American River Pump Station Project

Final Environmental Impact Statement/
Environmental Impact Report

Appendix C - Volume 1
Responses to Comments on the Draft Environmental Impact Statement/Environmental Impact Report

Master Responses

Placer County Water Agency

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

June 2002

SCH# 1999062089
PCWA-044

Appendix C

Responses to Comments on the Draft EIS/EIR

Volume 1 - List of Commenters and Master Responses

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Appendix C
Responses to Comments on the Draft EIS/EIR
Volume 1 - List of Commenters and Master Responses

1.0 INTRODUCTION

Appendix C, Responses to Comments on the Draft Environmental Impact Statement/ Environmental Impact Report (EIS/EIR), consists of two volumes:

Volume 1 includes (1) an index list of commenters and page numbers where the responses to substantive comments on significant environmental issues are provided and (2) comprehensive or "Master Responses" for certain issues or topics that were raised in several of the comment letters.

Volume 2 includes copies of the written comment letters and the transcript of oral comments received at the October 11, 2002 public meeting. Attachments or supplemental material included with individual comment letters are not reprinted in the responses to comments. These materials may be viewed at one of the lead agency offices. Individuals wishing to review the comment letter attachment materials may contact one of the individuals listed below.

U.S. Bureau of Reclamation, Mr. Rod Hall	(916) 988-1707
Placer County Water Agency, Mr. Brent Smith	(530) 823-4886

As specified in the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA), the focus of the response to comments is on the disposition of significant environmental issues. Detailed responses are not required for comments regarding the merits of a proposed project or alternatives. Comments on the merits of a project are forwarded to lead agency decision-makers for their consideration prior to making a determination regarding whether to approve the proposed project or one of the alternatives.

2.0 LIST OF COMMENTS RECEIVED ON THE DRAFT EIS/EIR

Over 600 comment letters were received on the American River Pump Station Project Draft EIS/EIR, including 341 individual comment letters and 5 form letters. The five form letters highlighted the following topics: (1) Auburn-to-Cool Trail (168 letters); (2) Maidu Drive Neighborhood Topics (3 letters); (3) Auburn-to-Cool Trail (11 letters); (4) Project Support (19 letters); and (5) Maidu Drive Neighborhood Topics (94 signatures). In addition, 29 oral comments were recorded at the public meeting held on October 11, 2001. The following is an alphabetized commenter index providing the commenter, the page number where individual comment responses are located, and the Master Response section number (if applicable). The page numbering reflects the report volume; C1 refers to Appendix C, Volume 1, and C2 refers to Appendix C, Volume 2. The Master Responses are all included in Section 3.0 of Appendix C, Volume 1 and are listed in the table of contents.

Commenters on the American River Pump Station Project Draft Environmental Impact Statement/Environmental Impact Report		
Number	**Commenter Name**	**Page and/or Master Response Number(s)**
L-102	Abbott, Mary	C2-153; 3.1.1
T-2	Abbott, Mary	C2-525; 3.1.1, 3.1.4
L-111	Abderhalden, Dona	C2-168; 3.1.6, 3.1.9, 3.1.10
F1-107	Abruzzini, Linda	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-154	Ackart, Tom	C2-572; 3.1.1, 3.1.3, 3.1.6
L-285	Adrien, Marie and Elster, Nick	C2-484, 3.1.1
F1-74	Albrecht, Jon	C2-572; 3.1.1, 3.1.3, 3.1.6
F5-84	Albright, Laura	C2-578; 3.1.6, 3.1.10
F5-86	Albright, Randy	C2-578; 3.1.6, 3.1.10
F1-66	Alderink, Jim	C2-572; 3.1.1, 3.1.3, 3.1.6
L-333	Allegro, Kimberly and Alyson, Sinamon, Sharon, Unknown, Unknown	C2-499; 3.1.1
L-164	Allison, Cyla; Nassau-Suffolk Horsemen's Association, Inc.	C2-257; 3.1.1
L-230	Amara, Dirk	C2-348; 3.1.6, 3.1.10
L-229	Amara, Sandy	C2-347; 3.1.10
F1-156	Andersen, Vicki	C2-572; 3.1.1, 3.1.3, 3.1.6
F5-32	Anderson, Joanne	C2-578; 3.1.6, 3.1.10
L-295	Anderson, Lorraine	C2-487; 3.1.1
L-241	Anderson, Mark	C2-359; 3.1.6, 3.1.9, 3.1.10
F = Form Letter, L = Individual Comment Letter; T = Public Meeting Transcript		

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Number	**Commenter Name**	**Page and/or Master Response Number(s)**
F5-46	Anderson, Mark	C2-578; 3.1.6, 3.1.10
F1-20	Anderson, Terri	C2-572; 3.1.1, 3.1.3, 3.1.6
L-200	Andrade, Dawn	C2-304; 3.1.6
F1-45	Ariosta, Cynthia	C2-572; 3.1.1, 3.1.3, 3.1.6
L-324	Armstrong, Sean	C2-495; 3.1.1
L-46	Arnold, Joanne	C2-68; 3.1.1, 3.1.6
F1-62	Arnold, Kathy	C2-572; 3.1.1, 3.1.3, 3.1.6
L-233	Aronowitz, Paul	C2-351; 3.1.10
L-70	Arons, Eric	C2-98
F5-74	Ashlock, Betty	C2-578; 3.1.6, 3.1.10
F5-75	Ashlock, E.L.	C2-578; 3.1.6, 3.1.10
F1-159	Ashmead, Suzanne	C2-572; 3.1.1, 3.1.3, 3.1.6
L-252	Atkins, Gayle	C2-411; 3.1.1
F1-153	Avery, Penny	C2-572; 3.1.1, 3.1.3, 3.1.6
L-35	Badenhoop, Lucy	C2-56; 3.1.1
L-112	Bailey, Randy	C2-170; 3.1.13
L-281	Bailey, Randy; Bailey Environmental	C2-462; 3.1.3
F1-38	Bailey, Ray	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-160	Bain, Susan G.	C2-572; 3.1.1, 3.1.3, 3.1.6
L-264	Baiocchi, Bob	C2-424; 3.1.8, 3.1.13
L-27	Baldwin, Bruce and Dana	C2-41; 3.1.1
L-94	Ball, Jacqueline; California Department of Parks and Recreation	C2-127; 3.1.1, 3.1.6, 3.1.9, 3.1.10
L-42	Barney, Terri	C2-63; 3.1.1
F3-9	Barton, Jerry	C2-576; 3.1.1
F1-30	Baskin, Judi M.	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-129	Beaven, Cody L.	C2-572; 3.1.1, 3.1.3, 3.1.6
F5-3	Beck, Shari	C2-578; 3.1.6, 3.1.10
L-261	Beitler, Aaron	C2-421
L-249	Bennett, William J.; California Department of Water Resources	C2-402; 3.1.5
L-169	Benson, John and D.L.	C2-265; 3.1.10
L-341	Berger, Bill; Georgetown Divide Recreation District	C2-506; 3.1.1

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Number	**Commenter Name**	**Page and/or Master Response Number(s)**
F1-48	Betteridge, Julie	C2-572; 3.1.1, 3.1.3, 3.1.6
L-268	Beuttler, John; California Sportfishing Protection Alliance	C2-440; 3.1.3
L-113	Billings, Steve	C2-174; 3.1.1, 3.1.6, 3.1.9, 3.1.10
F5-52	Billings, Steve	C2-578; 3.1.6, 3.1.10
L-303	Bird, Sue	C2-489; 3.1.1
F5-53	Bischel, Jill	C2-578; 3.1.6, 3.1.10
F5-51	Black, George	C2-578; 3.1.6, 3.1.10
F1-118	Boisa, Linda Straub	C2-572; 3.1.1, 3.1.3, 3.1.6
L-256	Boisa, Linda Straub	C2-415; 3.1.1
L-38	Borovich, Bonnie	C2-59; 3.1.1
L-1	Borovich, Bonnie and Killian, JayDeen	C2-1; 3.1.1
L-165	Bowdoin, Edward and Holly	C2-258; 3.1.6, 3.1.9, 3.1.10
L-7	Boyer, Patti	C2-18; 3.1.1
F5-14	Bradford, Darlene	C2-578; 3.1.6, 3.1.10
F5-87	Brechwald, Gayle	C2-578; 3.1.6, 3.1.10
F1-37	Brehm, Judy	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-59	Brinkman, Carl	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-57	Brinkman, Karen	C2-572; 3.1.1, 3.1.3, 3.1.6
L-231	Bronegher, J. L.	C2-349; 3.1.6, 3.1.10
L-191	Brougher, Betty	C2-292; 3.1.6, 3.1.10
F5-9	Brougher, Jack	C2-578; 3.1.6, 3.1.10
L-160	Brown, Jim and Justine	C2-253; 3.1.1
F1-73	Brusin, Willie and Sue	C2-572; 3.1.1, 3.1.3, 3.1.6
L-316	Burge, Deborah	C2-493; 3.1.1
F1-98	Burke, Anastasia, and Quinn, Adda	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-91	Burton, Pamela	C2-572; 3.1.1, 3.1.3, 3.1.6
L-328	Butler, Les	C2-496; 3.1.1
L-84	Cadenasso, Martha	C2-113; 3.1.1, 3.1.6
L-85	Cadenasso, Richard	C2-114; 3.1.1, 3.1.6
T-25	Cardwell, Barry	C2-564; 3.1.1
L-216	Carriere, Emile J.	C2-333; 3.1.9, 3.1.10
F5-64	Carriere, Emilo	C2-578; 3.1.6, 3.1.10

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F1-79	Carter, Sharon	C2-572; 3.1.1, 3.1.3, 3.1.6
L-5	Cartier, Emmett	C2-8; 3.1.1, 3.1.3, 3.1.4, 3.1.5, 3.1.6, 3.1.8
T-20	Cartier, Emmett	C2-555; 3.1.1, 3.1.3, 3.1.5, 3.1.7
L-61	Casarotti, Meggan	C2-88; 3.1.1
F1-35	Casarotti, Meggan	C2-572; 3.1.1, 3.1.3, 3.1.6
L-21	Cather, Katie	C2-33; 3.1.1, 3.1.5
F1-124	Chinn, Barbara	C2-572; 3.1.1, 3.1.3, 3.1.6
L-239	Clark, Alfred W.	C2-357; 3.1.6, 3.1.10
F5-93	Clark, Alice	C2-578; 3.1.6, 3.1.10
L-226	Clark, Mark	C2-344; 3.1.9; 3.1.12
L-227	Clark, Mark	C2-345; 3.1.6, 3.1.9
F5-10	Clark, Mark	C2-578; 3.1.6, 3.1.10
L-317	Clark, Rae	C2-493; 3.1.1
F1-152	Cleveland, Lori A.	C2-572; 3.1.1, 3.1.3, 3.1.6
L-36	Coburn, William L.	C2-57; 3.1.1
L-187	Coe, George	C2-288; 3.1.6, 3.1.9, 3.1.10
F1-104	Cohen, Miki; Western States Horse Expos	C2-572; 3.1.1, 3.1.3, 3.1.6
L-315	Cole, Susan and Bob	C2-493; 3.1.1
L-47	Collins, Trista	C2-69; 3.1.1
L-193	Cooke, Bryan and Michelle	C2-296; 3.1.6, 3.1.10
F1-16	Copeland, Kathy	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-150	Copeland, Mike Dr.	C2-572; 3.1.1, 3.1.3, 3.1.6
L-6	Countryman, Joannie	C2-17; 3.1.1, 3.1.6
F1-60	Craven, Judy	C2-572; 3.1.1, 3.1.3, 3.1.6
L-287	Cravens, Clay	C2-485; 3.1.1
L-161	Crim, Eileen; County of El Dorado Trails Advisory Committee	C2-254; 3.1.1, 3.1.2
L-213	Crowden, Colleen	C2-330; 3.1.1, 3.1.2
F1-27	Crull, James A.	C2-572; 3.1.1, 3.1.3, 3.1.6
F3-10	Cunningham, Randy	C2-576; 3.1.1
L-26	Davis, Leonard and Heather	C2-40; 3.1.1, 3.1.4
F1-23	Dawson, Lee	C2-572; 3.1.1, 3.1.3, 3.1.6

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F5-19	Dayton, Jeanne	C2-578; 3.1.6, 3.1.10
F2-3	Dayton, Jeannie	C2-574; 3.1.6, 3.1.10
L-258	Dayton, Paul Dr.	C2-417; 3.1.1
L-53	Dean, Kim	C2-75; 3.1.1
L-188	Del Agostino, Gerald and Muriel	C2-289; 3.1.6, 3.1.9
L-148	Deriggi, Anthony J.	C2-236
L-299	Derry, Jane	C2-487
F1-63	Deseano, Michelle	C2-572; 3.1.1, 3.1.3, 3.1.6
T-4	Dhondt, Bob	C2-529; 3.1.11
L-95	Di Manto, John	C2-136; 3.1.6, 3.1.9; 3.1.10
L-265	Di Manto, John	C2-431; 3.1.6, 3.1.10
L-210	Diaz, Uriel	C2-323; 3.1.1, 3.1.4, 3.1.5
L-331	Dietz, Courtney	C2-498; 3.1.1
L-215	Dill, Wesley A.	C2-332; 3.1.1
L-119	DiMiceli, Denise and Robert	C2-182; 3.1.6, 3.1.10
L-242	Dimmick, Kevin	C2-361; 3.1.6, 3.1.9, 3.1.10
F5-92	Dimmick, Kevin	C2-578; 3.1.6, 3.1.10
F5-20	Doke, Melinda	C2-578; 3.1.6, 3.1.10
L-302	Dotson, Chuck, Fong, Madeliene and Farber, Martin	C2-488; 3.1.1
L-146	Dougherty, Dixie	C2-232; 3.1.6, 3.19, 3.1.12
F1-122	Dowdin, Richard and Elaine	C2-572; 3.1.1, 3.1.3, 3.1.6
L-57	Dowis, Joan R.	C2-79; 3.1.1, 3.1.4
L-332	Downing, Danille, Fenton, Joe, and Onstine, Amber	C2-499; 3.1.1
L-206	Dreher, Karl and Rosemary	C2-315; 3.1.6, 3.1.9, 3.1.10
F1-10	Dugger, Howard	C2-572; 3.1.1, 3.1.3, 3.1.6
L-54	Dunbar, Alice T.	C2-76; 3.1.1, 3.1.5, 3.1.11
F1-106	Duncan, Edna A.	C2-572; 3.1.1, 3.1.3, 3.1.6
L-288	Dunkuns, William E.	C2-486; 3.1.1
L-204	Dye, Joseph L.	C2-313, 3.1.6, 3.1.10
F5-16	Eckhardt, John	C2-578; 3.1.6, 3.1.10
F5-6	Edgerth, John	C2-578; 3.1.6, 3.1.10
L-182	Egan, Michael and Tracy	C2-281; 3.1.5, 3.1.6, 3.1.10
L-101	Egli, Peggy	C2-149; 3.1.6, 3.1.9, 3.1.10

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F1-78	Elliot, Lucinda	C2-572; 3.1.1, 3.1.3, 3.1.6
L-2	English, Jim; San Juan Water District	C2-2
L-110	Estes, Gary W.	C2-163; 3.1.6
F1-94	Etheridge, Judith C.	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-58	Evans, Susan	C2-572; 3.1.1, 3.1.3, 3.1.6
L-208	Everson, Wallace B. and Rosanna	C2-319; 3.1.6, 3.1.10
L-75	Ewing, Jim	C2-103
F1-80	Fager, Maureen A.	C2-572; 3.1.1, 3.1.3, 3.1.6
L-23	Farmer, Pat	C2-37; 3.1.1
L-211	Farrell, William and Natalie	C2-324; 3.1.6, 3.1.9, 3.1.10
L-336	Felker, Kelli	C2-501; 3.1.1
L-174	Felkins, Kenneth and Dorothy	C2-270; 3.1.6
L-212	Ferroggiaro, Rob, Federation of Fly Fishers	C2-327; 3.1.13
L-73	Ferroggiaro, Suzanne	C2-101
F1-69	Fields, Melody	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-61	Finney, Joan	C2-572; 3.1.1, 3.1.3, 3.1.6
T-22	Fisher, Barry	C2-560; 3.1.1
L-109	Flynn, Elizabeth G.	C2-161; 3.1.1
L-59	Ford, Kathie A. and Family	C2-82; 3.1.1
F1-139	Ford, Sharon	C2-572; 3.1.1, 3.1.3, 3.1.6
L-277	Fowler, Richard and Terry	C2-451; 3.1.6, 3.1.9, 3.1.12
F5-94	Fowler, Terry	C2-578; 3.1.6, 3.1.10
F5-49	Fralick, Barbara	C2-578; 3.1.6, 3.1.10
L-153	Frank, Sheryl R.	C2-244; 3.1.6, 3.1.9, 3.1.10
F5-12	Frank, Sheryl R.	C2-578; 3.1.6, 3.1.10
T-15	Freeland, Gene	C2-548; 3.1.1, 3.1.5
L-16	Gabri, Charles and Nanci	C2-28; 3.1.1, 3.1.4
F1-112	Gainasso, Deanna	C2-572; 3.1.1, 3.1.3, 3.1.6
L-263	Gallay, Dan	C2-423
F3-3	Gardiner, John J.	C2-576; 3.1.1
F5-70	Gehlbach, Clark	C2-578; 3.1.6, 3.1.10
L-267	Gehlbach, Clark; Placer County Deputy District Attorney	C2-438; 3.1.9, 3.1.10, 3.1.13

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F1-90	Geller, Jan	C2-572; 3.1.1, 3.1.3, 3.1.6
F4-6	Germain, Jay	C2-577
L-143	Geyer, Fred and Bonnie	C2-229; 3.1.6, 3.1.9
L-103	Gibbs, Dinah C.	C2-155; 3.1.6, 3.1.9, 3.1.10
F1-142	Gierszewski, Sheila	C2-572; 3.1.1, 3.1.3, 3.1.6
L-283	Giglevia, Anthony	C2-482; 3.1.1, 3.1.3, 3.1.4, 3.1.6, 3.1.7,
F1-39	Giles, Vicki	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-108	Gillett, Janet	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-167	Glendenning, Rick and Margo	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-55	Glover, Mike G.	C2-572; 3.1.1, 3.1.3, 3.1.6
L-154	Godfrey, Linda	C2-246; 3.1.1
F5-79	Gonzales, Hank	C2-578; 3.1.6, 3.1.10
L-131	Goodrich, Karen and Richard	C2-210; 3.1.6, 3.1.10
F1-103	Gore, Bill	C2-572; 3.1.1, 3.1.3, 3.1.6
L-31	Gore, William	C2-52; 3.1.1, 3.1.4
F1-1	Gould, Mary L.	C2-572; 3.1.1, 3.1.3, 3.1.6
L-322	Grafton, Dory	C2-494; 3.1.1
F1-25	Graham, Donald	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-26	Graham, Laura	C2-572; 3.1.1, 3.1.3, 3.1.6
L-37	Grant, Bill G.	C2-58; 3.1.6, 3.1.9
F3-4	Grant, Tracy	C2-576; 3.1.1
L-67	Gray, Thomas E.	C2-95
F1-28	Greer, Pamela	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-36	Griesing, Jean	C2-572; 3.1.1, 3.1.3, 3.1.6
L-338	Gugliena, Anthony	C2-502; 3.1.1
L-3	Haagen-Smit, Jim and Cathy; IMBA California Bicycle Coalition, Folsom Auburn Trail Riders Action Coalition	C2-3; 3.1.1, 3.1.3
L-117	Haagen-Smit, Jim and Cathy; IMBA, California Bicycle Coalition, Folsom Auburn Trail Riders Action Coalition	C2-178; 3.1.1
L-318	Hacker, Bryan	C2-493; 3.1.1
L-122	Hada, Dennis	C2-194; 3.1.1

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L-228	Hadley, Richard and Whitlock, Janet	C2-346; 3.1.6, 3.1.9, 3.1.10
L-185	Halbrook, David	C2-285; 3.1.6, 3.1.9
F1-166	Hale, Clarissa	C2-572; 3.1.1, 3.1.3, 3.1.6
L-282	Hale, Jodie, Mayor; City of Auburn	C2-478; 3.1.1, 3.1.6, 3.1.9, 3.10
F1-53	Hall, Lorraine	C2-572; 3.1.1, 3.1.3, 3.1.6
L-246	Hammond, Lou Ann	C2-399; 3.1.6, 3.1.9, 3.1.10
L-121	Hanf, Lisa B.; United States Environmental Protection Agency	C2-185; 3.1.11
L-296	Hannemann, Tony	C2-487; 3.1.1
L-196	Hansen, Eugene F.	C2-300, 3.1.6
L-141	Hanson, Kirk M.	C2-225; 3.1.1, 3.1.9
F1-40	Harker, Lynne D.	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-135	Harper, Margarethe	C2-572; 3.1.1, 3.1.3, 3.1.6
L-43	Harrington , Perry J., Beverly M., Tiffany M., and Jerry K.	C2-64; 3.1.6, 3.1.10
F5-33	Harrington, Bev	C2-578; 3.1.6, 3.1.10
L-260	Harrington, Perry J. and the Harrington Family	C2-419; 3.1.6, 3.1.9, 3.1.10
F1-49	Harris, Barbara	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-99	Harrison, Kelly	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-84	Haun, Julie	C2-572; 3.1.1, 3.1.3, 3.1.6
L-156	Hauschild, John	C2-248; 3.1.1, 3.1.6, 3.1.7
L-78	Haynes, Fran	C2-106
L-292	Hayward, Susan	C2-487
L-71	Healow, Steve	C2-99
L-65	Heaney, Robert	C2-92; 3.1.6; 3.1.9
F5-55	Heinz, M.	C2-578; 3.1.6, 3.1.10
L-133	Heisinger, Claudia and Kurt	C2-212; 3.1.6, 3.1.9, 3.1.10
L-162	Helland, Steve and Marsha	C2-255; 3.1.6, 3.1.10
F1-24	Hendrickson, Suzanne	C2-572; 3.1.1, 3.1.3, 3.1.6
L-184	Henretty, Linda and Michael	C2-284; 3.1.6, 3.1.10
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F1-120	Sexton, Kathleen	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-165	Sextro, Ann	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-83	Shafer, Jennifer	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-97	Shea, Lari; Ricochet Ridge Ranch	C2-572; 3.1.1, 3.1.3, 3.1.6
F5-68	Shears, Dave	C2-578; 3.1.6, 3.1.10
L-272	Shears, David H.	C2-444; 3.1.6, 3.1.9
L-271	Shears, Dorothy M.	C2-443; 3.1.6
F1-89	Sheeter, Joan	C2-572; 3.1.1, 3.1.3, 3.1.6
F4-2	Shepard, Paul	C2-577
F1-114	Sherman, Jim and Kathy	C2-572; 3.1.1, 3.1.3, 3.1.6
T-11	Shuttleworth, Alan	C2-544
T-13	Shuttleworth, Dale	C2-545
T-10	Shuttleworth, Jay	C2-542
L-221	Sidnam, Bill	C2-339; 3.1.6, 3.1.9, 3.1.10
F5-90	Sidnam, Bill	C2-578; 3.1.6, 3.1.10
L-222	Sidnam, Judy	C2-340; 3.1.4, 3.1.6, 3.1.9
F5-34	Sidnam, Judy	C2-578; 3.1.6, 3.1.10
F5-45	Simon, Glenn	C2-578; 3.1.6, 3.1.10
F5-44	Simon, J.H.	C2-578; 3.1.6, 3.1.10
F1-151	Simoni, Lynge	C2-572; 3.1.1, 3.1.3, 3.1.6
L-195	Simpson, Linda	C2-299; 3.1.6, 3.1.10

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Number	**Commenter Name**	**Page and/or Master Response Number(s)**
F5-62	Simpson, Linda	C2-578; 3.1.6, 3.1.10
L-294	Simpson, Nancy	C2-487; 3.1.1
L-41	Singh, Alice Dowdin; Mayor, City of Auburn	C2-62; 3.1.9
L-257	Smith, Beryl C.; Greater Auburn Area Fire Safe Council	C2-416; 3.1.9
L-290	Smith, Jeff	C2-486; 3.1.1
F1-158	Smith, John	C2-572; 3.1.1, 3.1.3, 3.1.6
L-13	Smith, Roberta	C2-25
T-24	Snow, Laura	C2-563; 3.1.6
F5-78	Snyder, James O.	C2-578; 3.1.6, 3.1.10
F5-77	Snyder, Myrtle M.	C2-578; 3.1.6, 3.1.10
T-19	Soderlund, Greg	C2-553; 3.1.1, 3.1.3
F1-2	Soto, James Donald Sr.	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-14	Sparkman, Alison and Art	C2-572; 3.1.1, 3.1.3, 3.1.6
L-255	Spiers, Peter	C2-414
F5-36	Spinosi, Josephine G.	C2-578; 3.1.6, 3.1.10
F5-38	Spinosi, Michael	C2-578; 3.1.6, 3.1.10
L-91	Spinosi, Mr. and Mrs. Michael	C2-121; 3.1.6, 3.1.9, 3.1.10
F1-86	Stacy, Mickie	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-88	Stalzer, Chad	C2-572; 3.1.1, 3.1.3, 3.1.6
L-66	Stanely, Leon D.	C2-93; 3.1.6, 3.1.9, 3.1.10
F5-31	Stanley, Leon	C2-578; 3.1.6, 3.1.10
F5-88	Stanley, Sally	C2-578; 3.1.6, 3.1.10
L-219	Steger, Jenning, Curly Media	C2-337
L-220	Steger, Jenning, Curly Media	C2-338; 3.1.5
L-205	Stevenson, Frank	C2-314; 3.1.6
T-5	Stork, Ronald	C2-532
L-127	Stork, Ronald; Friends of the River	C2-202; 3.1.1
F5-82	Striplin, Dave	C2-578; 3.1.6, 3.1.10
L-134	Striplin, Dave and Kristi	C2-213; 3.1.6, 3.1.10
F5-83	Striplin, Kristi	C2-578; 3.1.6, 3.1.10
L-149	Stroich, Salmon	C2-237
L-300	Stroman, Janet	C2-487; 3.1.1

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Number	**Commenter Name**	**Page and/or Master Response Number(s)**
F5-13	Studdbaker, Clint	C2-578; 3.1.6, 3.1.10
L-232	Studebaker, Clint	C2-350; 3.1.6, 3.1.10
F1-93	Sublett, George	C2-572; 3.1.1, 3.1.3, 3.1.6
L-44	Suhr, Juliette W.	C2-65; 3.1.1
F1-110	Suick, Gavin	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-9	Sullivan, Dusty	C2-572; 3.1.1, 3.1.3, 3.1.6
F1-11	Sullivan, Suzanne	C2-572; 3.1.1, 3.1.3, 3.1.6
L-259	Summers, Aliana	C2-418; 3.1.1
F5-15	Sweeney, Eric	C2-578; 3.1.6, 3.1.10
L-198	Sweeney, Eric Christopher	C2-302; 3.1.5, 3.1.6, 3.1.9, 3.1.10
L-197	Sweeney, Jill	C2-301; 3.1.6, 3.1.10
L-157	Tager, Melinda	C2-249; 3.1.1, 3.1.2
F1-113	Takeuchi, Melinda	C2-572; 3.1.1, 3.1.3, 3.1.6
L-209	Taylor, J. L.	C2-321; 3.1.2, 3.1.6, 3.1.9, 3.1.10
F1-12	Taylor, Stephen	C2-572; 3.1.1, 3.1.3, 3.1.6
L-130	Taylor, William J. and Carol A.	C2-208; 3.1.6, 3.1.9, 3.1.10
F5-17	Thomas, Ivor	C2-578; 3.1.6, 3.1.10
L-235	Thomas, Pat	C2-353
F5-18	Thomas, Pat	C2-578; 3.1.6, 3.1.10
F2-1	Thomas, Pat and Ivor	C2-574; 3.1.6, 3.1.10
F4-3	Thompson, Shannah	C2-577
L-327	Thompson, Susie and Maddie, and Broers, Andrea	C2-495; 3.1.1
F1-72	Tibbitts, Walter	C2-572; 3.1.1, 3.1.3, 3.1.6
L-207	Troia, Ben	C2-317; 3.1.6, 3.1.10
T-23	Troia, Ben	C2-561; 3.1.1, 3.1.5, 3.1.6, 3.1.9
F1-68	Troiani, Connie	C2-572; 3.1.1, 3.1.3, 3.1.6
L-99	Trotter, Thomas W.	C2-146; 3.1.6, 3.1.10
T-16	Tucker, S. Craig	C2-550; 3.1.1
L-77	Tudsbury, Bobby	C2-105
L-167	Turner, Roger and Micheline	C2-261; 3.1.6, 3.1.9, 3.1.10
F5-27	Turner, Roger and Micheline	C2-578; 3.1.6, 3.1.10
F5-47	Turner, William	C2-578; 3.1.6, 3.1.10
L-98	Turner, William J.	C2-145; 3.1.6, 3.1.9, 3.1.10

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F5-25	Twietmeyer, Kathy	C2-578; 3.1.6, 3.1.10
L-168	Twietmeyer, Tim and Kathy	C2-263; 3.1.6, 3.1.10
F3-11	Ulrey, Brent	C2-576; 3.1.1
L-29	Unknown	C2-50; 3.1.1
L-55	Unknown	C2-77; 3.1.6
L-262	Unknown	C2-422; 3.1.5
L-298	Unknown	C2-487; 3.1.1
L-319	Unknown	C2-494; 3.1.1
L-320	Unknown	C2-494; 3.1.1
L-321	Unknown	C2-494; 3.1.1
L-269	Vaghti, Mehrey and Toy, Thomas	C2-441; 3.1.5, 3.1.6, 3.1.9
L-172	van der Linden, Louwrens k.	C2-268; 3.1.6, 3.1.9, 3.1.10, 3.1.12
L-270	van der Linden, Louwrens k.	C2-442; 3.1.6, 3.1.9, 3.1.12
F5-66	Veader, Amy	C2-578; 3.1.6, 3.1.10
F5-65	Veader, Doug	C2-578; 3.1.6, 3.1.10
L-83	Von Borstel, Carol	C2-112
L-329	Von Miller, Sherry L.	C2-496; 3.1.1
F1-132	Walth, Lois	C2-572; 3.1.1, 3.1.3, 3.1.6
L-179	Ward, Corinne	C2-278; 3.1.6
L-180	Ward, Howard M.	C2-279; 3.1.6, 3.1.10
L-334	Warner, Bill and Unknown	C2-500; 3.1.1
L-19	Warren, Richard	C2-31; 3.1.1, 3.1.5, 3.1.6, 3.1.7
F1-4	Warren, Sherry	C2-572; 3.1.1, 3.1.3, 3.1.6
L-254	Watts, Lois	C2-413; 3.1.1
L-12	Wauters, William	C2-24; 3.1.1
L-93	Week, Larry; California Department of Fish and Game	C2-123
L-286	Weibel, Ryan	C2-485; 3.1.1
L-158	Weiler, Karri R.	C2-250; 3.1.6, 3.1.10
L-155	Weiler, Steven W.	C2-247; 3.1.6, 3.1.9
L-243	Welsh, Richard A.; U.S. Bureau of Reclamation	C2-364
F1-29	West, Deborah B.	C2-572; 3.1.1, 3.1.3, 3.1.6
L-297	Whetzel, Demi Whitehorse	C2-487; 3.1.1

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L-20	White, Barbara	C2-32; 3.1.1
L-251	White, Kathryn	C2-410; 3.1.6
F5-80	White, Kathryn	C2-578; 3.1.6, 3.1.10
F5-67	Whitley, Marvin	C2-578; 3.1.6, 3.1.10
F1-105	Widler, Becky	C2-572; 3.1.1, 3.1.3, 3.1.6
L-114	Wilfley, Gerald J.	C2-175; 3.1.6, 3.1.9
L-189	Wilfley, Glenna	C2-290; 3.1.5, 3.1.6, 3.1.9
F1-126	Williams, Marcy	C2-572; 3.1.1, 3.1.3, 3.1.6
L-60	Williamson, Harry; National Park Service	C2-86; 3.1.1, 3.1.3
F1-70	Winstead, Bobby	C2-572; 3.1.1, 3.1.3, 3.1.6
F5-89	Wire, Katherine	C2-578; 3.1.6, 3.1.10
L-48	Wisby, Amanda; Stewart Ranch	C2-70; 3.1.1
L-50	Wise, Diana	C2-72; 3.1.1
L-301	Wiswell, Cory	C2-488; 3.1.1
F1-115	Wobus, Betsy	C2-572; 3.1.1, 3.1.3, 3.1.6
L-56	Wobus, Betsy	C2-78; 3.1.1
F5-60	Wong, Betsy	C2-578; 3.1.6, 3.1.10
F5-59	Wong, Lenbert	C2-578; 3.1.6, 3.1.10
L-128	Wong, Wilfred; Community Development Director, City of Auburn and Fossum, Thomas A.; Public Works Director/City Engineer, City of Auburn	C2-206; 3.1.6
T-8	Woodall, Tim	C2-537; 3.1.1
L-126	Woodall, Tim; Protect American River Canyon	C2-199; 3.1.1, 3.1.6, 3.1.9, 3.1.10
L-330	Wootton, Keith	C2-497
L-253	Wyeth, Harry B. and Karen A.	C2-412; 3.1.1
L-80	Yaffe, Linda Frederick	C2-108; 3.1.1
F3-6	Yarris, Gregory S.	C2-576; 3.1.1
L-69	Yost, John	C2-97
F5-41	Young, Carol	C2-578; 3.1.6, 3.1.10
L-247	Young, Gerald C.	C2-400
F1-31	Young, Katherine	C2-572; 3.1.1, 3.1.3, 3.1.6
L-177	Young, Lyle K.	C2-275; 3.1.6, 3.1.10
F1-96	Zabriskie, Jean; Western States Horse Expo	C2-572; 3.1.1, 3.1.3, 3.1.6

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Number	**Commenter Name**	**Page and/or Master Response Number(s)**
F1-138	Zahar, Toni	C2-572; 3.1.1, 3.1.3, 3.1.6
L-63	Zander, Bill and Jill	C2-90; 3.1.5, 3.1.6, 3.1.9, 3.1.10
L-14	Zanot, Gene and Debbie	C2-26; 3.1.1
F5-73	Zimmerman, M.	C2-578; 3.1.6, 3.1.10
L-323	Zlotlow, Joshua	C2-494; 3.1.1

3.0 MASTER RESPONSES

3.1 INTRODUCTION

In several instances, public and agency comment letters, public oral comments, and form letters received on the Draft EIS/EIR raise the same or similar issues related to certain topics. In response to these comments, the lead agencies have prepared Master Responses to provide a comprehensive discussion to address significant environmental issues or provide further clarification. The Master Responses include the following:

Amendments and revisions to the Draft EIS/EIR in response to the comments received are found in the Final EIS/EIR. A summary of the revisions and corrections to the Draft EIS/EIR is provided in the Final EIS/EIR, Chapter 1.0, Introduction, Section 1.4.4, Final EIS/EIR Process. These revisions and corrections do not alter the conclusions presented in the Draft EIS/EIR. The complete list of references cited and acronyms used in Appendix C can be found in Chapter 6.0, References, and List of Acronyms of the Final EIS/EIR.

