



## Legislation Text

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**TO:** Mayor Collins and Town Council Members

**FROM:** Kevin Burke, Town Manager  
Paul Mood, P.E., Town Engineer  
Jeremy Knapp, Engineering Services Analyst

**DATE:** April 12, 2018

**DEPARTMENT:** Engineering

**AGENDA TITLE:**  
**Discussion on Flood Control District Projects Cost Benefit Analysis (30 Minutes)**

**Council Goals or Statutory Requirements:**

**Infrastructure** - For efficient and effective execution, review and seek improvements for planning, timing and coordination of infrastructure maintenance and enhancement.

**RECOMMENDATION:**

Receive information on Cost Benefit Analysis for Flood Control District Projects in anticipation of upcoming Capital Improvement Program Budget.

**SUMMARY STATEMENT:**

In 2017 the Town Council adopted Resolution 2017-08 (Attachment A) declaring the town's stormwater management policy. The Resolution was in response to the 2013 and 2014 rain and flood events that had initiated a town conversation on stormwater management. The policy says the town will:

- A. provide storm water data and information available to it concerning the 100 year, 2 hour storm event to property owners;
- B. participate in National Flood Insurance Program such that property owners have the ability to purchase federally backed flood insurance;
- C. regulate development to mitigate the impacts of storm drainage;
- D. budget for small (i.e. under the Capital Improvement Program financial threshold) flood control projects that benefit two or more Paradise Valley parcels and seek cost sharing opportunities for these or other storm water management projects; and,
- E. consider cost-benefit analysis for all proposed projects.

As noted in item "D," it states the Town may budget for small (i.e. under the Capital Improvement Program financial threshold) flood control projects that benefit two or more Paradise Valley parcels. The Town will seek cost sharing opportunities for these and other storm water management projects.

Further, and in order to accomplish this, the Town may participate in the study of regional storm water analyses, design and construction projects when the cost to benefit information is deemed appropriate by the Town Engineer, Town Manager and Mayor and Town Council.

Town staff has been participating on a regional study with the Flood Control District for the Lower Indian Bend Wash for the past four years. This study encompasses the Cherokee, Cheney, and Lincoln Watersheds within the Town of Paradise Valley, or 3 of the 6 watersheds identified to be studied. With the completion of the study, the Flood Control District identified three regional projects to be completed in the area which will help lessen the chance of flooding to town residents. In order to participate in the design and construction of these projects and cost share with the district, town staff applied through the Flood Control Districts Capital Improvement Program to complete two of these projects.

The first project identified is the Paradise Valley Wash Improvement Area (Exhibit B). This area is approximately 3 square miles between Mummy Mountain and Camelback Mountain from 58<sup>th</sup> Street east to Town Limits. It includes storm drains in Lincoln, Invergordon, 60<sup>th</sup> Street, 61<sup>st</sup> Street, Mockingbird Lane, and Indian Bend Road. The total cost for this project is \$11,770,000, of which 50% is the town's responsibility and 50% Flood Control District responsibility, if the decision is made to move forward pursuing the project.

The second project identified is the Cheney Wash Improvement Area (Exhibit C). This area is smaller and encompasses the north side of Mummy Mountain where the Cheney Wash parallels Cheney Drive to Mockingbird Lane and eventually into the Indian Bend Wash. This project includes storm drains in Cheney Drive to Mockingbird Lane, north to Northern Avenue and eventually east, terminating into the Indian Bend Wash. The total cost of this project is \$7,430,000, of which is 50% the town's responsibility and 50% Flood Control District responsibility, if the decision is made to move forward pursuing the project.

To complete the Cost Benefit Analysis of these two projects, the town selected Michael Baker and Associates to run a FEMA Hazus model. The study identifies the total potential economic losses for the 10- and 100-year, 6-hour storm events for both the existing and proposed conditions formulated in the Lower Indian Bend Wash Area Drainage Master Study/Plan (LIBW ADMS/P) that was completed in December 2017.

The report focuses on two drainage improvement projects that were listed above. The LIBW ADMS/P identified these flood prone areas and conducted an extensive flood mitigation analysis with collaboration from the Flood Control District of Maricopa County (FCDMC) and the Town of Paradise Valley (Town).

The report builds on the ADMS/P by analyzing the economic impact and the cost-benefit of the proposed drainage infrastructure. The study was limited to the properties that would be impacted by the proposed improvements to provide a comparison between the existing and proposed conditions. The total potential economic losses presented under this cover represent the potential losses to the properties that would be affected by the proposed improvements.

It was determined by the methodologies outlined in this report that the proposed improvements will eliminate the structural flooding for the 10- and 100-year storm events, while also reducing the damages associated with property flooding, such as damage to landscaping, property walls,

foundations, etc. The benefit cost ratio for Cheney Drive and Paradise Valley Wash Improvement Areas are 3.05 and 1.47 respectively, with the overall BCR of 2.06 for both improvement areas combined. This is the total BCR of the project. Since the Town of Paradise Valley would only pay half of the costs, the BCR doubles to over 6.0 for the Cheney and just short of 3.0 for Paradise Valley Wash.

The potential prevented economic loss for the 10-year storm event is \$3.0 million for Cheney Drive per event, \$2.4 million for Paradise Valley Wash per event, and \$5.5 million per event for the overall study area. The potential prevented economic loss for the 100-year storm event is \$3.0 million for Cheney Drive, \$2.7 million for Paradise Valley Wash, and \$5.7 million for the overall study area.

Ultimately the report identifies that both projects do provide a positive return on investment with the parameters utilized. Staff will ask Town Council to consider this information when considering approval of our Capital Improvement Budget to take advantage of this cost sharing opportunity while we are constructing other projects in the area of the Paradise Valley Wash Project. Mainly, the roadway improvements associated with the Ritz Carlton Project, which will be directly impacted by these storm drain routes.

**BUDGETARY IMPACT:**

This particular item will not directly impact the Town's Budget but has potential budgetary impacts moving forward.

**ATTACHMENT(S):**

- Attachment A - Resolution 2017-08
- Attachment B - PV Wash Flood Control District Application
- Attachment C - Cheney Flood Control District Application
- Attachment D - Return on Investment Analysis
- Attachment E - PowerPoint Presentation