Geologic Hazards...	Landslide Acquisitions/Soil Stabilization	7
Goal 3: Promote Sustainable Communities	3.3: Supporting the Efforts that Will Assist with the Continuity of Critical and Business Operations	Burial of Utility Lines	10
		Generator	128

**REQUIREMENT
§201.4 (c) (3) (v):**

The Commonwealth of Kentucky may request the reduced cost share authorized under 79.4 (c) (2) of this chapter for the FMA and SRL programs. If it has an approved Mitigation Plan...that also identifies specific actions the Commonwealth of Kentucky has taken to reduce the number of repetitive loss properties (which must include severe repetitive loss properties), and specifies how the Commonwealth of Kentucky intends to reduce the number of such repetitive loss properties.

WITHIN TABLE; APPENDIX TO TABLE

E. Describing Specific Actions That Have Been Implemented to Mitigate Both Repetitive-Loss and Severe Repetitive-Loss Properties,

¹ The numbers below represent the number of *projects* undertaken that concern the project type. They do not represent *how many* of each project type was incorporated within each *project*. For example, one of the two (2) Weather Radio *projects* resulted in disseminating approximately 6,500 weather radios.

² The "Drainage/Elevation" project type category can be a broad category, i.e., there are many ways to "elevate" a property.

The Assessment of 2010 Mitigation Goals and Objectives

Using the mitigation project successes (and future successes) in order to assess the goals that guided state-wide mitigation activity during the 2010 – 2013 planning cycle, a few trends are immediately noticeable:

One, in 2010, the Commonwealth of Kentucky cited 32 “Objectives” by which to meet six (6) “Goals.” Yet only five (5) of those 32 “Objectives” could be met and assessed with actual mitigation project outcome data. This is not to say that Kentucky did not satisfy or at least address the other 27 “Objectives” articulated in 2010. However, arguably, the primary purpose for mitigation planning – especially from the state level-of-analysis – is to guide the distribution of mitigation projects, in this case, throughout the Commonwealth of Kentucky: The FEMA and Kentucky Emergency Management (KYEM) goal of protecting individuals and the critical infrastructure that augments that ability from the devastating effects of oft-times sudden and many times seemingly mercurial natural hazards and from the currently unpredictable and aberrant human-made hazards primarily requires the construction of or improvement to new or existing infrastructure. In other words, protecting individuals from hazards primarily implies expensive/cost-prohibitive, generational capital projects. Planning at both the local and the state level acknowledges the public’s finite resources (i.e. a local, state, or federal government can only confiscate 100% of an individual or community’s money and property – there is a limit) that can be used toward a potentially asymptotically limitless amount of demand for capital projects that will protect individuals from hazards. Hazard mitigation planning is about capital projects primarily, and Kentucky possessed 32 “Objectives” of which only five (5) could be met using capital projects. It seems deficient of the Commonwealth to have the bulk of its “Objectives” lead to the bulk of its “Actions” being immeasurable.

Two, as of the publishing of this hazard mitigation plan and since the 2010 update of this plan, there are approximately 325 capital/mitigation projects in varying degrees of completion throughout Kentucky. Of these roughly 325 projects, nearly 40% of them involve solely the acquiring and installation of generators. When one includes safe room mitigation capital projects, this proportion surpasses 55%. This is not to deny the importance or cost effectiveness of generators or safe rooms: They are incredibly efficient methods to protect individuals from hazards. But, compared to other types of mitigation projects, these are simplistic; “quick fixes”; “Band-Aids,” perhaps.

Together, the above trends imply an inevitable deficiency to relying solely upon to what this plan has termed *deductive planning*. Both trends reflect a fallacy of top-down planning. Regarding the first trend, for 2010 there simply were too many “objectives” (and too many “actions.”) While based in considerable mitigation experience, the “objectives” could ever only be little more than a laundry list of ways by which a mitigation goal *might* or *could possibly* be achieved. Given that the objectives were articulated by a central planner, realistically there could be no consideration for whether or not those implementing the actions that met the objectives that were the vehicle for the mitigation goal actually had the capability or desire to do so. No one person or set of

people or agency can know the will or, more aptly, the preferences of a collection of individuals. And in the case of mitigation planning, the preferences of individuals and their communities are extraordinarily relevant. This will be a point addressed again below; but, 2010's objectives and actions imply inconsideration that a state does not actually suffer the effects from hazards. Tornadoes, floods, earthquakes, bombings do not affect the Commonwealth of Kentucky per se. They affect the local jurisdictions and the individuals *within* Kentucky. Thus, if the goal of Kentucky and of FEMA truly is to protect individuals from hazards, the mitigation preferences and demands from individuals and from local jurisdictions within Kentucky must take precedence over what the state generally and what the Commonwealth of Kentucky specifically thinks or imagines or (worst) presumes its individuals and local jurisdictions demand in terms of hazard protection. A list of 32 "Objectives" of which five (5) can only be met with mitigation projects is, at worst, a baseless and arbitrary bit of presumption or, at best, simply an overexcited attempt to think of and plan for everything while discounting that all plans must be implemented.

Regarding the second trend and related to the previous discussion about the first, with over half of all FEMA-approved mitigation capital projects in Kentucky since 2010 devoted to either generators or safe rooms, once again it is evident that it was the demands of the Commonwealth of Kentucky (and perhaps of FEMA) that were promoted over the mitigation demands of the localities actually suffering from hazards. Again, it cannot be overlooked that from cost-benefit perspective, generators and safe rooms are extraordinarily effective and valuable mitigation projects. From a bureaucratic perspective, they are also relatively attractive: They are effective, cost-efficient projects that are not overly burdensome in terms of harmonizing with multiple and conflicting federal and state agencies' regulatory frameworks. But, while attractive from an administrative, regulatory, and cost-benefit perspective (thus making such projects attractive to federal and state agencies), it is doubtful that, even if the projects were by any and all criteria considered by every individual everywhere in every time the most perfect mitigation projects, demand for these Paragon Projects of Perfection would be so disproportionately realized without the soft nudging deriving and apparent from those centrally planning for and the agencies ultimately providing for the funding for them. To clarify, it is obvious that the Commonwealth of Kentucky (through its agent, Kentucky Emergency Management and through the Kentucky Hazard Mitigation Council) focused considerable energy to promoting or selling generator and safe room projects. This is by no means a negative statement. Rather, it only serves as impetus to reassess whether or not Kentucky Emergency Management wants to continue to devote *as much of* its energies to the promotion of generators and safe rooms.

Finally, evidenced in the 2010 goals, objectives, and actions is some confusion over the role of the Commonwealth of Kentucky in helping to mitigate the hazards that affect its localities. Again, the "Commonwealth of Kentucky" is an abstract; it is a concept. Any role in hazard mitigation for the "Commonwealth of Kentucky" really is a role for its agencies whose responsibilities toward hazard mitigation extend only so far as its legal status and organizational structure allow. For hazard mitigation, then, the "Commonwealth of Kentucky" is synonymous of "Kentucky Emergency Management

(KYEM)” and its chosen partners. Goals, objectives, and actions that require KYEM to possess organizational function or power beyond what it is allowed (or beyond what power its status provides) are meaningless and futile. So, for example, the Commonwealth of Kentucky cannot “prevent or reduce damages to structures through elevation, acquisition/demolition, or other flood protection means...[Action 2.1.2].” KYEM will never have the power or the function to mandate communities to pursue elevation and/or acquisition projects. Nor will KYEM apply for such projects themselves to be constructed in a community of its choosing. Those are not KYEM’s functions and, thus, those are not the Commonwealth of Kentucky’s functions. It is this consideration that will guide what this plan will term “inductive planning mitigation actions”: Assigning mitigation actions that implicitly recognize the role of KYEM and, hence, the Commonwealth of Kentucky³. Following the discussion of the Commonwealth’s 2013 mitigation goals, this plan will dissect the 2010 plan’s mitigation *actions* and reform and meld them into a new set of actions that hopefully are clearer, less redundant, and more easily evaluated than those presented in the Commonwealth’s 2010 hazard mitigation plan. These will be termed “deductive planning mitigation actions.”

³ Inductive planning mitigation actions will also provide a list of actions that are technically feasible and measurable for Kentucky’s next planning cycle.

The Important Caveat to Assessment of the 2010 Mitigation Goal and Objectives That Leads into the Commonwealth of Kentucky's Mitigation Goal

All of the above is not to say that the Commonwealth of Kentucky and Kentucky Emergency Management (KYEM) et al. should deemphasize what this plan document has termed *deductive planning*. For example, from the above table summarizing those current mitigation projects that met 2010 objectives this plan pointed out the disproportionate number of generator and safe room projects. However, the 2010-2013 planning cycle also saw a significant proportion of acquisition projects as a way to meet the mitigation goals of the Commonwealth and its localities.

Acquisition projects can be complicated projects due, at the very least, to politics: Blunt in its name, these projects acquire *property*. Regardless of the fair terms and voluntary contractual basis of the property buy-outs involved in an acquisition project, when some entity – especially a government entity – seeks to take an individual's property, there is always a tightrope to walk. Further, acquisition projects are, by implication, difficult to implement for the individual seeking to have his or her property acquired. If an individual or family's property is repeatedly impacted by flooding with all of the prohibitive costs that such a situation involves (e.g., ever-increasing insurance rates, even under NFIP; constant damage-and-repair; et al.) to whom could that individual or family turn easily and without first garnering community-wide, union-like support before demanding to have his or her property acquired? And simply selling the property on the market is an exceedingly unattractive option due to the likely need for information asymmetry in order to sell and due to general market failure. Even likelier, the sale of the property is outright prohibited by statute or regulation.

The point is acquisition projects show a positive example of *deductive planning*: The Commonwealth of Kentucky needs to be able to direct, facilitate, and coordinate some of the mitigation needs and demands of its local jurisdictions. That acquisition project that the individual or family demanded likely could never have come to fruition if Kentucky Emergency Management (KYEM) and/or the University of Kentucky Martin School of Public Policy and Administration's Hazard Mitigation Grant Program (UK-HMGP), the Kentucky Division of Water (KDOW), the Department of Local Governments (DLG), and/or KYEM's Intergovernmental Liaison had not centrally sought out areas and responded to demands of individuals where acquisition and demolition was an effective, efficient, and preferred option in mitigating hazards (floods).

B. Assessing Previous Mitigation Goals (Continued)

----- **AND** -----

A. Describing the Mitigation Goals That Guide the Selection of Mitigation Activities

The Mitigation Strategy

The Commonwealth of Kentucky, through its agent Kentucky Emergency Management (KYEM), operates with the following mitigation strategy as its focus:

- ***That the Commonwealth of Kentucky will direct, facilitate, and coordinate the planning and mitigation activities and projects of the localities it oversees.***

Resulting mitigation goals and actions will rely upon the conclusions regarding Kentucky's overall risk assessment detailed in the *Risk Assessment* portion of this 2013 update of Kentucky's hazard mitigation plan. The goals from the 2010 update of Kentucky's hazard mitigation plan will change thusly: Four goals (Goal #1, Goal #2, Goal #3, and Goal #4) will be deleted; additional goals will be added; the wording will be revised for existing goals. Such changes will not represent substantive deviation from Kentucky Emergency Management's (and thus the Commonwealth of Kentucky's) past intent to implement a mitigation strategy. Kentucky Emergency Management and the Commonwealth of Kentucky always have attempted to direct and coordinate the planning and mitigation activities/projects of the communities it oversees. This 2013 update simply will attempt more accurate articulation of that strategy through more precise goals that emphasize Kentucky Emergency Management's stated and everyday functions.

The Commonwealth of Kentucky and Kentucky Emergency Management's goals and actions are thematically linked. This will be rearticulated below when discussing the mitigation actions' contribution to the overall Kentucky mitigation strategy; but, the Commonwealth of Kentucky's goals and actions are thematically linked to its risk assessment and then grouped into sub-categories.

Addressing the latter, Kentucky’s mitigation actions are grouped into the following sub-categories:

- 1) What this plan document refers to as “Deductive Action Categories,” or actions derived from the state-/agency-level and administered downward to Kentucky’s localities. These are further categorized accordingly:
 - a. Actions that can be considered outreach and/or training (categorized as *Outreach*),
 - b. Actions that increase the number and variety of mitigation options available to a community (categorized as *Option Diversification*), and
 - c. Actions that provide a public good to the state, i.e. actions from which all of Kentucky’s communities can benefit but which – due to their inclusiveness and the free-riding that they incentivize – are not usually undertaken by a single community (categorized as *Public Goods-Type*).
- 2) What this plan document refers to as “Inductive Action Categories,” or actions resulting from local hazard mitigation plan review.

The above categories are very important to the link between mitigation action and the Commonwealth of Kentucky’s mitigation strategy. Keep in mind that the categories are intended to link directly to the objectives deriving from each of the Commonwealth’s goals articulated below.

Regarding the former (that Kentucky’s goals and actions are thematically linked to its risk assessment), the risk assessment’s purpose in a state plan is to provide background information via an overview of all of the hazard risks that could affect the state. In Kentucky’s case, its risk assessment – through two separate models – was able to provide extent of vulnerability to hazards to a very precise one square-kilometer grid level and to a more user-friendly county level. Thus, it is understood that mitigation actions aimed toward Kentucky’s (through KYEM’s) role in directing and coordinating mitigation activity will refer to the vulnerability outcomes derived in its risk assessment. Mitigation actions that can be categorized as “outreach” or “training” (*Outreach*) will be informed from the Commonwealth’s risk assessment. Mitigation actions that inform about or, essentially, sell a larger array or more varied array of mitigation action options (*Option Diversification*) to communities will, again, need background provided by the Commonwealth’s risk assessment. Mitigation actions acting as statewide “public goods” (*Public Goods-Type*) will be linked to the Commonwealth’s risk assessment in a feedback loop: The Commonwealth’s analysis of where specific hazard vulnerabilities are will inform which public goods projects to pursue and when to pursue them, and those areas most in need of those public goods projects will feed back to the Commonwealth (via KYEM) further need for public goods projects.

Finally, the list of mitigation actions deriving from the local hazard mitigation plans indirectly link to the Commonwealth's risk assessment: The difference between a local hazard mitigation plan's risk assessment versus the Commonwealth's lies only in methodology and process. It is doubtful that outcomes will change: Whether scraping Roman numerals on stone tablets the number of tornadoes that have hit a community and dividing that by the span of years in which that number occurred or whether layer-mapping using powerful GIS programs and dividing data points algorithmically using the (Jencks) Natural Breaks Method, it is highly likely that both conclude that the community suffers considerable risk from tornadoes. Having a set of mitigation actions deriving from local plans only helps Kentucky Emergency Management (KYEM) and the Commonwealth of Kentucky better meet the mitigation demands of its communities and, thusly, more effectively use all available mitigation funding.

Again, the above case will be made more formally and elaborated upon more fully when describing how the Commonwealth of Kentucky's mitigation actions contribute to its strategy of directing and coordinating the mitigation activity of its localities/communities.

Tabulated below are, again, Kentucky's 2010 goals accompanied by what will happen to them for this 2013 update and how such changes are justified. Following, new goals will be articulated. After discussing 2013's renewed and new mitigation actions, the new goals will be linked with the mitigation action categories (that replace "objectives") briefly discussed above and discussed more fully below and, thus, linked with the Commonwealth of Kentucky's overall mitigation strategy.

Table 4-3: Kentucky's 2010 Mitigation Goals and the Changes to Occur for 2013

<i>2010 Goal #</i>	<i>2010 Goal Language</i>	<i>Change to Occur</i>	<i>Justification for Change</i>
Goal 1	Reduce or eliminate injuries or risks to people from natural hazard events.	This goal will be deleted.	This is more fundamental than a goal for Kentucky and its agent in hazard mitigation KYEM. This is part of KYEM's reason for existence.
Goal 2	Reduce or eliminate damages or risks to property from natural hazard events.	This goal will be deleted.	This is more fundamental than a goal for Kentucky and its agent in hazard mitigation KYEM. This is part of KYEM's reason for existence.
Goal 3	Promote sustainable communities.	The goal will be deleted.	The promotion of sustainability, while perhaps laudable, is only tangentially linked to activity whose primary purpose is to mitigate hazards. Such a goal is beyond the scope of KYEM's mission and mitigation strategy.
Goal 4	Enhance state capability to implement a statewide comprehensive hazard mitigation strategy.	The goal will be deleted.	The wording of this goal is meaningless and possibly confused about the role of KYEM in hazard mitigation.
Goal 5	Increase public and private sector awareness of and support for hazard mitigation education practices as a means of developing a culture of hazard mitigation in Kentucky	The goal's wording will be revised.	The wording will be revised to reflect Kentucky's and KYEM's mitigation actions directed toward training and outreach whose outcome is expected to develop "a culture of hazard mitigation in Kentucky."

2010 Goal #	2010 Goal Language	Change to Occur	Justification for Change
Goal 6	Conduct scientific research to promote hazard mitigation	The goal's wording will be revised.	Conducting scientific research is worthy goal to maintain. The wording will change to apply more broadly to "public goods" types of mitigation actions (<i>Public Goods-Type</i>) that include scientific research.

2013 Goals Guiding Mitigation Activity

Presented, then, are the Commonwealth of Kentucky's and Kentucky Emergency Management's (KYEM) updated 2013 goals that will help guide and direct its mission in hazard mitigation, implement its mitigation strategy, and guide the selection of mitigation activities:

- *GOAL I:* Increase awareness and support of, training toward and about, and education and proficiency in hazard mitigation (guided by the results of the Commonwealth's *Risk Assessment*).
- *GOAL II:* Maximize hazard mitigation activity throughout the Commonwealth of Kentucky (guided by the results of the Commonwealth's *Risk Assessment*).
- *GOAL III:* Provide to/develop for its local jurisdictions the tools and data-based research that will aid in facilitating, maximizing, and promoting hazard mitigation activity throughout the Commonwealth of Kentucky (guided by the results of the *Risk Assessment*).
- *GOAL IV:* Improve direction and coordination/prioritization of the mitigation activity undertaken by the Commonwealth of Kentucky's local jurisdictions.

2013 Objectives by Which to Meet 2013 Goals Guiding Mitigation Activity

The above goals are intended to be focused using the following “objectives”:

- **GOAL I:** Increase awareness and support of, training toward and about, and education and proficiency in hazard mitigation.
 - *Objective I.1:* Provide ample training opportunities, generally.
 - *Objective I.2:* Conduct constant outreach toward Kentucky’s local jurisdictions, generally.
 - *Objective I.3:* Focus outreach and training toward floodplain management, flood insurance/National Flood Insurance Program (NFIP), Repetitive-Loss and Severe Repetitive-Loss properties, etc.
 - *Objective I.4:* Focus outreach and training toward Kentucky’s susceptibility to geologic hazards.
 - *Objective I.5:* Continue focusing outreach toward safe rooms and warning systems.
 - *Objective I.6:* Focus training on human-made hazards.
 - *Objective I.7:* Continue increasing participation in hazard mitigation committees, commissions, etc.

- **GOAL II:** Maximize hazard mitigation activity throughout the Commonwealth of Kentucky.
 - *Objective II.1:* Increase the number and variety of mitigation options available to local jurisdictions, generally.

- **GOAL III:** Provide to/develop for its local jurisdictions the tools and scientific research that will aid in facilitating, maximizing, and promoting hazard mitigation activity throughout the Commonwealth of Kentucky.
 - *Objective III.1:* Focus research on critical facility identification.
 - *Objective III.2:* Focus research on collection of information regarding geologic hazards.
 - *Objective III.3:* Focus research on dam failure.
 - *Objective III.4:* Focus research on improving risk assessment methodologies, generally.
 - *Objective III.5:* Perform site visits toward ends of enhancing data collection.
 - *Objective III.6:* Focus research on human-made hazards.
 - *Objective III.7:* Implement loss avoidance studies.

- **GOAL IV:** Improve direction and coordination/prioritization of the mitigation activity undertaken by the Commonwealth of Kentucky’s local jurisdictions.
 - *Objective IV.1:* Identify demand for mitigation activity from local jurisdictions.

Commonwealth of Kentucky Enhanced Hazard Mitigation Plan: 2013 Version

MITIGATION STRATEGY

PART IV:

Mitigation Actions

D. Explaining How Each Mitigation Activity Contributes to the Overall State Mitigation Strategy

Explaining how each of the Commonwealth of Kentucky's 2013 mitigation actions is linked to its mitigation strategy will be discussed before listing 2013's mitigation actions. This format results from the relevance in this case of explaining the *process* of developing 2013's mitigation actions before listing the actions. It is through the *process* of mitigation action development that the Commonwealth of Kentucky's mitigation actions are linked with its strategy.

Assessment of 2010 Mitigation Actions

The Kentucky Hazard Mitigation Council (KYMC) assessed its 2010 mitigation actions. As discussed above, one finding from the assessment involved the ability to evaluate: The Commonwealth of Kentucky listed 32 objectives intended to guide the Commonwealth toward meeting six (6) goals. However, of the 32 objectives, only five (5) could be evaluated quantitatively and using mitigation projects completed throughout the Commonwealth. In terms of mitigation actions intended to meet the 32 objectives that guided the six (6) goals, the Commonwealth of Kentucky had listed 73 actions. Only nine (9) of the 73 actions could be evaluated quantitatively using mitigation project attempts and success pursued by its localities and communities.

Again, as abovementioned, superficially this seems a disappointing assessment. However, the Commonwealth of Kentucky via Kentucky Emergency Management (KYEM) and the KYMC assert that 2010's goals-via-objectives were generally met.

REQUIREMENT §201.4 (c) (3) (III):

The Commonwealth of Kentucky shall include an identification, evaluation, and prioritization of cost-effective, environmentally-sound, and technically feasible mitigation actions and activities that the Commonwealth is considering and an explanation of how each activity contributes to the overall mitigation strategy. This section should be linked to local plans, where specific local actions and projects are identified.

The Nature of a State Hazard Mitigation Plan Vis-à-vis a Local Hazard Mitigation Plan

That only five (5) objectives of 32 and nine (9) actions of 73 can be evaluated through mitigation projects is a consequence of the difference between state and local hazard mitigation plans.

In terms of format for their respective mitigation strategies, a state and local hazard mitigation plan are displayed similarly: Goals are articulated; objectives are identified to focus the goals; actions are assigned to meet the objectives-cum-goals.

This is a superficial similarity, though. There is a fundamental difference between the *types* of mitigation actions that a state hazard mitigation plan will list vis-à-vis the *types* that a local plan can list: A state generally will not be applying to the Federal Emergency Management Agency (FEMA) (or toward other federal/state funding sources) for funds to construct mitigation projects, i.e. capital projects. Local jurisdictions will be the entities ultimately applying for federal funds to build capital mitigation projects.

This difference in mitigation action *type* is symptom of a state's characteristic and role in hazard mitigation in relation to a local jurisdiction's characteristic and role: A state will never suffer the malefic effects of a natural or human-made hazard. Or, rather, a state – which is an abstraction – will never suffer the ruinous effects of natural or human-made hazards so long as it has local jurisdictions. While counties and cities et al. similarly are abstractions (county borders can move or be recreated, for example), counties, cities, etc. are the abstractions that house the individuals who will be harmed by natural and human-made hazards. It is these local jurisdictions (on behalf of the individuals residing within them) that have been, are, and will be requesting funds to build the capital projects that will mitigate the effects from natural and human-made hazards. A state (the Commonwealth) will never ask for such funds for itself.

Consequently, a local hazard mitigation plan's mitigation actions primarily will consist of capital projects, e.g. elevations, safe rooms, culvert-expansions, acquisition/demolition of edifices, etc. In contrast, a state's hazard mitigation plan's mitigation actions will primarily consist of activities that indirectly affect the ability and propensity of local jurisdictions to construct mitigation projects that will mitigate the effects of hazards. In other words, a state (via its designated agency) primarily is limited to *promoting types of, outreach toward, education about, prioritizing, finding funding for, implementing programs aimed toward, etc.* the mitigation (capital) projects for which local jurisdictions actually will apply.

That a state's mitigation actions typically are of the type described above presents a dilemma unique for a state: Whereas there is a limit to the number of mitigation actions that can be listed in a local hazard mitigation plan (i.e. if mitigation actions primarily are projects, then there are a finite number of mitigation options available within a finite geographic space), there is no limit to the number and variety of mitigation actions toward which a state can direct its efforts. Until the actions of every individual can be perfectly controlled by a central power (which hopefully can never occur), there will

never be enough promotion, outreach, education, funding, program-implementation, etc. that could take place.

So long as regulation requires an attempt at an exhaustive list of mitigation action, limits upon such actions must be self-imposed.

Self-imposition of limits typically occurs through two means: 1) A clearly-defined and limited role for the state and 2) evaluation.

The Commonwealth of Kentucky argues that it consistently has implemented its hazard mitigation activities around a clear and clearly delimited role: Hazard mitigation activity in Kentucky is managed through Kentucky Emergency Management (KYEM) and its partners; KYEM and its partners have very distinct and very concrete functions and parameters under which it operates. In other words, Kentucky through KYEM and its partners suffer very little from mission creep. Plans, training, programs, administration, and leadership of KYEM all have been implemented within clear boundaries and with clear and concrete goals. Bluntly, Kentucky (through KYEM et al.) rarely has tried to expand its scope or its mission beyond what it is capable. Kentucky's mission in hazard mitigation is clear and its administrative efforts and programs consistently have emphasized being most effective in this mission.

This 2013 hazard mitigation plan update exemplifies no difference in this trend in administration of Kentucky's hazard mitigation activity. The plan document itself is a work and an argument supported by the definition and subsequent assertion of Kentucky's clear role in hazard mitigation. However, it is in the assessment and update of its goals and mitigation actions that comprehending and articulating the functions, responsibilities, and capabilities of KYEM and its partners is of most significance. Thus, from 2010, where goals have been changed or deleted and how mitigation actions have been organized and changed, such change is motivated by the need to reflect accurately the role of the Commonwealth of Kentucky and the functions of KYEM and its partners so as to be able to limit that for which it is responsible. Knowing its parameters and limiting its mitigation activity to those parameters allows administration and funding to be focused on *effectiveness* of Kentucky's hazard mitigation program.

The above is one link between Kentucky's mitigation activity and its strategy: Actions are limited to those that help direct, facilitate, and coordinate the project-focused mitigation activity of Kentucky's local jurisdictions.

The second means of self-imposition of limits involves evaluation, or the ability to evaluate. A set of mitigation actions should be evaluable. It is ultimately argued above, however, that the fundamental difference of the *types* of mitigation actions that comprise a state's mitigation strategy vis-à-vis the capital project-oriented types comprising local mitigation strategies involves evaluation⁴ (or the lack of ability to evaluate): The capital projects (e.g. acquisition/demolitions, elevations, etc.) populating local hazard mitigation

⁴ Evaluation is a theme that also underlies how Kentucky's 2013 mitigation actions will be placed temporally. This is discussed below.

plans will have countable outcomes. Projects eventually will be completed. If a county or a city wants to address its vulnerability to tornadoes by constructing a safe room, a safe room can be constructed; an outcome exists and is tangible. The completion and success of the project quantitatively can be evaluated. More relevantly, the county or the city naturally is limited to how many safe rooms it can construct. If in 2010's local hazard mitigation plan, five safe rooms in five locations are proposed as mitigation actions and if those five safe rooms are indeed funded and subsequently constructed in those five locations, then in 2015's local hazard mitigation plan, five more safe rooms in those exact five locations can no longer be included in the mitigation action list. There is a limit.

That a state's (that Kentucky's) mitigation action list will consist primarily of actions that are more intangible and temporally ever-existing in character presents a problem for limits to the possible listing of mitigation actions. For the most part, outcomes to state-level mitigation actions will not exist or will be exceedingly difficult to identify and quantify. Where a state does implement an evaluable action (e.g. Kentucky's CHAMPS system), there still is difficulty in determining when that action is "complete." Using Kentucky's Community Hazard Assessment and Mitigation Planning System (CHAMPS) as the example, there will, of course, be evaluable outcomes; but, there also will be an ever-existing need to refine and update the system. Surely, it is not expected that CHAMPS will reach a final completion date whereby the technology sits and becomes outdated. Further, a state's mitigation actions are not limited by geographic space or time as a list populated primarily with capital projects would be.

In other words, when it comes to directing, facilitating, and coordinating the mitigation activities of its local jurisdictions, the state's work is never done.

Consequently, an exhaustive list of mitigation actions limited to the year in which the plan document is written cannot be conceived. But, a state (the Commonwealth) must have a method of limiting the endless possibilities of mitigation action that it could pursue. Further, it must have some way to evaluate what would be the limited set of actions.