3.1.1 AUBURN-TO-COOL TRAIL

A large number of comments addressed the recreational impact associated with the bifurcation of the Auburn-to-Cool Trail, necessitated by the proposed restoration of the currently dry riverbed of the North Fork American River near the proposed Auburn Dam site. In particular, many of these comments questioned the conclusion, found in the Draft EIS/EIR, that the bifurcation of the trail was a significant *unavoidable* impact. These commenters argued that the impact was actually *avoidable*, in that it could be mitigated by the construction of a new multi-use bridge over the currently dry river bed across which runners, hikers, equestrians, and mountain bikers can currently cross without the hindrance of flowing water (suggested "proposed mitigation"). Although nearly all of these commenters applauded the plan to close the Auburn Dam bypass tunnel, and recognized the obvious benefits associated with such action, the commenters nevertheless urged the expenditures of whatever money was necessary to provide a bridge over what will become a stretch of a flowing river.

These comments raise the following issues: (1) whether this particular recreational impact is related to meeting the objectives of U.S. Bureau of Reclamation (Reclamation), of Placer

County Water Agency (PCWA), or of both agencies; (2) whether, from Reclamation's standpoint, the proposed mitigation or an alternative approach to dealing with the impact, is necessary; (3) whether, from PCWA's standpoint, the proposed mitigation or an alternative approach is feasible, in whole or in part; (4) whether either agency can accomplish the proposed mitigation as part of the NEPA/CEQA process for the proposed American River Pump Station Project, or whether, instead, a separate environmental review process would be necessary; (5) whether adequate funding can be obtained for a new river crossing or other mitigation measure, neither of which had been envisioned as part of the original project; (6) what regulatory approvals or other agency actions would be necessary prior to construction of a new river crossing or implementation of an alternative mitigation strategy; and (7) how much funding, if any, should be dedicated by Reclamation, PCWA, and other agencies that would be involved in approving and constructing such a crossing.

As will be explained in detail below, Reclamation and PCWA staff have agreed to the following: PCWA staff will recommend to the PCWA Board of Directors that, in order to mitigate PCWA's limited contribution to the impact to the Auburn-to-Cool Trail, PCWA should provide a maximum of $500,000 towards the eventual construction of a new river crossing or similar mitigation strategy. This money will be added to $1 million that has tentatively been set aside by the State of California. Taken together, these amounts should be sufficient to complete the environmental review, planning, and construction of a new crossing or other mitigation strategy. Such a project, however, cannot be approved as part of the NEPA/CEQA process for the Proposed Project. Instead, separate environmental review must be conducted by Reclamation and California Department of Parks and Recreation (CDPR), acting as joint lead agencies responsible for recreation activities within the Auburn SRA. At present, neither Reclamation nor PCWA can be certain of the outcome of that process, though CDPR has thus far been very supportive of the concept of a new crossing or other means of ensuring a multi-use trail linkage between Auburn and Cool.

The Auburn-to-Cool Trail Bifurcation Issue

As the Draft EIS/EIR explained, the closure of the Auburn Dam bypass tunnel and restoration of the North Fork American River to its historic channel would result in the bifurcation of the Auburn-to-Cool Trail, which currently crosses the dewatered portion of the river. Many trail users and trail advocacy groups (equestrians, mountain bikers, hikers, and runners) have requested that the bifurcation of the trail be mitigated, and have suggested that a multi-use trail bridge across the canyon in the vicinity of the project site would be an appropriate mitigation measure. Other potential mitigation options include creating a new multi-use trail that would link the Robie Point Firebreak Trail to the Olmstead Loop Multi-use Trail and would use the Highway 49 Bridge over the North Fork American River.

The following are key aspects of this issue:

- The Auburn-to-Cool Trail is currently the only complete *trail* access from Auburn to Cool for mountain bikes. Other routes across the canyon for mountain bikes require riders to use portions of Highway 49, which has numerous tight turns and traffic. Equestrians and pedestrians can cross the river at the Mountain Quarries Bridge (also called No Hands

Bridge), and have several trail options on both sides of the canyon, including the Western States Trail.

- Equestrians and runners are concerned that, if mountain bikes lose access to the Auburn-to-Cool Trail route, bikers will be more likely to illegally ride the Western States Trail and other equestrian/pedestrian routes. The equestrians and runners are concerned that such illegal activity would lead to increased conflicts between bikers, horses and pedestrians along these routes.

The fundamental policy issue for Reclamation and PCWA, then, is whether the desirability of avoiding this potential conflict between various trail users on the No Hands Bridge warrants the expenditures necessary either to build an entirely new bridge that could accommodate mountain bikers in addition to pedestrians and equestrians or to undertake some alternative form of mitigation intended to preserve various recreationists' ability to travel between Auburn and Cool. In addressing these questions, the background and nature of the Auburn-to-Cool Trail are relevant considerations.

Background on the Auburn-to-Cool Trail

The Auburn State Recreation Area (SRA) is managed by CDPR through a management agreement with Reclamation. The Auburn SRA includes most of the lands withdrawn for the proposed Auburn Dam Project, including area that would have been inundated by the associated reservoir. The actual dam site area (approximately one-half mile upstream of the abutments and one-half mile below them) is closed to public use. Exceptions to this closure have been made for specific trails that pass through the area, including the Auburn-to-Cool Trail, on which Reclamation has allowed public use since 1996.

In allowing CDPR authority to open the Auburn-to-Cool Trail to public use, Reclamation expressly reserved the right to close the trail at any time in the future. In a February 23, 1996, letter addressed to CDPR District Superintendent Bruce Krantz, Reclamation Area Manager Thomas J. Aiken stated that *"...it must be understood that the trail may be closed at any time for administrative and/or health and safety purposes, and if an Auburn Dam should be built"* (Reclamation 1996b). In a subsequent letter to CDPR Supervising Park Ranger Jill Dampier dated March 23, 1996, Mr. Aiken stated that *"...[t]he Auburn Dam construction site may be used for the trail provided that no other project purpose activities are occurring which may require the trail's closure to protect the health and safety of the recreating public. Other project purposes may include road repairs, construction activities, etc."* (Reclamation 1996c).

Although the public use of the Auburn-to-Cool Trail was authorized in 1996, the route across the canyon may have been used, to some degree, since the diversion tunnel was first constructed. Following the cessation of Auburn Dam construction activities in 1977 and 1978, public use of the trails and roads running through the dam site area became more established, and likely increased when the Mountain Quarries Bridge was closed for a year in 1997. In acquiescing in the use of Auburn-to-Cool Trail in 1996, Reclamation was acting in response to expressed concerns regarding the impacts on trail users who would lose access to the Mountain

Quarries Bridge during the period in which it was to be repaired. That bridge was closed while repairs were made because it was deemed unsafe during that period, but is now open.

Although the Auburn-to-Cool Trail serves mountain bikers, equestrians, runners, and hikers, the route is not a designated recreational trail. Rather, the Auburn-to-Cool Trail makes use of dam construction roads on the south side of the canyon from the Olmstead Loop near Cool, crosses the dewatered section of river channel, and then follows construction roads up the north side of the canyon. Though the official route follows the primary construction road down to the Auburn Dam site from Maidu Drive to the bottom of the canyon, trail users follow several alternate routes up the north side of the canyon, including a steep dirt track that follows the approximate alignment of PCWA's temporary pipes.

To assess the amount of public use the Auburn-to-Cool Trail currently receives, CDPR placed a counter along the route from early November through early December 2001. Five hundred and eighty nine users were counted during this two-month time period. The Auburn-to-Cool Trail is likely to be most popular in the fall (September through November) and spring (March through May). Based on estimates of the seasonal patterns of use in the Auburn SRA, CDPR managers estimate that the Auburn-to-Cool Trail is used between 2,500 and 3,500 times each year.

Legal Responsibility for Impacts to the Auburn-to-Cool Trail

The Draft EIS/EIR identified as a "significance criteri[on]" the "[p]ermanent closure of recreation trails through the project site." (Draft EIS/EIR, page 3-208.) Based on this criterion, the document concluded that the bifurcation of the Auburn-to-Cool Trail would constitute a potentially significant "impact upon recreation." (*Id.* at page 3-210.) This conclusion was more important for CEQA purposes than for NEPA purposes. Although the identification of a "significant effect on the environment" (Cal. Pub. Resources Code, § 21068) triggers a state or local agency's legal duty under CEQA to mitigate such an effect to the extent *feasible*, no similar duty arises under NEPA, which merely requires federal agencies to consider the impacts of their proposed major actions, making mitigation purely optional.

After concluding that the trail bifurcation was a potentially significant environmental effect, the Draft EIS/EIR concluded that the effect was "unavoidable," and thus proposed no mitigation measures to address the impact. (Draft EIS/EIR, pages 2-85, 3-210.)[1] As noted earlier, numerous commenters have challenged this conclusion, and have identified what they consider to be feasible mitigation. In determining whether, in fact, feasible mitigation is truly available for this impact, however, the lead agencies must first consider the complex jurisdictional issues related to land-based recreation in the American River Canyon.

The Draft EIS/EIR was intended to comply with the most rigorous provisions of both NEPA and CEQA, and in numerous places does not expressly distinguish between federal actions subject to NEPA and state or local actions subject to CEQA. For that reason, the document may have given members of the public the impression that each and every one of the impacts identified in the document equally implicated both NEPA and CEQA considerations. In other

[1] The requirement to determine whether particular environmental effects are "significant" is a requirement of CEQA, but not of NEPA.

words, the document may have given people the impression that the river restoration and pump station were a single indivisible project subject to both CEQA and NEPA in all particulars. Such impressions are not completely accurate.

The closure of the Auburn Dam bypass tunnel is a proposal made by, and which would be undertaken by, Reclamation in response to (1) assertions by the State of California that, in the absence of a Congressional commitment to proceed with the long-stalled Auburn Dam, Reclamation lacks authority to continue to divert water from the dewatered stretch of the North Fork American River through the bypass tunnel, and (2) the State of California's insistence that the river be restored to its historic (pre-Auburn Dam) channel. PCWA has tentatively agreed, subject to CEQA compliance, that the best location for a permanent pump station may be in a spot that is currently dewatered; but PCWA is by no means the primary actor in closing the tunnel and restoring the river. Nor does it control Reclamation's decision to do so. In fact, as Reclamation has acknowledged, the federal government has a contractual obligation, under the so-called "Land Purchase Agreement," to provide an interim pumping facility or alternative water supply until the Auburn Dam was completed (see Draft EIS/EIR, pages 1-1 through 1-4). PCWA's interest is simply to obtain a permanent pump station that will allow it to resume the water supply operations interrupted by Auburn Dam construction activities, and to expand its diversions, consistent with existing water rights, to address increasing demands for water due to population growth in the PCWA service area.

It is PCWA's position, then, and not necessarily Reclamation's, that PCWA is not undertaking any discretionary actions that would constitute the sole or even primary cause of the bifurcation of the Auburn-to-Cool Trail. Instead, responsibility for loss of the Auburn-to-Cool Trail lies primarily with Reclamation, as the entity responsible for closing the tunnel and returning the North Fork American River to its historic channel. Although the Draft EIS/EIR does not make these distinctions, they follow from the very nature of the agency decisions at issue. Thus, though the Draft EIS/EIR may have given the impression that the pump station and river restoration were a single indivisible project in all respects, the project should not be understood in those terms. Rather, it should be understood as a combination of two independent but closely related actions in which Reclamation proposes both to restore the river and to build PCWA a new pump station, and PCWA proposes to enter into a contract accepting ownership of such new facilities, and operate them for water supply purposes, thereby relieving Reclamation of its obligations under the Land Purchase Contract.

Because, from a CEQA standpoint, PCWA's actions will not be the primary cause of the impacts on the Auburn-to-Cool Trail, PCWA cannot be solely responsible for attempts to mitigate those impacts. Instead, assuming that PCWA is only partly responsible for the impact, PCWA staff, as coauthor of this Final EIS/EIR, recommend that the PCWA Board agree to make a very substantial financial contribution to the funding of a new river crossing or similarly effective alternative mitigation strategy – if Reclamation and the state (CDPR), after conducting further environmental review, decide to proceed with such a crossing. Notably, though, PCWA has no legal authority or ability to dictate terms to either Reclamation, which owns the subject property, or CDPR, which manages the property pursuant to an agreement with Reclamation. Rather, those two entities, which control the land on which a new crossing would be implemented, must decide for themselves whether to proceed with a replacement crossing or

some other form of effective mitigation (e.g., a new multi-use trail linking Auburn to Cool using the existing Highway 49 Bridge or the Mountain Quarries Bridge to cross the North Fork American River). PCWA can do no more than provide financial support for any such undertaking.

Reclamation agrees with PCWA that the most appropriate venue for considering a new crossing is a separate planning and environmental review process, such as the pending update of the General Plan/Resources Management Plan for the Folsom Lake SRA. Reclamation, therefore, further believes that the current EIS process for the American River Pump Station Project is not the proper vehicle or venue for developing a potential crossing or other means of preserving a multi-use route between Auburn and Cool. For these reasons, Reclamation does not, as part of this process, propose any mitigation measure addressing Reclamation's contribution to impacts associated with bifurcation of the Auburn-to-Cool Trail. Importantly, though, Reclamation will cooperate in any CDPR-initiated planning and environmental review process addressing a proposal to build a crossing with state- or local-funding.

In further explanation of its position with respect to the American River Pump Station Project, Reclamation notes that the Auburn-to-Cool Trail route exists only because of the diversion tunnel, and did not exist prior to the diversion of the river for Auburn Dam construction purposes. In 1996, Reclamation permitted limited use of the Auburn-to-Cool Trail, which permission could be withdrawn at any time for project purposes. Reclamation believes itself under no obligation now to provide a replacement river crossing or similar mitigation measure simply because a temporary river diversion to accommodate Auburn Dam construction may be eliminated, and a temporarily dry stretch of riverbed may now be rewatered. Reclamation also is cognizant that there are numerous other trails within the Auburn SRA, including the new Foresthill Divide Loop, that will continue to provide high-quality recreational opportunities. Some of these trails serve both equestrians and pedestrians, while others serve other users as well. As emphasized above, however, Reclamation is willing to cooperate in planning and environmental review for any proposed new crossing or similar project. Indeed, the fact that Reclamation does not believe that the current project necessitates mitigation in the form of a new crossing or similar strategy will not prevent Reclamation, in a later context, from concluding that a new crossing or a similar construction program would be a valuable public amenity worth considering for the Folsom Lake SRA.

Placer County Water Agency's Limited Authority for Implementing a Bridge Project

Although PCWA, as lead agency for CEQA compliance purposes, is required to ensure that the EIR portion of the EIS/EIR adequately addresses all impacts that will follow from its own actions or those of state agencies subject to CEQA, PCWA has no ability to ensure the implementation of certain proposed mitigation measures, including the proposed provision of a replacement river crossing. Most importantly for this discussion, PCWA does not own the property over which a new crossing would have to be constructed. Instead, as noted earlier, the United States owns that land, which is leased to, and managed by, CDPR. Before a replacement crossing can be implemented, Reclamation must agree that the specific land proposed for such a

route can be devoted to that use. Moreover, CDPR would have substantial input regarding the design, evaluation, and implementation of any such project.

As noted above, PCWA's proposed actions in accepting a new pump station constructed by Reclamation, operating such a facility, and releasing Reclamation from its obligations under the Land Purchase Contract are not the sole cause of the identified significant impact associated with Auburn-to-Cool Trail bifurcation. At most, PCWA bears *some limited responsibility* for the need for a new crossing. PCWA staff therefore recommend that the PCWA Board allocate a maximum of $500,000 towards future construction of a river crossing or similar mitigation – *if*, after a project-specific NEPA/CEQA process, Reclamation and CDPR choose to proceed with such a crossing, and only at a point in time at which the pump station has cleared all regulatory and other legal hurdles, so that it is clear that a new pump station actually will be built and operated. Such an amount is intended to approximate what might be called a "fair share" contribution to the total estimated costs of such a process and such a crossing, which are currently estimated to be $1.5 million.

As to PCWA, there is legal authority under California law suggesting (by analogy) that such a contribution can constitute sufficient mitigation for any impact caused by PCWA's activities. This analogous authority provides that, where a particular project will incrementally contribute to a larger cumulative impact, the project's incremental contribution can be adequately mitigated if the project "is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact." (Cal. Code Regs., tit. 14, div. 6, ch. 3 ["CEQA Guidelines"], § 15130, subd. (a)(3)). Although the bifurcation of the Auburn-to-Cool Trail is not, strictly speaking, a "cumulative impact," it is analogous in the sense that the impact is caused either by Reclamation, acting alone, or by Reclamation and PCWA acting together. Thus, a "fair share" contribution to a new bridge is a fair and reasonable means by which PCWA can attempt to facilitate the ultimate approval and construction of a replacement river crossing or similar mitigation measure (e.g., construction of a new multi-use trail allowing mountain bikers and others to use the Highway 49 Bridge or Mountain Quarries Bridge to cross over the North Fork American River).

There is little more that PCWA can do. Because any such crossing will involve environmental issues requiring project-specific analysis, and all actions necessary to implement a replacement crossing must be taken by entities other than PCWA, another and separate environmental review process will be required. Such a process will likely involve preparation of a joint NEPA/CEQA document, with Reclamation and CDPR acting as joint lead agencies.

Although Reclamation does not currently have federal funds to commit to such a process, and is not in a position to seek federal money for a river crossing as part of the American River Pump Station Project, it is willing to determine whether a crossing can be approved funded solely with local and state funds. Of equal importance, PCWA and Reclamation have had numerous conversations with CDPR and the Resources Agency of the State of California, in which the latter entity has indicated that it will devote a total of $1 million to environmental review for a replacement river crossing and, eventually, construction of such a project – if, that is, the resulting environmental impacts are deemed acceptable after compliance with NEPA and CEQA.

Future California Department of Parks and Recreation/Reclamation Planning and Environmental Review Processes for a Bridge Proposal

CDPR and Reclamation will have to decide between themselves exactly how to proceed with environmental review for any bridge proposal. The two most likely possible approaches are (1) to prepare a project-specific environmental document focusing solely on the bridge and alternatives and (2) to fold bridge planning into the pending revision of the General Plan/Resource Management Plan for Folsom Lake SRA, which is contiguous to Auburn SRA. Under either approach, the two agencies will focus their efforts on identifying the best possible location for a new crossing or other measures that can mitigate the impact of the bifurcated Auburn-to-Cool Trail.

A long-held desire by many trail users has been the development of a trail system that completely encircles Folsom Reservoir. This concept was stated in the current Folsom Lake SRA General Plan, which was completed in 1978 and is now in the early stages of a pending update and revision. While a trail crossing is not currently mentioned in that plan, the plan revision process would certainly be an appropriate venue for addressing a new river crossing as one means of securing a trail route around Folsom Reservoir, and further connecting the trails in the Folsom SRA with those of the adjacent (upstream) Auburn SRA. Alternatively, if a project-specific environmental document is prepared for the proposed crossing, the desirability of linking the trails of the two SRAs can be identified as a project purpose and objective.

Level of Significance of Impacts

As the preceding discussions reveal, PCWA staff will recommend to the PCWA Board that PCWA agree to pay a maximum of $500,000 towards eventual construction of a new crossing or other mitigation strategy that will mitigate the bifurcation of the Auburn-to-Cool Trail. Such money would only be spent after CDPR and Reclamation, after conducting additional environmental review, agree that such a crossing is desirable and should be built, and only after the pump station has cleared all regulatory and legal hurdles that might delay construction or prevent construction entirely.

In light of the complex issues set forth in the preceding discussion, the recreational impact caused by the Auburn-to-Cool Trail bifurcation must, at present at least, be treated as a significant and potentially unavoidable impact. At the time the PCWA Board adopts its "CEQA Findings" pursuant to Public Resources Code Section 21081, the Board will have no way of predicting future events, and has no way of imposing its own preferences on CDPR and Reclamation. Based solely on these realities, the Board will therefore have to treat the impact as significant and potentially unavoidable. PCWA's staff's hope, however, is that the impact will in fact eventually be mitigated to a less-than-significant level after Reclamation and CDPR complete environmental review for a proposed crossing. Under such a scenario, PCWA would strongly support construction of a new crossing or other appropriate mitigation, and would make up to $500,000 available for such a purpose if the other key players agree with such a course of action, and if the pump station has cleared all regulatory and legal hurdles that might delay or prevent construction. The following mitigation will be considered by the PCWA Board:

> *In order to mitigate PCWA's share of the recreational impact associated with bifurcation of the Auburn-to-Cool Trail, PCWA shall pay a maximum of $500,000 to be used for costs associated with the construction of a new bridge across the North Fork American River or another alternate mitigation program (e.g., the construction of new trail segments). Such money, or some lesser amount if the full amount is not required, shall be made available to CDPR only after all of the following have occurred: (1) CDPR and Reclamation have completed the environmental review necessary to implement such a project, have chosen to proceed with such a project, and have obtained all regulatory approvals necessary to proceed with the project; (2) any litigation over such environmental review or regulatory approvals has been resolved in favor of CDPR and/or Reclamation or other approving agency; and (3) the pump station has obtained all necessary regulatory and/or discretionary approvals necessary for construction, and any litigation over any such approvals has been resolved in favor of PCWA.*

PCWA staff is confident that, if its Board approves the portion of the Proposed Project subject to its control, the Board will be able to approve a Statement of Overriding Considerations identifying project benefits that outweigh the potentially significant environmental effect associated with Auburn-to-Cool Trail bifurcation, as well as other significant unavoidable effects. Such benefits include, but are not necessarily limited to, (1) elimination of the disruption and limitations associated with annually installing and then disassembling a temporary pump station; (2) increased water diversions needed to satisfy PCWA's statutory obligation to serve development within its service area, as approved by Placer county and incorporated cities within the county; (3) increased reliability in PCWA's overall delivery system, since North Fork American River water can be provided as back-up to Yuba/Bear River water, deliveries of which are sometimes subject to interruption; (4) elimination of safety issues associated with the diversion tunnel (to the extent that PCWA's action helps bring about this result); and (5) restoration of a portion of the North Fork American River dewatered in order to accommodate construction of the Auburn Dam (to the extent that PCWA's action helps bring about this result).

3.1.2 AMERICAN RIVER PUMP STATION PROJECT FUNDING

As explained in the Draft EIS/EIR (Section 1.2.2 through Section 1.2.5), funding for the Proposed Project was authorized in accordance with the "Land Purchase Agreement" pursuant to the conditions negotiated and executed in the Land Purchase Contract (14-06-859-308) dated July 25, 1972 as amended, modified and supplemented by the Supplemental Agreement to Land Purchase Contract (14-06-859-308A) dated May 25, 1979. Reclamation is responsible for the majority of the project costs as part of its obligation to provide PCWA with a reliable water supply under the terms of the Land Purchase Agreement.

The State of California, pursuant to Chapter 52, Statutes of 2000, has appropriated $4 million to the California Resources Agency for the restoration of the natural stream channel of the North Fork of the American River, to be completed in partnership with Reclamation. This

arrangement between Reclamation and the State of California, California Resources Agency is described in the Memorandum of Agreement (MOA) between the United States and the State of California included as Appendix A to the Draft EIS/EIR. The initial project cost-sharing arrangement described in the MOA is in regard to the completion of environmental documentation and construction plans and specifications. An additional agreement between the parties would be entered into following completion of the environmental review and project decision-making by the lead agencies.

Future operation and management of the public river access facilities would become the responsibility of CDPR, under a management contract/agreement with Reclamation. CDPR has indicated that the level of future operation of the facilities would be commensurate with available funding. This could potentially further limit the hours or days of operation (i.e., seasonal closures during low-use winter months). The entrance station and gate would be locked and no vehicles permitted to enter the river access area.

3.1.3 RECREATION TRAIL ACCESS DURING CONSTRUCTION

The Draft EIS/EIR indicates that public access to recreation trails through the project area would be restricted during construction of the project facilities (Chapter 3.0, Section 3.8, Recreation, pages 3-210, 3-212, and 3-229). Restricted access in the project area is appropriate and required to protect the health and safety of the general public from the various hazards (i.e., heavy construction equipment operations, blasting, and extensive earthwork) associated with construction of the Proposed Project. The total area (acres) closed to public access would vary by construction phase and activity.

At the time the Draft EIS/EIR was published (September 2001), it was undetermined which of the lead agencies would have responsibility for managing construction of the Proposed Project. Since publication of the Draft EIS/EIR, it has been determined that Reclamation would be responsible for overseeing and managing construction of the Proposed Project, including implementation of construction-related mitigation measures and environmental commitments. In response to comments received on the Draft EIS/EIR, Reclamation has developed additional specific language to describe the type, extent and location of anticipated public access restrictions that would be necessary during the construction of the Proposed Project to ensure public safety. Reclamation has indicated that the construction contractor would, to the extent feasible, provide public trail access through the project area. Active construction areas would be fenced and signs would be posted to indicate closed areas and areas open for public use. Permitted trail uses would remain as currently designated. Trail access information would be provided through the Public Outreach and Information Program of the Mitigation Plan. This update to the recreation impact analysis is included in the Final EIS/EIR in Chapter 3.0, Section 3.8, Recreation. This change does not alter the conclusions presented in the Draft EIS/EIR.

3.1.4 AUBURN DAM CONSTRUCTION BYPASS TUNNEL

The Auburn Dam construction bypass tunnel initially was constructed as part of the original work on the Auburn Dam Project and has remained in place even though dam construction was

halted in 1977 due to concerns over seismic safety. Tunnel safety has been an ongoing concern to Reclamation and was investigated in the 1996 Concept Plan (Reclamation 1996a) and again in the 1997 Value Planning Study (Reclamation 1997a).

Tunnel safety is an issue not limited to boaters. It is a threat to anyone who may enter the tunnel, purposely or otherwise, including people who may be wading, swimming, or fall into the water upstream of the tunnel inlet. At all river flows, the tunnel is too steep for a person to pull him/herself out of the water for the entire one-half mile length of the tunnel. At low flows, a person could be stuck in the tunnel for an extensive period of time. At high flows, the exit of the tunnel becomes submerged; a person in the tunnel would be under water for an unknown length of time before leaving the tunnel. Reclamation has anecdotal information that boaters have passed through the tunnel, including during winter months. It is extremely fortunate that there have been no documented fatalities associated with the tunnel, however, as use of the area increases, the risk of an injury or fatality rises.

Safety issues associated with the bypass tunnel do not compare to natural tunnel features. Even Tunnel Chute on the Middle Fork American River is very different than the Auburn Dam site. Tunnel Chute is a Class IV to V rapid in a Class IV section of the river and is primarily negotiated by the most skilled boaters or licensed guides. The restored river reach in the project area would be considered a Class I to easy III level of difficulty (low) and would attract less-skilled boaters. The Tunnel Chute features are only inundated at extreme flood flows when skilled people would not be boating. Additionally, Tunnel Chute is only about 100 feet long, whereas the bypass tunnel at the project site is more than 2,600 feet long. No where on the North or Middle forks of the American River is there a situation similar to the project area/Auburn Dam site where unskilled boaters could be exposed to one-half mile of not being able to exit the water; the dangers of unseen trees, boughs, or other debris in the tunnel posing the risk of trapping boaters or swimmers; or the possibility of entering the tunnel when the outlet is completely submerged. Under such conditions, a person caught in the tunnel may be underwater for an extended period of time.

Although some guidebooks may overlook the situation, as stated in Section 3.8.1.2 of the Draft EIS/EIR, the American River one-half mile upstream and one-half mile downstream of the bypass tunnel is officially closed to public water-based activities (CDPR Order #318-02-91). Therefore, there currently are no official boating opportunities recognized by the lead agencies or CDPR in this reach of the river. A reference to the safety hazard that the tunnel poses to boaters, as well as the fact that it is illegal to run is mentioned in *California Whitewater – A Guide to the Rivers* by Jim Cassady and Fryar Calhoun (1995). The lead agencies do not know why the diversion tunnel is not mentioned in other guidebooks that describe the area. The American Canoe Association's River Safety Reports analyzes fatal and near fatal accidents. Since the lead agencies are not aware of any such accidents, they would not expect any to be included in the reports.

Please also refer to Master Response 3.1.1, Auburn-to-Cool Trail and Master Response 3.1.6, Public River Access Features, for additional information related to the bypass tunnel.

3.1.5 PROJECT AREA RIVER RESTORATION

The proposed design for the American River pump station, intake/diversion facilities, bypass tunnel closure, river channel restoration, and public river access features all have been undertaken with consideration that the Auburn Dam Project could at some time in the future be re-authorized by Congress. The Proposed Project restoration efforts, therefore, focus only on areas within the project site that would directly influence the function and reliability of the proposed water supply facilities or safety of the public river access features. As such, it is beyond the scope of this project to provide complete restoration of the entire Auburn Dam construction area.

The Draft EIS/EIR (Section 2.2.2.1, Major Features of the Proposed Project pages 2-21 and 2-22) describes the river channel restoration elements of the Proposed Project, including restoration of the currently dewatered river by excavation of deposited cofferdam debris to create, to the extent possible, a naturally functioning river system. The return of river flows to the historic riverbed would, over time, result in establishment of fish and aquatic resource and wildlife habitat thereby creating more favorable ecosystem conditions. The restored channel segment design would incorporate features to blend the project area segment with upstream and downstream reaches of the North Fork American River enhancing the existing degraded or "scarred" visual qualities of the area. Restoration of natural river functions, including growth of native vegetation species, is considered a long-range goal of the river restoration component. As stated in the Draft EIS/EIR, the river would be expected to scour pools and side channels and deposit finer sediments in localized backwater areas and overbank depressions. These areas eventually would be expected to provide suitable growing sites for willows, alders, and cottonwoods that occur in the canyon. It is assumed that vegetation would establish through natural seed recruitment as has been observed in certain areas of the project site.

Bank and slope erosion would be common for annual flows much less than the 100-year flood event, and passive restoration according to site potential would occur naturally once the disturbed areas within the project area stabilize in response to natural processes associated with channel formation and seasonal fluctuations in river levels. However, until the extent of floodplain inundation and other channel characteristics have been established, it would not be practical to implement a revegetation program because the benefits of these efforts may be lost during high water events. Reclamation, through implementation of the environmental commitments included in the Mitigation Plan (Appendix D to the Final EIS/EIR), would monitor the area for natural vegetation growth and habitat establishment to determine whether adaptive resource management actions would be appropriate or needed in the project study area.

3.1.6 PUBLIC RIVER ACCESS FEATURES

A large number of comments addressed the potential impacts associated with development of the Proposed Project and use of the of the public river access features. Although many of the commenters supported the water supply elements of the project, they questioned the need for the public river access features at this location. Other commenters requested clarification regarding the description of the facilities, including management, operation and funding information. Residents of the neighborhoods located along Maidu Drive expressed concern

regarding the potential effects upon the area due to: (1) increased traffic resulting in decreased level of service and increased traffic congestion along Maidu Drive, particularly during peak school/worker commute hours; (2) pedestrian safety at the intersection of Maidu Drive/Burlin Way, particularly school children arriving or departing Skyridge Elementary School; (3) spillover traffic onto adjoining neighborhood streets; (4) vehicular air pollutant emissions associated with project construction and public use of the area; (5) noise levels in Maidu Drive neighborhoods due to construction, traffic, and public use in the canyon; (6) litter along Maidu Drive; and (7) illegal and inappropriate activities occurring at the river and within the adjacent neighborhoods.

Several commenters suggested the use of Pacific Avenue as an alternate project access route to Maidu Drive. Master Response 3.1.10, Project Access, provides an explanation of the problems with this suggestion and the reasons for maintaining Maidu Drive as the project access route.

Many commenters also expressed concern over the potential for increased public use in the area to increase the fire hazard in the project area and risks to adjacent neighborhoods. These issues are addressed in Master Response 3.1.9, Fire Management.

Overview

This Master Response provides background on the development of the Proposed Project, explaining the relationship of certain project elements, including closure of the bypass tunnel and river channel restoration that led to Reclamation's incorporation of the public river access features as an element of the proposal. It also describes the complex land ownership pattern, State of California interests and the recreation area management framework, and lead agency project objectives and responsibilities which influenced design of the various project components.

Background

Reclamation, on behalf of the United States, owns the lands within the North Fork American River Canyon that encompass the Auburn Dam construction area. PCWA has state water rights, obtained through the State Water Resources Control Board (SWRCB), to divert its Middle Fork Project (MFP) water entitlements from the North Fork American River near Auburn. The existing seasonal pump station and the proposed pump station project alternative sites all exist upon Reclamation-owned lands, within the area acquired by Reclamation for the Auburn Dam Project.

CDPR, through a management agreement with Reclamation, manages the public use of the Reclamation lands in the Auburn SRA. The Auburn SRA, designated as a SRA in 1979, includes 41,000 acres of lands withdrawn for development of the proposed Auburn Dam Project (CDPR and Reclamation 1992). The unique character of the landscape and the nearly 50 miles of river canyons within the Auburn SRA offer a multitude of cultural, natural, and scenic resources providing diverse recreational opportunities and serving as a major recreation resource for the region.

The proposed American River Pump Station Project features have been designed in consideration of this land ownership pattern, the recreation area management framework, and PCWA's water rights.

