

**City of Thousand Oaks
Renewal of Temporary Urgency Change Order for Permit 20952
Pond Turtle Monitoring Plan
December 22, 2014**

The City of Thousand Oaks (City) will implement the following pond turtle habitat monitoring plan for the period of time that the renewal of the State Water Resources Control Board Order Approving Petition for Temporary Urgency Change for Permit 20952 (Order) is in effect.

1. Monitoring Methods

a. Habitat Suitability Index Surveys

The City will conduct western pond turtle (WPT) (*Emys marmorata*) Habitat Suitability Index (HSI) Surveys. The HSI is based on a set of habitat and hydrological variables that can be related to the occurrence and abundance of WPT. Eight variables are used to qualitatively evaluate habitat quality in Conejo Creek: water velocity (V1), water depth (V2), water regime (V3), aquatic cover (V4), basking opportunities (V5), barriers to upland movement (V6), upland habitat quality (V7), aquatic migration (distance WPT must travel in aquatic habitat to reach "suitable" upland habitat (V8).

Habitat values within each variable are scored from 0 (low) to 1 (high). These variables are then used collectively or singly to evaluate the following five habitat categories: a) water component (V1 through V3); b) aquatic cover component (V4); c) basking opportunities component (V5); d) terrestrial component (V6 and V7), and; e) aquatic migration component (V8).

The HSI is a composite of water (W), aquatic cover (AC), basking opportunities (BO), terrestrial (T), and migration (M) habitat components. These components are weighted so that the aquatic-related components (W, AC, and BO) receive the highest relevance to the HSI score (75% of score). The terrestrial component, T, comprises 20% of the total HSI score, while the migration component, M, comprises only 5% of the total score.

Multiplying the length of the reach in feet by the HSI for that reach and dividing this amount by 1,000 calculates an HSI value for each surveyed reach of Conejo Creek (Reaches 1-4). An HSI for the entire study area is determined by averaging HSI values for the various reaches.

b. Water Flow and Quality Monitoring

During the HSI evaluations, biologists will take measurements at a representative location along each specific reach. At each representative location, the City will collect pool measurements, including water velocity, water depth, water width, water length, water temperature, dissolved oxygen, and turbidity. The City will also measure all dry gaps observed in each reach during HSI survey visits and include this information in any summary reports.

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2. Monitoring Locations

The City will conduct HSI surveys of eight (8) Conejo Creek stream reaches. (See Figure 1A, attached hereto.) The stream reaches are as follows:

- **Reach 1:** Highway 101 bridge downstream to Adohr Road bridge (~2,150 feet long);
- **Reach 2:** Adohr Road bridge downstream to Howard Road bridge (~5,750 feet long);

Reach 2 is divided into three subreaches (2A, 2B, and 2C) based on stream characteristics, topographical landmarks and adjacent land use. Reach 2A extends from the Adohr Road Bridge downstream for approximately 2,650 feet and is distinguished by its adjacency to coastal scrub upland habitat east of the creek. Reach 2B is characterized by its adjacent relationship to the Camarillo Springs golf course and extends for approximately 1,550 feet. Reach 2C extends approximately 1,550 feet downstream of the Camarillo Sanitary District WWTP/Camarillo Springs golf course to the Howard Road Bridge and is differentiated by its adjacency to coastal scrub upland habitat southeast of the creek.

- **Reach 3:** Howard Road bridge downstream to Pancho Road bridge (~3,550 feet long).
- **Reach 4:** Pancho Road bridge downstream to confluence of Conejo and Calleguas Creeks (3,350 feet long).

Reach 4 is divided into three subreaches (4A, 4B, and 4C) based on stream characteristics, topographical landmarks and adjacent land use. Reach 4A extends from Poncho Road Bridge downstream for approximately 925 feet. This reach is characterized as a series of deep pools divided by riffles. Reach 4B is characterized as a simple long wide run that extends for approximately 1,550 feet. Reach 4C is approximately 875 feet long and extends to the Calleguas Creek confluence with Conejo Creek. This reach is characterized as a series of deep pools with riffles between.

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3. Monitoring Frequency

The City will conduct a total of five HSI surveys on the following schedule:

- Month One: 1 survey (end of month)
- Month Two: 1 survey (end of month)
- Month Three: 1 survey (end of month)
- Month Four: 1 survey (end of month)
- Month Five: 1 survey (end of month)
- Month Six: No survey (wouldn't yield timely information for potential operational adjustments during the term of the temporary change).

