Agenda Item #14.1
For Council Meeting of: August 14, 2018

CITY OF SANTA ROSA
CITY COUNCIL

TO: MAYOR AND CITY COUNCIL
FROM: JASON NUTT, DIRECTOR
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
SUBJECT: HAZARD MITIGATION GRANT PROGRAM PROJECT APPLICATION SUBMITTALS

AGENDA ACTION: MOTION

RECOMMENDATION

It is recommended by the Transportation and Public Works, Finance, Fire, Police and Santa Rosa Water departments, that the Council, by motion, approve the submittal of six 404 Hazard Mitigation Grant Program project applications requesting $5,404,847 in Federal funds and appropriate General funds totaling $1,464,116 as the local match.

EXECUTIVE SUMMARY

The Transportation and Public Works, Finance, Fire, Police and Santa Rosa Water departments experienced facility loss and recognized deficiencies in the City's emergency preparedness. In that regard, departments have prepared applications for nine projects for submittal to FEMA's 404 Hazard Mitigation Grant Program. Three applications prepared by Santa Rosa Water have been approved by the Board of Public Utilities with local match funds coming from the Water Enterprise Fund. The other six project applications require General Funds to support the local match component.

BACKGROUND

In the aftermath of the Tubbs Fire, staff has conducted a preliminary evaluation of the resulting facility losses and emergency preparedness concerns to determine if improvements, changes or modifications could be made moving forward to reduce similar losses and improve agency preparedness. Beginning in December 2017, staff from all departments developed a comprehensive list of potential projects that could be implemented to both prepare and improve response to a similarly scaled disaster. Additionally, staff evaluated whether alternative construction methods could be used to reduce the potential for or the extent of loss that was experienced in the Tubbs Fire.

Once the list was developed, the project criteria was evaluated and measured against the three active programs; Public Assistance (PA), 404 Hazard Mitigation Grant

Program – Competitive and 404 Hazard Mitigation Grant Program (HMGP) – Non-Competitive. The initial evaluation was conducted by a combination of staff and experts from the City and Ernst and Young (EY). Roughly 30 projects were identified, most of which were determined to not meet the eligibility requirements for any of the three programs.

Over a dozen were more deeply evaluated and submitted to CalOES for a preliminary determination associated with the 404 HMGP – competitive program. Nine projects, shown in Attachment 1 were determined to be eligible, two of those, projects 158 and 275, had applications that were ready for submittal by the July 1 deadline, while the other seven are being prepared for submittal by the September 4 deadline. These projects have a total estimated cost of $29,015,562. Under the HMGP the maximum Federal share is 75% of the total estimated cost, not to exceed $5,000,000. Should all nine projects be approved, this results in a Federal share of $17,236,672 and a local match of $11,778,891, with a majority of that being funded from the Water Enterprise Fund.

PRIOR CITY COUNCIL REVIEW

A list of eight proposed HMGPs were presented to Council during the Capital Improvement Program budget study session on May 16. Staff briefly outlined the various programs and mentioned that local match would be required for each of the proposed projects. Project 290, Storm Drain Master Plan, was not presented at that time.

ANALYSIS

Staff, working with Ernst & Young, have prepared applications for nine proposed 404 HMGP projects. Of these, three projects (167,196 & 249) were approved for the September 4 submittal deadline by the BPU on August 2, while two other projects (158 & 275) were submitted by the July 2 deadline in advance of Council approval in an effort to maximize the City's opportunities for funds.

The Water Enterprise Fund will provide matching funds for the three SRW projects, while the other six projects require General Fund as the local match. Should all six General Fund projects be approved by FEMA, the City would match $1,464,116 in General Funds with $5,856,462 of 404 HMGP funds.

Descriptions for the nine proposed projects are as follows:

Project 275 – Public Safety Building Back-up Generator
Estimated Cost = $187,612; City Share = $46,903 (General Fund)

Power loss to the Public Safety Building (PSB) is a significant concern to the safety of the community and is particularly concerning during times of disaster. The police radio system is housed within the PSB along with all 9-1-1 connections. Both are supplied

with power on an emergency circuit. Current planning is reliant on a single 200-amp generator to power a limited number of emergency circuits. The majority of the PSB is not currently on emergency circuits, leaving it vulnerable to power interruption. During the recent disaster, the PSB served as the field operations center and was under continuous use by a large number of emergency responders and support. The PSB cannot remain as a functioning field operations center if the majority of the circuits are not powered.

A facilities assessment was recently performed, and the conclusion was that the generator at the Public Safety building is past the useful life of the asset, and should be replaced immediately. A data logger was placed on the electric meter to determine peak loads, and along with data from PG&E, the study revealed that a 350-amp generator would be capable of handling the needs of the PSB as the field operations center in the future.