As described in the Draft EIS/EIR, PCWA's primary project objective is to obtain a reliable, year-round water supply to meet increasing water demands within its customer service area. Reclamation proposes to satisfy its obligations to PCWA under the Land Purchase Agreement entered into by both parties associated with Reclamation's acquisition of land within the North Fork American River Canyon (see Chapter 1.0 of the Draft EIS/EIR for additional detail). The study and preliminary design of alternative pump station configurations to meet the lead agencies' objectives began in 1995. Prior to and since that time (1992 and 1996) there were unsuccessful Congressional attempts to modify and reinitiate the Auburn Dam Project. In 1997, following publication of the Value Planning Study for the American River Pump Station Project (Reclamation 1997a), it appeared that critical Congressional support for a pump station on the North Fork American River would be lost if it included blocking the Auburn Dam construction bypass tunnel or restoring the river channel, since the Auburn Dam remains a federally authorized project. In light of this situation, Reclamation and PCWA, until recently, concentrated on designing a pump station that would not require tunnel closure (the Upstream Diversion Alternative).

In September 1999, the California State Attorney General's Office sent the Secretary of the Interior a letter indicating that, in the Attorney General's view, the Auburn Dam construction bypass tunnel diversion was in violation of the 1992 Central Valley Project Improvement Act (CVPIA), the Reclamation Act of 1902, and California's Public Trust Doctrine. In support of these contentions, the Attorney General's office noted that the river has been diverted with no present or foreseeable beneficial use, to the detriment of the values of the natural resources of the North Fork American River. The claimed legal obligations outlined in the letter provided the impetus and guidance that determined how the American River Pump Station Project evolved. From that point forward, the design included tunnel closure, restoring the river to its channel and allowing pre-dam construction beneficial uses of the river as primary elements of the Proposed Project (Mid-Channel Diversion Alternative).

Closure of the bypass tunnel would remove the existing hazard to river use; CDPR and Reclamation would no longer have need to prohibit public use of this section of the river. Once restored, the river would be expected to be characterized within the Class I to Class III whitewater categories (easy to moderately difficult rating). Because the river conditions created by restoring the river channel through the project area would be appealing to boaters with a wide range of skills, the State of California Resources Agency expressed concern regarding potential public health and safety issues related to such uses. Specific concerns included the current lack of suitable take-out points along the river between the confluence of the North Fork and Middle Fork (upstream) and Rattlesnake Bar at Folsom Reservoir (downstream), a nine-mile stretch. Under certain flow conditions, the upstream extent of Folsom Reservoir creates a two- to five-mile stretch of flat water that would be difficult to paddle, particularly for less experienced boaters. PCWA has arranged with Pacific Gas and Electric Company (PG&E) to make water releases from the Oxbow Powerhouse/Ralston Afterbay that support whitewater boating activities in the Middle Fork American River during summer months. Morning releases

reach the North/Middle Fork confluence area by mid- to late afternoon. Without adequate locations to exit the river, boaters could become stranded late in the day or be left without a reasonably accessible river take-out.

Reclamation and the California Resources Agency entered into a MOA (Appendix A of the Draft EIS/EIR) to address these concerns. Reclamation and PCWA coordinated with representatives from the State Attorney General's Office, CDPR and California Department of Fish and Game (CDFG) to develop a pump station project alternative that would incorporate the additional project objectives related to closing the bypass tunnel and returning river flow to the North Fork American River channel through the project site.

As stated in the MOA, Exhibit A, the parties believe that an increase in recreational navigation and use of the river in the project area would be a reasonably foreseeable result of the Proposed Project's closure of the bypass tunnel and rewatering of the North Fork American River, and further believe that an appropriate regulated public access to the river to address public health and safety, resource protection, and emergency purposes would be warranted. The MOA stipulates that the public access features would be rustic with minimal site improvements as needed only to serve the stated access and management objectives. The proposed public river access features were developed by CDPR, with input from the lead agencies and CDFG.

Consistent with the terms of the MOA, CDPR provided a preliminary concept for the public river access features to be developed as part of the American River Pump Station Project Mid-Channel Diversion Alternative (Proposed Project) as described in the Draft EIS/EIR (Chapter 2.0, Description of Project Alternatives, Section 2.2.2 Major Features of the Mid-Channel Alternative – Proposed Project). The preliminary features included a gated entrance and ranger-staffed booth, access roadway improvements, parking areas, pedestrian/equestrian trail improvements and sanitation facilities (trash containers and restrooms). Also consistent with the Auburn SRA Interim Resources Management Plan (IRMP) (CDPR and Reclamation 1992), the proposed features would involve minimal construction or modifications at the site and would be of "rustic" design. Additionally, these facilities would be totally within the existing Auburn SRA and would not constitute or lead to expansion of the existing boundaries.

CDPR would remain responsible for the management of recreation activities within the Auburn SRA. Reclamation and CDPR would update or modify their management agreement regarding these responsibilities.

In response to concerns expressed at public meetings, stakeholder information sessions, and in written comment letters received on the Draft EIS/EIR, the lead agencies and CDPR have developed additional specific detail regarding the design and management of the public river access facilities. Additional information has been obtained from City of Auburn and Placer and El Dorado County public agencies with jurisdiction over resources and activities in the project vicinity. Agencies contacted include: City of Auburn Police, Fire, Public Works and Planning Departments; Placer County Planning and Public Works Departments; Placer County Sheriff; El Dorado County Planning Department; Auburn Recreation District; California Department of Forestry and Fire Protection (CDFFP); and Georgetown Divide Recreation Department. This information is provided below and is incorporated into the Final EIS/EIR, in Chapter 2.0,

Section 2.2.2.1 (Major Features of the Proposed Project) and Chapter 3.0, Section 3.8.1.2 (Project Area Setting) of the Final EIS/EIR. These changes do not alter the conclusions presented in the Draft EIS/EIR.

Existing and Anticipated Recreational Activity in the Project Area

Recreation use in the American River Pump Station Project area is currently limited to trail uses (hiking, mountain biking and horseback riding) within the bounds of the Auburn Dam construction area. Boating and swimming are prohibited one-half mile upstream of the bypass tunnel inlet and one-half mile downstream of the bypass tunnel outlet. There currently are no provisions for vehicular access to the river in this area. To obtain an estimate of trail use in the Project area, CDPR installed a trail counter along the Auburn-to-Cool route in November and December 2001. The count over this two-month period totaled 589 trail users. Based upon seasonal use patterns anticipated in the area, CDPR estimates that this use would equate to a range of 2,500 to 3,500 trail users in this area annually. As shown in **Table 3-1**, this level of use is substantially less than estimated for other nearby locations in the Auburn SRA. Trail use estimates for Foresthill Divide Loop, Quarry, and Cool/Olmstead Loop trails are based on vehicle counts at trailhead parking areas and other recreation use factors to account for number of persons per vehicle and other considerations (J. Micheaels, pers. comm. 2002).

Table 3-1
Estimated Trail Use in the Auburn SRA

Trail	Estimated Use Counts (Annual Users)
Auburn-to-Cool Trail	2,500 - 3,500 [a]
Foresthill Divide Loop Trail	13,680 [b]
Quarry Trail	12,717 [b]
Cool/Olmstead Loop Trail	20,265 [b]

[a] Based on trail user counts, November to December 2001.
[b] Based on vehicle counts at trailhead parking areas and factors to account for average number of persons per vehicle.

Return of the North Fork flows to the dewatered river channel would result in increased boating opportunities below the Middle Fork/North Fork confluence. The anticipated Class I to easy Class III character of the river reach would be suitable for use by individuals with a wide range of boating skills. The area would be open to non-motorized river uses, including canoes, kayaks, and rafts. Motorized boating currently is prohibited by posted order on the rivers of the Auburn SRA (with the exception of Lake Clementine). The posted order would apply to the project area river section. No commercial river use is proposed as part of this project; nor is any being considered by CDPR at this time. Any future consideration of commercial river activities would require separate feasibility assessment, planning and environmental review and analysis.

Currently, there are few locations between the Middle/North Fork American River confluence and Rattlesnake Bar that would permit safe river access. Additionally, based on Folsom Reservoir data for the past several decades, roughly 70 percent of the time, Folsom Reservoir elevation during the months of April through September varies between 400 and 465 feet. These reservoir elevations result in a distance of approximately two to five miles of flat water between the bypass tunnel outlet and Rattlesnake Bar. The release of water at Ralston Afterbay

provides flows suitable for afternoon boating. Therefore, limiting river access to the confluence and Rattlesnake Bar with no other adequate means of exiting the river between these two locations could increase the likelihood that boaters become stranded or have to complete their river trips after dark. The Proposed Project facilities would minimize the potential for these indirect project effects by providing river access prior to Rattlesnake Bar, thereby providing CDPR with safe and effective means of accommodating and managing river use. Additionally, the provision of river access at the project site reduces the number of non-motorized boaters who would travel to Folsom Reservoir, where the mix with motorized boats poses a potential safety hazard.

River use in the project area would be limited by seasonal river flows. Spring use would vary according to watershed conditions resulting in sufficient runoff. Summer flows would be tied to releases from the Oxbow Powerhouse at Ralston Afterbay. During this time period, river flows vary between a minimum flow of up to 300 cubic feet per second (cfs) and the typical summer release flow of 1,000 to 1,500 cfs. The powerhouse releases occur in the morning at Oxbow/Ralston Afterbay and reach the confluence area by mid to late afternoon. Therefore, river users would have a relatively short window of opportunity for boating in the late afternoon during summer months.

In addition to boaters, the public river vehicle access routes likely would be used by trail users and other visitors. Trail users likely attracted to the area would be those who wish to hike or ride from Auburn SRA along the Pioneer Express Trail to Rattlesnake Bar in the Folsom Lake SRA. Other visitor uses, including fishing or swimming, also may occur in the project area. These types of uses, however, are difficult to estimate. Because the parking area would be one-half to three-quarter-mile from the river, many individuals would not find this area attractive compared to other areas along the river that provide easier and closer river access points.

Proposed Public River Access Features

In response to public comments received on the Draft EIS/EIR, the lead agencies and CDPR have modified the public river access features element of the Proposed Project. The primary change is the reduction in the total number of parking spaces through elimination of the 20-space parking lot formerly proposed to be located near the river, just upstream and across from the existing bypass tunnel outlet. Instead, the Proposed Project now includes development only of a vehicular turnaround area for loading and unloading and three spaces to be designated for handicap-accessible parking that meet American Disabilities Act (ADA) standards, including one van-sized space.

CDPR also plans to improve the existing parking area located outside of the gate at the Maidu Drive entrance to the project area in order to further minimize the potential for recreation-related parking along Maidu Drive. These activities would be completed as part of the entrance booth development and would serve to reduce potential project-related roadside parking impacts.

Major Facilities - Public River Access Features

CDPR would be responsible for the operation and maintenance of the Proposed Project river access features. The existing agreement between Reclamation and CDPR would be updated to reflect CDPR's responsibilities for management of the area, including patrolling and enforcement activities.

The major features associated with this element of the Proposed Project include: an entrance gate and booth at the Maidu Drive intersection with the Auburn Dam construction access road; roadway and trail improvements; a 50-space vehicle parking area, 3 handicap-accessible spaces and riverside turnaround provisions; and sanitation facilities (trash containers and restrooms). These features are depicted on **Figure 3-1** and described in detail in the following sections.

Entrance Gate and Booth - Hours of Operation

As indicated in the Draft EIS/EIR, the entrance to the proposed river access area would be located along Maidu Drive at the existing access road leading to the Auburn Dam/American River Pump Station Project area. The entrance to the area would include a booth, staffed by seasonal CDPR employees. The entrance would be gated and open only during designated hours of operation. CDPR has indicated that hours of operation would correspond to the anticipated boating-related use of the project area and availability of funding to staff the entrance station. It is a possibility that initially this access may be open only seasonally (spring and summer). The summer hours would be based on the availability of river flows suitable for boating, corresponding to PG&E's hydropower releases from the Oxbow Powerhouse at Ralston Afterbay. The spring hours of operation may be greater than during summer as the watershed's seasonal runoff contribution to river flow would result in greater boating opportunity throughout the day. Vehicular access to the project area would be restricted at all other times (the entrance gate would be locked).

Vehicular access to the project area would be limited by the capacity of the proposed parking area (see Parking). CDPR employees (park aids) and volunteers would monitor vehicle access, turnaround use and parking lot capacity. During peak use periods, CDPR park rangers would patrol the area twice daily. CDPR also has indicated that the Auburn SRA Canyon Keepers would be requested to assist in patrolling and monitoring project area use.

Parking

The Draft EIS/EIR described the preliminary parking lot design to include two lots: 50 spaces at the former Auburn Dam concrete batch plant area above Oregon Bar and 20 spaces along the western river bank across the river channel from the bypass tunnel outlet, for a total capacity of 70 vehicles.

In response to concerns expressed in public comment letters on the Draft EIS/EIR, the lead agencies and CDPR have revised the proposed parking lot configuration and reduced the total number of parking spaces to 53. The proposed 50-space parking area at the former Auburn

Figure 3-1 Public River Access Facilities at Auburn Dam Site and Oregon Bar

Dam concrete batch plant is retained as proposed in the Draft EIS/EIR. The 20-space parking area was redesigned and would be limited to 3 handicap-accessible spaces with a vehicle turnaround for loading and unloading. The handicap-accessible spaces and turnaround area would be located on the western riverbank, across the river channel and upstream from the bypass tunnel inlet. One of the three spaces would be sized to accommodate van parking. These provisions satisfy the requirements of the ADA.

The area at the former concrete batch plant site is already a large gravel flat; an area sufficient for 50 vehicles would be graded and large rocks or other barriers would be installed around the perimeter to prevent vehicles from traveling outside of designated parking areas. A fuel break would be developed around the parking area as a fire prevention measure. The river-side parking and turnaround area across from the existing bypass tunnel outlet would be created as part of the river channel excavation and construction. A flat area would be created and large boulders or other features would be strategically placed to clearly designate the boundaries and to prevent off-road travel.

No overnight recreational vehicle use, nighttime parking or camping would be permitted in the parking lots or project area. Cars left unattended would be ticketed and then towed from the site if not removed or claimed.

If needed, a sign indicating that the parking areas are at capacity would be placed at the Maidu Drive/Auburn-Folsom Road intersection to minimize the number of vehicles that approach the facilities and then must immediately turnaround. Parking enforcement also would include prohibiting road-side parking along project area roads or trails and a sweep of the parking areas prior to gate closure to determine whether all cars had exited the area.

Currently, many trail users accessing the Auburn-to-Cool Trail and other roads and trails in the project area, park at the gate at the end of Maidu Drive. As part of the entrance gate development, CDPR would provide a small parking area outside of the gate/entrance booth to provide limited parking for trail users who want to access the trails when the river access area is closed. This provision would better accommodate existing trail use parking and minimize the potential for roadside parking along the lower portion of Maidu Drive or other neighborhood streets.

Some commenters suggested that the parking provisions be removed from the Proposed Project, or that parking provisions be made at the top of the canyon only, with near river turnaround areas for equipment unloading/loading. These suggestions are not acceptable because providing a limited turnaround area could result in access difficulty, potentially leading to access road or trail use conflicts if vehicles were forced to line-up and take turns at the turnaround area, with no closer option than the top of the canyon. The distance, approximately 1-1/2 to 2 miles steep terrain and change in elevation (about 850 feet) between the top of the canyon and river do not make this a reasonable access option for river users. Further, this option also would not provide access for disabled recreationists.

Access Roads and Trails

The proposed improvements to project area access roads necessary to provide public river access are described in the Draft EIS/EIR. In addition to the road improvements, vegetation would be reduced and removed from the adjacent areas as part of the efforts to minimize fire potential in the project area.

Vehicle access would be limited to the batch plant parking area (see Parking) and the access routes described below. Off-road vehicle use would be prohibited. Spur roads along the primary access route would be blocked with barriers to prevent off-road vehicle travel and keep vehicles on the main access road. Large rock barriers, guardrail, posts and other barriers would be placed along this roadway as needed to prevent vehicles from driving off road. Additionally, the park rangers would enforce roadway speed limits, to be posted at 15 to 20 miles per hour through the project area. Drivers found speeding or in violation of the parking rules would be ticketed.

The existing road from the batch plant site to the river near the tunnel outlet would be improved as needed for access to the riverside turnaround and handicap-accessible spaces. The existing dirt road from the batch plant parking area to Oregon Bar would be improved as well. As described in the Draft EIS/EIR, a vehicle turnaround would be created just east of the creek that empties into the North Fork at Oregon Bar. This existing dirt road is currently the route of the Pioneer Express equestrian/pedestrian trail. This section is also called the Cardiac Hill Bypass Trail. To minimize potential trail and road user conflicts, a separate single-tack equestrian/ pedestrian trail would be constructed from the turnaround near Oregon Bar to the batch plant flat. The distance from the river at Oregon Bar to the turnaround is approximately 500 feet. The section of new trail, from the turnaround at Cardiac Hill Bypass to the batch plant parking area, would be approximately 1,600 feet, or one-third mile. This trail would be available to river users to access vehicles parked at the batch plant.

Boater and other river users using the turnaround areas would be able to drop off and pick up equipment at these locations, but would need to park at the batch plant parking area.

Public Health and Safety Provisions

The Draft EIS/EIR describes the provision of sanitary facilities in the project area. These would include animal-proof trash containers and restrooms. At a minimum, trash containers would be placed at the entrance gate, at the batch plant parking area, and at both turnaround sites. Restrooms would be located at each turnaround and at the batch plant parking area. The trash containers and restrooms would be maintained regularly to reduce litter.

Management - Public River Access Feature

Management of the public river access features would include enforcement of rules, regulations, and posted orders to provide a safe and enjoyable experience for all recreationists as well as to minimize potential impacts to adjacent residential areas. Such activities include, but are not limited to, the following:

- Limited hours of operation
- Prohibition of alcohol
- Prohibition of open fires
- No overnight camping/parking
- Enforcement of parking, speed limits, noise levels and litter regulations

Discussion of Maidu Drive Neighborhood Concerns

Maidu Drive neighborhood concerns related to traffic, air quality, noise, litter, and public safety topics are discussed in the following sections. Please refer to Master Response 3.1.9, Fire Management, for a discussion of issues related to potential fire hazards in the study area and to Master Response 3.1.10, Project Access, for an explanation regarding the use of Maidu Drive as the primary access route for the Proposed Project.

Traffic

One of the primary concerns raised by Maidu Drive neighborhood residents was the potential for increased construction and project-related traffic to impact roadway conditions, including safety of school children and other pedestrians. Traffic counts for Maidu Drive were not available at the time the Draft EIS/EIR was prepared, however, since that time, the City of Auburn collected traffic count data for Maidu Drive. Additionally, the lead agencies retained a professional traffic engineer to conduct a supplemental study of potential project-related traffic effects upon Maidu Drive, with focus upon the Maidu Drive/Burlin Way intersection. The findings of the Traffic Study (Anderson 2002) are described in this Master Response and incorporated into the Final EIS/EIR, Section 3.14, Transportation and Circulation. This information does not alter the conclusions presented in the Draft EIS/EIR.

Description of Maidu Drive and Results of Traffic Study

Reclamation built Maidu Drive in the early 1960s to serve as a construction haul and access route for the Auburn Dam Project. As such, Maidu Drive was built to accommodate heavy loads and high capacity. Within the City of Auburn, Maid Drive serves as a collector road that connects to and receives traffic from neighborhood streets within the subdivisions along Maidu Drive. Maidu Drive is configured with one lane of traffic in each direction; each lane is 12-1/2 feet wide. The roadway shoulders are five feet wide; no parking is permitted along the shoulder. By comparison, other newer two-lane neighborhood streets typically have nine-foot wide lanes with eight-foot wide shoulders to accommodate streetside parking that commonly occurs in front of residences. Such roads also typically have curbs, gutters and sidewalks. There are no homes fronting to Maidu Drive along the segment from the Auburn-Folsom Road intersection with Maidu Drive to the Proposed Project entrance area.

The focus of the Traffic Study was to evaluate the potential for the Proposed Project to result in a decrease in the level of service (LOS) at the Maidu Drive/Burlin Way intersection. The evaluation used updated average daily traffic (ADT) counts provided by the City of Auburn (December 2001/January 2002) and counts made during the conduct of the study (February 2002). Additionally, the study obtained a count of pedestrian activity at the Maidu Drive/Burlin

Way intersection and evaluated that use against California Department of Transportation (CALTRANS) Traffic Manual standards to determine the need for school pedestrian crossing improvements. This assessment is discussed following the traffic analysis, under Skyridge Elementary School.

City of Auburn ADT counts for Maidu Drive are listed below, by roadway segment.

East of Falcons Point Drive	297 ADT
Falcons Point Drive west to Burlin Way	457 ADT
Burlin Way to Shirland Tract Road	3,098 ADT

These counts clearly indicate the relationship of housing location to roadway use.

The supplemental Traffic Study collected additional traffic data by monitoring morning, afternoon and evening peak hour travel along Maidu Drive, with an emphasis on the Maidu Drive/Burlin Way intersection. The study found that the morning peak hour (i.e., between 7:15 a.m. and 8:15 a.m.) has the highest traffic count, with a total of 641 vehicles passing through the Maidu Drive/Burlin Way intersection. Using this data, in combination with the City of Auburn traffic counts, the Traffic Study evaluates existing LOS conditions and determines the potential impacts upon traffic congestion (LOS) and pedestrian safety associated with construction and operation of the Proposed Project. Additionally, the Traffic Study evaluates future cumulative conditions based on build-out of planned development projects in the Maidu Drive area.

Level of Service Analysis

The quality of traffic flow and its relationship to adopted standards is evaluated based on level of service. LOS is a qualitative measure of traffic operations whereby a letter grade, A through F, is assigned to a roadway segment or intersection. LOS A is indicative of good traffic flow with little or no delay, while LOS F is indicative of "at-capacity" conditions with significant congestion and delay. The City of Auburn has established LOS D as the minimum acceptable LOS beyond which mitigation measures would be warranted to reduce the level of a project's impact upon LOS. The analysis of the Proposed Project determined LOS using the procedures of the 2000 Highway Capacity Manual.

The existing levels of service at the Maidu Drive/Burlin Way intersection for the peak travel hours (morning, afternoon and evening) and peak 15-minute intervals are shown in **Table 3-2**.

Table 3-2
Existing Condition Traffic LOS Evaluation

Maidu Drive Condition	a.m. Peak Hour [a]		Afternoon [a]		p.m. Peak Hour	
	Average Delay (Seconds)	LOS	Average Delay (Seconds)	LOS	Average Delay (Seconds)	LOS
Existing (Non-summer) - Overall Hour	14.8	B	10.0	B	7.6	A
Existing (Non-summer)	21.5	C	10.6	B	n.a.	n.a.

[a] Conditions occurring during the peak 15 minutes before or after school, except where "overall hour" is noted.

As indicated by these results, the greatest delay occurs during the morning peak hour reflecting commuter and school-related travel. Overall, LOS B is maintained, although LOS drops to C during the peak 15-minute period when school arrivals occur (7:15 a.m. to 8:00 a.m.). Afternoon and evening hours are rated LOS B and LOS A, respectively, with the delay being several seconds less than in the morning peak hour.

To evaluate the potential impacts of the Proposed Project upon the Maidu Drive/Burlin Way LOS, anticipated levels of construction and operations traffic were added to the existing condition. The study focuses on the critical time periods when LOS is influenced by commuter and school-related travel (morning, afternoon, and evening peak hours). These conditions occur on weekdays during the school year. Weekend and summer travel on Maidu Drive would be expected to be less than during these critical "peak hour" timeframes, therefore, specific evaluation of weekend or summer days was not considered necessary. The evaluation of Proposed Project impacts, therefore, can be considered to represent the peak or "worst-case" conditions that could be encountered. Overall, traffic levels would be less than indicated by the evaluation because (1) construction-related travel would not occur during peak commuter or school-related travel periods; and (2) peak public river access travel generally would occur on weekends and during summer months, when school is not in session.

Proposed Project Construction Traffic

As described in the Draft EIS/EIR, on average, construction of the Proposed Project would result in 30 to 35 construction workers at the project site daily, with up to 50 construction workers on site during peak construction. Using the peak condition, up to 100 daily trips would result from travel by these workers. Additionally, there would be a maximum of 23 daily supply deliveries to the site during peak construction, resulting in up to 46 additional trips to the site. Combined, the sum of construction worker and delivery trips could total up to 146 new trips per day, during peak construction. This represents up to 116 more trips than under the existing condition (30 daily trips are made during the two to four-week installation and removal activities for the seasonal pump station each year). On average, the total number of daily trips associated with Proposed Project construction and the increase relative to existing conditions would be less. These impacts all would be of relatively short-term duration, and would no longer occur after construction activities are completed.

While Maidu Drive itself has the capacity to accommodate this construction-related traffic volume increase, the local impact to the Maidu Drive/Burlin Way intersection will be linked to the actual hours of travel to and from the project site. Trips generated during the peak 15 minutes before school begins have the potential to increase delays and contribute to the perception of safety problems.

The Draft EIS/EIR indicates that hours of certain construction activities for the Proposed Project could extend from 7:00 a.m. to 6:00 p.m. (based on noise-level restrictions). Assuming these hours represent the typical construction work day, construction contractor personnel work trips would be outside of the peak a.m. and p.m. travel periods.

The Traffic Study evaluated two construction trip scenarios: (1) all construction personnel arrive and pass through the Maidu Drive/Burlin Way intersection within the morning peak hour,

with one-quarter of these trips occurring during the critical 15 minutes before school; and (2) a worst-case representation where all construction arrival trips pass through the Maidu Drive/Burlin Way intersection within the critical 15 minutes before school. Both analysis scenarios also assumed that deliveries of project construction supplies would be spread uniformly throughout the construction day, with four to eight trips occurring during any one hour. The distribution of peak construction-related trips is presented in **Table 3-3**.

Table 3-3
Project Construction Trip Generation Assumptions

	Time Period						
	Daily [a]	a.m. Peak Hour		Afternoon		p.m. Peak Hour	
		In	Out	In	Out	In	Out
Anticipated Construction Trips	146	54	4	4	4	4	54

[a] Number of trips represents peak construction activity; on average, the total number of daily trips would be less than evaluated.

The results of the LOS evaluations for the critical 15 minutes before school for these two scenarios are shown in **Table 3-4**.

Table 3-4
Proposed Project - Construction Traffic LOS Evaluation

Maidu Drive Condition	a.m. Peak Hour [a]		Afternoon [a]		p.m. Peak Hour	
	Average Delay (Seconds)	LOS	Average Delay (Seconds)	LOS	Average Delay (Seconds)	LOS
Existing (Non-summer)	21.5	C	10.6	B	n.a.	n.a.
Existing (Non-summer) Plus Proposed Project Construction Traffic	32.9	D	11.3	B	7.9	A
Existing (Non-summer) Plus "Worst Case" Proposed Project Construction Traffic [b]	92.0	F	n.a.	n.a.	8.9	A

[a] Conditions occurring during the peak 15 minutes before or after school, except where "overall hour" is noted.
[b] "Worst Case" would include all overlapping traffic including peak river access use in combination with commuter and school-related traffic.

Under the first scenario, the addition of up to one-quarter of the construction trips during the critical 15 minutes before school begins could result in an additional delay of 11.4 seconds and a reduction of LOS from C to D. Based on application of the City of Auburn LOS standard, this change in LOS would not be considered a significant impact, and would not warrant implementation of mitigation measures. The "worst-case," or second scenario, where all construction trips arrive and pass through the Maidu Drive/Burlin Way intersection during the critical 15 minutes before school, would result in significant traffic impacts. The average delay would increase by up to 70.5 seconds (compared to existing condition) and result in LOS F conditions. This change from the existing condition would represent a significant impact requiring mitigation. The results show that afternoon or evening Proposed Project construction-related trips would not affect existing LOS ratings.

The Proposed Project construction-related travel conditions would result in lesser impacts than either of the two scenarios represented for the following reasons: (1) the majority of the

construction contractor personnel would arrive at the project site prior to the 7:00 a.m. start of the work day; and (2) on average, only 30 to 35 construction personnel would travel to the project site, not 50. Additionally, Reclamation will require the construction contractor to limit employee trips and supply deliveries along Maidu Drive during the morning hours before school. Reclamation will require the construction contractor to prepare a Construction Traffic Management Plan including the following element:

- Require construction personnel and supply deliveries to limit use of Maidu Drive during the peak school-related travel times, including: morning school drop-off (approximately 7:15 a.m. to 8:15 a.m.) and afternoon school pick-up (2:30 p.m. to 3:30 p.m.) throughout the school year.

Overall, the Proposed Project construction-related traffic would not result in significant impacts upon Maidu Drive traffic conditions.

Proposed Project Operation and Public River Access Traffic

As reported in the Draft EIS/EIR, PCWA anticipates that operations and maintenance personnel will make up to four visits (eight trips) to the project site each day. In addition to these trips, it is estimated that use of the public river access areas would generate up to 206 trips to the project area on a peak day. Combined, the total number of Proposed Project trips would be 214. This estimate is revised from the Draft EIS/EIR assumption of 210 trips based on the reduction in number of spaces at the riverside parking area, described earlier, and on the use of a higher rate of turnover at the 50-car parking lot (2 cars per space on a peak day based on anticipated hours of operation). The trip generation assumptions are shown in **Table 3-5.**

Table 3-5
Project Operation Trip Generation Assumptions

Condition	Time Period						
	Daily	a.m. Peak Hour		Afternoon		p.m. Peak Hour	
		In	Out	In	Out	In	Out
Anticipated Project Operation Trips	218 [a]	12	12	12	12	12	12

[a] The Traffic Study was completed before the lead agencies revised project trip counts, therefore, the assumption was 218 trips; based on the revised count of 214, however, the evaluation of 218 trips remains conservative.

Peak use of the river access features is anticipated to occur infrequently, typically on weekends or holidays during summer months. Additionally, based on the anticipated hours when vehicular access to the project site would be permitted, river access-related travel would not coincide with peak morning hour commuter and school-related trips. The Traffic Study evaluation of Proposed Project impacts on traffic and LOS at the Maidu Drive/Burlin Way intersection therefore also may be considered a "worst-case" assessment because it assumes up to 24 trips would occur during the peak 15 minutes before school during the morning peak hour. The results of the LOS evaluation are shown in **Table 3-6**.

Table 3-6
Proposed Project Operations Traffic LOS Evaluation

Maidu Drive Condition	a.m. Peak Hour [a]		Afternoon [a]		p.m. Peak Hour	
	Average Delay (Seconds)	LOS	Average Delay (Seconds)	LOS	Average Delay (Seconds)	LOS
Existing (Non-summer)	21.5	C	10.6	B	n.a.	n.a.
Existing Plus Project Operations and Public River Access Traffic [b]	25.5	D	11.1	B	7.9	A

[a] Conditions occurring during the peak 15 minutes before or after school, except where "overall hour" is noted.
[b] Public river access traffic projected during periods of peak use under the maximum use conditions.

As indicated by the analysis, even if Proposed Project operation and river access trips were to occur during the morning peak 15 minutes before school, the change in average delay and LOS would represent a less-than-significant impact, according to City of Auburn standards. No mitigation would be required. The afternoon and evening peak hour delay and LOS conditions would not be adversely affected. Further, if the 24 trips assumed to occur in the morning peak hour were shifted to the afternoon and evening peak hours, the LOS likely would not change. Even if it did, however, it would not drop below the City's standard of LOS D and would not require mitigation. Overall, the Proposed Project traffic impacts would be less than represented by these results because (1) typical use of the river access area would generate less traffic than assumed for peak holiday and summer weekend use; (2) peak use periods would not coincide with commuter and school-related trips; and (3) river access trips would not occur during the morning peak hour. Additionally, the lead agencies will pay a traffic mitigation fee to the City of Auburn, as required for other development projects that generate additional traffic on City streets.

Cumulative Conditions

Near-term and future residential development in the study area would increase the volume of traffic on Maidu Drive and through the Maidu Drive/Burlin Way intersection. Future cumulative background traffic volumes at the study intersection were developed based on a list of approved/pending projects identified by the City of Auburn.

The City is currently considering the Canyon Rim Estates Subdivision Project in the area south of Maidu Drive. This 23-unit project would have access via Burlin Way and would generate about 17 a.m. and 23 p.m. peak hour trips. The traffic study prepared for the Canyon Rim Project identified other in-fill development that would occur at Shirland Tract Road. Some of the trips generated by that development would use the Maidu Drive/Burlin Way intersection to reach Skyridge Elementary School.

The cumulative level of service analysis assumes completion of the Proposed Project and peak use of the public river access facilities plus development of residential subdivisions in the Maidu/Skyridge area. This evaluation represents a "worst case" cumulative condition because it assumes concurrent use of the intersection by commuters, parents with elementary school students and recreationists. However, the public river access facilities are unlikely to be fully utilized except during the summer or on weekends, generally outside of peak commuter or school travel hours. Therefore, for this condition, the actual future roadway LOS impact would be less than

represented by this evaluation. The results of the cumulative LOS analysis are shown in **Table 3-7**.

Table 3-7
Cumulative Condition Traffic LOS Evaluation

Maidu Drive Condition	a.m. Peak Hour [a]		Afternoon [a]		p.m. Peak Hour	
	Average Delay (Seconds)	LOS	Average Delay (Seconds)	LOS	Average Delay (Seconds)	LOS
Existing (Non-summer)	21.5	C	10.6	B		
Cumulative Background Conditions	39.0	E	11.7	B	7.7	A
Cumulative Plus Proposed Project Traffic [b]	42.7	E	12.3	B	8.0	A
Cumulative Plus Proposed Project Traffic - Overall Hour [b]	18.4	C	n.a		n.a.	n.a.

[a] Conditions occurring during the peak 15 minutes before or after school, except where "overall hour" is noted.
[b] "Worst Case" assumes all traffic trips occur concurrently including peak river access use and project operations trips in combination with commuter and school-related traffic arising from the future proposed subdivisions.

Cumulative conditions without the Proposed Project would result in increased delay and lower LOS ratings during the morning peak 15 minutes before school. LOS potentially would drop to a rating of E with an increase in average delay of 17.5 seconds. Future development projects within the city are required to pay traffic mitigation fees applied toward the implementation of traffic safety and control measures to minimize effects upon LOS. In fact, the city is planning to install a traffic signal at the intersection of Auburn-Folsom Road/Maidu Drive later this year. Operation of this signal potentially would result in a better LOS than estimated by this analysis for future conditions.

The addition of Proposed Project traffic to the cumulative background condition increases the average delay during the morning peak 15 minutes before school by up to 3.7 seconds, but does not cause the estimated LOS to worsen. Because it is unlikely for the cumulative trips to be concentrated solely within this 15-minute period, consideration of the cumulative "overall hour" LOS also is presented. The overall hour average delay increases by up to 3.6 seconds and the LOS rating would change from the existing LOS B to LOS C. This overall rating would not be considered a significant impact, based on City of Auburn standards.

