

# METRO NASHVILLE-DAVIDSON COUNTY MULTI-HAZARD MITIGATION PLANNING COMMITTEE

**Annual Review Meeting**  
Wednesday, October 24th, 2018  
9:30 A.M.-11:00 A.M.

Nashville Emergency Operations Center,  
2060 15th Ave South, Nashville, TN

## Agenda

9:30 am	Welcome/Introductions	OEM/Heidi Mariscal
	General Discussion	
	5 Year Revision Discussion (2019-20)	
	CRS Requirements Discussion	
	Real Events Discussion/lessons learned	
	Mitigation Strategy/Goals/Action Plan Review and Updates	
	Open Floor	
	Next Review Date	
11:00 am	Adjourn	

*A conference line will be made available for a limited number of callers.  
Conference call is not ideal for this meeting, but is available if necessary.*

**POC:** Heidi Mariscal  
Nashville Office of Emergency Management  
615-862-8530  
[Heidi.Mariscal@nashville.gov](mailto:Heidi.Mariscal@nashville.gov)

## Annual Hazard Mitigation Planning Committee Plan Review 10/24/18

### Community Planning Team (CPT) Members

Baker, Joe (Berry Hill);  
Baxter, Jack (NES);  
Becknal, Mark (Goodlettsville);  
Bradley, Mike (USGS);  
Briggs, Michael (Planning);  
Campsey, Tommy (Oak Hill);  
Clawson, Jeff (Oak Hill);  
Coleman, Tim (Berry Hill);  
Duncan, Jeff (Goodlettsville);  
Duncan, Jeff (WS);  
Eads, Tim (Belle Meade);  
Ellis, Tim (Goodlettsville);  
Goodwin, Gary (Goodlettsville PD);  
Heilwagen, Brad (AMEC);  
Higgs, Jennifer (Planning);  
Hill, Wade (Codes);  
Hunt Sr, James (Belle Meade);  
Hunt, Michael (WS);  
Jackson, Renee (WS);  
Kitchens, David (TEMA);  
Kuoppamaki, Anna (WS);  
LaRosa, James (NWS);  
Lewis, Stephen (MNPd);  
Lindsey, Roger (WS);  
Majors, Rachel (Health);  
Mariscal, Heidi (OEM);  
Palko, Tom (WS);  
Pickett, Matthew (WS);  
Poplewell, Cindy (Wood);  
Reardon, Beth (Belle Meade);  
Reeves, Kenneth (Goodlettsville);  
Rhinehart, Amanda (Forest Hills);  
Robinson, William (Public Works);  
Swift, Ricky (WS);  
Thomas, Al (NFD);  
Young, Tim (Public Works);  
Zurawski, Ronald (TGS);

Annual Plan Review Meeting Minutes

CPT MEMBERS IN ATTENDANCE

Baker, Joe (Berry Hill)	Lindsey, Roger (MWS)
Becknal, Mark (Goodlettsville Fire)	Mariscal, Heidi (OEM)
Coleman, Tim (Berry Hill PD)	Palko, Tom (MWS)
Higgs, Jennifer (Metro Planning)	Popplewell, Cindy (Wood)
Hunt, Michael (MWS)	Rhinehart, Amanda (Forest Hills)
LaRosa, James (NWS)	Robinson, William (Public Works)
Lewis, Steve (MNPD)	Zurawski, Ronald (TDEC)

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- Heidi started the meeting at 9:45am. Heidi explained that this is our annual review of the Nashville/Davidson County Multi-Hazard Mitigation Plan.
  - Heidi discussed the 5 Year Revision due soon.
    - Meetings will start in early 2019
    - Due to FEMA no later than November 1, 2019
    - No date yet on when due to TEMA (normally a month prior to FEMA date)
    - Would like to invite some of our Higher Education facilities to participate as Community Planning Team members for this next revision.
    - Suggestions for new members:
      - Remove M. Briggs from Planning and add G. Claxton (verified via email)
      - Add A. Havard from the Mayor's Office of Resilience

