

Southern Marin Watersheds: DRAFT List of Potential Projects (2017)

Updated: 3/3/17

This list of potential projects summarizes flood risk reduction projects in the Southern Marin Watershed Program area which are in the study, design, or engineering phase of development. It includes new projects and conceptual projects which, if constructed, would provide for significant modifications to existing facilities; however, the list does not reflect the current needs of existing facilities which are met through the District's operation and maintenance program. As of FY 2015-16, ongoing maintenance of existing facilities is budgeted at \$1,000,000 in Zone 3 and \$500,000 in Zone 4, and accounts for approximately two-thirds of the annual budget. There is a need for ongoing maintenance and many of our existing facilities and infrastructure are approaching the end of their designed life and will need upgrades. Total operation and maintenance costs in both zones are expected to increase with the construction of any new projects.

| Project Name | Description / Benefits | Watershed | Flooding Type | | Potential Project Type | | | | | | | | | | | | | Current Stage | Status | Possible Next Steps | Construction Cost Estimate | Required Right of Way Secured? (Yes/No/Maybe) | Additional Remarks | | | |
|--|---|--------------|----------------|----------------------|------------------------|------------------|--------|---------------------|-------------------|-----------------------|------------------------------|-------------------|---------------------|---------------------|----------------------|---------------------|----------------------|---------------|--------|---|---|--|---|--|--|--|
| | | | Creek Overflow | Storm Drain Overflow | Stormwater Ponding | Tidal Inundation | Bypass | Channel Restoration | Creek Maintenance | Drainage Improvements | Fish Passage Barrier Removal | Floodwall / Levee | Habitat Enhancement | Increase Conveyance | Shoreline Adaptation | Structure Elevation | Stormwater Detention | | | | | | | Stormwater Pump | | |
| ZONE 3 PROJECTS | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Coyote Creek Tide Gage | Provide ability to gather tide data remotely and monitor potential overtopping of Coyote Creek. | Coyote Creek | • | | • | | | | | | | | | | | | | | | Proposed installation | Recommended in 2017/18 Budget | Install in 2017 | \$12,000 | No | Installation location to be determined. | |
| Coyote Creek Hydrology and Hydraulic (H&H) Study | Periodic study conducted to evaluate the need for dredging Coyote Creek. | Coyote Creek | • | | • | | | | | | | | | | | | | | | | Recommended in 2017/18 Budget | Complete hydrology and hydraulic analysis in 2017 and use results to determine the need for dredging. | \$35,000 | N/A | Recommend that this study be undertaken every two years, commencing with 2017. | |
| Coyote Creek Dredge | Increase conveyance and provide flood mitigation. | Coyote Creek | • | | • | | | | | | | | | | | | | | | Dredging need to be determined by results of H&H Study. | | Review results of periodic H&H study and determine the need to dredge. | \$1,000,000 | | | |
| Pump Station Upgrades | Install back-up system that will run the entire pump station (generator, automatic transfer switch, onsite fuel source) for Crest Marin, Cardinal, and Shoreline pump stations. | Coyote Creek | | • | • | | | | | | | | | | | | | | | Recommend to Advisory Board | | | \$1,183,521 | | | |
| Nyhan Creek Flood Study | Study impacts of riverine and tidal boundary conditions and their impact on Nyhan Creek. | Coyote Creek | • | | • | | | | | | | | | | | | | | | Proposed Study | Recommended in 2017/18 Budget | Complete hydrology and hydraulic analysis in 2017 and develop potential project(s) list for Nyhan. | \$20,000 | N/A | | |
| Arroyo Corte Madera del Presidio Riverine Flood Risk Reduction Alternatives (detention basin, bridge replacements, bypass, channel conveyance improvements, flood walls, levees) | Provide flood protection against creek overflow within floodplain. Potential alternatives could be combined to achieve up to 100 year level of protection. | ACMdp | • | | | • | | | | | | | | | | | | | | Study | 2012 Study Complete; additional study and public input required before beginning design. See Stetson Phase 2 Re-evaluation below. | (1) Update costs to reflect changes made to model following 2014 model calibration. (2) Community outreach, recommendations for preferred alternatives to take to further study/design | \$26M - \$50M (25 yr. level of protection to 100 yr. level of protection) Estimates lack costs for real estate, utilities and other elements required for design | Maybe (Depends on recommended alternative. Possibly for detention basin, some bridge replacements, and bypass. Existing ROW along creek is insufficient for construction of a levee/floodwalls.) | Stetson Engineers Inc. was hired by the City to perform the pre-design study which included development of a hydraulic model. The model has been improved by recalibrating it with recent storm data; previous alternatives and costs may now be reconsidered based on the revised model. A SOW to arrive at revised alternatives/cost estimates is being developed and work may commence in late-summer or early-fall 2015. | |
| Stetson Phase 2 Re-evaluation of Conceptual Flood Reduction Measures on Arroyo Corte Madera del Presidio | Recompute flood frequency curves for the Stetson study. Flood reduction measures will be re-evaluated for the 25-, 50-, and 100-year levels of protection. | ACMdp | • | | | | | | | | | | | | | | | | | Study | Funded FY 2016-7 | | | | | |