The second link between the mitigation actions and the Commonwealth of Kentucky's mitigation strategy, then, is that the actions (separate from those derived from local plans) continued (but revised) from the 2010 plan and new actions devised by Kentucky Hazard Mitigation Council (KYMC) for this 2013 update will be categorized. The categories fall under "Deductive Planning Actions" and consist of the three categories listed above:

- **Category 1: Outreach**
- **Category 2: Option Diversification**
- **Category 3: Public Goods-Type**

These categories will be described again below; but, Category 1 (*Outreach*) refers to those mitigation actions directed simply toward training and public relations/education. Category 2 (*Option Diversification*) will refer to mitigation actions whose purpose is to provide local jurisdictions with an increased array of mitigation actions. While the Commonwealth's identification and categorization of local jurisdictions' mitigation actions reflects the Commonwealth's identification of the demand for mitigation activity by its local jurisdictions, the demand for mitigation projects can be influenced by offering/educating/informing/supplying mitigation activity/project options that may not have been considered in a local jurisdiction's demand calculus. Category 3 (*Public Goods-Type*) will refer to mitigation actions undertaken by the Commonwealth whose purpose is to develop or supply a mitigation-oriented product from which all local jurisdictions would benefit. These actions will be the closest thing to "mitigation project" that the Commonwealth of Kentucky can devise.

Categorizing the Commonwealth's devised mitigation actions in such a manner serves the mitigation strategy of the Commonwealth: It focuses the Commonwealth's mission and strategy of "directing, facilitating, and coordinating the mitigation activity of its localities" into concrete areas of specialization. The categories link with the objectives and with the Commonwealth's mitigation goals articulated above.

Further, the categories provide a means of evaluation: The mitigation actions themselves may not be evaluable, or may be exceedingly difficult to evaluate. But the category can be evaluated. There may be confusion here as to the difference between the categorization of the Commonwealth's devised (versus induced) mitigation actions and the objectives toward which the individual actions are intended to meet. The problem with "objectives" is that they must be met with individual mitigation actions. The idea behind categorizing mitigation actions and linking the categories to the objectives and goals is that with such a system success does not depend upon the individual actions themselves. Again, the Commonwealth of Kentucky, KYEM, and KYMC recognize mitigation actions derived from the state-level downward may not be individually evaluable and certainly do not represent an exhaustive list. But, the Commonwealth can focus its mitigation efforts toward three general categories of mitigation activity from which individual actions contribute. The hope is that in three (or five) years' time, the Commonwealth of Kentucky can argue that it met its three categories of mitigation activity and, thus, satisfied its objectives and proceeded toward its goals. That the Commonwealth of Kentucky had previously been attempting to evaluate individual actions devised from the top-down within a singular point in time and under the assumption of static demand for mitigation activity confused the larger argument that Kentucky had indeed and consistently has met its mission, strategy, goals, and objectives even if not by the particular means articulated by October 28, 2013.

Summary

To summarize, then, the link/contribution between Kentucky's mitigation actions and its overall mitigation strategy is as follows:

- 1) From the actions derived from the state-level downward and from those continued from the 2010 plan update, the intent was to choose those that would focus the Commonwealth's role and KYEM's (and its partners') functions toward directing, facilitating, and coordinating the mitigation activity of its local jurisdictions (who will be the entities actually applying for FEMA grants to construct mitigation capital projects).
- 2) The actions derived from the state-level downward were placed into three (3) categories. These categories represent the means by which the Commonwealth intends to meet its mission, strategy, objectives, and goals. The actions within each category simply represent an incomprehensive list of possibilities by which the Commonwealth can and, at this point in time, intends to meet its goals and objectives and, hence, its strategy.
- 3) Kentucky identified and categorized the mitigation actions of its local jurisdictions. This implies that each item under its "Inductive Planning Actions" list (described below) represents, literally, multiple individual mitigation actions from the local level. Rather than attempt to interpret demand for mitigation activity, Kentucky decided simply to identify demand. From this 2013 mitigation plan, Kentucky now knows generally from which areas certain types, or categories, of mitigation capital project are demanded. This identification of demand is a beneficial link and contribution to Kentucky's mitigation strategy: How better to direct, facilitate, and coordinate mitigation activity (and most effectively use available mitigation funds) than by focusing its efforts and time toward the articulated preferences and demands of its local jurisdictions?

A. Identifying Cost-Effective, Environmentally-Sound, and Technically Feasible Mitigation Actions and Activities

Below is the table of Kentucky's 2010 mitigation actions with a column added that describes which actions were removed, revised, and kept for this 2013 update of Kentucky's hazard mitigation plan and why each was removed, revised, and kept.

Table 4-4: 2010 Mitigation Actions and Their Place within the 2013 Update

2010 Action	2010 Action Number	Hazard(s) Addressed	Revision to 2010 Action for 2013
Use eligible funds from the HMGP and other sources to assist communities in the purchase and installation of indoor and outdoor warning systems, including, but not limited to, weather-alert radios, telephone "ring-down" systems and outdoor warning sirens.	1.1.1	Severe Storm, Dam Failure, Earthquake, Hail, Tornado	No revision; though has been met with mitigation projects prior to 2013 update.
Identify vulnerable populations through the risk assessment.	1.2.1	All Hazards	No revision
When funding permits target FEMA mitigation funds for projects that benefit vulnerable populations.	1.2.2	All Hazards	No revision
Assist where possible to include mitigation activity in emergency management training.	1.3.1	All Hazards	No revision
Provide information to the general public and the housing industry through publications and electronic resources about the value of residential and non-residential safe rooms, as well as guidelines and criteria for their construction.	1.4.1	Tornado, Severe Storm, Hail	Combined with 1.4.2; though has been met with mitigation projects prior to 2013 update
Where resources permit and eligibility criteria can be met, make FEMA mitigation funds and other funding sources available for grants to communities interested in construction of residential and non-residential safe rooms.	1.4.2	Tornado, Severe Storm, Hail	Combined with 1.4.1; though has been met with mitigation projects prior to 2013 update

2010 Action	2010 Action Number	Hazard(s) Addressed	Revision to 2010 Action for 2013
Promote the purchase of flood insurance for structures vulnerable to flooding,	2.1.1	Flood, Dam Failure	No revision
Where communities and citizens express a desire to participate, and as funding resources permit, prevent or reduce damages to structures through elevation, acquisition/demolition or other flood protection means, using available FEMA and other mitigation funds.	2.1.2	Flood	Revised: was over-specified; state cannot dictate demand. Rather, state only can promote. Still, has been met with mitigation projects prior to 2013 update
Where communities express a desire to participate and as funding resources permit, prevent or reduce flood prone property through the design and construction of minor engineered water management projects, using available FEMA and other mitigation funds.	2.1.3	Flood	Revised: was over-specified; state cannot dictate demand. Rather, state only can promote. Still, has been met with mitigation projects prior to 2013 update
Improve the information on the repetitive-loss list by visiting the sites of these properties to verify and correct the data on the list.	2.2.1	Flood	Combined with 2.2.3
Provide information through outreach to floodplain managers and local officials about the repetitive losses suffered at these locations.	2.2.2	Flood	Combined with 2.2.4, 2.3.1
Improve the information on the <u>severe</u> repetitive-loss list by visiting the sites of these properties to verify and correct the data on the list.	2.2.3	Flood	Combined with 2.2.1
Provide information through outreach to floodplain managers and local officials about the repetitive losses suffered at these locations.	2.2.4	Flood	Combined with 2.2.2, 2.3.1
Educate community leaders and floodplain managers about the program, its value to a community, and how to manage and enforce it.	2.3.1	Flood	Combined with 2.2.2, 2.2.4

2010 Action	2010 Action Number	Hazard(s) Addressed	Revision to 2010 Action for 2013
Conduct community assessment visits and floodplain audits on a regular basis, including after major flooding events to promote the value of quality participation in the programs.	2.3.2	Flood	No revision
Increase inter-agency communication to create better understanding among state and federal agencies about the impact of the NFIP and floodplain management and to tap the expert resources of other agencies for these efforts.	2.3.3	Flood	No revision
Prioritize communities with a greater flood hazard, more flood insurance policies and population growth, as well as enforcement and program management capabilities.	2.4.1	Flood	Removed: Conflicts with updated prioritization system
Continue a partnership with University of Louisville and the CHR to provide outreach, development of floodplain management publications, and promotional materials.	2.4.2	Flood	Revised: No need for specific mention of agencies
Increase inter-agency communication to create better understanding among state and federal agencies about the impact of the CRS and to tap the expert resources of other agencies for these efforts.	2.4.3	Flood	No revision
Establish hazard mitigation priorities for retrofitting of existing state critical facilities and infrastructure based upon risk and vulnerability assessment.	2.5.1	Earthquake, Flood, Hail, Karst/Sinkhole, Mine Subsidence, Landslide, Severe Storm, Severe Winter Storm, Tornadoes, Extreme Heat	No revision
Ensure that state facilities and infrastructure are located, designed and constructed to complement / support local priorities as defined in the Local Mitigation Strategies.	2.5.2	All Hazards	Removed: Conflicts with updated prioritization system; outside the strategy/scope of KYEM

2010 Action	2010 Action Number	Hazard(s) Addressed	Revision to 2010 Action for 2013
Visit sites of interest, such as landslide location after heavy rains, when requested by individuals or agencies affected by geologic hazards in order to gather information on the hazard and disseminate it to other agencies with regulatory or programmatic interests in mitigating the effects of these hazards.	2.6.1	Earthquake, Karst/Sinkhole, Mine Subsidence, Landslide	Combined with a new mitigation action
Part I. - Use funds available through HMGP, the Pre-Disaster Mitigation Program and any other available funding source for the following types projects: The voluntary acquisition and demolition of geologically-threatened structures which meet the required benefit-cost analysis, and other requirements of the funding agency, and the restriction of future development on the land. Such projects permanently eliminate damages in the areas of the project.	2.6.2 PART I	Earthquake, Karst/Sinkhole, Mine Subsidence, Landslide	Removed: That this action will be addressed is implicit in updated prioritization system. Had been met with mitigation projects prior to 2013 update
PART II. - The retrofitting of existing structures, which meet any required benefit / cost analysis and other requirements of the funding agency, against structural or non-structural damages from geologic hazards, particularly earthquakes.	2.6.2 PART II	Earthquake, Karst/Sinkhole, Mine Subsidence, Landslide	Revised: Rid the presumption that KYEM will be applying for projects. Has been met with mitigation projects prior to 2013 update
Promote land use planning for geologically high risk areas.	2.6.3	Earthquake, Karst/Sinkhole, Mine Subsidence, Landslide	No revision
Where funding permits, conduct outreach activities with local jurisdictions to provide technical assistance in the proper enforcement of building codes.	2.7.1	Earthquake, Flood, Severe Storm, Severe Winter Storm, Tornado, Wildfire	No revision
Where funding permits, conduct training seminars and workshops for local building enforcement officials.	2.7.2	Earthquake, Flood, Severe Storm, Severe Winter Storm, Tornado, Wildfire	No revision
Through outreach and education, encourage the creation of local building enforcement capabilities in communities that currently do not have them.	2.7.3	Earthquake, Flood, Severe Storm, Severe Winter Storm, Tornado, Wildfire	No revision

2010 Action	2010 Action Number	Hazard(s) Addressed	Revision to 2010 Action for 2013
Explore the possibilities of a state-required builder-licensing program to include continuing education, insurance or builders and mediation of disputes over the quality of construction.	2.7.4	Earthquake, Flood, Severe Storm, Severe Winter Storm, Tornado, Wildfire	Removed: Outside the strategy/scope of KYEM
Explore possible opportunities for financial incentives for owners of manufactured housing to secure their homes to their sites.	2.8.1	Flood, Severe Storm, Severe Winter Storms, Tornado	No revision
Examine and evaluate the need for emergency action plans, including impact area / inundation maps, for KY's high hazard dams.	2.9.1	Dam Failure, Flood	Combined with 2.9.2
Examine the issues related to how unregulated development below a dam can change its designation from low or moderate to high hazard, thus necessitating an improvement to the dam or its removal.	2.9.2	Dam Failure, Flood	Combined with 2.9.1
Investigate the use of tax incentives to promote smart development in hazard-prone locations.	3.1.1	Dam Failure, Earthquake, Flood, Karst/Sinkhole, Landslide, Mine Subsidence, Wildfire	Removed: Outside the strategy/scope of KYEM
Provide FEMA mitigation grant opportunities for communities who develop, maintain, and update their hazard mitigation plans.	3.1.2	All Hazards	Removed: This is not an action. This is a reason for KYEM's existence.
Establish a working system in which local governments can work together to promote and encourage smart development.	3.2.1	Dam Failure, Earthquake, Flood, Karst/Sinkhole, Landslide, Mine Subsidence, Wildfire	Removed: Outside the strategy/scope of KYEM. Smart development is not an explicit goal of KYEM.

2010 Action	2010 Action Number	Hazard(s) Addressed	Revision to 2010 Action for 2013
As funding permits; provide grants to communities for utility protection measure projects including electrical, water, and sanitary sewer.	3.3.1	Dam Failure, Drought, Earthquake, Flood, Hail, Karst/Sinkhole, Land, Dam Failure, Drought, Earthquake, Flood, Hail, Karst/Sinkhole, Landslide, Mine Subsidence, Severe Storm, Severe Winter Storm, Tornado, Wildfire	Revised: Wording reflects deviance from the strategy/scope of KYEM. KYEM itself does not provide directly grants. Redact "provide" to say instead "promote." Has been met with mitigation projects prior to 2013 update
As funding permits, provide grants to communities for mitigation activities involving transportation systems.	3.3.2	Dam Failure, Earthquake, Flood, Karst/Sinkhole, Landslide, Mine Subsidence	Revised: Wording reflects deviance from the strategy/scope of KYEM. KYEM does not provide directly grants. Redact "provide" to say instead "promote."
As funding permits; provide grants to communities for the purchase of generators and generator hook ups for critical facilities.	3.3.3	Dam Failure, Earthquake, Flood, Hail, Severe Storm, Severe Winter Storm, Tornado	Revised: Wording reflects deviance from the strategy/scope of KYEM. KYEM does not provide directly grants. Redact "provide" to say instead "promote." Has been met with mitigation projects prior to 2013 update
Review the existing state agency programs, plans and policies every three years.	4.1.1	All Hazards	No revision

2010 Action	2010 Action Number	Hazard(s) Addressed	Revision to 2010 Action for 2013
Incorporate State policies into the State Hazard Mitigation Plan.	4.1.2	All Hazards	Removed: This is not an action. This is a component of the Commonwealth's mitigation plan.
Invite interested or needed agencies to join the State Hazard Mitigation Team.	4.2.1	All Hazards	No revision
Hold bi annual meetings of the State Mitigation Team or in post disaster setting as necessary.	4.2.2	All Hazards	No revision
Promote the gathering and archiving of data by local governments on the types and amount of damages after a natural hazard event.	4.3.1	All Hazards	No revision
Establish criteria for risk and vulnerability assessment of state-owned critical facilities and infrastructure.	4.5.1	All Hazards	Combined with 4.5.2, 4.5.3, 4.5.4
Update the inventory of state-owned facilities.	4.5.2	All Hazards	Combined with 4.5.1, 4.5.3, 4.5.4
Inventory critical facilities and infrastructure that are leased.	4.5.3	All Hazards	Combined with 4.5.1, 4.5.2, 4.5.4
Inventory identified vulnerable structures from the ADD's structure point data sets when complete.	4.5.4	All Hazards	Combined with 4.5.1, 4.5.2, 4.5.3
Continue the state's cost-share on the Hazard Mitigation Grant Program.	4.6.1	All Hazards	No revision

2010 Action	2010 Action Number	Hazard(s) Addressed	Revision to 2010 Action for 2013
Develop guidelines for enhancing local community risk and vulnerability assessments.	4.8.1	All Hazards	Removed: Outside the strategy/scope of KYEM. FEMA develops guidelines. KYEM reviews guidelines.
Where resources permit, provide technical assistance to local governments in establishing, enhancing, standardizing, and implementing local mitigation strategies.	4.8.2	All Hazards	No revision
Identify effective local regulatory approaches to hazard mitigation.	4.8.3	All Hazards	No revision
Identify pre and post disaster mitigation related funding opportunities for local communities throughout the state.	4.8.4	All Hazards	No revision
Identify mitigation best practices for pre and post disaster hazards mitigation activities.	4.8.5	All Hazards	No revision
Encourage the integration of applicable hazards mitigation objectives from the local mitigation strategies into local comprehensive plans.	4.8.6	All Hazards	No revision
Review and update local hazard mitigation plans at a minimum of every five (5) years.	4.8.7	All Hazards	No revision
Build a website for KYEM and local planners to use during plan updates that could be used for data transfer, public outreach, and project management.	5.1.1	All Hazards	Revised: The website is built; maintaining it, improving it is of relevance now.
Develop brochures defining hazards and mitigation funding opportunities.	5.2.1	All Hazards	No revision

2010 Action	2010 Action Number	Hazard(s) Addressed	Revision to 2010 Action for 2013
As resources permit, develop a public awareness campaign on the benefits of pre- and post-disaster mitigation through the dissemination of mitigation success stories or best practices.	5.2.2	All Hazards	Removed: This is not an action. This is quotidian task for KYEM.
Develop a strategy for working with the print, electronic and broadcast media to disseminate mitigation education and outreach material.	5.2.3	All Hazards	Removed: This is not an action. This is quotidian task for KYEM.
As requested hazard mitigation staff will conduct workshops, training, and seminars on hazard mitigation techniques, grant program funding, planning, and benefit cost analysis.	5.2.4	All Hazards	Combined with 5.3.1, 5.3.2, 5.3.3
As resources allow, maintain an ongoing education and outreach effort to educate public and private schools about the importance of hazard mitigation.	5.3.1	All Hazards	Combined with 5.2.4, 5.3.2, 5.3.3
As resources allow, maintain an ongoing education and outreach effort to educate elected officials about the importance of hazard mitigation to include in an annual report to the legislature and other appropriate officials.	5.3.2	All Hazards	Combined with 5.2.4, 5.3.1, 5.3.3
As resources allow, maintain an ongoing education and outreach effort to educate the general public about the importance of hazard mitigation.	5.3.3	All Hazards	Combined with 5.2.4, 5.3.1, 5.3.2
Promote the design of a functional statewide emergency responders communication system.	5.4.1	All Hazards	No revision
Promote NIMS compliancy so that local governments communicate more efficiently during large scale, multi-jurisdictional events.	5.4.2	All Hazards	No revision
Establish a catalog of KY's hazards and mitigation research studies.	6.1.1	All Hazards	No revision

2010 Action	2010 Action Number	Hazard(s) Addressed	Revision to 2010 Action for 2013
Establish access and / or interchange privileges with pertinent resource centers throughout the country and internationally.	6.1.2	All Hazards	Removed: Outside the strategy/scope of KYEM; if accomplished, will be the result of opportunity.
Recommend the creation of a memorandum of collaboration with FEMA and Kentucky public and private universities for designing higher ed. Curriculum for EM professionals, including the hazard mitigation and related fields.	6.2.1	All Hazards	Removed: Outside the strategy/scope of KYEM as stated; can be combined with 6.2.2
Participate in education program course development.	6.2.2	All Hazards	No revision; combined with 6.2.1
Update and modernize KY's flood maps and flood insurance studies in order to improve the information on current maps and studies, and to provide mapping where there currently is none.	6.4.1	Dam Failure. Flood	No revision
Continue to work with FEMA to prioritize communities for new mapping based on population growth and number of flood insurance policies.	6.4.2	Dam Failure, Flood	No revision
Continuously update the database of information and knowledge of KY's geologic hazards through research work such as that done by KGS, the University of KY, Dept. of Geological Sciences and USGS.	6.4.3	Earthquake, Karst/Sinkhole, Landslide, Mine Subsidence	No revision
Monitor, update, and maintain seismic activity using the KY Seismic and Strong Motion Network.	6.4.4	Earthquake	No revision

Actions Derived from the Commonwealth of Kentucky: Deductively Planning

To succeed at its motivating strategy to direct, facilitate, and coordinate the planning and mitigation activities and projects of the localities it oversees, the Commonwealth of Kentucky needs to articulate mitigation actions that will help to satisfy the strategy undergirding its goals and objectives. As mentioned above, there is a necessary and vital role for the Commonwealth of Kentucky to play in *aiding* (directing, facilitating, coordinating) local jurisdictions to mitigate hazards that affect them. What the Commonwealth of Kentucky cannot do well is be exhaustive in listing all that it could do to accomplish its strategy guided by direction, facilitation, and coordination.

Deductive planning, then, conceivably comes in two general (2) forms: outreach and public good provision. Mitigation actions addressing the former (outreach) will be divided into two subsets: “Outreach” and “Option Diversification.” Mitigation actions addressing public goods provision will be termed “Public Goods-Type” actions.

Outreach

Outreach mitigation actions are those actions that, generally, educate. There are two (2) ways to think of this outreach-cum-education: One is as literally as possible, i.e. via training. Continued and continual training of Kentucky’s local emergency managers, public officials and of interested citizens is certainly an action that facilitates and coordinates planning and mitigation activities and projects. This plan document refers to these types of actions as *Outreach*.

A second way to think about outreach-cum-education is to think of it economically, i.e. in economic terms: Local jurisdictions demand mitigation projects. In a sense, FEMA and Kentucky Emergency Management and its affiliated agencies are suppliers of those projects⁵.

As the Commonwealth of Kentucky and the Federal Emergency Management Agency (FEMA) do not actually produce anything per se but still act in a way as a supplier of mitigation projects, there is the consideration that local jurisdiction demand for mitigation projects may be limited by the supply, or by what mitigation projects are known. This plan addressed earlier in its assessment of the 2010 update of Kentucky’s hazard mitigation plan: It may be the case that generator projects and safe room projects took up such a large proportion of Kentucky’s mitigation action outcomes because those projects were the projects “supplied” or “on the shelves” at Kentucky Emergency Management and FEMA. One can only demand what one knows is available.

An important role for outreach, then, and deductive planning, generally, is to be able to “supply” local jurisdictions with a wider array of mitigation options that they can then

⁵ At first, it may seem that FEMA and the Commonwealth of Kentucky act more as “financiers” or “bankers” of mitigation projects than actual suppliers, as ultimately FEMA (and to a lesser extent the Commonwealth of Kentucky) offer ways (via grants mainly) to finance demanded mitigation projects. However, this plan assumes that the role of FEMA and the Commonwealth of Kentucky surpass the indirect supply role of “financier/banker.” While the product ultimately is a source of funds, as is implicit in the need for this hazard mitigation plan FEMA and the Commonwealth of Kentucky also direct its local jurisdictions toward the supply of mitigation projects for which they ought to be requesting financing options.

“demand.” This plan document refers to this as *Option Diversification*. Kentucky Emergency Management (KYEM) and its administrative affiliates can provide its Area Development Districts and public officials at the local level with a broader assortment of mitigation options *and* a wider array of ways to finance those projects and options. Thus, demand for mitigation projects and options is increased by the increased ability to pay for those projects and options which results from knowing about (being supplied with) more project options and more ways to “increase income” by tapping into more varied funding sources.

Public Goods

The other form that deductive planning can take involves public good provision.

A (pure) public good, in theory, is a good (or service) that can be consumed by two or more parties simultaneously without the quantity of that good diminishing (non-rival) and whose benefits cannot be excluded from other parties (non-excludability) even if the other parties did not pay anything for the good (free-rider problem).

If a good or service is “non-rival” and “non-excludable,” then that begs the question: Who is willing to pay for the good or service? Essentially, if anybody or any party can benefit from something that one party purchased (and without the quantity of that something diminishing), then why should that party take on the burdensome task to purchase it?

Still, the good or service may be demanded.

And this creates a vital role for the Commonwealth of Kentucky in directing, facilitating, and coordinating the mitigation activities of its local jurisdictions: There are public good-type mitigation actions that benefit all of Kentucky. “Initiative projects” are an example of this mitigation action. Because such projects benefit all of Kentucky, there is little to no incentive for constantly resource-constrained local governments to pursue this type of mitigation action. Thus, to satisfy the objective of successfully and wisely deductively planning in order to meet the administrative/mitigation goal of facilitating the mitigation activity of its local jurisdictions, the Commonwealth of Kentucky can devote its mitigation efforts to the pursuance of *Public Good-Type mitigation actions*.

The Commonwealth of Kentucky’s “Deductive Planning” list of mitigation actions conveys some new *Public Goods-Type* actions that should be introduced:

Kentucky’s Department of Forestry (KDF) has submitted some preliminary work that is excerpted and appended to this *Mitigation Strategy* section: KDF consistently improves its wildfire hazard assessment contribution. This 2013 update of Kentucky’s hazard mitigation plan has referred to this document periodically throughout. It is presented in its entirety as **Appendix 4-2**. But, the work of KDF prompts an action that further assesses Kentucky’s wildfire hazard events.

Kentucky’s Division of Water (KDOW) recently has submitted to FEMA and as a result of a grant from FEMA its methodologically intense contribution to increasing the accuracy and feasibility of dam failure hazard risk assessment. Its “Introduction,” “Executive Summary,” and “Methodology” sections are presented and excerpted here as **Appendix 4-3**. Again, the work of KDOW prompts a mitigation action that seeks to allow continued improvement in such hazard assessment.

It should be reminded that Kentucky’s derived list of mitigation actions (its “Deductive Planning List”) cannot be exhaustive. This is addressed above. Rather, an important consideration to its overall mitigation strategy is that Kentucky via KYEM and its partners must be flexible and must realize that mitigation actions conceived at the time of this plan writing may not represent all that is adequate to achieve effective direction, facilitation, and coordination of local mitigation activity. Consequently, there may be other *Public Goods-Type* mitigation actions which could result from continual planning and local outreach.

Finally, an explicit connection should be made that, while below is mentioned some specific repetitive-loss-oriented mitigation actions resulting from local jurisdictions, the Commonwealth of Kentucky’s distinction between deductive planning and responsive inductive planning implicitly supports the selection of mitigation activities for repetitive-loss properties: Kentucky’s strategy for direction, facilitation, and coordination of mitigation activities to be achieved via deductive and inductive planning means that, regarding the former, Kentucky will identify for itself and for later distribution and via means of which only it can take advantage mitigation activities for repetitive-loss properties. Regarding the latter, and to be explained further below, prioritization of mitigation activity will explicitly and implicitly favor activities addressing repetitive losses.

REQUIREMENT
§201.4 (c) (3) (v):

The Commonwealth of Kentucky may request the reduced cost share authorized under 79.4 (c) (2) of this chapter for the FMA and SRL programs. If it has an approved Mitigation Plan...that also identifies specific actions the Commonwealth of Kentucky has taken to reduce the number of repetitive loss properties (which must include severe repetitive loss properties), and specifies how the Commonwealth of Kentucky intends to reduce the number of such repetitive loss properties.

EXPLICITLY ADDRESSED ON PREVIOUS PAGE

A. *Describing Mitigation Goals That Support the Selection of Mitigation Activities for Repetitive-Loss Properties*

Above the following is discussed: what is to become of 2010's mitigation actions (i.e. which are to be removed, revised, and continued); the logic behind placing the Commonwealth's top-down, devised mitigation actions into categories; and how the categories serve as the contribution to the Commonwealth's mitigation actions and its overall mitigation strategy. Below, then, is listed the Commonwealth of Kentucky's devised mitigation actions for its 2013 update of its hazard mitigation plan accompanied by the hazards each action is supposed to address. Further, this table adds a column that reminds from where each action derives. This column will be deleted for the finalized table as it is superfluous, process-oriented information. The overall table describes what is termed here as the Commonwealth's *Deductive Actions*.

Following this table will be a discussion of the portion of Kentucky's mitigation actions that derive from its local plans. Listed, then, will be the corresponding mitigation actions termed here as *Inductive Actions*.

Finally, this below list of *Deductive Actions* and the following list of *Inductive Actions* is reprinted and finalized to include evaluation timeframes and terminology. Such finalization will, of course, follow a discussion of Kentucky's new terminology for evaluation of the below mitigation actions.