➤ Lessons Learned the past year:

*From October 14<sup>th</sup>-16<sup>th</sup> 2018, Davidson County received close to 5" of rain in the middle/upper portions of the county which caused some localized flooding. Whites Creek was close to overtopping West Hamilton Avenue and the City of Goodlettsville was physically closely monitoring the Dry Creek weir due to flooding concerns. The National Weather Service had issued Flood Advisories for Davidson County and surrounding areas at 8am on the 15<sup>th</sup> and again at 10am.*

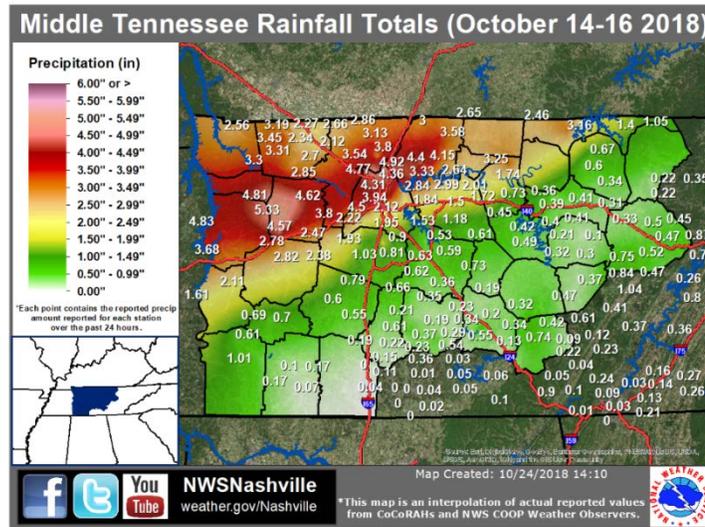
- Stream gage on Dry Creek near Edenwold was near normal stage of 5.21' at 3am but topped to 9.62' at 8:30am and started rescinding at 8:45am. (Action stage is 9')
- Goodlettsville kept a great eye on the Dry Creek weir and kept everyone in the loop. The water crested 1.5' below the top of the weir. Goodlettsville started notifying neighbors when it was within 2' of overtopping.



Dry Creek Weir, Goodlettsville  
10/15/18  
Photo Credit: Tim Ellis,  
Goodlettsville City Manager

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- Stream gage on Whites Creek near Bordeaux was near normal stage of 4.44' at 3am but topped to 16.03' at 10:15am and was back below action stage by 11:45am. (Action stage is 13')
  
- Whites Creek was close to 3' from overtopping West Hamilton Avenue between Tucker and Buena Vista. OEM sent their OIC to check on the status of the creek and by that time it appeared to have come up the yards on West Hamilton Avenue but had already crested and started to go back down into its bank. Four remaining houses on the creek side of West Hamilton are currently under contract for buyout by Metro Stormwater.



- CRS (Community Rating System) requirements were briefly discussed:
  - The CRS goes above and beyond flood mitigation with the flood program, and Davidson County is currently a Class 8, so this gives our residents an additional 10% break on their flood insurance.
  - Some of the CRS requirements include an annual report. This report will be typed up following this meeting

➤ Mitigation Strategy Action Item Status Updates:

**1-1:** On-going.

For FY18: Total Capital Projects: \$10,873,172.51; Class "C" Projects: \$3,077,104.84; Metro Water Grate Replacement: \$350,000; Tree Surround Grate Replacement: \$6,000; USIC Locating Services: \$156,360; Metro Center Levee Grass Maintenance: \$96,306.88; Total Street Sweeping: \$955,460; Grand Total of all Stormwater Projects FY18: 15,514,404.23

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For FY17: Total Capital Projects: \$1,295,470.55; Class "C" Projects: \$1,113,779.54; Metro Water Grate Replacement: \$450,000; Metro Center Levee Grass Maintenance: \$45,945.50; Total Street Sweeping: \$929,762.52; Grand Total of all Stormwater Projects: \$3,834,958.11

