

# Flood Mitigation Updates

December 28, 2021





# Outline



- Background of 2021 flood events
- Mitigation update
- Budget
- Communications
- Discussion





# Background

- First real monsoon season since the Museum Fire
  - Last two summers were record dry leading to a sense of complacency
  - Four large flood events validated the original post-fire hydrology model from 2019
  - The community faces a very real repetitive flood threat downstream of the fire
- A rare 200-year flood on the south side of Mount Elden
  - This extreme event has incised mountain slope channels
  - Flood risk has increased compared to historical risk
  - Known issues (upper and lower Fanning Wash) are now at greater risk



August flooding in Sunnyside downstream of the Museum Fire scar



July flooding in Shadow Mountain downstream of Mount Elden

Event	Incident Period
SD2201 (Event 1)	July 13-16, 2021
SD2202 (Event 2)	July 22-24, 2021
SD2206 (Event 3)	August 17, 2021

Damaged Fanning Wash channel at Bushmaster Park

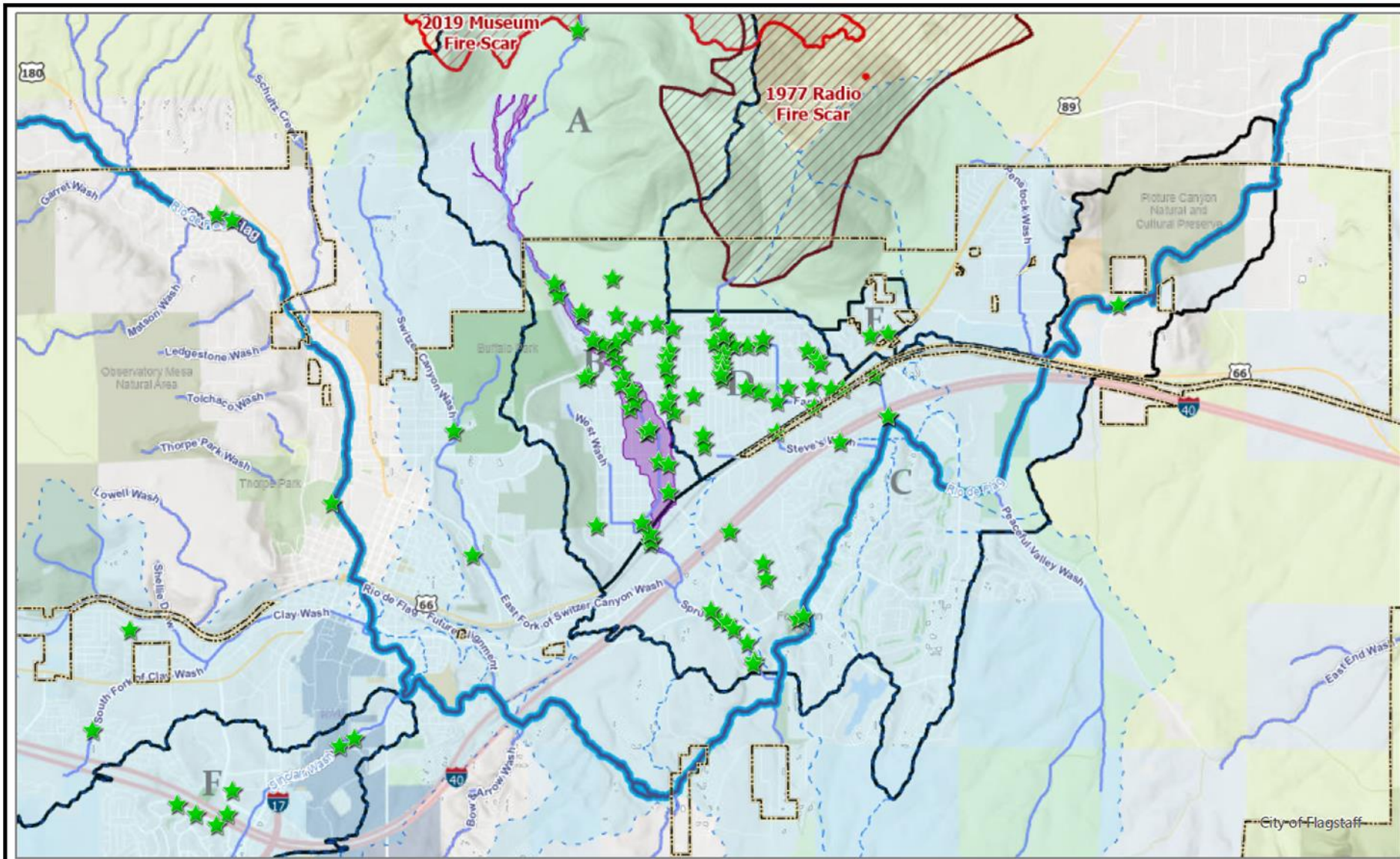




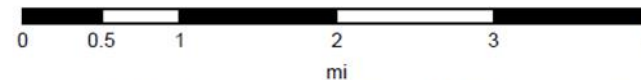
# Impacts are community wide

Green stars symbolize public damages only.