Table 4-5: Compiled 2013 Mitigation Action List without Evaluation in Terms of Time

DEDUCTIVE ACTION CATEGORY	ACTION	HAZARD(S) ADDRESSED	FROM WHERE ACTION DERIVED
Outreach: Objectives I.1 – I.7	Assist where possible to include mitigation activity in emergency management training	All Hazards	<u>2010:</u> <ul style="list-style-type: none"> Action 1.3.1
Outreach: Objectives I.1 – I.7	<i>Regarding Residential and Non-Residential Safe Rooms:</i> Provide information to the general public and the housing industry about; find grants and other funding sources toward construction of	Tornadoes; Severe Storm; Hail Storms	<u>2010:</u> <ul style="list-style-type: none"> Action 1.4.1 Action 1.4.2
Outreach: Objectives I.1 – I.7	<i>Regarding Repetitive-Loss and Severe Repetitive-Loss Properties:</i> Provide/ improve information and conduct outreach about Repetitive-Loss and Severe Repetitive-Loss properties within local jurisdictions' areas; educate community leaders and floodplain managers about the Repetitive-Loss/Severe Repetitive-Loss program	Flooding	<u>2010:</u> <ul style="list-style-type: none"> Action 2.2.2 Action 2.2.4 Action 2.3.1
Outreach: Objectives I.1 – I.7	Conduct community assessment visits and floodplain audits on a regular basis, including after major flooding events	Flooding	<u>2010:</u> <ul style="list-style-type: none"> Action 2.3.2
Outreach: Objectives I.1 – I.7	Increase interagency communication (at both state and federal levels) regarding impact of the NFIP and floodplain management; use experts from other agencies to aid in these efforts	Flooding	<u>2010:</u> <ul style="list-style-type: none"> Action 2.3.3
Outreach: Objectives I.1 – I.7	Continue agency partnerships to provide outreach, to develop floodplain management publications/promotional materials	Flooding	<u>2010:</u> <ul style="list-style-type: none"> Action 2.4.2
Outreach: Objectives I.1 – I.7	Increase interagency communication regarding impact of the CRS; use experts from other agencies to aid in these efforts	Flooding	<u>2010:</u> <ul style="list-style-type: none"> Action 2.4.3

DEDUCTIVE ACTION CATEGORY	ACTION	HAZARD(S) ADDRESSED	FROM WHERE ACTION DERIVED
Outreach: <i>Objectives 1.1 – 1.7</i>	Promote land-use planning for geologically high-risk areas	Earthquakes; Karst/Sinkholes; Mine/Land Subsidence; Landslides	<u>2010:</u> • Action 2.6.3
Outreach: <i>Objectives 1.1 – 1.7</i>	Conduct outreach toward local jurisdictions to provide technical assistance regarding the proper enforcement of building codes	Earthquakes; Flooding; Severe Storms; Severe Winter Storms; Tornadoes; Forest Fires	<u>2010:</u> • Action 2.7.1
Outreach: <i>Objectives 1.1 – 1.7</i>	Conduct training seminars and workshops regarding for local building enforcement officials	Earthquakes; Flooding; Severe Storms; Severe Winter Storms; Tornadoes; Forest Fires	<u>2010:</u> • Action 2.7.2
Outreach: <i>Objectives 1.1 – 1.7</i>	Continually increase membership to the Kentucky Hazard Mitigation Council (KYMC)	All Hazards	<u>2010:</u> • Action 4.2.1
Outreach: <i>Objectives 1.1 – 1.7</i>	Hold regular meetings of the Kentucky Hazard Mitigation Council (KYMC)	All Hazards	<u>2010:</u> • Action 4.2.2
Outreach: <i>Objectives 1.1 – 1.7</i>	Promote the gathering and archiving of data by local jurisdictions regarding the types and extent of damages that occur after a hazard event	All Hazards	<u>2010:</u> • Action 4.3.1
Outreach: <i>Objectives 1.1 – 1.7</i>	Provide technical assistance to local jurisdictions regarding establishing, standardizing, and, ultimately, implementing local mitigation strategies	All Hazards	<u>2010:</u> • Action 4.8.2
Outreach: <i>Objectives 1.1 – 1.7</i>	Maintain an ongoing education and outreach effort aimed to educate public and private schools, elected officials, and the general public about the importance of hazard mitigation; conduct workshops, training, seminars, etc. regarding mitigation techniques, funding, planning, and benefit-cost analysis to aid in such efforts	All Hazards	<u>2010:</u> • Action 5.2.4 • Action 5.3.1 • Action 5.3.2 • Action 5.3.3

DEDUCTIVE ACTION CATEGORY	ACTION	HAZARD(S) ADDRESSED	FROM WHERE ACTION DERIVED
Outreach: <i>Objectives I.1 – I.7</i>	Develop new training programs where applicable and when the need arises	All Hazards	<u>New</u>
Outreach: <i>Objectives I.1 – I.7</i>	Continue to develop and improve and to disseminate “Best Practices” in hazard mitigation	All Hazards	<u>New</u>
Outreach: <i>Objectives I.1 – I.7</i>	Train specifically for human-made hazards	Human-Made	<u>New</u>
Option Diversification: <i>Objective II.1</i>	Promote to/Assist local jurisdictions in the purchasing and installation of indoor and outdoor warning systems (e.g., telephone “ring-down” systems, weather-alert radios, and outdoor warning sirens)	Severe Storms; Dam Failure; Earthquakes; Hail Storms; Tornadoes	<u>2010:</u> • Action 1.1.1
Option Diversification: <i>Objective II.1</i>	Promote the purchasing of flood insurance; actively seek flood insurance participants	Flooding; Dam Failure	<u>2010:</u> • Action 2.1.1
Option Diversification: <i>Objective II.1</i>	Promote the use of mitigation projects aimed toward protection from flooding (e.g., elevations, acquisitions/demolitions)	Flooding	<u>2010:</u> • Action 2.1.2
Option Diversification: <i>Objective II.1</i>	Promote the design and construction of minor engineered water-management projects	Flooding	<u>2010:</u> • Action 2.1.3
Option Diversification: <i>Objective II.1</i>	Promote the retrofitting of existing structures	Earthquakes; Karst/Sinkholes; Mine/Land Subsidence; Landslides	<u>2010:</u> • Action 2.6.2
Option Diversification: <i>Objective II.1</i>	Encourage the creation of local building enforcement capabilities in communities that currently do not have such capabilities	Earthquakes; Flooding; Severe Storms; Severe Winter Storms; Tornadoes; Forest Fires	<u>2010:</u> • Action 2.7.3
Option Diversification: <i>Objective II.1</i>	Explore possible options to promote toward owners of manufacture homes regarding financial incentives to secure their homes to their sites	Flooding; Severe Storms; Severe Winter Storms; Tornadoes	<u>2010:</u> • Action 2.8.1

DEDUCTIVE ACTION CATEGORY	ACTION	HAZARD(S) ADDRESSED	FROM WHERE ACTION DERIVED
Option Diversification: <i>Objective II.1</i>	Promote utility-protection projects (e.g., those projects protecting electrical and water supplies and involving sanitary sewers)	All Hazards	<u>2010:</u> • Action 3.3.1
Option Diversification: <i>Objective II.1</i>	Promote mitigation activities involving transportation systems	Dam Failure; Earthquakes; Flooding; Karst/Sinkholes; Landslides; Mine/Land Subsidence; Human-Made Hazards	<u>2010:</u> • Action 3.3.2
Option Diversification: <i>Objective II.1</i>	Promote the purchasing of generators and generator “hook-ups” for critical facilities	Dam Failure; Earthquakes; Flooding; Hail Storms; Severe Storms; Severe Winter Storms; Tornadoes; Human-Made Hazards	<u>2010:</u> • Action 3.3.3
Option Diversification: <i>Objective II.1</i>	Encourage the integration of applicable hazard mitigation objectives developed for local hazard mitigation plans into local-level comprehensive plans	All Hazards	<u>2010:</u> • Action 4.8.6
Option Diversification: <i>Objective II.1</i>	Promote NIMS compliancy (so that local governments can better and more efficiently communicate during large-scale, multi-jurisdictional hazard events	All Hazards	<u>2010:</u> • Action 5.4.2
Option Diversification: <i>Objective II.1</i>	Maintain a catalog of the hazards from which Kentucky suffers and mitigation research studies regarding said hazards	All Hazards	<u>2010:</u> • Action 6.1.1
Option Diversification: <i>Objective II.1</i>	Make regular visits to Area Development Districts (ADDs) to elicit feedback from local jurisdictions and present mitigation options/projects	All Hazards	<u>New</u>

DEDUCTIVE ACTION CATEGORY	ACTION	HAZARD(S) ADDRESSED	FROM WHERE ACTION DERIVED
Option Diversification: <i>Objective II.1</i>	Continue identifying locations where acquisitions are a preferable and viable mitigation option	Flooding	<u>New</u>
Option Diversification: <i>Objective II.1</i>	Promote residential hazard preparedness	All Hazards	<u>New</u>
Option Diversification: <i>Objective II.1</i>	Conduct mitigation funding seminars	All Hazards	<u>New</u>
Option Diversification: <i>Objective II.1</i>	Promote increased participation (where participation is not limited to appointment) in one of Kentucky's many mitigation-oriented committees, commissions, etc.	All Hazards	<u>New</u>
Option Diversification: <i>Objective II.1</i>	Educate about evacuation routes and procedures	All Hazards	<u>New</u>
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Identify vulnerable populations through the Commonwealth of Kentucky's risk assessment	All Hazards	<u>2010:</u> • Action 1.2.1
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Target prioritization of mitigation activity toward projects that benefit vulnerable populations	All Hazards	<u>2010:</u> • Action 1.2.2
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Visit sites listed on Kentucky's Repetitive-Loss and Severe Repetitive-Loss lists in order to verify the accuracy of the lists	Flooding	<u>2010:</u> • Action 2.2.1 • Action 2.2.3

DEDUCTIVE ACTION CATEGORY	ACTION	HAZARD(S) ADDRESSED	FROM WHERE ACTION DERIVED
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Establish hazard mitigation priorities for the retrofitting of existing state-level critical facilities and infrastructure (based upon the Commonwealth of Kentucky's risk and vulnerability assessment)	Earthquakes; Flooding; Hail Storms; Karst/Sinkholes; Mine/Land Subsidence; Landslides; Severe Storms; Severe Winter Storms; Tornadoes; Extreme Temperatures; Human-Made Hazards	<u>2010:</u> <ul style="list-style-type: none"> • Action 2.5.1
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Collect data on and identify locations and effects of landslides in Kentucky, both current and historical; visit the sites of past landslides to collect the data	Earthquakes; Mine/Land Subsidence; Landslides	<u>New 2010:</u> <ul style="list-style-type: none"> • Action 2.6.1
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Develop, improve hazard assessment methodology related to dam failure: Examine, evaluate need for emergency action plans; examine the issues related to the effects of unregulated development below dams	Dam Failure; Flooding	<u>New 2010:</u> <ul style="list-style-type: none"> • Action 2.9.1 • Action 2.9.2
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Review existing state-level agency programs, plans, and policies at least every three (3) years	All Hazards	<u>2010:</u> <ul style="list-style-type: none"> • Action 4.1.1
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Inventory critical facilities, leased infrastructure, identified vulnerable structures (from Area Development Districts' data); update inventory of state-owned facilities; continue improving risk and vulnerability criteria for all of the above	All Hazards	<u>2010:</u> <ul style="list-style-type: none"> • Action 4.5.1 • Action 4.5.2 • Action 4.5.3 • Action 4.5.4
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Continue the Commonwealth of Kentucky's cost-share (12%) for FEMA Hazard Mitigation Grant Program (HMGP)-funded projects	All Hazards	<u>2010:</u> <ul style="list-style-type: none"> • Action 4.6.1

DEDUCTIVE ACTION CATEGORY	ACTION	HAZARD(S) ADDRESSED	FROM WHERE ACTION DERIVED
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Identify effective local regulatory approaches to hazard mitigation	All Hazards	<u>2010:</u> • Action 4.8.3
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Identify pre- and post-disaster mitigation-related funding opportunities for local jurisdictions	All Hazards	<u>2010:</u> • Action 4.8.4
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Identify further “Best Practices” that can later be the subject of future outreach	All Hazards	<u>2010:</u> • Action 4.8.5
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Review and update local hazard mitigation plans at least every five (5) years	All Hazards	<u>2010:</u> • Action 4.8.7
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Maintain, continue improving and updating the Kentucky Emergency Management (KYEM) website	All Hazards	<u>2010:</u> • Action 5.1.1
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Develop brochures etc. defining hazards and mitigation funding opportunities	All Hazards	<u>2010:</u> • Action 5.2.1
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Continue to promote the design, improvement of a functional statewide emergency responders communication system	All Hazards	<u>2010:</u> • Action 5.4.1
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Participate in, provide support to education/higher education program/curricular development, especially toward coursework aimed at emergency management professional and that focus on hazard mitigation and related fields	All Hazards	<u>2010:</u> • Action 6.2.1 • Action 6.2.2
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Continue to update and modernize Kentucky's flood maps and flood insurance studies; provide mapping where currently there is little or none	Dam Failure; Flooding	<u>2010:</u> • Action 6.4.1
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Continue to work with FEMA to prioritize communities for new mapping based upon population growth and the number of flood insurance policies	Dam Failure; Flooding	<u>2010:</u> • Action 6.4.2

DEDUCTIVE ACTION CATEGORY	ACTION	HAZARD(S) ADDRESSED	FROM WHERE ACTION DERIVED
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Collect data on and identify the effects from karst and sinkholes; continue to update databases regarding Kentucky's geologic hazards; work with Kentucky Geological Society (KGS), Department of Geological Sciences at the University of Kentucky, and USGS	Earthquakes; Karst/Sinkholes; Landslides; Mine/Land Subsidence	<u>New</u> <u>2010:</u> • Action 6.4.3
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Continue to monitor, update, and maintain information regarding seismic activity	Earthquakes	<u>2010:</u> • Action 6.4.4
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Develop/Improve hazard assessment methodology related to forest fires	Forest Fires	<u>New</u>
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Continue to improve the Commonwealth of Kentucky's hazard assessment methodology, generally	All Hazards	<u>New</u>
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Continue updating/improving and implementing the Community Hazards Assessment and Mitigation Planning System (CHAMPS)	All Hazards	<u>New</u>
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Develop/Improve hazard assessment methodology related to human-made hazards	Human-Made	<u>New</u>
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Research how previously identified critical facilities are related to/networked with other facilities, i.e. "nested"	Human-Made	<u>New</u>
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Identify vulnerabilities within and specific to individual critical facilities	Human-Made	<u>New</u>
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Track progress of select mitigation projects after close-out in order to collect data to be used in loss avoidance studies	All Hazards	<u>New</u>

A. Identifying Cost-Effective, Environmentally-Sound, and Technically Feasible Mitigation Actions and Activities (Continued)

-----AND-----

E. Actions and Projects Reflecting Those Identified in Local Plans

Actions Resulting from Inductive Planning

The mitigation actions and activities that the Commonwealth will consider derive primarily from the mitigation actions and activities articulated by the localities comprising the Commonwealth. As aforementioned, the Commonwealth of Kentucky cannot receive the effects of hazards; there are no hazards that affect Kentucky (for which mitigation activities are necessary) that do not simultaneously affect one of Kentucky's localities. Thus, as previously stated, the Commonwealth's sole mitigation goal is an administrative one and is the justification for the existence of Kentucky Emergency Management and its accompanying university partners, the University of Louisville's Center for Hazards Research and Policy and the University of Kentucky Martin School of Public Policy and Administration's Hazard Mitigation Grant Program Office: The Commonwealth of Kentucky is to serve a coordinating, facilitating, and prioritizing role (in other words, a management role) in addressing the needs of multiple localities that are vying for limited resources.

For the purposes of this 2013 hazard mitigation plan update, then, the Commonwealth has developed what will count for regulation as its non-administrative mitigation goals by synthesizing and identifying the categories of mitigation strategies devised by its localities in their multi-jurisdictional local hazard mitigation plans. By grouping Kentucky's localities' mitigation strategies into categories (and by acknowledging that the Commonwealth itself has no actual mitigation goals beyond the administrative), the Commonwealth can assume that such categories can be articulated as goals toward which the Commonwealth of Kentucky and its local entities have been and will continue to strive. *The Commonwealth of Kentucky's hazard mitigation goals are (and should be) the strategies of its localities.*

This is the Commonwealth of Kentucky and Kentucky Emergency Management (KYEM) *inductively planning.*

Provided in **Appendices 4-4** and **4-5** is the result of a thorough review of all of the Commonwealth of Kentucky's multi-jurisdictional local hazard mitigation plans. KYEM and UK-HMGP were able to group the local hazard mitigation plans' strategies for mitigation into categories. These categories will serve as the Commonwealth of Kentucky's mitigation actions. Again, these categories (Commonwealth actions) illuminate the goals toward which Kentucky should strive as they are the implicit goals toward which it's localities are striving. As Kentucky's local hazard mitigation plans are generally multi-jurisdictional ones written and coordinated by its Area Development

Districts (ADDs), **Appendix 4-4** shows the mitigation strategies identified according to each of Kentucky’s ADDs. Accompanying **Appendix 4-4, Appendix 4-5** lists all of the specific and most current mitigation strategies from each local hazard mitigation plan in the verbatim wording of each local plan. Therefore, the reviewer and the general audience can see from where the categorizations articulated in the table below and in **Appendix 4-4** derived.

From the thorough review of the Commonwealth’s multi-jurisdictional local hazard mitigation plans, the following mitigation actions are articulated for the Commonwealth of Kentucky. The mitigation actions are grouped into six (6) categories⁶: (Actions related to) (1) Flooding, (2) Improved Information, (3) Physical Improvements, (4) Communications, (5) Planning, and (6) Enforcement. It is from these categories that the Commonwealth will derive its mitigation actions.

Table 4-6: “Inductive” Action Categories

INDUCTIVE ACTION CATEGORY	ACTION NUMBER	ACTION
Flooding (1)	Action 1.1	Remove Debris
	Action 1.2	Acquire Properties within Floodplains
	Action 1.3	Install, Repair, Address Culverts
	Action 1.4	Manage Vegetation, Wetlands
	Action 1.5	Address Storm Sewers
	Action 1.6	Address Flood Gauges
	Action 1.7	Elevate Structures
	Action 1.8	Provide Openings in Foundation Walls to Allow Flow of Water
	Action 1.9	Repair Road Slides/Breaks
	Action 1.10	Maintain Creek Banks
	Action 1.11	Monitor Erosion
	Action 1.12	Construct Levees/Flood Walls
	Action 1.13	Realign Streams
	Action 1.14	Eliminate Severe Repetitive Loss (SRL) Structures
	Action 1.15	Replace Inadequate Bridges
Improved Information (2)	Action 2.1	Construct, Improve GIS Databases of Critical Facilities
	Action 2.2	Update Flood Insurance Rate Maps (FIRMs)
	Action 2.3	Construct, Improve GIS Databases of Repetitive Loss (RL) Structures
	Action 2.4	Identify and Map At-Risk Bridges
	Action 2.5	Evaluate Recovery Shelters
	Action 2.6	Perform Earthquake Studies
	Action 2.7	Identify At-Risk Structure Identification
	Action 2.8	Identify County/Local Sources for Data
	Action 2.9	Create, Maintain List of Local Service Providers
	Action 2.10	Perform Housing Identification
	Action 2.11	Create, Provide Sinkhole Location Maps

⁶ As **Appendix 4-4** will show, there were actually seven (7) categories. The missing category concerns those actions related to “Education.” These have been moved to the *deductive planning* portion of the Commonwealth of Kentucky’s mitigation strategy.

INDUCTIVE ACTION CATEGORY	ACTION NUMBER	ACTION
<i>Physical Improvements (3)</i>	Action 3.1	Install Generators
	Action 3.2	Identify New Critical Facilities Outside of Hazard Areas
	Action 3.3	Construct Safe Rooms
	Action 3.4	Relocate Critical Facilities and Residential Structures
	Action 3.5	Bury Utilities
	Action 3.6	Acquire Emergency Equipment
	Action 3.7	Acquire Vehicles for Road Clearing
	Action 3.8	Remove, Regulate, Retrofit Buildings in Hazard-Prone Areas
	Action 3.9	Trim "Right-of-Ways"
	Action 3.10	Manage Hazard Areas
	Action 3.11	Improve Water Infrastructure
	Action 3.12	Construct Emergency Relief Warehouses
	Action 3.13	Install Drought-Proof Security Links
	Action 3.14	Maintain Lifeline Utilities
<i>Communications (4)</i>	Action 4.1	Install NOAA "All-Hazards" Radios
	Action 4.2	Generally Upgrade Communications Equipment
	Action 4.3	Install Other/Atypical Early Warning Systems
	Action 4.4	Install Warning Sirens
<i>Planning (5)</i>	Action 5.1	Recruit and Train Volunteers
	Action 5.2	Coordinate Debris Removal
	Action 5.3	Engage in Storm-water Management
	Action 5.4	Improve Interagency Communication
	Action 5.5	Protect Information Systems and Infrastructure
	Action 5.6	Identify "At-Risk" Critical Facilities
	Action 5.7	Formalize Hazard Mitigation Planning Committee
	Action 5.8	Develop, Improve Evacuation Plans, Policies, and Procedures
	Action 5.9	Better, More Explicitly Address Severe Repetitive Loss (SRL) Properties in Planning
	Action 5.10	Develop, Improve Floodplain Management Procedures
	Action 5.11	Plan to Maintain Water Supply
	Action 5.12	Better Staff Local Emergency Operations Centers (EOCs)
	Action 5.13	Improve Assistance to Special Needs Populations
	Action 5.14	Train, Equip, Maintain "Storm Spotters"
	Action 5.15	Monitor Repetitive Loss (RL) Properties
	Action 5.16	Develop Database of Recurring Flood Hazards
	Action 5.17	Develop, Continue Wellhead Protection Plans
	Action 5.18	Develop Supplements to Jurisdictions' Emergency Operations Plans (EOPs)
	Action 5.19	Develop Regional Agreements that Allow the Use of Inventoried Equipment
	Action 5.20	Improve Planning that Assures Delivery of Emergency Services
	Action 5.21	Develop, Improve Land-Use Planning

INDUCTIVE ACTION CATEGORY	ACTION NUMBER	ACTION
<i>Enforcement (6)</i>	Action 6.1	Enforce National Flood Insurance Program (NFIP) Flood Ordinances
	Action 6.2	Pass and Enforce, Zoning and Land-Use Ordinances
	Action 6.3	Enforce Current Building Code Standards
	Action 6.4	Adopt Building Code Standards

B. *The Evaluation of Mitigation Actions and Activities*

Evaluation of the abovementioned mitigation actions involves two (2) variables:

Variable 1: “Near-Term” vs. “Enduring” vs. “Near-Term and Enduring”

The first variable considers dichotomously whether the action is a “near-term” mitigation action or whether it should be considered “enduring.” The most obvious illustration distinguishing between these two evaluative categories can be exemplified comparing the actions categorized above as “Physical Improvements” versus many of those abovementioned actions categorized in the *deductive planning* portion of this mitigation strategy: The distinction lies in the ability to count. Those mitigation actions labeled “near-term” should produce countable results. At the end of the three-year state planning cycle, the Commonwealth of Kentucky should be able to count the absolute number of or the number of projects addressing actions such as installing generators, constructing safe rooms, or burying utility lines.

In contrast, evaluating whether or not jurisdictions became “more self-sufficient in preparing for hazards,” or whether or not general education initiatives achieved their intentions is not countable. Alternatively, if they can be conceived as countable, it still may be unwise to attempt discrete evaluation or quantification when considering the goal of planning: Is the point to be able to count the number of general education initiatives undertaken during an arbitrary three-year cycle, or is the point that educating the public about hazard mitigation and all that is related is a constant, dynamic action that should never be achieved lest we admit perfection?

It should be clarified that this plan does purposefully use the adjective “near-term”: While “near-term” mitigation actions can (or should be) quantified, they do not necessarily need to be quantified within the time limits arbitrarily placed upon updates to the Commonwealth’s hazard mitigation plan.

Though this will be elaborated and focused upon when discussing prioritization, one of the consequences of Kentucky developing its goals and its actions from the mitigation strategies of its localities is to relinquish control over what types of mitigation actions are the foci of applications intended to (partially) fund mitigation actions between the years characterizing the planning cycle. While in its administrative role as a facilitator and

coordinator, Kentucky Emergency Management and its supporting agencies can advertise or educate about different mitigation action types, the agencies (acting as proxies for the Commonwealth of Kentucky) cannot enforce or compel localities to heed their advice. As an unlikely yet illustrative example, KYEM can suggest that between 2013 and 2016, localities focus on mitigation actions that can be quantifiable like eliminating Severe Repetitive Loss (SRL) structures. However, if between 2013 and 2016 all 120 of Kentucky's counties submit only mitigation action applications for reimbursement towards generator-placement, ultimately KYEM and its agencies can do nothing about it. KYEM must evaluate (and prioritize) its mitigation actions based upon the pool of mitigation actions submitted to it by Kentucky's localities.

Thus, there are mitigation actions that will be evaluated as "near-term" in the sense that, at some point in the near future, Kentucky does expect to possess quantitative proof that such measures have been undertaken. (At some point some quantity of SRL structures will be eliminated.) However, there may be no quantifiable SRL elimination between the years of 2013 and 2016 when localities consider only the reimbursement for the purchasing of generators as best to mitigate their hazards.

The term "enduring" refers to those mitigation strategies that should never see results that are countable. As above illustrated, the Commonwealth should never be able to count the number of education initiatives it implemented. The Commonwealth can attempt to quantify or evaluate the results of a particular education initiative using some specified criteria and allowing for time; but, "evaluating" an education goal by counting how many education programs were implemented is not evaluation and is worse than meaningless. Education initiatives and the like are "enduring" mitigation strategies and actions. The Commonwealth hopes never to achieve "perfection" in or satiation for such acts.

The dichotomization between "near-term" and "enduring" does imply a third distinction to evaluation that this plan must consider: Those mitigation actions that ultimately are enduring but can provide some near-term countable results. The distinction relies upon location and time. Installing a siren cannot be considered "near-term" *and* "enduring." It is only "near-term": A project installs a warning siren at Location X; a new project will install a different siren at Location Y. Location X will not continuously need new sirens over time. The removal of debris, however, does allow for multiple "near-term" projects to be conducted in one location. Location A in Kentucky can have a debris removal project approved for reimbursement with FEMA funds. However, even with such a countable project completed, the nature of the hazard implies that the task of debris removal should never be wholly completed. Over time, there will be more debris requiring removal at Location A. Thus, while "near-term" projects can address debris removal at Location A at Time 0, another "near-term" project will have to address debris removal at Time 1. Debris removal is an "enduring" mitigation action that where countable "near-term" projects can address (over time).

Variable 2: Categorizing Mitigation

The second variable to evaluating the above mitigation actions involves isolating which actions mitigate which hazards if they are not intended to mitigate against all (or any) hazard. To aid in the evaluation of mitigation actions and activities by addressing specific hazards, the Commonwealth used a highly useful source written by FEMA's Region VIII (which oversees Colorado, Montana, North Dakota, South Dakota, and Utah):

The resource is entitled "Mitigation Ideas: Possible Mitigation Measures by Hazard Type." FEMA's Region VIII developed this document recognizing a need that planning involves both inductive and deductive reasoning. Most local, state, and federal planning for hazard mitigation is done inductively: Individuals within jurisdictions recognize specific needs for their jurisdictions and plan "upward" (or plan generally) to meet those specific needs. From the tables and appendices provided in and for this section, the audience will notice evidence of such induction: A local hazard mitigation plan will focus heavily on one or two hazard areas because specific events related to those hazard areas take prominence during the planning process. This inductive planning is laudable, of course. And arguably, the emphasis on planning should be inductive: Jurisdictions—however defined (local, state, federal)—deal with limited resources. There is a finite amount time and a finite amount of money that can be utilized for hazard mitigation projects (in this case) at any given point. Thus, it is indeed necessary to identify specific needs and plan "upward."

The danger of planning "upward" is myopia. Because a justified and righteous case can be made that limited resources should be targeted toward, say, projects associated with mitigating the effects of flooding because flooding happens most frequently and perhaps even most dramatically in an area does not or should not negate that this same area will feel (while perhaps less dramatic) effects from other types of hazards. There is a deductive logic that seems too often marginalized in the planning process where there is, thusly, a need to consider generally all types of hazards and plan "downward" toward specific solutions for such general considerations. This need for deductive planning is addressed by the creation of the FEMA Region VIII "Mitigation Ideas: Possible Mitigation Measures by Hazard Type"⁷ report.

That FEMA Region VIII's "Mitigation Ideas: Possible Mitigation Measures by Hazard Type"⁸ report is but an update of a preliminary attempt (in 2002 by FEMA Region V) at categorizing mitigation measures and providing an (incomprehensive) list of solutions for general hazard types is irrelevant for the purposes of the Commonwealth of Kentucky's hazard mitigation plan. If these ideas become more universal throughout all of FEMA, and/or if the mitigation measure categorizations become improved, streamlined, placed alternatively within different categories in future iterations of this document, then future updates to the Commonwealth of Kentucky's hazard mitigation plan's use of FEMA Region VIII's insights can easily accommodate such changes.

⁷ While this update of Kentucky's hazard mitigation plan used a draft copy of a FEMA Region VIII resource, please also see from FEMA Region V: Federal Emergency Management Agency (FEMA). [January 2013]. *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards*. It can be found here: [fema_mitigation_ideas_final_01252013.pdf](#), or from FEMA's website.

⁸ The full report is appended to this plan as **Appendix 4-7**.

In **Appendix 4-6**, the Commonwealth has re-categorized its above mitigation actions (i.e. the mitigation strategies of its localities) to “fit” into the mitigation strategy/action categories defined in the “Mitigation Ideas...” report. The results of that categorization inform the evaluation of the Commonwealth’s articulated mitigation actions by identifying those actions with specific hazard types. Necessarily, the reshuffling and forced fit of Kentucky’s localities’ mitigation strategies into FEMA (Region VIII)’s proposed mold also reshuffled which of Kentucky’s Area Development Districts (ADDs) account for which of FEMA’s mitigation strategy ideas.