Project 167 – Back-up Generators at Water / Wastewater Facilities
Estimated Cost = $4,559,100; City Share = $1,139,775 (Water Enterprise Fund)

When developing its Local Hazard Mitigation Plan (LHMP), the Santa Rosa LHMP team critically analyzed the potential impacts of natural hazards with special attention on Santa Rosa's Sub-Regional Water Reuse System, which includes a single waste water treatment facility, a compost facility, and a water reclamation system. Although this system is outside of the City's urban growth boundary, it is a key infrastructure resource for the entire region, providing water treatment and reclamation services for Santa Rosa, Sebastopol, Cotati, Rohnert Park, and the Sonoma County South Park Sanitation District.

The water and sewer systems are completely dependent on PG&E, both for powering motors/pumps and for communications, including emergency alarms and to activate when pumps need to start and stop.

Emergency generators allow for uninterrupted water and wastewater service, ensuring public health and safety as well as environmental protection. Currently, a significant number of the generators are showing wear and age, warranting replacement to ensure proper operation during an emergency.

This project will replace 3 existing substandard diesel generators and 19 existing propane/natural gas emergency generators with more reliable diesel generators at 22 critical water and wastewater facilities. During the Tubbs Fire, natural gas delivery was terminated by PG&E and propane deliveries were extremely difficult if possible at all. The project will also replace or improve all substandard transfer switches and portable generator connections.

Project 286 – Dam Flood Inundation Maps
Estimated Cost = $200,000; City Share = $50,000 (General Fund)

The Department of Water Resources Division of Safety of Dams newly enacted state law classifications, effective July 1, 2017, requires dam owners to prepare Emergency Action Plans (EAP) to include inundation maps and technical studies. Both Lake Ralphine and Fountaingrove Lake dams are classified as "extremely high hazard potential" where failure or mis-operation of the dam system has a high probability to cause considerable loss of human life and probably would affect an inundation area with a population of 1,000 persons or more. Fountaingrove Lake has two dams, "North" and "South", and Lake Raphine has one dam. The current maps, adapted from 1970's microfile documents, are considerably outdated and lack technical studies, which prevents the City from preparing an EAP for each dam.

Development of updated inundation maps is essential for identifying the risk of potential flood wave arrival time and maximum depth, peak, velocity and flood time and is a required element of the EAP. The inundation maps, reports, and technical data will better prepare the City to anticipate and plan for different scenarios and will enable the City's first responders, office of emergency management, and other responsible personnel to create a comprehensive plan for evacuation, response and recovery.

The City of Santa Rosa proposes hiring a professional engineering consultant to perform technical studies, develop inundation maps and draft a report in order to establish inundation and other potential damages to life and property related to potential failures of these three dams in the City. Site specific studies to model dam stress failures under various event scenarios will also be included in the scope of this project. Each study shall include a summary of a two-dimensional open channel, and flow hydraulic model failure scenarios for each dam system, pursuant to California Code of Regulations Title 23- Waters Division 2 Department of Water Resources Chapter 1. Dams and Reservoirs Article 6 Inundation Maps State Statute 335.6 Emergency Regulations requiring Inundation Maps. State Statute 335.8 Civil Engineering requires the technical studies be prepared by a registered Civil Engineer. The report must comply with reporting standards listed in State Statute 335.10 and technical study to be prepared for each dam system for which inundation maps are required.

Project 196 – Seismic and Water Supply Improvements to (three) Steel Reservoirs
Estimated Cost = $5,900,000; City Share = $1,475,000 (Water Enterprise Fund)

This project will correct seismic deficiencies at three welded steel reservoirs (R9A, R16 and R17) to ensure there is sufficient water available in the tanks for firefighting and for drinking water purposes. All three reservoirs have numerous structural deficiencies, including wingwall foundation instability, inadequate foundation reinforcing steel, insufficient anchorage embedment, excessive shell stresses in several shell courses, and weak interior center support columns. Less critical deficiencies common to all three reservoirs include a provision for emergency venting, an air gap between the tank

overflow and storm drain outlet box, provide separate inlet and outlet piping. An earthquake event, due the proximity of the Rogers Creek Fault to three steel reservoirs could result in tank failures. The reservoirs are expected to be compromised in the event of a moderate seismic event. While a population of approximately 17,500 persons would be directly affected, a larger population would also be impacted as the water the tanks would not likely be able to contribute to the total supply of available water in the system.