Additionally, because the river access area would not be open for vehicular access during this hour (7:15 a.m. to 8:15 a.m.), the potential contribution of the Proposed Project to the cumulative condition would be less than represented by these results. The Proposed Project's incremental contribution to these conditions would not be considered cumulatively considerable.

Afternoon and evening periods would not be adversely affected under the cumulative condition.

Spillover Traffic Onto Adjoining Neighborhood Streets

Commenters expressed concern that there would be an increase in traffic on neighborhood side streets such as Riverview Drive, Falcons Point, Sacramento Street, and Snowy Owl Way as a result of the increased traffic associated with public access to the area.

The construction contractor and PCWA employees would not use these roads; however, the possibility of additional trips along these roads is recognized, and reference to these occurrences is added to the Final EIS/EIR. The addition of these trips to these roads, which currently have low traffic volumes, would not be considered a significant impact. Additionally, due to the distance from the river and proposed parking areas, it is highly unlikely that river users would choose to park their vehicles along these roads and walk the distance (over 1/2 mile and steep terrain) to the public river use areas.

Mitigation Measures

In addition to the Construction Management Traffic Plan, the Proposed Project would include payment of mitigation fees commensurate with a subdivision that would generate the same number of trips (approximately 20 residential units). These fees would be used to implement future traffic safety controls, as needed. Even if the project's incremental contribution to cumulative conditions were "cumulatively considerable," this "fair share" contribution would be sufficient to reduce that incremental contribution to a "less than cumulatively considerable" level (CEQA Guidelines, § 15130, subd. (a)(3)).

Skyridge Elementary School

Commenters expressed concerns related to the project areas proximity to the Skyridge Elementary School and potential impacts related to traffic at the intersection of Maidu Drive/Burlin Way and increased public access near the school site (protection of the children from strangers).

Skyridge Elementary School is located on Perkins Way, approximately one-tenth of a mile from Maidu Drive/Burlin Way. The entrance to the school site is directly off of Perkins Way. The school campus is setback approximately 300 feet from the roadway and enclosed behind a 6-foot high wooden fence. The school buildings and playground areas are not easily viewed from Perkins Way. The driveway to the school immediately enters the parking area and bus loading/unloading lanes. The buildings are set further back on the property and face the parking area. It is school policy that all visitors to the campus check-in at the front office and obtain a badge to be kept visible while on school premises. Visitors are to check-out and return the badge as they leave the site.

The school year is traditional, with classes in session from late August through mid-June and a four-week summer session that generally runs from mid-June to mid-July. Student enrollment in February 2002 was about 623 students. Students are typically on campus and in class Monday through Friday between 8:00 a.m. and 2:15 p.m. School buses drop-off students at 7:30 a.m. and pick-up students at 2:30 p.m. An adult supervisor and three students provide safety patrol duties at the school entrance for 1/2-hour in the morning before school and 1/2-hour in the afternoon as school is let-out. This service is only provided during the regular school year and not during summer school.

Commenters described congested traffic conditions at the Maidu Drive/Burlin Way intersection during morning peak hours as children are driven to school and people leave their homes to go

to work. Concerns regarding increased traffic levels and pedestrian safety were expressed in many comment letters. Currently, Skyridge Elementary School does not retain paid or volunteer crossing guards at any intersection in the vicinity of the school. As part of the study conducted for the project, traffic engineers evaluated the extent to which current pedestrian activity at the Maidu Drive/Burlin Way intersection warrants school pedestrian crossing improvements according to CALTRANS Traffic Manual, Chapter 10 guidelines. On-site pedestrian counts were taken during morning school arrival and afternoon school departure hours. These counts indicated approximately 15 pedestrians using the intersection and crossing Maidu Drive in the morning and 10 pedestrians in the afternoon. The CALTRANS Traffic Manual identifies traffic control strategies (i.e., traffic signals, crossing guards, etc.) and provides recommendations for minimum pedestrian and vehicular volumes that would justify each action. In this case, the observed pedestrian volumes are below the minimum thresholds determined to warrant actions such as adult crossing guards (30 pedestrians), warning beacons (40 pedestrians), or traffic signals (70 pedestrians).

Overall, given the relatively secluded location of the school and the limited access, it is unlikely that recreation users traveling along Maidu Drive would notice the presence of the school. Additionally, there are no signs posted near the intersection of Maidu Drive and Burlin Way that indicate the location of the school.

Daily school hours and operations do not coincide with anticipated periods of peak use of the river access facilities. During the week, most river users would access the recreation facilities in the late afternoon or evening and would not interfere with school ingress and egress times. As stated previously, it is expected that peak use of the river access facilities would occur on weekends and holidays during the summer months when the school is not in operation or only open in a limited capacity.

Air Quality

Commenters identified increased emission of air pollutants as a concern relative to vehicle emissions and roadway dust generation.

Project-related vehicular air emission estimates for pollutants of concern were re-evaluated using updated methodologies recommended and provided by the Placer County and El Dorado County air pollution control districts (APCDs). The assessment of project-related trips and air quality emissions is based on the combined total level of travel on a peak river access use day. On a peak day, the lead agencies and CDPR estimate that the 50-space parking lot would fill twice, resulting in a total of 206 trips (trip is one-way travel). Additionally, PCWA personnel would make up to 8 operations and maintenance trips (4 site visits) per day. The total peak day travel to the site would be 214 trips. This value was used to re-assess vehicular air emissions for a peak, or "worst-case" condition. The El Dorado County APCD threshold for reactive organic gases (ROG) and nitrous oxide ($NO_{x)}$ emissions is 82 pounds per day (lb/day). Placer County APCD threshold for ROG and NO_x emissions is 85 lb/day. Placer County uses an emission threshold of 275 lb/day for particulate matter (up to 10 microns in size) (PM_{10}); El Dorado County evaluates PM_{10} based on the likelihood emissions would cause or contribute

significantly to a violation of the applicable state or national ambient air quality standards. The estimated emissions calculated for ROG, NO_x, and PM_{10} are displayed in **Table 3-8**.

Table 3-8
Air Pollutants (pounds per day)

Analysis Year	ROG	NO_x	PM_{10}
2005	5.50	4.13	0.250
2010	3.42	2.41	0.241
2015	2.20	1.43	0.254

As indicated by the results, ROG and NO_x emissions due to project-related vehicular traffic would be well below the 82 lb/day and 85 lb/day significance thresholds for all years evaluated. Additionally, the PM_{10} emissions would be far below the 275 lb/day significance threshold used by Placer County. The PM_{10} emissions would not be expected to result in or contribute significantly to a violation of applicable air quality standards. Generally, because peak travel conditions would only occur on a limited number of days of the year, the expected daily project-related air pollutant emissions would be les than indicated by these results.

The Final EIS/EIR (Chapter 3.0, Section 3.15, Air Quality) describes anticipated fugitive dust emissions and control measures to be implemented during construction. Measures to minimize and control dust emissions include watering construction areas and soil stockpiles, applying soil binders to unpaved roads, covering earth-hauling trucks, sweeping adjacent paved streets daily, and limiting speeds on unpaved roads to 15 miles per hour. These are standard construction dust-control measures recommended by the local air pollution control districts.

Additionally, it is noted that the Proposed Project river access features would be considered minimal improvement to the area generating a limited amount of use, compared to other areas in the Auburn SRA. This information does not alter the conclusions presented in the Draft EIS/EIR.

Noise

Commenters expressed concern about increased noise levels in the Maidu Drive neighborhoods associated with project construction, increased traffic along Maidu Drive, and with public use in the canyon.

The Draft EIS/EIR evaluates the potential noise impacts associated with Proposed Project construction and operation (pages 3-315 through 3-318). Environmental protection measures include compliance with the City of Auburn, Placer County, and El Dorado County noise ordinance requirements for construction activity. As such, construction activities would be limited to certain daytime hours and days (page 3-316 of the Draft EIS/EIR) with tighter restrictions placed upon activities that exceed 95 decibels (dB). During project construction set-up, when heavy construction equipment would be brought to the site, noise levels along Maidu Drive would be greater than existing traffic noise levels. These activities would not result in extreme or sharp, jolting, or disturbing sounds. Similar increases in noise levels would be expected to occur at the end of construction when the heavy equipment is removed from the area. These phases of construction would be expected to be of relatively short duration.

Although such noise will constitute a short-term source of irritation to adjacent land uses, they are not considered to rise to the level of a significant adverse impact due to their temporary character.

Overall, because project activities would be in compliance with local ordinances, the temporary increases in noise levels associated with construction would not be considered significant. However, due to the duration of the construction period (approximately 22 months), the Mitigation Plan (Appendix D to the Final EIS/EIR) includes a public information element to provide the general public with specific details regarding construction activities, anticipated noise levels and duration of certain activities (e.g., blasting). As described in the Mitigation Plan, this program would provide local residents and recreation organizations with specific information regarding the project construction schedule and activities.

Operation of the proposed pump station would generate lower noise levels than the existing seasonal pump station configuration (page 3-317 of the Draft EIS/EIR). Under the Proposed Project, the permanent pump station would result in a reduction in overall noise levels as compared to the current situation because there would no longer be noise impacts associated with the bi-annual assembly and disassembly operations of the seasonal pumps.

The Draft EIS/EIR (page 3-318) addresses potential noise impacts associated with increased public access in the project area. As indicated, CDPR rangers would be responsible for enforcement of recreation area rules and regulations, including excessive noise control. The Proposed Project would not include any facilities that would encourage long-term visitation at the project site. Additionally, motorized boats and jet skis would not be permitted in the area. As stated previously, the objective of these features is to permit safe access to and from the river. Noise associated with these uses would be similar to existing conditions (raised voices and automobiles) and would be intermittent rather than continuous. Rules for the area would prohibit use of alcohol and there would be no picnic tables or other long-term use facilities. These limitations on use within the project area would help minimize inappropriate activities and related noise associated with increased public use. Additionally, the parking area and turnaround where recreation users might congregate are a considerable distance (over one mile as the crow files) from the nearest homes. It is not anticipated that the recreating public will congregate in the vicinity of the adjacent neighborhoods anymore than the current situation, where community members park at the lower end of Maidu Drive to access trails. Factors contributing to traffic noise and increases in related noise levels include: (1) the volume of traffic; (2) the speed of the traffic; and (3) the number of trucks in the flow of the traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds and greater numbers of trucks. Vehicle noise is a combination of the noises produced by the engine, exhaust, and tires. Traffic noise levels are reduced by distance, terrain, vegetation, and natural and manmade barriers.

The Federal Highway Traffic Noise Manual states that a doubling of a noise source (i.e., number of vehicles) produces up to a 3 dB increase in noise levels (sound pressure level). A 3 dB change in noise levels has been shown to be barely detectable by the human ear. Based on the average daily traffic counts along Maidu Drive, which range from 297 to over 3,000, the

Proposed Project would potentially increase traffic levels by less than one-half. This level of increased traffic would occur only on a peak summer day.

The Proposed Project would not significantly increase the volume of traffic on Maidu Drive and the speed limits on roads in the neighborhood would not change as a result of this project. A greater number of trucks would be associated with construction activity; but this would occur over a limited period of time (mobilization and demobilization periods). The homes along Maidu Drive are set back a minimum of 50 feet from the roadway, and all are separated from the road by wooden fencing or brick/stone walls. Additionally, many of the yards have landscaping (trees, shrubs) that provide some reduction in noise levels. Overall, the Proposed Project would not be expected to generate a substantial increase in traffic noise levels, and most likely, any increase that does occur would not be detectable.

Compared to existing conditions, increased traffic-related noise levels along Maidu Drive would not be perceptible

Public Health and Safety Considerations

Litter

Several comments on the Draft EIS/EIR indicated a concern that litter would become a problem associated with increased public use of the project area and related to access of the project site along Maidu Drive.

Reclamation's construction contractor will be responsible for clean-up of litter and other construction debris. Reclamation's construction contractor also will be responsible to ensure that these materials are properly disposed of at approved locations throughout the various phases of construction and before the area is reopened to the public.

The Proposed Project would include installation and maintenance activities for trash containers and restroom facilities. Park staff, rangers and volunteer patrols in the area would provide enforcement of park rules and regulations, including minimizing littering. CDPR would be responsible for ensuring proper maintenance and operation of the river access area facilities.

Local agencies also were contacted to determine how litter along neighborhood roads is and would continue to be addressed. The City of Auburn Public Works Department indicated that it would continue its regular patrols of the neighborhood including street cleaning to clear the streets of small debris. Should larger materials be left within the roadway, the City would make arrangements to remove the objects as quickly as possible after discovery. In the event a vehicle is abandoned, the City of Auburn Police Department would continue its practice of ticketing and eventually towing any vehicle that is not removed or claimed within a standard timeframe.

Illegal and Inappropriate Activities

Commenters expressed concern that increased public use of the project area would result in illegal, inappropriate or criminal activities within the Maidu Drive neighborhoods. These concerns include problems such as drinking, drugs, vandalism, or theft and concern about the potential increased workload on local law enforcement. Operation and management elements of the river access feature would be expected to substantially minimize these concerns. Some key elements include:

- Limited hours of access;
- CDPR presence at the entrance station and patrols;
- CDPR does not currently have reports of problems in the area;
- Lack of attractive nuisance in the area of the neighborhood, the place people will congregate (batch plant and the river) is quite a distance from residences;
- Restrictions on alcohol; and
- Anticipated user group given the design of the access (one-half to three-quarter mile from parking to river), river users, anglers, trail users.

CDPR's restrictions on alcohol would reduce the likelihood of inappropriate activities at the river access facilities. The presence of park aids, park rangers and volunteer patrols near the entrance gate and patrolling the area would further discourage inappropriate activities at the site and in areas immediately adjacent to the project site. Limitations on public vehicular access (hours of operation and parking lot capacity) would further minimize potential for such activities. Additionally, the removal of the 20-car parking area at the river would make the area less attractive for recreation users because of the hike required to reach the water from the batch plant parking lot. Ultimately, should problems arise, CDPR retains the authority to place additional restrictions upon the hours or type of use or to even close the area to vehicular access until the situation can be remedied.

The City of Auburn Police Department would continue regular patrols of the neighborhood and expects to provide the same level of service without experiencing an undue burden upon current staffing.

Some commenters indicated that the existing parking area at the Auburn Dam site access gate on Maidu Drive attracts teenagers who hang-out and may behave inappropriately. CDPR has not received any calls related to such activity.

Maidu Drive Neighborhood Property Values

While the lead agencies acknowledge this comment topic, it is noted that this subject is not considered to be an environmental issue under CEQA, and therefore, does not merit mitigation or preventative measures on the part of those responsible for the Proposed Project. California case law is clear that such impacts are not "environmental" in character (See *Hecton v. People*

of the State of California (1976) 58 Cal. App.3d 653, 656.). Additionally, it should be recognized that there is a wide range of socioeconomic trends that may cause property values and housing markets to fluctuate from time to time. However, proximity to outdoor recreation opportunities generally has not been found to be a detriment to residential areas or their property values.

3.1.7 TAMAROO BAR

The Tamaroo Bar rapid is not a natural river feature, and did not exist prior to river channel alterations at the Auburn Dam Project site. The Tamaroo Bar rapid was created as a result of slope failures along the river canyon walls. Under current conditions, it is estimated that the Tamaroo Bar rapids become inundated when river flows reach 6,000 cfs; at this flow rate, the inflow capacity of the bypass tunnel is reached, and water begins to backup as the water surface elevation rises.

As stated in the Draft EIS/EIR, the design criteria for the Proposed Project (permanent in-river diversion structure) is to not increase water surface elevations upstream of the Tamaroo Bar rapid; however, this criteria would not necessarily preserve the rapid under all conditions. The Proposed Project includes the construction of Class I to Class III rapids in what is now the dewatered section of the river. Overall, the Proposed Project increases the number of rapids, even with the probably reduction in size of the Tamaroo Bar rapid at some flows below 6,000 cfs. Because the existing dewatered portion of the channel will be deepened and widened at the cofferdam, at higher flows, the backwater may be less than it is now.

Thus, the Proposed Project results in an overall improvement of site conditions for boating and for visual/aesthetic value. Therefore, the anticipated reduction in size of the Tamaroo Bar rapids would be considered less than significant.

3.1.8 RALSTON AFTERBAY

The MFP is a multi-purpose project designed to conserve and control waters of the Middle Fork of the American River, the Rubicon River and certain tributaries for irrigation, domestic and commercial purposes and for generation of electric energy. The MFP was developed by PCWA and is currently operated by PG&E, which has the right to control operations for hydropower until 2013. Under these constraints, there are three management objectives for the Middle Fork of the American River prioritized as follows: (1) instream flows for fisheries resources; (2) the consumptive use needs of PCWA; and (3) hydroelectric power generation by PG&E.

Ralston Afterbay, one of five MFP diversion dams, is located about 20 miles east of Auburn and is operated as a re-regulating reservoir for the MFP. Being the most downstream dam in the MFP system, Ralston Afterbay releases flows to the Middle Fork American River upstream of its confluence with the North Fork of the Middle Fork. Downstream of this confluence, Middle Fork flows are a combination of regulated and unregulated flows. Water releases from Ralston Afterbay can vary greatly over the course of a day, month, or year, as well as having seasonal fluctuations in response to hydropower demand and water availability.

Implementation of the Proposed Project would result in minor changes in PCWA's water releases from the MFP at Ralston Afterbay (Section 2.2.2.3), which must divert water from storage in the summer and, therefore, must increase the amount of water released at Oxbow in order to do so. Such changes include an increase (compared to existing conditions) in the amount of water released from Ralston Afterbay to meet the minimum 75 cfs bypass flow at the pump station and to ensure effective operation of the diversion/intake during low-flow conditions. Preliminary design information indicates that a minimum flow of 175 cfs may be required for optimum operation and maintenance of the pump station/intake system under the Proposed Project. The unregulated flows from the North Fork of the American River provide sufficient volume to meet this anticipated project requirement for most of the year, however, it is projected that PCWA may increase the minimum Ralston Afterbay releases in late summer months (June through October), relative to existing conditions.

3.1.9 FIRE MANAGEMENT

Increased Fire Danger Protection Measures and Commitment to Implement a Comprehensive Fire Management Plan

A Comprehensive Fire Management Plan is being prepared through coordination and consultation with local agencies, including Fire Safe Councils for the Auburn Dam and Reservoir Project lands. As part of this effort, CDPR, CDFFP, and Reclamation have prepared an Auburn State Recreation Area Prefire Management Plan (January 2002). This plan is included as Appendix A to the Final EIS/EIR.

The Comprehensive Fire Management Plan will include all aspects of public and firefighter safety and prevention and fire suppression activities. Since the release of the Draft EIS/EIR, a major component of the Comprehensive Fire Management Plan, the Fuels Management Action Plan, has been completed. This element directly affects the interface lands (the areas where public lands adjoin private lands) and lays out a process to implement fire management strategies for the Auburn SRA lands that are a priority interface with the Greater Auburn Area. As a major component of mitigation for the potential of increased fire danger on public lands within the interface areas directly affected by the American River Pump Station Project, ground implementation of the Fuels Management Action Plan is planned to be completed prior to opening the area for public use.

Through coordination and partnerships with local neighborhoods, citizen groups, and others, CDPR and Reclamation, will work to implement appropriate fire management strategies as prescribed in this plan. The interface lands will be divided into priority areas with each having its own site-specific environmental review process.

Fuel modification within interface lands is critical for reducing the potential for a costly and damaging fire. The following prescriptions can be used for fuel management in three distinct geographic areas or zones within the interface areas: (1) Shaded Fuel Break, (2) Defensible Space, and (3) Defensible Landscape.

Shaded fuel breaks will be developed on public lands that interface private lands directly affected by the American River Pump Station Project. The width of the fuel break is usually 100 to 300 feet, depending on site conditions. Creating a shaded fuel break involves carefully planned thinning of dense vegetation, intended to inhibit fire from easily moving from ground into the overhead tree canopy. A shaded fuel break does not involve the removal of all vegetation in a given area.

Fire suppression ground and air resources can use the shaded fuel break area to suppress wildland fires. Any fuel break by itself will not stop a wildland fire. Shaded fuel breaks, to be most effective, must be accomplished in conjunction with the other prescriptions, such as defensible space and defensible landscapes, which would occur largely on adjacent private properties. The managing partners of the comprehensive fire plan are working with local entities and citizen groups to implement the Fuels Management Action Plan.

The Draft EIS/EIR discusses the causes and risk of wildland fire and mitigation actions in Chapter 2.0, Table 2-7 and in Chapter 3.0 at pages 3-322, 323, 329, 330.

Construction-Related Fire Protection and Prevention

Reclamation will ensure that the construction contractor prepare and carry out an effective fire protection and prevention program covering all phases of construction under this contract. The plan shall be submitted to Reclamation, for approval prior to the start of construction operations. At the option of the construction contractor, the fire protection and prevention program may be incorporated into the safety program required in the project's construction specifications.

Representatives of CDFFP and/or other local fire protection agencies will attend the pre-construction conference to explain fire hazards and procedures for protection and prevention. During construction, the contractor will provide a reasonable amount of time in training and other regularly scheduled safety meetings for these local agency representatives to give appropriate training to the construction contractor's personnel.

The construction contractor will provide and maintain in a ready condition near each active work location a fire-tool cache consisting of at least a 5 gallon back pump filled with water, two axes, two McLeod tools, and enough shovels to equip five workers for fire-fighting purposes. A sufficient number of employees familiar with use of the equipment will be available at all times when work is in progress. In the event of a fire resulting from project operations, the local fire-protection agency having jurisdiction shall be notified and the contractor shall take immediate control action with all available equipment and manpower.

In areas where a significant fire hazard exists as determined by Reclamation's Contracting Officer, the contractor will provide a fire patrol for one hour after the shutdown of construction operations each day during the declared fire season.

In areas where grass, brush, or other natural fuels are present and where roads or creek beds will not serve the purpose, the contractor shall establish a firebreak on the uphill side of the project.

The firebreak will be within the right-of-way acquired by the government and shall consist of a 10-foot wide strip with flammable material either cleared or covered with mineral soil.

Wherever normal fire protection services are interrupted by construction operations, the contractor shall provide equivalent temporary services including water supplies and access for fire equipment through the project area.

All construction operations shall be in compliance with Reclamation Construction Safety Standards and the following federal and state codes:

- Subpart H of Department of Labor Occupational Safety and Health Standards 1910.106
- Subpart F of Department of Labor Safety and Health Regulations for Construction 1926.150, 1926.151, 1926.152, and 1926.153.
- State of California PRC 4423, PRC 4427, PRC 4428, PRC 4431, PRC 4442, H&S 13005, and H&SC 13001.

Fire Management and Prevention for Public River Access Features

Many comments were received regarding the potential for an increased risk of fire from additional recreational use in the canyon near Auburn. The perceived causes of the potential increased risk of fire include: increasing the number of public users in the canyon, increasing the possibility for vehicles to ignite fires, the use of barbecues and other open fires in the canyon, and use of cigarettes by the public. The Draft EIS/EIR did recognize the potential for an increased risk of fire due to increased public access and use in the project area. The document noted that Reclamation, CDFFP, and CDPR are working on a Comprehensive Fire Management Plan for the Auburn SRA. The Auburn State Recreation Area Prefire Management Plan introduces the purpose and need for a Comprehensive Fire Management Plan and discusses a Fire Management Planning Strategy that has been developed by CDFFP, CDPR and Reclamation. The Prefire Management Plan is included as Appendix A to the Final EIS/EIR. The Prefire Management Plan includes the Fuel Management Action Plan element described earlier.

The Draft EIS/EIR indicated that shaded fuel breaks would be constructed along the public river access roads and parking areas. These shaded fuel breaks would be 20 to 30 feet wide depending on the site conditions. Shaded fuel breaks are proposed along the main construction road that follows Maidu Drive to the batch plant, and from the batch plant to Oregon Bar and to the river-side turnaround and limited ADA-designated parking area. Shaded fuel breaks also would be constructed around the batch plant parking area and both turnarounds. Road improvements would meet emergency vehicle access needs. Moreover, the proposed prohibition on open fires within the project area would reduce the risk of wildfire potentially related to increased public use.

3.1.10 PROJECT ACCESS

Many comments addressed the use of Maidu Drive as the primary access route for both construction and public river access-related travel. Specifically, many of these comments suggested use of Pacific Avenue and questioned why it was not more fully considered as an alternate project access route. The commenters indicated that the use of Maidu Drive for public river access would result in significant traffic, noise, air quality, litter, and public health and safety, and fire hazard impacts within the neighborhoods along Maidu Drive. Responses to these topics are provided in Master Response 3.1.6, Public River Access Features and Master Response 3.1.9, Fire Management.

Comments related to the use of Pacific Avenue as an alternative to Maidu Drive suggest the following arguments for the use of Pacific Avenue rather than Maidu Drive: (1) safer and more logical access route; (2) far fewer residents would be affected; (3) Auburn Recreation District (ARD) campground is not in-place; and (4) closer to Auburn-Folsom Road and commercial establishments.

Commenters also inquired about the difference in costs for improving the roads for project use.

Some comments also were received indicating that Pacific Avenue should not be considered for access to the project area. These comments stated that use of Pacific Avenue would result in secondary traffic-related impacts to Riverview Drive and recognized the greater exposure of residents to roadway traffic along Pacific Avenue than along Maidu Drive.

This Master Response provides additional information supporting the Proposed Project's use of Maidu Drive as the primary construction and project access route over Pacific Avenue or other alternatives suggested by commenters. This information is added to the Final EIS/EIR, Chapter 3.0, Section 3.1, Transportation and Circulation. This supplemental information does not alter the conclusions presented in the Draft EIS/EIR.

Selection of Maidu Drive Versus Pacific Avenue for Project Access

As noted by commenters, and in the Draft EIS/EIR, Maidu Drive is a collector road serving several subdivisions in the southern portion of the City of Auburn. Traffic counts provided for Maidu Drive indicate a high traffic load associated with peak commuter and school arrival and departure hours (please refer to Master Response 3.1.6, Public River Access Features) for the approximately four-tenth-mile segment of roadway between Burlin Drive and Auburn-Folsom Road. For the remaining stretch of Maidu Drive, updated City of Auburn traffic counts indicate a relatively low level of use (i.e., less than 300 vehicles ADT). Pacific Avenue also serves as a residential area collector road. The City of Auburn has unpublished traffic count data that indicate an approximate 900 ADT for Pacific Avenue.

Maidu Drive and Pacific Avenue were both constructed by Reclamation in the early 1960s to support construction and other access to the Auburn Dam Project site. These roads were built to handle heavy construction vehicle loads and a high volume of traffic. Maidu Drive, however, offers a more direct and safer route to the Proposed Project site than Pacific Avenue. There are

no homes or other structures that front toward Maidu Drive nor driveways with direct access to the road along the segment that would be utilized by the Proposed Project, until the route reaches the Reclamation buildings currently occupied by PCWA. Homes along Maidu Drive are mostly oriented such that only side or backyard views of the street exist; all homes along this segment of Maidu Drive are located behind wooden fencing or brick walls of at least five to six feet in height. The set-backs of these homes from the roadway are estimated at greater than 50 feet. In comparison, Pacific Avenue is lined with multi- and single-family residences, a preschool and other public use areas that front and have direct access (i.e., seven driveways) to the road. The homes and apartment areas that face Pacific Avenue are not separated from the roadway by fences, rather front lawn areas are open and exposed to the road. Homes and other structures along Pacific Avenue are setback from the roadway by approximately only 12 to 30 feet. The roadway configuration for Maidu Drive is such that the travel lanes are 12.5 feet wide and the shoulder is 5 feet wide on either side; there is no sidewalk and no parking is permitted along the road. Pacific Avenue lanes are 9 feet wide, and the shoulders are 8 feet wide; roadway parking is permitted and there are sidewalks along some portions of the segment under consideration. Because of these differences in roadway configuration and residence orientation and set-backs, Pacific Avenue would not offer a safer or more logical access route when compared to Maidu Drive. The lack of front yard fencing poses an increased safety hazard to families with children along Pacific Avenue as children have been observed playing in the front yards of these homes; additionally, the soccer park on the northern side of Pacific Avenue attracts weekend crowds; such gatherings do not occur along Maidu Drive.

Both Maidu Drive and Pacific Avenue have intersections with Auburn-Folsom Road, and the distance to travel to commercial establishments is roughly less than one mile from either access point. This is not considered a significant factor in the selection of the route for public river access.

Sacramento Street, also suggested as an alternate route, does not provide direct project site access. Several residences and businesses have direct driveway access along this street as well.

Finally, use of Pacific Avenue for construction and/or public access to the project area would require additional measures to upgrade and widen the road to accommodate heavy construction vehicles and to ensure safe passage for members of the general public. Regardless of the cost associated with such upgrades, these measures would not be required for Maidu Drive.

The Proposed Project, therefore, retains use of Maidu Drive as the primary access route to the project site. However, certain specific mitigation measures regarding the use of this roadway have been incorporated into the Proposed Project. These measures are detailed in Master Response 3.1.6, Public River Access Features and in the Mitigation Plan (Appendix D).

3.1.11 PLACER COUNTY WATER AGENCY'S WATER CONSERVATION PROGRAM

The Draft EIS/EIR provides a summary of PCWA's estimated future water supply needs (Chapter 1.0, Introduction, pages 1-5 to 1-7) as determined by the PCWA Surface Water Supply Update for Western Placer County Discussion Paper (PCWA 2001).

PCWA water supply needs are based upon customer demands, which require that the majority of water supplies be delivered between late-spring and early fall. Water demand projections have been prepared based upon data from several sources as described in the Draft EIS/EIR (pages 3-30 and 3-31). The Draft EIS/EIR (Table 3.4-2) shows incremental projected water demands up to the year 2020. Additionally, county and city general plans contain data regarding population projections and housing units. This information was compared to historical records and used to prepare a range of growth rates. The projected water demands contained within PCWA's water supply master plan are based on a mid-range estimate of probable growth rates. While surface water projections through 2030 indicate an increased demand throughout the service area, these are based upon the assumption of continued support and implementation of water use efficiency measures as identified in the Draft EIS/EIR (page 1-6).

PCWA recognizes the importance of water management and conservation programs and has implemented many conservation measures. PCWA's treated water service customers are 100 percent metered, which is rare in the Sacramento region. Metering allows PCWA to charge its customers based on water use, rather than by a flat fee. The Draft EIS/EIR describes PCWA's water conservation and water shortage contingency planning (page 3-31). Additionally, as a member of the Sacramento Area Water Forum, PCWA has committed to implement a number of additional conservation measures (Best Management Practices) designed to improve water use efficiency. These measures include the following:

- Provide interior and exterior water audits and incentive programs for single-family residential, multi-family residential and institutional customers;
- Offer plumbing retrofit kits to residential customers;
- Provide distribution system water audits, leak detection, and repair;
- Provide non-residential meter retrofit;
- Provide large landscape water audits and incentives for commercial, industrial, institutional, and irrigation accounts;
- Support city/county landscape water conservation requirements for new and existing commercial, industrial, institutional, and multi-family developments;
- Provide a public information program;
- Provide a school education program;
- Provide a commercial and industrial water conservation program;
- Implement conservation pricing;
- Provide a landscape water conservation program for new and existing single-family homes;
- Enact a water waste prohibition ordinance;

- Designate a staff member as a water conservation coordinator; and
- Provide an ultra-low-flush toilet replacement program for non-residential and residential customers.

PCWA also is committed to improving the efficiency of its raw water delivery system and in aiding raw water customers to become more water efficient. Each year, PCWA installs lining along additional sections of the raw water delivery canals and pipelines to minimize water loss.

3.1.12 PROJECT AREA WILDLIFE

Overview of Wildlife Comments and Terrestrial Resources Discussed in the Draft EIS/EIR

Comments received on the Draft EIS/EIR requested an analysis of the short- and long-term effects of the Proposed Project on wildlife resources of the project area. Short-term concerns included the effects of blasting and other construction activities, while long-term concerns included the effects of increased noise and human presence (i.e., recreationists) in the project area. This response utilizes estimates for the length of the construction period and noise generated by construction activities from Section 3.16, Noise, of the Draft EIS/EIR.

As discussed on page 3-315 of the Draft EIS/EIR, blasting would take place over a three- to eight-month period throughout the total construction period, which would occur over approximately 22 months. Other construction-related noise would result from traffic to the project site and general construction activities related to facilities construction, road improvements, and river restoration activities. The Draft EIS/EIR provides estimates of 84 to 89 A-weighted sound level decibels (dBA) for the levels of noise produced by typical construction activities, and states that rock drilling activities (one of the highest noise-generating activities) would generate approximately 98 dB at a distance of 50 feet. The noise impact analysis discusses specific impacts in relation to City of Auburn and Placer County noise ordinances. This Master Response addresses the potential impacts to wildlife within the project area.

Description of Terrestrial Habitats and Wildlife

The terrestrial habitats and wildlife within the project area are described in Section 3.6, Terrestrial Resources, of the Draft EIS/EIR. The plant community composition and most common wildlife species are described for each of the five habitat types found in the project area (see pages 3-141 through 3-145 for specific description). As stated in Section 3.6, much of the land in the project area has been disturbed by Auburn Dam construction activities and breaching of the cofferdam, and continues to be disturbed annually through installation and removal of the seasonal pump station (see Figures 3.6-1 and 3.6-2, pages 3-142 and 3-143 of the Draft EIS/EIR). The disturbed habitat of the project area consists of various non-native annual grasses and forbs, with interspersed patches of native and non-native trees and shrubs. The plant communities of continuously disturbed habitats, such as those within the project area, generally have low vegetative structural diversity, and do not provide high quality wildlife

habitat for a broad range of species. Consequently, species richness is generally low in frequently disturbed habitats. Surrounding the project area are higher quality wildlife habitats of early- and late-stage successional oak woodlands and riparian vegetation (both upstream and downstream of the project area). As described in the Draft EIS/EIR, the impact analysis to terrestrial habitats and wildlife in the project area focused on special-status species. However, in response to comments, additional detail regarding construction, operation, and recreation impacts to non-listed wildlife is provided.