REMEMBER:

Rather than assign the completion or address of mitigation actions a specific point or range in time, i.e. “short-term” vs. “long-term,” this plan seeks to be able to evaluate its actions in terms of both time and expected outcome. To assign merely a unidirectional “short-term” vs. “long-term” label is to assume that all actions have equal likelihood of producing a measurable or defined outcome. Kentucky makes no such presumptions here. Thus, evaluation of mitigation actions is conceptualized as follows:

Near-Term Actions: Implies that a “countable” or quantitative outcome can be expected from the action. Thus, it is expected that achieving this countable outcome occurs in a timely fashion.

Enduring Action: Implies that no “countable” outcome should be expected. Such actions should simply be or are expected to always be performed.

Near-Term & Enduring: Refers to those actions that do produce “countable” outcomes but that, essentially, require maintenance. Such actions have both “short-term” and “long-term” horizons. Debris removal is an adequate example: Debris can be removed, i.e. countable outcome. But, it is expected that future debris will need to be removed again. Thus it is a “long-term” concern also.

Table 4-7: 2013 Derived Mitigation Actions (Deductive Actions): Finalized

DEDUCTIVE ACTION CATEGORY	ACTION	NEAR-TERM VS. ENDURING	HAZARD(S) ADDRESSED
Outreach: <i>Objectives 1.1 – 1.7</i>	Assist where possible to include mitigation activity in emergency management training	Enduring	All Hazards
Outreach: <i>Objectives 1.1 – 1.7</i>	<i>Regarding Residential and Non-Residential Safe Rooms:</i> Provide information to the general public and the housing industry about; find grants and other funding sources toward construction of	Enduring	Tornadoes; Severe Storm; Hail Storms
Outreach: <i>Objectives 1.1 – 1.7</i>	<i>Regarding Repetitive-Loss and Severe Repetitive-Loss Properties:</i> Provide/ improve information and conduct outreach about Repetitive-Loss and Severe Repetitive-Loss properties within local jurisdictions' areas; educate community leaders and floodplain managers about the Repetitive-Loss/Severe Repetitive-Loss program	Enduring	Flooding
Outreach: <i>Objectives 1.1 – 1.7</i>	Conduct community assessment visits and floodplain audits on a regular basis, including after major flooding events	Near-Term & Enduring	Flooding
Outreach: <i>Objectives 1.1 – 1.7</i>	Increase interagency communication (at both state and federal levels) regarding impact of the NFIP and floodplain management; use experts from other agencies to aid in these efforts	Enduring	Flooding
Outreach: <i>Objectives 1.1 – 1.7</i>	Continue agency partnerships to provide outreach, to develop floodplain management publications/promotional materials	Enduring	Flooding
Outreach: <i>Objectives 1.1 – 1.7</i>	Increase interagency communication regarding impact of the CRS; use experts from other agencies to aid in these efforts	Enduring	Flooding

DEDUCTIVE ACTION CATEGORY	ACTION	NEAR-TERM VS. ENDURING	HAZARD(S) ADDRESSED
Outreach: <i>Objectives 1.1 – 1.7</i>	Promote land-use planning for geologically high-risk areas	Enduring	Earthquakes; Karst/Sinkholes; Mine/Land Subsidence; Landslides
Outreach: <i>Objectives 1.1 – 1.7</i>	Conduct outreach toward local jurisdictions to provide technical assistance regarding the proper enforcement of building codes	Enduring	Earthquakes; Flooding; Severe Storms; Severe Winter Storms; Tornadoes; Forest Fires
Outreach: <i>Objectives 1.1 – 1.7</i>	Conduct training seminars and workshops for local building enforcement officials	Near-Term & Enduring	Earthquakes; Flooding; Severe Storms; Severe Winter Storms; Tornadoes; Forest Fires
Outreach: <i>Objectives 1.1 – 1.7</i>	Continually increase membership to the Kentucky Hazard Mitigation Council (KYMC)	Near-Term & Enduring	All Hazards
Outreach: <i>Objectives 1.1 – 1.7</i>	Hold regular meetings of the Kentucky Hazard Mitigation Council (KYMC)	Near-Term & Enduring	All Hazards
Outreach: <i>Objectives 1.1 – 1.7</i>	Promote the gathering and archiving of data by local jurisdictions regarding the types and extent of damages that occur after a hazard event	Near-Term & Enduring	All Hazards
Outreach: <i>Objectives 1.1 – 1.7</i>	Provide technical assistance to local jurisdictions regarding establishing, standardizing, and, ultimately, implementing local mitigation strategies	Enduring	All Hazards

DEDUCTIVE ACTION CATEGORY	ACTION	NEAR-TERM VS. ENDURING	HAZARD(S) ADDRESSED
Outreach: <i>Objectives 1.1 – 1.7</i>	Maintain an ongoing education and outreach effort aimed to educate public and private schools, elected officials, and the general public about the importance of hazard mitigation; conduct workshops, training, seminars, etc. regarding mitigation techniques, funding, planning, and benefit-cost analysis to aid in such efforts	Enduring	All Hazards
Outreach: <i>Objectives 1.1 – 1.7</i>	Develop new training programs where applicable and when the need arises	Near-Term & Enduring	All Hazards
Outreach: <i>Objectives 1.1 – 1.7</i>	Continue to develop and improve and to disseminate “Best Practices” in hazard mitigation	Near-Term & Enduring	All Hazards
Outreach: <i>Objectives 1.1 – 1.7</i>	Train specifically for human-made hazards	Enduring	Human-Made

DEDUCTIVE ACTION CATEGORY	ACTION	NEAR-TERM VS. ENDURING	HAZARD(S) ADDRESSED
Option Diversification: <i>Objective II.1</i>	Promote to local jurisdictions the purchasing and installation of indoor and outdoor warning systems (e.g., telephone “ring-down” systems, weather-alert radios, and outdoor warning sirens)	Enduring	Severe Storms; Dam Failure; Earthquakes; Hail Storms; Tornadoes
Option Diversification: <i>Objective II.1</i>	Promote the purchasing of flood insurance; actively seek flood insurance participants	Near-Term & Enduring	Flooding; Dam Failure
Option Diversification: <i>Objective II.1</i>	Promote the use of mitigation projects aimed toward protection from flooding (e.g., elevations, acquisitions/demolitions)	Enduring	Flooding
Option Diversification: <i>Objective II.1</i>	Promote the design and construction of minor engineered water-management projects	Near-Term	Flooding
Option Diversification: <i>Objective II.1</i>	Promote the retrofitting of existing structures	Near-Term	Earthquakes; Karst/Sinkholes; Mine/Land Subsidence; Landslides
Option Diversification: <i>Objective II.1</i>	Encourage the creation of local building enforcement capabilities in communities that currently do not have such capabilities	Enduring	Earthquakes; Flooding; Severe Storms; Severe Winter Storms; Tornadoes; Forest Fires

DEDUCTIVE ACTION CATEGORY	ACTION	NEAR-TERM VS. ENDURING	HAZARD(S) ADDRESSED
Option Diversification: <i>Objective II.1</i>	Explore possible options to promote toward owners of manufacture homes regarding financial incentives to secure their homes to their sites	Near-Term	Flooding; Severe Storms; Severe Winter Storms; Tornadoes
Option Diversification: <i>Objective II.1</i>	Promote utility-protection projects (e.g., those projects protecting electrical and water supplies and involving sanitary sewers)	Near-Term	All Hazards
Option Diversification: <i>Objective II.1</i>	Promote mitigation activities involving transportation systems	Enduring	Dam Failure; Earthquakes; Flooding; Karst/Sinkholes; Landslides; Mine/Land Subsidence; Human-Made Hazards
Option Diversification: <i>Objective II.1</i>	Promote the purchasing of generators and generator “hook-ups” for critical facilities	Near-Term	Dam Failure; Earthquakes; Flooding; Hail Storms; Severe Storms; Severe Winter Storms; Tornadoes; Human-Made Hazards
Option Diversification: <i>Objective II.1</i>	Encourage the integration of applicable hazard mitigation objectives developed for local hazard mitigation plans into local-level comprehensive plans	Near-Term	All Hazards
Option Diversification: <i>Objective II.1</i>	Promote NIMS compliancy (so that local governments can better and more efficiently communicate during large-scale, multi-jurisdictional hazard events	Near-Term & Enduring	All Hazards
Option Diversification: <i>Objective II.1</i>	Maintain a catalog of the hazards from which Kentucky suffers and mitigation research studies regarding said hazards	Near-Term	All Hazards

DEDUCTIVE ACTION CATEGORY	ACTION	NEAR-TERM VS. ENDURING	HAZARD(S) ADDRESSED
Option Diversification: <i>Objective II.1</i>	Make regular visits to Area Development Districts (ADDs) to elicit feedback from local jurisdictions and present mitigation options/projects	Near-Term & Enduring	All Hazards
Option Diversification: <i>Objective II.1</i>	Continue identifying locations where acquisitions are a preferable and viable mitigation option	Near-Term	Flooding
Option Diversification: <i>Objective II.1</i>	Promote residential hazard preparedness	Enduring	All Hazards
Option Diversification: <i>Objective II.1</i>	Conduct mitigation funding seminars	Near-Term & Enduring	All Hazards
Option Diversification: <i>Objective II.1</i>	Promote increased participation (where participation is not limited to appointment) in one of Kentucky's many mitigation-oriented committees, commissions, etc.	Near-Term & Enduring	All Hazards
Option Diversification: <i>Objective II.1</i>	Educate about evacuation routes and procedures	Enduring	All Hazards

DEDUCTIVE ACTION CATEGORY	ACTION	NEAR-TERM VS. ENDURING	HAZARD(S) ADDRESSED
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Identify vulnerable populations through the Commonwealth of Kentucky's risk assessment	Near-Term	All Hazards
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Target prioritization of mitigation activity toward projects that benefit vulnerable populations	Near-Term	All Hazards
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Visit sites listed on Kentucky's Repetitive-Loss and Severe Repetitive-Loss lists in order to verify the accuracy of the lists	Near-Term	Flooding
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Establish hazard mitigation priorities for the retrofitting of existing state-level critical facilities and infrastructure (based upon the Commonwealth of Kentucky's risk and vulnerability assessment)	Near-Term	Earthquakes; Flooding; Hail Storms; Karst/Sinkholes; Mine/Land Subsidence; Landslides; Severe Storms; Severe Winter Storms; Tornadoes; Extreme Temperatures; Human-Made Hazards
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Collect data on and identify locations and effects of landslides in Kentucky, both current and historical; visit the sites of past landslides to collect the data	Near-Term	Earthquakes; Mine/Land Subsidence; Landslides
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Develop, improve hazard assessment methodology related to dam failure: Examine, evaluate need for emergency action plans; examine the issues related to the effects of unregulated development below dams	Near-Term & Enduring	Dam Failure; Flooding
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Review existing state-level agency programs, plans, and policies at least every three (3) years	Near-Term	All Hazards

DEDUCTIVE ACTION CATEGORY	ACTION	NEAR-TERM VS. ENDURING	HAZARD(S) ADDRESSED
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Inventory critical facilities, leased infrastructure, identified vulnerable structures (from Area Development Districts' data); update inventory of state-owned facilities; continue improving risk and vulnerability criteria for all of the above	Near-Term	All Hazards
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Continue the Commonwealth of Kentucky's cost-share (12%) for FEMA Hazard Mitigation Grant Program (HMGP)-funded projects	Enduring	All Hazards
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Identify effective local regulatory approaches to hazard mitigation	Enduring	All Hazards
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Identify pre- and post-disaster mitigation-related funding opportunities for local jurisdictions	Near-Term & Enduring	All Hazards
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Identify further "Best Practices" that can later be the subject of future outreach	Enduring	All Hazards
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Review and update local hazard mitigation plans at least every five (5) years	Near-Term	All Hazards
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Maintain, continue improving and updating the Kentucky Emergency Management (KYEM) website	Near-Term & Enduring	All Hazards
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Develop brochures etc. defining hazards and mitigation funding opportunities	Near-Term	All Hazards
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Continue to promote the design, improvement of a functional statewide emergency responders communication system	Enduring	All Hazards
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Participate in, provide support to education/higher education program/curricular development, especially toward coursework aimed at emergency management professional and that focus on hazard mitigation and related fields	Enduring	All Hazards

DEDUCTIVE ACTION CATEGORY	ACTION	NEAR-TERM VS. ENDURING	HAZARD(S) ADDRESSED
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Continue to update and modernize Kentucky's flood maps and flood insurance studies; provide mapping where currently there is little or none	Near-Term & Enduring	Dam Failure; Flooding
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Continue to work with FEMA to prioritize communities for new mapping based upon population growth and the number of flood insurance policies	Near-Term	Dam Failure; Flooding
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Collect data on and identify the effects from karst and sinkholes; continue to update databases regarding Kentucky's geologic hazards; work with Kentucky Geological Society (KGS), Department of Geological Sciences at the University of Kentucky, and USGS	Near-Term	Earthquakes; Karst/Sinkholes; Landslides; Mine/Land Subsidence
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Continue to monitor, update, and maintain information regarding seismic activity	Near-Term	Earthquakes
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Develop/Improve hazard assessment methodology related to forest fires	Near-Term	Forest Fires
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Continue to improve the Commonwealth of Kentucky's hazard assessment methodology, generally	Near-Term & Enduring	All Hazards
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Continue updating/improving and implementing the Community Hazards Assessment and Mitigation Planning System (CHAMPS)	Near-Term & Enduring	All Hazards

DEDUCTIVE ACTION CATEGORY	ACTION	NEAR-TERM VS. ENDURING	HAZARD(S) ADDRESSED
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Develop/Improve hazard assessment methodology related to human-made hazards	Near-Term	Human-Made
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Research how previously identified critical facilities are related to/networked with other facilities, i.e. “nested”	Near-Term	Human-Made
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Identify vulnerabilities within and specific to individual critical facilities	Near-Term	Human-Made
Public Goods-Type: <i>Objectives III.1 – III.7</i>	Track progress of select mitigation projects after close-out in order to collect data to be used in loss avoidance studies	Near-Term	All Hazards

**REQUIREMENT
§201.4 (c) (3) (v):**

The Commonwealth of Kentucky may request the reduced cost share authorized under 79.4 (c) (2) of this chapter for the FMA and SRL programs. If it has an approved Mitigation Plan...that also identifies specific actions the Commonwealth of Kentucky has taken to reduce the number of repetitive loss properties (which must include severe repetitive loss properties), and specifies how the Commonwealth of Kentucky intends to reduce the number of such repetitive loss properties.

WITHIN TABLES, ABOVE AND BELOW

D. Identifying, Evaluating, and Prioritizing Cost-Effective, Environmentally-Sound, and Technically Feasible Mitigation Actions for Repetitive-Loss Properties

Table 4-8: 2013 Inductive Mitigation Actions: Finalized

INDUCTIVE ACTION CATEGORY: <i>Objective IV.1</i>	ACTION NUMBER	ACTION	NEAR-TERM VS. ENDURING	HAZARD(S) ADDRESSED
<i>Flooding (1)</i>	Action 1.1	Remove Debris	Near-Term & Enduring	Flooding, Landslide/Debris Flow, Tornadoes
	Action 1.2	Acquire Properties within Floodplains	Near-Term	Flooding
	Action 1.3	Install, Repair, Address Culverts	Near-Term	Flooding
	Action 1.4	Manage Vegetation, Wetlands	Enduring	Flooding
	Action 1.5	Address Storm Sewers	Near-Term	Flooding
	Action 1.6	Address Flood Gages	Near-Term	Flooding
	Action 1.7	Elevate Structures	Near-Term	Flooding
	Action 1.8	Provide Openings in Foundation Walls to Allow Flow of Water	Near-Term	Flooding
	Action 1.9	Repair Road Slides/Breaks	Near-Term	Flooding
	Action 1.10	Maintain Creek Banks	Near-Term & Enduring	Flooding
	Action 1.11	Monitor Erosion	Enduring	Flooding
	Action 1.12	Construct Levees/Flood Walls	Near-Term	Flooding
	Action 1.13	Realign Streams	Near-Term	Flooding
	Action 1.14	Eliminate Severe Repetitive Loss (SRL) Structures	Near-Term & Enduring	Flooding
	Action 1.15	Replace Inadequate Bridges	Near-Term	Flooding

INDUCTIVE ACTION CATEGORY: <i>Objective IV.1</i>	ACTION NUMBER	ACTION	NEAR-TERM VS. ENDURING	HAZARD(S) ADDRESSED
<i>Improved Information (2)</i>	Action 2.1	Construct, Improve GIS Databases of Critical Facilities	Near-Term & Enduring	All Hazards, Human-Made
	Action 2.2	Update Flood Insurance Rate Maps (FIRMs)	Near-Term & Enduring	Flooding
	Action 2.3	Construct, Improve GIS Databases of Repetitive Loss (RL) Structures	Near-Term	Flooding
	Action 2.4	Identify and Map At-Risk Bridges	Near-Term & Enduring	Flooding, Snow Loads, Earthquakes
	Action 2.5	Evaluate Recovery Shelters	Enduring	Tornadoes, Winter Weather/Snowstorms, Radiological Emergencies
	Action 2.6	Perform Earthquake Studies	Near-Term & Enduring	Earthquakes
	Action 2.7	Identify At-Risk Structure Identification	Near-Term & Enduring	All Hazards, Human-Made
	Action 2.8	Identify County/Local Sources for Data	Near-Term & Enduring	All Hazards
	Action 2.9	Create, Maintain List of Local Service Providers	Near-Term & Enduring	All Hazards
	Action 2.10	Perform Housing Identification	Near-Term & Enduring	All Hazards
	Action 2.11	Create, Provide Sinkhole Location Maps	Near-Term	Landslide/Debris Flow, Earthquakes, Flooding ⁹

⁹ Again, the "Hazards Addressed" use FEMA categories. Specific "Sinkhole" and "Karst" categories were not identified by the FEMA report that guided this evaluation.

INDUCTIVE ACTION CATEGORY: <i>Objective IV.1</i>	ACTION NUMBER	ACTION	NEAR-TERM VS. ENDURING	HAZARD(S) ADDRESSED
<i>Physical Improvements (3)</i>	Action 3.1	Install Generators	Near-Term	Flooding, Severe Wind, Utility Failure
	Action 3.2	Identify New Critical Facilities Outside of Hazard Areas	Near-Term	All Hazards, Human-Made
	Action 3.3	Construct Safe Rooms	Near-Term	Tornadoes, Winter Weather/Snowstorms, Radiological Emergencies
	Action 3.4	Relocate Critical Facilities/Residential Structures	Near-Term	Flooding, Landslide/Debris Flow, Subsidence
	Action 3.5	Bury Utilities	Near-Term	Thunderstorms/Lightning, Severe Wind
	Action 3.6	Acquire Emergency Equipment	Near-Term & Enduring	All Hazards
	Action 3.7	Acquire Vehicles for Road Clearing	Near-Term & Enduring	Flooding, Winter Weather/Snowstorms, Wildfires
	Action 3.8	Remove, Regulate, Retrofit Buildings in Hazard-Prone Areas	Near-Term	Earthquakes, Flooding, Landslide/Debris Flow, Subsidence
	Action 3.9	Trim "Right-of-Ways"	Near-Term & Enduring	Severe Wind, Utility Failure
	Action 3.10	Manage Hazard Areas	Enduring	All Hazards
	Action 3.11	Improve Water Infrastructure	Near-Term & Enduring	Droughts, Flooding, Wildfires, Utility Failure, Public Health Emergencies
	Action 3.12	Construct Emergency Relief Warehouses	Near-Term	All Hazards
	Action 3.13	Install Drought-Proof Security Links	Near-Term	Droughts
	Action 3.14	Maintain Lifeline Utilities	Enduring	Utility Failure
<i>Communications (4)</i>	Action 4.1	Install NOAA "All-Hazards" Radios	Near-Term & Enduring	All Hazards
	Action 4.2	Generally Upgrade Communications Equipment	Enduring	All Hazards
	Action 4.3	Install Other/Atypical Early Warning Systems	Near-Term	Flooding, Thunderstorms/Lightning, Radiological Emergencies
	Action 4.4	Install Warning Sirens	Near-Term	Flooding, Tornadoes

INDUCTIVE ACTION CATEGORY: <i>Objective IV.1</i>	ACTION NUMBER	ACTION	NEAR-TERM VS. ENDURING	HAZARD(S) ADDRESSED
<i>Planning (5)</i>	Action 5.1	Recruit and Train Volunteers	Enduring	All Hazards
	Action 5.2	Coordinate Debris Removal	Near-Term & Enduring	Flooding, Landslide/Debris Flow, Tornadoes
	Action 5.3	Engage in Storm-water Management	Enduring	Flooding
	Action 5.4	Improve Interagency Communication	Enduring	All Hazards, Human-Made
	Action 5.5	Protect Information Systems and Infrastructure	Enduring	Human-Made
	Action 5.6	Identify "At-Risk" Critical Facilities	Near-Term	Human-Made
	Action 5.7	Formalize Hazard Mitigation Planning Committee	Near-Term & Enduring	All Hazards
	Action 5.8	Develop, Improve Evacuation Plans, Policies, and Procedures	Enduring	Hazardous Materials, Wildfires
	Action 5.9	Better, More Explicitly Address Severe Repetitive Loss (SRL) Properties in Planning	Enduring	Flooding
	Action 5.10	Develop, Improve Floodplain Management Procedures	Enduring	Flooding
	Action 5.11	Plan to Maintain Water Supply	Enduring	Droughts, Extreme Temperatures
	Action 5.12	Better Staff Local Emergency Operations Centers (EOCs)	Enduring	All Hazards, Human-Made
	Action 5.13	Improve Assistance to Special Needs Populations	Enduring	All Hazards
	Action 5.14	Train, Equip, Maintain "Storm Spotters"	Enduring	Severe Wind, Thunderstorms/Lightning, Tornadoes
	Action 5.15	Monitor Repetitive Loss (RL) Properties	Enduring	Flooding
	Action 5.16	Develop Database of Recurring Flood Hazards	Near-Term & Enduring	Flooding
	Action 5.17	Develop, Continue Wellhead Protection Plans	Enduring	Oil and Natural Gas

INDUCTIVE ACTION CATEGORY: <i>Objective IV.1</i>	ACTION NUMBER	ACTION	NEAR-TERM VS. ENDURING	HAZARD(S) ADDRESSED
	Action 5.18	Develop Supplements to Jurisdictions' Emergency Operations Plans (EOPs)	Enduring	All Hazards
	Action 5.19	Develop Regional Agreements that Allow the Use of Inventoried Equipment	Enduring	All Hazards
	Action 5.20	Improve Planning that Assures Delivery of Emergency Services	Enduring	All Hazards
	Action 5.21	Develop, Improve Land-Use Planning	Enduring	All Hazards
Enforcement (6)	Action 6.1	Enforce National Flood Insurance Program (NFIP) Flood Ordinances	Enduring	Flooding
	Action 6.2	Enforce, Pass Zoning and Land-Use Ordinances	Enduring	Flooding, Landslide/Debris Flow, Wildfires
	Action 6.3	Enforce Current Building Code Standards	Enduring	Flooding, Landslide/Debris Flow, Winter Weather/Snowstorms, Earthquakes, Wildfires, Structure Fires
	Action 6.4	Adopt Building Code Standards	Near-Term	Flooding, Landslide/Debris Flow, Winter Weather/Snowstorms, Earthquakes, Wildfires, Structure Fires

C. Prioritizing Mitigation Actions and Activities

Reasons for Revising Prioritization Strategy:

For the 2010 update of the Commonwealth’s hazard mitigation plan, prioritization of mitigation actions was performed with a seemingly straightforward grading scale:

Priority	Description
A	Projects or activities which permanently eliminate damages or deaths and injuries across the State from any hazard.
B	Project or activities which reduce the probability of damages, deaths, and injuries across the State from any hazard.
C	Project or activities which educate the public on the subjects of hazard mitigation, hazard research, and disaster preparedness.
D	Project or activities which warn the public to the approach of a natural hazard threat across the State.

There are obvious flaws with the 2010 grading scale that necessitate changing it, however: The scale represents false gradation. Why are warning sirens ranked lower than education campaigns? Could not one argue the opposite? Alternatively, why are education campaigns and warning sirens perhaps not placed with similar priority? It is arguable that the criterion for “A” is superfluous: Only one type of project can “permanently eliminate damages or deaths and injuries”: Acquisitions and demolitions. Why can the Commonwealth not simply assume that an acquisition or demolition mitigation action is in a category of its own? It is axiomatic that acquisition and demolition mitigation actions will take priority above any other type of mitigation action.

Using the 2013 mitigation actions, as is the 2010 prioritization scale cannot offer any substantive way to prioritize the actions: If garnering an A, C or D refers to specific projects (A = acquisition, C = education, D = warnings/sirens), then every other type of project category falls under “B.” This creates a need for a “sub-prioritization.” The varied projects comprising the “B” grade all still need to be prioritized. A safe room and a drainage project both would receive a “B” using the 2010 prioritization scale. Yet a safe room and a drainage action do not nor should not necessarily carry equal weight. They are not necessarily substitutable mitigation actions.

Prioritization of Mitigation Actions for 2013:

The 2013 update of the Commonwealth’s hazard mitigation plan will attempt a more systematic prioritization system that uses the priorities of its localities as a basis for selection.

First, some assumptions in order to allow the model:

- 1) It is assumed that projects addressing acquisition and demolition as the underlying strategy exist in a separate category. This is due to the unique outcome resulting from such mitigation actions: Complete and permanent elimination of damages and/or deaths and injuries from any hazard. It is further assumed that given such a uniquely desired outcome, such mitigation actions take precedence (are prioritized) above any other.
- 2) It is assumed that education campaigns also exist as a separate category. Such campaigns are important and relevant mitigation actions, but oft-times accompany other mitigation actions and/or can be funded through other sources. Such actions are prioritized on an ad-hoc basis and, thusly, do not need inclusion into a systematized prioritization process.
- 3) It is assumed that a local jurisdiction’s prioritization of its mitigation actions is jointly determined with a local jurisdiction’s assessment and ranking of the hazards that affect it.
- 4) It is assumed the protection of critical facilities ranks more highly than any other consideration in mitigation action prioritization and subsequent selection.

Prioritization among mitigation actions that (a) do not permanently eliminate damages and/or deaths and injuries and that (b) are not education campaigns can occur acknowledging two (2) considerations:

- 1) What the mitigation action protects, and
- 2) How localities would prioritize their mitigation actions.

RE: What the Mitigation Action Protects

For any project application intended to mitigate hazards, two specific questions are asked:

- 1) Does the project intend to protect a critical facility?
- 2) What is the population the project is intended to protect?

Thus, the Commonwealth of Kentucky has implied that, generally, there are two (2) mitigation action/project classifications that take primary consideration when selecting projects: Those projects that protect critical facilities, and those projects that protect populations only¹⁰.

This creates two categories: A-Projects and B-Projects.

- **A-Projects** are all projects that protect critical facilities.
- **B-Projects** are all projects that protect populations only.

RE: Locality Prioritization

After dividing mitigation actions into either A-Projects or B-Projects, there is further prioritization ranking that must occur. In other words, mitigation actions within the A-Projects category must be ranked and mitigation actions within the B-Projects category must be ranked.

In order to reflect locality prioritization, such intra-categorical ranking is linked with how the Area Development Districts (ADDs) identified and ranked which hazards affected them when updating their respective local hazard mitigation plans:

A mitigation action submitted by ADD X that addresses a hazard that it ranked as “high-risk” will be prioritized more highly than a mitigation action submitted by ADD Y that addresses a hazard that it ranked “low-risk.”

The distinction amongst the ADDs’ rankings of their identified hazards derives from a thorough local hazard mitigation plan review and synopsis conducted by UK-HMGP and originally intended to help guide stakeholder meetings that were an integral part of the Commonwealth of Kentucky’s planning process. The results of this local hazard mitigation plan synopsis are provided in **Appendix 4-8**¹¹. It should also be noted that

¹⁰ It is assumed that there are no mitigation actions/projects that protect neither critical facilities nor populations. There would be no point to mitigating a hazard that affects no one.

¹¹ The local plan summaries appended to the *Planning Process* section of this 2013 update of Kentucky’s hazard mitigation plan [**Appendix 2-5**] also shows to which hazards high-, medium/moderate-, and low-risk labels were assigned from which Area Development District.

results provided in **Appendix 4-8** were confirmed through the stakeholder meetings described in the *Planning Process* section of this hazard mitigation plan.

Ranking is reverse numerical order: “High-Risk,” “Medium/Moderate-Risk and “Low-Risk” will be assigned the numbers “3,” “2,” and “1,” respectively.

