Floodplain Management Plan 2020 Update
Meeting No. 5 – Draft Action Plan

Michael Fulton – Director, FCDMC
Tim Murphy, PE, CFM – Project Management Branch Manager, FCDMC
Mark Fountain, PE, CFM – Black & Veatch
January 16, 2020
Safety Moment – Stretching at the Workstation

- It is recommended that you take a micro break (stand up and/or stretch) for each hour spent at a workstation.
- Vary the work tasks. Break up keyboarding tasks work by doing other job duties or tasks that involve moving around or changing body position. Try to stand up and move around.
- Look away from the screen occasionally and focus your eyes on an object far away.
- Take regular rest breaks to ease muscle aches, eyestrain and stress.
- Relax your muscles, stretch, and change position.
Agenda

• Introduction
• Review of Online FMP Survey Results
• Review of FMP Mtg #1 - #4
• - Break
• Action Items by Category
• Prioritize Recommended Action Items
• Implementation Responsibility
• Next Steps
Introduction

• Opening Comments
  • Kelli Sertich & Sharon McGuire Retired December 2019
  • Michael Fulton & Tim Murphy joining FMP Update

• Around the Room
  • FMP Committee Alternates
  • Other Participants / Guests

• Presentations
  • Kevin LaVallee – GIS Supervisor Flood Control/MCDOT
GIS at Flood Control

by Kevin LaVallee / GIS Supervisor – Services Branch

1/16/20
What is GIS?

• Geographic Information Systems
  o Simplest answer, Cartography – map making
  o All components or elements seen on a map are stored separately in a database with Geographic location.
  o Every element can have as much information stored with it as needed.
  o Once data is been created there are endless possibilities to how it can be displayed and analyzed.
  o Example: There are over 1.6 million parcels in Maricopa County, but I want to know how many intersect the delineated floodplains.
  o Answer: 57,759 Note: This is all types, residential, commercial and vacant.
FIRM panels at the beginning.
Early issues
As time goes by.
• Early 2000s
• Noticing many areas that have errors and the only way to correct them is with a LOMR (letter of map revision).
• Flood Control approaches FEMA asking if we could create the desired new DFIRMs in house using our GIS department.
• Taking for granted that we had most of the studies used for the delineations and had been acquiring orthorectified aerials since 2001.
• 2 years later and a lot of work later....
2005 DFIRMs for Maricopa County
Arcmap
Regulatory initial inquiry
Final build
Flood Control GIS database
Floodplain Viewer
Historical Aerials Application
Web Applications

• GIS main page
  o https://www.maricopa.gov/3942/GIS-Mapping-Applications

• Flood Control Specific
  o https://gis.maricopa.gov/FCD/FloodplainViewer/

• Historical Aerials
  o https://gis.maricopa.gov/GIO/HistoricalAerial/index.html
• Contact information:
  o Kevin.LaVallee@Maricopa.gov
  o 602-506-2954

Questions?
Overview of Feedback:
• 59 Surveys Completed
• Collected from 10/24/19 – 12/6/2019*

Flooding Hazards / Drainage Problems Theme:
• Impassible Roads & Street Closures
• Overwhelming Drainage
• Adverse Development Impacts
Q2 How do you receive information about flooding? Check all that apply

- Radio Station
- Television/News Station
- Social Media
- Website or Online Sources
- FCDMC Mobile Tools
- Other (please specify)

Ex: Facebook / Instagram / Next Door App
Q3 Have you used the District’s Mobile Tools (Alert.fcd.maricopa.gov) to track storms/flooding?

Answered: 57    Skipped: 2

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>15.79%</td>
</tr>
<tr>
<td>No</td>
<td>15.79%</td>
</tr>
<tr>
<td>Not aware of the tools</td>
<td>68.42%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>

Missed Opportunity!!!
Q4 Have you used the Floodplain Viewer on the District’s website to check if your home is in a FEMA designated floodplain?