Private damages are not pictured on this map.



## 2021 Monsoon Flood Damage Assessment



City of Flagstaff maps and data are updated on a regular basis from data obtained from various sources. The City of Flagstaff endeavors to provide accurate information, but accuracy is not guaranteed. You are strongly encouraged to obtain any information you need for a business or legal transaction from a surveyor, engineer, title company, or other licensed professional as appropriate. Information is provided subject to the express condition that you knowingly waive any and all claims for damages against the City of Flagstaff relating to use of this information.



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# Mitigation Plan Updates

## Flooding Feasibility Alternative Analysis

- Contracted with Peak Engineering
- Feasibility of mitigation alternatives
- Preliminary design of highest-ranking alternatives
- Weekly Museum Technical Advisory and focus group meetings
- Focused efforts in tandem with projects





# Mitigation Plan Updates

## Drainage Master Planning

- Coordinating with Flood Control District and their consultant (JE Fuller) on drainage master plan and hydrologic model for Spruce Wash (Museum Fire drainage)
- Completed aerial and lidar survey of affected area, data deliverables in January
- Water Services update of stormwater infrastructure GIS for master plan and comprehensive model.





# Mitigation Updates

## USFS Representatives Visit

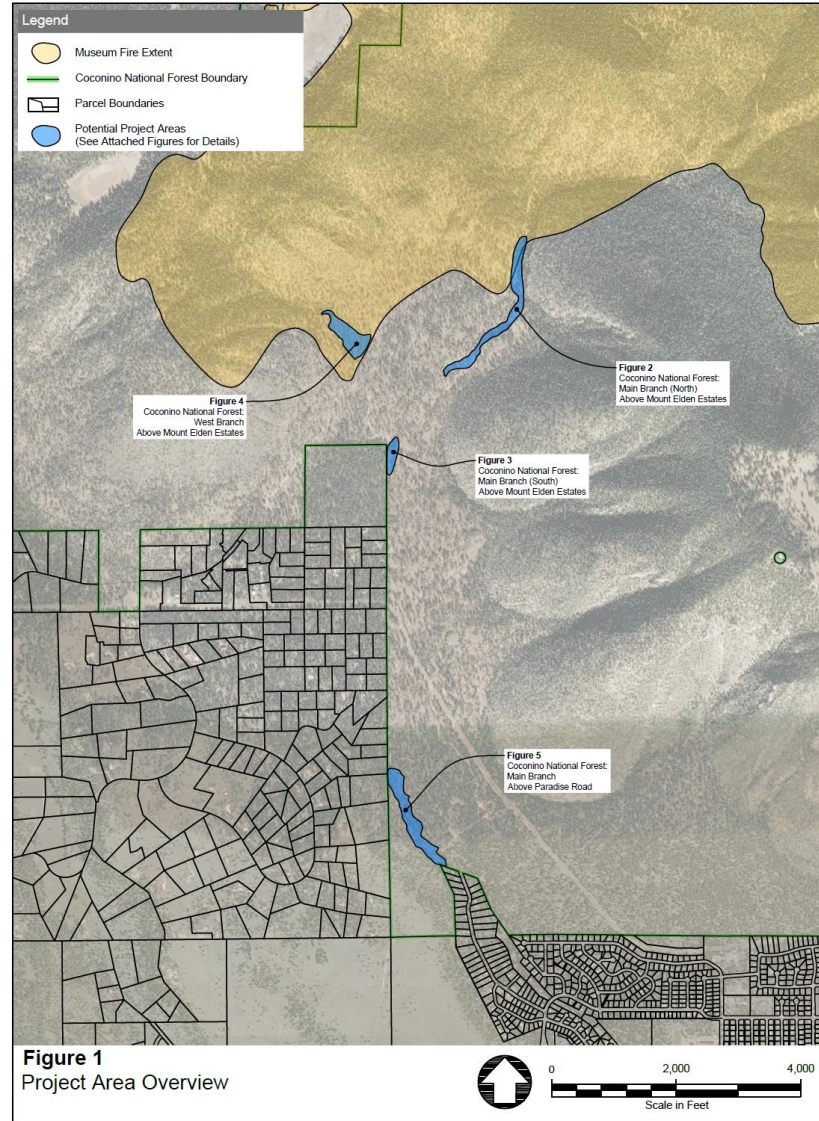
- Federal funding for watershed restoration
  - Significantly reduce large amounts of sediment
  - Mitigation efforts are ineffective when fill up with sediment
- Chief's \$3.5 million pledge
- **Design work is on-going at the County and Federal level**



