



**CITY OF SANTA BARBARA**  
**PARK AND RECREATION COMMISSION REPORT**

**AGENDA DATE:** May 26, 2010

**TO:** Parks and Recreation Commission

**FROM:** Creeks Division, Parks and Recreation Department

**SUBJECT:** Mission Creek Restoration and Fish Passage Project at the Tallant Road Bridge

**RECOMMENDATION:** That the Commission receive a report on the Creeks Division's Mission Creek Restoration and Fish Passage Program.

**DISCUSSION:**

Introduction

The purpose of this staff report is to provide the Commission with an overview of the Creeks Division's Mission Creek Restoration and Fish Passage Program, with detailed information on the restoration and fish passage project in Oak Park at the Tallant Road Bridge. The report also provides information on the natural history of the federally endangered steelhead trout. The fish passage project in Oak Park is the first of three projects planned for Mission Creek.

Natural History

The steelhead trout is a remarkable trout species that lives in both freshwater and ocean environments. Steelhead trout are born in freshwater streams/ivers. They typically spend their first year in freshwater habitats and then migrate to the ocean where they spend most of their adult life. Adult steelhead trout are anadromous, meaning they migrate up freshwater streams and rivers to spawn. Steelhead can spawn at any time of year in which adequate flows exist within the stream or river (Stoecker 2002). In Southern California, adequate flows occur during the winter and spring months. Steelhead are capable of several spawning runs during their lifetime, unlike salmon, which spawn once and die.

Steelhead trout are native to streams and rivers along the Pacific Coast from Mexico to Alaska. Populations of southern steelhead historically existed in all of the larger watersheds within Santa Barbara County (Stoecker 2002). The Santa Ynez River is reported to have had the largest population of steelhead in all of Southern California with estimates of 13,000 to 25,000 adults returning in the 1943-1944 run (Titus 1994). Steelhead also inhabited many of the smaller

coastal watersheds in Southern Santa Barbara County. Historic estimates of adult steelhead run size do not exist for these smaller streams, but their combined annual run size was likely in the thousands (Stoecker 2002).

The current distribution of steelhead trout extends from Alaska to northern Baja (Stoecker 2002). Although the range of the steelhead is still very large, populations in the southern portion of their range have been severely reduced. Since the beginning of the century it is estimated that steelhead populations in Southern California have been reduced to less than one percent of their former population size (Stoecker 2002). Due to the significant reduction, the Southern California steelhead trout population (which includes Santa Barbara County) has been federally designated as an endangered species by the National Marine Fisheries Service.

Reduction in steelhead trout populations can be attributed to two primary factors: migration barriers and loss of spawning/rearing habitat. Migration barriers are probably the largest threat to steelhead trout populations. Steelhead trout need to swim upstream in order to reach suitable spawning habitat. Upstream migration is limited by water depth, flow rates, and jump heights. Construction of roads, bridges, dams, flood control channels, and other structures in creeks and rivers has radically modified the stream channels and created conditions such as shallow (less than 12 inches) fast moving (over 8 feet per second) water and large jump heights (6 -10 feet) that are not favorable to steelhead trout upstream migration. These structures often block access to the highest quality steelhead spawning habitat in the upper watersheds. Removing the barriers to migration is probably the single most important action that can be taken to restore steelhead trout populations within Southern California.

Steelhead trout have very specific habitat requirements for successful spawning and rearing. The trout need clear, cool, good quality water for spawning. They also need pools with clean gravel beds and adequate depth and size for making redds (nests). The streams must include riffle habitat as well as good quality substrate for a healthy macroinvertebrate population (bugs for food). In Santa Barbara County, these conditions are mostly located within the mid to upper sections of the stream channels. Urbanization, including roads and water diversions, has degraded water quality in many streams and rivers. Urbanization has also modified the stream morphology (shape) and substrate making some portions of the streams unusable for spawning. Coastal estuaries and lagoons are also important for steelhead rearing. Many have been drained or filled for urbanization limiting the available habitat for steelhead.