Answered: 58  Skipped: 1

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>37.93%</td>
</tr>
<tr>
<td>No</td>
<td>15.52%</td>
</tr>
<tr>
<td>Not aware of Floodplain</td>
<td>46.55%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>

Missed Opportunity!!!
Q5 Check all that apply

Positive Indicators:
- Damage to your structure
- Purchased flood insurance
- Improved your property

Missed Opportunity!!!
- Live in a FEMA delineated floodplain
- Experienced flooding in your home

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Damage to your structure</td>
<td>17.39%</td>
</tr>
<tr>
<td>Purchased flood insurance for structures</td>
<td>30.43%</td>
</tr>
<tr>
<td>Improved your property to prevent flooding</td>
<td>43.48%</td>
</tr>
<tr>
<td>Live in a FEMA delineated floodplain</td>
<td>8.70%</td>
</tr>
<tr>
<td>Experienced flooding in your home (photos can be uploaded to Report-a-Flood)</td>
<td>17.39%</td>
</tr>
<tr>
<td>Total Respondents: 23</td>
<td></td>
</tr>
</tbody>
</table>
Q6 Have you ever been stranded trying to leave or return from home due to flooding?

Answered: 57    Skipped: 2

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>31.58%</td>
</tr>
<tr>
<td>No</td>
<td>68.42%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>57</td>
</tr>
</tbody>
</table>
Q7 Have emergency services in your area been delayed due to flooding?

Answered: 53  
Skipped: 6

**Transportation Routes / ES Dispatch Locations**

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>22.64%</td>
</tr>
<tr>
<td>No</td>
<td>77.36%</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
</tr>
</tbody>
</table>
Q8 Is there anything else you would like us to know to help shape the Floodplain Management Plan?

<table>
<thead>
<tr>
<th>#</th>
<th>RESPONSES</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Get North Valley Parkway a damn bridge already!!</td>
<td>12/2/2019 3:45 PM</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td>12/2/2019 12:48 PM</td>
</tr>
<tr>
<td>3</td>
<td>There are so many new communities north of Norterra. We need the roads and infrastructure to support that and having a big flood plane right in our path is not only a hassle but a danger to the residents</td>
<td>12/2/2019 12:47 PM</td>
</tr>
<tr>
<td>4</td>
<td>fix north valley parkway north of dixilletal by city of phoenix waste transfer plant Horrible for us 85065 residents</td>
<td>12/2/2019 5:00 AM</td>
</tr>
<tr>
<td>5</td>
<td>Although I haven't been stranded by flooding, one time I had to drive approximately 40 additional miles to get around flooding on McDowell Mountain Road between Fountain Hills and Rio Verde, north of the park entrance.</td>
<td>11/4/2019 11:57 PM</td>
</tr>
<tr>
<td>6</td>
<td>there needs to be more funding for small improvement projects and also policy about cleaning of storm drains during monsoon season.</td>
<td>11/2/2019 9:50 PM</td>
</tr>
<tr>
<td>7</td>
<td>With all the large developments going in it seems the way the washes run is being altered. Individual home owners have no influence compared to big developers with deep pockets.</td>
<td>11/2/2019 4:27 AM</td>
</tr>
<tr>
<td>8</td>
<td>When we moved in to our house in 2010, it was not in the flood plain. Then the flood plain changed &amp; we are forced to buy insurance, which doubled our premium. Our house was built in 1999 &amp; has never flooded.</td>
<td>10/31/2019 11:58 PM</td>
</tr>
<tr>
<td>9</td>
<td>Can any thing be done to improve problem?</td>
<td>10/31/2019 9:01 PM</td>
</tr>
<tr>
<td>10</td>
<td>FEMA requires me to pay for flood insurance in the event of a 100 year flood. A total rip-off. My yard couldn't flood as it is on a pretty steep plain.</td>
<td>10/31/2019 7:23 PM</td>
</tr>
<tr>
<td>11</td>
<td>Not at this time.</td>
<td>10/31/2019 1:49 AM</td>
</tr>
<tr>
<td>12</td>
<td>With new home developers in the Laveen area please make them and buyers aware of potential flooding areas</td>
<td>10/31/2019 1:01 AM</td>
</tr>
<tr>
<td>13</td>
<td>please remove washes draining onto roadways. thank you.</td>
<td>10/30/2019 9:46 PM</td>
</tr>
<tr>
<td>14</td>
<td>When the floodplain map is suddenly updated to include a property that was not previously on the floodplain map 1) the property owner would appreciate notice and 2) the property owner would like some assistance in securing an elevation map...</td>
<td>10/25/2019 8:39 PM</td>
</tr>
<tr>
<td>15</td>
<td>Coordinate with the City of Phoenix PRIOR to new development being built. Huge gap between FCD and COP Planning.</td>
<td>10/24/2019 10:19 PM</td>
</tr>
<tr>
<td>16</td>
<td>development seems to change the character of flooding events so it is hard to avoid minor damage.</td>
<td>10/24/2019 9:10 PM</td>
</tr>
</tbody>
</table>
Break – 10 Minutes
Meeting 1