As discussed in the Draft EIS/EIR, non special-status species known to use the project area include species that can utilize urban or disturbed habitats, including wild turkey, Anna's hummingbird, American crow, mourning dove, killdeer, Canada goose, red-tailed hawk, common garter snake, and several species of sparrows and wrens. In addition, the Draft EIS/EIR states that coyote, California ground squirrel, raccoon, California spotted skunk, western toad, western skink, and various bat species, among other species, are common to oak woodland habitats like those surrounding the project area. Further, the background reports for the Placer County (1994) and El Dorado County (1995) General Plans indicate that horned lark (*Eremophila alpestris*), western meadowlark (*Sturnella neglecta*), California thrasher (*Toxostoma redivivum*), California quail (*Callipepla californica*), band-tailed pigeon (*Columba fasciata*), western scrub jay (*Aphelocoma californica*), acorn woodpecker (*Melanerpes formicivorus*), yellow-billed magpie (*Pica nuttalli*), Bewick's wren (*Thryomanes bewickii*), bushtit (*Psaltriparus minimus*), red-shouldered hawk (*Buteo lineatus*), wood duck (*Aix sponsa*), great blue heron (*Ardea herodias*), black-crowned night-heron (*Nycticorax nycticorax*), ringtail (*Bassariscus astutus*), striped skunk (*Mephitis mephitis*), long-tailed weasel (*Mustela frenata*), western gray squirrel (*Sciurus griseus*), Botta's pocket gopher (*Thomomys bottae*), bobcat (*Lynx rufus*), gray fox (*Urocyon cinereoargenteus*), mule deer (*Odocoileus hemionus*), mountain lion (*Puma concolor*), and western rattlesnake (*Crotalus viridis*) may utilize habitats similar to those surrounding the project area.

Analysis of Proposed Project Construction and Recreation Noise on Wildlife

Increase in public popularity of outdoor activities (e.g., bird watching, hiking/walking, etc.), loss of wildlife habitat, and military training near or above wildlife areas has prompted a considerable amount of research into the effects of these activities on wildlife, with implications for population viability for areas repeatedly exposed to human activity. The results of typical studies are used in the following analysis to address the impacts of construction, operation, and recreation noise on wildlife in the project area.

Impact of Construction Noise on Wildlife

The proximity of many military training areas to established wildlife reserves and the intense levels of sound created during flight or artillery training activities (e.g., up to 140 dB) have resulted in substantial attention to the effect of such activities on nearby wildlife. Such studies are applicable to the evaluation of construction noise impacts to wildlife because they evaluate the response of wildlife to similar levels of noise expected to be generated during construction of the Proposed Project. In an early study, Weisenberger et al. (1996) found that desert mule deer (*Odocoileus hemionus crooki*) and mountain sheep (*Ovis canadensis mexicana*) became

more tolerant of (i.e., showed habituation to), exposure to simulated aircraft noise at levels of 76 to 112 dB, with greater elevations in heart rate occurring at the beginning of the study and with exposure to louder aircraft simulations. Similarly, Krausman et al. (1998) observed that mountain sheep in large (i.e., 800-acre) enclosures in their natural habitat experienced elevations in heart rate upon exposure to low-flying aircraft overflights of 85 to 105 dB. In this study, elevated heart rates returned to normal levels within several minutes. In addition, Conomy et al. (1998) found that American black ducks (*Anas rubripes*) and, to a lesser degree, wood ducks, rapidly habituated to exposure to both simulated and natural low-flying jet overflights of approximately 85 dB. While black ducks initially reacted to a large proportion of overflights (39 percent), within two weeks the ducks responded to 6 percent of overflights. Further, the black ducks exposed to simulated overflights did not exhibit a loss in body mass (in comparison with control groups), which suggests that while this species altered its behavior in response to noise disturbance, it did not translate into a significant reduction in energy intake during periods of normal behavior.

The three studies described above are important indicators of how wildlife in the project area may respond to construction noise. Collectively, noise levels from 76 to 112 dB did not result in significant alteration of behavior for various bird and mammal species. Given that the high range of construction noise within the project area is estimated to be approximately 98 dB at 50 feet, it is likely that wildlife in the project area would react to construction noise in a similar manner to the species in the above-described studies. Thus, it is expected that wildlife in the project area may be temporarily disturbed by construction activities, but that they would become less responsive to such disturbances over the duration of the construction period, and that such disturbances would not result in significant interruptions to foraging or maintenance behaviors. Further, given the temporary nature of the loudest construction activities, such increases in ambient noise levels are not likely to result in adverse effects to wildlife species on a population level. Therefore, impacts to wildlife resulting from high intensity construction noise under the Proposed Project would be considered less than significant.

Impact of Increased Operational Noise and Recreation Use Within the Project Area

Comments also were received regarding the potential long-term effects to wildlife resulting from the year-round operation of the pump station facility and the increased level of public activity under the Proposed Project. As discussed in the Draft EIS/EIR, the pump station would operate on a year-round basis, relative to a seasonal basis under the existing condition. Consequently, annual construction activities would be eliminated, while noise resulting from maintenance operations would increase. Overall, however, noise would be reduced by construction of permanent pump station housing, which would reduce noise generated by pumping operations, relative to the existing condition. As noise levels would be reduced, it is expected that impacts to wildlife resulting from continuous pump station operations would be less than significant, relative to the existing condition.

Recreationists produce noise and visual stimuli in a different manner from machinery. Motion of hikers, equestrians, and other recreationists can be more erratic than machinery, and distance to nearby wildlife and sound levels may vary rapidly within a short period of time. Consequently, studies on the response of wildlife to human-based disturbances demonstrate that

certain species respond differently to human disturbance than when presented with noise or noise and mechanical stimuli.

In a 1998 study, Burger and Gochfeld examined the impact of pedestrian groups on waterbird species in an established wildlife refuge in southern Florida. They determined that greater than 60 percent of individuals across 5 bird species moved away from pedestrians. Further, they found a correlation between increasing loudness of pedestrian groups with increasing impact of behavioral response (less time spent foraging and more time spent in alert behavior). While there were species-specific responses to human disturbance, the authors state that disturbance by humans may not have a cumulative negative effect if other habitat is available and birds can still obtain food resources. These results suggest that bird species, and potentially other wildlife species in the project area, would move to other readily available habitat within the project area if recreationists cause sufficient disturbance. Grubb and King (1991) found similar results. They observed the response of 40 individual bald eagles over a 3-year period to different categories of disturbance (pedestrian, aquatic, vehicle, noise [without visual stimulus], and aircraft) at varying intensities, frequencies, and durations. They found that terrestrial activities (i.e., hikers, hunters, and anglers) resulted in the greatest response of alarm behavior, with louder and closer groups eliciting stronger changes in behavior. These two studies suggest that proximity to source and volume are two key factors that influence human disturbance of wildlife species, and that the availability of suitable habitat nearby is critical for disturbed animals.

Another study assessing the impact of human-induced disturbances focused on the effect of hunters on white-tailed deer in northern Florida (Kilgo et al. 1998). Hunters provided both visual and noise stimuli. Using radio transmitters, the authors determined that the study animals avoided areas where hunting activity was concentrated (i.e., generally within 200 meters of roads), moving to areas providing higher cover and with less human activity. Deer also increased activity at night when human disturbance was reduced. Outside of the hunting season, deer did not actively select habitats with greater cover or away from roads, which indicates that this mammal species will shift its home range in response to human presence.

Results of these studies suggest that wildlife in the project area would not be adversely affected by increases in public river use that would occur under the Proposed Project. They indicate that wildlife species are more apt to utilize other available habitat when disturbed and can increase activity during periods when people are not present or where there is minimal human interference. Further, because there is already some recreational use (i.e., hiking, mountain biking, and equestrian trail use) in the project area under the existing condition, and because it has been shown that certain wildlife species will move to other habitats when disturbed, the increases in recreational use of the project area would result in less-than-significant impacts to wildlife species in the project area.

Other Wildlife Concerns

The Dewatered Channel

In general, strong support was expressed for the restoration of the dewatered channel under the Proposed Project. However, some concerns were raised regarding the possibility for restoration activities to block the passage of deer or other wildlife that have begun to use the dewatered channel to cross the river canyon. It is the position of the lead agencies that Auburn Dam construction activities, including channel dewatering, had a far greater impact on wildlife habitat than the benefits provided by creating a potential corridor for wildlife passage. In addition, the project area is outside of known deer migration corridors in the region (El Dorado County 1995). While deer or other mammals may utilize the dewatered channel to cross between habitats, it is anticipated that the overall benefits to vegetation and wildlife resources would outweigh any potential adverse effects resulting from restoring flows to this section of the river. Overall, the impacts of rewatering the channel to wildlife are anticipated to be positive, rather than negative.

Neotropical Migratory Birds

Several comments requested the analysis include the effect of construction activities on neotropical migratory birds. As discussed in Section 3.5.1.2 of the Cumulative Report (Appendix D of the Draft EIS/EIR), the American River Canyon provides potential habitat for approximately 90 species of neotropical migratory birds, many of which are considered riparian associates. In California, the majority of riparian habitat utilized by neotropical migratory bird species has been converted by human encroachment and flood control activities, and consequently, any remaining habitat is highly important for these species. Riparian habitat in the project area has been eliminated because of Auburn Dam construction activities. Therefore, it is not expected that neotropical migratory birds would breed in the direct vicinity of the project area. While riparian habitat exists both upstream and downstream of the project site, it is unlikely that construction activities would affect neotropical migratory bird species that may utilize these adjacent habitats. As previously discussed, it is likely that species utilizing habitat upstream and downstream of the project area would become habituated to construction noise. Any species that may have strayed into the construction area and becomes disturbed by construction activities would likely move to the higher quality riparian habitat upstream and downstream of the project site. Additionally, it is noted that construction of shaded fuel breaks would occur outside the nesting season to further minimize potential disturbances to bird species at or near the project site. Therefore, impacts to neotropical migratory bird species under the Proposed Project would be considered less than significant.

3.1.13 AUBURN RAVINE

This Master Response provides an update to the information and analysis of the Proposed Project and its potential effects upon the environmental resources of Auburn Ravine as presented in the Draft EIS/EIR (September 2001). Modifications are also provided in Chapter 2.0, Table 2-7, Chapter 3.0, Table 3.5-3, and Chapter 3.0, Section 3.5.2.4 (Impact Analysis)

under Impacts 3.5-5, 3.5-11, and 3.5-16 of the Final EIS/EIR. These changes do not alter the impact conclusions presented in the Draft EIS/EIR.

The Proposed Project, as described in the Draft EIS/EIR, would have resulted in the conveyance of North Fork American River flows from the proposed pump station to the Auburn Ravine Tunnel. From the Auburn Ravine Tunnel, American River water would be released into Auburn Ravine for delivery to PCWA's retail service Zone 5 in western Placer County. This area receives raw water for irrigation and agricultural purposes.

Delivery of American River water into Auburn Ravine would have been performed as an exchange of Yuba/Bear River system water currently released into the ravine via PG&E's Wise/South Canal. PCWA would have instead routed the PG&E Yuba/Bear River water to its Foothill Water Treatment Plant (WTP) for delivery to meet current and future municipal and industrial customer demand within Service Area Zone 1. Initially, this exchange also potentially would have resulted in higher flows down Auburn Ravine. These conditions were the basis for the Auburn Ravine fisheries analysis presented in the Draft EIS/EIR.

Numerous comments on the Draft EIS/EIR expressed concern over the change in water source composition and flow volume in Auburn Ravine and the potential for impacts upon aquatic resources. In response to these comments, PCWA, in consultation with fisheries resources agencies, devised an alternate water delivery plan for the American River water to be diverted by the Proposed Project such that potential impacts upon Auburn Ravine resources would be avoided.

The information presented in this Master Response summarizes public comment issues related to Auburn Ravine aquatic resources, provides additional detail regarding PCWA's water supply sources and infrastructure, clarifies the Auburn Ravine analysis presented in the Draft EIS/EIR, describes PCWA's revised operational procedures developed to avoid potential Auburn Ravine impacts, explains the Proposed Project's relationship to the City of Lincoln's Wastewater Treatment and Reclamation Facility (WWTRF), and presents additional detailed scientific information regarding olfactory and homing responses/behavior of chinook salmon and steelhead.

In addition, PCWA recognizes the need for a greater knowledge base relating to the Auburn Ravine and North Fork American River ecosystems and has proposed a monitoring program to develop a database of flow and water temperature information. This information will be useful to PCWA and fisheries resources agencies in developing future management strategies for Auburn Ravine. The details of this monitoring effort can be found in Appendix D to the Final EIS/EIR, Mitigation Monitoring and Reporting Program and Environmental Commitments Plan, Section 5.0, Conservation Measures.

An Overview of the Master Response is provided following the Summary of Public Comment Issues Related to Auburn Ravine.

Summary of Public Comment Issues Related to Auburn Ravine

This Master Response provides requested supplemental information and replies to concerns raised by interested parties relating to Auburn Ravine. The key topic areas covered in this comprehensive response include:

- Additional description of PCWA infrastructure;
- Auburn Ravine source water;
- Auburn Ravine water temperatures due to importation of potentially warmer American River water;
- Volume and seasonal variation of water discharge;
- Source water received by the City of Lincoln WWTRF;
- Impacts of flow on terrestrial resources including riparian vegetation, wildlife, and specifically valley elderberry shrubs and longhorn beetle; and
- Potential for increased straying of Central Valley salmonids.

Other comments specific to Auburn Ravine, but not listed above, (i.e., comments regarding splittail) are addressed in responses to individual comment letters in Appendix C, Volume 2, Individual Comment Letters and Responses.

Overview of Master Response to Auburn Ravine Comment Issues

As identified above, comments regarding the discussion of Auburn Ravine in the Draft EIS/EIR stated concern about changes in flow, seasonal flow distribution, and the mix of source water in Auburn Ravine. Additional comments raised the issue that the Proposed Project could reassign the environmental cues which migrating American River salmonids home toward, thereby drawing American River fish into Auburn Ravine. Comments also suggested that Auburn Ravine salmonids may confuse the American River for their natal spawning grounds, due to the existence of American River water in their natal stream. In addition, comments stated the possibility of falsely attracting salmonids from the American River into Auburn Ravine due to the increased discharge of the WWTRF during sensitive migratory months. Attraction of American River fish is of concern because the American River run consists primarily of hatchery stocks. The following section provides an overview of the responses by the lead agencies to these issues. Additional detail, particularly regarding the findings of the technical literature review, is provided following this overview.

In response to the comments, PCWA identified an operational change that would involve maintaining its North Fork American River water releases to Auburn Ravine as under the existing conditions. Water diverted from the North Fork American River would now be conveyed to the PCWA water supply distribution system using a process called double-pumping. After being pumped from the North Fork American River, water would flow within

the Auburn Ravine Tunnel, and from the tunnel would be pumped again into PG&E's South Canal by the Auburn Ravine Tunnel Pump Station (**Figure 3-2**). The water would then flow within the South Canal where it would be delivered to the Foothill WTP (**Figures 3-3** and **3-4**). The formerly proposed American River water increase in Auburn Ravine therefore would be avoided; however, the American River water currently delivered to Auburn Ravine would remain within the limits of recent historical monthly maximum delivery rates.

The double-pumping commitment by PCWA is a more costly method of water conveyance but ensures that the potential impacts resulting from an increase in volume or a change in the seasonal distribution of flow in Auburn Ravine would be avoided. Still, American River water would be delivered to Auburn Ravine as historically conveyed, as well as via the Lincoln WWTRF. Commenters suggest that these actions may still affect salmonid homing. However, a thorough review of the mechanisms that salmonids utilize when homing to natal streams indicates that it is unlikely that the Proposed Project would produce a genetic disruption of Auburn Ravine salmonid stocks primarily due to the acute olfactory homing mechanisms in the salmonid family; the environmental homing cues and the fate of these cues within the study area; the sequential imprinting process; the probable lack of persistent, native Auburn Ravine stocks within the Central Valley Evolutionarily Significant Unit (ESU); and the mitigation programs of other water projects affecting Auburn Ravine . An overview of these findings is provided below, and more detailed information is presented later in this Master Response.

Salmonids have an acute homing mechanism which leads to an uncanny fidelity in returning to natal streams. The homing of migrating salmon likely derives from the processing of olfactory cues found in stream waters. The olfactory homing hypothesis is based on three assumptions. First, streams differ in chemical characteristics that are stable over time. Second, salmonids can distinguish the chemical differences between streams. Third, salmonids learn the chemical characteristics of their natal stream (called imprinting) prior to or during their seaward journey, remember these cues without reinforcement while in the ocean, and respond to them upon returning to freshwater to spawn.

Numerous years of research seem to validate the olfactory hypothesis assumptions. For instance, research indicates that salmonids have the ability to actively differentiate between different stream waters, even when the streams are proximate, using only their olfactory sense. Studies illustrate that the olfactory cue in which salmonids home toward is likely organic in nature. In fact, investigations cite distinct combinations of amino acids as the odor cue utilized in discriminating between stream waters. The distinct cues of each stream may be a result of differences in watershed vegetation and soil. Other research indicates that salmonid adults can sense the unique chemical compounds released by conspecifics (juvenile salmonids rearing in the natal stream during the adult migration period) and respond to the signature of each specific population. Regardless of the exact compound utilized in the homing response, an overwhelming majority of the available research finds that the cue is organic.

The organic nature of the homing cue has an enormous implication for the analysis of potential impacts of the American River Pump Station Project. The American River water delivered for irrigation and municipal use is likely to encounter extreme and odor-altering environments

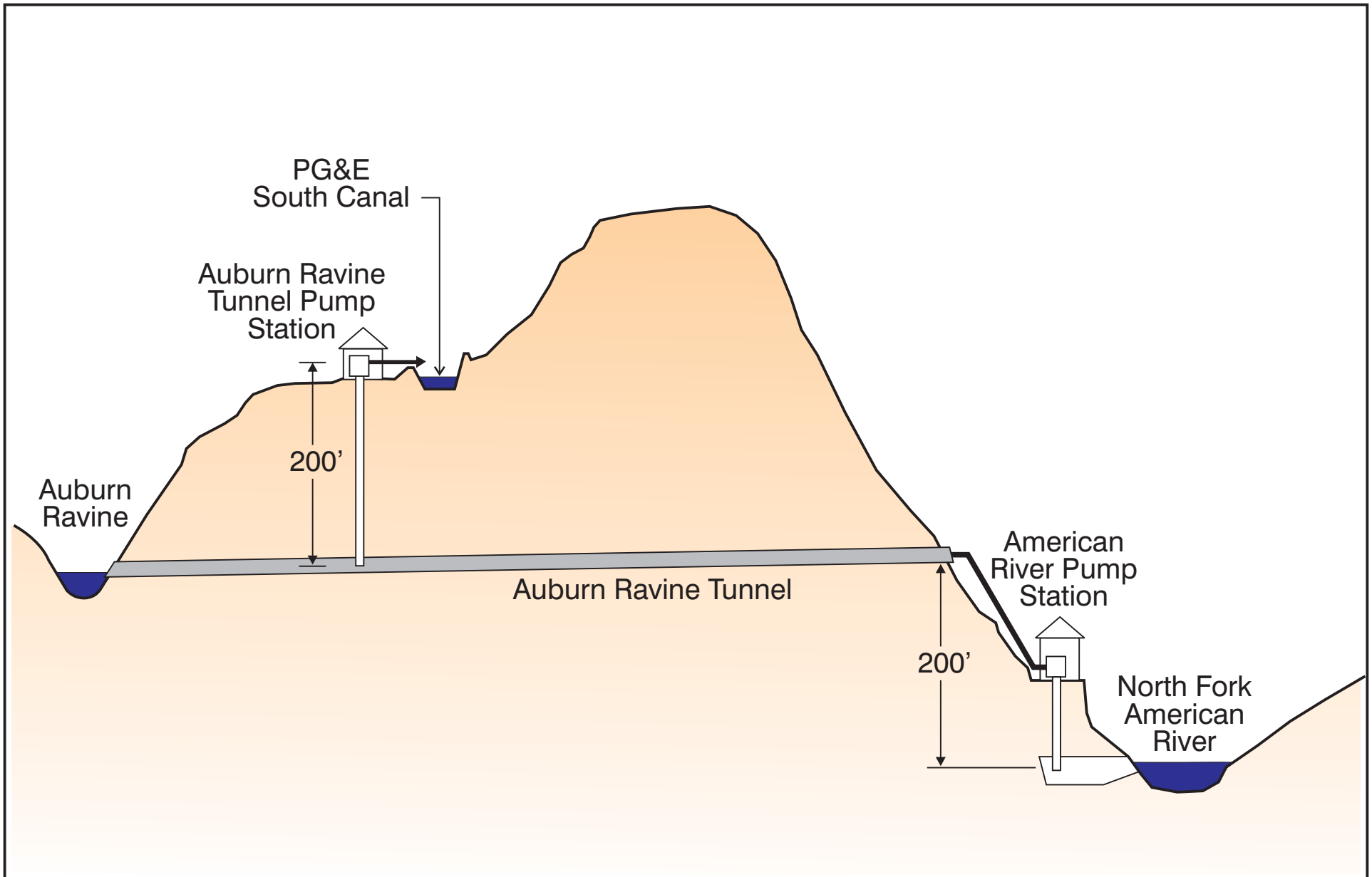

Figure 3-2 Hydraulic Profile of Water Deliveries from the American River Pump Station

PCWA-044

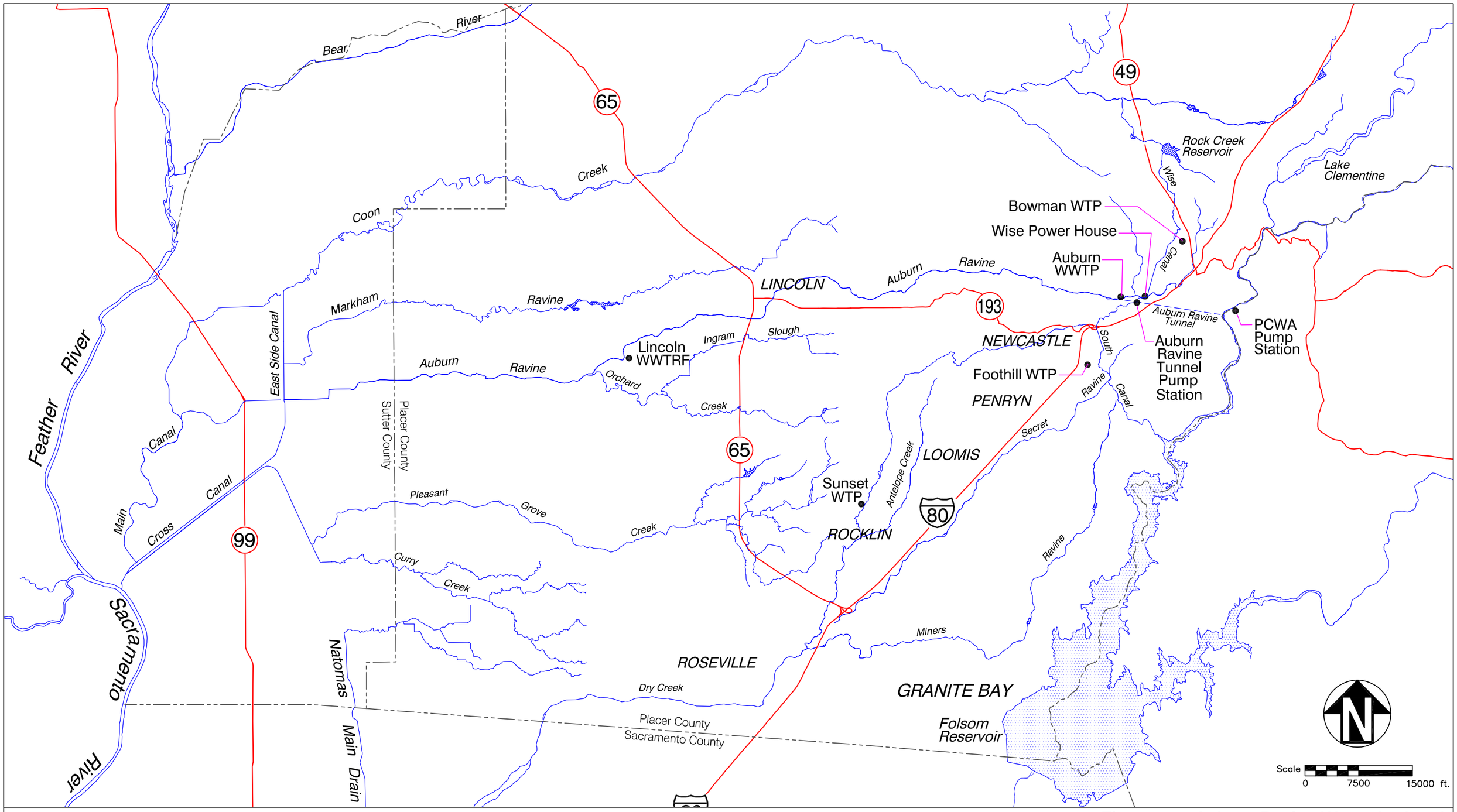

Figure 3-3 Auburn Ravine Watershed and Related Delivery System Infrastructure

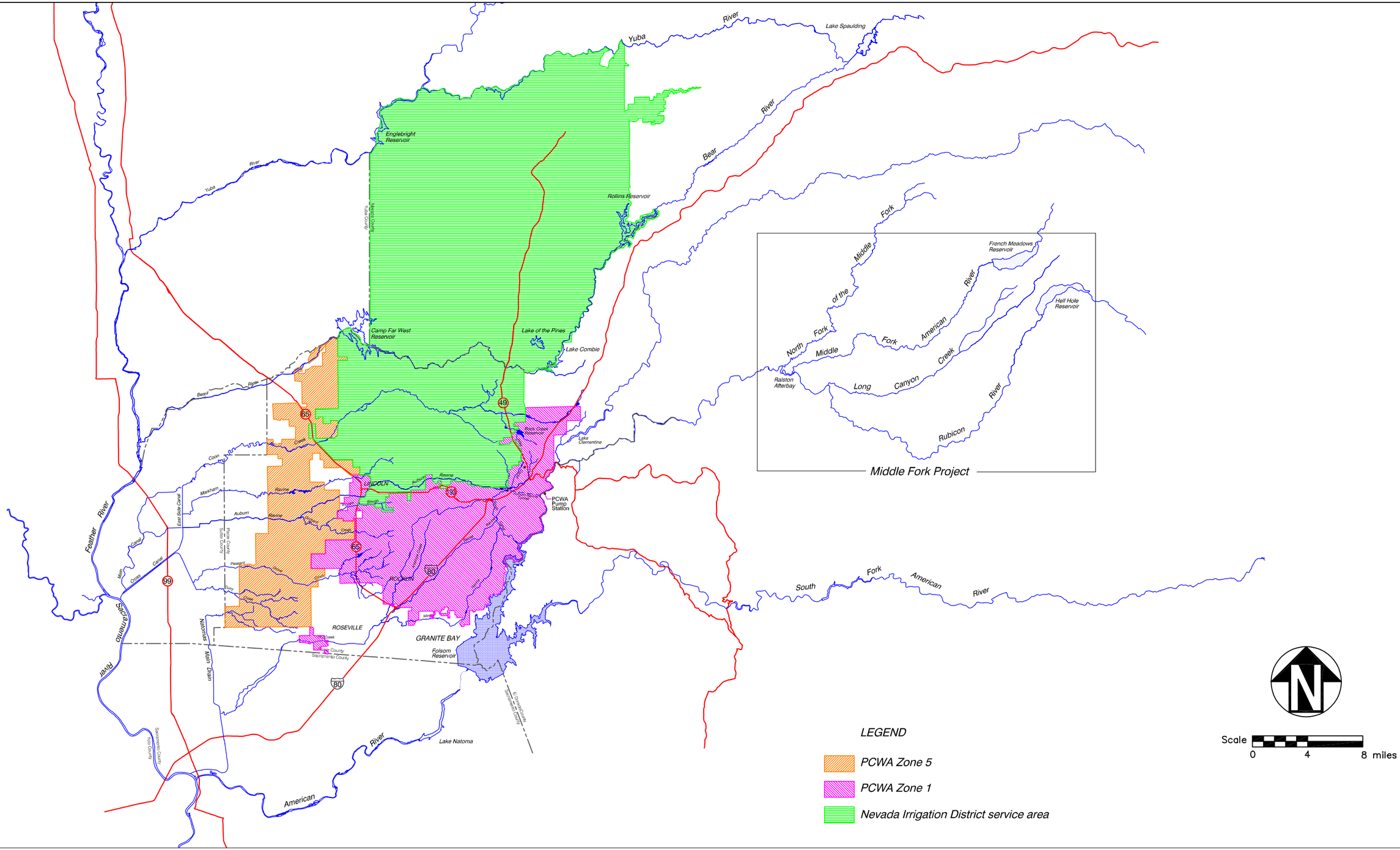

Figure 3-4 Regional View of Auburn Ravine Watershed

before entering Auburn Ravine. The water utilized for irrigation may encounter new sources of organic material such as the vegetation and soil of the agricultural fields and conveyance canals, and the ambient organic signature in the American River water would be subject to decomposition by soil microbes. Similarly, the American River water delivered for municipal use and discharged into Auburn Ravine as storm drain runoff may be subject to lawn vegetation and soil. American River water municipally delivered within the service area of the Lincoln WWTRF and discharged as treated effluent into Auburn Ravine would be treated and likely heavily altered by the secondary wastewater treatment process utilized by the plant, which is designed to remove organic material. Similarly, the municipally delivered Proposed Project water which is distributed to the service areas of Placer County Department of Public Works SMD No. 3 and the two City of Roseville Wastewater Treatment Plants (WWTP) will undergo treatment as well, a process which is likely to drastically alter the homing cues before the effluent is discharged into Dry Creek and Pleasant Grove Creek. Therefore, the homing cues found in the American River water utilized within the PCWA watersheds are likely to be dramatically altered before entering Auburn Ravine, Dry Creek, and Pleasant Grove Creek suggesting that the water reaching these streams would retain low potential for attracting American River fish.

The timing of olfactory imprinting also is a key component to understanding the mechanisms that drive salmonid homing behavior. The majority of the research in this field suggests imprinting of stream odors is most sensitive during a developmental process called the parr-smolt transformation (PST), in which a juvenile salmonid prepares for life in the ocean. However some imprinting must occur before this time, as wild salmon home to their hatching area, not to the area of their PST. Many of the changes that occur in the PST process are related to elevations in thyroid hormones, and it is postulated that these hormones drive the imprinting process. Research reveals that elevations in various thyroid hormones may occur at numerous lifestages including hatching and emergence. Thyroid hormone levels also are particularly sensitive to environmental cues such as exposure to novel water chemistry, and changes in lunar phase, water temperature, photoperiod, water flow rates, and juvenile swimming rates. Migration may actually stimulate an increase in thyroid gland production as well. Hence, it appears that the imprinting process associated with developmental-, environmental-, and migratory-induced surges in hormone levels may serve to provide a sequence of cached odors which adult salmonids use to find their natal streams.

The sequential imprinting process found in salmonids has implications in the analysis of the Proposed Project. The sequential process indicates that as wild-spawned salmon and steelhead in Auburn Ravine emerge, rear, and migrate, they may become imprinted with numerous odors during their downstream journey. To illustrate, a juvenile steelhead migrating from Auburn Ravine toward the ocean may become imprinted at various points along its journey determined by developmental processes and changes in environmental conditions. These imprinting points may include Auburn Ravine itself, the tributary confluence with the Sacramento River and its confluence with the American River, as flow, water temperature, and water composition likely change at these points. Upon returning from the ocean, the adult steelhead may reverse the olfactory memory constructed during the ocean-bound migration. The wild-spawned salmonid will not necessarily seek its natal waters automatically, but instead locate a series of points sequentially until the natal stream, presumably the last point in the sequence, is found. It is

unlikely that an immigrating Auburn Ravine adult would stray into the American River because the immigrating adult will continue to be drawn upstream in the much larger Sacramento River by olfactory cues associated with the next sequential points north of the point at which the American River empties into the Sacramento River. Thereafter, the immigrating adult will continue to follow the Sacramento River northward until the adult reaches a point at which olfactory cues indicate that the adult should follow waters flowing into the Sacramento River from the canals into which Auburn Ravine drains, each of which has its own unique olfactory cues. Thus, the sequential migration of Auburn Ravine salmonids will guide the return to their natal spawning grounds.

Similarly, it is unlikely that an American River fish will stray into Auburn Ravine as a result of the Proposed Project. While the American River salmonids reared in a hatchery may have fewer opportunities to imprint due to the relatively constant environmental conditions within the hatchery environment, American River fish should become imprinted with the smell of the American River as their natal spawning ground during developmental changes. As these fish reach the American River during upstream migration as adults, they will be bombarded with the smell of their natal stream. In some cases, this smell is the only imprinted smell available to them during their juvenile lives. Hence, it is unlikely that salmonids from the American River will disregard the inherent drive to enter this natal stream, simply because a minute amount of diluted American River water may exist in the Sacramento River at their confluence. In addition, the water transferred from the North Fork American River to Auburn Ravine, having been subjected to myriad organic influences associated with the Auburn Ravine watershed, is likely to smell drastically different than the substantial lower American River flows that enter into the Sacramento River at the confluence. Therefore, the Proposed Project would not be expected to increase the straying rates of American River or Auburn Ravine salmonids.

Although a majority of the transferred American River water will end up in Auburn Ravine only after contact with new odor causing agents or extensive treatment, some raw American River water will still be diverted into Auburn Ravine via the Auburn Ravine Tunnel in the historical amount. The majority of the American River raw water diversions associated with implementation of the Proposed Project occur in June, July and August, with a maximum diversion in July. This pattern and volume of water diversion releases to Auburn Ravine is consistent with the existing condition, and would not result in a change in the total volume or seasonal distribution of North Fork American River water to Auburn Ravine.

Although it is not the only stage associated with imprinting, the PST likely represents the most sensitive imprinting period. The initiation of the PST is related to the emigration process of salmonids from natal drainages. Fall-run chinook salmon in the Central Valley emigrate from January through June, peaking in April, while steelhead emigrate from December through possibly June. Hence, the periods of peak emigration of juvenile salmonids do not correlate with periods associated with peak raw water deliveries. Therefore, continuation of historical levels of raw water deliveries is not expected to significantly affect the imprinting of juvenile salmonids in Auburn Ravine.