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| Comprehensive Flood Control and Drainage Master Plan | Evaluate flooding on tributaries to ACMdP and evaluate the storm drain system. Develop a capital improvement plan based on the findings. | ACMdP | • | x | • | | | | | | | | | | | | | | | Study | Funded FY 2016-7 | | | | This project was listed to reflect the recent Zone No. 3 Advisory Board recommendation to fund these projects. Study to begin in 2017. | | | | | | | |
| Miller Avenue Streetscape Project | Bypass storm drain from Montford to Reed Street/Valley Circle to reduce flooding at Montford. Tide gates along Miller Ave between the Redwoods and Pickleweed. (Reed Street to Camino Alto) Check valve on storm drain pipes at Almonte. Road elevation by 10 inches and construct a 6-inch berm to reduce tidal flooding on the road surface. | ACMdP | x | x | x | x | x | | | | x | | | | | | | | | x | | | | | | x | | Construction | Construction began in 2016 | \$650,000 | Yes | This project was listed to reflect the recent Zone No. 3 Advisory Board recommendation to fund these projects. Construction projects began in the Summer of 2016. |
| Crest Marin Riverine Flood Risk Reduction Alternatives | Provide flood protection (25 yr) against creek overflow within floodplain. | Coyote Creek | • | | | | | | | | | | | | | | | | | • | | | | | | | Study | Partially Complete | Update H&H and reassess potential improvement alternatives | \$3M - 5M | Maybe (Depends on chosen alternative) | Conceptual level plans completed by consultants. |
| Coyote Creek Levee Improvements | Provide flood protection against creek overflow within floodplain, including alternatives which would allow for removal of properties from SFHA. | Coyote Creek | • | | | | | | | | | | | | | | | | | • | | | | | | | Study | Study Complete | Selection and further development of preferred alternative following completion of pre-design | Cost estimates to meet Baseline flood protection range from \$10M to \$18M, depending on the scope of project selected. Costs for a FEMA Accredited design (reduces flood insurance) range from \$19M to \$57M. Costs for a FEMA Accredited design with Sea Level Rise range from \$25M to \$72M. | Maybe (Depends on chosen alternative) | Levee evaluation included assessment of, and recommendations for improvements to, existing facilities. The Baseline flood-protection scenario is designed for a 20-year flood event. The FEMA Accredited scenario could lead to a reduction in flood insurance premiums for homes in the area. The FEMA Accredited with Sea Level Rise option incorporates future sea level rise |
| Marin City Drainage Improvements | Identify extent of existing flooding and potential alternatives which could help reduce existing flood risk. | Marin City | | • | • | • | | | | | | | | | | | | | | • | | | | | | | Study | Study to begun in 2017 | Develop potential projects list based on outcomes of study | Preliminary cost est. available mid- to late-2017 (est.) | Maybe (Depends on chosen alternative) | |
| Richardson Bay Shoreline Protection | Construct shoreline protection measures which reduce or eliminate tidal inundation of shoreline under various scenarios, including sea level rise. | Richardson Bay | • | • | | • | | | | | | | | | | | | | | • | | | | | | | Study | Draft Study Complete | Selection and further development of preferred alternative following completion of pre-design | Preliminary cost est. | No | <i>Richardson Bay Shoreline Study - Evaluation of Sea Level Rise Impacts and Adaptation Alternatives (2015)</i> posted to www.marinwatersheds.org . Additionally, the county is currently evaluating the vulnerability of the entire bay shoreline in a complementary project known as BayWAVE. BayWAVE's first phase will complete a vulnerability assessment and identify adaptation measures and other early actions. Implementation, funding, and planning changes will be further developed in Phase II. |
| Bothin Marsh | Conceptual feasibility evaluation of reuse of dredged sediments from Coyote Creek dredge into Bothin Marsh | Coyote Creek | | | | • | | | | | | | | | | | | | | | | | | | | | Study | in-progress | TBD | none | TBD | |
| Manzanita/Caltrans | Looking at improvement to reduce direct coastal flooding of Shoreline highway | Richardson Bay | | | | • | | | | | | | | | | | | | | • | | | | | | | Survey and then Study | in progress | Develop series of possible solutions for implementation | none | TBD | |