- Review of Featured District Programs
  - Hazard Identification Studies and Plans, Programs/Projects – Don Rerick
  - Operations and Maintenance – Charlie Klenner
  - Permitting and Delineations – Kathy Regester
  - Engineering Division Program Highlights – Scott Vogel
  - ALERT and Flood Response Plans – Steve Waters
- Review of Hazard in 2015 Plan
  - 21 total identified hazards within four categories – structural, regulatory, natural, and human-caused
- Status of 2015 Plan Goals & Action Plan
Meeting 2 – Identify Hazards

• Review of Featured District Programs
  • District Budget – Karen Scott
  • Communications and Public Outreach – Lisa Blyler
• Group breakout to define “flood threat” and identify flood hazards
  • Each group provided information as to what they feel a “flood threat” is.
  • Flood hazards were identified as part of the group breakout for each FMP watershed.
  • District Project Managers came in to answer particular questions about the watersheds being evaluated for flood hazards.
• Flood hazards included, but not limited to: alluvial fans, wildcat development, unmaintained drainage facilities, transportation corridors (loss of crossings/washout), invasive species of vegetation, amongst other group inputs.
Review of FMP Committee Meetings

**Meeting 3 – Set Goals**

- Review of Maricopa County Department of Emergency Management (MCDEM)
  - Jesus Haro provided background into (MCDEM)
- Review of definitions provided for “flood threat”
  - Group discussion on the different definitions from each group. The FMP team took the comments to provide a concise definition in FMP Meeting #4.
- Finalized the Flood Hazards identified by each group
  - Allowed groups to revisit the list they previously provided to include new flood hazards not thought of previously or remove ones they did not agree with anymore.
- Brainstorm FMP 2020 Goals
  - Review of the 6 main goals within the 2015 FMP
  - Group breakout to provide new goals for the 2020 FMP Update
Review of FMP Committee Meetings

Meeting 4 – Review Possible Activities

• Maricopa County Parks and Recreation Department
  • Ken Vonderscher provided a review of how the Parks and Recreation Department interacts with the District

• Central Arizona Conservation Alliance (CAZCA)
  • Dr. Aireona Raschke provided information about multi-use potential for floodplains and tools that CAZCA has for future land use planning
Flood Threat Definition – FMP 2020

Potential risk to life, property, environment, economy, structures, or infrastructure anticipated from a flood event which causes interruptions to a normal operating condition or way of life.

Source: FCDMC Report-a-Flood (Heritage Park)
Meeting 4

• 2020 FMP Final Goals
  • REVISED Goal 1: The District will work with transportation agencies and the communities to address public concerns on transportation routes that result in interruptions to normal operating conditions, delays of emergency services, negatively impact the economy, or pose safety risks due to flooding.

  • REVISED Goal 2: The District shall work in partnership with stakeholders to evaluate its various programs, fiscal opportunities, and funding processes to assure funds continue to be invested back into the communities.
Review of FMP Committee Meetings

Meeting 4

• 2020 FMP Final Goals
  
  • REVISED Goal 3: The District shall work with stakeholders and local organizations on consistent county-wide technical and educational materials for flood preparedness with materials available in physical locations as well as electronically.

  • REVISED Goal 4: The District shall continue pursuing nature-based solutions for flood mitigation, working with stakeholders, to identify and acquire open space in conjunction with flood control projects.

  • REVISED Goal 5 – The District shall continue to perform duties as the regional leader in floodplain management. District shall provide and communicate information, guidelines, and regulations to agencies and communities throughout Maricopa County and to adjacent Counties.
Meeting 4 – Review Possible Activities

• **Goal 1** – The District will work with transportation agencies and the communities to address public concerns on transportation routes that result in interruptions to normal operating conditions, delays of emergency services, negatively impact the economy, or pose safety risks due to flooding.

