

MANAGEMENT RECOMMENDATIONS

Constraints and Opportunities

Chollas Creek South Branch (Phase I) is channelized and degraded in most of its reach due to urbanization. Nevertheless it offers an opportunity to combine community planning with the protection of valuable wetlands resources. The following constraints are taken into account:



- The extent of past disturbances and confinement of the creek precludes the possibility of recreating a truly natural floodway. These factors have either eliminated or significantly altered landscape-level hydrogeomorphic processes necessary to maintain a functioning riverine system;
- Only a few pockets of wetlands exist within the study area, most of which are confined in space between development and significantly disturbed areas, consisting mainly of exotic species;
- Development of true wetlands habitat for mitigation purposes may not be feasible due to the lack of available space and connectivity to other functional wetlands areas;
- Creation of recreational open space accessible to humans and development of wetlands inhabitable by sensitive plant and animal species will be mutually exclusive, again, mostly due to confined space;
- Creation of dense wetlands vegetation may result in unsafe conditions for human use as it may attract transient populations seeking shelter, unless specific safety features are installed (to be detailed in any implementation-level documents);
- The value for wildlife in the study area is significantly diminished due to dense development patterns and lack of contiguous open space (i.e., habitat fragmentation and edge effects);



- Development of true natural wetland habitat may attract wetlands associated sensitive species that, without habitat connectivity, have no chance for sustained survival;
- Wetlands vegetation may create hydrological problems such as flood risk unless it is planned as part of the flood control system (this plan has taken this into consideration and avoided wetlands creation that would pose a flood risk);
- Wetlands enhancement and open space development including wetlands could preclude the development of certain types of flood control and management designs.

Despite above-described constraints, the following opportunities have been taken into consideration during the development of management recommendations:

- Comprehensive planning can provide for a continuity of habitat and flood protection measures;
- Degraded habitat can be restored with native species to enhance the urban creek corridor and improve the image of the community;
- Green open spaces with native landscaping and restored wetlands habitats provide a welcome change from the concrete and asphalt nature of this urbanized area;
- A theme of native species plantings and associated trail systems will create a community identity linking the communities within the southeastern part of San Diego;
- Mitigation credits for the purpose of water quality improvement (not sensitive species mitigation) may be given on a case-by-case basis for certain wetlands enhancement projects;
- Riparian wetlands plantings are resilient and often establish themselves rather quickly;



- Native riparian open space with associated recreational open space, trails and lighting (and other safety precautions) offer an opportunity for creative activities for children and adults alike;
- Enhanced open space can be used by the community for recreational and educational purposes;
- Enhanced open space will increase property values.



Areas potentially suitable for wetlands restoration and enhancement include vacant lots, parks or other open spaces that include areas with disturbed vegetation or riparian habitats that could benefit from enhancement. Development was restricted from the model, and such sensitive vegetation communities as coastal sage scrub were rated as having very low suitability to be converted to wetlands. Disturbed vegetation and riparian areas received high rankings. While parks and cemeteries were ranked with medium restoration suitability, vacant lots and open space received high rankings.

