

REPRESENTATIVE FLUVIAL GEOMORPHOLOGY EXPERIENCE

Creek Map Development, Oakland, California

- Mapping all creeks and open channels at 1:12,000 scale, over 50+ mi² area; study area extends from headwaters to tidal areas, covering "natural" and urbanized areas
- Providing a buffered, creek corridor for Ordinance implementation

Surficial Geologic (Floodplain) Mapping, Central New Mexico

- Mapped geologic deposits for 60+ mile reach of the Middle Rio Grande
- Created geologic maps with databases and spatial attributes, including vegetation distributions
- Evaluated influences of engineered structures (levees) on river processes and sedimentation through time-series air photo interpretation from 1935 to 2000
- Delineated changes in floodplain net erosion and net sedimentation over 65-year period

Historical Geomorphology and Watershed Analysis, South San Francisco Bay Area, California

- Mapped pre-urbanization creek locations to depict waterways prior to storm drain installation and channelization projects
- Combined Quaternary and bedrock geologic data to develop relative erosion susceptibility map
- Produced four plate-size maps, including soils, landslides, and tectonic features

Watershed Erosion and Sedimentation Analysis, Central Valley, California

- Developed detailed topographic and geomorphic maps from field survey, and established a baseline condition of stream channel hydraulic geometry
- Interpreted vintage time-series aerial photographs over 40-year period to characterize the fluvial processes at the watershed scale for development of a conceptual hydrogeomorphic model
- Assessed local hydrology and sediment mobilization through the watershed system
- Established monitoring program to evaluate future site-wide channel changes and erosion following peak flow events

Longitudinal Profile Surveys, South San Francisco Bay Area, California

- Completed bed elevation surveys of approximately 6 miles of urban, natural, and engineered channels using digital Total Station, referenced to benchmarks for absolute elevation control;
- Imported and geo-referenced survey data in GIS for overlay on digital orthophotos
- Used survey data to develop stream slope dataset for the placement of in-stream channel stability controls

Road-Related Erosion Inventory, Santa Cruz Mountains, California

- Analyzed all drainage crossings along five miles of unimproved road to assess potential road and hillside erosion by channelized water
- Reviewed culvert size, positioning, and functioning for existing road/drainage crossings
- Assessed road surface for water runoff drainage capability