

517. This section evaluates the effect of flycatcher conservation activities on transportation activities, such as bridge construction, repair, replacement, or retrofitting, and road construction, repair, widening, or improvements. These activities have the potential to affect flycatcher habitat, for example, through soil erosion, water quality or flow changes, or impacts to vegetation assemblages. This analysis first quantifies the economic impact on past transportation projects of implementing flycatcher conservation activities, and then examines the likelihood of similar economic impacts to future road and bridge construction and maintenance activities.

518. Transportation projects are affected by flycatcher conservation activities only when they cross riparian zones. Past economic impacts to transportation activities are estimated to have been approximately \$8.2 million. Future projects (2004-2024) are estimated to experience impacts of \$7.81 million (discounted at seven percent over 20 years).

8.1 Estimated Past Impacts

519. The flycatcher consultation history includes 18 biological opinions on transportation projects: eight in California, three in Colorado, six in Arizona, and one in Nevada. These consultations involved the Federal Highway Administration (FHWA), USACE, California Department of Transportation (Caltrans), Arizona Department of Transportation (ADOT), and BLM and addressed the construction, expansion and repair of highways, bridges and rail projects.

520. In general, the Service has sought flycatcher habitat avoidance during the construction process, or habitat restoration and/or compensation for lost habitat if this was not possible. The following flycatcher conservation activities were recommended on past transportation projects:

- Timing restrictions (avoidance of flycatcher breeding season);
- Erosion control;
- Creation and management of substitute habitat;
- Re-vegetation of disturbed areas;

- Signing habitat areas;
- Limiting construction of temporary access roads;
- Funding flycatcher recovery efforts;
- Ensuring no disturbance to stream flow;
- Elimination of fill or dredge materials;
- Limiting in-stream vehicles and equipment; and
- Flycatcher surveys and monitoring.³⁰⁰

521. Where these past project modifications resulted in measurable economic impacts on transportation activities, Exhibit 8-1 describes these costs by Management Unit. Past consultations regarding the flycatcher have not, however, resulted in significant constraints on the size or location of transportation projects. This analysis accordingly assumes that future flycatcher conservation activities may engender additional costs to projects, but will not impair regional mobility.

³⁰⁰ List of past conservation activities derives from study of the consultation history of past transportation-related activities (Colorado State Highway 151 Los Pinos River Bridge Replacement, Light Plant Road and Mill Creek, Eight Corners Intersection and Improvement Project, U.S. Highway 93 Widening Project, Scour Protection of Bridges over Peck Canyon, Mingus Avenue Extension, Highway 75 Bridge Replacement over Gila River, State Route 260: Cottonwood to Camp Verde, U.S. Highway 93 Wickenburg-Kingman Highway: Santa Maria River to Wikieup, New Solomon Bridge and Interim Repairs to Existing Crossing over the Gila River, Construction of the Pabco Road Erosion Control Structure).

Exhibit 8-1

PAST IMPACT ON TRANSPORTATION PROJECTS (2004\$)

Management Unit	Project Type	On-Site Biologist¹	Worker Training¹	Fencing¹	Habitat Restoration²	Habitat Creation³	Timing Restrictions⁴	Monitoring and Evaluation⁵	Other	Total Cost
San Diego	Road/Bridge ⁶	\$0	\$1,000	\$185,000	\$93,000	\$918,000	N/A	N/A	\$1,590,000	\$2,787,000
San Diego	Light Rail/Bridge	\$15,000	\$1,000	\$0	\$112,000	\$246,000	N/A	N/A	\$28,000	\$402,000
San Luis Valley	Bridge Replacement	\$0	\$0	\$185,000	\$102,000	\$0	\$172,000	\$91,000	\$0	\$551,000
San Luis Valley	Road	\$0	\$0	\$0	\$102,000	\$0	\$172,000	\$91,000	\$0	\$366,000
San Luis Valley	Road/Bridge	\$0	\$0	\$0	\$102,000	\$0	\$172,000	\$91,000	\$0	\$366,000
Bill Williams	Road/Bridge	\$0	\$0	\$0	\$102,000	\$33,000	\$172,000	\$91,000	\$0	\$399,000
Middle Gila/San Pedro	Bridge	\$0	\$0	\$0	\$102,000	\$210,000	\$172,000	\$0	\$0	\$484,000
Verde	Road	\$0	\$0	\$185,000	\$102,000	\$105,000	\$172,000	\$91,000	\$0	\$656,000
Verde	Bridge	\$0	\$0	\$0	\$102,000	\$0	\$172,000	\$91,000	\$0	\$366,000
Verde	Road	\$15,000	\$1,000	\$0	\$102,000	\$210,000	\$172,000	\$213,000	\$0	\$713,000
Verde	Road	\$15,000	\$1,000	\$0	\$102,000	\$210,000	\$172,000	\$91,000	\$0	\$591,000
Upper Gila	Bridge	\$15,000	\$1,000	\$0	\$0	\$0	\$0	\$0	\$0	\$16,000
Vigin	Road	\$15,000	\$1,000	\$0	\$102,000	\$210,000	\$172,000	\$0	\$0	\$500,000
Total		\$73,000	\$8,000	\$555,000	\$1,228,000	\$2,141,000	\$1,722,000	\$852,000	\$1,618,000	\$8,196,000

