

TABLE 2 : PATCHES

Solution	Species Group	Region	Approach Type	Timing Of Solution	Impact Reduction Benefits	Cost Range	Design Considerations	Source(s)
<b>Shift Alignment - Row landscaping To Enhance Habitat Core/Habitat Island Width</b>								
Examples:	Butterflies	IA	Compensation				Restore roadsides to native prairie vegetation & restrict use of herbicides/mowing	Ries, L., D.M. Debinski, and M.L. Wieland. 2001. Conservation Value of Roadside Prairie Restoration to Butterfly Communities. <i>Conservation Biology</i> 15(2): 401-411. <a href="http://www.cifs.umd.edu/biology/faganlab/pdf/RiesEtAl2001.pdf">http://www.cifs.umd.edu/biology/faganlab/pdf/RiesEtAl2001.pdf</a>
<b>Reduce Road Corridor Width To Minimize Impact</b>								
<b>Habitat Patch Expansion (Restoration, Rehabilitation, Enhancement)</b>								
Examples:	Herptiles	Ontario	Compensation	Project Planning		\$330,000 (wetland construction costs) (Total project \$10 million)		Gartshore, R. G., M. Purchase, R.I. Rook, and L. Scott. Bayview Avenue Extension, Richmond Hill, Ontario, Canada Habitat Creation and Wildlife Crossings in a Contentious Environmental Setting: A Case Study (September 2005). Pages 55-76 IN <i>Proceedings of the 2005 International Conference on Ecology and Transportation</i> , edited by C. Leroy Irwin, Paul Garrett, and K.P. McDermott. Raleigh, NC: Center for Transportation and the Environment, North Carolina State University, 2006. <a href="http://www.icoet.net/ICOET_2005/proceedings/2005ICOETProceedingWeb.pdf">http://www.icoet.net/ICOET_2005/proceedings/2005ICOETProceedingWeb.pdf</a>
	Amphibians		Compensation	n/a				Petranka, J.W., E.M. Harp, C.T. Holbrook, and J.A. Hamel. 2007. Long-term persistence of amphibian populations in a restored wetland complex. <i>Biological Conservation</i> 138: 371-380 <a href="http://www.sciencedirect.com/science?_ob=ArticleURL&amp;_udi=B6V5X-4P127CC-2&amp;_user=10&amp;_coverDate=09%2F30%2F2007&amp;_rdoc=1&amp;_fmt=high&amp;_orig=search&amp;_origin=search&amp;_sort=d&amp;_docanchor=&amp;view=c&amp;_searchStrId=1642866832&amp;_rerunOrigin=google&amp;_acct=C000050221&amp;_version=1&amp;_urlVersion=0&amp;_userid=10&amp;md5=579ca5b1aa4d7bb62ace16a57af79c0d&amp;searchtype=a">http://www.sciencedirect.com/science?_ob=ArticleURL&amp;_udi=B6V5X-4P127CC-2&amp;_user=10&amp;_coverDate=09%2F30%2F2007&amp;_rdoc=1&amp;_fmt=high&amp;_orig=search&amp;_origin=search&amp;_sort=d&amp;_docanchor=&amp;view=c&amp;_searchStrId=1642866832&amp;_rerunOrigin=google&amp;_acct=C000050221&amp;_version=1&amp;_urlVersion=0&amp;_userid=10&amp;md5=579ca5b1aa4d7bb62ace16a57af79c0d&amp;searchtype=a</a>
	Herps	CA	Compensation	n/a				De Weese, J.M. 1998. Vernal Pool Construction Monitoring Methods and Habitat Replacement Evaluation. Pages 217-223 in: C.W. Witham, E.T. Bauder, D. Belk, W.R. Ferren Jr., and R. Ornduff (Editors). <i>Ecology, Conservation, and Management of Vernal Pool Ecosystems – Proceedings from a 1996 Conference</i> . California Native Plant Society, Sacramento, CA. <a href="http://vernalpools.org/proceedings/deweese.pdf">http://vernalpools.org/proceedings/deweese.pdf</a>
	Fender's blue butterfly	OR	Compensation	n/a				McIntire, E.J.B, C.B. Schultz, and E.E. Crone. 2007. <i>Designing a Network for Butterfly Habitat Restoration: Where Individuals, Populations, and Landscapes Interact</i> . <i>Journal of Applied Ecology</i> 44: 725-736. <a href="http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2664.2007.01326.x/pdf">http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2664.2007.01326.x/pdf</a>
	Fender's blue butterfly	OR	Compensation	n/a				Schultz, C.B. 2001. <i>Restoring resources for an endangered butterfly</i> . <i>Journal of Applied Ecology</i> 38: 1007-1019 <a href="http://onlinelibrary.wiley.com/doi/10.1046/j.1365-2664.2001.00659.x/pdf">http://onlinelibrary.wiley.com/doi/10.1046/j.1365-2664.2001.00659.x/pdf</a>
	Bats	ALL	Compensation/Minimization	Project Planning	Retrofit bridges to provide roosting habitat			Keeley, B.W. and M.D. Tuttle. 1999. Bats in American bridges. Pages 174-179 IN Evink, G.L., et al eds. <i>Proceedings of the International Conference on Wildlife Ecology and Transportation</i> . <a href="http://www.icoet.net/downloads/99paper21.pdf">http://www.icoet.net/downloads/99paper21.pdf</a>
	Multi-species	CA	Compensation	n/a				Queheillalt, D.M. and M.L. Morrison. 2006. Vertebrate use of a restored riparian site: a case study on the central coast of California. <i>Journal of Wildlife Management</i> 70(3): 859-866 <a href="http://onlinelibrary.wiley.com/doi/10.2193/0022-541X(2006)70%5B859:VUOARR%5D2.0.CO;2/abstract">http://onlinelibrary.wiley.com/doi/10.2193/0022-541X(2006)70%5B859:VUOARR%5D2.0.CO;2/abstract</a>
<b>Habitat Preservation/Conservation Easements</b>								
Examples:	Herps	CA	Compensation					Mead, D.L. Determination of Available Credits and Service Areas for ESA Vernal Pool Preservation Banks. Pages 274-282 in: C.W. Witham, E.T. Bauder, D. Belk, W.R. Ferren, Jr. and R. Ornduff (Eds). <i>Ecology, Conservation, and Management of Vernal Pool Ecosystems - Proceedings from a 1996 Conference</i> . California Native Plant Society, Sacramento, CA. 1998. <a href="http://www.vernalpools.org/proceedings/mead.pdf">http://www.vernalpools.org/proceedings/mead.pdf</a>

