Commenter #	Comment	Treatment
1	The loss of $5,000-$65,000 attributed to industrial to commercial business interruption, for a 500 year. hurricane, seems incorrect (i.e. consider the business interruption costs to APL, and many of the companies in the county if a hurricane strikes). Also, institutional losses aren't explicitly addressed.	Feedback was passed on to the Contractor. Response: "It is important to keep in mind that Hazus is a regional loss estimation tool, and we did not do a site-specific building analysis. When Hazus models a probabilistic hurricane, it analyzes more than 300,000 modeled storm tracks and calculates the losses for all storms that could potentially impact that area. From those modeled storms it calculates losses associated with return periods. What this means is that a 500yr hurricane track might not touch the county at all, so it is not safe to assume that certain blocks or areas would experience significant damage over other areas. – I'll double check the numbers when I return but I'm pretty confident that those are the numbers it reported. Accuracy at the level they suggested can only be achieved through site-specific analysis.
1	In the cost-benefit analysis (e.g. p. 142, 163), I couldn't find a clear identification of benefits and how they are measured, including the time period for computing benefits. This is important for assessing the merits of project strategies, building codes, etc.	The cost benefit analysis is done at the project level which is not covered in this plan. When selecting projects in the future, we will assess the cost benefit on a per project basis when determining viability.
1	Vulnerability curves are crucial to the accuracy and reliability of any risk analysis. However, it seems that no efforts were made to input adequate vulnerability functions (p. 108-109): "Unfortunately for this study, accurate data concerning wind vulnerability is slim. In most instances, this information is not publicly available as private insurance covers wind damage except in the most extreme circumstances".	We have noted that this is an area where we can improve this plan in the future. We have also noted that we should seek to include an insurance industry professional in the stakeholder group in the future as they may have better access to industry data than is publicly available.
1	A lack of information about types of structures in Howard County is mentioned (p. 109, 115). Nevertheless, an accurate assessment of the number and characteristics of the building typologies in the County, especially including a reliable estimate of building value, is crucial for the estimation of loss for any hazard. This was not apparently conducted.	We used NFIP and Hazus data for these estimation functions. We recognize and referenced the limitation on data. This is on the list for future consideration for a more detailed assessment.
1	It's not immediately clear why the hurricane risk with an estimated average annual loss (AAL) of $9.8M is ranked 3 (Table 5.20 and 5.21 p. 119), while flood with a lower AAL = $4.4M (Hazus projection), is ranked 1.	The ranking includes more than the annual loss estimation. You can find more data about the methodology used in our Hazard Identification and Risk Assessment on ReadyHoCo.com

1	There's a potential inconsistency in the analysis of Hurricane Hazel (p. 117)? Hazel exhibits a maximum gust of 94 mph with a loss of $228M. The return period for gusts of 94 mph are between 100-300 years (ASCE 7-16). However, the loss calculated for the 500-year hurricane is $105M, which is half to that of Hazel (table 5.14, p. 115). The inconsistency should be addressed.	Feedback was passed along to contractor: As for the Hazel vs 500yr comparison, it is important to look at the areas being impacted by the wind. Peak winds do not mean peak damage, especially if those winds are in less populated areas, or areas with more wind-resistant buildings. Factors such as terrain and tree populations also play into the loss calculations. Hazel was also not modeled as a return period event, it was modeled as a historic storm using the actual tract of the system and wind speeds. I don't believe it is an appropriate comparison against a probabilistic 500yr storm for the reasons described above. I'll double check these results as well.
1	It seems that the report underestimates the potential devastation that could be caused by hurricanes on Howard County.	Noted, however, we used the most reliable data available to us given timing and budget constraints.
1	The report would benefit from providing an executive summary at the outset which includes e.g. statement of problem, objectives, methodology, timeline, criteria for cost/benefit analysis, findings, recommendations, etc. This would help readers to get an overall picture of the problem at the outset. As it is now written, it's very confusing. Pages 13-20 should be in an Appendix.	This plan must meet a strict set of federal standards in order to be accepted at the State and Federal levels. As such we chose to organize the plan in this manner as it is a best practice (as demonstrated by federal pre-approval on first review). However, an executive summary may be a good thing to add on the webpage where the document will be posted.