# Mitigation Updates - Forest

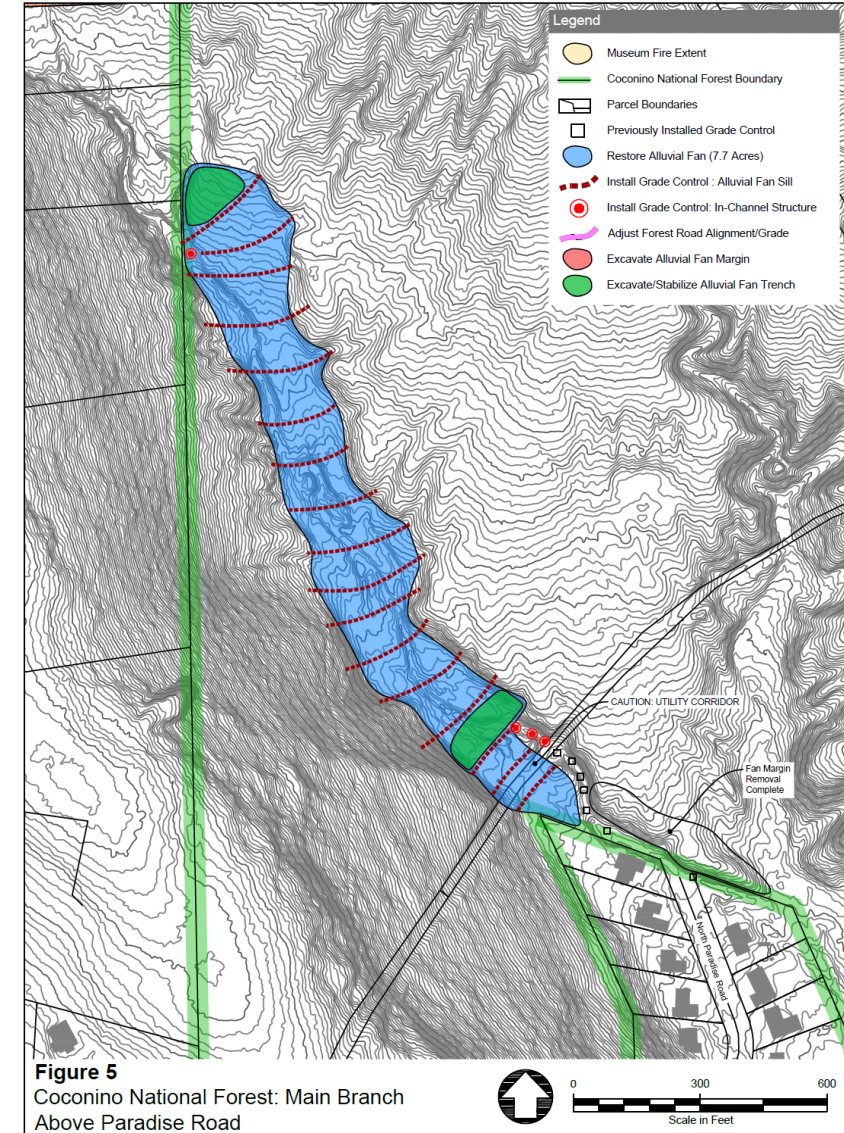


Museum Fire Burn Area:  
Sediment Reduction Measures on Federal Land



## Managed by County, work expected this spring

Museum Fire Burn Area:  
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# Mitigation Updates