Similarly, immigrating adult salmonids in Auburn Ravine are not expected to be exposed to the olfactory cues or increased flows associated with the seasonal delivery of raw North Fork

American River water. Adult migrations of chinook salmon begin in September and may extend through January, while adult steelhead typically immigrate November through April, peaking in January. Because relatively small discharges of American River water from the Auburn Ravine Tunnel occur during these times, the continuation of historical levels of raw water deliveries is not expected to affect immigrating adult salmonids. The timing of critical periods of salmonid life history and the timing of water deliveries to Auburn Ravine are temporally inconsistent.

It is not likely that Auburn Ravine historically harbored a persistent native population of salmonids. Low elevation streams like Auburn Ravine may have been essentially dry in summer and fall, at least in the foothill sections. Because of their intermittent nature, these streams were not conducive to significant or consistent fall-run chinook salmon or steelhead populations. The population of salmonids currently residing in Auburn Ravine likely represents a conglomeration of strays from Central Valley drainages, and the genetic characteristics of the Auburn Ravine salmonids are not likely distinct. Furthermore, hatchery stocking records indicate that Auburn Ravine already has been influenced by chinook salmon of American River origin. Additionally, the National Marine Fisheries Service (NMFS) considers Auburn Ravine steelhead to be within the Central Valley ESU, and does not recognize them as genetically distinct from other populations within the ESU.

Considering the overwhelming weight of evidence concerning homing and straying in the salmonid family, it is unlikely that the Proposed Project would cause potentially significant impacts to the salmonids of Auburn Ravine.

While the mitigated diversion plan for the American River Pump Station Project no longer entails a change in the volume or seasonal distribution of American River water diversions into Auburn Ravine, the Lincoln WWTRF discharges will increase the amount of flow in Auburn Ravine, which commenters believe could potentially induce a "false attraction" of salmonids. The potential for the "false attraction" of salmonids was considered by the City of Lincoln in its Draft EIR for the WWTRF (City of Lincoln 1999). The City of Lincoln (1999) concluded that the existing flows in Auburn Ravine during the steelhead spawning season would likely be adequate for migration both upstream and downstream of the WWTRF outfalls. However, the City of Lincoln (1999) determined that the supplementation to existing flows in Auburn Ravine by WWTRF effluent during the fall-run chinook spawning months (October and November) could potentially create a "false attraction" of fall-run chinook. The Draft EIR deemed the potential for fall-run chinook salmon "false attraction" potentially significant. As a result of the potentially significant impact created by the City of Lincoln WWTRF, the city committed to monitoring adult fall-run chinook salmon migrations in Auburn Ravine.

The City of Lincoln (1999) Draft EIR indicated that the WWTRF will have a maximum discharge into Auburn Ravine of 12 million gallons per day (mgd), or 18.6 cfs. The Proposed Project will supply only a fraction of the WWTRF inflows. At maximum buildout, the Proposed Project would contribute an average of 2.0 cfs during the months of October and November, the months of concern regarding "false attraction." Therefore, the Proposed Project would approximate only 11 percent of the total WWTRF discharge. Without any contribution from the Proposed Project, the Lincoln WWTRF discharge would still exceed 16 cfs during

October and November, which may constitute a potentially significant impact. The additional contribution of North Fork American River source water provided by the Proposed Project during October and November would not significantly exacerbate any "false attraction" that may be created by the Lincoln WWTRF discharge into Auburn Ravine. Therefore, the potential for "false attraction" of adult salmonids into Auburn Ravine, more particularly to the Lincoln WWTRF outfall, represents a less-than-significant impact of the Proposed Project.

In addition, the Proposed Project will supply municipally delivered treated water to the service areas of three other WWTPs including Placer County Public Works SMD No. 3, and two City of Roseville WWTPs. During October and November, the Proposed Project-related collective discharge from these three plants would average approximately 2.8 cfs, while the collective planned capacities of the three WWTPs total 65 cfs. Hence, the Proposed Project-related discharge represents less than five percent of the collective planned capacities of three WWTPs. It should also be noted that American River water deliveries to this area would increase independent of the Proposed Project as a result of increased deliveries by Roseville and San Juan Water District (SJWD), both of which supply only American River water. Overall, the distribution of water from the Proposed Project to the service areas of the Placer County Department of Public Works SMD No. 3 and the two City of Roseville facilities represents a less-than-significant impact.

Placer County Water Agency Water Service Area, Water Supply Entitlements, Facilities, and Water Demands

The following sections provide an update and clarification of information contained in the Draft EIS/EIR that describes PCWA's water supply service zones, conveyance infrastructure and water supply sources. This information is included Chapter 3.0, Section 3.4.1.3, Water Supply System and Water Service Area, of the Final EIS/EIR. These changes do not alter the conclusions presented in the Draft EIS/EIR.

PCWA Service Area and Retail Service Zones

PCWA's service area boundaries coincide with the boundaries of Placer County. Within the county, PCWA provides raw and treated water service to five retail service zones. PCWA currently provides American River water to Zones 1 and 5. Under the Proposed Project, PCWA would continue to provide American River water to these zones. No other zones would be provided American River water; therefore, this discussion focuses on the water supply and infrastructure for these two service area zones.

The communities of Auburn, Newcastle, Penryn, Loomis, Rocklin, Lincoln, small portions of Roseville, and vast unincorporated areas are all within PCWA Zone 1. These lands are under the planning authority and jurisdiction of the cities of Auburn, Rocklin, Lincoln, Roseville, the Town of Loomis, and Placer County. Zone 5 consists of commercial agricultural lands in the western-most portion of Placer County (west of Highway 65). PCWA provides both treated and raw water to Zone 1, while only raw water is delivered to Zone 5 customers (Figure 3-4).

PCWA Water Supply and Infrastructure

PCWA currently has three surface water supply sources to meet current and future demands: (1) the PG&E Drum-Spaulding Project on the Yuba/Bear River system; (2) its own MFP water rights entitlements; and (3) Reclamation's Central Valley Project (CVP) water contract supply on the American River. The principal facilities utilized to deliver these water supplies include the PG&E Drum-Spaulding Project features, the seasonal American River pump station, and the Auburn Ravine Tunnel and Pump Station, as described below.

Pacific Gas and Electric Company Drum-Spaulding Project Water Supply and Infrastructure

PCWA signed a water supply contract with PG&E in 1968 for water supply to Zone 1. The maximum amount of water available under this contract is 100,400 acre-feet per year (AFA). The water is available at designated delivery points at a total combined rate of flow not to exceed 244.8 cfs. This contract terminates in 2013 and is renewable subject to price revisions.

The primary PG&E-owned conveyance facility through PCWA Zone 1 is the Wise/South Canal. This canal has a capacity, at its upper end, of 450 cfs and is used to supply water in Placer County to PCWA Zone 1 and to Nevada Irrigation District (NID). PCWA is able to divert water from the Wise/South Canal at 10 separate delivery points, as specified in the PG&E water supply contract.

Middle Fork American River Project Water Supply and Infrastructure

PCWA constructed the MFP. The MFP supply is currently limited to a maximum of 120,000 AFA. This water is available to PCWA from the American River either at Auburn or at Folsom Dam. Currently, PCWA obtains its MFP water from the seasonal American River pump station near Auburn.

Reclamation constructed the seasonal American River pump station in 1977 to replace the original 50 cfs capacity PCWA pump station that was removed in preparation for construction of Auburn Dam. This pump station consists of four, 400-horsepower pumps located on the American River just upstream of Reclamation’s Auburn Dam diversion bypass tunnel. The seasonal pump station and discharge piping is capable of delivering 50 cfs of water to the inlet of the Auburn Ravine Tunnel.

Reclamation removes the pumps, motors, all electrical equipment, and a portion of the discharge piping before winter each year to avoid damage due to inundation from high river flows. Reclamation then reinstalls the pumping equipment each spring after the threat of flooding has passed.

In 1977, PCWA relied upon the seasonal pump station and pumped approximately 8,500 acre-feet (AF) of water at a maximum rate of 50 cfs into Auburn Ravine, through the Auburn Ravine Tunnel, for use in Placer County. From 1990 to present, PCWA has required the use of the seasonal pump station in order to meet the ever-increasing water demands of Placer County.

Auburn Ravine Tunnel and Auburn Ravine Tunnel Pump Station

The Auburn Ravine Tunnel is a three-mile long tunnel that extends from the American River Canyon to Auburn Ravine. The tunnel inlet is at an elevation of 700 feet, which is approximately 200 feet higher than the American River channel. Built in 1964-1965 by PCWA, the tunnel was part of the MFP. The tunnel outfall discharges into Auburn Ravine near the community of Ophir.

In 1990, PCWA constructed the Auburn Ravine Tunnel Pump Station. This pump station is located adjacent to PG&E's South Canal near the Auburn WWTP directly above the Auburn Ravine Tunnel. Eight pumps extend from the surface and intercept the Auburn Ravine Tunnel approximately 200 feet directly below the pump station. These pumps are able to lift approximately 50 cfs of water from the tunnel to PG&E's South Canal. Once within the South Canal, North Fork American River water flows by gravity toward Newcastle where it can be diverted to PCWA's system to be used to supply water treatment plants or the raw water system.

The Auburn Ravine Tunnel Pump Station has been used infrequently during the past due to the high cost of double-pumping the water from the North Fork American River.

During the annual PG&E canal maintenance outage, when the upper Drum-Spalding Project is taken out of service, no water is available from PG&E. During these outages, typically October 15 to November 15, PCWA must double-pump North Fork American River water to supply the Foothill and Sunset WTPs and its treated water customers within the lower portion of PCWA Zone 1.

Central Valley Project Water Supply and Infrastructure

PCWA entered into a CVP water supply contract with Reclamation on September 18, 1970. The original contract allowed for a maximum water allotment of 117,000 AFA. In February 2002, the contract was amended, limiting the amount of water available to PCWA from this source to 35,000 AFA prior to the completion of the Auburn Dam.

PCWA Water Delivery Facilities in Zones 1 and 5

The water supply system that provides water to PCWA Zones 1 and 5 is a complex system of canals, tunnels, flumes, pump stations, storage reservoirs, and pipelines.

Zone 1 Raw Water Canals

PCWA maintains an extensive network of raw water canals throughout its Zone 1 service area. These canals branch out to provide raw water service to large areas throughout Zone 1. There are approximately 127 miles of raw water canals within Zone 1.

Zone 1 Water Treatment Facilities

There are four water treatment plants that provide treated water to the Zone 1 service area. Two of the plants, Bowman (7 mgd/10.9 cfs capacity) and Auburn (5 mgd/11.6 cfs capacity) provide service to the Bowman, Auburn, and Newcastle areas. These plants are supplied with raw water from the PG&E Drum-Spaulding Project supply. The remaining plants, Foothill (55 mgd/85.3 cfs capacity) and Sunset (5 mgd/11.6 cfs capacity) provide service to the balance of the Zone 1 area that includes Penryn, Loomis, Rocklin, Lincoln, a portion of Granite Bay, and surrounding areas. The source of raw water for these plants is from PG&E's Drum-Spaulding Project and from the North Fork American River (MFP) seasonal pump station.

Throughout the Zone 1 service area, there is an extensive network of treated water storage and distribution system facilities. These facilities extend from the Bowman area, where the Bowman WTP is located, and branch out to cover most of the Zone 1 service area. There are approximately 370 miles of treated water pipelines within the Zone 1 service area.

Zone 5 Raw Water Canals

PCWA facilitates the distribution of water to users in Zone 5, but this is the extent of its involvement in this area. The infrastructure of Zone 5 (i.e., canals) is owned and operated by other entities.

PCWA Water Demands

Existing water demands within Zone 1 equal approximately 90,000 AFA. Of that amount, nearly 28,000 AF, or 31 percent, is provided as treated water service. The remaining 62,000 AF provide raw water service to customers throughout Zone 1.

Existing raw water demands within Zone 5 equal approximately 16,500 AFA. Demands for raw water deliveries in Zones 1 and 5 are not expected to rise substantially over the planning horizon (2030).

Update to the Draft EIS/EIR Description of Auburn Ravine

The Draft EIS/EIR provided a description of the estimated natural flow pattern for Auburn Ravine as well as details regarding other flows that, under existing conditions, supplement and modify Auburn Ravine streamflows from the natural condition. This information is revised and presented below with additional detail regarding the source of flows that supplement the natural streamflow. Figure 3-3 shows the Auburn Ravine watershed and related water conveyance system features described below.

Estimated Natural Flow Conditions in Auburn Ravine

Natural flows estimated for Auburn Ravine exhibit significant monthly variations. Relatively high flows associated with storm runoff occur during winter months, particularly January, and flows decline to very low levels during spring months, with no natural flow during summer

months. Estimated mean monthly natural streamflows in Auburn Ravine at the Highway 65 Bridge in the City of Lincoln range from approximately 70 cfs in January to 0 cfs in summer and early fall months (City of Auburn 1997 *in* City of Lincoln 1999).

Existing Flow Conditions and Supplemental Source Waters of Auburn Ravine

Historically, Auburn Ravine has been used to convey water from multiple sources. Under existing conditions, the natural streamflow of Auburn Ravine is supplemented by four primary sources: (1) PG&E Drum-Spaulding Project source water (Yuba/Bear River system); (2) PCWA deliveries from the North Fork American River through the Auburn Ravine Tunnel; (3) City of Auburn treated effluent discharges from its WWTP; and (4) Auburn Ravine watershed stormwater runoff.

These supplemental sources result in streamflows that vary considerably from estimated natural flow conditions in Auburn Ravine. Without the influence of these supplemental water sources, Auburn Ravine would remain an intermittent stream carrying only flow originating at its headwaters and surface runoff from the watershed. Although Auburn Ravine flows can vary substantially on a daily and monthly basis, in general, these supplemental flows significantly augment the estimated natural late-summer and early-fall streamflows. Therefore, in contrast to the estimated natural flows, existing condition flows in Auburn Ravine are highest in summer months and lowest during fall months.

Pacific Gas and Electric Company Drum-Spaulding Project Source Water

PG&E's Drum-Spaulding Project and NID's Upper Yuba River system are integrated to meet the water demands of western Placer and Nevada counties, while at the same time maximizing hydroelectric power production. This joint system is one of the oldest and most complex water systems in the state, with storage reservoirs and canals that can capture runoff from the north, middle and south forks of the Yuba River, the Bear River, and the Upper North Fork of the American River, and route that water through a series of hydroelectric plants and to customers all the way to Folsom Reservoir.

Much of the water supply provided by the Drum-Spaulding Project is delivered either to NID or PCWA to meet the consumptive demands of their customers. Consumptive deliveries to NID and PCWA made into Auburn Ravine occur during the "irrigation season" (April 15 to October 15). Most of the consumptive demand satisfied through deliveries to Auburn Ravine is for irrigated commercial agriculture in Zone 5 (primarily rice and pasture), most of which occurs on land between Highway 65 and the Sacramento River. Over the course of the current planning horizon (2030) it is not anticipated that the consumptive demand for irrigation water deliveries via the Auburn Ravine will change.

In addition to these consumptive use deliveries to PCWA and NID during the irrigation season, PG&E often spills substantial amounts of hydroelectric system water to Auburn Ravine. PG&E's Drum-Spaulding Project originally terminated at its Wise Powerhouse in Auburn Ravine, and all of the water that ran through the hydroelectric system that was not delivered for consumptive use at other locations was spilled into the Auburn Ravine. A lawsuit by

downstream landowners on the Auburn Ravine to prevent flooding by these spills forced PG&E to construct the South Canal in 1931. Since then, the South Canal delivers most of the spill water into Folsom Reservoir. However, the capacity of the South Canal is less than the Wise Canal, which delivers water into Auburn Ravine upstream of the Wise Powerhouse. The result is that, in winter and spring, when demand for consumptive deliveries from the Wise Canal is low and the Wise Canal is running at full capacity for hydroelectric power production, a substantial amount of water is still spilled into Auburn Ravine.

Today, the South Canal is also used for consumptive delivery at a capacity of about 450 cfs, of which PCWA has a contractual entitlement to 244.8 cfs, with NID entitled to the remainder. The South Canal is at about elevation 900 feet at its point of discharge to Auburn Ravine. At the peak of the summer delivery season, 100 percent of the capacity of the PG&E canal system below Rollins Reservoir is used to meet consumptive deliveries to NID and PCWA. During these periods the hydroelectric operation becomes secondary to the water delivery requirements, and there is no excess spill water in Auburn Ravine.

PG&E operates the Wise Powerhouse with flows from the Yuba/Bear River system to generate power year-round, with the exception of the four to six weeks in the late fall when it shuts down the hydroelectric system for maintenance. As indicated above, PG&E powerhouse releases to the South Canal are conveyed to Auburn Ravine for use by NID and PCWA deliveries to irrigation customers within their respective service areas. These releases are made over the course of the entire irrigation season. Additionally, throughout much of the summer, PG&E continuously releases flows of approximately 31 cfs (20 mgd) from the Wise Powerhouse South Canal into Auburn Ravine, thereby providing supplemental streamflows when Auburn Ravine would naturally become dry.

PCWA North Fork American River Source Water

PCWA currently has the ability to pump approximately 50 cfs of American River water to Auburn Ravine during the irrigation season. The transferred water is pumped through the Auburn Ravine Tunnel using the seasonal pump station.

When PCWA's consumptive water demands increase beyond the amount available from PG&E (244.8 cfs), PCWA operates the seasonal pump station and delivers water into Auburn Ravine via the Auburn Ravine Tunnel. This water is delivered to PCWA customers along Auburn Ravine west of Highway 65.

The seasonal pump station has been used at times to deliver the full capacity (50 cfs) of North Fork American River water to Auburn Ravine. For instance, during the 1977 drought event, the seasonal pump station was used to supply Auburn Ravine with 8,500 AF of North Fork American River water and an exchange of water took place with NID. North Fork American River water was delivered to NID via the Auburn Ravine Tunnel and PG&E water that normally would have been delivered to NID via Auburn Ravine was instead delivered to PCWA's water treatment plants and canals within the Auburn, Newcastle, Penryn, Loomis, Rocklin, and Lincoln areas.

In more recent years, the seasonal pump station has provided a maximum annual delivery of approximately 2,900 AF of North Fork American River water to Auburn Ravine. The American River supply is used to meet peak irrigation demands, primarily during summer months. Agricultural return flows also contribute to the streamflow conditions of Auburn Ravine from April through September/October.

In addition to being able to supply water to Auburn Ravine from the American River, PCWA also has the ability to pump approximately 50 cfs of water directly from the Auburn Ravine Tunnel to PG&E's South Canal. In 1990, PCWA constructed the Auburn Ravine Tunnel Pump Station. This pump station is located directly above the Auburn Ravine Tunnel and is able to lift water approximately 200 feet from the tunnel to PG&E's South Canal. Once within the South Canal, this water flows by gravity toward the Foothill WTP. The Auburn Ravine Tunnel Pump Station has been used infrequently in the past, due to the high cost of double-pumping the American River water.

Water pumped from the American River has historically been delivered into Auburn Ravine. When American River water has been needed, PCWA orders a cutback in its PG&E deliveries to Auburn Ravine and reassigns the water to delivery at other, higher elevation locations. By exchanging American River water for PG&E's Drum-Spaulding Project water in this fashion, PCWA has been able to save half the energy cost that would otherwise be incurred in double-pumping the American River water from the 500-foot elevation of the American River to the 700-foot elevation of the Auburn Ravine Tunnel, and then pumped again to the 900-foot elevation of the South Canal.

While the water exchange has been effective during the irrigation seasons of past years in reducing double-pumping costs, PCWA has still been required to double-pump water during the annual PG&E canal maintenance outage in late October and early November. During these outages, water is not available from PG&E, and PCWA must double-pump American River water to supply the Foothill WTP and treated water customers.

City of Auburn Wastewater Treatment Plant Discharges

The City of Auburn's WWTP lies along the Auburn Ravine approximately one-half mile below PG&E's Wise Powerhouse South Canal crossing and one-half mile above the outlet of the Auburn Ravine Tunnel. The city continuously releases approximately 3.9 cfs of treated effluent into Auburn Ravine year-round. The City of Auburn WWTP service area water supply source is imported from the Drum-Spaulding Project (Yuba/Bear River system) and delivered by PCWA. The treated wastewater effluent releases are a function of the WWTP inflow and are unrelated to other sources of water released into Auburn Ravine. Likewise, direct releases to Auburn Ravine from other source waters are independent of the City's WWTP.

Auburn Ravine Watershed - Stormwater Runoff

The Auburn Ravine headwaters lie within the City of Auburn. Urban stormwater runoff occurs in response to rainfall and due to over-watering of landscaped areas.

Proposed Project Operations and Auburn Ravine Impact Avoidance Measures

In response to written comments received on the Draft EIS/EIR and additional concerns expressed at public stakeholder sessions, PCWA has revised its proposed water delivery operations to avoid impacts upon Auburn Ravine aquatic resources. By adopting the revised operational scheme (i.e., the double-pumping procedure described below), PCWA would incur substantially higher operational costs associated with delivery of its MFP water entitlements from the North Fork American River pump station to the Foothill WTP than it would if the water was conveyed to Auburn Ravine.

Draft EIS/EIR Description of the Proposed Project

The Draft EIS/EIR includes a description of the Proposed Project which formed the basis for the impact analysis regarding Auburn Ravine. This section reiterates the description of the Proposed Project provided in the Draft EIS/EIR.

Implementation of the Proposed Project would provide PCWA with year-round ability to pump water from the North Fork American River near Auburn. As described previously, the source for this water comes from PCWA's MFP water entitlements. The Proposed Project would increase PCWA's diversion capacity from 50 cfs to 100 cfs; increases in diversion amounts from the Proposed Project would occur gradually over time. Annually, PCWA's water supply from this location would increase from the existing 8,500 AF up to 35,500 AF. Under the No Action/No Project Alternative, PCWA would potentially obtain up to 19,300 AFA.

PCWA would have modified its current water delivery operation practices to redirect its Drum-Spaulding Project (Yuba/Bear River system) entitlement (normally release into Auburn Ravine) to the Foothill WTP for delivery of treated water within its retail Service Area Zone 1.

The majority of the American River diversions would occur in May, June, July, and August. The maximum diversion would be expected to occur in July.

Under the proposal described and evaluated in the Draft EIS/EIR, PCWA would have conveyed its MFP water entitlements diverted from the North Fork American River pump station via pipeline to the Auburn Ravine Tunnel directly to Auburn Ravine for delivery to irrigation customers in service area Zone 5. These proposed operations would have resulted in a change of flow volume and water source composition in Auburn Ravine relative to the existing condition. The new American River water supply would then have been delivered via the Auburn Ravine Tunnel directly into Auburn Ravine to continue raw water delivery services to PCWA's irrigation customers within retail service Zone 5. Although not identified as such in the Draft EIS/EIR, these operational changes are referred to by the lead agency representatives as "replacement" or "exchange" of Yuba/Bear River system water with American River water in the ravine.

Draft EIS/EIR Evaluation of Auburn Ravine

During public scoping meetings held prior to completion of the Draft EIS/EIR, interested parties expressed concern regarding the potential for the Proposed Project to result in increased straying of American River salmonids into Auburn Ravine. The concern was that the release of American River water into Auburn Ravine would potentially transfer olfactory cues, which drive salmonid homing behavior, thereby increasing straying of American River salmonids from the American River into Auburn Ravine. In its analysis, the Draft EIS/EIR suggested that genetic heredity, in addition to olfactory response/odor imprinting, might play a role in salmonid homing behavior. The analysis indicated, "*...the hereditary predilection for natal sites may ameliorate the possibility of increased straying as a direct result of changing the proportion of American River water discharged into Auburn Ravine…*".

Additionally, the Draft EIS/EIR indicated that even if salmonid straying were to occur as a result of the Proposed Project, there is no evidence to suggest a negative effect on the Auburn Ravine salmonid population. As discussed in the Draft EIS/EIR, straying is known to occur in natural river systems, and potentially aids salmonid populations by colonizing new habitats, avoiding adverse natal stream conditions and increasing genetic heterogeneity. Coded-wire tag studies of Central Valley chinook salmon indicate that straying among salmonids in this region may be very common. Additionally, the Draft EIS/EIR indicated that genetic differences between American River salmonids and Auburn Ravine salmonids may be negligible. This discussion was based on hatchery stocking reports that indicate American River salmonids historically have been planted in Auburn Ravine.

The Draft EIS/EIR indicated that the anticipated increase of flows in Auburn Ravine, regardless of the source, would increase habitat availability for salmonids in Auburn Ravine. The evaluation concluded that the potential impacts of the Proposed Project upon Auburn Ravine salmonids would be expected to be less than significant.

Public Comments on the Draft EIS/EIR Auburn Ravine Impact Evaluation

As described earlier under Summary of Public Comment Issues Related to Auburn Ravine Fish, interested parties expressed concern over the analysis and conclusions reached in the Draft EIS/EIR evaluation of Auburn Ravine aquatic resources. In response to these comments, PCWA has proposed operational changes to avoid potential impacts within Auburn Ravine, as described below.

PCWA's Operational Changes to Avoid Impacts to Auburn Ravine

In an effort to avoid creating an increased potential for American River salmonid straying into Auburn Ravine, PCWA identified an operational change that would involve maintaining its North Fork American River water releases to Auburn Ravine as under the existing conditions. The Proposed Project would be operated such that no changes to the existing quantity, seasonal distribution, or source composition of PCWA's releases would be made in the future without first completing additional environmental studies of the Auburn Ravine system.

The diversion of 8,500 AF in 1977 represents the maximum historical yearly diversion from the seasonal American River pump station. While this number could have been used to define the existing condition, as it represents what could occur again in the near future during a similarly dry year, the lead agencies instead adopted a more conservative approach. Under the proposed operational change, PCWA would continue to convey North Fork American River water from the Auburn Ravine Tunnel into Auburn Ravine within the limits of the recent historical monthly maximum delivery rate (**Table 3-9**). The years 1998 through 2001 most closely represent the existing condition, as they are temporally proximate and characteristic of current operational scenarios. In addition, the 1998 through 2001 years encompass a variety of water year types, including dry and wet. Pursuant to the operational change, PCWA will ensure that direct diversions into Auburn Ravine will not exceed the maximum monthly levels shown in Table 3-9. Maximum monthly levels, rather than average levels, were chosen in order to allow PCWA the flexibility to continue to meet the needs of agricultural users along Auburn Ravine under varied and unpredictable hydrological and climatic conditions, as PCWA has done in the past four years. The use of average figures would create artificial constraints, as precipitation levels in California are seldom "average," but rather tend to be dry or wet.

Table 3-9
Seasonal American River Pump Station Deliveries to Auburn Ravine (AF)

Month	1998	1999	2000	2001	Maximum
May	89.0	0	0	0	89.0
June	0	391.0	543.0	180.0	543.0
July	238.0	1,581.0	1,015.0	668.0	1,581.0
August	238.0	772.0	441.3	74.0	772.0
September	4.5	87.0	0	0	87.0
October	49.7	31.0	63.0	27.0	63.0
November	56.5	30.0	47.0	62.0	62.0

While the amount of North Fork American River water directly reaching Auburn Ravine will not change from the existing condition, total deliveries to the Auburn Ravine Tunnel will increase under the Proposed Project conditions. The existing condition will initially be supplemented with an additional 50 cfs of American River water into the Auburn Ravine Tunnel, but the additional water will be conveyed directly to the PCWA distribution system through "double-pumping," without ever reaching Auburn Ravine. Essentially, double-pumping refers to the conveyance method of first pumping the water at the Proposed Project pump station and then pumping it a second time into the South Canal, using the 50 cfs capacity of the Auburn Ravine Tunnel Pump Station. Once in the South Canal, the American River water will flow by gravity to the Foothill WTP. Any American River water diverted under the Proposed Project in excess of current maximum monthly deliveries to Auburn Ravine would be double-pumped and conveyed directly to PCWA's distribution system. Therefore, the additional 50 cfs of water would never be in contact with Auburn Ravine.

In 1999, PCWA completed and certified environmental documentation for a separate conveyance pipeline from the Auburn Ravine Tunnel Pump Station to the Foothill WTP. Eventually the PCWA pipeline would be utilized instead of PG&E's South Canal. Once construction is completed (within the next five years), the pipeline will allow the North Fork

American River water to be delivered independent of PG&E's South Canal. Furthermore, the pipeline will still convey the additional Proposed Project-related American River water without any contact with Auburn Ravine.

Double-pumping the North Fork American River water is substantially more costly than the original proposal of supplying the Foothill WTP by exchanging upstream water for American River water releases from the Auburn Ravine Tunnel. It is estimated that this process would result in additional ongoing costs of approximately $950,000 annually.

Potential Impact Considerations and Conclusions

The Proposed Project would have the capacity to divert up to 100 cfs from the American River. However, under the revised operational procedure, PCWA would double-pump up to 50 cfs to its water supply distribution system, due to capacity limitations at the Auburn Ravine Tunnel Pump Station. PCWA has estimated that within approximately 5 to 10 years, increasing water demands would require changes to the system to enable it to obtain up to the full 100 cfs from the American River pump station. These changes possibly include expansion of the Auburn Ravine Tunnel Pump Station facilities to enable double-pumping of the additional water supply and continued avoidance of flow or water composition changes to Auburn Ravine. Should PCWA pursue expansion of the Auburn Ravine Tunnel facilities, additional environmental evaluation and documentation, including opportunities for public input and review, would be required.

PCWA's commitment to double-pump any North Fork American River water deliveries in excess of recent historical monthly amounts would address public and agency concerns regarding previously anticipated changes in Auburn Ravine flow volumes and source water composition. For instance, the potential for disruption of terrestrial resources, including elderberry shrubs, riparian vegetation, and associated fauna, due to an increase in flow in Auburn Ravine is no longer relevant. In addition, since diversion rates of American River water will not change from the existing condition, the Proposed Project would not raise Auburn Ravine water temperatures. The potential for such impacts would therefore be less than significant.

The potential for American River salmonids straying into Auburn Ravine related to the increased proportion of American River water within the PCWA service area Zone 1 and subsequent treatment of this "imported" source water at the Lincoln WWTRF with eventual discharge into Auburn Ravine is addressed in greater detail in the following sections.

Response to Comments Regarding Salmonid Straying

The following evaluation is based on review of technical literature on the subjects of salmonid homing and straying, olfactory cues, imprinting and "false attraction."

Salmonid Homing and Straying

Biologists have long recognized that the family Salmonidae (chars, trout, and salmon) is characterized by a strong tendency to home to natal streams for reproduction. In 1874, a report prepared by the U.S. Commission of Fish and Fisheries determined…"*it is an established fact that adult [salmon] will always return to the place where they first made acquaintance with the water, passing directly by the mouths of streams or tributaries better adapted to their purpose, to gain their original home*" (Quinn 1997). Although the homing theory remained contentious, by the late 1930s the homing tendency was a generally accepted phenomenon (Quinn 1997) when Scheer (1939) stated... *"salmon or trout hatched and reared in a particular region will, upon returning to fresh water, return in the majority of cases to the same region, even from considerable distances*" (*in* Hasler and Wisby 1951).

Salmonid homing migrations begin in the ocean, potentially thousands of kilometers from the natal river drainage. Once in freshwater, the salmonid spawning journey may be just as long. Despite the vast distances involved, spawning salmon return to their natal stream with a high degree of fidelity (Dittman and Quinn 1996). For instance, Foerster (1968) summarizes one of the earliest comprehensive homing studies in Cultus Lake, British Columbia. Most homing sockeye salmon of the study drainage must pass through Cultus Lake to return to their natal streams. All of the sockeye salmon smolts leaving the lake in 1931 and 1936 were marked with fin clips. Marked adults comprised 99.4 percent and 98.5 percent, respectively, of the returning sockeye to Cultus Lake in the corresponding spawning runs, indicating that very few sockeyes from other drainages or tributaries entered the lake. Unfortunately, the number of Cultus Lake salmon spawning in non-natal streams was not determined (*in* Quinn 1993). Still, because comprehensive studies of spawning return rates among wild salmon populations are limited, and the results available illustrate a large range, the determination of a natural homing rate would be very difficult (Quinn 1993).

The homing fidelity of the salmonid family results in highly distinguishable stocks of similar phenotypic and genetic characteristics, which aids in establishing and maintaining a locally adapted population (reviewed by Pascual et al. 1995; Utter 1991). For instance, as Bodznick (1975) summarizes, sockeye salmon in the Fraser River drainage are divided into several distinct populations determined by the spatial location of their spawning sites within the watershed. Each stock is characterized by the size of spawning adults and the timing of spawning returns. Due to the differences in rearing habitat between populations, the growth rates of individual fish can be used to differentiate between populations. Hence, even closely distributed salmonids can segregate into distinct populations.

Although a high degree of fidelity is the norm in a salmon population, some fish do not home to their natal stream. These fish, called strays, are an integral part of salmon behavior under natural conditions. For instance, Milner and Bailey (1989) found newly unglaciated streams in Alaska to be initially colonized by coho and sockeye salmon strays. Straying behavior also may allow salmonids to avoid adverse local conditions (Leider 1989) and increase genetic heterogeneity (Utter 1991). Still, an increase in the level of staying may have detrimental effects to locally adapted populations.

While straying is a natural phenomenon in wild anadromous salmonid stocks, concern exists about the straying of hatchery fish into wild populations. An Interagency Ecological Program (IEP) Steelhead Work Team Report (1999) claims artificially produced steelhead may be a potential stressor for the recovery of steelhead populations. The reported potential detrimental ecological effects to wild fish produced by interactions with hatchery stocks include competition, displacement, increased disease and predation rates, and non-sustainable harvest by anglers due to over-estimation of salmonid runs. Additionally, the introgression, or transplanting of genes between native and hatchery stocks, may reduce genetic variability, reduce fitness, and eliminate rare alleles in wild populations. A summary conducted by Quinn (1997) also determines that most of the concern about hatchery/native interactions focuses on an opinion that the genes from hatchery fish may dilute the locally adapted wild gene pool or disrupt adaptive gene complexes. Based on the high number of hatchery fish planted in many hatchery influenced aquatic systems, even a very low straying rate among hatchery fish could potentially produce a large number of strays and result in adverse genetic effects.

Management actions may influence the rate of straying in hatchery systems. While studying fall-run chinook salmon in the Columbia River Basin, Pascual et al. (1995) determined that hatchery rearing and release techniques can potentially increase straying, thereby enhancing the potential for interactions between hatchery and wild fish. Numerous studies indicate that hatchery fish of local progeny released into the local drainage stray much less than those released into other drainages. In addition, releasing salmonid smolts directly into the ocean rather than allowing for the typical downstream migration may increase straying (Schroeder et al. 2001). However, it is difficult to determine whether straying rates differ between hatchery and wild fish because study conclusions are mixed and quantifying stray rates in natural populations is difficult (Quinn 1997; IEP 1999).