Solution	Species Group	Region	Approach Type	Timing Of Solution	Impact Reduction Benefits	Cost Range	Design Considerations	Source(s)
Conservation Bank/Wetland Bank Credit Purchase								
Examples:	Multi-species	ALL	Compensation					<a href="http://www.fws.gov/endangered/esa-library/pdf/ImperiledWildlifeFinalDec2005.pdf">http://www.fws.gov/endangered/esa-library/pdf/ImperiledWildlifeFinalDec2005.pdf</a> <a href="http://www.loafercreek.com/">http://www.loafercreek.com/</a> <a href="http://www.fws.gov/endangered/landowners/conservation-banking.html">http://www.fws.gov/endangered/landowners/conservation-banking.html</a>
	Multi-species	CA	Compensation		Preserve large tracts of habitat elsewhere			DiGregoria, J., E. Luciani, and S. Wynn. Integrating Transportation Conservation with Regional Conservation Planning. In Proceedings of the 2005 International Conference on Ecology and Transportation, edited by C. Leroy Irwin, Paul Garrett, and K.P. McDermott. Raleigh, NC: Center for Transportation and the Environment, North Carolina State University, 2006. <a href="http://www.icoet.net/ICOET_2005/proceedings/06IPCh5-101-110.pdf">http://www.icoet.net/ICOET_2005/proceedings/06IPCh5-101-110.pdf</a>
<b>In-Lieu Fee Program</b>								
Examples:	Multi-species	NY	Compensation					Spierto, T.J., S.A. Lazazzero, and P.L. Nelson. 2003. Strawberry Island Phase III Erosion Control and Wetland Habitat Restoration: a case study in the successful application of in-lieu fee mitigation. Pages 129-139 In 2003 Proceedings of the International Conference on Ecology and Transportation, edited by C. Leroy Irwin, Paul Garrett, and K.P. McDermott. Raleigh, NC: Center for Transportation and the Environment, North Carolina State University, 2003. <a href="http://escholarship.ucop.edu/uc/item/99w4k3r2;jsessionid=CA3ED2D3F5361BCC4B6A2F78C53B7426">http://escholarship.ucop.edu/uc/item/99w4k3r2;jsessionid=CA3ED2D3F5361BCC4B6A2F78C53B7426</a>
<b>Environmental Mitigation Program</b>								
Examples:	Multi-species	CA	Compensation				1/2 cent sales tax to fund transportation projs - including EMP - purchasing land for mitigation ahead of time.	Fairbanks, J. Transnet's Environmental Mitigation Program. Page 126 IN Proceedings of the 2005 International Conference on Ecology and Transportation, edited by C. Leroy Irwin, Paul Garrett, and K.P. McDermott. Raleigh, NC: Center for Transportation and the Environment, North Carolina State University, 2006. <a href="http://www.icoet.net/ICOET_2005/proceedings/2005ICOETProceedingWeb.pdf">http://www.icoet.net/ICOET_2005/proceedings/2005ICOETProceedingWeb.pdf</a>