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Lessons from Transportation Agency Participation
In Regional Conservation Initiatives

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy
in Urban Planning

by

Jaimee Sara Lederman

2017

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ABSTRACT OF THE DISSERTATION

Lessons from Transportation Agency Participation

In Regional Conservation Initiatives

by

Jaimee Sara Lederman

Doctor of Philosophy in Urban Planning

University of California, Los Angeles, 2017

Professor Martin Wachs, Chair

Transportation agencies struggle to maximize the benefits of transportation infrastructure while minimizing environmental harm. This dissertation examines institutional collaborations that integrate capital investments (e.g. highway and rail projects) with regional Habitat Conservation Plans (RHCPs) under the Endangered Species Act (ESA). It addresses ways of maintaining these collaborations over time.

The ESA requires that public and private project developers mitigate any harm to endangered species and receive a permit from US Fish and Wildlife Service (FWS). Projects are typically permitted individually, but RHCPs streamline permitting by allowing one permit to cover projects in multiple jurisdictions for up to 75 years. There is broad-based support for coordination across jurisdictional boundaries to address the increasingly regional scale of

environmental issues. Unfortunately, multi-jurisdictional collaborations often face political and financial roadblocks.

I examined 21 RHCPs, including analysis of planning documents and semi-structured interviews with RHCP, FWS, and transportation agency representatives. The case studies include urban, suburban, and rural counties in multiple states, focusing on California and Texas.

I show that acceleration of transportation projects garners political support for RHCPs and increases the biological efficacy of conservation initiatives. Transportation agencies benefit from reduced permitting time, costs, and fewer lawsuits. Participation promotes synergy between transportation and local funding that bolsters successful implementation of RHCPs. RHCPs can guide environmentally-responsible development patterns through several mechanisms — including strategic land acquisitions that limit urban growth and creating market incentives— even where they lack formal land use control.

Increasing the institutional capacity for regional conservation planning is an incremental process. RHCPs can strengthen regional organizations, but participating in RHCPs is predicated on providing advantages for governments, public agencies, and private landowners. I recommend that organizations managing RHCPs can be an important institutional catalyst for expanding the ability to address environmental issues—including air and water pollution, and climate change— but they must allow flexibility for opportunistic participation. My research finds that transportation agencies should play an integral role in meeting increasingly regional environmental planning challenges. The results of this research can inform existing and future conservation programs, and contribute to the improvement of state laws that govern conservation planning.

The dissertation of Jaimee Sara Lederman is approved.

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2017

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Acronyms

Acronym	Definition
<i>Habitat Conservation Plans</i>	
BCCP	Balcones Canyonlands Conservation Plan
CVMSHCP	Coachella Valley Multiple Species Habitat Conservation Plan
ECC	East Contra Costa County Habitat Conservation Plan
OCTA	Orange County Transportation Authority
SJMSCP	San Joaquin County Multi-Species Habitat Conservation and Open Space Plan
WRMSHCP	Western Riverside Multiple Species Habitat Conservation Plan
Clark County	Clark County Multiple Species Habitat Conservation Plan
Lincoln County	Southeastern Lincoln County Habitat Conservation Plan
KBB	Karner Blue Butterfly Habitat Conservation Plan
<i>Other Terms</i>	
FM	Farm to Market
HW	Highway
SR	State road
DOT	Department of Transportation
AASHTO	American Association of State Highway and Transportation Officials
BA	Biological Assessment
BCAG	Butte County Association of Governments
BLM	Bureau of Land Management
BO	Biological Opinion
CALCOG	California Association of Councils of Governments
Caltrans	California Department of Transportation
CAMPO	Capitol Area Metropolitan Planning Organization
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CETAP	Community and Environmental Transportation Acceptability Process
COG	Council of Governments
CVAG	Coachella Valley Association of Governments
CVCC	Coachella Valley Conservation Commission
EAP	Early Action Program
EIR	Environmental Impact Report