Although straying of hatchery fish into wild populations is a potential dilemma for natural resource managers to consider, the occurrence of straying may not always result in the identified adverse genetic effects. The genetically distinct structure of anadromous salmonid populations suggest that under natural conditions, the spawning success of strayed individuals may be quite low (Reisenbichler 1992 *in* Schroeder et al. 2001). In addition, studies indicate that salmon of hatchery origin may be less productive than wild fish during natural spawning (Chilcote 1986 *in* Pascual et al. 1995; Leider et al. 1990). The differential spawning success may be attributed to differences in reproductive behavior between hatchery and wild fish (Jonsson et al. 1991; Fleming and Gross 1992 *in* Pascual et al. 1995). Furthermore, some fish may be classified as strays while exhibiting exploratory behavior (actively seeking different sites and comparing their attributes) and wandering behavior (searching in the absence of stimuli) (Griffith et al. 1999). The existence of these findings and behaviors illustrate that a portion of the salmon that enter a non-natal tributary will not attempt or succeed in reproducing. Obviously, the effect that stray fish will have on the genotypic composition of the local population is determined by the degree of successful mating and the survival differential of their offspring (Quinn 1993), not just the physical presence of a strayed fish in a drainage.

Comments Regarding Straying Due to the American River Pump Station Project

Expressed concerns over the American River Pump Station Project seem to center around the potential for the Proposed Project to increase straying rates and genetic introgression between Auburn Ravine and American River salmonids. Local landowners and those who use the drainage for recreation indicated concern regarding the effects potential increases in genetic mixing could have on what they believe to be native, indigenous stocks of steelhead and chinook salmon in Auburn Ravine.

As explained earlier, because PCWA has modified the proposed operation of the Proposed Project so that it will not involve an increase in the amounts of raw American River water placed directly within Auburn Ravine, the only manner Auburn Ravine may receive North Fork American River water would be as: (1) irrigation return flow; (2) stormwater discharge; (3) Lincoln WWTRF effluent; and (4) raw water discharged from the Auburn Ravine Tunnel in historical amounts. Comments on the American River Pump Station Project raised the issue that the project may reassign the environmental cues in which migrating American River salmonids home toward, thereby drawing American River fish into Auburn Ravine. Essentially, this comment raises speculation that anadromous salmonids of American River origin, particularly hatchery salmonids, will travel upstream in the Sacramento River past the American River, where large volumes (generally 1,250 to 2,500 cfs during October and November) of American River water discharges into the Sacramento River. These comments suggest that the American River salmonids will swim past the American River in search of a small amount (generally 2 cfs during October and November) of water that originated from the American River and has been treated, delivered, used, returned to the Lincoln WWTRF, treated and discharged into Auburn Ravine, subsequently into the Natomas Cross Canal, and thereafter into the Sacramento River. This concern appears to be essentially unfounded, as demonstrated in the following technical review and analysis.

Additional comments on the Draft EIS/EIR also suggest that Auburn Ravine salmonids may confuse the American River for their natal spawning grounds, due to the existence of American River water in their natal stream. In addition, comments were received regarding the possibility of "falsely attracting" salmonids from the American River into Auburn Ravine due to the increased discharge of the Lincoln WWTRF during sensitive migratory months.

Because the Nimbus National Fish Hatchery Program influences the American River ecosystem, concern has been expressed that interbreeding between the two populations would affect the local physiologic and genetic adaptation of the Auburn Ravine steelhead and chinook salmon populations. Further concern stems from the founding history of the Nimbus Hatchery steelhead, as they appear to be most genetically similar to steelhead from coastal populations, particularly Eel River stocks (NMFS 1997 *in* McEwan 2001; IEP 1999). Comments have raised the issue that the distinctiveness of and distances between the coastal ecosystems and the Central Valley may serve to increase the likelihood of introducing foreign, maladapted alleles into the Auburn Ravine stock.

However, it is unlikely that the Proposed Project would produce a genetic disruption of Auburn Ravine salmonid stocks primarily due to the following reasons: (1) the acute olfactory homing

mechanisms in the salmonid family; (2) the environmental homing cues and the fate of these cues within the project area; (3) the sequential imprinting process; (4) the probable lack of persistent, native Auburn Ravine stocks within the Central Valley ESU; and (5) the mitigation programs of previous water projects affecting Auburn Ravine.

The Olfactory Homing Mechanism

The Olfactory Hypothesis

Numerous years of study seem to implicate olfaction as the primary sense driving the acute homing ability of salmonids. The pioneering work of Hasler and Wisby (1951) reports three assumptions upon which the olfactory hypothesis is based. First, streams differ in chemical characteristics that are stable over time. Second, salmonids can distinguish the chemical differences between streams. Third, salmonids learn the chemical characteristics of their natal stream (called imprinting) prior to or during their seaward journey, remember these cues without reinforcement while in the ocean, and respond to them upon returning to freshwater to spawn.

In an attempt to illustrate their hypothesis, Hasler and Wisby (1951) trained bluntnose minnows using a conditioned response program. These researchers created two flow-segregated areas within a seven-gallon aquarium where they delivered two distinct stream waters. Each stream of distinct water was related to either reception of food or punishment by mild electrical shock. After two months of training, the minnows did learn to associate each of the stream waters to the corresponding food and punishment. Results of the test did not change based on the seasons in which the test waters were obtained, indicating that the environmental cue the minnows were using persisted over changing seasons. The researchers then repeated the experiment after destroying the olfactory receptors of the minnows with heat cautery. The minnows were no longer able to associate the streams with reward or punishment. These data suggested that the bluntnose minnow used olfaction as the sole means of identifying the test water, indicating that each stream must have a characteristic odor in which the fish can learn. Preliminary tests by Hasler and Wisby (1951) on salmonids showed similar results.

Further experimental evidence for the olfactory hypothesis is provided by artificial imprinting studies. For instance, Cooper et al. (1976) exposed juvenile coho salmon to low concentrations of an odorous synthetic compound called morpholine. These fish, along with an equal number of controls, were stocked directly into Lake Michigan near Oak Creek, in Wisconsin. Another paired experimental treatment was stocked into Lake Michigan 13 kilometers north of Oak Creek. During the salmon spawning runs 18 months later, morpholine was continuously dripped into Oak Creek. Results of the four experiments over two years of studies showed 1,739 morpholine-exposed fish and 197 control fish returned to Oak Creek to spawn, indicating a highly significant ($P < 0.001$) difference in return rates. A third year of study in which morpholine was not dripped into Oak Creek produced equally low numbers of salmon in the spawning run (51 morpholine-exposed vs. 55 control fish). Cooper et al. (1976) determined the olfactory response to morpholine resulted in the high return to Oak Creek.

Similar to the behavioral studies, physiological activity investigations lend credence to the olfactory hypothesis. For instance, Hara et al. (1965) used an electroencephalograph (EEG) to study the manner in which central nervous activity correlates with the chemosensitive discriminatory behavior of homing salmonids. They captured adult salmon entering their natal grounds at the end of their spawning migrations. The fish were prepared for the EEG study and water was continually streamed over their gills. The central nervous regions of the spawning salmon were found to be nearly electrically inactive, except for those regions that control the olfactory senses (i.e., olfactory bulbs and posterior cerebellum). Of particular importance, Hara et al. (1965) found the optical lobe EEG readings to be electrically silent, possibly illustrating a minimal reliance on vision by adult migrating fish. Stream water from various sources was then infused into the naval cavity of the salmon. Stream water from nearby sources other than the home grounds had little to no effect on the EEG measurements, while natal water elicited a vigorous response of high amplitude, which only disappeared upon a 90 percent dilution. Each of the test waters presumably contained odors recognizable by the olfactory system, yet only water from the home stream elicited an EEG response. Hara et al. (1965) illustrated a heavy reliance on olfactory senses during adult salmonid migrations.

While Hara et al. (1965) demonstrated a direct relationship between home stream waters and EEG response, Bodznick (1975) found considerable variability in EEG responses in migrating adult salmon. The variability of response could not be attributed to stimulus conditions, as Bodznick (1975) was unable to correlate the EEG outputs with the presumed behavioral responses (i.e., spawning, continued migration) to a series of waters. Still, Bodznick (1975) concluded that the olfactory-evoked EEG response of migrating salmon has sufficient quantitative relation to odorants to illustrate discrimination between stream waters, including waters encountered at migratory points, natal grounds, and other known spawning drainages. Although EEG responses in the olfactory processors occur for a variety of stream waters, Bodznick (1975) appears to illustrate that the processing of olfactory cues is sufficient for the recognition of stream water during salmonid homing journeys. To summarize, although salmonids may smell and process all the water they encounter, they can actively discriminate between waters, which eventually leads them to their proper natal grounds.

The overwhelming majority of available literature concerning salmonid homing seems to indicate that olfaction is the primary sense guiding homing behavior upon entry to fresh water. Documents provided by commenters on the Draft EIS/EIR indicate much the same (Reclamation 1997a; Healy 1991; Myers et al. 1998). Hence, in order for the Proposed Project to negatively impact the homing behavior of salmonids in the American River and Auburn Ravine, the project must have a significant effect on the odor of the natal stream water or the ability of the salmonids to process odors. However, as will be explained in detail below, the Proposed Project is not likely to encourage additional straying of American River anadromous salmonids into Auburn Ravine, due to the nature of the chemical migration cues and the conditions the American River water may encounter before its discharge into Auburn Ravine.

The Nature of the Chemical Homing Cue

Upon recognition of the importance of the olfactory chemosensory process to salmonid imprinting, research was initiated to identify the exact compounds to which the olfactory

receptors were responding. The original olfactory hypothesis presented by Hasler and Wisby (1951) proposed that the unique stream odors were due to characteristic chemical combinations derived from variation in soil and vegetation between watersheds. At least partially, Hasler and Wisby (1951) based their assumption on earlier studies by Walker and Hasler (1949), which showed that bluntnosed minnows were able to discriminate between the rinses of various aquatic plant species after 2-1/2 months of conditioned response training [i.e., experimentation similar to the previously explained training used by Hasler and Wisby (1951)]. The minnows were unable to differentiate between plant rinses upon having their olfactory epithelium destroyed by heat cautery, suggesting that olfaction was the primary sense driving the recognition. Amazingly, after a 1:10,000 dilution was further diluted into a flow-segregated, seven-gallon aquarium, minnows still were able to discriminate between water rinses of aquatic plant sprigs. These data indicate a tremendous sensitivity to the rinses of vegetation.

After proposing and illustrating the olfactory hypothesis, Hasler and Wisby (1951) also endeavored to characterize the nature of the stream odor. Their experiment was designed to test whether the cue is organic or inorganic in nature. Hasler and Wisby (1951) produced ash residue from the water samples used in the conditioned response tests. Because the organic portion of the water sample incinerates during the ash residue production, the ash represents only the inorganic portions of the water chemistry. The ash was then dissolved in distilled water and tested on the trained minnows exactly as before. Although the minnows previously discriminated between stream waters, the ash residue rendered them unable to differentiate the test waters. The ash residue experiment indicates that the chemical cues in which fish use for migration have an organic constituent, either as a dissolved organic mixture or an organic-inorganic chemical complex. In addition, chemical analysis of the stream waters used by Hasler and Wisby (1951) suggest marked differences in total organic nitrogen. Hasler and Wisby (1951) postulate that the elements detected by the minnows in their study may have been located in the nitrogenous organic fraction.

Shoji et al. (2000) also studied organic nitrogen in relation to home stream odorants and the possible migration cues of masu salmon in Japan. Investigators tested the relative responses of amino acids, bile acids, and inorganic ions of home stream water samples on the EEG results of the salmon. They identified the concentration of each of the three constituents in water from three streams and then reconstituted test solutions based on the determined concentrations. Shoji et al. (2000) tested each chemical constituent individually as well as in mixtures. The resulting solutions were tested for an EEG response and compared to the EEG responses elicited by natal stream water. The EEG responses of the salmon profiles containing reconstituted amino acids and the amino acid/inorganic salts mixture closely mimicked the EEG response to natal stream water. Because the inorganic salts-only reconstitution achieved a minimal response, amino acids were determined as the major contributor of the EEG response in the amino acid/salt mixture. Therefore, Shoji et al. (2000) concluded that the salmon discriminate between stream waters by sensing differences in amino acid compositions. Water chemistry analysis illustrated enormous differences in amino acid compositions of the three tested streams, even though the streams are proximate and flow into the same lake. The researchers speculate that the characteristic amino acid mixtures within stream drainages are likely derived from living organisms including plants. Research relating to human taste discrimination suggests that the characteristic taste of many food products, which humans can easily distinguish, may be due

to distinct combinations of amino acids (Fuke and Knoosu 1991 *in* Shoji et al. 2000). Hence, the odor discrimination methods of salmonids using amino acid compositions described by Shoji et al. (2000) is consistent with Hasler and Wisby (1951), Walker and Hasler (1949), and research relating to methods of sensing by other vertebrate species.

In addition to organic nitrogen, some research suggests that population-specific chemical signals (i.e., pheromones) produced by conspecifics (e.g., juvenile salmonids rearing in the natal stream during the adult migration period) serve as the organic homing cues for salmonid migration. For instance, reports from Stabell (1992) and Courtenay et al. (2001) demonstrate recognition of conspecific odors by salmonids. The pheromone hypothesis suggests bile acids (Nordeng 1971; Doving et al. 1974, 1980 *in* Shoji et al. 2000) or skin mucus (Nordeng 1977) may play a role in pheromone recognition by the olfactory receptors. While Shoji et al. (2000) found bile acids did not elicit an EEG response similar to natal stream water in masu salmon, the pheromone hypothesis is certainly plausible. However, since the pheromones used for recognition of natal streams are presumably organic in nature, the difference in olfactory hypotheses does not change the fate of the American River odorants as described in the following sections.

Regardless of the specific organic compounds involved in salmonid homing, field and lab studies have illustrated a preference by hatchery fish to the water from hatchery facilities. For instance, Sutterlin and Gray (1973) investigated the Atlantic salmon returns of wild and hatchery fish. The study system included a hydroelectric dam and a hatchery located 1,500 meters downstream. During the fall spawning runs of 1971 and 1972, 97 percent of the wild Atlantic salmon returned to the dam, while 3 percent were recovered at the hatchery. By contrast, 67 percent of the hatchery-reared fish returned to the hatchery, while 33 percent returned to the dam. Considering that hatchery effluent contributes only 0.001 percent of the stream flow below the dam, these data illustrate an active discrimination between the hatchery effluent and upstream flows. In addition, Sutterlin and Gray (1973) tested salmon in the laboratory, and again, hatchery adults demonstrated a clear-cut preference for hatchery effluent. Both hatchery and wild fish avoided well water, which forms the base of hatchery effluent flows.

The preference by hatchery fish for hatchery effluent may have important consequences for the American River Pump Station Project. The results of Sutterlin and Gray (1973) suggest that the hatchery environment must contribute something to downstream flow to which hatchery adults respond. Perhaps the waste organic material produced by the rearing fish or pheromones released by the conspecifics draw migrating adult hatchery fish towards the facilities. At any rate, the Nimbus Hatchery on the American River is likely to change the water chemistry downstream of the facilities. Assuming the Sutterlin and Gray (1973) findings apply to the American River ecosystem, the Nimbus Hatchery-reared adults may be able to discriminate between hatchery effluent and flows from upstream. Because the American River Pump Station Project would divert water from the North Fork American River, miles upstream of the Nimbus Hatchery, the water Auburn Ravine would receive is likely to have very different chemical cues than the flow below the Nimbus Hatchery. Therefore, the American River Pump Station Project would not be likely to transfer the migratory cues that could potentially draw American River salmonids into Auburn Ravine.

As discussed, a considerable wealth of studies suggest stream olfactory cues drive the salmonid homing process, and combinations of organic material (i.e., amino acids) appear to control the odor cues. The distinct odor cues likely result from differences in watershed soils, vegetation, or possibly conspecifics. In addition, hatchery effluent could potentially change the ambient stream chemistry as well. Therefore, it is not likely that the water transferred from the North Fork of the American River to Auburn Ravine will contain the same odor qualities as the water downstream of the Nimbus Hatchery that migrating American River salmonids may have imprinted. Still, comparable organic signatures could exist between the North Fork of the American River and the downstream stretches. In this case, in order for the Proposed Project to adversely impact the homing behavior of the salmonids in the American River and Auburn Ravine, the project must alter the organic signature of Auburn Ravine. In addition, the transferred American River water must retain its organic signature. Given the chemical changing process the American River water would likely undergo, it is not likely that the odor-producing qualities of Auburn Ravine would be altered by the Proposed Project.

The Fate of the American River Odorants

The Proposed Project would distribute water from the American River for municipal and agricultural use. Auburn Ravine may eventually receive a portion of the original American River water as agricultural runoff, storm drain runoff and as effluent discharge after passing through the City of Lincoln WWTRF. Commenters on the Draft EIS/EIR suggest that the American River water entering Auburn Ravine from these sources may retain its characteristic odor qualities, thereby disrupting the natural homing process of the salmonids inhabiting Auburn Ravine and the American River. However, the American River water transferred into Auburn Ravine is not likely to retain its homing cues indefinitely due to the exposure of the water to new odor-causing agents and the extreme water processing procedure.

Irrigation water delivered from the American River to PCWA's service area likely would be exposed to different odor-causing agents than those existing in the lower American River (i.e., below Nimbus Dam). The irrigation water would be in contact with new sources of organic material, including amino acids sources, as it contacts and percolates through soil and rinses vegetation during its conveyance and release to agricultural fields. In addition, the ambient organic component in the American River water may be subject to decomposition by soil microbes. Hence, the water that Auburn Ravine and other PCWA zone watersheds (i.e., Dry Creek) may receive as agricultural return flow would be drastically different in its chemical characteristics than the original American River water delivered to the irrigated fields. Therefore, the irrigation water delivered to the PCWA service zones is not likely to attract American River salmonids.

Similarly, American River water delivered to Auburn Ravine through storm drains likely would not retain its original chemical characteristics. Municipally distributed water may contribute to storm drain flows through such processes as excessive lawn watering. If the lawn water survives gutter evaporation and reaches Auburn Ravine, it will likely have been leached through, or in contact with, soil and vegetation, chemically altering the water. Since the vegetation and soil of the lawns is a characteristic of the drainage, the resulting water would not

likely be much different from storm drain water currently delivered to Auburn Ravine during a storm event. Hence, municipally delivered storm drain water would not be likely to contribute to an increase in salmonid straying.

The final identified fate of the American River water is distribution throughout the municipal system. The American River water would be treated by flocculation (to remove impurities) and chemical addition (to ensure digestive safety), and then distributed to homes, businesses, and industries throughout PCWA's service area (Zone 1). The water would leave these facilities mixed with organic and inorganic wastes through sewer lines. The Lincoln WWTRF, to be complete by the spring of 2003 (R. Cambell, pers comm. 2002), will receive the American River water, and at this point, another intensive treatment process will be initiated. The updated WWTRF system will treat its inflow with secondary and tertiary treatment procedures. Secondary treatment procedures are designed to remove organic compounds from the sewer inflow, while tertiary treatment removes nutrients, such as phosphorus and nitrogen, which can be harmful to aquatic ecosystems (City of Lincoln 1999). An analysis of the treatment process efficiency appropriately illustrates the fate of the American River odorants.

Biochemical oxygen demand (BOD) requirements can be used to evaluate the fate of the organic homing cues in the American River water after wastewater treatment. BOD is defined as the amount of oxygen required by bacteria to oxidize the decomposable organic matter in a water sample (Sawyer et al. 1994). Studies of secondary treatment facilities generally indicate removal efficiencies of 75 percent to 99 percent for many organic compounds (EPA 1977, 1982, 1986 *in* City of Lincoln 1999). More specifically, for planning purposes, the Lincoln WWTRF utilizes a BOD estimate of 250 milligrams per liter (mg/L) for the inflow received at the sewer facilities, though actual BOD values may vary. Waste discharge requirements for the Lincoln WWTRF dictate a BOD of no greater than 10 mg/L for the effluent discharged into Auburn Ravine, while the design criteria of the treatment facility attempts to achieve a BOD level of no more than 3 mg/L. Because BOD is an indicator of total organic material, a conservative estimate illustrates that approximately 4 percent of the total organic material that enters the Lincoln WWTRF will be discharged into Auburn Ravine. Assuming a homogenous mixture of organic material in the treatment facilities and equivalent treatment efficiencies between all types of organic material, the organic homing cues used by migrating salmon found in the wastewater plant inflow will be drastically altered by the secondary treatment process at the Lincoln WWTRF. Furthermore, the potential cues remaining in the effluent will be a mixture of the various organics delivered to the WWTRF, which combined will give Auburn Ravine its own characteristic odor components. Thus, water originating from the American River discharged via the Lincoln WWTRF is not likely to retain its original odor and, therefore, is not likely to adversely impact salmonid homing behavior.

Sequential Olfactory Imprinting

The timing of olfactory imprinting is a key component to understanding the mechanisms that drive salmonid homing behavior. The majority of the research in this field suggests imprinting of stream odors is most sensitive during the PST process (Dittman et al. 1996). The PST is characterized by physiological and behavioral changes that prepare freshwater salmon (parr) for their ocean lifestage. Although the PST appears to be a particularly sensitive period of time,

some imprinting must occur before this time, as wild salmon home to their hatching areas, not to the area of their PST (Quinn et al. 1996). For instance, coho and chinook salmon often make extensive migrations in freshwater before their PST (Peterson 1982; Murray and Rosenau 1989; Scrivener et al. 1994), yet still home to their natal sites. Hence, the PST may be a critical imprinting stage, but some other factor must control the actual imprinting process.

Many of the changes that occur in the PST are related to elevations in a thyroid hormone called thyroxine (Dickhoff et al. 1978; Dickhoff and Sullivan 1987 *in* Dittman and Quinn 1996). Dittman and Quinn (1996) postulate the imprinting process may be associated with surges in thyroid hormones. While major surges in thyroxine levels occur during the PST, a review by Dittman and Quinn (1996) reveals elevations in various thyroid hormones may occur at numerous lifestages due to a variety of factors. For instance, peaks in thyroid hormone levels can occur during the hatching and emergence phases (Dickhoff and Sullivan 1987; Tilson et al. 1994, 1995). In addition, thyroid hormone levels are particularly sensitive to environmental cues such as exposure to novel water chemistry (Dickoff et al. 1982; Hoffnagle and Fivizzani 1990) and changes in lunar phase (Grau et al. 1981), water temperature (Iwamoto 1982; Lin et al. 1985), photoperiod (Hoar 1976; Iwamoto 1982), and water flow rates (Youngson and Simpson 1984; Lin et al. 1985).

The review by Dittman and Quinn (1996) also found that thyroid gland production may be associated with migration. For instance, increased swimming rates may stimulate thyroid hormone production (Dickhoff et al. 1982; Nishioka et al. 1985). Furthermore, migrating juvenile salmon show higher levels of plasma thyroxine than non-migrants (Youngson et al. 1989; Fujioka et al. 1990; McCormick and Bjoernsson 1994), and kokanee salmon can be induced to migrate by artificially elevating thyroxine levels (Iwata and Tagawa 1991). Hence, the imprinting process associated with developmental-, environmental-, and migratory-induced surges in hormone levels may serve to provide a sequence of cached smells which adults salmonids use to find their natal streams (Harden Jones 1968; Brannon 1982 *in* Dittman et al. 1996).

According to Dittman and Quinn (1996), their imprinting review may reveal a fundamental difference in how wild and hatchery salmon become imprinted as juveniles and home as adults. They report that imprinting in wild fish likely occurs during various lifestages such as hatching, emergence, and the PST. As wild salmon migrate through freshwater they encounter various environmental cues, which elevate thyroid hormone levels. If the cues are significant, the imprinting threshold is exceeded and the salmon remember the smell as a key point in their migration. In addition, migratory behavior and increased swimming rates may elevate hormone levels to a point where imprinting occurs at fairly random points along their freshwater journey. Hence, in wild salmon, a full sequence of smells learned as juveniles may serve as a roadmap for returning adults later in life.

Conversely, hatchery salmonids may not experience the same sequential imprinting as their wild counterparts. Dittman et al. (1996) suggest that the lack of environmental variation in the controlled hatchery environment may inhibit a portion of the imprinting process. Depending on where juvenile hatchery salmon are outplanted, much of their migratory behavior may be limited. For instance, hatchery practices often include raising salmon in the hatchery until the

smoltification stage and outplanting salmon directly into an ocean bay. While these salmon likely would be imprinted during various lifestages with the smell of the hatchery source water, they may have a limited opportunity to become imprinted with a full sequence of cues. Therefore, the roadmap for immigrating hatchery salmonids may contain a reduction in imprinted points. These conclusions are supported by findings that suggest releases of hatchery fish directly into saltwater may tend to increase straying (Quinn 1993).

The differential imprinting mechanism revealed by Dittman and Quinn (1996) may have extremely important implications concerning the American River Pump Station Project. For instance, as the wild-spawned salmon and steelhead in Auburn Ravine emerge, rear, and migrate, they may become imprinted with numerous smells during their downstream journey. Theoretically, imprinting also should occur at points of change in environmental parameters, such as water temperature, flow, or water source. To illustrate, a juvenile steelhead migrating from Auburn Ravine toward the ocean may become imprinted at various points along its journey. These imprinting points may include Auburn Ravine itself, the tributary confluence with the Sacramento River and its confluence with the American River, as flow, water temperature, and water composition likely change at these points. Upon returning from the ocean, the adult steelhead may reverse the olfactory memory constructed during the ocean-bound migration. The wild-spawned salmonid will not necessarily seek its natal waters automatically, but instead locate a series of points sequentially until the natal stream, presumably the last point in the sequence, is found. It is unlikely that an immigrating Auburn Ravine adult would stray into the American River because the immigrating adult will continue to be drawn upstream in the much larger Sacramento River by olfactory cues associated with the next sequential points north of the point at which the American River empties into the Sacramento River. Thereafter, the immigrating adult will continue to follow the Sacramento River northward until the adult reaches a point at which olfactory cues indicate that the adult should follow waters flowing into the Sacramento River from the canals into which Auburn Ravine drains, each of which has its own unique olfactory cues. Thus, the sequential migration of Auburn Ravine salmonids will guide the return the their natal spawning grounds.

Similarly, it is unlikely that an American River fish will stray into Auburn Ravine as a result of the Proposed Project. Salmonids in the American River have distinct lifehistory patterns, and as such, may differ in their imprinting mechanisms. First, some American River salmonids spawn naturally in the American River just below Nimbus Dam (SWRI 2001). The returning adults from this naturally spawned population should behave similarly to Auburn Ravine adults by re-tracing their sequence of imprints until their natal stream is found. Second, Nimbus Hatchery salmonids generally are released into the American River as juveniles (SWRI 2001). These salmonids have limited opportunities for imprinting (perhaps only during developmental changes at the hatchery) because environmental parameters are held fairly constant and the migration is inhibited in a hatchery environment. Still, these fish should become imprinted with the smell of the American River as their natal spawning ground during developmental changes. In both cases, as these fish reach the American River during upstream migration as adults, they will be bombarded with the smell of their natal stream. In some cases, this smell is the only imprinted smell available to them during their juvenile lives. Hence, it is unlikely that salmonids from the American River will disregard the inherent drive to enter this natal stream, simply because a minute amount of diluted American River water may exist in the Sacramento

River at their confluence. In addition, the water transferred from the North Fork American River to Auburn Ravine, having been subjected to myriad organic influences associated with the Auburn Ravine watershed, is likely to smell drastically different than the substantial lower American River flows that enter into the Sacramento at the confluence. The differential imprinting theory presented in Dittman and Quinn (1996) suggests that the straying rates exhibited by the salmonids of Auburn Ravine and the American River are not likely to increase due to the Proposed Project.

In addition to olfactory imprinting, homing may have an additional genetic component. For instance, salmon that are reared and released at different locations than their ancestors may occasionally return to their ancestral place of origin, even if they have never experienced its waters (McIsaac and Quinn 1988). Quinn (1993) suggests this behavior may be a result of innate preferences for physical habitat characteristics, including substrate composition, water temperature, or flow. Considering that the Proposed Project is not likely to alter the current genetic attributes of populations of Auburn Ravine salmonids, the genetic component of homing is not likely to be significantly impacted by the Proposed Project.

Seasonal Imprinting and the Homing Response

Although a majority of the transferred American River water will be discharged into Auburn Ravine only after contact with new odor causing agents or extensive treatment, raw American River water will still be diverted into Auburn Ravine via the Auburn Ravine Tunnel in the historical, pre-existing amounts. As previously discussed, a majority of the American River raw water diversions associated with implementation of the Proposed Project would occur in June, July and August, with a maximum diversion in July. This pattern and volume of water diversion releases to Auburn Ravine is consistent with the existing/historical condition, and would not result in a change in the total volume or seasonal distribution of North Fork American River water to Auburn Ravine.

Although it is not the only stage associated with imprinting, the PST likely represents the most sensitive imprinting period. The initiation of the PST likely is related to the emigration process of salmonids from natal drainages. While emigration data for Auburn Ravine fish is limited, American River fisheries data is well-documented (SWRI 2001). American River chinook salmon emigrate from January through June, peaking in April. Steelhead from the American River typically emigrate as yearlings (SWRI 2001), and yearlings normally begin showing up in rotary screw traps between December and March, however, some studies indicate steelhead immigration may occur through June. Assuming that American River emigration data also applies to Auburn Ravine, the periods of peak emigration of juvenile salmonids may not correlate with periods associated with peak raw water deliveries. Therefore, raw water deliveries may not dramatically affect the imprinting of juvenile salmonids in Auburn Ravine.

Similarly, immigrating adult salmonids in Auburn Ravine may not be exposed to the olfactory cues or increased flows associated with the seasonal delivery of North Fork American River water. Adult migrations of chinook salmon in the American River can occur as early as September and extend through January, while adult steelhead immigration typically begins in November and extends through April, peaking in January (CDFG unpublished data; SWRI

2001). Because relatively small discharges of American River water from the Auburn Ravine Tunnel occur during these times, the raw water deliveries are not expected to affect immigrating adult salmonids.

The timing of critical periods in salmonid life histories and the timing of water deliveries to Auburn Ravine are temporally inconsistent. In addition, the raw water delivery occurs under existing conditions. Therefore, the delivery of raw American River water in the historical amount from the Auburn Ravine Tunnel represents a less than significant potential impact.

The Origin of Auburn Ravine Salmonids

Historically, low elevation streams such as Auburn Ravine may have been essentially dry in summer and fall, at least in the foothill sections. Because of their intermittent nature, these streams were not conducive to significant or consistent fall run chinook salmon or steelhead populations. To the extent that such anadromous fisheries existed in Auburn Ravine, an important component of the population would have been strays from nearby and far more productive and reliable river systems (R. Stork, pers. comm. 2002). In fact, reports from IEP (1999), CDFG (1999), and McEwan (2001) suggest source populations from stable Central Valley habitats, such as the American, Feather, Yuba and Sacramento rivers historically provided for recolonization of, and gene flow between, sink populations in less persistent and hydrologically unstable stream systems (i.e., streams similar to Auburn Ravine). The source populations may have been beneficially affected by the diversity and variability of the small tributary communities.

Because the salmonids currently in Auburn Ravine likely did not originate as a persistent native population, the genetic characteristics of Auburn Ravine salmonids are not likely distinct. It is probable that the salmonids of Auburn Ravine are a conglomeration of many different stocks. Although straying information for steelhead is limited, coded wire tag studies for chinook salmon indicate that straying is not infrequent in Central Valley streams. These results suggest that straying into Auburn Ravine may occur irrespective of the increasing discharges of water from the Lincoln WWTRF. In addition, hatchery stocking records indicate that Auburn Ravine has been influenced by chinook salmon of American River origin. Chinook salmon from Nimbus Salmon and Steelhead Hatchery have also been stocked in Auburn Ravine as recently as 1997 (SWRI 2001). Hatchery-stocking records also indicate that rainbow trout have been historically placed into Auburn Ravine, and continue to be planted in connected water bodies (City of Lincoln 1999).

Additionally, NMFS considers Auburn Ravine steelhead to be within the Central Valley ESU and does not recognize them as genetically distinct from other populations within the ESU. NMFS concludes, "*...steelhead in the Sacramento and San Joaquin River Basins (Central Valley) should be considered a single ESU until additional information becomes available*" (63 FR 13354; March 19, 1998). Furthermore, CDFG currently considers all Central Valley steelhead to be winter-run steelhead (63 FR 13354; March 19, 1998).

Response to Comments Concerning the Potential for False Attraction of Salmonids Due to Increased Discharges

While the mitigated diversion plan for the American River Pump Station Project no longer entails a change in the volume or seasonal distribution of American River water diversions into Auburn Ravine, future Lincoln WWTRF discharges will increase the amount of flow in Auburn Ravine. Because the Lincoln WWTRF will receive a portion of the water diverted by the Proposed Project, comments on the Draft EIS/EIR addressed the potential for "false attraction" of fall-run chinook salmon and steelhead into Auburn Ravine. Specifically, commenters expressed concern about drawing immigrating salmonids into Auburn Ravine during a time when adequate migratory flows and water temperatures exist downstream of the WWTRF outfall(s), while flows and water temperatures above the outfall(s) will be simultaneously inadequate for migratory passage to upstream spawning habitat.

The migration of adult salmonids to their spawning tributaries is a seasonal phenomenon occurring at roughly the same general time each year. For instance, fall-run chinook salmon normally spawn from approximately October through December, while steelhead spawn from approximately December through March. Locally, upstream migration timing may ultimately be influenced by the combination of increasing flows and decreasing water temperatures. Therefore, attraction into Auburn Ravine when temperatures are still relatively high or flows still relatively low above the WWTRF outfall could potentially adversely affect salmonid spawning success by inhibiting movement of adults to spawning grounds above the WWTRF outfall. However, as stated in the City of Lincoln (1999) Draft EIR for the WWTRF, *"...Adult salmon would not necessarily lose the opportunity to spawn just because they were 'falsely attracted' or drawn to the WWTRF effluent prior to the occurrence of conditions needed for spawning..."*

The City of Lincoln WWTRF, when operational, will release its treated effluent directly into Auburn Ravine. At full buildout of the project area, the discharge is expected to be 12 mgd, or approximately 18.6 cfs. The City of Lincoln (1999) describes the existing average monthly flows in Auburn Ravine during the steelhead spawning months of December through March as heavily influenced by winter precipitation and ranging from 54 mgd (83.7 cfs) to 85 mgd (131.8 cfs), respectively. Therefore, the Draft EIR for the Lincoln WWTRF concludes that the 12 mgd addition from the WWTRF would not represent a significant potential impact to spawning steelhead, since adequate flow should exist both upstream and downstream of the WWTRF outfalls for adult steelhead migration. The lead agencies concur in this conclusion, and find that "false attraction" of steelhead is not a significant impact of the Proposed Project.