  - Identify and categorize locations of risks and concern
  - Develop a matrix of prioritization
  - Design and funding options
  - Establish triggers or warnings for areas to avoid
  - Additional cost sharing partnerships
  - Partnership with emergency services
  - Coordination with transportation agencies for crossing risks
Meeting 4 – Review Possible Activities

- **Goal 2** – The District shall work in partnership with stakeholders to evaluate its various programs, fiscal opportunities, and funding processes to assure funds continue to be invested back into the communities.
  - Regular review cycle for funding status and community evaluation
  - FCDMC to communicate availability of Federal funding
  - Funding based communication to the community
  - Develop definition of process
Meeting 4 – Review Possible Activities

**Goal 3** – The District shall work with stakeholders and local organizations on consistent county-wide technical and educational materials for flood preparedness with materials available in physical locations as well as electronically.

- Identifying additional physical locations for documents
- Combine technical resource materials with emergency service information
- Utilities and points of contact for emergency response
- Outreach to HOA’s for flood preparedness and wash management
- Characterization of acceptable vegetation within wash corridors
- How to maintain drainage infrastructure after it is built
- Illustrative literature and “how to” maintenance videos
- Home and garden show booth to present and educate
- Support check dams and water retention for recharge
- Distribution of Green Infrastructure and Low Impact Development literature
- Communicate / educate on adverse impacts of walls
- Citizen rain gage program
Meeting 4 – Review Possible Activities

• **Goal 4** – The District shall continue pursuing nature based solutions for flood mitigation, working with stakeholders, to identify and acquire open space in conjunction with flood control projects.

  - Coordination and cooperation with Communities and Stakeholders
  - Prioritization for areas poised for risk
  - Prioritize locations where floodplain delineations and re-delineations are needed
  - Additional identification of flood risks
  - Best practice for locations where recharge locations are best suited
  - Connectivity of open space
Meeting 4 – Review Possible Activities

- **Goal 5** – The District shall continue to perform duties as the regional leader in floodplain management. District shall provide and communicate information, guidelines, and regulations to agencies and communities throughout Maricopa County and to adjacent Counties
  - Annual meeting and communication of changes in regulations and policies
  - Review current information and guidelines available
  - Define a review cycle for literature
  - Identify regulatory authority
  - Incorporate agency best practices
  - Permitting enforcement and regulation
  - Changes of Section 404 and protection of open space
Recommend Action Items by Category

- Preventative
- Property Protection
- Natural Resource Protection
- Emergency Services
- Structural Projects
- Public Information
<table>
<thead>
<tr>
<th>ID</th>
<th>Action</th>
<th>2020 FMP Goals</th>
<th>Action Item Categories</th>
<th>Responsible Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Identify and categorize all those risks and concerns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Develop a matrix of prioritization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Design and funding agencies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Establish a system for interest in assessment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Add additional cost sharing partnerships</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Partnership with emergency services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Coordination with transportation agencies to assess risks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Regular review cycle for identifying risk and community awareness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>EODRC to communicate availability of Federal funding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Hosting based opportunities to the community</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Developing definition of process and evaluation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Skills for fiscal guidance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Strengthening additional physical locations for documents</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Combine technical/assembly materials with emergency service information</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Elimination of points of interest for emergency service</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Outreach to MCP for flood-protection and waste management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Characterization of acceptable vegetation within event conditions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>How to maintain drainage infrastructure after it is built</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Illustrative literature and &quot;how to&quot; maintenance solutions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Clean and green site health to prevent and reduce</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Support check dams and water retention for recharge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Distribution of some infrastructure and long-term development literature</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Communicate/adhere on adverse impacts of walls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Follow-up program</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Coordination and integration with Communities and stakeholders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Prioritization for areas with the highest priorities and risks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Prioritization for areas with the highest priorities and re-priorities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Additional identification of flood risks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Best practice for locations where severe impacts are best suited</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Connect with green space</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Annual review and communication of changes in regulations and policies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Park's current information and guidelines are available</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Define a review cycle for literature</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Identify regulatory authority</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Incorporate agency best practices</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Next Steps

• **Draft Floodplain Management Plan Update**
  • Mid February 2020

• **Committee and Public Review of Draft FMP**

• **Public Meeting No.2**
  • Thursday – February 13, 2020

• **Update Completion Process**
  • FCAB – March/April 2020
  • Board of Directors / Supervisors – June 2020