So, amongst mitigation actions/projects that reduce the probability of damages and/or deaths and injuries resulting from a hazard, the following prioritization matrix results:

A-Projects: Mitigation Actions that Protect Critical Facilities	A3: Addresses ADDs’ “High-Risk”
	A2: Addresses ADDs’ “Medium/Moderate-Risk”
	A1: Addresses ADDs’ “Low-Risk”
B-Projects: Mitigation Actions that Protect Populations Only	B3: Addresses ADDs’ “High-Risk”
	B2: Addresses ADDs’ “Medium/Moderate-Risk”
	B1: Addresses ADDs’ “Low-Risk”

A Note on “High-Risk,” “Medium/Moderate-Risk,” and “Low-Risk” Rankings

This 2013 update of the Commonwealth of Kentucky’s hazard mitigation plan recognizes that relying solely upon the interpretation from local mitigation plans of which hazards are “high-risk” versus “medium-/moderate-risk” versus “low-risk” is insufficiently strict a justification to systematically rank actions within the “A-Project” and “B-Project” framework. Appendix 4-8 provides evidence as to why it is insufficiently justified: Throughout the 2010-2013 state-level planning cycle, local hazard mitigation plans were being written under two different sets of guidelines. Some were able to be approved using what is now an outdated “Plan Review Tool” or “Crosswalk.” The “Plan Review Tool” or “Crosswalk” is the method developed and used by FEMA (and used by the Commonwealth of Kentucky) to review hazard mitigation plans directed toward FEMA funding. In 2012, FEMA introduced a revised “Crosswalk” that streamlined much of the local plan review and prompted a more open-ended analysis of local hazard mitigation plans. In Kentucky’s case and during its 2010-2013 planning cycle, only three (3) of its multi-jurisdictional hazard mitigation plans were reviewed using the revised FEMA “Crosswalk.”

Of particular relevance to this subsection of the Commonwealth of Kentucky’s 2013 mitigation plan update and its project prioritization methodology is that the revised FEMA “Crosswalk” requires that local hazard mitigation plans ordinarily rank the hazards it assesses for the jurisdictions they cover. So, for example, the Cumberland Valley Area Development District (CVADD) multi-jurisdictional local hazard mitigation plan – reviewed using the revised “Crosswalk” – will demonstrate that vulnerability to, say, flooding is ranked either “high,” “medium,” or “low.” If one trusts the hazard vulnerability and assessment analysis, then one trusts the ordinal ranking of the local jurisdictions’ hazards and little needs to be questioned in prioritizing CVADD’s mitigation actions according to the “A-Project/B-Project, A3-A1 and B3-B1” framework.

However, this requirement of ordinal ranking of hazards deriving from the revised “Crosswalk” does not apply to FEMA’s outdated version. Hazard ranking is encouraged and was looked highly upon; but, local mitigation plans in Kentucky were approved without any demonstrated ordinal ranking of hazards under the outdated “Crosswalk.”

For this 2013 state-level mitigation plan update and the project prioritization methodology described above, the Commonwealth of Kentucky relied upon context and qualitative analysis to distinguish between “high-,” “medium-,” and “low-risk” hazard ranks for those local mitigation plans that did not explicitly rank their hazards. The results from the contextual/qualitative analyses were confirmed in the stakeholder meetings described in the *Planning Process* section of this plan update.

During the upcoming 2013 – 2016 state-level planning cycle, most of Kentucky’s multi-jurisdictional local hazard mitigation plans will need to be revised. Though FEMA’s revised “Plan Review Tool” (“Crosswalk”) will require a ranking of hazards for these local mitigation plan updates, it is the Commonwealth of Kentucky’s (and Kentucky Emergency Management’s) intent to enforce standardization of the local jurisdictions’ method of ranking their hazards to which they are vulnerable. This standardization will be enforced through outreach generally and through the local mitigation plan review process.

A standardized method for ranking hazards at the local level enhances the rigor of the prioritization system described above.

Using the Commonwealth of Kentucky’s Hazard Assessment for Prioritization

The Commonwealth of Kentucky does not itself “define” (or categorize) what constitutes a “high-risk” versus a “medium/moderate-risk” versus a “low-risk” hazard.

Rather, the Commonwealth provides for its hazard mitigation plan a far less arbitrary, more data-driven and, hence, more rigorous distinction between possible “ranks” of hazards. In this 2013 mitigation plan update, the Commonwealth uses a technique called the *(Jenks) Natural Breaks Classification Method* (developed by George Jenks late in the first half of the twentieth century) to distinguish between the Commonwealth’s “severe-risk,” “high-risk,” “moderate-risk,” and “low-risk” hazards.

The point of the *Natural Breaks Classification Method* is to use data (in this case the data used to assess vulnerability to hazards) to “find” classifications. For example, a typical classification scheme is to divide data into quartiles: Thus, 1-25 is the lowest quartile and 76-100 is the highest quartile. However, this classification is defined externally. It has a very tenuous connection to the data from which the quartiles are constructed. In other words, organizing data into quartiles is potentially (or likely) to be arbitrary. The *Natural Breaks Classification Method*, rather, looks at the data that is input and attempts to locate where the classifications (the “breaks”) “naturally” are occurring. It does this through an iterative process: Having predetermined that the Commonwealth wants four (4) classifications or groups (“severe-risk,” “high-risk,”

“moderate-risk,” and “low-risk”), the *Natural Breaks Classification Method* (using a methodology relying upon differencing the sum of squared deviations between the predetermined classifications from the sum of squared deviations from the entire matrix’s mean) literally uses data points to recreate the classifications so that they no longer are arbitrarily defined and moves data points from one newly defined classification to another until deviations *within* the new classifications are minimized¹². These, then, are “natural breaks” in the data. In the Commonwealth’s case, “severe-risk,” “high-risk,” “moderate-risk,” and “low-risk” are defined through this method.

That the Commonwealth of Kentucky has defined its “severe-,” “high-,” “moderate-,” and “low-risk” hazards using data rather than arbitrary definitions provides an ideal justification tool for mitigation project prioritization system described above: The Commonwealth of Kentucky can rank its “A-Projects” as either A3, A2, or A1 (and “B-Projects” as either B3, B2, or B1) depending upon local hazard mitigation plan determinations of hazard risk. But, that A3, A2, or A1 (B3, B2, or B1) ranking will be checked against the Commonwealth’s risk assessment outcomes presented within this plan update. In other words, rather than use a Commonwealth-derived “definition” of “high,” “medium/moderate,” or “low,” the Commonwealth will use the risk assessment’s results to justify prioritization. The Commonwealth knows that if a local jurisdiction’s vulnerability to tornadoes is deemed “severe” according to this plan update’s risk assessment, then that assessment is backed up by rigorous data analysis.

¹² Specifically, the *Jenks-Optimized Natural Breaks Classification Method* provides classifications using the following methodology:

- 1) Order the data that needs to be classified.
- 2) Place the ordered data into classifications. These classifications can be arbitrary. In other words, predetermine how many classifications will be created. In Kentucky’s case, four classifications were desired: “severe-risk,” “high-risk,” “moderate-risk,” and “low-risk.”
- 3) Calculate the sum of squared-deviations between the predetermined classifications. Remember that all data exist within a matrix. Individual data points are squared in order to get rid of any negative numbers. This step has each individual data point first being squared. If there are four (4) classifications, each of these squared data points is subtracted from its corresponding squared data point housed under a different classification. The individual differences between each data point from data points housed under different predetermined classifications are then summed together. We’ll call this number SSDBC.
- 4) Calculate the sum of squared-deviations from the mean of the entire matrix. Again, all data exist within a matrix. Squaring each of the data points within the matrix, summing up all of those points, and dividing that number by the number of data points provides the mean (or average) of the matrix. So, during this step, each data point is squared and subtracted from this mean of the matrix. The individual differences between each data point and the mean of the matrix are then summed together. We’ll call this number SSDMM.
- 5) Subtract SSDBC from SSDMM (i.e. SSDMM – SSDBC).
- 6) This difference allows a decision to be made to move a data point from within a classification with a comparatively high (sum of squared) deviation between the predetermined classifications to the classification with a comparatively low (sum of squared) deviation between the predetermined classes.
- 7) The movements in 6) determine the (new) four classifications. Now the Commonwealth’s “severe-risk,” “high-risk,” “moderate-risk,” and “low-risk” classifications no longer are arbitrarily defined.
- 8) Repeat 3) through 6) until the sum of squared-deviations *within* each of the new classifications is minimized.

The Final Prioritization Tools: Benefit-Cost Analysis (BCA) and Developmental Pressure

After categorizing mitigation actions into either A-Projects or B-Projects, and after ranking within the categories, the final systemic prioritization tool will consist of Benefit-Cost Analysis (BCA). The BCA Ratio should aid in determining between, say an A1 versus a B3 project or amongst multiple A2 or B2 projects et al.

Finally, as the Kentucky Hazard Mitigation Council (KYMC) is responsible for prioritization of local jurisdictions' hazard mitigation projects, on a case-by-case basis it will consider developmental pressure and other qualitative, anomalous variables in its prioritization decisions. In other words, the KYMC possess and will use judgment and discretion (backed by as many variables as possible) in its prioritization decisions.

Commonwealth of Kentucky Enhanced Hazard Mitigation Plan: 2013 Version

MITIGATION STRATEGY

PART III:

Local Capability Assessment

Given the emphasis toward the Commonwealth of Kentucky's local jurisdictions (and *inductive planning*) and given that Kentucky's mitigation actions primarily derive from the mitigation actions articulated from its local jurisdictions, a discussion of the local capability to implement said actions is necessary here.

REQUIREMENT
§201.4 (c) (3) (ii)

Kentucky's mitigation strategy shall include a general description and analysis of the effectiveness of local mitigation policies, programs, and capabilities.

It assumed that “capability” overwhelmingly considers two (2) questions:

- 1) Are local jurisdictions able to fund the actions that will mitigate hazards?
- 2) What policies and agencies are available to a local jurisdiction that can administer the completion of actions that will mitigate hazards?

Consequently, this discussion will proceed as follows: First, a general discussion of public financing for local jurisdictions is necessary. Such a discussion is universal, i.e. most jurisdictions in any state will have access to the discussed financing capabilities. However, information relevant and specific to Kentucky only and related to the general public financing discussion will be included, of course. This will be followed by a discussion of which authorities, agencies, programs, plans, and resources are available to local jurisdictions. True to the locality-first emphasis of this hazard mitigation plan, all local authorities, policies, and programs have been catalogued and categorized from each county¹³ in Kentucky through an analysis of each county's regional multi-jurisdictional hazard mitigation plan.

¹³ One regional exception applies here: The counties within the Cumberland Valley Area Development District (CVADD) did not specify which local agency et al. capabilities applied to each *county*. It is simply assumed that what applies regionally applies to each county for the purposes of this plan. City-level capabilities were articulated for the CVADD local hazard mitigation plan, however.

A. Presenting a General Description of and

B. Providing a General Analysis of the Effectiveness of Local Mitigation Policies, Programs, and Capabilities

Public Financing Capabilities of Local Jurisdictions

The United States Constitution and federalism do not guarantee the existence of local governments. A local government exists at the pleasure of the state only. The dominant rationale for the existence of local government centers on public service provision: “A government closest to the people” is a concept that has been fundamental to American identity since the invention of America from its Revolutionary War. In the latter half of the twentieth century, public finance theory finally formalized why this concept has been so enduring. Charles Tiebout in 1956¹⁴ would give us the eponymous Tiebout Model, which we conceive more commonly as “vote-with-your-feet.” Local governments exist to provide the public services we demand. We very much choose where to live based upon what a local government can offer and how that matches our individual preferences. In other words, Tiebout established that local governments can supply public goods and services efficiently and we know this because individuals “vote with their feet.” Related to the assumption underlying Tiebout’s work that individual preferences apply to public goods provision, Wallace Oates in 1972¹⁵ would give us *fiscal federalism*, and show in theory how local governments are the most efficient at providing those public goods that most accurately correspond with our individual preferences. This theoretical insight has consistently been supported through other scholarly work¹⁶. “So long as there are variations in tastes and costs, there are clearly efficiency gains from carrying out public sector activities in as decentralized a fashion as possible [Bird 1993, p. 211¹⁷].”

Local governments, then, have been the jurisdictions most responsible for provision of the basic public services. These include elementary and secondary education, basic transportation infrastructure, and, most relevantly to this hazard mitigation plan, public health and safety services, which, of course, include emergency management services.

Generally, when it comes to assessing the capability of local jurisdictions and governments to finance hazard mitigation activities, there are three (3) factors to consider: 1. the ability to tax, 2. the ability to budget, and 3. the ability to spend and incur debt.

¹⁴ Tiebout, Charles M. [1956]. “A Pure Theory of Local Expenditures.” *Journal of Political Economics* 64(5): 416-424.

¹⁵ Oates, Wallace E. [1972]. *Fiscal Federalism*. New York City, NY: Harcourt, Brace, Jovanovich.

¹⁶ See, for example: Gramlich, Edward M. [1993]. “A Policy-Maker’s Guide to Fiscal Decentralization.” *National Tax Journal* 46(2): 229-235.

¹⁷ Bird, Richard M. [1993]. “Threading the Labyrinth: Some Issues in Fiscal Decentralization.” *National Tax Journal* 46(2): 207-227.

I: The Ability to Tax

Local governments basically have three (3) categories of tax from which they can derive revenue. These are the property tax, the local-option sales tax and excise tax, and the local-option income and business tax.

The Property Tax

The property tax is the only tax that is collected from all 50 states and the District of Columbia (D.C.). It is and has been, by far, the most dominant source of “own-source”¹⁸ revenue collected by a local government: As of 2005, 72% of all local governments’ *own-source* revenue derived from property taxation [Brunori 2007¹⁹]. Alternatively stated, property taxes provided about 27% of the *general* revenue of local governments or provided almost 75% of *total local* government taxes in 2002 [Fisher 2007²⁰]. Finally, 96.5% of all property tax revenue goes to local governments [Fisher 2007²¹].

Specifically for local governments, 49 states allow “municipalities” to collect property tax; 45 states allow “counties” to collect it; and 24 states allow “townships” to collect it. Further 42 states allow “school districts” to levy the tax, and 20 states allow its special districts the ability to tax property [Rafool 2002²²].

Related to Kentucky, aside from independent school districts, generally small counties and cities (i.e. the types of local government that dominate Kentucky) rely the most heavily upon the property tax for its revenue.

The property tax is a unique tax in that the local government determines both the tax *base* and the tax *rate*. Essentially and typically, the local government decides upon how much revenue it needs, assesses the total value of all property within the taxing jurisdiction (through an agency or an assessor), and then sets a tax rate sufficient to generate the revenue desired [Fisher 2007²³]. The local government is assumed to know how much money it needs before it adopts its budget. The local government sets its property tax rate accordingly. This implies much variability in tax *rates* between the local governments of Kentucky: The tax *base*, i.e. the total value of the property within a local jurisdiction, determines the tax *rate*. A county like Jefferson County with a lot of property that can be taxed and, subsequently, with a “broad” tax *base* will have lower rates than a county in Kentucky where the total value of property is much smaller but the needs for revenue are similar to Jefferson County’s needs.

Current to 2007, real property tax values in Kentucky ranged from \$1.26 to \$4.37 per \$1,000 of assessed property value in county-level local governments and ranged from

¹⁸ “Own-source” revenue is the amount of money received by a government from external sources other than the money raised through debt instruments, the liquidation of investments, and as agency/private trust transactions.

¹⁹ Brunori, David. [2007]. *Local Tax Policy: A Federalist Perspective, 2nd Edition*. Washington, D.C.: Urban Institute Press.

²⁰ Fisher, Ronald C. [2007]. *State and Local Public Finance, 3rd Edition*. Mason, OH: Thomson Higher Education.

²¹ *Ibid.*

²² Rafool, Mandy. [2002]. *A Guide to Property Taxes: An Assessment*. Washington, D.C.: National Conference of State Legislatures.

²³ Fisher, Ronald C. [2007]. *State and Local Public Finance, 3rd Edition*. Mason, OH: Thomson Higher Education.

\$0.49 to \$4.79 per \$1,000 of assessed property value in city-level local governments. [Klutkowski and Pupke 2009²⁴].

Property is assessed for taxation in Kentucky on January 1st of each year. Assessment is at *fair cash value*²⁵ [Klutkowski and Pupke 2009²⁶]. Kentucky taxes all *tangible property*²⁷ (exempting household goods), but exempts *intangible property*²⁸ [CCH Editorial Staff 2010²⁹].

One final fact to consider when thinking about Kentucky's local governments' capabilities to finance hazard mitigation actions and projects: Property tax revenues for local governments *increase* IF the assessed value of property within the local government increases *without* the local government adjusting the property tax *rate*.

In an economy where property values decrease, the calculus changes considerably: Property tax rates will rise in order to meet the predetermined revenue needs of the local government. Such a calculus has spawned "truth-in-taxation" procedures where a local government is not allowed to raise the property tax rate above the rate that will generate the same amount of revenue for the next fiscal year as was raised during the previous year.

Finally, it is relevant to note that by Kentucky Revised Statute (KRS 147.110), property owned (e.g. property that it acquires for mitigation purposes) is exempt from taxation.

Local-Option Sales Tax

"After the property tax, local-option sales taxes are the most important source of tax revenue for local governments [Brunori 2007³⁰, p. 69]." Nationally, it is a widely-used tax: Of the 45 states that levy a state sales tax, 33 of them also are allowed to levy local-option ones. Further, of the 33, 23 states allow both county government *and* city government to levy local-option sales tax, and nine (9) of the 33 states allow their transit authorities or school districts to levy this type of tax [Brunori 2007³¹].

Generally, the local-option sales tax is popular because it promotes local autonomy (i.e. it is a direct source of revenue for local governments that allows them to maintain some autonomy over fiscal affairs) that is administratively efficient (i.e. does not cost a lot in terms of administration to implement) and provides stability and diversification to a local government's tax base (i.e. it is not so influenced to economic conditions as the income

²⁴ Klutkowski, Andrew and Peter Pupke (eds). [2009]. *2009 All States Tax Handbook*. New York City, NY: Thomson Reuters.

²⁵ "Fair Cash Value" is the "fair" or "reasonable" cash price for which a property can be sold in the market. The term is synonymous with "Actual Cash Value," which is the price a property will bring in a "fair" market, i.e. fair attempt has been made to identify the purchaser who will pay the highest price for the property.

²⁶ Klutkowski, Andrew and Peter Pupke (eds). [2009]. *2009 All States Tax Handbook*. New York City, NY: Thomson Reuters.

²⁷ "Tangible Property" includes both real property and personal property.

²⁸ "Intangible Property" refers to "property" that has no physical substance, e.g., patents, copyrights, intellectual property generally.

²⁹ Bjur, Timothy; Cathleen Calhoun; Rocky Mengle; Julie Minor; Brian Nudelman; Joe Rebman; Kathleen Thies (eds.) a.k.a. CCH Editorial Staff. [2010]. *2011 State Tax Handbook*. Chicago, IL: CCH a Wolters Kluwer Business.

³⁰ Brunori, David. [2007]. *Local Tax Policy: A Federalist Perspective, 2nd Edition*. Washington, D.C.: Urban Institute Press.

³¹ *Ibid*.

tax is and it provides an extra source of revenue that decreases dependence on the property tax).

Of course, generally, the local-option sales tax also can be controversial due to a shrinking tax base (i.e. Americans increasingly buy services instead of manufactured goods), inter-jurisdictional competition (i.e. it can be a highly inefficient tax if there is a lot of competition amongst local governments), and it many times being considered “regressive” (i.e. poorer local residents pay a larger percentage of their income in local-option sales taxes than do wealthier local residents).

Kentucky currently does not levy one of these taxes [Kentucky Department of Revenue 2013³²]. Sales and Use taxation currently only is collected at the state-level.

Local-Option Income Tax

This is a rare taxing ability for local governments to possess. This is largely because of its uselessness in generating any significant revenue [Brunori 2007³³]: The Tiebout Model (i.e. “vote-with-your-feet”) described above ensures a local income tax’s futility in raising revenue: While the Tiebout model is suspect in practice when it assumes perfect mobility for individuals between, say, Kentucky and Maine, or between Kentucky and Oregon (i.e. in practice individuals do not just up and leave Kentucky for Oregon because of Oregon’s local government services), arguably, the assumption of perfect mobility is best exemplified between local governments. Moving from Jefferson County, Kentucky to neighboring Oldham County, Kentucky does not represent a particularly prohibitive or difficult move, especially given the similarities between costs-of-living. So if Jefferson County levies a separate personal income tax (which it does as described below) while Oldham County does not, one is more likely to see the “vote-with-your-feet” phenomenon in action. The same logic applies to the ability to levy local-option business income taxes, as well.

Local-option *personal* income taxes typically are levied in one of two forms, either as a wage tax or as a general income tax. The former is more commonly referred to as a *payroll tax*; the latter is more commonly referred to as a *piggyback tax* (i.e. an income tax that “piggy-backs” onto a state income tax).

The primary motive for levying a local-option income tax is “fairness”: For one, they are highly visible taxes, i.e. taxpayers see very clearly and often (weekly and bi-weekly for wage-earners) how much tax is being paid to support local government activity. Secondly, it is fair in that only residents of a local government pay local-option income taxes in the case of the *piggyback* (general income) form of the local-option income tax. Further, this *piggyback tax* is considered administratively efficient in that it is not costly to administer the tax and the cost of compliance for taxpayers is low. Such is not the case for the *payroll* (wage) version of the local-option income tax. Wage taxes do not

³² Kentucky Department of Revenue. [January 7, 2013]. “Individual Information: Overview.” *Can be accessed:* <http://revenue.ky.gov/individual/>. [Last accessed: July 1, 2013].

³³ Brunori, David. [2007]. *Local Tax Policy: A Federalist Perspective, 2nd Edition*. Washington, D.C.: Urban Institute Press.

conform to state income tax laws. Thus, local governments must enforce, collect, and administer its own wage tax laws. This is expensive. To add further expense, the local government also becomes responsible to audit the wage tax, as well. The wage tax also is not considered very fair in terms of visibility: The local-option income tax may not be levied at a consistent rate across all local governments implementing them. This takes away the predictability and visibility of the tax for businesses paying its employees.

Even rarer is the ability for local governments to tax the income of its businesses. A local government given this ability will tax businesses in one of four manners: a local-option business income tax, a gross receipts/license tax, payroll taxes, or a business's personal property tax [Brunori 2007³⁴]. Taxing a business at the local level is generally frowned upon due to its supposed adverse effects on economic development. However, a local business income tax can prove savvy politically: Rhetorically, a business income tax exports the burden of the tax to non-residents of the local government, i.e. this is how a business income tax is sold to the public. The residents of the local government end up viewing a business income tax as only harming outsiders and, thus, "victimless." In practice, however, the owners of local businesses, their employees, and their customers do end up bearing the burden of a local business income tax.

In light of and despite the aforementioned, Kentucky is one of the few states that allow local-option income taxation [Brunori 2007³⁵]. Currently, eight (8) of Kentucky's local governments levy extra *personal*-income taxes on its residents and non-residents. These local governments are (with local income tax rate in parentheses):

- Bowling Green (1.85%)
- Covington (2.5%)
- Florence (2.0%)
- Lexington-Fayette Urban County Government (LFUCG) (2.25%)
- Louisville (2.2% for residents; 1.45% for non-residents)
- Owensboro (1.33%)
- Paducah (2.0%)
- Richmond (2.0%)

Further, Kentucky is one of only eight (8) states to authorize its local governments to levy *business* income taxes. Kentucky is not permitted, however, in levying business income taxes on gross receipts/licenses and on business's personal property [Brunori 2007³⁶]. Currently, both Louisville-Metro (mainly Jefferson County) and the Lexington-Fayette Urban County Government (LFUCG) (i.e. two of Kentucky's major cities) levy local-option *corporate/business* income taxes [Moreno 2010³⁷].

³⁴ Brunori, David. [2007]. *Local Tax Policy: A Federalist Perspective, 2nd Edition*. Washington, D.C.: Urban Institute Press.

³⁵ *Ibid.*

³⁶ *Ibid.*

³⁷ Moreno, Tonya. [September 20, 2010]. "City Income Taxes: U.S. Cities That Levy Income Taxes." About.com: Money: Tax Planning: U.S. Can be accessed: <http://taxes.about.com/od/statetaxes/a/City-Income-Taxes.htm>. [Last accessed June 25, 2013].

II: The Ability to Budget

Of likely most relevance to a local government's capability to implement the mitigation actions and projects for which the Federal Emergency Management Agency (FEMA) will (partially) reimburse upon approval is the management of a local government's cash flow. A local government's revenue collection and its expenditures rarely coincide with each other during a fiscal year. Those responsible for a local government's fiscal resources must constantly operate a tightrope calculus: The local government must have enough cash available to pay its bills when the bills become due; but, the local government suffers if it has cash in excess of what it needs to meet said financial obligations (bills) as the local government is robbing itself of higher yields that could be accrued if the cash was converted into other less liquid investment instruments such as stocks and bonds. To ensure that cash (i.e. the local government's ability to pay) is managed well, taxes usually are collected speedily and expenditure flows typically are slowed as much as is feasible. Local governments must abide by state and local laws stipulating a maximum time period by which those paid using local government expenditures receive their money. Further, state-level statutes frequently specify payment dates for a local government's major assistance payments, e.g. transportation aid, school aid, and any revenue-sharing that occurs [Dresang and Gosling 2002,³⁸ p. 453].

Such underlies the importance of budgeting in a local government.

A local (and state) government generally and in Kentucky typically has two (2) forms of budget: an operating budget and a capital budget.

"The operating budget deals with everyday types of activities. The capital budget deals with large expenditures for capital items. They differ in the nature of items purchased, methods of financing, and even the accompanying decision-making process. In most instances, operating expenses are depleted in a single year. Normally, capital items have long-range returns and useful life spans, are relatively expensive, and have physical presences, such as a building, road, water supply, or sewage system [Lynch 1990³⁹, p. 270]."

The purpose of a local or state government separating its operating from its capital budgets partially involves the abovementioned management of cash flow⁴⁰: Even without requirement for a capital budget, it is useful for local governments to distinguish among the three (3) types of government investment, which are: 1) physical assets for its own use over many years into the future (e.g. office buildings, machinery); 2) physical assets and facilities that enhance private economic development (e.g. infrastructure); and 3) the intangibles (e.g. research, education, et al.). The capital budget and the subsequent budgeting process assists in deciding how much of each type of investment is necessary⁴¹ [Lee, Jr.; Johnson; and Joyce 2004⁴², p. 429].

³⁸ Dresang, Dennis L. and James J. Gosling. [2002]. *Politics and Policy in American States and Communities*. 3rd Edition. New York City, NY: Pearson Education.

³⁹ Lynch, Thomas D. [1990]. *Public Budgeting in America*. 3rd Edition. Englewood Cliffs, NJ: Prentice Hall.

⁴⁰ The other part of the separation of budgets likely is a response to state-level balanced budget requirements, which are discussed in reference to state capability.

⁴¹ Even if only physical facilities and assets formally are included in the capital budget.

⁴² Lee, Jr., Robert D.; Ronald W. Johnson; Philip G. Joyce. [2004]. *Public Budgeting Systems*. 7th Edition. Sudbury, MA: Jones and Bartlett Publishers.

Local (and state) government budgets are not uniform [Mikesell 2010⁴³, pp. 152-153]: For one, state budgets may be annual or biennial budgets. The rarer biennial budget simply means that two years' worth of appropriations is made within one legislative session. As will be mentioned again below, Kentucky's state budget is one of these less-common⁴⁴ biennial budgets. Local government budgets, however, have no tradition with biennial budgets. This is because local governments typically meet and budget more than once a year. Forrester and Mullins [1992⁴⁵] point out that in cities, adjusting approved appropriations and "re-budgeting" mid-year is very common. Further, at every meeting of some local governments' councils and boards of governors, tweaks and adjustments consistently are being made to a budget that had been approved at the start of the fiscal year.

Secondly, a local (or state) budget can result either as a single appropriation law covering all expenditures or as a series of multiple appropriations. Kentucky's *state* budget, at least, tends to be passed as a single appropriations bill (every two years). As an extreme example of the latter variety of budget, Arkansas passes its state budget via approximately 500 separate appropriations bills.

Thirdly, local (and state) governments pass what is called "firm" appropriations in their budgets. Essentially, this means that local (and state) government budgets will not include any "entitlement" spending, i.e. spending that, rather than being set each year, simply continues based solely upon the demand for the "entitlement" throughout the year.

Fourth, local (and state) government budgets typically are very detailed in what is to be expended. For example, Kentucky's current highway appropriations portion of its state budget lists exactly on what money is to be spent making this portion of the budget resemble a "laundry" or grocery list.

Fifth, local (and state) government budgets specifically designate revenue that comes from broad sources (i.e. the personal income and general sales taxes described above and that will be described in the state capabilities section of this hazard mitigation plan) to very narrow uses. The most common example that certainly applies to Kentucky is the use of such broad revenue sources narrowly and specifically toward primary and secondary education.