For FY16: Total Capital Projects: \$10,903,784.59; Class "C" Projects: \$710,881.16; Metro Water Grate Replacement: \$477,260.40; Total Street Sweeping: \$707,749.97; Grand Total of all Stormwater Projects: \$12,799,676.12

For FY15: Total Capital Projects: 16,560,022.55 + Murfreesboro Pike Stormwater Improvement: \$1,000,000; Class "C" Projects: \$741,774; Metro Water Grate Replacement: \$300,000; Emergency Pipe Cleaning: \$29,800; Total Street Sweeping: \$786,254.47; Grand Total of all Stormwater Projects: \$19,417,851.02

For FY14: Total Capital Projects: \$3,857,349.68; Class "C" Projects: \$837,869.23; Total Street Sweeping: \$818,638.08; Grand Total of all Stormwater Projects: \$5,513,856.99 (MWS)

- 1-2:** Metro Water has begun the process to revise and update the current Stormwater Management Manuals Volume 1 (Regulations) and Volume 5 (LID Manual). Volume 1, Chapter 5 - Floodplain Requirements will be included in this update process and address critical facilities. MWS states that this needs to be more coordinated with Codes. (MWS)
- 1-3:** On-going. With the ongoing development and implementation of Nashville's Situational Awareness of Flood Events (SAFE) and Nashville Emergency Response Viewing Engine (NERVE) programs, the CPT is in the process of reviewing an individual plan including these programs. Once the individual plan is created, the CPT will pursue formal community adoption by Metro Council. (OEM/MWS)
- 1-4:** Working to complete the last few stream studies to eliminate the remaining un-numbered "A" zones in Davidson County. (MWS)
- 1-5:** On-going. Metro Water Services recently submitted applications to FEMA for home buyout projects through the federal grant programs. These projects focus on repetitive loss properties as identified by FEMA.  
  
MWS has also partnered with the US Army Corps of Engineers (COE) on a home buyout project in Mill Creek. Offers will be made to the first homeowners in this project by the end of this calendar year. Other projects have been identified by the COE in Sevenmile Creek, Richland Creek, Whites Creek, and Browns Creek.  
  
MWS is working to complete a \$5M home buyout project funded 100% by MWS funds. (MWS)
- 1-6:** OEM and all assigned Emergency Service Coordinators are still utilizing the free program LEEP within the FBI. (OEM)  
  
Metro Water recently paid for the cameras to have night vision added to the river cameras. OEM will investigate the current river cameras remaining life span and potentially investigate the need to replace. (MWS/OEM)  
  
OEM suggests revisiting this action to either close due to the current systems in place, and/or revise/add a new action item for more general hardware and software purchases for improving/maintaining situational awareness. (OEM)