However, because existing flows in Auburn Ravine during the months of October and November average 19 mgd (29.5 cfs) and 25 mgd (38.8 cfs), respectively, the City of Lincoln (1999) determines that the 12 mgd (18.6 cfs) addition during the fall-run chinook spawning months could potentially create a "false attraction" of fall-run chinook, and concludes that this represents a potentially significant impact. Due to a lack of data, the City of Lincoln (1999) could not conclude that sufficient migratory flows would exist above the WWTRF outfalls at times when fall-run chinook may be able to access the remainder of Auburn Ravine.

As a result of the potentially significant impact created by the City of Lincoln WWTRF, the City of Lincoln committed to monitoring adult fall-run chinook salmon migrations during October and November and reporting the results to NMFS and CDFG. The monitoring is designed to determine whether the fish congregate at the WWTRF outfall, delay migration to their spawning grounds further upstream, or are otherwise potentially adversely affected by the City of Lincoln WWTRF discharge. Implementation of various potential mitigation strategies was suggested if such congregation of fall-run chinook salmon was detected.

The City of Lincoln WWTRF Mitigation and Monitoring Program (2000), provides "*...The City will develop and implement a plan, in cooperation with DFG and NMFS, to monitor the occurrence of adult chinook salmon in Auburn Ravine at and immediately downstream of the treatment plant discharge(s). The plan will include criteria for evaluating attraction and delay and will require reporting of monitoring results to DFG and NMFS. If such monitoring demonstrates that salmon are congregating near the WWTRF outfall(s), the City could, for example, implement a discharge control plan that temporarily terminates discharge until the salmon have dispersed. Other options that could be developed include using multiple outfalls; routing effluent to a top outfall and then, if fish congregate there, rerouting to a lower outfall so the fish will continue upstream; designing the physical outfall configuration to minimize attraction to outfall itself; and using diurnal timing of discharge…"* In order to implement the mitigation measure "*...the City will hire a qualified fish biologist to develop the plan and periodically monitor discharge(s) to the creek...*" (City of Lincoln 2000).

Based on current general plans and assuming uniform buildout across the various planning areas, the Foothill and Sunset WTPs will deliver up to 43 percent of their total planned capacities to the Lincoln WWTRF service area. Based on a range of growth estimates, the full utilization of the Foothill and Sunset WTP capacities should occur between 2010 and 2020. Upon realization of the full treatment plant deliveries, the City of Lincoln could receive as much as 16,000 AF of treated water per year from the PCWA water treatment plants, of which approximately 4,100 AF of water will have been supplied annually by the Proposed Project.

Historically, the Foothill and Sunset WTP treated water deliveries are lowest during the month of February, when little water is utilized for outdoor uses. Therefore, the treated water deliveries during February most accurately reflect the amount of water delivered to the Lincoln service area that is utilized for household uses and ultimately becomes sewer inflow. Assuming that February treated water demands represent the baseline project-related inflows for the WWTRF, approximately 1,800 AFA of North Fork American River water provided by the Proposed Project will go to the Lincoln WWTRF and ultimately be discharged into Auburn Ravine. The project-related discharge will range from a maximum monthly average of approximately 3.4 cfs during April and May to a minimum monthly average of 1.8 cfs in December. During October and November, the months of concern regarding chinook salmon "false attraction," the Proposed Project-related discharge would average approximately 2.0 cfs.

As previously stated, the City of Lincoln (1999) EIR indicates that the WWTRF will have a maximum discharge into Auburn Ravine of 12 mgd, or 18.6 cfs. At maximum buildout, the Proposed Project would provide an average of 2.0 cfs during October and November, or approximately 11 percent, of the total WWTRF discharge. Water originating from the Proposed

Project would contribute only 4.2 percent and 3.5 percent of the total flow in the Auburn Ravine during these months. The remaining 89 percent of the total WWTRF discharge would be provided by other sources. Hence, without any contribution from the Proposed Project, the Lincoln WWTRF discharge during October and November would still approximate 16.6 cfs, which may still represent a potentially significant impact. The additional contribution of 2.0 cfs of North Fork American River source water provided by the Proposed Project would not significantly exacerbate any "false attraction" that may be created by the Lincoln WWTRF discharge into Auburn Ravine. Discussions with NMFS supports this conclusion. Therefore, the potential for "false attraction" of adult salmonids to Auburn Ravine, more particularly to the Lincoln WWTRF outfall, represents a less-than-significant impact of the Proposed Project.

In any event, despite the lack of any significant impact due to increases in treated WWTRF effluent attributable solely to the Proposed Project, it is noteworthy that, as discussed earlier, the City of Lincoln has committed itself to monitor the effects of its total effluent flows on chinook salmon, and to consider specific steps that could address any problems that might arise. According to a mitigation measure adopted by the city, as quoted earlier, possible responses might "*include using multiple outfalls; routing effluent to a top outfall and then, if fish congregate there, rerouting to a lower outfall so the fish will continue upstream; designing the physical outfall configuration to minimize attraction to outfall itself; and using diurnal timing of discharge[.]*" Any such steps will be formulated by "a qualified fish biologist" who will be required to cooperate with both NMFS and CDFG.

In short, although the American River Pump Station Project's contribution to total effluent levels will be too minor to significantly exacerbate any "false attraction" problem that might arise at the WWTRF, any potential problem that does arise will be addressed by the city, its hired fish biologist, and the experts at NMFS and CDFG who, working together, can identify the best strategy for resolving the potential problem.

Response to Comments Regarding Other Wastewater Treatment Plants Associated With the Proposed Project

In addition to increased deliveries to the service area of the City of Lincoln WWTRF, the Proposed Project will allow for additional treated water deliveries to the service areas of other wastewater treatment plants including Placer County Department of Public Works SMD No. 3, and two City of Roseville facilities. These plants deliver treated wastewater effluent directly into Dry Creek and Pleasant Grove Creek, both of which flow into the Natomas East Main Drainage Canal, ultimately to be discharged into the Sacramento River.

The collective service area of these plants includes the Cities of Rocklin and Roseville, the Town of Loomis, and areas under the land use control of Placer County including Horseshoe Bar, Penryn, Newcastle, Ophir, Granite Bay, and the Sunset Industrial area. PCWA, the City of Roseville, and SJWD all provide treated water service to this collective area. The current source of treated water for this area is a combination of water from the Yuba/Bear River system (delivered by PCWA) and the American River (delivered by Roseville, SJWD, and PCWA).

The water delivered to the collective service areas of these three WWTPs will have been treated, delivered to consumers, used, returned to the respective WWTP, and treated again before discharge into either Dry Creek or Pleasant Grove Creek. This process is analogous to the Lincoln WWTRF effluent discharge into Auburn Ravine. As such, the analysis and conclusions presented in the Response to Comments Regarding Salmonid Straying section of this Master Response apply directly to the possibility of attracting stray salmonids into Dry Creek and Pleasant Grove Creek. Therefore, a less-than-significant impact is expected regarding olfactory-induced attraction of salmonids into Dry Creek and Pleasant Grove Creek due to the Proposed Project.

In addition to concern regarding olfactory attraction, comments have been received concerning the potential for "false attraction" of salmonids due to increased discharges from the three WWTPs. Based on current general plans, the three collective service areas will receive approximately 57 percent of the planned ultimate capacity of the Foothill and Sunset WTPs, which may result in an approximate addition of 21,200 AF of treated water per year being supplied to the service area. Of that amount, the Proposed Project will have supplied approximately 6,500 AFA of North Fork American River water. Using February water demands as an indicator of the amount of water delivered to a service area that is utilized for household uses (as described in the previous section), approximately 2,700 AFA will ultimately become sewer inflow. This amount equates to a maximum monthly average of approximately 4.8 cfs during April and May to a minimum average of 2.4 cfs during December. During October and November, the months of concern regarding the potential for chinook salmon "false attraction," the Proposed Project-related discharge would average approximately 2.8 cfs. The current collective planned maximum capacities of the three WWTPs totals 65 cfs (42 mgd). Hence, the Proposed Project-related discharge represents less than five percent of the collective planned maximum capacities of the three WWTPs. It should also be noted that American River water deliveries to this area would increase independent of the Proposed Project as a result of increased deliveries by Roseville and SJWD, both of which supply only American River water. Overall, the distribution of water from the Proposed Project to the service areas of the Placer County Department of Public Works SMD No. 3 and the two City of Roseville facilities represents a less-than-significant impact.

3.1.14 CUMULATIVE IMPACT ANALYSIS

Planning Aid Memorandum for the Cumulative Report

As noted in the comment letter (L-244), USFWS and Reclamation participated in several coordination meetings to discuss and determine the scope of the cumulative impact analysis for the American River Pump Station Project and other Reclamation actions in the American River Basin. As part of this coordination, USFWS prepared a Planning Aid Memorandum identifying the types of analyses and considerations recommended for inclusion in the Cumulative Report (Appendix D of the Draft EIS/EIR).

The stated purpose of the Cumulative Report is to serve as an integral component to NEPA, CEQA, and federal Endangered Species Act (ESA) compliance documentation for the American River Pump Station Project and to supplement the analyses of other Reclamation

future actions within the American River Basin for these same purposes. As such, the Cumulative Report provides a broad assessment of potential environmental consequences that may occur under future conditions (2030) based on the best available information at the time the analysis was prepared.

The analyses performed and presented in the Cumulative Report go beyond the environmental analyses requirements of both NEPA and CEQA. The evaluation of an ESA baseline condition provides an assessment specifically developed, in consultation with USFWS personnel, to provide an assessment of the reasonably foreseeable future actions that had not completed ESA consultations at the time of the analysis. Reclamation recognizes that not all of the specific analyses requested by USFWS in the Planning Aid Memorandum have been included in the Cumulative Report. We have, however, addressed some of these issues in the Final EIS/EIR.

The lead agencies have considered the specific recommendations made in the December 13, 2001 USFWS Planning Aid Memorandum for the Cumulative Impact Analysis. As indicated below, the lead agencies have already complied with some of the recommendations or have programs in place that address the recommendations. Additionally, some of the recommendations regarding Reclamation's programs and activities will more appropriately be addressed in the upcoming CVP Operations Criteria and Plan (CVP-OCAP) consultation.

In the discussion of the Cumulative Analysis Content (Letter 244, page 3), USFWS identifies the absence of a bed load movement analysis in the Cumulative Report. The following discussion is added to the Final EIS/EIR, Chapter 3.0, Section 3.5, Fish Resources and Aquatic Habitat. This information does not change the conclusions presented in the Draft EIS/EIR. This information also will be included in the Final Cumulative Report.

The bed load in a stream system consists of sand, gravel, and rocks that are transported along the stream bed by high energy flows (Brooks et al. 1997). Bed load recruitment into the lower American River system is limited by Folsom Dam, which slows lower American River flows, resulting in the sedimentation and trapping of bed load materials (Ayres and Associates 1997). Therefore, below Folsom and Nimbus dams, only existing bed load could potentially be affected by changes in flows under the cumulative condition. Recruitment of bed load would remain constant, as bed load would continue to be trapped behind Folsom Dam under the cumulative condition, independent of potential changes in flow.

Based on their work in preparing *Two-Dimensional Modeling and Analysis of Spawning Bed Mobilization* (Ayres and Associates 2001), Ayres and Associates have determined that little bed load movement occurs in the lower American River until flows of 50,000 cfs are reached (T. Smith, pers. comm. 2002). Throughout the initial planning stages of the project, it was assumed that flow values obtained using the PROSIM 2000 model, utilized to conduct all water resource-related impact analyses, could be applied to conduct an analysis of bed load movement in the lower American River. However, as discussed on page 3-18 of the Draft EIS/EIR, PROSIM 2000 operates on a monthly time step. Consequently, extreme values sufficient to result in the movement of existing bed load (i.e., 50,000 cfs) cannot be determined from monthly mean flow values. For example, on the lower American River at Watt Avenue, the highest monthly mean flow value out of 840 months modeled would be 32,894 cfs (February)

under the cumulative condition, relative to 32,975 cfs under the existing condition. Obviously, according to Ayres and Associates, the rate of flow required for significant bed load movement is not captured in the monthly time step model. Nevertheless, it can be reasonably assumed that bed load movement results from episodic events and the cumulative condition would not be expected to significantly alter the magnitude or frequency of episodic events. Thus, extreme events that may occur on a daily or hourly basis become absorbed into the monthly mean values produced by PROSIM 2000. However, the slight changes in the highest monthly mean flows (e.g., 0.2 percent for the above example) suggest that extreme events would not be altered sufficiently to result in changes in bed load movement under the cumulative condition, relative to the existing condition.

Recommendation 1 requests that the lead agencies keep USFWS informed of new information for the American River Pump Station Project. Reclamation has coordinated with USFWS on the American River Pump Station Project since 1997. PCWA participated in the meetings and made certain specific agreements with USFWS to assist in the protection of endangered species and habitat within the project and water service areas. In several of these meetings, PCWA has provided maps and details regarding its operations. Additionally, in correspondence with USFWS, PCWA has agreed to keep USFWS informed of American River Pump Station Project activities.

PCWA also recently agreed to not supply retail treated water service to new developments within environmentally sensitive areas of western Placer County until USFWS has certified that the new development is consistent with the interim conservation strategies of the Placer County Habitat Conservation Plan, that is to be prepared at a later date. Environmentally sensitive areas within western Placer County as used above refers to that area within Placer County west of Highway 65, south of the proposed Highway 65 Lincoln Bypass, and north of Pleasant Grove Creek.

Recommendation 2 suggests a qualitative assessment of potential short-term adverse conditions related to implementation of the American River reasonably foreseeable actions. Reclamation anticipates that short-term adverse conditions that exist today would likely continue into the future, although Reclamation is striving to minimize the frequency and magnitude of these events. In particular, the American River Operations Work Group, who's membership includes representatives of Reclamation, USFWS, NMFS, CDFG, and others, meets about every two weeks to discuss these issues as they relate to the lower American River, and provides guidance on how to minimize adverse effects. One significant short-term condition is flow fluctuation brought upon by flood control operations and the meeting of water quality requirements in the Sacramento-San Joaquin River Delta (Delta). Also, Reclamation presently manages temperatures in the lower American River to avoid short-term effects to the extent that cold water is available in Folsom Reservoir. Once the temperature control devices are completed on the municipal and industrial diversions, the amount of cold water available should increase, rather than decrease.

Recommendation 3 requests an estimate of the threshold amount of water diversions that would adversely affect the environment in an effort to determine a maximum amount of "new water" that could be diverted without affecting the environmental baseline. Estimating threshold

amounts of water diversions is very difficult, at best, due to the complexity of the CVP and the fact that diversions are reduced in the dryer years. Also, Reclamation conducts its operations to meet biological opinions and water quality requirements that are protective of aquatic resources and these operations take precedence over diversions. Finally, and perhaps most importantly, it is not presently anticipated that new water would be diverted from the American River, because the SWRCB has designated the American River system as a Fully Appropriated Stream during the sensitive summer through early fall period, July 1 through October 31 (SWRCB Orders WR 89-25, WR 98-08).

Recommendation 4 requests further supporting information to substantiate conclusions on the significance of impacts. The Draft EIS/EIR provides significance criteria to evaluate each potential impact. For instance, the following excerpt from Table 3.5-4 of the Draft EIS/EIR (page 3-79) describes the impact indicators and significance criteria utilized for the evaluation of the Delta resource parameters described in the comment letter.

Impact Indicator	Significance Criteria
Monthly mean Delta outflow (cfs) for all months of the year.	Decrease in Delta outflow, relative to the basis of comparison, of sufficient magnitude and frequency to adversely affect Delta fish resources over the 70-year period of record.
Monthly mean location of X2 and Delta export/inflow ratios for all months of the year, with an emphasis on the February through June period.	Change in position of X2 and Delta export/inflow ratio, relative to the basis of comparison, of sufficient magnitude and frequency to adversely affect spawning and rearing habitat and downstream transport flows over the 70-year period of record.

In addition to the criteria described in the table, the Draft EIS/EIR Assessment Methodologies section (page 3-70) outlines more specific standards involving the analysis of potential impacts to Delta resources. For example, changes in monthly mean Delta outflow for the 70-year period of record under the Proposed Project and the cumulative condition were determined for each month of the year and were compared to monthly mean Delta outflow under the basis of comparison. The frequency and magnitude of differences in Delta outflow were evaluated relative to life history requirements for fish species of priority management concern in the Delta. Furthermore, changes in monthly mean X2 position were determined for all months of each year, with an emphasis on the February through June period, due to the potential effects on spawning and rearing habitat and downstream transport flows for delta smelt, longfin smelt, splittail, striped bass, salmonids, and other aquatic species in the Delta.

Impacts to Delta smelt, splittail, striped bass, and other Delta fish resources were considered adverse if hydrology under the Proposed Project and the cumulative condition showed a substantial decrease in monthly mean Delta outflow, relative to hydrology under the basis of comparison, during one or more months of the February through June period, if a substantial shift in the long-term monthly mean X2 position occurred, or if Delta export/inflow ratios were increased to where allowable export limits would be exceeded.

Using the indicated significance criteria, the Draft EIS/EIR (page 3-102) and the Final EIS/EIR revisions (Chapter 3.0, Section 3.5.2.4, Impact 3.5-34: Impacts to Delta Fish Populations) describe the potential diversion-related impacts of the Proposed Project relative to the existing condition. The model outputs do not exceed the values and qualifications identified by the

significance criteria. The model simulations conducted for the Action Alternatives also included conformance with X2 requirements set forth in the SWRCB Interim Water Quality Control Plan. The Delta export-to-inflow ratios under the Action Alternatives would not exceed the maximum export ratio as set by the SWRCB Interim Water Quality Control Plan. The Draft EIS/EIR deemed these impacts less than significant.

The significance criteria utilized in the American River Pump Station Project Draft EIS/EIR to determine potentially significant impacts to Delta fish populations is very conservative (rigorous) relative to the significance criteria utilized by resource agencies in previous documents. The USFWS, in their Comment D in Letter 244, request additional potential impact significance determination substantiation regarding indicators (e.g., X2) that USFWS uses for impact evaluations. The USFWS participated in the preparation of three important, relatively recent NEPA compliance documents including the *Central Valley Project Improvement Act Draft Programmatic EIS* (1997), the *CALFED Bay-Delta Program Programmatic EIS/EIR* (1998), and the *Trinity River Mainstem Fishery Restoration Draft EIS/EIR* (1999). For each of these three documents, USFWS has utilized various significance criteria, particularly regarding evaluation of potential Delta (e.g., X2) impacts. The various approaches and significance criteria utilized in these three documents are briefly described below, for comparative purposes relative to this EIS/EIR.

In the *Central Valley Project Improvement Act Draft Programmatic EIS* (1997), the USFWS does not definitively state significance criteria. Instead, the evaluation of potential impacts relies on qualitative narrative descriptions based on the relationship between potential CVPIA actions and potential changes to environmental conditions. These assessment relationships are used to describe the manner in which environmental conditions lead to responses by representative species (page IV-80). The impact analysis performed in the *CALFED Bay-Delta Program Programmatic EIS/EIR* (1998), although apparently somewhat more rigorous than the CVPIA analysis, also lacks definitive quantification of impacts to Delta water quality parameters (e.g., movement in X2) and relies on qualitative and potentially subjective judgments to address potentially adverse impacts. The CVPIA significance criteria states (page 7.1-30) *"An effect is found to be significant if it substantially degrades aquatic ecosystem processes; substantially reduces structural characteristics of the aquatic ecosystem; substantially degrades conditions affecting or potentially affecting the abundance or range of a rare, threatened, and endangered species or a species having economic or social value; or has considerable effects when viewed with past, current, and reasonably foreseeable future projects."* Most recently, in the *Trinity River Mainstem Fishery Restoration Draft EIS/EIR* (1999), the USFWS defined quantitative significance criteria to be used in the fisheries impact analysis. The *Trinity River Mainstem Fishery Restoration Draft EIS/EIR* utilized criteria which considered impacts to Delta fisheries resources significant if the project created a *"…10 percent modeled exceedance in the ratio of Delta inflows to exports, Delta outflows, and changes in X2 position during the February through June period…over the 69-year simulation period…."* The USFWS "*judged [the 10 percent exceedance criteria] to be conservative given it would be applied over the entire analysis period"* (pg. 3-182). The USFWS Trinity River Biological Opinion (pg. 30) states that the error of the model used in their analysis is +/- 3 percent.

The Proposed Project caused none of the 70 modeled years to result in a greater than 10 percent change (relative to the existing condition) in Delta outflow during the months of February through June (**Table 3-10**). In fact, the 10 percent threshold utilized by USFWS was never exceeded during any month for the 70 modeled years. In addition, the maximum upstream movement of X2 during the February through June period for any individual month was 0.2 kilometers (km), representing a maximum change of 0.3 percent, far below the 10 percent threshold. Finally, the Proposed Project did not result in a difference in the export/import ratio of 10 percent relative to the existing condition in any year for the February through June period.

Table 3-10
Comparison of Proposed Project to Existing Condition (Baseline)

	Number of Years with a Difference in Delta Outflow of 10% or More	Number of Years with a Difference in Delta Outflow of 3% or More	Maximum Upstream Movement for any Individual Month (Out of 70 Years) of X2 (km)	Maximum Percent Change in Upstream Movement of X2	Number of Years with a Difference in Export/Import Ratio of 10% or More
Feb	0	0	0.1	0.2%	0
Mar	0	0	0.2	0.3%	0
Apr	0	0	0.1	0.2%	0
May	0	0	0.1	0.2%	0
Jun	0	0	0.2	0.3%	0

The impacts on Delta resources were deemed less than significant in the American River Pump Station Project Draft EIS/EIR data analysis. The USFWS criteria utilized in the *Central Valley Project Improvement Act Draft Programmatic EIS* (1997), the *CALFED Bay-Delta Program Programmatic EIS/EIR* (1998), and the *Trinity River Mainstem Fishery Restoration Draft EIS/EIR* (1999) further substantiates the significance criteria outlined in the American River Pump Station Project Draft EIS/EIR and the conclusion of less-than-significant impact. Therefore, overall impacts to Delta fish populations would be less than significant.

Recommendation 5 suggests further substantiation of impact significance conclusions regarding riparian vegetation (cottonwoods) along the lower American River. Recommendation 5 also contends that the Draft EIS/EIR provided *"no supporting biological data"* regarding the analysis and significance conclusions. The following response addresses these two major issues.

Contrary to the suggestion that no supporting biological data was provided in the analysis and significance conclusion in the Draft EIS/EIR, numerous reference and supporting materials regarding flow recommendations for existing cottonwood growth and maintenance rates were considered and utilized in developing significance criteria and in making the concluding determinations that are presented in the Draft EIS/EIR. These supporting environmental documents and scientific investigations included, but were not limited to the *Water Forum Proposal* (CCOMWP 1999), the *American River Water Resources Investigation*, *Draft Fish and Wildlife Coordination Act Report: A Detailed Report on Fish and Wildlife Resources* (USFWS 1996), *Fremont Cottonwood Growth in Relation to American River Stream Flow and Groundwater Depth* (Stromberg 1995), and a USFWS-approved integrated model entitled RIPVEG (Caicco 1996), which was used to predict the effects of upstream flow scenarios on the wildlife habitat provided by Fremont cottonwood forests along the Lower American River

Parkway. These materials are cited within the section of text found under the heading of "*Lower American River Riparian Vegetation and Associated Special-Status Species,*" which is located in Section 3.6.2, Environmental Consequences/Impact Analysis, Methodology, Diversion-Related Analysis Approach of the Draft EIS/EIR.

Based upon the conclusions and recommendations identified in the aforementioned documents and studies, the cumulative impacts analysis was performed against three separate flow indices (1,765 cfs, 2,000 cfs and 3,000 cfs), which were used as indicators regarding the ecological components of cottonwood forests and, therefore, riparian ecosystem health. The criteria used to determine potentially significant impacts to cottonwoods and associated special-status species and habitats along the lower American River focused on monthly occurrences of modeled flow reductions below Nimbus Dam and H Street Bridge that would be below the indices for "maintenance of radial growth" (1,765 cfs), "some growth" (2,000 cfs), and "reasonable growth and maintenance" of existing cottonwoods (3,000 cfs), during the growing season months of March through October over the 70-year period of record, compared to existing and ESA baseline conditions. Additionally, these occurrences were further examined to determine the frequency they would occur in two or more consecutive months, and whether these consecutive months would occur during the critical growing season months of April to July (CCOMWP 1999). Moreover, in an effort to thoroughly evaluate the potential changes that could occur as a result of the Proposed Project, output from computer simulation hydrologic models was then compared to applicable reference material and known relationships (discussed above), which were used as quantitative interpretive measures of the modeling results.

Moreover, the significance criteria and quantitative evaluation utilized in this EIS/EIR appear to be far more specific, quantitative and definitive than the significance criteria utilized by resource agencies in recently completed environmental documents. For example, regarding riparian vegetation, the USFWS does not definitively state significance criteria in the *Central Valley Project Improvement Act Draft Programmatic EIS* (1997). The *CALFED Bay-Delta Program Programmatic EIS/EIR* (1998) utilizes as significance criteria for evaluation of impacts to vegetation and wildlife resources the *"...Temporary or permanent removal, filling, grading, or disturbance of wetlands and riparian communities…"* In the *Draft Trinity River Fishery Restoration Draft EIS/EIR* (1999), USFWS relies on qualitative and potentially subjective judgments to assess potential flow-related impacts to riparian vegetation. For riparian vegetation the EIR/EIS states: *"...Impacts on vegetation would be significant if implementation [of the project] would result in any of the following:... Substantial adverse effect on any riparian habitat or other sensitive natural community identified in the local or regional plans*." An explanation of the meaning of the term "substantial" is not further provided in the document. Quantification of flow-related changes and potential effects on riparian vegetation either was not included in these documents, or did not begin to approach the rigor or application to stated significance criteria, where such criteria were stated, that is included in this EIS/EIR.

Recommendation 5 further suggests that "*…no supporting biological data is provided for some conclusions that magnitudes of effects are too small to be significant..."* Because only one specific example was provided by the commenter (i.e., flows in the lower American River of at least 2,000 cfs during the cottonwood growing season decrease under the cumulative condition

by 6.4 percent at H Street Bridge), all subsequent discussion herein will focus solely upon that issue in an effort to provide further clarification. For this analysis, it is essential to understand that when considering potential impacts to a riparian system, the interplay of many separate factors regarding the magnitude and frequency of potential effects can have varying degrees of influence upon individual and/or multiple lifestages of these riparian communities. Given the high degree of complexity associated with these interactions, it would neither be accurate nor appropriate to limit the extent of the analysis to only an isolated criterion or value. Thus, it should be pointed out that this 6.4 percent increase in the frequency that monthly mean flows below H Street Bridge would fall below 2,000 cfs under cumulative conditions, relative to the existing conditions, is the outcome of simulated monthly mean flows falling below 2,000 cfs in an additional 36 months out of 560 months included in this comparison. Of these 36 additional occurrences, 25 are outside of the critical growing period of April through July. Thus, under cumulative conditions, there would only be an approximate two percent increase in the frequency that monthly mean flows below H Street Bridge would fall below 2,000 cfs during the critical growing period of April through July, relative to the existing conditions. In addition, the commenter overlooked the subsequent paragraph of this discussion in the Draft EIS/EIR, which states that for flows below H Street Bridge that are at or above 2,000 cfs under the existing condition, there would be only four occurrences of two or more consecutive months, over the 70-year period of record, in which the cumulative condition would reduce these flows below the index. None of these occurrences would occur during the critical growing period of April through July. Because of all the above discussed findings, it is concluded that these flow reductions would not occur with sufficient magnitude and frequency under the cumulative condition relative to the existing condition to significantly affect some growth (i.e., the 2,000 cfs index criterion) in cottonwoods.

In consideration of: (1) the numerous reference and supporting materials regarding flow indices for cottonwood that were considered and utilized in making the concluding determinations that are presented in the Draft EIS/EIR; (2) the reliance upon the best available scientific information and thorough interpretation of hydrologic modeling results; (3) previous environmental documents recently prepared by resource agencies, including USFWS, were examined and significance criteria and effect determinations in them were built upon to define, conduct and disclose a more comprehensive assessment approach; and (4) the recognition of the interplay of many separate factors regarding the magnitude and frequency of potential effects, which can have varying degrees of influence upon individual and/or multiple lifestages of these riparian communities, the conclusion of less-than-significant impacts is further substantiated.

Recommendation 6 requests the evaluation of the American River-related reasonable foreseeable actions in a programmatic EIS, and development of a programmatic Record of Decision on both terrestrial and aquatic resources that isolates and considers, as a whole, the effects of Reclamation-specific cumulative impacts, as well as all other cumulative impacts, on the American River, Delta, water service areas, and other affected locations. Reclamation and the USFWS have discussed this issue for several years and Reclamation has concluded that it will not prepare a programmatic EIS for its American River Basin future actions for the following reasons.

Reclamation has prepared a comprehensive cumulative impact analysis and report (Appendix D to the Draft EIS/EIR) which takes into account not only Reclamation's anticipated future actions and operations, but the actions of others as well. Based on this report, Reclamation is well aware of the cumulative consequences of its future actions and the actions of others.

Reclamation is presently evaluating the consequences of the delivery of water under its American River CVP water contracts in a comprehensive EIS for long-term contract renewal. Based on needs projected for 25 years in the future (the term of the contracts), Reclamation is proposing to renew the contracts in the American River Division for the same or less quantity of water that is in the existing contracts. Except for a proposed contract with the El Dorado County Water Agency for 15,000 AFA, no new contracts for CVP water are anticipated. These actions are included in the Cumulative Report. The Record of Decision for long-term contract renewals will be both contract-specific and basin-wide in nature.

The Water Forum Agreement is a comprehensive package of linked actions that will achieve two coequal objectives: (1) provide a reliable and safe water supply for the region's economic health and planned development through the year 2030; and (2) preserve the fishery, wildlife, recreational, and aesthetic values of the lower American River.

Although Reclamation is not a signatory to the agreement, it is presently very active in implementing portions of the agreement, especially in taking actions that address the cumulative effects of water development in the basin. These actions include:

- Negotiating upstream diversion agreements to make water available to the fishery of the lower American River during low water years. The effects of these agreements were included in the Cumulative Report and are being evaluated in further detail in the EIS for long-term contract renewals.

- Constructing temperature control devices on the M&I intake on Folsom Dam and El Dorado Irrigation District's intake to conserve cold water in Folsom Reservoir for later release down the lower American River for the protection of salmon and steelhead.

- Refining its operation of the temperature shutters on the Folsom Dam penstocks to most efficiently manage the use of the cold water in Folsom Reservoir. This includes more frequent shutter changes, blending of water from different elevations in the reservoir, and using the river outlets to reach the lowest parts of the reservoir, which requires bypassing the penstocks.

- Utilizing its flexibility associated with flood control operations to minimize flow fluctuations and to conserve storage.

- Utilizing water available pursuant to the CVPIA and the CALFED Environmental Water Account.

- Convening the American River Operations Work Group on a bimonthly basis to evaluate and provide information to protect fisheries of the lower American River on an adaptive management basis.

- Conducting studies to determine ways to more efficiently transport cold water from Folsom Reservoir to the lower American River.

- Conducting studies to determine ways to minimize the frequency and magnitude of flow fluctuations and their effects.

Reclamation is also reinitiating consultation on the CVP-OCAP.

Recommendation 7 requests that Reclamation develop a water resources management plan for the American River Basin based on a programmatic Record of Decision. Reclamation believes that the Water Forum has essentially developed a water management plan for the basin, and Reclamation is actively participating in the implementation of that plan.

Recommendation 8 suggests the preparation of a mitigation plan to address historical and new CVP impacts to aquatic and terrestrial resources. Reclamation disagrees that a separate mitigation plan is needed to address CVP resource protection needs. Reclamation is involved in several programs or activities, which specifically mitigate for historical CVP impacts upon aquatic and terrestrial resources. Additionally, Water Forum mitigation elements are fully supported by Reclamation, and address the concerns for the American River Basin.

Recommendation 9 requests a planning effort to develop an ecosystem-based, programmatic ESA consultation for the American River actions. Reclamation considers the upcoming CVP-OCAP ESA consultation the appropriate process for addressing these issues, rather than the American River Pump Station Project process.

U.S. Fish and Wildlife Service Coordination Act Report for the American River Pump Station Project

USFWS provided a draft Coordination Act Report for the American River Pump Station Project including several recommendations for project mitigation (L-244). Individual comment responses for most of the recommendations are included with the comment letter in Appendix C, Volume 2.

Comment L-244.O requests identification of the amount of vegetation and habitat that would be disturbed by construction of the Proposed Project. These values are provided in **Table 3-11** and have been added to the Final EIS/EIR, Chapter 3.0, Section 3.6, Terrestrial Resources. The acres displayed below would be affected either by construction or by permanent placement of project facilities. These estimates include the location of the facility or improvements plus a 50-foot wide area on either side of the feature.

Table 3-11 Construction Impacts on Habitat Types (acres)	
Urban	0
Potential Wetlands	0.01
Riparian Vegetation	1.06
Early Successional Oak Woodlands	2.08
Late Successional Oak Woodlands	0.20
Disturbed	37

The Mitigation Plan requires the lead agencies to comply with permitting agency terms and conditions to mitigate for the loss of sensitive habitats, including wetland areas. Overall, however, restoration of the river channel will result in creation of new additional habitat at the project site. Because the course the restored river will take remains unknown until after flows are returned to the channel, it is considered premature to develop a detailed revegetation plan at this time. Instead, Reclamation will implement an adaptive management strategy and monitor natural revegetation over the course of 10 years following completion of project construction. Please see Master Response 3.1.5, Project Area River Restoration Plan and the Mitigation Plan (Appendix D to the Final EIS/EIR).