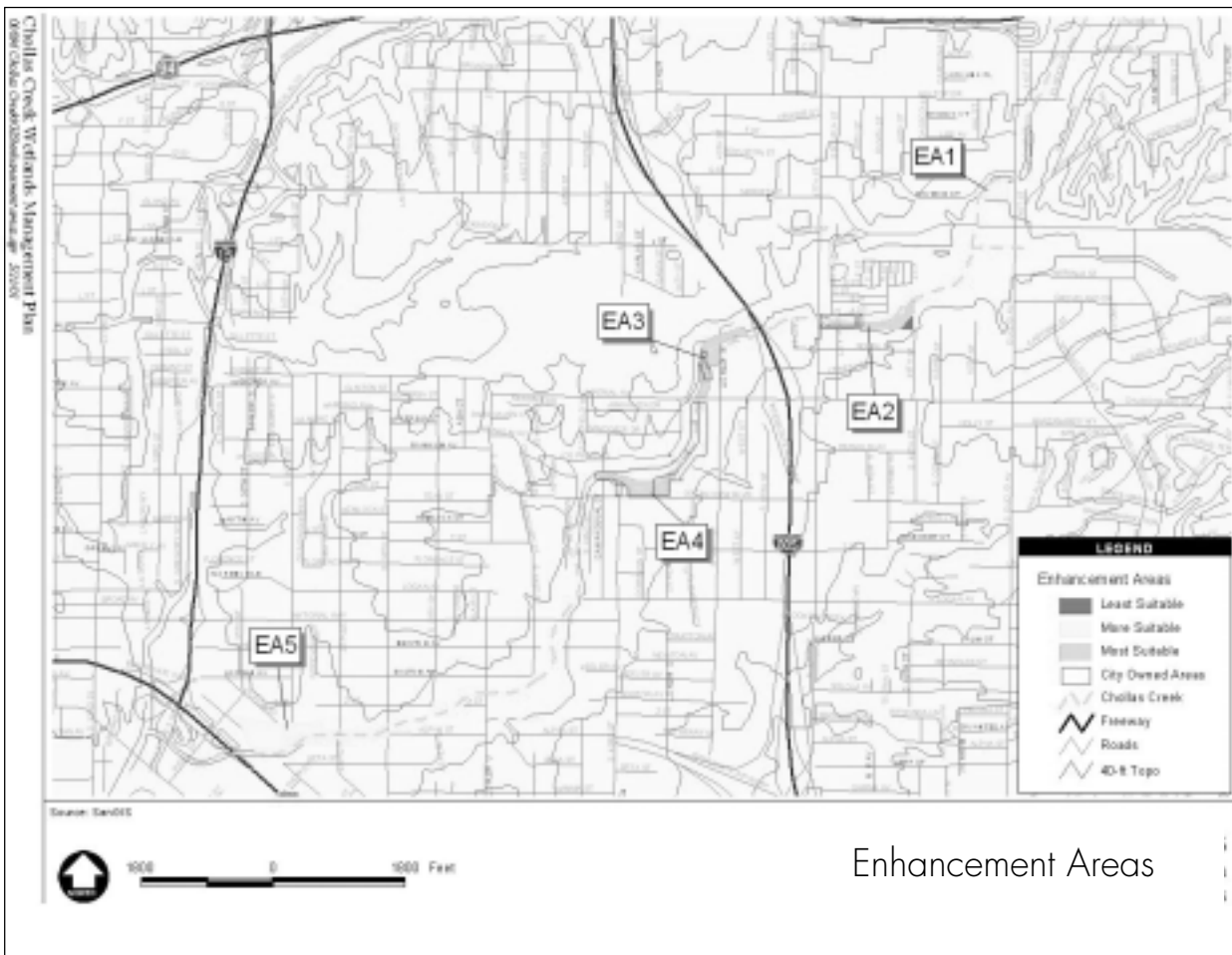
Soils also determined restoration and enhancement suitability, as some soils preclude the successful establishment of riparian vegetation, and others benefit riparian restoration and enhancement. Heavy soils and soils on steep slopes received low rankings, convertible soils (such as graded land and urban soil complexes) received medium rankings, and suitable soils such as sandy loams and other permeable native soils were ranked highly.

Creek conditions were also entered into the model, although not ranked. Information regarding concrete lining of the channel versus earthen channel was added to the model result to determine the extent of treatments. Hydraulic modeling results were added to determine the feasibility of creek alterations.

Once sites suitable for restoration and enhancement were identified and the suitability was tested, a parcel map was overlain to determine ownership of the selected sites. Private and public ownership were categorized, and City ownership was given the highest value, followed by public ownership. Private ownership was given the lowest ranking due to the difficulty of property acquisition. Only areas with the highest restoration suitability that are also owned by the City of San Diego



are ranked with the highest suitability. Sites suitable for wetlands enhancement treatments are illustrated. Once sites and appropriate enhancement methods were identified, creek modifications were adjusted according to HEC II model calculations to avoid any flood risk to surrounding structures. The hydraulic analysis has not included any investigation into the feasibility of maintaining the proposed vegetation within the selected regimes. Also, geotechnical and sediment transport issues have not been addressed. Such matters should be considered before additional design is undertaken.