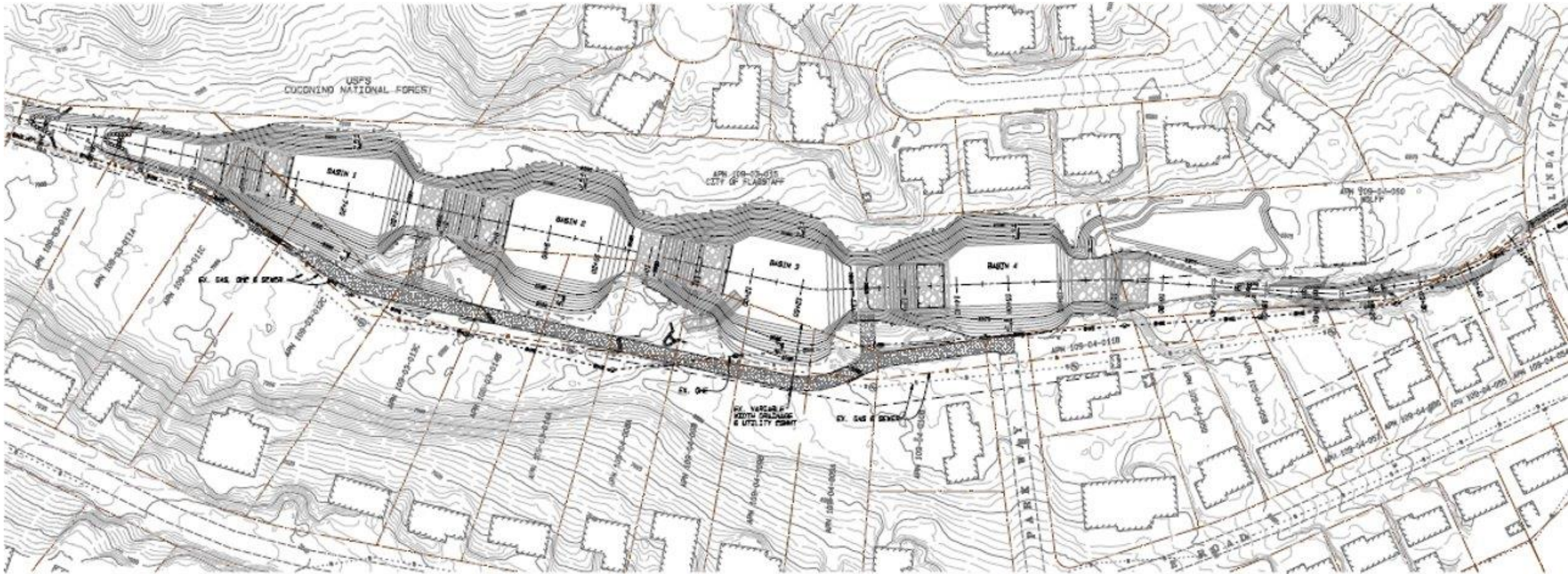


## Natural Resources Conservation Service (NRCS)

- \$3 million of federal funds
- Two land parcels
- 40 acres above Mt. Elden Estates
- 3.6 acres behind Paradise and Park Way
- Flood Control District Match of 25%



# City Parcel Concept Design





# Mitigation Plan Updates

## Dortha Inlet & Channel

- City funded
- Purpose is to reduce flood risk in upper Sunnyside by providing additional channel capacity.
- Current design: 12' bottom, shot-crete channel with 12x7' box culvert at Dortha.
- Delivered by COF Capital Improvements.
- Property acquisition and easement needed, research and outreach underway.
  - Council approved an ordinance for acquisition
- On schedule for completion by monsoons 2022, challenging deadline with utilities and property.



# Mitigation Plan Updates

## Killip Regional Detention Basin

- City portion: \$1.736 M for basins, \$1.225 M for outlet structure
- IGA with FUSD- Consideration by elected in Early January
- Design complete, CORE Construction and FUSD will deliver
- Underground stormwater infrastructure design for conveyance from basin to existing storm water system
- Engineering Teams are now focused on inlet structure through Ponderosa Park.



# Mitigation Planning

## South Mount Elden Flood Mitigation

- Fanning Wash cleanup is ongoing
  - Upper channel has been cleared
  - Lower channel has been cleared at Rt. 66 but substantial repairs are still underway near Bushmaster Park.
- Shadow Mountain flood mitigation
  - Property acquisition discussion ongoing
  - Conceptual plan being reviewed



# Funding of Mitigation

## Sediment reduction is a critical prerequisite to the functioning of existing infrastructure and future expansion

- \$3.5 million provided by Forest Service for on-forest sediment mitigation.
- \$3 million provided by NRCS to the County for private sediment mitigation.
- \$3 million City-funded for Killip Detention System
- City has applied for FEMA HMGP and BRIC grants, highly competitive with 1 or 2 years of lead time.
- Existing Stormwater rate structure allows for ~\$1M a year for city-wide capital improvements. A change in the rate structure will be evaluated in 2022 to address needs.
- Bond election may include flood projects but is at least a year out.



# Communications Strategy

City Public Affairs Office  
in collaboration with  
local public engagement  
firm



## Outreach channels

- Stakeholder database development
- Email address creation & maintenance
- Communications strategy meetings with neighborhoods
- Website creation and maintenance
- eNewsletters
- Update fliers (mail and door-to-door)
- Social media/ press releases
- Video production
- Translation and interpretation
- Updates at Council work sessions

## Timeline

- Begin early 2022

# Council Discussion