### Mission Creek Restoration Program

Mission Creek is considered the most viable stream for steelhead trout restoration within the City of Santa Barbara. Mission Creek has an existing population of rainbow trout, contains high quality spawning and rearing habitat within the stream channels in the mid and upper watershed, and has a documented historic run of steelhead trout. In five of the last seven years, the federally endangered Southern California steelhead trout have been observed attempting to migrate and spawn within the lower section of Mission Creek. During the winter of 2007/2008 six steelhead trout over 16 inches were documented in the lower section of Mission Creek.

Although steelhead trout are frequently seen in Mission Creek, they are unable to migrate upstream and spawn due to barriers within the creek channel. Currently, there are 12 significant anthropogenic barriers to steelhead trout migration on Mission Creek. The Creeks Division is currently working to remove three of these barriers. The three barriers are located at the Caltrans Channels, the Highway 192 Bridge, and the Tallant Road Bridge. Removing these barriers would provide access for steelhead trout to 3.9 miles of creek channel, which include two miles of moderate to high quality spawning and rearing habitat (Stoecker 2002).

### Tallant Road

#### *Project Purpose*

The first barrier removal project to be constructed by the City is in Oak Park at the Tallant Road Bridge. The primary goal of the project is to improve upstream migration of the endangered steelhead trout in order to provide access to their historic spawning grounds. Another important goal of the project is to improve habitat within Oak Park through restoration of the creek banks. Installation of approximately 1,500 native plants will assist the steelhead trout by reducing erosion and improving water quality. The native plants will also improve habitat for migratory birds, small mammals, amphibians, and native pollinators. The restored area will improve the natural aesthetics of Oak Park and provide education opportunities on natural history and wildlife for park visitors.

#### *Background*

The Tallant Road Bridge is located at the upstream end of Oak Park and provides a critical link between the Samarkand neighborhood and downtown Santa Barbara. The bridge currently has a large concrete grade control structure that extends downstream of the bridge approximately 80 feet. The grade control structure also protects a sewer line that runs below the creek bed. At the bottom of the grade control structure is a large pool. Due to the height and length of the grade control structure, fish passage upstream is considered almost impossible.

The Creeks Division has been working to develop design plans for modifying steelhead trout fish migration barriers at the Tallant Road Bridge for the last four years. The conceptual design work was completed by Questa Engineering, in June 2007, under a \$50,000 grant from the State Coastal Conservancy. Subsequently, Questa Engineering was hired to prepare final construction plans and specifications in July 2008. The design work was funded through a \$50,000 grant from the Department of Fish Game (DFG) Fisheries Restoration Grant Program. Construction plans and specifications were completed in March 2010. CEQA review for the project was completed in May 2009 and permitting completed in March 2010.

### *Project Design*

The fish passage design selected for the Tallant Road Bridge will replace the existing grade control structures with a series of large riffles and pools. Riffles are defined as areas within a stream channel where water is relatively shallow and moves quickly over rock or gravel bars. The riffles will essentially appear as large rock ramps, with a grade of 3-4%. The riffles will contain varied rock sizes from small (6-8 inch cobble) to large (2-3 ton). At the base of each riffle there will be a pool. The pools will provide resting places for fish during upstream migration. Large 5-8 ton boulders as well as a mixture of small rock and gravel will be strategically placed in the channel to prevent bank erosion and create a stable channel bed.

The project design was selected because it is cost effective, will not increase flooding risks, will provide fish passage at various flow stages, and will have good structural integrity with limited maintenance.

The key components of the project are:

- Remove the concrete grade control structure downstream of the bridge;
- Remove the existing sewer line and install a new sewer line immediately downstream of the bridge;
- Construct riffles, weirs (erosion control check structures), and pools within the stream channel using various size rocks;
- Install 1,500 native plants and trees on the creek banks;
- Project construction will occur within the existing stream channel and will extend approximately 300 feet downstream of the bridge.