Acronym	Definition
EIS	Environmental Impact Statement
EMP	Environmental Mitigation Program
EOC	Environmental Oversight Committee
ESA	Endangered Species Act
ETJ	Extraterritorial Jurisdiction
FAST Act	Fixing Americas Surface Transportation Act
FDOT	Florida Department of Transportation
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FWS	United States Fish and Wildlife Service
GCW	Golden-cheeked Warbler
GHG	Greenhouse Gas
ITP	Incidental Take Permit
JPA	Joint Powers Authority
LAFCO	Local Agency Formation Commission
LCRA	Lower Colorado River Authority
LOST	Local Option Sales Tax
MAP-21	Moving Ahead for Progress in the 21st Century
MPO	Metropolitan Planning Organization
MSHCP	Multiple Species Habitat Conservation Plan
MTC	Metropolitan Transportation Commission
NCCP	Natural Community Conservation Planning
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
RAMP	Regional Advance Mitigation Planning
RCA	Regional Conservation Authority
RCHCA	Riverside County Habitat Conservation Agency
RCIP	Riverside County Integrated Project
RCTC	Riverside County Transportation Commission
RHCPs	Regional Habitat Conservation Plan
RTP	Regional Transportation Plan
RTPAs	Regional Transportation Planning Authorities
SACOG	Sacramento Council of Governments
SANDAG	San Diego Associations of Governments
SCAG	Southern California Association of Governments
SCVTA or VTA	Santa Clara Valley Transportation Authority
SH	State Highway
SJCOG	San Joaquin Council of Governments
SOI	Sphere of Influence

Acronym	Definition
TPWD	Texas Park and Wildlife Department
TxDOT	Texas Department of Transportation
WCCF	Williamson County Conservation Foundation
WRCOG	Western Riverside Council of Governments

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- 4 (refereed) Lederman, Jaimee, Brian D. Taylor, and Mark Garrett. "A private matter: the implications of privacy regulations for intelligent transportation systems." *Transportation Planning and Technology* (2016): 1-21.
- 3 (refereed) Sciara, Gian-Claudia, Jacquelyn Bjorkman, Jaimee Lederman, Melanie Schlotterbeck, James H. Thorne, Martin Wachs, and Stuart Kirkham. "Experimentation and Innovation in Advance Mitigation: Lessons from California." *Transportation Research Record: Journal of the Transportation Research Board* 2502 (2015): 144-153.
- 2 (refereed) Lederman, Jaimee, Mark Garrett, and Brian D. Taylor. "Fault-y Reasoning Navigating the Liability Terrain in Intelligent Transportation Systems." *Public Works Management & Policy* (2015): 1087724X15592891.
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- 1 Lederman, Jaimee, and Martin Wachs. 2014. "Transportation and Habitat Conservation Plans: Improving Planning and Project Delivery While Preserving Endangered Species." University of California Transportation Center.

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1 Introduction

Urban development and investments in infrastructure must comply with government mandates to mitigate environmental impacts. Recently, the scale and scope of compliance with environmental requirements related to endangered species, water, air, and noise have challenged public agencies and private developers' ability to finance and deliver projects due to lengthy project delays and higher costs. The development of transportation infrastructure requires a long planning, funding, and implementation cycle that can take over a decade. There also is growing consensus that many environmental problems must be dealt with at the regional scale because ecosystem boundaries are defined independently from political ones (Pincetl, Jonas, and Sullivan, 2011; C. R. Smith, 2009). Environmental damage resulting from increased development can most effectively be addressed on a scale that exceeds that of individual projects, local jurisdictions, or singular environmental impacts.

The federal Endangered Species Act (ESA) (16 USC §1531-1544) requires land developers and public agencies to obtain permits from the U.S. Fish and Wildlife Service (FWS) for proposed development and transportation improvements that may harm endangered species. Permit applicants must produce a plan, known as a Habitat Conservation Plan (HCP), which outlines proposed compensatory mitigation to offset potential harm, often through conservation of additional land (16 U.S.C. §1539). These requirements are typically addressed on a per-project basis late in the planning process, resulting in inadequate biological outcomes as well as a time-consuming and costly permitting process (Liebesman and Petersen, 2010). There is a trend toward regional-scale HCPs (RHCPs) developed by local or state bodies, which outline mitigation requirements for multiple planned projects over many years. Instead of time

consuming and costly project-specific negotiations with the FWS over endangered species issues and required mitigation, RHCPs offer an alternative by which agencies engage in “landscape-level” planning that results in a regional permit that ensures approval for all future projects adhering to the Plan’s guidelines.