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- 1-7:** M. Hunt stated this has moved into the implementation phase. For FY17, estimated 204 detention pond inspections and in FY18 estimated 841. (It is estimated that 70% of Stormwater Control Measures/SCM inspections were detention ponds) (MWS)
- 1-8:** No change. (MWS/Planning)
- 1-9:** MWS is investigating more formalized training. (MWS)
- 1-10:** address later. (MWS/OEM)
- 1-11:** On-going. Personnel turnover, MWS is training new personnel. This training will be addressed at an annual conference in 2019. (MWS)
- 1-12:** MWS does not currently have the study from the COE on Dry Creek, but will obtain one and review and advise. (MWS)
- 1-13:** On-going. Belmont was looking at possibly putting in outdoor early warning sirens, no update on that discussion. Planning did a study on possible siren locations and they could possibly include some higher education locations.
- 1-14:** The potential COE project for Browns Creek has identified 6 homes within the city limits of Oak Hill. The funding for this project once approved will be 65% COE and 35% Local. MWS will coordinate with the City of Oak Hill to discuss this potential project. No homes have been identified in either Berry Hill or Forest Hills. (MWS)
- 1-15:** M. Hunt stated the leak protection program has increased. MWS has a multi-year contract in place for water distribution leak detection (WSO) that runs through March 2020. The contractor evaluates all of MWS' water distribution system each year via pipeline "listening technology" to identify subsurface system leaks. (MWS)
- 1-16:** On-going. There are already specifications on elevating to flood specifications (M. hunt) (MWS)
- 1-17:** (completed - close out at next revision)
- 1-18:** The projects on 8 buildings are almost entirely complete, and should be entirely done by the middle of 2019. (MWS)
- 2-1:** Team agrees to wait for full revision to evaluate HIRA. It was discussed to get the PIO's together from certain departments to agree on quarterly public outreach to do together. Cindy P. will work with us on making sure the CRS requirements are included in this discussion and outreach plan. Will make sure that this plan includes the satellite cities with templates and plan on when to discuss what for their newsletters etc. (MWS)
- 2-2:** on-going; Silver Jackets developed this training, now it just needs to be implemented by the State NFIP Coordinator. (MWS)
- 2-3:** On-going. The annual mailing to the homes in the floodplain was sent to over 12,000 property owners last year. That mailing did not include properties in the satellite cities. MWS will work with the satellite cities with the intent to include their residents in the next mailing. (MWS)
- 2-4:** (completed - close out at next revision)
- 3-1:** no changes at this time
- 3-2:** no changes; review feasibility at next revision.
- 3-3:** no changes; review feasibility at next revision.
- 3-4:** no changes; Murfreesboro Rd/Vultee project is about 75% done.
- 3-5:** Submitting applications by the end of this month for other projects. (MWS)

## **Annual Hazard Mitigation Planning Committee Plan Review 10/24/18**

- Other changes requested to be included in next revision:
  1. Make sure earthquake maps are updated, changes every year.
  
- Next Review Date: Next meeting will be the kick off meeting for the full revision. (To be determined.)
  
- Meeting adjourned at 10:55am.

**ACTION PLAN**

The Action Plan presents the prioritized recommendations for Metro to pursue in order to lessen the vulnerability of people, property, infrastructure, and natural and cultural resources to future disaster losses. The recommendations are presented in order of priority to the community both in terms of need and effectiveness. The recommendations are also listed under the corresponding developed goal. Each recommendation includes a cost estimate and community benefit to meet the regulatory requirements of DMA. Action items that have already been completed or that were not recommended are included at the end of this section.

Below is a summary of all the action items and the responsible agencies. Detailed information for each action item is following in this section.

Table 5-1: Mitigation Action Plan Summary

Action #	NASHVILLE/DAVIDSON COUNTY HAZARD MITIGATION ACTION PLANS SUMMARY	Responsible Agency
1-1	Based upon the priority list, the action plan recommends that Metro initiate design and construction of high priority capital improvement projects.	MWS
1-2	The CPT recommends that ordinance language to provide added protection for critical facilities and prohibit hazardous materials and public health hazards from the floodplain is drafted, circulated for review and adopted.	MWS, Planning, Codes
1-3	The Nashville Office of Emergency Management (OEM) should review the costs and benefits of preparing a detailed flood response plan that identifies specific actions to take at different flood level predictions.	OEM
1-4	The studies underway in the approximate A Zones should be completed and adopted into Metro's floodplain regulations. The studies should then be submitted to FEMA with a request to revise the FIRM.	MWS
1-5	Develop a property acquisition plan and associated policies to acquire properties in the repetitive loss areas.	MWS
1-6	Fund, acquire, and install appropriate hardware and software.	OEM
1-7	The MWS Stormwater Division should review the costs and benefits of formalizing Metro's inspection and maintenance program to include detention facilities as well as streams and ditches.	MWS
1-8	It is recommended that the definition of a critical lot be expanded to include specific geological details and defined subjectively during plat review and that the critical lot concept be used in review of other developments.	MWS, Planning, Codes
1-9	MWS Drainage Maintenance staff should make site visits in response to complaints or inquiries from property owners. Staff should be trained in retrofitting techniques and be comfortable providing retrofitting guidance during site visits.	MWS
1-10	The severe weather hazards of drought and wildfire, extreme temperatures, thunderstorms and high winds, tornadoes; and winter storms are recommended to be included in a multi-hazard, seasonal Public Awareness Program. (see Goal #2)	
1-11	It is recommended that Metro personnel participate in training in the use of the RSDE program.	MWS
1-12	The CPT recommends assisting the City of Goodlettsville with the FEMA repetitive loss buyout program and associated flood mitigation initiatives.	MWS, OEM