1	It'd also be helpful to include metrics of the economic performance of 2012 HMP (p.44) and the goals set.	We will note this and have our Stakeholder group discuss further at our annual review.
1	In p. 55, it's mentioned that $50M in losses only from 1950-2018, is this in 2018 dollars?	This is a total amount only, no calculation has been conducted for inflation. Included statement on this in the section.
1	The paragraph in p.57 may convey the idea that floods are disasters, while they're not if there's no exposure affected and also that flood-caused disasters are the costliest, but they are not, e.g. compared with hurricanes and tropical storms: see https://www.iii.org/fact-statistic/facts-statistics-us-catastrophes	The wording conveys the serious nature of flooding. It does not reference flooding being the costliest disaster.
1	The last paragraph in p.57 seems incorrect, "Riverine flooding generally occurs over a period of days or weeks. This type of flooding is what is generally referred to as the 100-year flood." The return period of a flood is the inverse annual probability of occurrence of an event.	The reference here was to denote that the "x"-year flood nomenclature generally refers to riverine flooding, not flash flooding. We will consider clarifying this in our annual review.
1	Are there statistics, or a reference to substantiate the statement in p. 67: "Winter storms are prevalent on a yearly basis for the County, but significant improvements to building codes, maintenance to structures, and weather forecasting has dramatically decreased the threat to people and property."?	We will discuss this further with the contractor.

1	Page 75 reads “Hurricanes, tropical storms, and typhoons are collectively known as tropical cyclones.” But, hurricanes and typhoons are the same weather phenomenon.	Typhoons was removed
1	Page 80: “A downburst, or a sub-set of thunderstorms” is not clear.	A two sentence description of a downburst was added provide description.
1	Page 93: “The likelihood of significant earthquake damage in Howard County is low since the probability of the area being stricken by an earthquake is relatively low as compared to other parts of the country.” Moreover “Because of the very low risk associated with this hazard, a simple risk assessment was completed for earthquakes”. The explanation in this paragraph doesn’t seem enough to justify a simple risk assessment. A more careful analysis must be presented, probably the analysis of a hypothetical event could be useful for planning and decision making.	The analysis of earthquakes was done as part of the Hazard Identification and Risk Assessment available at ReadyHoCo.com
1	Page 97: it may be helpful to provide a defined (quantitative?) definition of impact in order to inform the mitigation plan, e.g. in terms of severity, timeframe, etc.	Impact is defined in the HIRA if you could just copy from that and add it here that would be great. See page 100 for risk/impact scoring tool.
1	Page 107, “For Howard County, the most significant potential effect of hurricanes and tropical storms is flooding.”, but wind from severe storms or hurricanes must not be neglected.	Noted
1	Page 107: a reference is needed to substantia the statement: “the occurrences of tornados is increasing”.	Citation added
1	Page 108: “The overall low probability of severe wildfires in the region indicates the County is not particularly vulnerable to this hazard.” Was it determined whether there are specific “pockets” in the County where this hazard could be potentially more significant?	This will be discussed further at our annual review to see if that information is available.
1	Page 111: It is not immediately clear how the “average annual flood claim” was computed; more detail on the methodology, including the discount rate assumed, should be provided.	The explanation for AAFC is at the top of Page 112. Other points to be noted for annual review.
1	The report rightly states that “a detailed site-specific risk assessment should be conducted using information such as structural characteristics, physical surroundings, and occupancies” I can help in this task.	Noted.
1	The plan for ensuring public participation with news release and summaries of the public meetings presented (p. 185), is mostly one directional and thus tends to be limited. Given the strategic goal of "integrating community to planning efforts" a lot more could be done in terms of engaging the steering committee and community to capture their needs and preferences.	Noted. It is a goal to incorporate more active participation from the community in future planning efforts.