RHCPs provide conservation at an ecosystem scale and preserve large, contiguous tracts of land that increase the chances of species survival compared to isolated parcels of conservation land (U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, and National Marine Fisheries Service, 1996). This promises several potential benefits including reduced project delays, lower mitigation and transaction costs, and improved conditions for the affected species. RHCPs result from negotiations over the effects and required mitigation for included suites of development activities (“covered activities”). In rapidly urbanizing areas, transportation agencies participate in RHCPs to address environmental damage resulting from development and transportation improvements that support development (Beatley, 2000). The RHCP provides an outline of allowable impacts on endangered species and their habitats through development activities that respect the conservation goals of the ESA. This allows for an environmentally preferable regional conservation approach in areas in which growth and development impinge upon endangered species habitats. Proponents of HCPs argue that they can increase the amount of protected habitat, reduce the time and cost of negotiating suitable mitigation with the FWS, and increase certainty in the environmental clearance process.

Regional governance organizations, often at the county level, typically manage RHCPs. Scholars and policy makers have long argued that regional planning benefits outweigh the costs of overcoming political roadblocks, and transportation policy is a key element in these debates (Jonas, Goetz, and Bhattacharjee, 2014). As problems such as global warming and the loss of

species habitat have become more pressing, a consensus has emerged that regional planning organizations must be empowered to address environmental problems that are not limited to jurisdictional boundaries (Pincetl et al., 2011; C. R. Smith, 2009). Paul Peterson argued in his 1981 book, *City Limits*, that regional planning could only be expanded through state- or federal-level legislation to overcome these roadblocks (National Research Council, 1999; Peterson, 1981). Environmental laws guide transportation planning activities and influence land use, on both a national (e.g. the National Environmental Policy Act, or NEPA) and state level (e.g. Florida's Growth Management Act) (Bosselman and Callies, 1971).

Regional coordination in transportation planning is promoted as a way to address serious environmental issues, improve mobility, and increase accessibility to economic opportunity within a city. Transportation investment is considered to have promoted metropolitan growth through enhanced connectivity and accessibility (Garrison and Levinson, 2014), while enabling the sprawl that drives the need for regional planning (Dreier, Mollenkopf, and Swanstrom, 2004; National Research Council, 1999; Orfield, 2011). RHCPs present novel governance challenges, and successful collaboration involves the provision of new institutional arrangements or the repurposing of existing collaborative governance groups. Furthermore, these cooperative efforts frequently struggle to fund funding for the planning process and land purchases (Beatley, 2000).

There is broad-based support for coordination across jurisdictional boundaries in transportation planning to address the increasingly regional scale of environmental issues, including endangered species habitat destruction. Unfortunately, multi-jurisdictional collaborations often face political and financial roadblocks. There is little research on integrating transportation and conservation planning to mutual benefit. My dissertation focuses on institutional collaborations that integrate transportation capital investments (e.g. highway and rail

projects) with regional conservation initiatives (e.g. the preservation of large tracts of land), and how to maintain these collaborations over the long term. Transportation agencies struggle to balance the benefits of infrastructure while minimizing environmental harm, and transportation investment is often considered anathema to conservation goals. My research demonstrates that integrating transportation planning with large-scale conservation can help deliver needed projects, while providing ecologically superior conservation outcomes.

1.1 Chapter Summaries

1.1.1 Chapter 2: Background

In Chapter 2, I present the background for this research. This section combines a review of the literature, as well as a synthesis of relevant legislation and policy that pertains to both habitat conservation and environmental mitigation requirements in transportation planning.

The first portion of this chapter describes the Endangered Species Act as well as subsequent legal decisions and policy guidance that shaped its implementation and led to the increasing use of Regional Habitat Conservation Plans. I then discuss the legislative requirements specific to the formation of RHCPs, different ways in which they have been used, and their increasing use to resolve conflicts between endangered species habitat and economic development.