Notes: Estimates may not sum due to rounding. Values are adjusted to 2004 dollars using the GDP Deflator, Budget of the United States Government, Fiscal Year 2005, Historical Tables.

¹ Cost figures derived from two past consultations in California: Mission Valley East Light Rail Transit Project and Cannon Road (cost information provided by James Hecht, SANDAG, on July 20, 2004 and Shari Howard, City of Carlsbad Planning Department, on August 4, 2004).

² For projects where habitat restoration costs were unknown, this analysis uses averages the cost of two California projects (Mission Valley East Light Rail Transit Project and Cannon Road) to calculate a per-project modification cost figure for Habitat Restoration (\$91,790)

³ Cost figures derived from three separate biological opinions:

\$818,000 from Cannon Road consultation, Carlsbad, CA

\$222,200 from Mission Valley East Light Rail Transit Project

\$33,000 from Reinitiation of US 93 Highway (Wickenburg to Kingman) Widening Project

\$100,000 from Mingus Avenue Extension

\$200,000 from Scour Protection, Bridges over Peck Canyon

⁴ Annual cost figure derived from Arizona Department of Transportation (ADOT) study regarding the approximate cost of avoiding WIFL breeding season . The number is based upon demobilizing equipment at a site and remobilizing approximately 4 months later.

⁵ Cost figures derived from the following sources:

\$195,000 from State Route 260, Cottonwood to Camp Verde

\$90,000 from ADOT study regarding past costs of monitoring and evaluation for WIFL.

⁶ The Highway 71 widening Project (Riverside) required construction of two wildlife undercrossings (i.e., bridges). The total associated with the undercrossings was and flycatcher was estimated at \$1.6 million by CalTrans. These costs are included in the "Other" category.

8.2 Potential Future Impacts

522. This section describes the projected transportation activities that are foreseeable within or affecting flycatcher proposed CHD.

8.2.1 California

523. Transportation-related activities in California are expected to experience an economic impact of approximately \$2.7 million (discounted at seven percent to 2004 dollars) associated with flycatcher conservation activities in the foreseeable future.

524. The California Transportation Planning Program's California Transportation Investment System (CTIS) was used to inform this analysis regarding plans for future road projects occurring in the State.³⁰¹ The CTIS includes data on projects such as highway widenings and new road and bridge construction projects. This analysis employed GIS to determine the number of miles of highway construction and improvement expected to occur within proposed CHD in the future. Costs of flycatcher related conservation activities were then assigned on a per mile basis. The following describes the analytical methodology:

- **Estimate future road project miles intersecting proposed CHD.** CTIS GIS data analysis permits calculation of the number of planned and programmed transportation project miles in proposed CHD. Future transportation projects are likely to intersect the San Diego, Santa Ana and Santa Ynez Management Units. In sum, three road projects totaling roughly 5.2 project miles are expected to intersect flycatcher proposed CHD in California.
- **Estimate flycatcher restoration cost per mile.** The average cost of flycatcher conservation measures is calculated on a per project mile basis. This estimate is reached by averaging the per project mile cost of flycatcher conservation activities from all past projects. The average cost of flycatcher conservation measures is estimated to be approximately \$684,000 per project-mile.
- **Calculate the cost of future projects.** Multiplying future project miles intersecting proposed CHD and per project mile flycatcher-related costs, and using CTIS data regarding the timing of the projects, a present value cost of roughly \$2.7 million is calculated using a discount rate of seven percent.

³⁰¹ California Office of State Planning, "California Transportation Investment System, Transportation Planning Program," accessed at <http://www.dot.ca.gov/hq/tpp/offices/osp/userguide/intro.htm>.

Exhibit 8-2				
COSTS OF FUTURE TRANSPORTATION PROJECTS IN CALIFORNIA				
Management Unit	Road Name	Funding Year	Project Mileage	Cost Estimate (2004\$)
Mohave	15	2010	0.48	\$219,000
San Diego	76	2008	4.57	\$2,384,000
Santa Ynez	246	2005	0.14	\$89,000
California Total			5.19	\$2,690,000
Notes: Values are adjusted to 2004 dollars using the GDP Deflator, Budget of the United States Government, Fiscal Year 2005, Historical Tables.				

