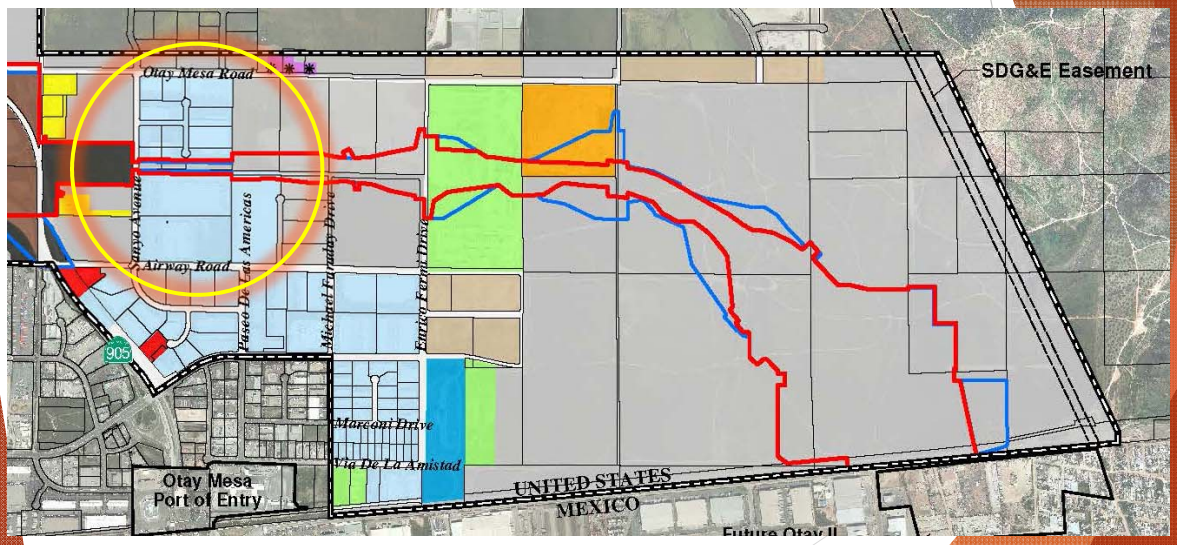
State Route 11 and Otay Mesa East POE

Creative Solutions: Land Use and Biological Resources

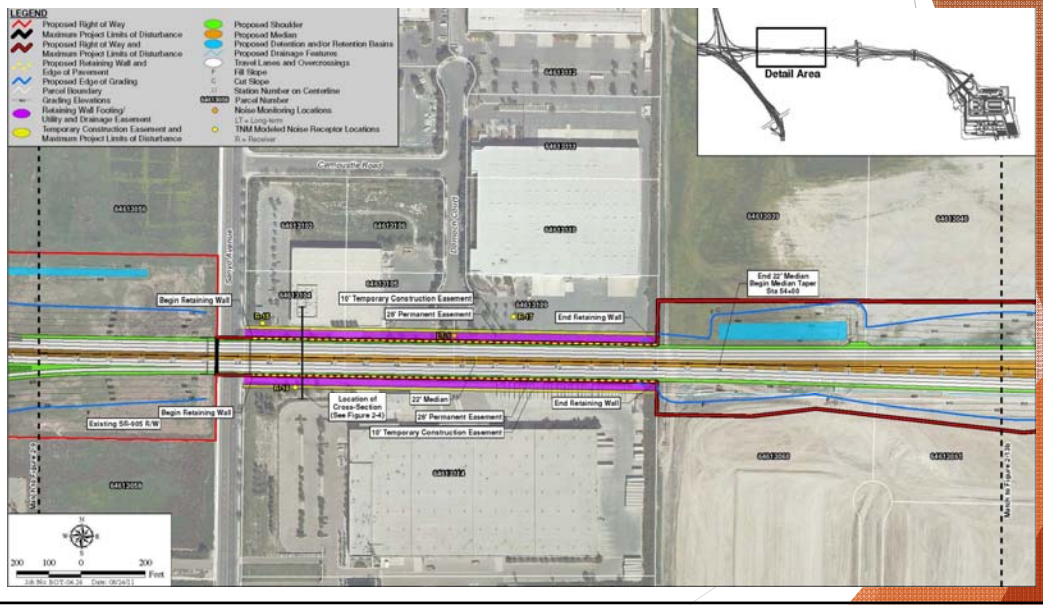
Cooperation with Private Properties



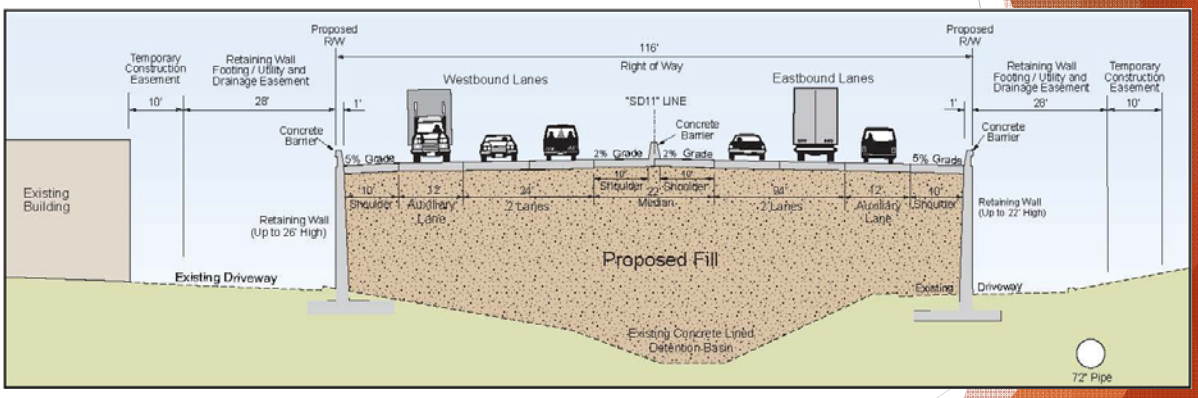
Construction near Sanyo Avenue

- From Sanyo Avenue eastward, the median will be 22 feet wide to minimize impacts to nearby industrial buildings.
- SR-11 would pass between the existing buildings and would be supported by retaining walls for a distance of approximately 1,250 feet as it slopes gradually downward to meet the surrounding grade.
- The walls and headwall structure at Sanyo Avenue would be approximately 26 and 22 feet high on the south and north sides of SR-11, respectively, with the highest portions of the walls located nearest to Sanyo Avenue.
- Due to the minimization of the project footprint in this area, only partial acquisitions of the existing developed properties were required.
- The design is also intended to avoid the use of extensive fill slopes to support the elevated roadway, which would have resulted in additional acquisition of existing developed industrial property along both sides of SR-11 in this area.