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| Hydraulic Study of lower Ryan Creek and Pump Station | Make pump modifications and culvert replacements to reduce flooding inundation area and depths upstream of the pump station. | Ryan Creek | • | • | | | | | | | | | | | | | | | Study | Study Complete-2013 | Selection and further development of preferred alternative, including cost estimates | Preliminary cost est. for the potential improvements were not included as part of the SOW | Maybe (Depends on chosen alternative) | Potential alternatives mentioned are those described in the report <i>Hydraulic Analysis of Lower Ryan Creek and Pump Station</i> completed by Stetson Engineers Inc. (2013) and include modifications to current stormwater pump intake as well as culvert improvements upstream of the pump station which may be at least partially outside of existing public ROW. |
| Sutton Manor Creek Improvements | Identify extent of existing flooding and potential alternatives which could help reduce existing flood risk, including alternatives which would remove properties from the existing FEMA SFHA. | Sutton Manor-Strawberry | • | • | • | • | | | | | • | | • | | | | | | Study | Future | Develop SOW for pre-design evaluation to identify issues and potential alternatives | No preliminary cost estimates available | Maybe (Depends on recommended alternative) | Scope of work for a pre-design evaluation to identify issues and potential alternatives has not been initiated |
| ZONE 4 PROJECTS | | | | | | | | | | | | | | | | | | | | | | | | |
| Cove Pump Station Improvements | Make pump and drainage modifications. | Bel Aire | | • | | | | | | | | | | | | | | | Design | Consultant contract to BOS in March 2017 | Complete design, and construct in 2018 | 2.4 million (concept level estimate) | Maybe (Depends on recommended alternative) | |
| Karen Way Ditch Improvements | Modification to existing ditch which would establish a more uniform cross section and provide for increased flow capacity and greater ease of maintenance. | Bel Aire | • | | | | | | | | • | | • | | | | | | Study | Future | Create SOW for study to determine design details including ditch capacity and alignment. | | Yes | |
| Strawberry Levee Improvements | Modifications to existing levees/embankment to provide a greater amount of flood protection from coastal inundation. Area of protection to include homes along Strawberry Circle. | Bel Aire | | | | • | | | | | | | • | | | | | | Study | Future | Create SOW for study to determine design details including levee cross section dimensions and alignment. | No preliminary cost est. available | Yes | Will likely require mitigation for the take of wetland vegetation; possibility for self-mitigating project to be pursued if possible. |
| West Creek Flood Wall | Install floodwall at creek bank in order to increase the level of flood protection. | Bel Aire | • | | | | | | | | | | • | | | | | | Design | On-hold at request of Advisory Board | Further development of preferred alternative, including revising cost estimate, followed by final design and environmental review | \$400K (2012) | No | ROW acquisition cost not reflected in cost estimate. |
| Study In Progress or Complete | | | | | | | | | | | | | | | | | | | | | | | | |
| Draft Study-Limited or No Costs Available | | | | | | | | | | | | | | | | | | | | | | | | |