4. Response Thresholds

The City will contact the State Water Resources Control Board and the California Department of Fish and Wildlife if any of the following monitoring thresholds are realized during the HSI surveys:

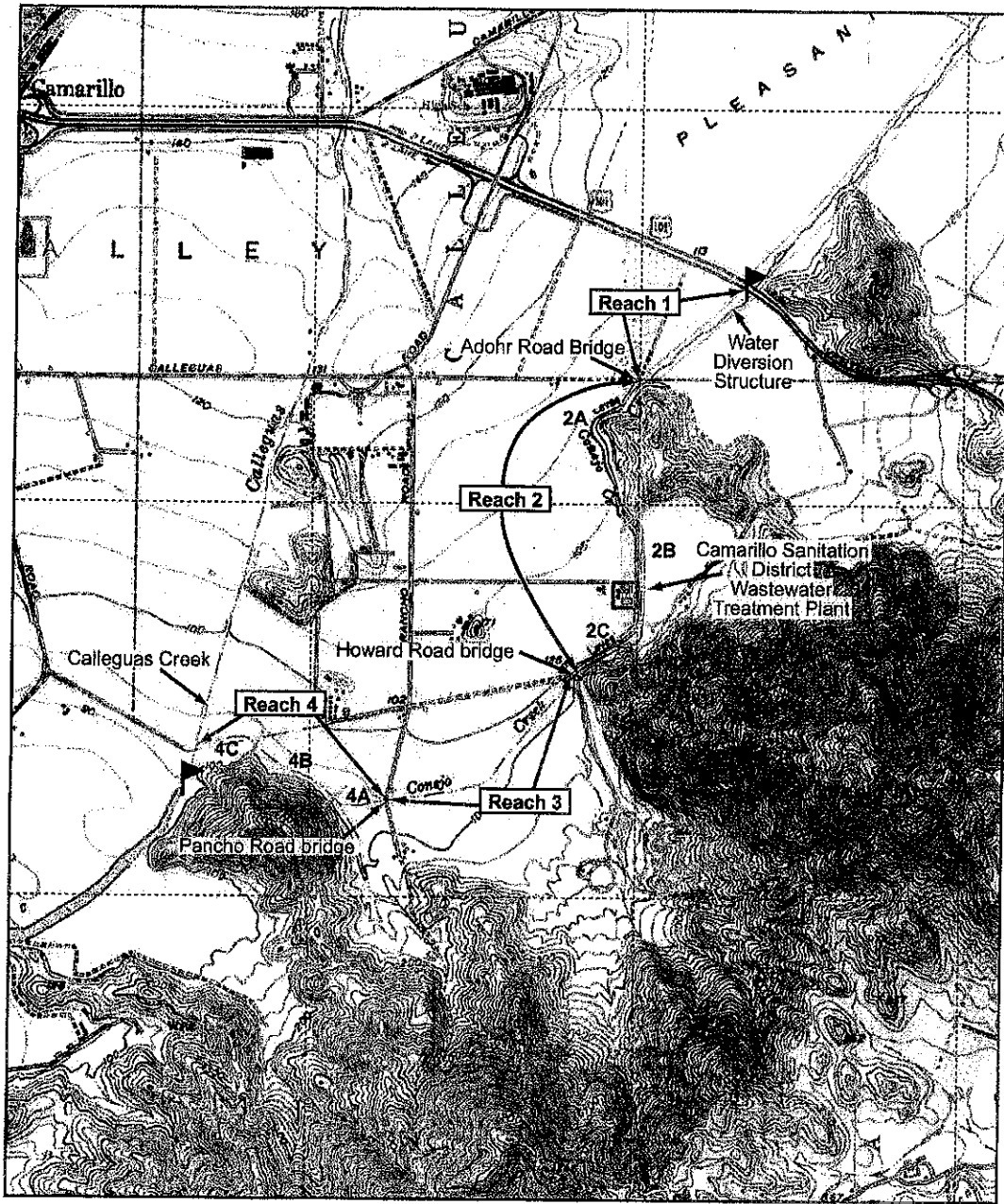
1. HSI results decrease 25% compared to the City's April 2014 baseline HSI study
2. Water depths in Reach 4A and 4C drop below 1.5 feet (from 2.5 feet)
3. Evidence of increased predation on pond turtle
4. Steelhead trout or trout-like species observed

5. Upper Reach Monitoring

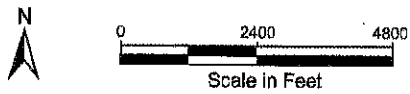
The City will also conduct two (2) qualitative assessments of the upper reaches of Arroyo Conejo Creek, at and above the Hill Canyon Wastewater Treatment Plant. The goal of these surveys will be to document the extent of the pond turtle population in the upper reaches of the watershed.

6. Reporting

Upon completion of each monthly survey, City consultants will prepare a brief summary memorandum to document the results of the survey. Upon completion of the study, the data will be compiled in one final report similar to the City's original pond turtle monitoring program.



Source: National Geographic TOPOI, 2003



Sub-Reach Breaks

Study Site Vicinity

Figure 1A
City of Thousand Oaks