Cooperation with Private Properties



Cross-section of Area



2015 Aerial

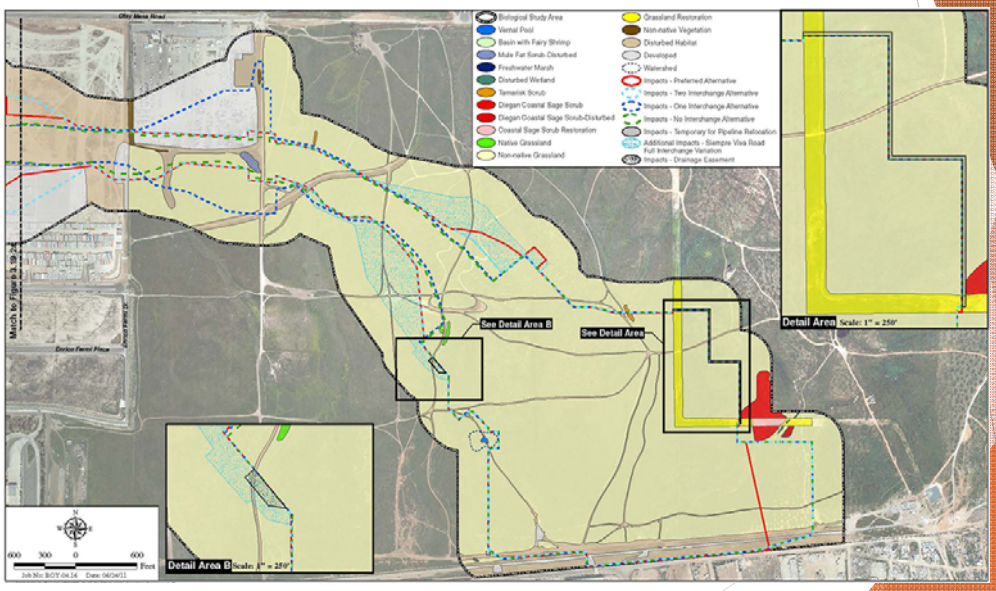
Biology

- Biological Opinion
- Maps of Vegetation - Grasslands
- Maps of Sensitive Species
  - Quino Checkerspot Butterfly
  - Fairy Shrimp
  - Burrowing Owl

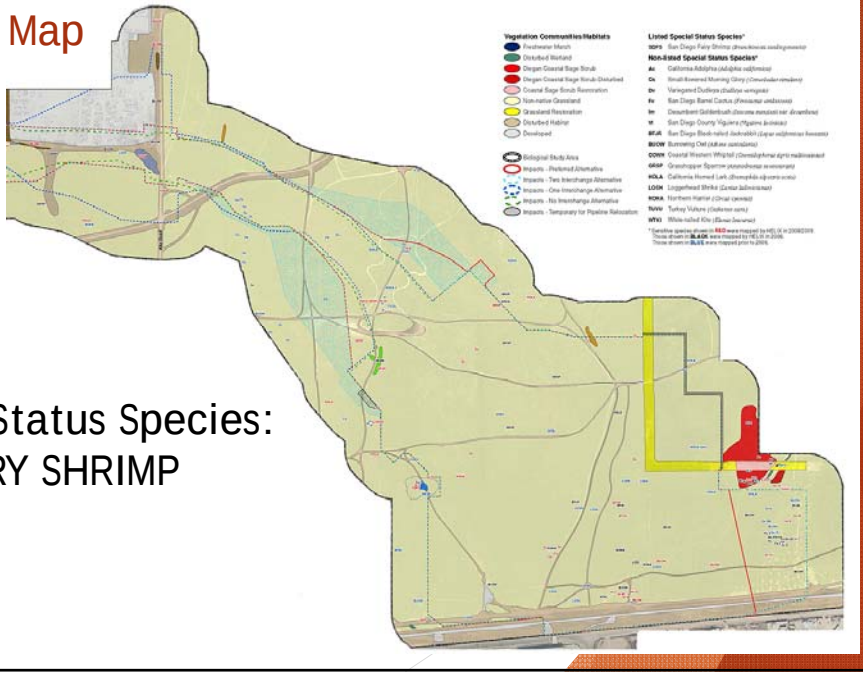
Biological Opinion

- Federally listed endangered San Diego button-celery
- San Diego fairy shrimp
- Riverside fairy shrimp
- Threatened spreading navarretia
- Designated critical habitat for Otay tarplant

