

Paradise Creek Flood Hazard Mitigation Study

Scope of Work Summary

Task 1 Project Management

- Includes project and team management and coordination with City staff
- Public, stakeholder, and City Council information and involvement.
Meetings will be held remotely and will occur at key milestones during the project.
 - In addition to the Technical Advisory Committee
 - Includes two virtual Public Open House events (info to be included on project webpage)
 - Includes video conferences with City Council

Task 2 Survey and Data Collection

- Obtain available study area data
- Aspect to complete tour of study reach to:
 - Visit flooding problem spots
 - Observe channel conditions, crossing structures, overflow routes, etc.
 - Inspect City owned stormwater detention facilities.
- Collect ground survey data (JUB Engineers) based on list of identified cross sections and other survey data needs (bridge data, highwater marks, etc.).

Task 3 Hydrologic Analysis

- WSE will review effective FIS flood discharge data and hydrologic methods.
- Estimate peak flood flows based on statistical analysis of available USGS gage data.
- Develop inflow hydrographs for hydraulic modeling based on 15-minuted data.

Task 4 Flooding Analysis and Characteristics

- WSE will replicate the effective FIS 1-D hydrologic model using HEC-RAS.
- Update topography and cross section data based on ground survey work.
- Incorporate 2-D HEC-RAS sections where appropriate.
- Run and calibrate the new hybrid model to recent flood observations.
- Assess existing condition flood impacts and causes.

Task 5 Develop Conceptual Flood Hazard Mitigation Alternatives

- Itemize key flooding problems, develop written descriptions and exhibits.
- Complete a detention facility analysis to estimate facility performance characteristics.
- Itemize several potential mitigation solutions/components, develop exhibits.
Examples – Stream channel/floodplain storage; overflow swales and conveyance improvements, stormwater detention facility retrofits and/or enhanced standards, property acquisitions / buyouts, structure elevations, etc.

- Develop list of potential flood mitigation alternative evaluation criteria.
Examples – Effectiveness at solving key problems, relative benefit-cost rating, enhancing beneficial floodplain function, etc.
- Work with City to review and initially prioritize key flooding and drainage problems, review and refine preliminary mitigation components, finalize alternative evaluation criteria.
- Conduct TAC Workshop No. 2 – Select two overall mitigation alternatives for further evaluation.

Task 6 Alternatives Analysis and Evaluation

- Integrate two overall flood mitigation alternatives into the calibrated HEC-RAS model.
- Test and refine alternatives as needed.
- Estimate cost of mitigation components for each optimized alternative and compile info on historical flood damage costs, future flooding costs, and other needed data.
- Complete initial benefit-cost analyses for each alternative and estimate BCRs.
- Complete a preliminary alternatives evaluation of the two flood mitigation alternatives.
- Conduct TAC Workshop No. 3 – Review prelim evaluation results, review modeling results and potential flood mapping changes, refine and finalize preferred flood mitigation alternative.
- Prepare a proposed condition effective HEC-RAS model and annotated FIRMs for the study area.

Task 7 Preferred Alternative Preliminary Design and CLORM Documentation

- Obtain FEMA concurrence on preferred alternative.
- Prepare preliminary (30%) designs, identify easement/property acquisition needs, and prepare a final design and construction project budget.
- Prepare necessary supporting documentation and CLORM application materials for the FEMA-approved alternative.