Sixth, theoretically, local government budgets especially best represent the will of the people in what it includes as expenditures. This has to do with the abovementioned *fiscal federalism*. Local governments are closest to "the people." Arguably, then, a local government budget will reflect more accurate "fiscal choice" than a federal or state budget.

⁴³ Mikesell, John L. [2010]. *Fiscal Administration: Analysis and Applications for the Public Sector*. 8th Edition. Mason, OH: Cengage Learning.

⁴⁴ 21 states have biennial budgeting cycles.

⁴⁵ Forrester, John P. and Daniel R. Mullins. [1992]. "Rebudgeting: The Serial Nature of Budgeting Processes." *Public Administration Review* 52: 467-73.

Finally and related to the discussion below of the local government's capability to spend its revenue, local government budgets reflect the comparative difficulty (to the federal government) in securing access to debt instruments and to borrowing generally.

To end this subsection and related to local capability generally, one must be aware of the wide range of budgeting practices that exist among local governments, which can present some problems in financing: According to Mikesell [2010⁴⁶, p. 147⁴⁷], many local governments practice "Christmas list budgeting." As its name implies, this describes department heads within local agencies and local governments preparing requests with little or without any executive guidance about budget conditions or targets. This usually results in a list of unrealistic requests (i.e. a Christmas list) that will then have to be cut in such a way that ignores overall budget priorities and the priorities of local agencies. In other words, local agencies and departments submit budget requests that may be at odds with the requests from other agencies and departments and also may have been made without any coordinating guidance. Secondly, and certainly applying to many of Kentucky's local governments, local operating agencies are headed by an elected official (e.g. a county sheriff). These elected officials may not feel particularly bound to constraints on their agencies' or departments' budget requests. Thirdly and also applying to many of Kentucky's local governments and related to the aforementioned, local agency or department budget proposals are infrequently overseen or checked by an executive of any sort. This largely results from resource constraints within the locality; there is few staff and few staff specially trained to properly audit a budget request from a local agency or department. Finally, if there is guidance in local agencies' and departments' budget requests, the guidance typically focuses on the items that government *purchases* rather than on what *services* the government does and/or should provide [Mikesell 2010⁴⁸].

These practices of local government (partially an understandable consequence of resource constraints and a by-product of the efficiency that local governments can provide its residents) do affect local capability in its relationship with those bodies that approve a local government's budget. In Kentucky, local governments (counties and cities) must have their budgets reviewed and approved by the Kentucky Department for Local Governments (DLG). Additionally, all local governments must submit quarterly financial reports to DLG and failure to adhere to approved budgets does have serious consequences. While DLG has a responsibility to ensure that budgets reflect sound accounting, DLG has no authority to insist that cities or counties use their funds for particular projects or services.

⁴⁶ Mikesell, John L. [2010]. *Fiscal Administration: Analysis and Applications for the Public Sector*. 8th Edition. Mason, OH: Cengage Learning.

⁴⁷ This page number refers to a "custom edition" for Strayer University of the Mikesell [2010] *Fiscal Administration* book. The page number may not match the standard edition of *Fiscal Administration*.

⁴⁸ Mikesell, John L. [2010]. *Fiscal Administration: Analysis and Applications for the Public Sector*. 8th Edition. Mason, OH: Cengage Learning.

III. The Ability to Spend and Incur Debt

A local government's ability to spend obviously is an important local capability: How local governments pay for the mitigation actions for which the hazard mitigation plan is written and the project toward which FEMA will partially reimburse matters for the Commonwealth of Kentucky's overall mitigation goals and strategy.

Discussing the ability of a local government to spend is really a discussion of its ability to finance expenditure using debt instruments. This is the link between the abovementioned capability to budget: Local (and state) governments normally prepare separate operating and capital budgets so that they have the information necessary to borrow to finance capital projects (e.g. mitigation projects that, upon approval, will be reimbursed by FEMA). A local government's current revenues rarely can pay for costly capital projects, especially given that those costs are incurred upfront.

Capital projects (e.g. mitigation projects) and general long-term expenditures can be financed without debt, of course. Pay-as-you-go (Pay-Go) financing is common: As the name bluntly refers, the local government pays for an expenditure from its operating expense account "as it goes," or as the costs arrive. Alternatively, local governments also have the ability to accumulate funds over time, i.e. a savings plan. This is called a *sinking fund*. The funds within a sinking fund are invested until the point when the money is needed.

Still, it is toward those durable, typically capital projects that local governments engage in debt-financing. Such financing is pursued through long-term borrowing primarily using the debt instrument known as "bonds" which, usually, are repaid during the "useful life" of a capital project.

Bonds are "sold" by local (and state) governments. They are agreements or promises between a lender and a borrower in which the lender "purchases" the bond from the borrower now (thus providing the borrower with funds in the present) and to which the borrower promises the lender to pay a fixed amount of money (or interest rate) per year for a fixed period of time toward repayment of the full original amount that is collected at a specified future date [Fisher 2007⁴⁹].

Long-term bonds traditionally come in two forms: General Obligation⁵⁰ Bonds (GO Bonds) and Revenue⁵¹ Bonds. GO Bonds pledge the *full-faith and credit* of the local government issuing the bond as security. This means that in issuing GO Bonds, local governments *must use* any available source of revenue to pay the interest on and ultimately repay the principal of the bond to the lender. This implies a guarantee for the lender. The lender is guaranteed to be paid back the funds he or she lent to the local government even if all of the personal income and property of the residents of the local government must be confiscated in order for those funds to be repaid:

⁴⁹ Fisher, Ronald C. [2007]. *State and Local Public Finance*. 3rd Edition. Mason, OH: Thomson Higher Education.

⁵⁰ General Obligation Bonds oftentimes are referred to as *full-faith and credit bonds*.

⁵¹ Revenue Bonds oftentimes are referred to as *nonguaranteed bonds*.

“The government may use revenue from any tax or charges to repay the debt, and if existing revenue sources are not sufficient for that purpose, then the government pledges to raise taxes or charges to generate the necessary funds. If, for some reason, a state or local government is unable or unwilling to generate sufficient funds to repay the bondholders, then the government is said to *default* on the bonds. In that case, the government is effectively in bankruptcy and the bondholders may go to court to seize the assets of the government or agency [Fisher 2007⁵², p. 235].”

Such a severe guarantee ensures that the interest rates toward which the local government is paying are comparatively low. However, it also ensures that there can be strict statutory or constitutional limits on the amount of GO Bond-financing that can result from a local (or state) government.

Revenue Bonds, meanwhile, are *not guaranteed* by the local government paying the interest and ultimate repayment of the bond. Only the revenues from a particular source (i.e. the capital project that is being financed by the revenue bond) are pledged to pay the interest and repay the principal to the lenders. Conversely, if the revenues from the source toward which the bond was issued are insufficient to pay the interest or pay back the principal of the amount borrowed, it is the lenders who bear the loss. Consequently, the interest rates paid by the local government to the lenders of its funds are theoretically higher than those paid if it is able to issue General Obligation Bonds.

Beyond these two nearly-universally used long-term financing instruments, many cities and municipalities also use the Moral Obligation Bond. This is a rather creative form of bond-financing where a city/municipality declares its “moral obligation” to repay the funds borrowed from the lenders who purchased the Moral Obligation Bond. However, a “moral obligation” is abstract; there is nothing legally or statutorily guaranteed to the local government’s lenders. Lenders are purchasing a local government’s bonds based upon trust of the local government. They are attractive to the local government because they allow a form of *nonguaranteed* debt to be issued that isn’t tied directly to a particular revenue source. In other words, capital projects that are not expected to provide any revenue (e.g. mitigation projects) still can be financed while avoiding the strict limitations on General Obligation Bond-financing [Ross and Levine 2006⁵³].

Further related to potential mitigation project-financing capability, local governments have used *lease-back* or *lease-purchase agreements* to avoid the stringent and state-imposed borrowing restrictions under which many local governments operate. These agreements involve the private sector building a facility or general capital asset after which the local government agrees to a long-term “lease” of the facility or capital asset, thus slowly repaying the private entity that constructed the capital asset while technically avoiding “borrowing” per se [Ross and Levine 2006⁵⁴].

⁵² Fisher, Ronald C. [2007]. *State and Local Public Finance*. 3rd Edition. Mason, OH: Thomson Higher Education.

⁵³ Ross, Bernard H. and Myron A. Levine. [2006]. *Urban Politics: Power in Metropolitan America*. Belmont, CA: Thomson Higher Education.

⁵⁴ Ross, Bernard H. and Myron A. Levine. [2006]. *Urban Politics: Power in Metropolitan America*. 7th Edition. Belmont, CA: Thomson Higher Education.

Also, an important consideration to local capability to finance future mitigation actions concerns short-term debt financing/borrowing. In this case, “debt is used to harmonize those divergent patterns of current expenditures and revenues... Sometimes a debt is incurred in order to refinance an existing debt [Lynch 1990⁵⁵, p. 248].”

According to Thomas D. Lynch, short-term borrowing normally occurs for the following reasons:

- 1) “The community is short of the necessary revenue to pay for services. For example, the city forecasted the revenue incorrectly and there is not enough money to pay for planned expenditures.
- 2) A brief loan is needed and will be paid back as soon as taxes are collected. The money owed to the city may have been collected, but obligations must be paid. A brief loan is needed to bridge this cash flow problem until the debts owed the city are paid.
- 3) The community has an emergency and necessary funds are not available.
- 4) The funds are needed to start a capital improvement project, but a long-term bond issue has not yet been approved [Lynch 1990⁵⁶, p. 250].”

Ross and Levine (2006⁵⁷) elaborate: “Cities borrow money for short periods of time to smooth out irregularities in revenue and expenditure cycles. Cities need money to pay workers, contractors, and suppliers today, yet property taxes may not be due for another month or so. Hence, municipalities borrow against expected revenues [p. 488].”

There is an added reason that local governments might borrow in the short-term: A local government can borrow at a lower interest rate than it can earn in the financial securities markets. Internal Revenue Service (IRS) arbitrage regulations (under specific circumstances) allow local governments to invest the revenues received from short-term borrowing [Lynch 1990⁵⁸]. So, the local government borrows funds in the short-term at a low interest rate and invests those funds in a securities market that can pay a higher interest rate than the rate at which the local government borrowed, allowing the local government to “profit” from the difference in interest rates.

Bonds can be a tool in the short-term context, as well. However, short-term debt-financing more often occurs using the following instruments [Lynch 1990⁵⁹]:

- Tax Anticipation Notes (TANs)
- Revenue Anticipation Notes (RANs)
- Bond Anticipation Notes (BANs)
- Tax-and-Revenue Anticipation Notes (TRANS)
- Grant Anticipation Notes (GANs)

⁵⁵ Lynch, Thomas D. [1990]. *Public Budgeting in America*. 3rd Edition. Englewood Cliffs, NJ: Prentice Hall.

⁵⁶ *Ibid.*

⁵⁷ Ross, Bernard H. and Myron A. Levine. [2006]. *Urban Politics: Power in Metropolitan America*. 7th Edition. Belmont, CA: Thomson Higher Education.

⁵⁸ Lynch, Thomas D. [1990]. *Public Budgeting in America*. 3rd Edition. Englewood Cliffs, NJ: Prentice Hall.

⁵⁹ *Ibid.*

As the names imply, borrowing occurs in “anticipation” of a local government’s taxes/revenues, bonds, and/or grants. Repayment usually occurs 30 days to 120 days after the source of revenue being anticipated actually arrives [Ross and Levine 2006⁶⁰]. Finally, it should be noted that specific to Kentucky via Kentucky Revised Statute (KRS 147.110), any capital (e.g. mitigation project) pursued by one of Kentucky’s Area Development Districts (ADDs) is exempt from taxation.

⁶⁰ Ross, Bernard H. and Myron A. Levine. [2006]. *Urban Politics: Power in Metropolitan America*. 7th Edition. Belmont, CA: Thomson Higher Education.

Programs, Plans, Resources, and Authorities of Local Jurisdictions (Policies)

Tabulated below is a summary of the existing authorities, programs/(policies) and plans, and resources that all of Kentucky's county-level local governments listed in their hazard mitigation plans as "capabilities." The counties listed have been organized according to the Area Development District (ADD) under which they are regionally arranged.

This implies two (2) "capabilities" not listed in the table: First, as a resource, every county in Kentucky has access to a "regional development agency." These "regional development agencies" are the Area Development Districts (ADDs) about which this hazard mitigation plan previously has discussed and around which much of the Kentucky's mitigation strategy is based. Secondly, the fact that every one of Kentucky's counties is a member of a "regional development agency" implies that every county-level local government is covered under a local hazard mitigation plan, which serves as a type of capability-cum-policy. With two notable exceptions⁶¹, every county-level⁶² local government/jurisdiction is covered under a local *multi-jurisdictional* hazard mitigation plan that would have been developed by the "regional development agency," i.e. Area Development District, under which the county is a member. Consequently, the oft-cited "regional development agency" and "local hazard mitigation plan" are not included as "capabilities" in the table below: There is no reason to distinguish between counties; all county-level local governments/jurisdictions possess these two capabilities.

Further, where counties have additional capabilities not shared by other Area Development Districts and counties, it has been noted in footnotes throughout.

Related, one common "capability" is excluded from the table: Building codes. Again, this is due to the ubiquity of the capability. Every one of Kentucky's multi-jurisdictional hazard mitigation plans lists "building codes" as a "capability."

Finally, this table does not distinguish between county-level local capabilities and city-level local capabilities. It is true that some capabilities excluded at the county-level have been enacted at the city or general sub-jurisdictional level. **Appendix 4-9** has recreated the local capabilities sections from each of Kentucky's local multi-jurisdictional hazard mitigation plans so as to be able to show city-level capabilities along with other nuances necessarily omitted from this summary table.

⁶¹ Jefferson County/Louisville and Lexington-Fayette Urban County Government (LFUCG), while members of Area Development Districts (KIPDA and Bluegrass, respectively) have submitted individual local hazard mitigation plans separate from their Area Development District ("regional development agency")-submitted plans.

⁶² This fact does not apply to city-level local governments: Not every city within a county is covered within a local multi-jurisdictional hazard mitigation plan.

Table 4-9: ADD Authorities, Programs, Plans, and Resources by County

Area Development District	County	AUTHORITIES					PROGRAMS/PLANS/RESOURCES						
		Floodplain Management Ordinance	Community Rating System	Zoning Regulations	Subdivision Regulations	Fire Prevention Codes (State-Level)	Capital Improvement Plans	Land Development Plans	Storm Water Management Plans	NWS StormReady Program	Emergency Operations/Comprehensive Plan	Community Emergency Response Team (CERT)	Local Economic Development Agency
BLUEGRASS ⁶³	Anderson	✓		✓	✓	✓	64	65		✓	✓	✓ ⁶⁶	✓
	Bourbon	✓		✓	✓					✓	✓	✓	✓
	Boyle	✓		✓	✓						✓	✓	
	Clark	✓		✓	✓	✓			✓	✓	✓	✓	✓
	Estill	✓											
	Fayette	✓		✓						✓	✓	✓	
	Franklin	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓
	Garrard	✓			✓	✓				✓	✓	✓	✓
	Harrison	✓		✓	✓						✓	✓	✓
	Jessamine	✓		✓	✓				✓		✓	✓	
	Lincoln	✓	✓	✓	✓						✓	✓	✓
	Madison	✓	✓	✓	✓	✓			✓		✓	✓	
	Mercer	✓		✓	✓							✓	
	Nicholas	✓			✓						✓		
Powell													
Scott	✓		✓	✓					✓	✓	✓	✓	
Woodford	✓		✓	✓	✓	✓			✓	✓	✓	✓	
BARREN RIVER ⁶⁷	Allen	✓			✓	✓	68	✓ ⁶⁹			✓	70	
	Barren	✓			✓	✓		✓			✓		
	Butler	✓									✓		
	Edmonson	✓			✓			✓			✓		
	Hart	✓			✓	✓		✓	✓		✓		
	Logan	✓			✓	✓		✓			✓		
	Metcalfe	✓				✓					✓		
	Monroe					✓					✓		
	Simpson	✓		✓	✓			✓			✓		
	Warren	✓	✓	✓	✓	✓		✓	✓		✓		

⁶³ Bluegrass Area Development District (BGADD) recorded an extra local capability: the local planning commission. Only Estill, Mercer, and Powell counties within BGADD were not members of such commissions.

⁶⁴ Bluegrass Area Development District (BGADD) did not record whether any of its local jurisdictions had capital improvement plans. These counties' exclusion here does not imply that such capital improvement plans do not exist.

⁶⁵ Bluegrass Area Development District did not record whether or not any of its local jurisdictions had land development plans. These counties' exclusion here does not imply that such land development plans do not exist.

⁶⁶ Bluegrass Area Development District jurisdictions did not record specifically whether they had implemented CERT programs. Rather, they recorded whether or not there existed "local emergency management." For the purposes of this table, it assumed that those counties with "local emergency management" possessed de facto CER Teams.

⁶⁷ Some counties of the Barren River Area Development District (BRADD) listed the following extra capabilities:

1) open space management plans, 2) natural resource protection plans, 3) flood response plans, 4) continuity-of-operations plans, 5) evacuation plans 6) disaster recovery plans, 7) economic development plans, and 8) historic preservation regulations.

⁶⁸ Barren River Area Development District did not record whether any of its local jurisdictions had capital improvement plans. These counties' exclusion here does not imply that such capital improvement plans do not exist.

⁶⁹ Barren River Area Development District labeled this a "Comprehensive Land-Use Plan."

⁷⁰ Barren River Area Development District did not record whether any of its local jurisdictions had CERT programs. These counties' exclusion here does not imply that a CER Team is not operating in some or all of these counties.

Area Development District	County	AUTHORITIES					PROGRAMS/PLANS/RESOURCES						
		Floodplain Management Ordinance	Community Rating System	Zoning Regulations	Subdivision Regulations	Fire Prevention Codes (State-Level)	Capital Improvement Plans	Land Development Plans	Storm Water Management Plans	NWS StormReady Program	Emergency Operations/Comprehensive Plan	Community Emergency Response Team (CERT)	Local Economic Development Agency
BIG SANDY	Floyd	✓	✓				✓	✓		✓	✓	✓	✓
	Johnson	✓	✓			✓				✓	✓	✓	
	Magoffin	✓	✓							✓	✓	✓	
	Martin	✓	✓			✓				✓	✓		✓
	Pike	✓	✓	✓			✓			✓	✓	✓	✓
BUFFALO TRACE	Bracken	✓									✓		
	Fleming	✓											
	Lewis	✓										✓	
	Mason	✓										✓	
	Robertson	✓											
CUMBERLAND VALLEY ⁷¹	Bell										✓		
	Clay										✓		
	Harlan										✓		
	Jackson										✓		
	Knox										✓		
	Laurel										✓		
	Rockcastle										✓		
Whitley										✓			
FIVCO	Boyd	✓				✓						✓	✓
	Carter	✓			✓	✓			✓			✓	✓
	Elliott					✓							✓
	Greenup	✓			✓	✓		✓	✓		✓		✓
	Lawrence	✓	✓	✓		✓							✓
GREEN RIVER ⁷²	Daviess	✓		✓								✓	✓
	Hancock			✓								✓	✓
	Henderson	✓		✓								✓	✓
	McLean	✓		✓									✓
	Ohio	✓										✓	✓
	Union	✓		✓									✓
	Webster											✓	✓

⁷¹ The counties of the Cumberland Valley Area Development District (CVADD) are anomalous amongst Kentucky's counties in terms of local capability: There are no local capabilities articulated at the county level of local government. Rather, all local capability is recorded at the city level. That said, CVADD tabulates only three types of local capability: membership to a planning commission (8/17 cities), the use of zoning ordinances (8/17 cities), and the existence of a comprehensive plan (5/17 cities). Still, through narration, all local jurisdictions are assumed to possess the following three (3) "capabilities": 1) a comprehensive economic development strategy, 2) a water management plan, and 3) an emergency operations plan. See page 23 of the CVADD's 2012 update of its hazard mitigation plan.

⁷² The Green River Area Development District (GRADD) only accounts for the following local capabilities that are listed in the summary chart above: Floodplain Management Ordinance, Zoning Regulations, having a CER Team, and having an Economic Development Department. Again, because GRADD did not record the possession of or participation in the other local capabilities tabulated above does not imply that the counties of GRADD do not possess or participate in them. Additionally, GRADD lists the *AmeriCorps Homeland Security* program as a local capability: Daviess, Hancock, Henderson, and Ohio counties participate in it.

Area Development District	County	AUTHORITIES					PROGRAMS/PLANS/RESOURCES						
		Floodplain Management Ordinance	Community Rating System	Zoning Regulations	Subdivision Regulations	Fire Prevention Codes (State-Level)	Capital Improvement Plans	Land Development Plans	Storm Water Management Plans	NWS StormReady Program	Emergency Operations/Comprehensive Plan	Community Emergency Response Team (CERT)	Local Economic Development Agency
GATEWAY	Bath	✓			✓		73				74		✓
	Menifee												✓
	Montgomery				✓								✓
	Morgan												
	Rowan		✓										
Kentuckiana Regional Planning and Development Agency (KIPDA)	Bullitt	✓		✓	✓	✓	75		✓		76		✓
	Henry	✓		✓	✓	✓		✓	✓			✓	✓
	Jefferson ⁷⁷	✓		✓				✓		✓		✓	✓
	Oldham	✓		✓	✓	✓			✓				✓
	Shelby	✓	✓	✓	✓	✓		✓	✓			✓	✓
	Spencer	✓		✓	✓	✓						✓	✓
	Trimble	✓				✓						✓	✓
KENTUCKY RIVER	Breathitt	✓									✓		✓
	Knott	✓									✓		✓
	Lee	✓									✓		✓
	Leslie	✓									✓		✓
	Letcher	✓									✓		✓
	Owsley	✓									✓		✓
	Perry										✓		✓
	Wolfe										✓		✓
LAKE CUMBERLAND	Adair				✓					✓		✓	✓
	Casey		✓			✓	✓		✓	✓	✓	✓	✓
	Clinton	✓											✓
	Cumberland	✓	✓	✓	✓		✓	✓					✓
	Green						✓		✓	✓			✓
	McCreary	✓	✓			✓			✓	✓	✓	✓	✓
	Pulaski	✓	✓							✓			✓
	Russell					✓				✓			✓
	Taylor	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓
Wayne	✓				✓				✓			✓	

⁷³ Gateway Area Development District (GWADD) does not record whether any of its local jurisdictions possess capital improvement plans. It cannot be assumed, however, that these jurisdictions do not possess such capabilities.

⁷⁴ Gateway Area Development District (GWADD) does not record whether any of its local jurisdictions possess either Emergency Operations plans or comprehensive plans. It cannot be assumed, however, that these jurisdictions do not possess such capabilities.

⁷⁵ KIPDA does not record whether any of its local jurisdictions possess capital improvement plans. It cannot be assumed, however, that these jurisdictions do not possess such capabilities.

⁷⁶ KIPDA does not record whether any of its local jurisdictions possess Emergency Operations or comprehensive plans. It cannot be assumed, however, that these jurisdictions do not possess such capabilities.

⁷⁷ Jefferson County is not covered under the KIPDA local multi-jurisdictional hazard mitigation plan. Jefferson County (and Louisville) developed its own hazard mitigation plan separate from the KIPDA one.

Area Development District	County	AUTHORITIES					PROGRAMS/PLANS/RESOURCES						
		Floodplain Management Ordinance	Community Rating System	Zoning Regulations	Subdivision Regulations	Fire Prevention Codes (State-Level)	Capital Improvement Plans	Land Development Plans	Storm Water Management Plans	NWS StormReady Program	Emergency Operations/Comprehensive Plan	Community Emergency Response Team (CERT)	Local Economic Development Agency
LINCOLN TRAIL	Breckinridge	✓	✓ ⁷⁸			✓		79		✓ ⁸⁰		✓	✓
	Grayson	✓	✓			✓				✓		✓	✓
	Hardin		✓	✓	✓	✓			✓	✓	✓	✓	✓
	Larue	✓	✓	✓	✓	✓					✓	✓	✓
	Marion	✓	✓			✓	✓			✓ ⁸¹		✓	✓
	Meade	✓	✓	✓	✓	✓				✓ ⁸²	✓	✓	✓
	Nelson	✓	✓	✓	✓	✓					✓	✓	✓
Washington		✓		✓	✓	✓			✓	✓	✓	✓	
NORTHERN KENTUCKY	Boone	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Campbell	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	
	Carroll	✓				✓	✓					✓	✓
	Gallatin	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Grant			✓		✓	✓	✓			✓		✓
	Kenton	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Owen	✓				✓				✓			✓
Pendleton	✓			✓	✓		✓			✓		✓	
(JACKSON) ⁸³ PURCHASE	Ballard	✓					✓					✓	✓
	Calloway	✓		✓	✓					✓		✓	✓
	Carlisle	✓								✓		✓	✓
	Fulton	✓										✓	✓
	Graves	✓										✓	✓
	Hickman											✓	✓
	Marshall	✓				✓		✓		✓		✓	✓
McCracken	✓		✓	✓	✓		✓		✓	✓	✓	✓	
PENNYRILE	Caldwell		✓			✓		✓	✓			✓	✓
	Christian	✓	✓			✓		✓		✓	✓	✓	✓
	Crittenden	✓	✓			✓						✓	
	Hopkins	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓
	Livingston	✓	✓			✓		✓				✓	
	Lyon		✓		✓	✓		✓			✓	✓	
	Muhlenberg	✓	✓		✓	✓		✓			✓	✓	
	Todd	✓	✓			✓						✓	
Trigg	✓	✓			✓						✓	✓	

⁷⁸ Lincoln Trail Area Development District (LTADD) recorded having FMA plans.

⁷⁹ Lincoln Trail Area Development District (LTADD) does not record whether any of its local jurisdictions possess land development plans. It cannot be assumed, however, that these jurisdictions do not possess such capabilities.

⁸⁰ Breckinridge County is “in the process” of implementing an NWS StormReady program.

⁸¹ Marion County is “in the process” of implementing an NWS StormReady program.

⁸² Meade County is “in the process” of implementing an NWS StormReady program.

⁸³ Many of the local capabilities were not recorded at the county level; they were recorded within individual cities.

Policies Toward the National Flood Insurance Program (NFIP) of Local Jurisdictions

The inclusion as members of the National Flood Insurance Program (NFIP) is a uniquely relevant policy that describes local jurisdictions' capabilities to effectively mitigate the hazards that affect them. It is so relevant and so important for capability due to the following reasons articulated by Kentucky Emergency Management (KYEM):

1. "No owner of a residence, business, or public building will be able to purchase a flood insurance policy at the government rate. Force-placed or non-NFIP insurance is more expensive.
2. "No Federal grants or loans will be given for buildings or projects within an identified flood hazard area, if flood insurance is a condition of the grant or loan.
3. "There are restrictions on conventional loans in the non-participating communities. Lenders must notify the buyer or lessee that property is in a flood-hazard area and that property is not eligible for disaster relief and will pay higher insurance rates based on loan conditions.
4. "No Federal disaster assistance may be provided in identified flood-hazard areas if flood insurance is a condition of the assistance (i.e., disaster recovery loans and grants).
5. "No Federal mortgage insurance may be provided in identified flood-hazard areas.
6. "Uninsured construction today may be prohibitively expensive to insure should the community re-enter the program later.
7. "A local government body may be held liable by not participating because their action:
 - a. Denies the ability of its citizens to purchase flood insurance; and
 - b. Does not take positive steps to reduce the risk of damage to life and property.
8. "Local governments will not be eligible for federal assistance for roads or infrastructure located within the flood zone [KYEM 2013⁸⁴]."

In other words, NFIP policy participation is so uniquely relevant to local capability to mitigate its hazards because, quite consequentially, without this policy local governments/jurisdictions are ineligible for significant funding that would allow them to mitigate the hazards deriving from flooding.

⁸⁴ Kentucky Emergency Management (KYEM). [2013]. "National Flood Insurance Program: Things to Know about the National Flood Insurance Program; Impacts of Non-Participation in the National Flood Insurance Program." *Can be accessed here:* <http://kyem.ky.gov/teams/Documents/For%20Main%20KYEM%20Page/National%20Flood%20Insurance%20Program%20Facts.pdf> . [Last Accessed: July 3, 2013].