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### 2015 Approved Original Action Plan

1-13	The CPT recommends assisting local colleges and universities in obtaining outdoor early warning sirens through grant funding and connecting them to the city's existing early warning siren systems.	OEM
1-14	The satellite city of Oak Hill (located within Davidson County, TN) is aware of certain areas in their jurisdiction that have historically experienced flooding during significant rain events. In an effort to address these and any other such issues that may exist, Oak Hill has initiated a 3 Phase Drainage Study/Correction Plan (see below). It is recommended to include this project from The City of Oak Hill in this Multi-Hazard Mitigation Plan as it mirrors actions with Metro Water Services, and applies to the over goal.	City of Oak Hill
1-15	Based upon the priority list, the action plan recommends that Metro initiate design and construction of high priority capital improvement projects	MWS
1-16	The Clean Water Nashville Overflow Abatement Program (CWNOAP) Design Management Manual (Section 2.6.1) stipulates that all plan projects abide by the following flood elevation considerations.	MWS
1-17	NES has planned the construction of a joint Training and Operation Center in the northern part of the service territory to be located on Myatt Drive.	NES
1-18	In restoring MWS' water and sewer facilities from 2010 Flood impacts, site-specific flood risk mitigation was employed as possible/feasible in bringing facilities back on line. Further, it has been MWS's practice since the May 2010 flood to incorporate flood mitigation into capital projects planned for the facilities that were impacted by the flood. Since the flood, the designs were modified to elevate the facilities above the flood of record to minimize the potential impacts of future floods.	MWS
2-1	Develop and conduct a multi-hazard, seasonal Public Awareness Program that provides citizens and businesses with accurate information describing the risk and vulnerability to natural hazards, and is implemented on an annual basis.	OEM, MWS
2-2	Metro Water Services should request the state NFIP Coordinator to conduct Agent and Lender Workshops in support of the community's overall NFIP program efforts.	MWS
2-3	MWS currently sends an annual mailing to the approximate 10,000 properties located within the 100-year floodplain. It is recommended that MWS Stormwater Division continue the mailing and that the mailing be modified to include other natural hazards of concern that have been identified through the hazard mitigation planning process.	MWS
2-4	Discussions should be held with Metro website staff on the best way to post Elevation Certificate data on the website and procedures to maintain the data.	MWS
3-1	The Nashville Office of Emergency Management (OEM), with help from the MWS Stormwater Division's engineers, should review the costs and benefits of developing flood crest prediction programs for other streams with reporting gauges.	MWS, OEM
3-2	Metro officials should talk to their state legislators and Tennessee Department of Environment and Conservation staff about the feasibility of amending the State's dam safety laws.	MWS, OEM
3-3	Metro's Stormwater Division should pursue a Cooperating Technical Partner agreement with FEMA in order to get its mapping standards to better fit local conditions or make the community a higher priority for mapping support.	MWS
3-4	Develop a financial strategy to design and construct large capital improvement projects. The strategy shall incorporate a cost-sharing plan to leverage local, state, and federal funding for stormwater management activities and projects.	MWS
3-5	The CPT recommends applying annually for potentially available HMGP and FMA grants.	MWS, OEM