8.2.2 Utah

525. Transportation-related activities in Utah are not expected to experience an economic impact associated with flycatcher conservation activities in the foreseeable future.
526. The Utah Department of Transportation (UDOT) has indicated that no planned transportation projects are likely to affect proposed CHD.³⁰² The Service agrees that no known projects will affect the Virgin River or its habitats in Utah.³⁰³
527. Communities surrounding I-15 along the Virgin River are expected to experience development pressure in the future. UDOT anticipates a corresponding demand for more and improved infrastructure, including the expansion of existing roads and highways to meet the county's growing needs.³⁰⁴ The extent and the specific locations of future road and bridge development, however, are speculative at this time.

8.2.3 Colorado

528. Transportation-related activities in Colorado are not expected to experience an economic impact associated with flycatcher conservation activities in the foreseeable future.
529. The Colorado Department of Transportation (CDOT) has indicated that no existing transportation projects bisect the proposed CHD for the flycatcher.³⁰⁵ The Transportation Commission of Colorado's 2020 plan indicates that one project is planned to occur within the critical habitat designation in the next 16 years.³⁰⁶ This project, the

³⁰² Personal communication with Paul West, Utah Department of Transportation, September 30, 2004 and February 15, 2005.

³⁰³ Service, Region 6, January 4, 2005.

³⁰⁴ Personal communication with Paul West, Utah Department of Transportation, September 30, 2004.

³⁰⁵ Personal communication with Jeff Peterson and Gary Spinuzz, California Department of Transportation, August 26, 2004; personal communication with Jon Holst, California Department of Transportation, September 16, 2004.

³⁰⁶ Colorado Department of Transportation, "2020 Plan: Investing in Colorado's Future," accessed at <http://www.dot.state.co.us/StateWidePlanning/PlansStudies/2020Plan.htm> on December 2, 2004.

"US 160 - Bypass Through Alamosa Project Phase 1," is a three-mile bypass project slated to occur at the intersection of Highway 160 and Highway 285 in East Alamosa. CDOT has indicated that no conservation efforts specific to the flycatcher are anticipated for this project, and that further project development along the proposed CHD is unlikely in the foreseeable future.³⁰⁷ This analysis accordingly determines that no flycatcher efforts will be undertaken for this project.

8.2.4 Nevada

530. Transportation-related activities in Nevada are expected to experience an economic impact of \$617,000 (discounted at seven percent to 2004 dollars) associated with flycatcher conservation activities in the foreseeable future.

531. The Nevada Department of Transportation (NDOT) has identified one transportation project that will pass through the Virgin Management Unit of the proposed critical habitat designation in the next 10 years.³⁰⁸ This project is the rebuilding of the Virgin River bridge at SR170 in Clark County, Nevada. Construction is projected to begin in early 2005, and may take several months to complete.³⁰⁹ Although the flycatcher has not been seen in the immediate construction area, potential habitat exists.³¹⁰ Thus, NDOT will conduct further surveys in the area.³¹¹ Project modification cost information for this project is based on costs of modifications to similar projects in Arizona and is presented in Exhibit 8-3.

8.2.5 New Mexico

532. Transportation-related activities in New Mexico are expected to experience an economic impact of \$1.6 million (discounted at seven percent to 2004 dollars) associated with flycatcher conservation activities in the foreseeable future.

533. The State Transportation Improvement Plan (STIP) for New Mexico identifies three transportation projects planned to pass through the proposed CHD for the flycatcher in New Mexico by 2009:³¹²

- Tri-Centennial West Gateway Zone, Old Route 66 Interchange Project;
- Espanola Main Street (Paseo de Oñate) road project; and
- Scenic Overlook Project at the Rio Arriba/Taos County Line.

³⁰⁷ Personal communication with Jon Holst, California Department of Transportation, September 30, 2004.

³⁰⁸ Personal communication with Eric Warmath, Nevada Department of Transportation, August 31, 2004.

³⁰⁹ Nevada Department of Transportation, "Statewide Improvement Plan (STIP)," accessed at http://www.nevadadot.com/traveler/construction_projects/stip/ on December 2, 2004.

³¹⁰ Personal communication with Ted Bendure, Nevada Department of Transportation, October 6, 2004.

³¹¹ Personal communication with Lori Bells, Nevada Department of Transportation, October 6, 2004.