The second portion of this chapter discusses the advantages of advanced mitigation compared to per-project mitigation for a suite of planned transportation projects. I trace the history of advanced mitigation in federal transportation legislation and policy, including a review of revenue sources for advanced mitigation programs for transportation. I then review successful advanced mitigation program at the state level, focusing on California.

1.1.2 Chapter 3: Methodology

My research used qualitative methods to examine 21 regional conservation initiatives—a diverse sample including case studies of urban, suburban, and rural areas across five states. Each case study begins with analysis of the required planning documents and publically available information. I supplemented this information with semi-structured interviews of 55 relevant stakeholders, focusing on transportation agency participation in the RHCP planning process, funding and financing of the RHCP, and how RHCP implementation is governed. Interviewees included representatives of RHCP managing entities, state, regional and local transportation agencies, environmental agencies, and elected officials.

1.1.3 Chapter 4: The Legal and Practical Dynamics of Integrating Transportation Projects into RHCPs¹

Chapter 4 examines state and local transportation agency participation in Regional Habitat Conservation Plans (RHCPs) that aggregate programmatic environmental mitigation across multiple projects over a period of years. In this chapter, I describe the critical roles transportation agencies play in RHCPs and describe various models through which transportation projects are covered by RHCP permits, including how transportation projects are enumerated in the Plans. Next, I analyze the regulations that guide the participation of transportation agencies in RHCPs. I then identify the roles transportation agencies play in RHCPs, including as actors in the planning and implementation phases. I also compare the differences between state DOT and local transportation agency participation. Lastly, I highlight the emerging role of transportation

¹ This portion of the dissertation was drawn from Lederman, J., & Wachs, M. (2014). Habitat Conservation Plans: Preserving Endangered Species and Delivering Transportation Projects. *Transportation Research Record: Journal of the Transportation Research Board*, (2403), 9-16.

planning agencies as leads in RHCP planning, typically through local option sales tax (LOST) funding. I find that transportation agency participation in RHCPs is beneficial, as it 1) streamlines project delivery, 2) increases the biological efficacy of conservation initiatives and 3) promotes synergies between transportation and local funding that bolsters successful implementation of RHCPs.

1.1.4 Chapter 5: The Growing Role of Transportation Funding in Regional Habitat Conservation Planning²

In Chapter 5 I examine funding for RHCPs, focusing on the extent to which the participation of transportation agencies helps to address funding challenges. I consider whether funding provided by transportation agencies alleviates financial roadblocks to RHCP formation and operation. To do so, I also examine ESA permitting requirements and the rise of RHCPs, the role of transportation infrastructure projects in RHCPs, and difficulties funding the planning and implementation of RHCPs. I identify common RHCP funding sources, including local government general funds, development impact fees, and tax increment financing, by analyzing documents and interviewing RHCP representatives, FWS staff, and transportation agency planners. I find that the use of transportation agency funding for RHCPs is beneficial to both. RHCPs allow transportation agencies to save money on purchasing mitigation land through economies of scale. Simultaneously, revenue from transportation agencies can provide initial

² This portion of the dissertation was drawn from Lederman, J., & Wachs, M. (2016). The Growing Role of Transportation Funding in Regional Habitat Conservation Planning. *Journal of the American Planning Association*, 82(4), 350-362.

funding for RHCP planning, and a stable funding source that bolsters the success of permitted RHCPs.

1.1.5 Chapter 6: Regional Governance and Transportation Planning: A Review of Literature and Policy

In Chapter 6 I review the literature and legal policy pertaining to regional planning. I first discuss the evolving theory on regionalism, including defining a “region,” arguments supporting regional planning, and challenges to achieving regional goals. I then discuss law and policy that mandates and/or supports regional transportation planning, making transportation planning a promising cornerstone of increasing formal regional planning. I lastly discuss the trend towards increasing informal regional governance, achieved by voluntary collaboration and coordination between governments and public agency, specifically as it pertains to addressing the expanding scale and scope of environmental issues.

