CITY COUNCIL REPORT

DATE: March 15, 2016

TO: Mayor and Council Members

FROM: Tamara Lawless, Sustainability Specialist

THROUGH: Nicole Woodman, Sustainability Manager

CC: Josh Copley, Barbara Goodrich, Shane Dille, and Leadership Team

SUBJECT: Departmental Resiliency Workshop Update 2015

The purpose of this City Council Report is to provide an overview of the departmental resiliency workshops that were completed in 2015.

BACKGROUND:

The Sustainability Section has been coordinating resiliency and preparedness workshops for City of Flagstaff departments, divisions, and sections since the passage of the resiliency and preparedness Resolution in 2012. These workshops begin with the consideration of several catastrophic climate events. Staff members are then asked to consider the potential effects the event would have on their operations during and after the crisis. Participants then come up with short and long term action items to mitigate these negative outcomes.

During 2015, workshops were performed for the Utilities Division and for the Airport Division. The attached document provides an overview of the outcomes of these workshops.

ATTACHMENT:

Departmental Resiliency Workshop Summary 2015.

Departmental Resiliency Workshop Summary 2015

City of Flagstaff - Sustainability Section

Summary

The Sustainability Section has been coordinating resiliency and preparedness workshops for City of Flagstaff departments, divisions, and sections since the passage of the resiliency and preparedness Resolution in 2012. These workshops begin with the consideration of several catastrophic climate events. Staff members are then asked to consider the potential effects the event would have on their operations during and after the crisis. Participants then come up with short and long term action items to mitigate these negative outcomes.

During 2015, two workshops were performed for the Utilities Division and for the Airport Division. This document provides an overview of the outcomes of these workshops.

Core Recommendations

The Utilities Division provides critical infrastructure for the Flagstaff community, while the Airport provides a critical service, and improving the long term resilience of both operations is essential.

Several pressing actions that must be taken to ensure the long term resiliency of Utilities operations are the incorporation of Low Impact Development (LID) standards into all planning and engineering processes, and the assurance of power to critical equipment through redundant generators. In the long term, improved communication within the organization and with outside agencies will allow for arranged and established responses to climate-related emergencies. The division is also preparing to package files and outreach messaging together for rapid response.

The Airport Division personnel engage in rigorous training year-round to ensure preparedness for emergency situations, including those related to the changing climate. Though there are some smaller actions that could be taken to improve the resiliency of their operations, their largest vulnerability is staffing. Though their day to day operations are able to be fully covered, in an emergency their staffing levels would be inadequate to cover the required tasks for anything larger than a moderate crisis. Additional personnel would ensure that an emergency, such as a damaged aircraft resulting from an extreme weather event, would be handled without additional risk to the health and safety of staff and civilians.

Utilities Division – May 2015

The Utilities Division resiliency and preparedness workshop began with the consideration of two catastrophic climate events: a large scale fire in the Upper Lake Mary region and an extreme monsoon rain event with significant flooding and infiltration into the stormwater and wastewater systems.

Scenario 1 – Upper Lake Mary Forest Fire

Short Term Impacts

1. Upper Lake Mary wells shut down
2. Lake Mary Water Treatment plant shut down
3. Well fields and equipment damaged or destroyed
4. Lake Mary booster pump damaged or destroyed
5. Implement Water Availability Strategy 2 or 3

Long Term Impacts

1. Watershed damage
2. Upper Lake Mary dredging requirements
3. Implement Water Availability Strategy 2 or 3 while infrastructure is repaired
4. Additional staff to engineer solutions and operate Lake Mary Treatment Plant
5. Plant upgrades to deal with sedimentation

Preventative Measures and Action Items

Action	Staff Time / Funding Required	Priority
Two backup generators to continue operations in case of APS transmission line damage	$1 Million	High
Package GIS files for emergency use	40 hours staff time	High

Compose public messages for emergency use	50 hours staff time $5,000 for outreach materials	High
Establish active fire safety protocols with Utilities staff and fire personnel from COF and Coconino National Forest	40 hours staff time	Medium
Acquire additional Forest Service land for a settling pond at Lake Mary Treatment plant	$1.6 Million (Proposed for FY18)	Low

Scenario 2 – Extreme Monsoon Event

Short Term Impacts

1. Community demand for sandbags
2. Increased emergency response time for affected streets and structures
3. Extreme stormwater surge into water treatment plant
4. Damage to community and utility infrastructure
5. Manhole failures resulting in raw sewage spillage into community

Long Term Impacts

1. Repairs to community and stormwater infrastructure
2. Long-term damage to treatment facility
3. Erosion of vulnerable areas
4. Removal of sediment from streets and other community locations
5. Water quality violations

Preventative Measures and Action Items

Action	Staff Time / Funding Required	Priority
LID methods incorporated into engineering standards	1,040 hours at PM level	High
Files packaged together for emergency utilization	30 hours staff time	High
Communication to residents in problem areas	50 hours staff time $5,000 for outreach materials	High
Preemptive sandbag production and distribution	$5,000 annually	High
Cross training with Streets and Fire for emergency response	20 hours annually	Medium
Increased density of rain gauges	$3,500 annually	Medium
Upgrade to appropriately sized Stormwater infrastructure	$1 Billion	Medium
500 rain gardens	$500,000	Low

Airport Division – October 2015

The Airport Division resiliency and preparedness workshop began with the consideration of three catastrophic climate events: an extreme wind event with power loss, an extreme snowfall event, and a forest fire on the property adjacent the airport.

Scenario 1 – Extreme Wind Event with Power Loss

Short Term Impacts

1. Flight cancellations, including medical helicopter flights
2. Damage to aircraft on runway or parked outside
3. Debris buildup near buildings and structures
4. Inadequate staffing to keep facility operational

Long Term Impacts

1. Insurance claims for damaged aircraft

Preventative Measures and Action Items

Action	Staff Time / Funding Required	Priority
Add three staff to ARFF	$195,000 (annually)	High

Scenario 2 – Extreme Snowfall Event

Short Term Impacts

1. Terminal shut down for commercial flights
2. Flight cancellations, including medical helicopter flights
3. All essential personnel required to keep runways clear
4. Terminal roof requires manual snow removal
5. Employee fatigue – personnel must be ready for fire suppression as soon as flights resume

Long Term Impacts

1. Repairs to infrastructure

Preventative Measures and Action Items

Action	Staff Time / Funding Required	Priority
Fair hiring practices with PW	10 hours staff time annually	High
Emergency food supplies at ARFF	$500 annually	Medium
Preventative maintenance on equipment	200 hours staff time annually	Medium

Scenario 3 – Forest Fire in Airport Vicinity

Short Term Impacts

1. Flight cancellations, medical helicopter refueling challenges
2. Security challenges for responding agencies
3. Management of spot fires on airport property
4. Terminal evacuation

Long Term Impacts

1. Repairs to infrastructure

Preventative Measures and Action Items

Action	Staff Time / Funding Required	Priority
Purchase RIV Fire Apparatus	$160,000	Medium
100 gallons more foam for firefighting ops	$3000 annually	Low