1	In the Strategic Plan (pp. 129-130), goal 4 calls for a platform to integrate plans and include other stakeholders in the process. The methodology of Shared Vision Planning (SVP) is well suited to be such a platform. Among other features, SVP conducts running virtual exercises, which are simulated emergencies where, say the steering committee and other county officials, must respond to "virtual emergencies" and plan building becomes a practice exercise that allows the key stakeholders to work together prior to emergency. It keeps plans and people afresh on what to do in an emergency as well as meeting the goals of "integrating", synchronizing "appropriate departments, stakeholder agencies, and jurisdictions", holding "formal training and exercise program", and improving the functions of the various departments (EOC and DOC) that are activated when emergency strikes.	Noted.
2	Page 40: AirTran no longer operates as an independent airline. It was acquired by Southwest and ceased operations at the end of 2014. It might also be useful to mention BWI's capability to service relief flights in the event of catastrophe.	Accepted. Contractor was asked to remove AirTran
2	Page 40-41: The reliance (some might say over-reliance) of the county's residents on automobile transportation could be highlighted. In the event of an areal disaster such as an earthquake or hurricane, this could be a significant issue, and preplanning of methods for managing traffic and keeping supply routes open might be worthwhile.	Agreed. This over-reliance, and the planning for it are dealt with in the Emergency Operations Plan and the Howard County Evacuation Plan
2	Page 89: Should include the lightning strike/fire/firefighter LoD fatality in Clarksville in 2018	Comment was not incorporated - the LoD fatality is still under investigation
2	Page 99: Should update risk score for flooding based on 2018 data and NOAA/NWS predictions of increased frequency of heavy rainfall events here. Also, the likelihood of a word case earthquake may be significantly overestimated. A score of 1-2 might be more appropriate.	Noted. The HIRA is being updated in 2019.

2	From a natural disaster perspective, the potential impact of severe flooding that leads to a failure of the Rocky Gorge dam (or a cascading event resulting from the failure of the Brighton Dam) on Scaggsville and North Laurel should be at least mentioned, and mitigation should include enhanced plans for mutual aid given that Prince George's County and Anne Arundel County will be dealing with their own catastrophic impacts from such an event. The Centennial Lake, Lake Elkhorn, and Wilde Lake dams might deserve similar consideration. The Liberty Reservoir dam, although not in the County's jurisdiction, needs to at least be monitored during severe events as a failure could result in catastrophic flooding in Ellicott City with very little notice—mitigation could incorporate ties to IPAWS and the planned emergency warning system. Unexpected failures of reservoir containment have led to significant issues downstream in other jurisdictions; since these can be triggered by areal flooding, mitigation measures should therefore be considered in this plan. Prior risk assessments of dams themselves have not always been predictive.	Dam failure is a man-made hazard and doesn't fall under the Natural Hazards Mitigation Plan. Is addressed in the Hazard Identification and Risk Assessment, and will be covered under the Man-Made Hazard Mitigation Plan that will be developed in 2019
2	I didn't see a mention that some natural disasters can cascade into issues with hazardous materials. An inventory of significant hazmat sites and preplanning for hazmat issues in the face of natural disasters should be incorporated into mitigation planning. We may not have the level of issue that the Gulf Coast experienced this summer, but it needs to be considered.	Hazardous Materials Release/Spill is a man-made hazard and doesn't fall under the Natural Hazards Mitigation Plan. Is addressed in the Hazard Identification and Risk Assessment, and will be covered under the Man-Made Hazard Mitigation Plan that will be developed in 2019. Responding to Haz Mat hazards is covered in our Emergency Operations Plan
2	A mitigation action that should be considered beyond ReadyHoCo Outreach is the prior establishment of a force of vetted volunteers (Volunteers in Public Service or similar program) who can provide a basic level of support in areas such as first aid response, traffic management, collection delivery of donated relief supplies, coordination of debris removal, supplementary communications, and other needs in order to reduce the strain on the County's resources. The past two flash floods in Ellicott City have seen effective and well-intentioned groups arising spontaneously, but preplanned coordination with County resources would make them even more effective.	Agreed that Volunteer & Donations Management is important. This is currently a part of our Emergency Operations Plan and our Recovery Plan. We do not view volunteer management to be a mitigation function, instead we view it as a response/recovery function and have addressed it in those plans.