1.1.6 Chapter 7: Comparing California and Texas State Law Differences Pertaining to RHCPs

This Chapter offers a brief summary of the state legal and institutional differences impacting RHCP governance and the ability of transportation and conservation planning to guide each other. I compare state laws that are specific to 1) RHCPs and other large-scale conservation initiatives, 2) permissible and commonly models for regional planning, and 3) the regional transportation planning process in both states, focusing on countywide transportation planning, as the county is the most often the boundary of an RHCP. This comparison informs my case study analysis of California and Texas RHCP governance and impact of regional planning in both states. This comparison more generally provides an example of how state law and policy can alter implementation of federal law.

1.1.7 Chapter 8: California and Texas RHCP Case Studies

Chapter 8 examines the political economy of transportation agency participation in conservation initiatives. I use case studies of RHCP planning and implementation to understand how institutional frameworks affect the roles transportation agencies play in RHCPs, and ask whether RHCP participation encourages more environmentally responsible transportation planning. This chapter focuses on the collaborative governance organizations that plan and manage RHCP implementation. Based on the case studies, I discuss how state law and policy largely influence how RHCPs are planned and governed. I find that the participants and covered area for RHCPs are a combination of political economy and ecological dynamics of endangered species habitat. I find that participation of governments and public agency is largely consistent across planning, governance, and permitting, but there are notable exceptions. The flexibility of existing governance institutions significantly influences the range of available solutions in a region, and California's comparatively stronger regional governance infrastructure results in more participants in RHCP governance organizations. Transportation agencies frequently participate in California RHCPs, but cities and state DOTs are rarely participants in Texas. Transportation projects are explicitly covered when agencies participate, but transportation projects, as a driver for economic growth, are typically able to use the RHCP for mitigation regardless of participation.

1.2 Major Conclusions

This research shows that the typically contentious relationship between transportation development and conservation can be transformed to become symbiotic. RHCPs are an economic development tool first and foremost, and providing mitigation for transportation

projects is a crucial element of gaining political support and funding that bolsters successful ecological outcomes.

- a. **Transportation agencies, particularly state DOTs, should proactively participate in environmental planning.** Transportation projects are an essential element of economic growth—therefore they often are covered by an RHCP permit even without transportation agency participation. Benefits to transportation agencies increase with agency participation in planning and implementation. The benefits include improved regulatory certainty and cost savings enabled by negotiations during planning. Furthermore, while rare, there are instances in which transportation projects excluded by an RHCP faced significant mitigation roadblocks.
- b. **RHCPs allow transportation agencies to save time and money on mitigating harm to endangered species through economies of scale in the purchase of conservation land. Revenue from transportation agencies can provide initial funding for RHCP planning and stable funding that bolsters the success of permitted RHCPs.** Transportation funding is particularly valuable to RHCPs during planning and initial implementation, and can help insulate RHCPs from economic recessions. Additionally, transportation agencies reduce administrative costs by shifting responsibility for land management and acquisition to the RHCP managing organization.

- c. **Expanding the capacity of institutions for regional planning is an incremental process, and RHCPs can increase regional planning by strengthening regional organizations, incorporating new stakeholders in to the regional planning process, and creating new regional coalitions.** The regional influence of RHCP governance organizations is highly dependent on the pre-existing institutional capacity for regionalism in a given area. In my comparison of California and Texas RHCPs, I found that managing organizations in California were more likely to reinforce and expand the capacities of regional institutions to encourage cooperation among cities and public agencies. Texas counties with RHCPs are comparatively rural and lack strong—if they have any—regional planning traditions. In these counties, RHCPs can form the basis of regional cooperation that will be necessary as the region grows.
- d. **RHCPs can guide regional development patterns through a variety of mechanisms, even without formal land use control.** RHCPs in California designate targeted preserve land and covered area to facilitate growth in some areas while discouraging it in others. Even without the power to designate preserve land, RHCPs can make strategic land acquisitions that limit urban growth and provide market incentives through mitigation fees. These encourage individual landowner participation while discouraging development in the most valuable habitat areas.