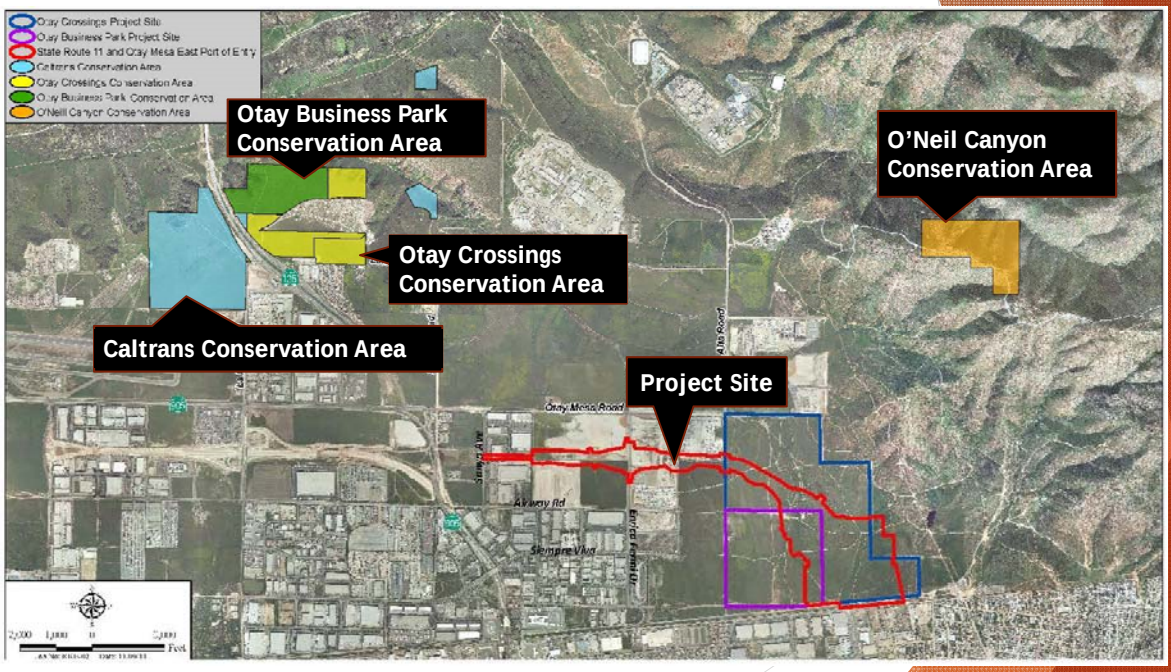
Vegetation Impacts



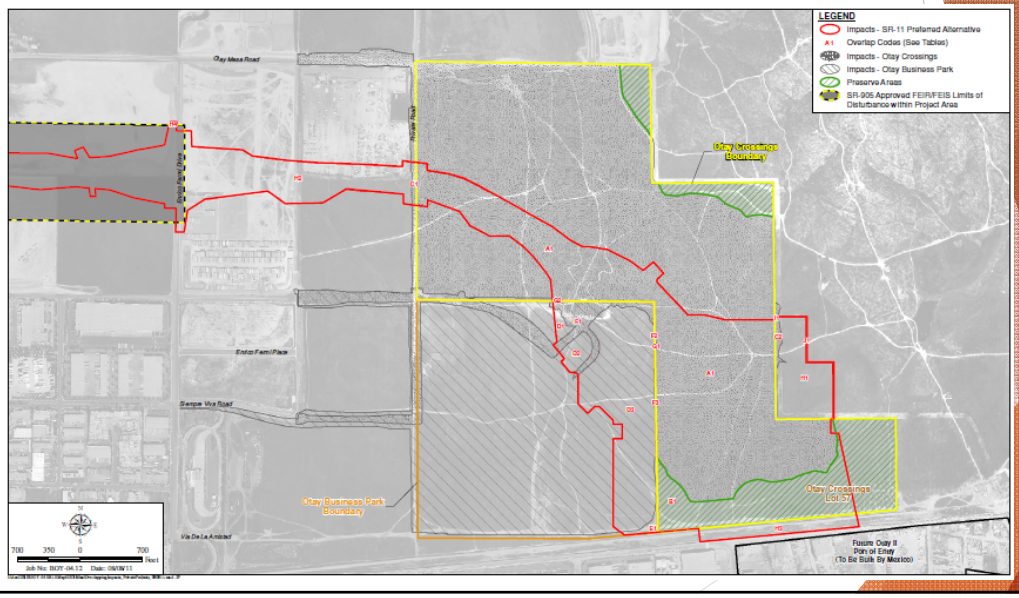
Sensitive Species Map



Listed Special Status Species:
SAN DIEGO FAIRY SHRIMP



Joint Biological Opinion for 3 Projects

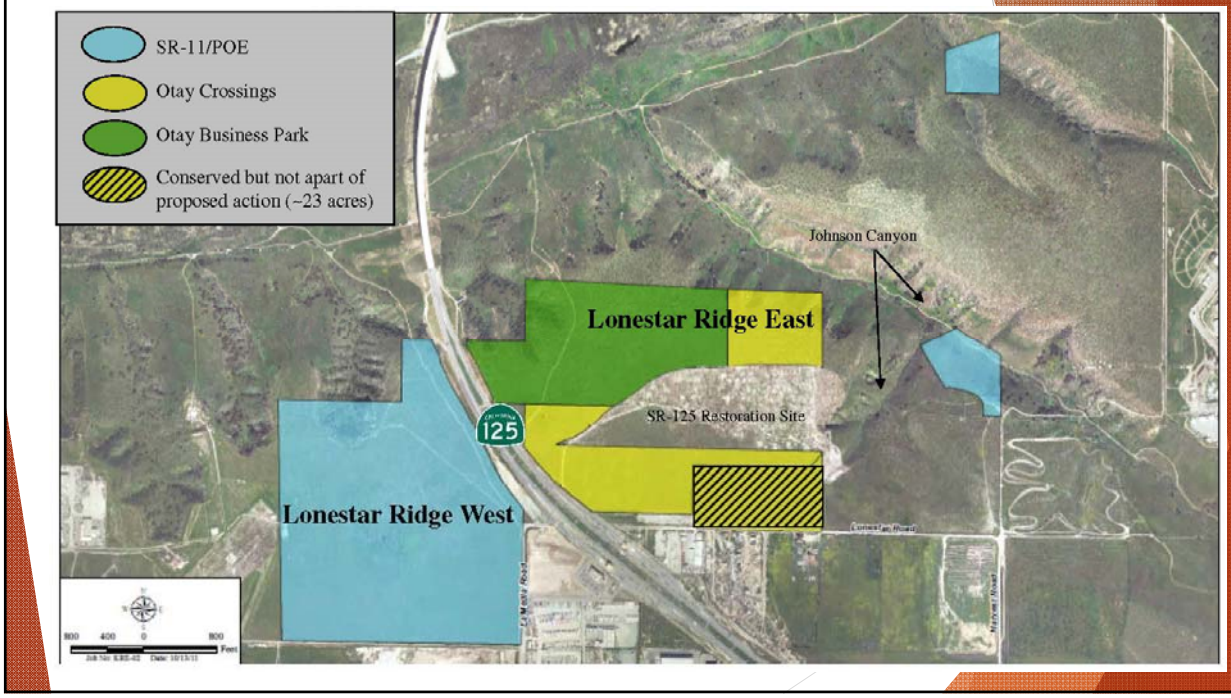


Biological Opinion

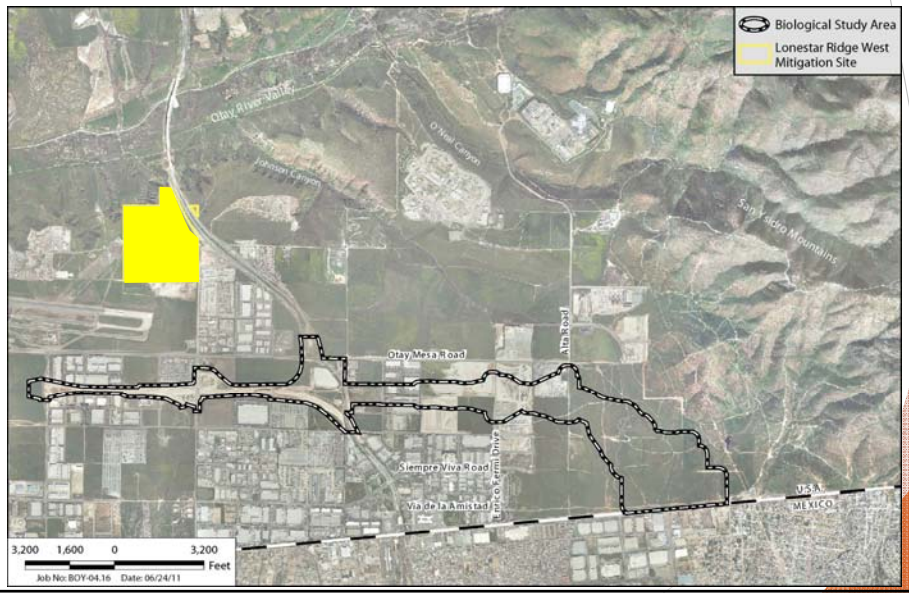
- The Lonestar Ridge West restoration site is 164 acres, located north of Otay Mesa Road and west of La Media Road and State Route 125. It mitigates the SR-11 project's impact to designated critical habitat for the federally endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*) and the federally endangered Quino checkerspot butterfly (*Euphydryas editha quino;* QCB).
- Permit conditions require mitigation in the form of vernal pool restoration and management. The primary goal of mitigation is to create, restore, and preserve vernal pool habitat (including upland watersheds) that function, as nearly as possible, as natural habitat in perpetuity. The Biological Opinion for the State Route 11/Otay Mesa East Port of Entry, Otay Crossings Commerce Park, and Otay Business Park Projects, San Diego County, California (USFWS 2011) also requires mitigation in the form of QCB habitat restoration and management to promote use by QCB throughout its life cycle. Additional mitigation measures included installation of artificial burrows and mima mounds to provide burrowing owl (*Athene cunicularia*) habitat and re-establishment of native grassland habitat onsite to provide foraging habitat for raptors, including burrowing owls and golden eagles (*Aquila chrysaetos*).
- The Lonestar Ridge West Habitat Restoration Plan (Plan), which has been approved by the resource agencies, describes the restoration and management measures essential for successful creation and restoration of vernal pool habitat (Caltrans 2012). After implementation of restoration of the vernal pool and QCB habitat, a five-year maintenance and monitoring program was initiated on November 1, 2012, to verify that the site achieved required success criteria at the end of the five year period of performance.