### **Funding For the Tallant Road Project:**

The construction cost estimate for the Mission Creek Restoration and Fish passage project at the Tallant Road Bridge is \$963,160. Construction will be funded through a combination of grant funds and Creeks Capital Program funds.

There is currently \$588,000 appropriated for this project in the Creeks Division Capital fund. In 2009, the Creeks Division received a \$250,000 grant from the National Oceanic and Atmospheric Administration (NOAA) Open Rivers Program for construction of the project. In April 2010, the Creeks Division received a \$397,000 grant from the DFG Fisheries Restoration Grant Program for project construction. Combined, there is sufficient funding to complete construction of this project.

#### **Project Construction Schedule:**

The Mission Creek Restoration and Fish Passage Project at the Tallant Road Bridge is scheduled to begin construction in July and be completed in October 2010.

#### **Additional Fish Barrier Projects:**

The Creeks Division is also working on removal of two other fish passage barriers on Mission Creek at the Caltrans Channels and Highway 192 Bridge.

##### *Caltrans Channels Barriers*

The barriers downstream of the Tallant Road project are located within two concrete lined flood control channels, known as the "Caltrans Channels". The upstream channel is approximately 0.3 miles long, extending between Los Olivos and Pedregosa Streets, and the downstream channel is approximately 0.8 miles long, extending between Arrellaga and Canon Perdido Streets. The upstream and downstream channels are separated by a 0.4 mile long natural section extending between Pedregosa and Arrellaga Streets. The channels were constructed in 1934 and 1961 respectively, by the California Department of Transportation (Caltrans) to improve flood control along Highway 101. The channels prevent fish from migrating upstream because flows rates and flow depths within the concrete channels are too fast and/or too shallow for fish to swim upstream and there are no resting areas.

The Creeks Division has received two grants from the DFG and one private grant from the Annenberg Foundation (through the Environmental Defense Center) for project design (a total of \$835,000 in grant funds for design work). A feasible concept design has been developed and currently the City is working with HDR Engineering to prepare the final construction design plans and specifications. Final construction design plans and specifications will be completed in the fall of 2010. The City has also received permission to construct the project from the landowner (County of Santa Barbara Flood Control District). Permitting for the project will be completed in the spring of 2011. Pending grant funding,

construction at the upper channel is scheduled for summer 2011 with construction of the lower channel in 2012.

*Highway 192*

The Highway 192 Barrier is located upstream of the Tallant Road Project located immediately downstream of Highway 192 Bridge over Mission Creek. The bridge currently has a large concrete grade control structure that extends downstream of the bridge approximately 40 feet. The grade control structure also protects a large 36" water main operated by the Cachuma Operation and Maintenance Board (COMB) that runs below the creek. At the bottom of the grade control structure is a large pool. Due to the height and length of the grade control structure, fish passage upstream is considered almost impossible.

Questa Engineering was hired by the Creeks Division to prepare final construction plans and specifications in July 2008. The Creeks Division received a \$64,000 grant from DFG to develop the plans for the fish passage project and was originally going to construct the project. However, since COMB has a 36' water line immediately downstream of the Highway 192 Bridge that needs to be replaced. COMB has agreed to use the fish passage plans to restore the creek during the water line replacement project. The Creeks Division coordinated with COMB on completing the final plans and specifications, but COMB is now the responsible agency for permitting and constructing the fish passage project.

The final construction plans and specifications were completed in March. COMB has received landowner approval to construct the project. COMB has applied for all necessary permits and over the next year, COMB will complete CEQA review and permitting. COMB was originally scheduled to replace the water line and construct the fish passage project at the Highway 192 Bridge during the summer of 2010. Project construction has been delayed until the summer of 2011 due to budget constraints.

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