HELPING TO MAKE ADVANCE MITIGATION DECISIONS WITH CUSTOM GIS TOOLS

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Agenda

- Program Overview
- GIS Data and Tool Overview
- Demonstration
Advance Mitigation Program Overview

- Advance Mitigation Program established in code (SHC§800 et seq.)
  
  - Established by the Road Repair and Accountability Act of 2017 (SB 1; Stats. 2017, Chapter 5, Section 35) and elaborated upon by a budget bill (SB 103; Stats. 2017, Chapter 95, Section 10), effective July 21, 2017

- Built upon the experience of previous Caltrans efforts
  
  - RAMP, SAMI
  
  - Advance Mitigation Program in the State Highway Operation and Protection Program (SHOPP)

- Intent of program (SHC §800(a)): to enhance communications between the department and stakeholders to protect natural resources through project mitigation, to meet or exceed applicable environmental requirements, to accelerate project delivery, and to mitigate, to the maximum extent required by law, environmental impacts from transportation infrastructure projects.

- Goals of Advance Mitigation:
  
  - To improve project delivery outcomes through anticipating our compensatory mitigation needs and implementing mitigation projects ahead of transportation project delivery and impacts being incurred.
  
  - To improve environmental outcomes by directing mitigation investment toward strategic environmental goals in coordination with conservation plans and recovery plans

- Program planning is driven by Caltrans’ mitigation needs, and directed toward conservation goals and objectives
Advance Mitigation Program and Conservation Planning

- **Planning Phase**
  - *Statewide Advance Mitigation Needs Assessment*
    - Estimation of potential impacts of future planned transportation projects
    - Impacts determined by overlaying transportation project footprints with natural resource data layers
    - Impacts consolidated within regions (USDA Ecoregion Sections or HUC 8/10)
    - Used to determine regions for conceptualizing advance mitigation projects
  - *Regional Advance Mitigation Assessment*
    - Within an identified region
      - *Identify conservation goals and objectives*
      - *Identify existing conservation and recovery plans*
      - *Identify existing mitigation opportunities*

- **Scoping Phase**
- **Programming and Delivery Phase**
- **Long Term Management**
Elements Under Way

Statewide Advance Mitigation Needs Assessment

**Purpose**

- Estimates potential compensatory mitigation needs for future SHOPP and potential STIP transportation projects
- Provides basis for identifying Geographic Areas of Interest

**Status**

- GIS Tool Development during 2017
- Assessment run during September and October 2017
- Rolled out to Districts during November and December 2017
- Preparing to identify the first Geographic Areas of Interest
Elements Under Way

**Assessment Methods**

- **Mitigation Needs Assessment**: Primarily a Geospatial Analysis
  - Variation on methods developed by UC Davis, March 2015

- **Basically, an Overlay Analysis**
  - Intersection of transportation project footprints with natural resource layers

- **Transportation Input**
  - Transportation projects on spreadsheets converted to line files
  - Line files converted to area polygons to represent edge of pavement
  - Impact footprint buffers generated around edge of pavement, based on project type

- **Natural Resource Input**
  - Terrestrial species data created by attributing vegetation layers with species information: 1) CWHR habitat suitability; and 2) Constrained by range
  - Waters attributed with listed fish species attributes
  - Wetlands derived from NWI/CARI
GIS Automation and Tool

- Very large and complex source data
- Non-standardized source data for projects
- Automation with Python and VBA
- GIS Add-in tool for reporting
Assessment Report

Aggregates impacts by Ecoregion and Habitat Type

Informs the selection of Geographic Areas of Interest

Informs need and scope of advance mitigation projects
Review

- Advance Mitigation Streamlines Permitting Process
- GIS Leveraged for Decision Making
- Automation for Efficiency
Questions and Contact

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