As of publication of this 2013 update of the Commonwealth of Kentucky's hazard mitigation plan, the following five (5) counties (of 120 counties) in Kentucky (accompanied in brackets by the Area Development District – ADD – to which it is a member) do not participate in the NFIP:

1. Casey County [Lake Cumberland ADD]
2. Cumberland County [Lake Cumberland ADD]
3. Hickman County [(Jackson) Purchase ADD]
4. Lyon County [Pennyrile ADD]
5. Wolfe County [Kentucky River ADD]

Further, out of 419 “incorporated communities,” 47 do not participate in the NFIP. Accompanied by their counties and to which Area Development District the county is a member, these are:

Table 4-10: Incorporated Communities Not Participating in NFIP, 2013

Incorporated Community (City of)	County	Area Development District
Park City	Barren	Green River
Owingsville	Bath	Gateway
North Middletown	Bourbon	Bluegrass
Fox Chase	Bullitt	Kentuckiana Planning & Development Agency (KIPDA)
Hebron Estates	Bullitt	Kentuckiana Planning & Development Agency (KIPDA)
Mount Washington	Bullitt	Kentuckiana Planning & Development Agency (KIPDA)
Highland Heights	Campbell	Northern Kentucky
Woodlawn	Campbell	Northern Kentucky
Lafayette	Christian	Pennyrile
Pembroke	Christian	Pennyrile
Marion	Crittenden	Pennyrile
Sandy Hook	Elliott	Five Counties (FIVCO)
Corinth	Grant	Northern Kentucky
Crittenden	Grant	Northern Kentucky
Dry Ridge	Grant	Northern Kentucky
Williamstown	Grant	Northern Kentucky
Water Valley ⁸⁵	Graves	(Jackson) Purchase
Clarkson	Grayson	Lincoln Trail
Bellefonte	Greenup	Five Counties (FIVCO)
Horse Cave	Hart	Barren River
Robards	Henderson	Green River
Elsmere	Kenton	Northern Kentucky
Fairview	Kenton	Northern Kentucky
Fort Mitchell	Kenton	Northern Kentucky
Kenton Vale	Kenton	Northern Kentucky
Lakeside Park	Kenton	Northern Kentucky
Park Hills	Kenton	Northern Kentucky
Walton	Kenton	Northern Kentucky
Blaine	Lawrence	Five Counties (FIVCO)
Concord	Lewis	Buffalo Trace
Carrsville	Livingston	Pennyrile
Salem	Livingston	Pennyrile
Grand Rivers	Livingston	Pennyrile
Eddyville	Lyon	Pennyrile
Gilbertsville	Marshall	(Jackson) Purchase
Fountain Run	Monroe	Barren River
Gamaliel	Monroe	Barren River
Camargo	Montgomery	Gateway
South Carrollton	Muhlenberg	Pennyrile
Fordsville	Ohio	Green River

⁸⁵ Using a demotic term, the City of Water Valley is an “on-again, off-again” city: It has in the past existed as a city. It currently is a city. But for the past 9 out of 11 years, there has been no city of Water Valley. Its boundaries still are a source of contention.

Kentucky Emergency Management (KYEM), through its Intergovernmental Liaison and accompanied by the Kentucky Department of Water (KDOW) is actively pursuing an increase in membership to the NFIP from this above list of non-participating counties and cities. The results current to the time this document was submitted to FEMA for review and approval are discussed in the *Planning Process* section of this 2013 update of the Commonwealth of Kentucky’s hazard mitigation plan.

REQUIREMENT
§201.4 (c) (3) (v):

The Commonwealth of Kentucky may request the reduced cost share authorized under 79.4 (c) (2) of this chapter for the FMA and SRL programs. If it has an approved Mitigation Plan...that also identifies specific actions the Commonwealth of Kentucky has taken to reduce the number of repetitive loss properties (which must include severe repetitive loss properties), and specifies how the Commonwealth of Kentucky intends to reduce the number of such repetitive loss properties.

COMPLETED HERE

B. Considering Repetitive-Loss Properties in Kentucky's General Description of the Local Mitigation Capabilities...

Commonwealth of Kentucky Enhanced
Hazard Mitigation Plan: 2013 Version

MITIGATION STRATEGY

PART II:
State Capability Assessment

A. *Including an Evaluation of Kentucky's Pre-Disaster Hazard Management Policies, Programs, and Capabilities,*

B. *Including an Evaluation of Kentucky's Post-Disaster Hazard Management Policies, Programs, and Capabilities,*

C. *Including an Evaluation of Kentucky's Policies Related to Development in Hazard-Prone Areas,*

D. *Including a Discussion of Kentucky's Funding Capabilities for Hazard Mitigation Projects, and*

E. *Addressing Any Hazard Management Capabilities of Kentucky That Have Changed Since Approval of the 2010 Update of the Commonwealth of Kentucky's Hazard Mitigation Plan*

To account for the state's capabilities to mitigate the hazards within its locus-of-control, the 2010 update of the Commonwealth of Kentucky's hazard mitigation plan created a matrix identifying the programs, plans, policies, regulations, sources of funding, and practices available to the Commonwealth of Kentucky for hazard mitigation purposes. Further, this matrix identified whether the program et al.: was relevant to pre-disaster and post-disaster hazard management, affected development in hazard-prone areas, had the capability to fund its role in hazard mitigation, and affected Repetitive-Loss Properties. The hazard mitigation-specific role that each program et al. possessed was elaborated upon within the matrix, as well.

This matrix has been updated for the 2013 update of the Commonwealth of Kentucky's hazard mitigation plan.

REQUIREMENT
§201.4 (C) (3) (II):

Kentucky's mitigation strategy shall include a discussion of Kentucky's pre- and post-disaster hazard management policies, programs, and capabilities to mitigate the hazards in the area, including: an evaluation of Kentucky laws, regulations, policies, and programs related to hazard mitigation as well as to development in hazard-prone areas and a discussion of Kentucky's funding capabilities for hazard mitigation projects.

An accompanying elaboration and update of Kentucky law (i.e. Kentucky Revised Statutes) related to pre- and post-disaster hazard management and mitigation is provided as an appendix to this section. See **Appendix 4-10**.

Following the above-described matrix, elaboration on Kentucky executive agency-specific capability toward hazard management and mitigation is included.

Finally, for the sake of parallelism (with the elaboration of Kentucky’s local jurisdictions’ capabilities) and as a link to the final sub-section of the *Mitigation Strategy* (i.e. “Funding Sources”), Kentucky’s public financing options are (very) briefly discussed.

REQUIREMENT
§201.4 (c) (3) (v):

The Commonwealth of Kentucky may request the reduced cost share authorized under 79.4 (c) (2) of this chapter for the FMA and SRL programs. If it has an approved Mitigation Plan...that also identifies specific actions the Commonwealth of Kentucky has taken to reduce the number of repetitive loss properties (which must include severe repetitive loss properties), and specifies how the Commonwealth of Kentucky intends to reduce the number of such repetitive loss properties.

BEGINS HERE

B. *Considering Repetitive-Loss Properties in Kentucky’s Evaluation of Its Hazard Management Policies, Programs, and Capabilities...*

Table 4-11: Commonwealth Capability Matrix

Programs, Plans, Policies, Regulations, Funding or Practices	Pre-Disaster	Post-Disaster	Affects Development in Hazard-Prone Areas	Capable of Funding Mitigation Initiatives	Affects Repetitive Loss Properties and Mitigation Activities	Hazard Mitigation Application
National Weather Service Warning Coordinator Meteorologist	X	X		All activities performed by the NWS are funded by NOAA	X	<p>Educating the local population regarding storm safety, flood safety, and lightning safety. 'Turn Around - Don't Drown' is a national effort to help reduce drowning from flash floods. Partner with county and area Emergency Managers to ensure counties are prepared for severe weather events. The Storm Ready Program is a national program which certifies counties are ready to handle severe weather emergencies. Maintains and trains a cadre of weather spotters, to include ham radio operators, who call in a give damage reports and information which can help forecasters to issue better and more timely severe weather and flood warnings.</p>

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
The Kentucky Association of Counties (KACo) Leasing Trust Program (CoLT)	X			X	X	Formed in 1989, was designed to offer county governments and related political subdivisions an efficient method of financing for a wide variety of capital projects, including construction, renovation, equipment purchases or even grant anticipation. Since 1996, CoLT has offered general obligation leases for any governmental purpose. Leases can be made for any amount needed and for terms of 30 days up to 30 years
Kentucky Interchurch Disaster Recovery Program	X	X				Coordinate responses to disasters occurring in the Commonwealth of Kentucky through the Kentucky Interchurch Disaster Recovery Program.

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
Department for Facilities Management Division of Historic Properties (DHP)	X		X	X	X	All state-owned buildings of fifty years and older are documented in a database. The goal is to ultimately use this information to recommend needed appropriations for the preservation and conservation needs of the most historic structures. Currently, there are over 1,000 entries in the database. DHP is responsible to administer this database.
Department for Local Government (DLG) Renaissance Kentucky	X		X	X	X	Is an effort to unite communities and resources necessary to revitalize and restore the Commonwealth's downtown areas. The Kentucky Department for Local Governments, the new lead agency, partners with the Kentucky Heritage Council, the Kentucky League of Cities, and the Kentucky Housing Corporation and the Kentucky Transportation Cabinet to implement this program.

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
DLG Federal Housing Subsidy Programs				X	X	HUD administers housing and community development programs statewide. Programs include single family, multifamily, public housing, Housing Choice Vouchers, homeless, etc.
						Assistance grants and Community Development Block Grant funds. It also administers and monitors Disaster Recovery Assistance grants.
Kentucky Department of Mines and Minerals Design Branch & Construction Branch	X		X	X		Oversees the day-to-day construction activity on all Abandoned Mine Lands (AML) reclamation projects in the state, provides engineering services and develops plans for reclamation projects, KRS 350 includes the statutes governing the environmental regulation of surface mining of coal and other minerals and the surface effects of underground mining.

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
<p>Kentucky Department of Mines and Minerals</p> <p>Kentucky Abandoned Mine Land Reclamation Program</p>	X			X		<p>Program is authorized pursuant to PL95-87 and KRS 350 to mitigate the hazards caused by abandoned coal mines. Division funds contracts for reclamation of on-ground mine hazards and executes Memoranda of Agreement with local entities to fund waterlines into areas where past mining has contaminated the groundwater. Projects focus on mitigating hazards to: 1) public health and safety and 2) the environment.</p>
<p>Kentucky Division of Water (KDOW)</p> <p>Floodplain Management</p>	X	X	X		X	<p>Based on KRS 151, KY Division of Water (KDOW) has been designated as the state coordinating agency for the National Flood Insurance Program (NFIP). As the coordinating agency, the KDOW assists local governments and state agencies in answering all questions concerning the program.</p>

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
KDOW Floodplain Development Permit Program	X		X		X	This program has the primary responsibility for the approval or denial of proposed construction and other activities in the 100-year floodplain of all streams in the Commonwealth. Typical activities permitted are dams, bridges, culverts, residential and commercial buildings, placement of fill, stream alterations or relocations, small impoundments, water, and wastewater treatment plants.
KDOW Dam Construction Permit Program	X		X		X	The Dam Safety and Floodplain Compliance Section shares responsibility with the Floodplain Management Section for the review and permitting of dams and hazardous impoundments as defined in KRS 151.100 and 401 KAR 4:030.

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
KDOW Dam Safety Program	X				X	Conducts safety inspections (approximately 300 annually) and initiates emergency action if a structure is in danger of failing, poses a threat to life or may cause serious property damage. KRS 151.297 empowers the Kentucky Energy and Environment Cabinet to take emergency action if an owner abandons a dam or refuses to take necessary action.
KDOW Kentucky Watershed Management Initiative Education	X		X		X	The watershed approach is a coordinating framework for environmental management that focuses public and private sector efforts on selected priority problems within hydrologically defined geographic areas, taking into consideration both ground and surface water flow.

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
Kentucky Division of Forestry Fire Management Program	X					The Division of Forestry is responsible for fighting wild land fires on private lands. Since 1977, the Division of Forestry has averaged 2,031 fires that burned 81,025 acres annually. Almost 90 percent of these fires are caused by humans, with over 55 percent caused by arson. The damage to the Commonwealth's timber resources is valued at \$85.58 per acre.
Kentucky Division of Forestry Kentucky FireWise Program	X			X		Grants may be awarded for projects to reduce the wildfire risk and hazard in Kentucky's wild land/urban interface communities. Grant priority will be given based on community-at-risk level, establishment of a local Firewise Council or Board, and type of project submitted.
Kentucky Division of Forestry Urban Forestry Program	X					This program promotes the proper management of the urban forest including citizen support and a properly trained work force.

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
Kentucky Division of Forestry Forest Education Program	X			X		This program works to educate the citizens of the Commonwealth about the value of our forests by providing leadership, technical assistance and financial support.
Kentucky Division of Forestry Reforestation Program	X			X		There are more than a million acres of land in KY which could benefit from tree planting. This program grows and provides trees to certain companies and individuals.
Division of Conservation Equipment Loan Revolving Program	X	X		X		This program was established by the 1948 General Assembly to provide loans to Kentucky's conservation districts for heavy and specialized conservation equipment. Through loan/lease agreements with local contractors and farmers, the districts ensure that this equipment is available at the local level to perform conservation work.

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
Division of Conservation Kentucky Soil Erosion & Water Quality Cost Share Program	X			X		This program was established to assist landowners address existing soil erosion, water quality, and other environmental problems associated with farming or woodland operations.
KY Dpt. Of Housing, Buildings, and Construction KY Building Code KRS 198B.020.	X					The Kentucky Building Code became effective February 15, 1980, completing Phase I of a three-phase implementation plan. This plan was fully implemented on August 15, 1982. This code is updated annually.
KY Dpt. Of Housing, Buildings, and Construction Plan Review Division	X				X	Architectural plans are reviewed prior to construction to ensure compliance with the Kentucky Building Code. There is a plan review fee, which is based on total square footage.

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
KY Dpt. Of Housing, Buildings, and Construction Inspection Division	X					Inspections are made on approved constructions periodically to ensure construction is done according to approved plans. Any variations must be approved. Upon final inspection, an occupancy permit is issued and the case file is transferred to the General Inspection Section in the Division of Fire Prevention for future inspections. The plan review fee includes charges for inspections.
State Fire Marshal Fire Prevention	X					Enforces various codes to ensure that all public structures, facilities, and regulated vehicles are maintained in such a manner that all occupants and users of these facilities will be protected from fire, explosion, or other similar hazard.

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
<p>Kentucky Emergency Management (KYEM)</p> <p>Hazard Mitigation Grant Program</p>		X	X	X	X	<p>Following a Presidential disaster declaration, the Hazard Mitigation Grant Program (HMGP) provides funding to the State for projects to reduce damages, losses and suffering in future disasters. The intent of HMGP is to provide a federal, state and local partnership in developing and funding mitigation projects. Funding is available from the FEMA (up to 75% of the project) and State (up to 12% of the project).</p>

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
<p>Kentucky Emergency Management (KYEM)</p> <p>Public Assistance Program</p>		X		X	X	<p>The Public Assistance Program provides supplemental Federal disaster grant assistance for the repair, replacement, or restoration of disaster damaged, publicly-owned facilities and the facilities of certain private non-profit organizations. The Federal share of assistance is not less than 75% of the eligible cost for emergency measures and permanent restoration. The state determines how the non-federal share is split among the applicants. The program also allows for mitigation measures to be completed during the restoration phase so that future damages are reduced. The mitigation measure must be identified before repair begins and must be cost effective.</p>

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
<p>Kentucky Emergency Management (KYEM)</p> <p>Kentucky Emergency Operations Plan</p>	X	X				<p>The KYEOP establishes policies and provisions for coordinating state and federal emergency response to natural, technological, or war related disasters and emergencies. The KyEOP also details preparedness actions to be taken by state and local governments prior to a disaster. This plan provides concepts and procedures, which are to be utilized by local government through local plans written in conjunction with the state plan.</p>
<p>KYEM</p> <p>Earthquake Preparedness Program</p>	X		X			<p>Provides coordination and oversight of seismic safety programs, supports public education and mitigation planning, and provides tools to support hazard reduction.</p>

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
KYEM Flood Mitigation Assistance Grant Program	X		X	X	X	<p>The Flood Mitigation Assistance (FMA) grant program provides funding to the Commonwealth for cost-effective measures which reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the NFIP. The FMA program is funded on an annual cycle. Each year the state receives a target allocation of funding for which local communities can apply. The FMA program is funded by FEMA with a funding split of up to 75% of the project funded by federal funds. The remaining 25% must be paid by the local community.</p>

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
KYEM Pre-Disaster Mitigation Grant Program	X		X	X	X	The Pre-Disaster Mitigation Program (PDM) provides funds to the State for pre-disaster mitigation planning and the implementation of cost-effective mitigation projects prior to a disaster event. The PDM program is a nationally competitive program. There is no state allocation and no national priority for projects. The PDM program is funded on an annual cycle. The PDM program is funded by FEMA with a funding split of up to 75% of the project funded by federal funds. The remaining 25% must be paid by the local community.

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
<p>KYEM</p> <p>Severe Repetitive Loss Grant Program</p>	<p>X</p>		<p>X</p>	<p>X</p>	<p>X</p>	<p>The Severe Repetitive Loss (SRL) grant program provides funding to reduce or eliminate the long-term risk of flood damage to SRL structures insured under the National Flood Insurance Program (NFIP). SRL Properties are residential properties that have at least four NFIP claim payments over \$5,000 each. Further, at least two such claims have to occur within any ten-year period and the cumulative amount of claims payments must exceed \$20,000. Alternatively, an SRL Property has at least two separate claims payments made where the building portion total of each claim exceeds the value of the property. At least two such claims have to occur within any ten-year period. The purpose of the program is to reduce or eliminate claims under the NFIP through project activities that will result in the greatest savings to the National Flood Insurance Fund (NFIF). Eligible flood mitigation project activities include: flood-proofing (historical properties only); relocation; elevation; acquisition; and minor physical localized flood control projects.</p>

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
KYEM Repetitive Flood Claims Grant Program	X		X	X	X	The Repetitive Flood Claims (RFC) grant program provides funding to reduce or eliminate the long-term risk of flood damage to structures insured under the National Flood Insurance Program (NFIP) that have had one or more claim payment(s) for flood damages. RFC funds may only be used to mitigate structures which are located within a State or community that is participating in the NFIP that cannot meet the requirements of the Flood Mitigation Assistance (FMA) program because they cannot provide the non-Federal cost share or do not have the capacity to manage the activities. The long-term goal of the RFC grant program is to reduce or eliminate the number reoccurring flood insurance claims, through mitigation activities which are in the best interest of the National Flood Insurance Fund (NFIF). All RFC grants are eligible for up to 100 percent Federal cost assistance. RFC grants are awarded to Applicants on a nationwide basis without reference to State allocations, quotas, or other formula-based allocations.

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
						<p>RFC funds may only be used to mitigate structures which are located within a State or community that is participating in the NFIP that cannot meet the requirements of the Flood Mitigation Assistance (FMA) program because they cannot provide the non-Federal cost share or do not have the capacity to manage the activities. The long-term goal of the RFC grant program is to reduce or eliminate the number reoccurring flood insurance claims, through mitigation activities which are in the best interest of the National Flood Insurance Fund (NFIF). All RFC grants are eligible for up to 100 percent Federal cost assistance. RFC grants are awarded to Applicants on a nationwide basis without reference to State allocations, quotas, or other formula-based allocations.</p>

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KY Geological Survey at UK Advice on Landslide Susceptibility of Selected Regions in Kentucky	X					KGS geologists have sponsored workshops for local officials in northern Kentucky on the susceptibility of the region to landslides and provided expertise on recognizing landslide features, mitigating the effects of landslides and responding in the event of a landslide.
KY Geological Survey at UK Mapping	X					Several current and planned mapping programs at KGS can provide information for careful development. These include sinkhole maps and databases, land-use planning maps, and landslide susceptibility maps.
KY Geological Survey at UK Earthquake Monitoring	X					The Kentucky Seismic and Strong-Motion Network is a series of earthquake-monitoring devices which, over time, are gathering detailed information about earthquake motions in Kentucky. This helps to determine the actual earthquake risk and assists in enacting appropriate building codes.

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
Professional Consultations and Evaluations of Landslide-Damaged Homes	X					Geologists from KGS have the capability of assessing the damages to homes threatened or damaged by landslides and providing professional assessments to help qualify some homes for buyout under FEMA mitigation programs.
Division of State Risk, RISK System	X	X			X	RISK system is a database that identifies the construction, value, and risk exposures (Flood plain denotation, fire prevention, etc) for all owned properties, both personal and real properties, of the Commonwealth. With this information, insurance is procured on all subject properties to minimize financial loss to the Commonwealth in the event of a catastrophe.
The State Fire and Tornado Insurance Fund	X	X		X		Provides insurance for real property, office contents, computers, telephones, etc. It is a self-insurance program that provides all risk form coverage on an actual cash basis (ACV) or replacement cost basis (RCV) for state buildings and contents.

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
KY Dept. of Mines and Minerals Mine Subsidence Program		X	X	X		Provides assistance to property owners in 34 qualified counties which have experienced property damage resulting from collapsed underground coalmines.
Kentucky Transportation Cabinet - Rural and Municipal Aid Program		X		X		Under Emergency and Emergent Provisions, the program provides funding for temporary or permanent restoration work on rural roads.
Kentucky Transportation Cabinet County Bridge Replacement Program	X			X		Two phase program. First phase, between 1989-1994 all county bridges on school bus routes identified by a county judge were replaced. The second phase works with remaining state bridges on a case-by-case basis.

<i>Programs, Plans, Policies, Regulations, Funding or Practices</i>	<i>Pre-Disaster</i>	<i>Post-Disaster</i>	<i>Affects Development in Hazard-Prone Areas</i>	<i>Capable of Funding Mitigation Initiatives</i>	<i>Affects Repetitive Loss Properties and Mitigation Activities</i>	<i>Hazard Mitigation Application</i>
Kentucky Transportation Cabinet SAFE Patrol Program		X				SAFE Patrol operators are available through the Transportation Operations Center to assist local, state, and federal authorities in establishing and controlling routes of ingress and egress via the limited-access highway system to affected areas. Possibility exists to bring Roadway Security Branch assets from other geographic regions of the Commonwealth to assist.
Western Kentucky University The Center for Cave and Karst Studies	X		X			The Center for Cave and Karst Studies, established in 1978 at Western Kentucky University (WKU), was the first center established primarily to deal with karst problems in the United States. The Center's offices and laboratories are located within the Department of Geography and Geology in the Environmental Science and Technology building at WKU.
Western Kentucky University The Kentucky Climate Center	X					Historical record of climatic events in Kentucky

Executive Agency Contribution to State Capability to Manage and Mitigate Hazards

Though most of Kentucky's executive agencies (the bureaucracy) play some role in the management of and mitigation of hazards that affect Kentucky, there are those that either are tasked primarily with hazard management and mitigation activities or provide some specific form of hazard management. Some of these agencies house and/or promote many of the programs, plans, policies, regulations, funding and practices elucidated in the above matrix of state capabilities. The agencies spotlighted in this subsection are as follows:

- I. Energy and Environment Cabinet**, under which the
 - a. *Department for Energy Development and Independence (DEDI)*,
 - b. *Department for Natural Resources (DNR)*, and
 - c. *Department for Environmental Protection (DEP)* are housed.
- II. Kentucky Transportation Cabinet (KYTC)**
- III. The Cabinet for Health and Family Services (CHSF)**
- IV. Kentucky Department of Agriculture**

Energy and Environment Cabinet

The Kentucky Energy and Environment Cabinet is responsible for ensuring that the quality of natural resources are properly preserved and protected, that Kentucky's environment is protected and enhanced, and that the quality and security of life in Kentucky is improved through access to efficient and sustainable energy.

To accomplish these missions, the Energy and Environment Cabinet is comprised of the following three (3) departments:

1. Department for Energy Development and Independence (DEDI)
2. Department for Natural Resources (DNR)
3. Department for Environmental Protection (DEP)

The Department for Energy Development and Independence (DEDI)

The Department for Energy Development and Independence (DEDI) defines its mission as being responsible to improve the quality and security of life for all Kentuckians by creating efficient, sustainable energy solutions and strategies; to protect the environment; and to create a base for strong economic growth. DEDI's plan for achieving this mission focuses on the use of renewable energy sources, improving energy efficiency, developing clearer methods of fossil energy resources, diversifying electricity and transportation energy portfolios, and fully integrating agriculture and energy economies.

DEDI's work toward its mission is accomplished through the following six (6) divisions:

1. Division of Biofuels (DOB)
2. Division of Carbon Management (DCM)
3. Division of Efficiency and Conservation (DEC)
4. Division of Energy Generation Transmission and Distribution (DEGTD)
5. Division of Fossil Energy Development (DFED)
6. Division of Renewable Energy (DRE)

The Department for Natural Resources (DNR)

The Department for Natural Resources (DNR) provides technical assistance, education, and funding to help landowners, institutions, industries, and communities to conserve and sustain Kentucky's natural resources. Within DNR are the following seven (7) divisions:

1. Division of Abandoned Mines (DAM)
2. Division of Conservation (DOC)
3. Division of Forestry (KDF)
4. Division of Mine Permits (DMP)
5. Division of Mine Reclamation (DMR)
6. Division of Mine Safety (DMS)
7. Division of Oil and Gas (DOOG)

Of particular note, DNR's Division of Forestry (KDF) conducts an aggressive program to mitigate wildfires in the Commonwealth of Kentucky. The Division of Forestry awards landowners with mitigation grants which are used to clear combustible materials away from homes and other structures. In addition to these mitigation grants, the KDF provides extensive training on sustaining forest resources and wild-land fire management.

The Divisions tasked with oversight of mining matters (DAM, DMP, DMR, DMS) also provide technical assistance and training to mine operators. Proper mining and

reclamation techniques will lessen the probability of future mine-related landslides, subsidence, and karst failures.

The Department for Environmental Protection (DEP)

The Department for Environmental Protection (DEP) is responsible for the protection and enhancement of Kentucky's environment. The work of DEP is accomplished by the following six (6) divisions:

1. Division of Air Quality (DAQ)
2. Division of Compliance Assistance (DCA)
3. Division of Enforcement (D-ENFORCE)
4. Division for Environment Program Support (DEPS)
5. Division of Waste Management (DWM)
6. Division of Water (KDOW)

The Division of Air Quality (DAQ) provides technical assistance toward mitigating future air pollution to local governments, nonprofits, and citizens of the Commonwealth of Kentucky. DAQ is of particular interest to Kentucky Emergency Management (KYEM) and its applicants as they strive to reduce the impact of future disaster events which will involve the disposal of debris.

The Division of Compliance Assistance (DCA) provides technical assistance and training to ensure compliance with air, water, and waste regulations to Kentucky's communities.

The Division of Enforcement (D-ENFORCE) is responsible for gaining environmental compliance through the resolution of enforcement cases.

The Division of Environment Program Support (DEPS) is responsible for providing laboratory testing of samples related to Department of Environmental Protection (DEP) compliance cases.

The Division of Waste Management (DWM) develops and administers waste management programs across the Commonwealth of Kentucky and provides technical assistance regarding the reduction of waste generation and the maximization of recycling efforts to Kentucky's communities and citizens.

The Division of Water (KDOW) ultimately is responsible for managing, protecting, and enhancing the water resources of the Commonwealth of Kentucky. Most relevantly for hazard mitigation, KDOW administers the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program (NFIP) throughout the Commonwealth. In overseeing NFIP, KDOW provides technical assistance regarding how to identify flood-prone areas and protect against the effects of flood events to Kentucky's citizens and community officials.

Kentucky Transportation Cabinet (KYTC)

The Kentucky Transportation Cabinet (KYTC) is responsible for all state and federal road systems within the Commonwealth of Kentucky. It also oversees many forms of transportation such as air, freight, railroads, bike routes, ferries, and river-ports. While KYTC is not responsible for the maintenance or oversight of city- and county-owned roads and bridges, KYTC does play a vital role in the viability of those systems. KYTC provides funding to local governments for the maintenance and development of rural and secondary road systems. Additionally, KYTC provides technical advice and training to local road foremen and maintenance crews.

KYTC partners with the University of Kentucky (UK) through the Kentucky Transportation Center (KTC). KTC provides technical assistance in the form of topic workshops and training courses for in-service transportation professionals in consulting firms and state-level transportation entities. The purpose of KTC is to provide advanced transportation courses which guide transportation professionals in the design, construction, and maintenance of safe and sustainable road systems that are to be developed using methods which will mitigate the effects of hazards associated with future natural and human-made events.

The Cabinet for Health and Family Services (CHFS)

The Cabinet for Health and Family Services (CHFS) provides oversight for the Commonwealth of Kentucky's programs that administer human services, such as those concerning physical and mental health and concerning the protection of and assistance to seniors, adults, children, and families.

During emergency activations associated with disaster events, CHFS participates in the operation of the Commonwealth Emergency Operations Center (EOC). The main focus of the CHSF during disaster events is to ensure that proper measures are taken to protect the health and safety of impacted citizens and to emphasize particularly the prevention of disease.

Through its oversight of local Health Departments, CHSF is able to provide technical assistance to state and local officials regarding activities which can be implemented to lessen or to mitigate the effects of natural and human-made incidents. In some instances, CHSF takes the lead in disaster-related initiatives which would mitigate the effects of the disaster on citizens. For example, during the 2010 flooding that severely impacted the western portion of Kentucky, CHSF spearheaded a massive effort to conduct vector control of mosquitos that had the potential to infect citizens with the West Nile Virus.