The goal of this project is to prevent loss of water for firefighting and for potable water supply associated with a reservoir failure due to a seismic event. An evaluation of the tank and pump station evaluation performed in December 2017 found that none of the three reservoirs comply with current seismic codes and as such, should not be kept full (so as to reduce seismic loads). Correction of the seismic deficiencies will allow the water levels in the tanks to operate at full capacity.

Project 158 – Traffic Signals Retrofit Including Battery Backups
Estimated Cost = $1,418,850; City Share = $354,713 (General Fund)

The goal of this project is to install battery backups at traffic signals in order to help facilitate the evacuation process when a power outage occurs during an incident. A battery backup system can operate for 4-6 hours after power has been disconnected or turned off at a traffic signal. Additionally, batteries from non-affected signals could be transported to the de-energized signals to prolong the operation of the intersection until power can be restored. These devices are currently available and adaptable to the City's existing infrastructure by adding a battery bank and uninterrupted power supply module (UPS). The project would provide the City with a means of providing temporary power to signals upon immediate power loss without sending a technician or generator to a location, which would facilitate the evacuation process.

Approximately 175 locations will be retrofitted with a battery backup system to allow a traffic signal to operate for approximately 4-6 hours, uninterrupted, following a power outage. This project will cover the environmental review, design, contract specifications, and construction and inspection to implement battery backup systems. The systems include an enclosure for the batteries that will mount to the side of a 332 traffic signal controller cabinet, batteries to temporarily power the traffic signal, cabling, and a unit to detect a power drop and transfer from line power to battery power. A contractor would be hired to purchase and furnish the materials and provide the installation at each location identified.

Project 249 – Water Treatment Facility Flooding Mitigation
Estimated Cost = $12,700,000; City Share = $7,700,000 (Water Enterprise Fund)

The Santa Rosa Regional Water Reuse Plant (previously known as the Laguna Treatment Plant (LTP), and the Geysers and Reclamation pump stations have critical equipment such as electronic control panels and electric motors that are located below the 100-year flood elevation and would be subject to significant damage if inundated by

high flood waters. A feasibility study for flood protection at the LTP completed in July 2016 recommended the construction of a berm/floodwall around the LTP site as the preferred flood protection approach to protect the facility from flood waters generated from a 100-year storm event. This alternative has several advantages over the other options considered, including: 1. protection will be provided for a 100-year storm event while also providing adequate freeboard to protect against the 500-year storm; 2. the project will be constructed on City property without the need for additional property acquisition; 3. the project will be constructed and maintained by the City without dependence on other agencies for maintenance activities; and 4. it is the lowest cost option in terms of capital costs and present worth value that provides full flood protection for the 100-year design storm.

The goals of this project are to effectively protect the Treatment Plant, reclamation pump stations, and biosolids facility from damage due to flood waters. The proposed concept design includes approximately 6,500 linear feet of berms, walls, and gates installed around the facilities. The direct beneficiaries of the project are Wastewater Treatment Plant facilities owned by the cities of Santa Rosa, Rohnert Park, Cotati, and Sebastopol. The facility serves approximately 230,000 residents in Santa Rosa, Rohnert Park, Cotati, Sebastopol, and unincorporated portions of Sonoma County. The project is located in the floodplain of the Laguna de Santa Rosa.

Project 116 – Chipper Program
Estimated Cost = $525,000; City Share = $131,250 (General Fund)

The City of Santa Rosa has identified significant issues regarding the defensible space of properties located in the city limits. Defensible space is an area around a home where trees, shrubs and other vegetation are cleared or reduced to slow the spread of wildfire toward the building. Defensible space creates a safe zone for firefighters to carry out their work, and it reduces the chance that a structure fire will move to the surrounding forest. The 2017 wildfires destroyed or damaged a significant portion of residential and non-residential structures in Northeast and Northwest Santa Rosa. The establishment of a formal vegetation management and inspection program will help public safety personnel, City executives, emergency managers and citizens to plan and prepare for wildfire hazards thereby protecting and saving life and property. There are a number cities and counties in California that have implemented successful vegetation management programs which have reduced the number of wildfire casualties and property destruction. The program that the City hopes to implement will include chipping, along with education and inspections to mitigate losses in the future.

The concept for the proposed Wildland-Urban Interface (WUI) Education and Fuel Reduction Program or the focus of this project would be a multi-year effort led by a full-time Limited Term Fire Inspector. The first year will focus on providing education to all the WUI areas, including Home Owner Associations, neighborhoods, schools and senior communities. Topics will cover fuel modification, establishing and maintaining defensible spaces, home gardening techniques, preparedness and evacuation planning,

in addition to State and Federal program requirements. The second year will focus on the inspection of properties and instruction of property owners and residents in self-inspection techniques for their properties or shared properties. There will also be meetings to discuss disaster planning and emergency responder access to all areas of the WUI. The third year will be dedicated to revisiting all the WUI areas and following up with Home Owner Associations, neighborhoods, property owners, schools and senior communities. This year will also examine moving forward with the development and formal approval and adoption of a local Vegetation Management Ordinance that would become effective throughout the WUI areas of the City. The coordinator will evaluate the successful implementation of the program, focusing on sustainability of the fuel modification program and chipper services, along with home hardening and evacuation planning.

