



## Interstate 280 Wildlife Connectivity Research Study

**Proposed Start and Completion Date:** June 15, 2011 through December 31, 2013

### **Statement of Need**

The purpose for conducting this research project is to ascertain where and why animals (focusing on but not limited to deer) are being struck by vehicles on Interstate 280 in San Mateo County. The reasons for animal/vehicle collisions cannot usually be attributed to a single factor. Collision rates may be a result of a number of environmental, geographical and human engineered variables. These findings will then be used to develop a “transportation enhancement” (TE) plan that will aid in the reduction of animal mortality and increase the level of human safety along I-280 in San Mateo County. To ensure that the TE produced at the end of the study is effective, the research project must ensure that all of the associated variables are taken into account during the planning and analysis stage of the project.

### **Introduction**

The project area is located along the I280 corridor in San Mateo County (see attached map). Although this area is almost entirely developed, large areas of open space adjacent or near to the travel corridor provide suitable habitat for a variety of wildlife species. Numerous animals (deer being the most visible and posing the most danger to drivers) are killed on this road annually; it is estimated that along the approximately 15 mile study area over 100 deer are killed per year in addition to numerous individuals of a variety of other small wildlife species. This study is being initiated to determine the scope of the problem, identify areas of concern or emphasis for future work, and propose solutions (including but not limited to vegetation management, fencing, and new construction) to allow animal movement without the current associated traffic impacts.

### **Study Objectives**

1. Determine the types, relative abundance and total abundance of wildlife species killed on I280 in the study area;
2. Determine where animals are moving into the research area from;
3. Determine how, when and where are animals gaining access to I-280;
4. Determine impacts of topography on animal movements in the proximity of I280;
5. Measure vegetation impacts on animal movements;
6. Measure impacts of fencing on animal movement/access to I280;
7. Measure animal use of existing culverts/bridges to cross I280;

8. Determine if road junctions and on/off ramps have an impact on animal numbers in proximity to I280;
9. Investigate proximity of water sources as a factor in animal movement in proximity to I280.

### **Methods**

Field studies that will be implemented include GPS animal tracking, infrared photo stations, live traps, track plates and drop traps. GPS tracking will require the capture of a limited number of medium to large animal species (typically deer). GPS tracking units are highly demanding on resources and although the information obtained is highly accurate it will not provide a sufficient overview of the population numbers. Visual counts of animal are typically the best method to get an accurate estimation of the relative abundance and total abundance of particular species. To generate adequate population data, photo traps will be set up in areas that are deemed as “areas of special interest” or in other areas of particular interest. Smaller animal species that cannot be GPS collared or may not be large enough to trigger photo stations will be observed using live traps, track plates and drop traps. The presence or absence of animal species in the location can be determined with all of the methods described above. However, no method of detection works 100% of the time, and that while the detection of an animal confirms its presence; the lack of detection does not confirm its absence.

Specifically, DFG staff will capture adult female deer to deploy 15 GPS collars at approximately 2 seven month intervals. Because of battery drain associated with the large quantity of data collected, collars can only be deployed for seven months. Therefore, a total of 15 deer will be captured and collared during each of September – October 2011, April – May 2012, and September – October 2012 for a total of 45 deer. Only 15 collars will be deployed at any given time. GPS collars will be Argos satellite service enabled allowing daily downloads of the location data from the collar. Daily downloads will prevent the loss of data due to damage if any collared deer are hit by vehicles along the roadway. GPS collars will be programmed to obtain locations every hour. Collars will be equipped with automatic release mechanisms to enable retrieval at the end of the study.

Deer will be captured via free-range darting and/or Clover trapping by proficient DFG employees with assistance from UC Davis personnel. All capture procedures will be authorized by the DFG Deer Program and Wildlife Investigations Laboratory and will follow an approved capture plan. Deer will be weighed, measured, and hair, skin, and blood samples collected for further analyses, not covered by this project’s funding, aimed at determining the general health of the captured individuals. In addition, an incisiform canine will be extracted to accurately determine the age of individuals.

**Products (and estimated dates of completion)**

Task Item	Date to Submit Deliverables
Task 1: A) Convene team; B) Monthly team meetings; C) coordination with land managers/owners for access adjacent to ROW; D) quarterly and annual reports; E) report findings at ICOET 2013	<b>June 15, 2011 to August 30, 2013</b> A) July 15, 2011; B) continuous; C) September 15, 2011; D) continuous, final: December 31, 2013; E) August 2013
Task 2: A) Review and update wildlife data; B) capture, collar, and track deer; C) select crossings and deploy wildlife cameras and track plates; D) map deer and other wildlife occurrence	<b>October 1, 2011 to April 1, 2013</b> A) December 31, 2011; B) December 31, 2012; C) September 1, 2011; D) March 31, 2013
Task 3: A) Characterize crossings; B) Identify movement relative to existing crossings; C) recommend methods to reduce wildlife-vehicle collision	<b>October 1, 2011 to June 30, 2013</b> A) July 31, 2012; B) March 31, 2013; C) June 30, 2012

**Collaborators**

California Department of Transportation; University of California, Davis.

**Funding**

California Department of Transportation

**Issues to be Resolved**

LMAC recommendation

# Study Area Location