³¹² Nevada Department of Transportation, "Statewide Improvement Plan (STIP)," accessed at http://www.nevadadot.com/traveler/construction_projects/stip/ on December 2, 2004.

534. At the present time, the New Mexico Department of Transportation (NMDOT) has not conducted an environmental assessment for any of these projects, and any impacts specific to flycatcher are uncertain.³¹³ This analysis assumes that each of these projects may be subject to flycatcher conservation measures, and that the costs of these measures will be comparable to the costs of compliance for similar past projects in Arizona (see Section 8.2.6). Project modification costs for these projects may stem from date restrictions (the cost of demobilizing equipment to avoid breeding season), monitoring and evaluation, and surveying. Exhibit 8-3 presents more detailed information regarding the potential future costs of project modification for these projects.

8.2.6 Arizona

535. Transportation-related activities in Arizona are expected to experience an economic impact of approximately \$3.0 million (discounted at seven percent to 2004 dollars) associated with flycatcher conservation activities in the foreseeable future.

536. The Arizona Department of Transportation (ADOT) has identified seven transportation projects that are planned to pass through the proposed CHD in the next ten years: the Big Sandy Project on US 93, and road rehabilitation projects along State Routes 179, 95, 80, 70, 75 and I-19. The exact start dates and scope for these projects are still uncertain at this time.³¹⁴ ADOT anticipates potential project modifications to these projects. Costs may result from date restrictions, surveying, and monitoring and evaluation as highlighted in Exhibit 8-3.³¹⁵

³¹³ Personal communication with Rand Morgan, New Mexico Department of Transportation, September 30, 2004.

³¹⁴ Personal communication with Justin White, Arizona Department of Transportation, August 31, 2004.

³¹⁵ Personal communication with Thomas C. Ashbeck, Senior Project Scientist, EcoPlan Associates, Inc., October 4, 2004.

Exhibit 8-3

**FUTURE IMPACT ON TRANSPORTATION PROJECTS
2004-2023 (2004\$)¹**

Management Unit (State)	Project Name (Project Type)	Funding Year	Timing Restrictions⁴	Monitoring and Evaluation⁴	Other⁴	Present Value Total Cost
Mohave (CA)	15 (Road)	2010	N/A ²	N/A ²	N/A ²	\$219,000
San Diego (CA)	76 (Road)	2008	N/A ²	N/A ²	N/A ²	\$2,384,000
Santa Ynez (CA)	246 (Road)	2005	N/A ²	N/A ²	N/A ²	\$89,000
Bill Williams (AZ)	Big Sandy, US 93 (Road/Bridge)	2005-2007	\$510,000	\$270,000	\$22,500	\$750,000
Verde (AZ)	SR 179, MP 312.6 (Road)	Unknown ³	\$340,000	\$0	\$45,000	\$385,000
Upper Gila (AZ)	SR 70, MP 379 (Road)	Unknown ³	\$340,000	\$0	\$15,000	\$355,000
Upper Gila (AZ)	SR75, MP 384 (Road)	Unknown ³	\$340,000	\$0	\$45,000	\$385,000
Middle Gila/San Pedro (AZ)	SR 80, MP 298 (Road)	Unknown ³	\$340,000	\$0	\$15,000	\$355,000
Middle Gila/San Pedro (AZ)	I-19, MP 17 (Road)	Unknown ³	\$340,000	\$0	\$25,000	\$365,000
Hoover-Parker (AZ)	SR95, MP 158.8 (Road)	Unknown ³	\$340,000	\$0	\$15,000	\$355,000
Upper Rio Grande (NM)	Tri-Centennial West Gateway Zone, Old Route 66 Interchange – East (Road)	2009	\$364,000	\$270,000	\$26,000	\$471,000
Upper Rio Grande (NM)	Espanola Main Street (Paseo de Onate) (Road)	2008	\$364,000	\$270,000	\$26,000	\$504,000
Upper Rio Grande (NM)	Scenic Overlook at Rio Arriba/Taos County Line (Road)	2006	\$364,000	\$270,000	\$26,000	\$577,000
Virgin (NV)	Virgin River Bridge Project (Bridge)	2005	\$364,000	\$270,000	\$26,000	\$617,000
Total						\$7,812,000

Notes: Estimates may not sum due to rounding.

¹ Future costs are discounted at a rate of seven percent and presented in 2004 dollars.

² Future costs of California projects are determined applying an average cost per project mile as detailed in Exhibit 8-2.

³ Projects with an unknown time frame are assumed to occur this year; that is, costs associated with these projects are not discounted.

⁴ Cost estimates from personal communication with Justin White, Arizona Department of Transportation, September 14, 2004.