Lonestar Mitigation Site

- Primary Goal is to create, restore, and preserve Vernal Pool Habitat that functions as natural habitat in perpetuity.
- Quino Checkerspot Butterfly
- Burrowing Owl
- Fairy Shrimp
- Raptors and Golden Eagles



Lonestar Mitigation Site Location



Lonestar Mitigation Site Plan

- Wood Debris Piles
- Maintenance Road
- Perimeter Earthen Berms
- Complex
- Lonestar Boundary
- Mima Mound
- Mima Mound with Plastic Artificial Burrow
- Mima Mound with Wood Artificial Burrow
- Mima Mound with Starter Hole
- Vernal Pool
- Vernal Pool with San Diego Fairy Shrimp
- Vernal Pool with San Diego and Riverside Fairy Shrimp
- Preserved Stands of San Diego Button-Celery

Vernal Pool and Fairy Shrimp

Spreading Navarretia and San Diego Button-Celery

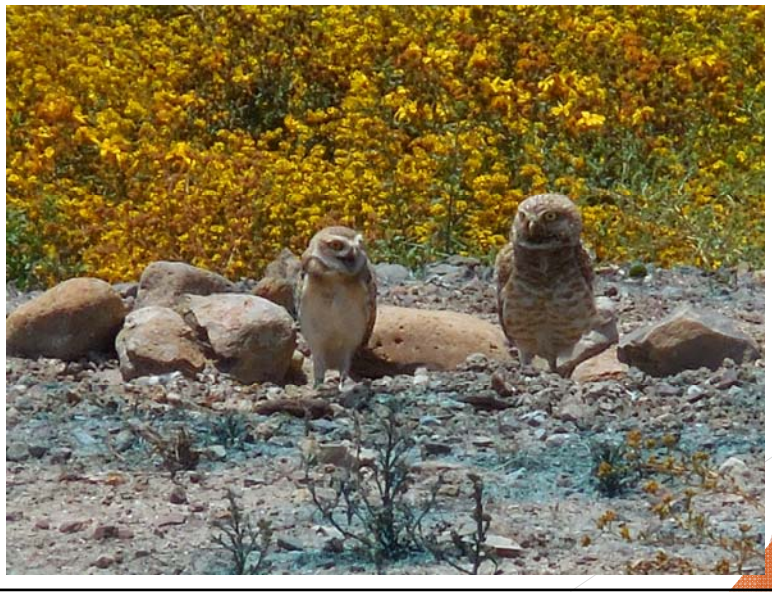
Native Grassland

Quino Checkerspot butterfly Habitat

Mitigation for Burrowing Owls

- Installation of 205 Mima Mounds
- Installation of Artificial Burrows
  - 25 Wooden Boxes with wooded tunnels
  - 25 Plastic Irrigation Boxes with Corrugated Plastic Drainage Pipe
  - 25 “Starter Holes”

Burrowing Owls



Construction of Mima Mounds

Owl Burrows constructed from plastic tubing and wooden boxes

Four Owls outside the entrance to a burrow