Identification of Enhancement Areas

The constraints and opportunities were considered in the identification of enhancement areas. For example, creek corridor width in most areas is determined by the proximity of adjacent development and would, in most cases, not allow for the establishment of optimally functioning wildlife habitat. Pockets of open space that may be suitable for native riparian vegetation establishment are disconnected and fragmented. If sensitive wildlife species were to move into these areas, they would most likely not be able to sustain themselves due to the lack of migration corridors and associated shelter and food sources (ecological sink), and the vulnerability to predators due to the surrounding urban development (edge effect). For these reasons, areas identified below may not easily earn mitigation credit from the wildlife agencies as a compensation for sensitive species lost elsewhere due to construction projects. However, current mitigation projects have been permitted with the ACOE, CDFG, and RWQCB for their water quality functions, and the potential for future mitigation for “in-kind” habitat creation remains a feasible option. From this perspective, an effort should still be made to apply mitigation credits to the wetland restoration areas within Chollas Creek. Ultimately, the purpose of wetlands enhancement and management as described below is to serve the human environment in this urbanized region of the Chollas Creek watershed.

Constraints and opportunities were also evaluated to measure and reduce flood risk based on both hydrological and hydraulic analyses. If flood risk would increase from the removal of concrete channel lining or widening of the floodplain, these recommendations were either rejected or modified such that any flood risk to residences and businesses would be reduced. In addition, safety measures were considered in open space and trail design to reduce risk from floods or crime. It should be noted that some of the trails may not be accessible during high flood events; other trails would have to be routed away from the creek corridor through the neighborhood streets due to space constraints within the creekbed.

A hydrological analysis was made based on floodplain mapping for Phase I has been accomplished utilizing the HEC-II computer program. The program creates a model of the floodplain based on the dimensions and physical characteristics of the floodplain, channel and bridge structures. The program

then calculates the water surface elevation and the velocity of flow for various flood events. Any alteration of the floodplain, channel or bridge structures can result in raising or lowering the water surface elevation of floodwaters and may cause a significant change in the water's velocity. In developed areas such as those flanking the creek in Phase I, any rise in the elevation of floodwaters may cause increased flooding. Changes in velocity can result in increased channel erosion or changes in sediment carrying capacity. Therefore it is important to evaluate the hydraulic effects of any proposed changes in the channel.

Modifications to the channel configuration are proposed for Phase I in the following reaches of Chollas Creek:

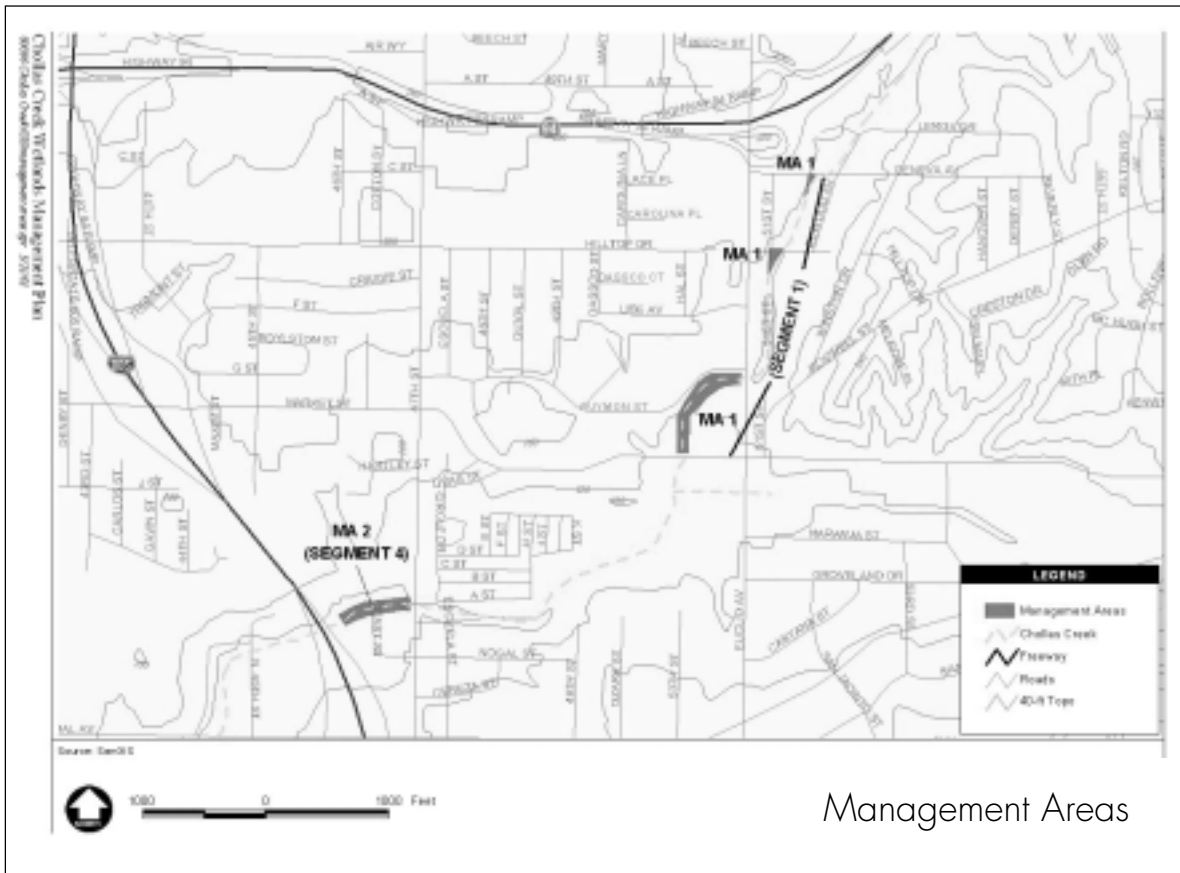
1. South of the existing Sunshine Gardens mobile home park and east of 47th Street (Segment 3).
2. Between Imperial Avenue and Interstate 805 adjacent to the YMCA property (Segment 5).
3. Between Interstate 5 and 38th Street (Segment 8).

Hydraulic effects were also analyzed to assess proposed modifications to the creekbed to accommodate proposed habitat restoration or rehabilitation of the creek and their likely hydraulic effects on the creek's water flow. The hydraulic parameters used in evaluating each proposed modification include:

1. The proposed modifications must result in a calculated 100-year water surface elevation at or below that predicted in the existing model for a 100-year flood assumed to be confined to the floodway.
2. The calculated water surface elevation for a 100-year flood upstream and downstream of each reach studied must not be significantly changed.
3. Properties intended for habitable structures on either side of the proposed modified flood channel must be protected from a 100-year flood in accordance with the requirements of FEMA and the City of San Diego.
4. The calculated mean velocity of the 100-year flood flow in vegetated sections of the modified channel must not exceed 7 feet per second (FPS).

Identification of Management Areas

Because the study area is located in a very urbanized section of the City of San Diego, open space and large tracts of vacant properties are very scarce in this area. Revitalizing this part of San Diego is a high priority within the City and thus, development pressures in the study area are strong. As development proceeds, it is important that adequate mitigation measures be established and that viable riparian areas be protected. Project approval conditions for mitigation should create additional habitat areas within the creek. An aggressive exotics removal and channel broadening effort should also be a component of the mitigation effort. It is the goal of this management plan to recognize development pressures combined with the need for flood protection and management, as well as include a functional recreational and environmental component through wetlands preservation and restoration.



Management Areas

Management Areas (MA) are reaches within the creek that would benefit from continued habitat management practices such as exotic species control, sediment and debris removal and trash removal. Enhancement Areas (EA) were identified through a modeling effort as sites (Figure 6) that would benefit from creek alteration and wetlands restoration and enhancement to restore some of the original wetlands and riparian communities that were historically (prior to urbanization) present in Southern California creeks and to enhance the landscape and recreational effect of the creek. Management Actions such as wetlands preservation and exotic species control, and Enhancement/ Restoration Actions for riparian areas are outlined in the next section.