Project 287 – Wildfire Early Detection and Notification options
Estimated Cost = $2,000,000; City Share = $250,000 (General Fund)

Wildfires grow and move in rapid and unpredictable ways, making reliance on word of mouth, reverse 9-1-1 and public media inadequate especially when the rapid notification of the population is warranted. One potential solution being evaluated is the siren program project, which would install and implement a network of emergency warning sirens for the purpose of rapid hazard notification. Potential siren locations will be determined using a GIS-based study that will consider geography and natural acoustics, location of target populations and the optimal warning system spacing to ensure coverage. Many variables like terrain and the way sound travels may make sirens a less than optimal use of available resources. Without further studies, it is not clear if this type of outdoor warning system will be an effective, clear and understandable method of alerting people to imminent life safety threats.

Early detection is critical to ensure that the public is properly warned and that response resources are deployed rapidly to suppress impending hazards. A network of high-tech web cameras could assist first responders, government officials and dispatch centers in responding more quickly and efficiently to wildfires disasters. The key to this technology is identifying locations that provide the best views of the wildland and forested areas and proper communication infrastructure to ensure that the images are available to first responders. The City and County continue to explore the best ways to prioritize resource, efficiencies and locations for these projects. It may be best to start with cameras in order to make potential warning system more useful with better situational awareness.

Project 290 – Storm Drain Master Plan
Estimated Cost = $1,400,000; City Share = $350,000 (General Fund)

Flood inundation modeling of Santa Rosa Creek and its tributaries show that large portions of Santa Rosa are at substantial risk for flooding from the 10 year and 100 year storm events that would significantly affect the heart of the downtown and residential areas. In addition, large scale fires like the ones that raged within the City of Santa Rosa and adjoining sections of Sonoma County in October 2017 leave the land stripped

of vegetation, charred and can significantly reduce the land's ability to absorb rainfall which can create the perfect conditions for flooding because of increased run-off to streams, culverts and the storm drainage system. Even areas that previously were not flood prone can face increased risk of flood hazards due to changes in the landscape caused by fire.

The City currently lacks any type of comprehensive understanding of the physical condition of the 322 miles of underground storm drain pipe and nearly 17,000 structures that make up the City's drainage system. The lack of information prevents the City from making informed strategic decisions to effectively reduce flooding risks and protect public safety, property and infrastructure.

The proposed Storm Drain Master Plan (SDMP) would evaluate the current condition of Santa Rosa's 322 miles of storm drain pipe and nearly 17,000 structures that make up the City's drainage system. The project would include field condition assessment by Closed Circuit TV (CCTV), data computation, development of issue ranking and project prioritization criteria, updated and additional flood risk modeling for 10 and 100 year storm events, evaluation of drainage system condition and capacity deficiencies, and preparation of the SDMP. The field evaluation and modeling effort would be conducted on a representative portion of the City to allow for the timely completion of the SDMP. Development of the SDMP is essential in order to determine the most beneficial actions to effectively mitigate flooding of existing properties and guide future development in Santa Rosa in order to provide essential protection of life, health, safety, and property in our community.

FISCAL IMPACT

The approval to submit all six non-Water Enterprise Fund HMGPs could result in the need for the City to provide 25% of the total cost of FEMA approved projects, which could total up to $1,464,116 in local match from the General Fund. The Water Enterprise Fund has adequate funding to cover the local match for the three listed projects. The BPU authorized moving forward with the three Water Enterprise Fund projects on August 2, 2018. The Water Enterprise Fund has sufficient reserves to cover the three projects.

If approved, this action will decrease the estimated General Fund reserves from $6.6 million to $5.2 million.

ENVIRONMENTAL IMPACT

This action is exempt from the California Environmental Quality Act (CEQA) because it is not a project which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, pursuant to CEQA Guideline section 15378.

BOARD/COMMISSION/COMMITTEE REVIEW AND RECOMMENDATIONS

Not applicable.

NOTIFICATION

Not applicable.

ATTACHMENTS

- Attachment 1 – Hazard Mitigation Grant Program Proposed Projects

CONTACT

Jason Nutt, Director of Transportation and Public Works
jnutt@srcity.org 707-543-3810