CHSF is also a statutorily-defined member of the Commonwealth Emergency Response Commission (CERC). The CERC – established through the set of Kentucky Revised Statutes (KRS) under Chapter 39E.000—was established to implement federal regulations related to hazard substances. The role of CERC is now comprehensive and it serves as an advisory group to Kentucky Emergency Management (KYEM) regarding all hazard types.

Kentucky Department of Agriculture (KDA)

The Kentucky Department of Agriculture (KDA) is a constitutionally-established department that is headed by a commissioner who is elected via popular vote. While the primary focus of KDA is to protect and promote the agricultural resources of the Commonwealth of Kentucky, KDA also is an active participant in emergency and disaster responses and planning efforts. Kentucky's Department of Agriculture maintains an ongoing mitigation effort to control the mosquito population across the Commonwealth in order to prevent and control the spread of the myriad diseases associated with this insect.

Kentucky's Department of Agriculture also provides technical advice to the agriculture community regarding efforts and practices which can be implemented to mitigate the effects of drought and other natural events which can have a negative impact on farming efforts.

A Brief Note about Legislation Related to Hazard Mitigation

Appended to this *Mitigation Strategy* section (**Appendix 4-10**) is a list of Kentucky legislation related at least tangentially to hazard mitigation. Kentucky legislation is codified via Kentucky Revised Statutes (KRS).

What should be noticed in relation to state capability to fund and administer mitigation programs across the Commonwealth of Kentucky is how significant a proportion of Kentucky's mitigation practices actually are codified into law. The formation of many of Kentucky's agencies and the interrelation between them is law. The formation of important hazard mitigation committees and commissions that incorporate a wide array of stakeholders is law. The Area Development Districts around which so much of Kentucky's mitigation practices revolve are all law. The financing of mitigation-oriented capital projects is aided by law. Kentucky very much legislates its mitigation practices.

So, while this 2013 update of Kentucky's hazard mitigation plan implicitly argues that it is only articulating what Kentucky does on a quotidian basis and is only articulating Kentucky's mitigation practices, it is relevant to consider just how great a proportion of these day-to-day mitigation activities and behaviors are, in fact, codified into law and, hence, far more binding than informal agency activities and statewide norms, as inspired as they might be. It certainly augments Kentucky's state capability to ensure its residents are protected from the destructive hazard events.

Commonwealth of Kentucky Public Financing

As a parallel to the earlier discussion of local jurisdictions' public financing options, it is relevant to briefly discuss the Commonwealth of Kentucky's public financing and capital project implementing capability.

Generally (and a bit uniquely⁸⁶), the Commonwealth of Kentucky possesses all of the same public financing options as its local jurisdictions.

The differences between local jurisdictions' public financing options and the Commonwealth's capabilities to finance reside in which financing mechanisms are most emphasized. This applies overwhelmingly to taxation. The discussion of the concerns, strategies, etc. of the other public financing options discussed in relation to local jurisdictions (budgeting and the ability to incur debt) applies at the state level, as well. It will not be discussed further here.

⁸⁶ As mentioned earlier, it is rare for local governments to have taxing options like personal and corporate income taxation that states possess.

The Commonwealth's Ability to Tax

Property Tax

The Commonwealth of Kentucky does not rely on the collection of property taxation for its revenue. Property tax revenue is local government revenue. Rather, the Commonwealth of Kentucky will set the rules regarding how local governments collect property taxes. When local governments have to consider exemptions, rates, and tax-and-expenditure limits (TELEs) in property taxation, it is the consequence of the role of the state.

As far as property tax rules and levies are concerned for the Commonwealth of Kentucky, the following is relevant to generalize about state capability⁸⁷:

- Property is assessed for taxation in Kentucky on January 1st of each year.
- Property is assessed at "fair cash value." "Fair cash value" refers to the fair or reasonable cash price that a property can be sold on the market.
- There are no specific statutory provisions for property taxation on construction works-in-progress.
- Property owned and acquired by Kentucky's Area Development Districts (ADDs) are exempt from property taxation.
- Current to 2007 at least, Kentucky real property tax values ranged from \$1.26 to \$4.37 per \$1,000 of assessed values within Kentucky's counties. Amongst its cities, property tax values ranged from \$0.49 to \$4.79 per \$1,000 of assessed values. These ranges may have or are likely to have changed since the advent of this current recession that started with plummeting housing values. The important point to note is how variable Kentucky's property tax rates are. Further, there are special rates that apply to many types of property.

⁸⁷ From Klutkowski, Andrew and Peter Pupke (eds). [2009]. *2009 All States Tax Handbook*. New York City, NY: Thomson Reuters.

Sales Tax

Kentucky's sales tax is considered a "seller's" tax, which means that the tax liability falls on the seller rather than on the consumer. In other words, the seller is responsible to the government to pay the tax; the consumer is not.

Kentucky charges 6% on gross receipts for the "sale" (instead of the "purchase") price of tangible goods. This means that Kentucky taxes:

- Conditional and credit sales;
- Barter exchanges;
- Leases and rentals;
- Trade-ins or used property;
- Repossessed property;
- Sale of materials to repairers;
- Sale of materials to contractors;
- Sale of machinery to contractors, manufacturers, and producers;
- Withdrawal from one's own stock;
- Retail sales; and
- Special orders.

Kentucky exempts the following from its sales tax:

- Casual or isolated sales
- Repair charges
- Installation services
- Selling materials to manufacturers, producers, and processors
- Sales to nonprofits
- Sales to the federal government (and its agencies)
- Sales to the Commonwealth itself (and its divisions and agencies)
- Sales of wrappers and containers
- Alterations (to clothing)

Income Tax

The personal income tax rates in Kentucky are as follows:

First (1st) \$3,000	2%
Next \$1,000	3%
Next \$1,000	4%
Next \$3,000	5%
Next \$67,000	5.8%
Over \$75,000	6%⁸⁸

The corporate income tax rates in Kentucky are as follows:

First (1st) \$50,000	4%
Next \$50,000	5%
Over \$100,000	6%

Further, Kentucky levies the LLE (Limited Liability Entity) Tax on some corporations. The LLE Tax works similarly to the Corporate Income Alternative Minimum Tax (AMT): An LLE Tax is imposed on corporations in addition to its income tax. It replaces the AMT and incorporates Kentucky's \$175 minimum tax levy.

Kentucky does exempt taxation on S Corporations, though they still are subject to the LLE Tax.

Generally, there are five (5) broad mechanisms that states can use to derive corporate income from other states:

The first mechanism is referred to as the *Double-Barreled Tax*. "States imposing both a privilege tax (to reach all income of qualified domestic and foreign corporations) and a direct income tax (specifically designed to reach the in-state income of interstate corporations) include California, Idaho, Montana, Oregon, Pennsylvania, Utah, and Wisconsin...[Klutkowski and Pupke 2009⁸⁹, p. 51]."

The second mechanism is referred to as *Income from Property In-State*. Statutes that claim income from property with an in-state situs (legal location) are usually effective even if it applies to companies not active in ordinary business operations in the state. For example, income from patents, copyrights, licenses-to-use, or other such royalties would be taxed under this mechanism, even if the corporate owner had no other contact with the state.

The third mechanism is termed the *Income from In-State Business*. It is a broad mechanism: While it is true that by interpretation, a tax limited to "business" could be

⁸⁸ At this level of personal income, Kentucky has the ability to use an optional tax table.

⁸⁹ Klutkowski, Andrew and Peter Pupke (eds). [2009]. *2009 All States Tax Handbook*. New York City, NY: Thomson Reuters.

less far-reaching than statutes that are not so restricted by diction. However, in practice, state courts ultimately decide how broad the ability to tax corporate income under this mechanism.

Related is the fourth mechanism for deriving inter-state revenue: *Income from Sources In-State*. This is, by far, the broadest mechanism by which to collect inter-state revenue. “Theoretically, any type of income derived from within the borders of a particular state could be gathered in under this type of clause...[Klutkowski and Pupke 2009⁹⁰, p. 51].”

Finally, there is the *Doing Business* mechanism for inter-state tax collection. Of the five inter-state tax collecting mechanisms, it has the narrowest interpretation: It can only be imposed on state net income by corporations “doing business” within the state. In other words, this mechanism restricts the reach of the tax only to those corporations solidly grounded within the state’s borders, i.e. solidly emplaced commercial activities.

Thus, of the five mechanisms for collecting inter-state corporate income tax revenue, Kentucky uses *Income from In-State Property*, *Income from In-State Business*, and *Income from In-State Sources*. In other words, Kentucky taxes corporations broadly.

Other Taxes

Kentucky also administers these other sources of revenue:

Inheritance, Estate, and Gift Taxes

Regarding an inheritance tax, there are three “classes” of possible beneficiaries of inheritance that receive a different range of rates of taxation.

“Class A” refers to a surviving spouse, parent, child, grandchild, brother, sister, half-brother, and/or half-sister. The tax rate for this “class” of inheritance recipients ranges from 2% on the first (1st) \$20,000 of inheritance to 10% for inheritance values over \$500,000. There are exemptions to this range of rates, however, that apply if the “Class A” recipient of an inheritance is an infant child.

“Class B” refers to a niece, nephew, half-niece, half-nephew, daughter-in-law, son-in-law, aunt, uncle, and/or great-grandchild. Tax rates for this “class” of inheritance beneficiaries ranges from 4% on the first (1st) \$10,000 of inheritance to 16% on inheritances valuing over \$200,000.

“Class C” refers to, of course, all those inheritance beneficiaries that are not either “Class A” or “Class B.” Inheritance tax rates for this “class” ranges from 6% on first (1st) \$10,000 to 16% for inheritances worth over \$60,000.

Regarding estate taxes, the estate tax is not imposed on decedents dying on or after January 1, 2005.

⁹⁰ *Ibid.*

Further, there is no “generation-skipping transfer tax” imposed.

Finally, Kentucky does not impose a “gift tax.”

Beer Excise Tax

The Beer Excise Tax is \$0.08 per gallon of beer in addition to Kentucky’s sales tax. There is an 11% wholesale tax.

Distilled Spirits Excise Tax

The Distilled Spirits Excise Tax is \$1.92 per gallon of spirits in addition to Kentucky’s sales tax. However, this rate varies depending upon the alcohol content of the distilled spirits: If under 6% alcohol by volume, then the tax is reduced dramatically to \$0.25 per gallon. There is an 11% wholesale tax.

Wine Excise Tax

The Wine Excise Tax is \$0.50 per gallon of wine in addition to Kentucky’s sales tax. There is an 11% wholesale tax.

Gasoline Tax

Kentucky does collect a “gasoline tax.” Current to 2009, it was 21.1¢ per gallon.

Cigarette Tax

On a twenty-pack carton of cigarettes, Kentucky charges \$0.30 per carton and adds an extra \$0.01 as an enforcement and administration fee for the collection of the tax.

Comity

Finally, Kentucky is one of 44 states that allow its courts to be used to collect the unpaid taxes of other states. This practice is called the “collection of other states’ taxes through comity.”

Commonwealth of Kentucky Enhanced Hazard Mitigation Plan: 2013 Version

MITIGATION STRATEGY

PART V:

Funding Sources

A. *Identifying Current Sources of Federal, State, Local, or Private Funding to Implement Mitigation Activities,*

B. *Identifying Potential Sources of Federal, State, Local, or Private Funding to Implement Mitigation Activities, and*

C. *Identifying the Sources of Funding Used to Implement Activities in the Mitigation Strategy Since Approval of the 2010 Update of the Commonwealth of Kentucky's Hazard Mitigation Plan*

Funding for mitigation activities currently, potentially, and historically has derived from five (5) major federal sources:

1. Hazard Mitigation Grant Program (HMGP)
2. Flood Mitigation Assistance (FMA)
3. Pre-Disaster Mitigation (PDM)
4. Repetitive Flood Claims (RFC)
5. Severe Repetitive-Loss (SRL)

These are all grant programs deriving from the Federal Emergency Management Agency (FEMA). The Hazard Mitigation Grant Program is unique among the five federal sources: It is a grant made available after a Presidential disaster declaration. The other four grant programs are competitive and, traditionally, have been offered yearly.

Most of the above grants reimburse 75% of the cost of an approved mitigation project or plan. The community implementing the mitigation action is responsible for the other 25%. Kentucky is unique in that it takes on some of the burden of the local responsibility for the remaining 25%. The Commonwealth of Kentucky will further reimburse an approved mitigation action up to 12%. This means that, ultimately, the local jurisdiction implementing the mitigation action only is responsible for 13% of the funding of that action.

REQUIREMENT §201.4 (c) (3) (iv):

The Commonwealth of Kentucky's mitigation strategy shall include an identification of current and potential sources of federal, state, local, or private funding to implement mitigation activities

Each of the above grants has a different Congressional authorization and, thus, slightly different rules. These are summarized in the following table:

Table 4-12: FEMA Grant Programs and for What They Are Eligible

<i>Types of Projects Eligible for Funding</i>	<i>HMGP</i>	<i>FMA</i>	<i>PDM</i>	<i>RFC</i>	<i>SRL</i>
Acquisition of an Entire Property by a Government Agency	✓	✓	✓	✓	✓
Relocation of a Building to a Flood-Free Site	✓	✓	✓	✓	✓
Demolition of a Structure	✓	✓	✓	✓	✓
Elevation of a Structure Above Flood Levels	✓	✓	✓		✓
Replacement an Old Building with a New Elevated Building	✓				✓
Local Drainage and Small Flood-Control Projects	✓				✓
Dry Flood-Proofing (to Non-Residential Buildings Only)		✓	✓		✓
Dry Flood-Proofing (to Historic Residential Structures)	✓	✓	✓	✓	✓
Minor Localized Flood-Reduction Projects	✓	✓	✓	✓	✓
Structural Retrofitting of Existing Buildings	✓		✓		
Non-Structural Retrofitting of Existing Buildings and Facilities	✓		✓		
Safe Room Construction	✓		✓		
Infrastructure Retrofit	✓		✓		
Soil Stabilization	✓		✓		
Wildfire Mitigation	✓		✓		
Post-Disaster Code Enforcement	✓				
5% Initiative Projects	✓				
Mitigation Planning	✓	✓	✓		

Regarding relevant information specific to each grant:

Hazard Mitigation Grant Program (HMGP)

Following a Presidential disaster declaration, the FEMA Hazard Mitigation Grant Program (HMGP) provides the affected state with funding for projects to reduce damages, losses, and suffering in future disasters. The intent of HMGP is to create a federal, state, and local partnership to develop and fund mitigation projects. Funding associated with a specific disaster requires Kentucky Emergency Management (KYEM) to provide FEMA with an Administrative Plan which details how the funds will be managed and protected from fraud.

Eligible applicants for the Hazard Mitigation Grant Program include local governments, state agencies, and certain nonprofit organizations.

HMGP may fund up to 75% of the mitigation expenditures for projects such as:

- Voluntary acquisitions and demolition or elevations of flood-prone structures to conversion to open space in perpetuity,
- Voluntary acquisitions and demolitions of landslide-prone structures for conversion to open space in perpetuity,
- Infrastructure protection measures against windstorms or earthquakes,
- Dry flood-proofing of commercial property,
- Minor structural flood control projects,
- Tornado safe rooms and community shelters, and
- Utility protection measures.

As aforementioned, the remaining 25% of funds must come from non-federal sources. In Kentucky, the state provides up to 12% of the project costs and the applicant must provide the remaining 13%.

The local cost share may be cash or provided through in-kind donations of labor, services, or materials related to the project. The applicant's community may also apply to other agencies for funds which can be used as "local match." These funds, in some cases, may also be money originating from the federal government but which lose its federal identity at the state level.

Eligible projects must meet a FEMA-approved benefit-cost analysis, in which the applicant must demonstrate for every dollar spent on a project at least a dollar's worth of future damage protection will be realized.

Projects must also meet other criteria. The Kentucky State Clearinghouse, comprised of a group of state regulatory agencies, must review projects to identify any adverse impact on environmental, archeological, and historic resources. These agencies may provide guidance on permits which must be obtained before the project may proceed or actions the applicant's community must take to reduce the effects on such resources.

Up to ten percent (10%) of the HMGP funds allocated to the state after a disaster declaration may be spent on projects in which a benefit-cost analysis is difficult or impossible to perform. Applications for this subset of the HMGP often involve initiatives such as:

- Outdoor or indoor warning systems,
- Hazard mitigation education programs,
- NOAA weather radios, and
- Generators

Up to seven percent (7%) of the HMGP funds allocated to the state after a declared disaster may be used for local or state mitigation planning activities. Mitigation planning is mandated by the Disaster Mitigation Act of 2000 as a condition for receiving mitigation grants. A community receiving an HMGP grant for any project assumes responsibility to maintain, at its own expense, any equipment or property acquired with the grant.

Flood Mitigation Assistance Program (FMA)

The Flood Mitigation Assistance (FMA) grant program provides funding to the Commonwealth of Kentucky for cost-effective measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the NFIP.

The FMA program is funded on an annual cycle. Each year the state gets a target allocation of funding for which local communities can apply. The FEMA program is split with up to 75% of the project funded by federal funds. The remaining 25% must be paid by the local community.

The Commonwealth of Kentucky's priority for this fund is to reduce the number of properties located on the National Flood Insurance Program's Repetitive Loss List. Other eligible projects include:

- Voluntary acquisition of insured real property to conversion to open space in perpetuity,
- Elevation of insured public or private structures to avoid flooding,
- Dry flood-proofing of insured non-residential structures, and/or
- Structural retrofitting and non-structural retrofitting of existing public or private structures to meet or exceed applicable building codes relative to floodplain management

Eligible applicants must have an approved FEMA FMA plan or a dual-approved standard mitigation plan. If a FEMA-approved FMA plan is not in place, a community may apply for FEMA funding during any grant cycle, to underwrite the cost of compiling a plan.

Pre-Disaster Mitigation Grant Program (PDM)

The Pre-Disaster Mitigation Program (PDM) provides funds to the State for pre-disaster mitigation planning and the implementation of cost-effective mitigation projects prior to a disaster event.

The PDM program is a nationally competitive program. There has been a \$500,000 state allocation and no national priority for projects. The PDM program traditionally has been funded on an annual cycle.

The PDM program is funded by FEMA with a funding split of up to 75% of the project funded by federal funds. The remaining 25% must be paid by the local community.

Eligible applicants include local governments, state agencies and public universities. Types of eligible projects include:

- Voluntary acquisitions and demolition or elevations of flood-prone structures to conversion to open space in perpetuity;
- Structural retrofitting and non-structural retrofitting of existing public or private structures to meet or exceed applicable building codes;
- Construction of tornado safe rooms and community shelters;
- Protective measures for utilities, water, and sanitary sewer systems and/or infrastructure;
- Storm-water management projects to reduce or eliminate long-term risk from flood hazards;
- Localized flood control projects, such as certain ring levees, bank stabilization, and floodwall systems which are designed specifically to protect critical facilities; and/or
- Planning

If a community is identified as located in a Special Flood Hazard Area, it must be a participant in good standing in the National Flood Insurance Program (NFIP). Also, the applicant must have a FEMA-approved local hazard mitigation plan.

Eligible projects must achieve a FEMA benefit-cost analysis which demonstrates for every dollar spent on a project; at least a dollar's worth of future damage protection will be realized.

Repetitive Flood Claims Program (RFC)

The Repetitive Flood Claims (RFC) grant program provides funding to reduce or eliminate the long-term risk of flood damage to structures insured under the National Flood Insurance Program (NFIP) which have had one or more claim payment(s) for flood damages. RFC funds may only be used to mitigate structures located within a state or community which is participating in the NFIP and can prove its inability to meet Flood Mitigation Assistance (FMA) program requirements because it cannot provide the non-Federal cost share or does not have the capacity to manage the program activities.

The long-term goal of the RFC grant program is to reduce or eliminate the number reoccurring flood insurance claims through mitigation activities which are in the best interest of the National Flood Insurance Fund (NFIF).

All RFC grants are eligible for up to 100% federal cost assistance. The RFC grants are awarded to applicants on a nationwide basis without reference to state allocations, quotas, or other formula-based allocations.

The priority is to fund the acquisition of severe repetitive-loss (SRL) properties, as well as non-residential properties which meet the same claims thresholds as severe repetitive-loss properties. As determined by the Flood Insurance Reform Act of 2004, to meet a small repetitive-loss designation, a property must be insured under the NFIP and have incurred flood losses that resulted in either:

- Four (4) or more flood insurance claims payments which each exceeded \$5,000, with at least two (2) of those payments occurring in a 10-year period, and with the total claims paid exceeding \$20,000; or
- Two (2) or more flood insurance claims payments which together exceeded the value of the property.

Acquisitions include the demolition or relocation of flood-prone structures and deed restricting the vacant land for open space uses in perpetuity.

Severe Repetitive-Loss Program (SRL)

The Severe Repetitive Loss (SRL) grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, which amended the National Flood Insurance Act of 1968 to provide funding to reduce or eliminate the long-term risk of flood damage to SRL structures insured under the National Flood Insurance Program (NFIP).

SRL properties are residential properties which have at least four (4) NFIP claim payments over \$5,000 each, when at least two (2) such claims have occurred within any ten-year period, and the cumulative amount of such claims payments exceeds \$20,000; or for which at least two (2) separate claims payments have been made with the cumulative amount of the building portion of such claims exceeding the value of the property, when two (2) such claims have occurred within any ten-year period.

The purpose of the program is to reduce or eliminate claims under the NFIP through project activities which will result in the greatest savings to the National Flood Insurance Fund (NFIF). Eligible flood mitigation project activities include:

- Flood-proofing (for historical properties only)
- Relocation
- Elevation
- Acquisition
- Mitigation reconstruction (demolition/rebuild)
- Minor physical localized flood control projects.

Communities with FEMA-approved standard or enhanced mitigation plans may receive up to 90% in Federal cost-share funding for projects.

The program was approved to begin funding at the start of the Fiscal Year 2008 grant cycle. For each of the above flood-related grant programs (FMA, RFC, and SRL) a riverine-limited data module can be used to assist with the needed Benefit-Cost Analysis.

A Note on Current and Potential Sources of Funding

For much of 2012 and through the middle of 2013, the future of the FEMA Pre-Disaster Mitigation Program (PDM) was not certain. The PDM program had ceased to be funded for more than a year and no indication that it would return would be confirmed. The PDM program has returned, however (and seemingly). It returned around the middle of July. The PDM program represents an important source of funding for the mitigation program because the money distributed through the program primarily was directed to planning. Its recent return (at the time of this plan-writing) was welcome. Funding levels for this year's reintroduction of the program were comparatively small compared with years past; but, planning is a necessary function of mitigation activity and is necessary in order to qualify for federal assistance in hazard mitigation.

Further, there had been discussion that Repetitive Flood Claims (RFC) and Severe Repetitive-Loss (SRL) grants would be collapsed into the Flood Mitigation Assistance (FMA) program. Under this circumstance, FMA would add a planning (for flood-related mitigation activity only) allowance to the competitive grant program. Currently, FMA funding – rather than contribute to individual FMA (floodplain management) plans – contributes instead to the funding of development of flood mitigation activity to be included in local hazard mitigation hazard plans.

Further Funding Sources for Repetitive-Loss Properties

In addition to the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program, and especially the Flood Mitigation Assistance (FMA), Repetitive Flood Claims (RFC), and Severe Repetitive-Loss (SRL) program grants, there are a couple of other funding sources to consider that can specifically target repetitive-loss properties:

The Increased Cost of Compliance (ICC) is an extra flood insurance claim payment that can be provided if an insured building was flooded and afterward declared “substantially damaged” by the local permit office.

ICC payments can be used to pay 100% of the following mitigation project types:

- Relocation of a building to a flood-free site,
- Demolition of a structure,
- Elevation of a structure above flood levels,
- Replacement of an old building with a new elevated building, and/or
- The dry flood-proofing (of nonresidential buildings).

The federal Small Business Administration (SBA) also provides low-interest loans that can be used to fund repairs and mitigation projects after a Presidential disaster declaration.

A Note on Current Funding Levels

Current FEMA Hazard Mitigation Grant Program (HMGP) funding levels for the Commonwealth of Kentucky’s 2010-2013 planning cycle derive from funding resulting from five (5) presidentially-declared disasters:

- 1) DR-1912 (Declared May 11, 2010)
- 2) DR-1925 (Declared July 23, 2010)
- 3) DR-1976 (Declared May 4, 2011)
- 4) DR-4008 (Declared July 25, 2011)
- 5) DR-4057 (Declared March 6, 2012)

Below is tabulated the total amounts Kentucky has submitted under each of the five disasters. This information is accompanied by that disaster’s “lock-in” amount. The “lock-in” amount is the maximum amount of money that FEMA is able to distribute toward hazard mitigation activities that take place under the HMG Program that opens after each presidentially-declared disaster.

Table 4-13: FEMA “Lock-In” Amounts and Commonwealth Submission Amounts

Presidential Disaster #	# of Projects Submitted	Total Levels of Funding Submitted (Approved and Pending Approval)	“Lock-In” Amount
<i>DR-1912</i>	35 Projects	\$11,112,666.00	\$9,884,338.00
<i>DR-1925</i>	21 Projects	\$4,927,600.00	\$4,118,251.00
<i>DR-1976</i>	21 Projects	\$10,522,102.00	\$8,319,661.00
<i>DR-4008</i>	9 Projects	\$1,821,624.00	\$1,492,346.00
<i>DR-4057</i>	14 Projects	\$4,560,072.00	\$5,363,974.00

As noted above, the Pre-Disaster Mitigation program recently has been reintroduced into Kentucky. Current levels of funding within this competitive program allow \$250,000.00 in federal share. With this allotted money, Kentucky – at the time of this writing – is submitting for five planning projects.

Further, the Flood Mitigation Assistance (FMA) competitive program allows for further funding of local hazard mitigation plans under new rules that would have FMA planning incorporated with “all-hazards” planning (i.e., local hazard mitigation planning). Consequently, currently (and at the time of this writing), Kentucky also is submitting for an additional \$125,000.00 in federal to be used to enhance the flood hazard assessment and mitigation strategies of upcoming local hazard mitigation plan updates.

Past Funding Sources and Levels of Funding

Tabulated below is a summary of the funding sources that Kentucky has utilized in the recent past and the number of mitigation projects submitted under the funding sources. Details about the individual projects can be found in **Appendix 4-11**, which is subdivided into seven (7) different appendices (**4-11-1** through **4-11-7**).

Table 4-14: Funding Sources Used by Commonwealth for Mitigation Projects, 2010-2012

Funding Source	# of Mitigation Projects Funded Through the Listed Funding Source, 2010-2012
FEMA: Hazard Mitigation Grants Program (HMGP)	325 Projects
FEMA: Flood Mitigation Assistance (FMA) Competitive Program	5 Projects
FEMA: Pre-Disaster Mitigation (PDM) Competitive Program	23 Projects
FEMA: Severe Repetitive-Loss (SRL) Program	5 Projects
FEMA/Congress: Legislative Pre-Disaster Mitigation Program/Congressional Provision	7 Projects
FEMA: "406" Mitigation Projects	283 Projects
Kentucky Office of Homeland Security (KOHS)	9 Projects
Kentucky Department for Local Government (DLG)	52 Projects
Kentucky Division of Forestry (KDF)	27 Projects
Louisville Metropolitan Sewer District (Louisville MSD)	6 Projects
Lexington-Fayette Urban County Government (LFUCG)	25 Projects

Though this will be elaborated more upon in the Enhanced portion of this 2013 update of Kentucky's hazard mitigation plan, the non-FEMA funding sources used by the Commonwealth of Kentucky in its recent mitigation past total to \$36,777,241.68. The breakdown is as follows:

- Kentucky Office of Homeland Security (2010-2012): **\$680,750.00**
- Kentucky Department for Local Government (2010-2012): **\$15,729,155.00**
- Kentucky Division of Forestry (2010 – 2012): **\$417,822.00**
- Louisville Metropolitan Sewer District (2010 – 2012): **\$13,517,405.00**
- Lexington-Fayette Urban County Government (2010 – 2012): **\$6,432,109.68**

Finally, FEMA's mitigation projects approved in Kentucky under its Section 406 amounted to \$4,724,596.00 from 2010 – 2012.

REQUIREMENT
§201.4 (c) (3) (v):

The Commonwealth of Kentucky may request the reduced cost share authorized under 79.4 (c) (2) of this chapter for the FMA and SRL programs. If it has an approved Mitigation Plan...that also identifies specific actions the Commonwealth of Kentucky has taken to reduce the number of repetitive loss properties (which must include severe repetitive loss properties), and specifies how the Commonwealth of Kentucky intends to reduce the number of such repetitive loss properties.

COMPLETED HERE

F. Identifying Current and Potential Sources of Federal, State, Local, or Private Funding to Implement Mitigation Activities for Repetitive-Loss Properties