- e. **RHCPs should be flexible enough to allow for changing circumstances and opportunistic participation.** RHCP creation and participation are predicated on providing advantages for governments, public agencies, and private landowners in comparison with per-project mitigation. To ensure the best outcomes over the long life of the permit, they should be created with the ability to add additional participants, including newly incorporated cities and formerly reluctant public agencies. For example, California RHCPs should be able to expand to take advantage of new advanced mitigation funding for the California Department of Transportation (Caltrans) projects under Senate Bill 1, or California high-speed rail implementation. It is also increasingly necessary to simultaneously address other environmental concerns at a regional scale, such as Greenhouse Gas reduction to comply with Senate Bill 375. RHCP governance structures can form the basis of regional coordination on these issues.

I find that RHCPs are growing in popularity and importance because they facilitate both habitat preservation and infrastructure development. Transportation agencies are an integral part of the regional planning process, and their participation is essential to conserving biodiversity. The results of this work can guide transportation agencies wishing to strengthen existing coalitions and promote institutional change that facilitates long-term regional conservation. I also explore how transportation agencies can and should play more central roles in meeting increasingly regional environmental planning challenges. While I focus on RHCPs, the lessons learned from regional institutional building that supports large-scale planning can help tackle other environmental challenges today and in the future.

2 Literature Review and Policy Synthesis

2.1 History and Benefits of Regional Habitat Conservation Plans

2.1.1 *The Endangered Species Act*³

The 1973 Endangered Species Act (ESA) is one of several laws that require consideration of environmental outcomes in the planning process (16 USC §1531-1544).⁴ Under the ESA, Congress declared endangered species to have intrinsic value, and designed the Act to protect endangered species from “economic growth and development untempered by adequate concern and conservation” and to also protect the “ecosystems upon which they depend.” The Act prohibited the “taking” of any endangered species. Broadly defined, takings include actions or attempts to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect” endangered species. This expansive definition additionally prohibits takings that result “environmental modification or degradation” (16 U.S.C. §1532(19)).

The Act’s long reach was unforeseen; in *Tennessee Valley Authority v. Hill* (1978) the Supreme Court expanded the law to include damage to endangered species habitat, stating that the Act was “the most comprehensive legislation for the preservation of endangered species ever enacted by any nation.” The Court ruled that the Tellico Dam would cause “taking” of the endangered snail darter and issued an injunction to stop construction. In doing so, that Court

³ Much of this section is drawn from my previous publications on Habitat Conservation Planning. Please see Lederman, Jaimee and Martin Wachs. "Habitat Conservation Plans: Preserving Endangered Species and Delivering Transportation Projects." *Transportation Research Record: Journal of the Transportation Research Board* 2403 (2014): 9-16; Lederman, Jaimee, and Martin Wachs. *Transportation and Habitat Conservation Plans: Improving Planning and Project Delivery While Preserving Endangered Species*. No. UCTC-FR-2014-04. 2014; Sciara, Gian-Claudia, Jacquelyn Bjorkman, Jaimee Lederman, James H. Thorne, Melanie Schlotterbeck, and Martin Wachs. "Task 2 Report: Setting the Stage for Statewide Advance Mitigation in California." (2015); Lederman, Jaimee, Martin Wachs, Melanie Schlotterbeck, and Gian-Claudia Sciara. "Task 4 Report: Funding and Financial Mechanisms to Support Advance Mitigation." (2015). I researched and wrote all material drawn from co-authored work.

⁴ For full text of the Endangered Species Act, see Appendix A.

noted that Congress declared that endangered species have “incalculable” value, and the Supreme Court upheld that extinction must be prevented “whatever the cost.”

The ESA further expanded as the number of endangered species increased from 78 at the ESA’s passage to more than 1,200 in 2015, far beyond what was envisioned by legislators (Goble, Scott, & Davis, 2005; FWS, 2015b). Scientific advances are one reason for the proliferation of endangered species, as methods to identify and categorize species improved, especially for smaller invertebrate species (Scott, Goble, Haines, Wiens, and Neel, 2010). A second contributing factor to the increase was a 1982 Act amendment that aimed to expedite the species listing process to clear a large backlog of proposed species for listing, some of which became extinct before gaining protection under the Act. The Amendment set a timeline requiring FWS to issue a listing decision on proposed species, but allowing procedural exemptions to delay lower priority listings. The 1982 amendment also added a provision to allow citizen suits against the Agencies’ listing decisions to increase enforcement of the Act; NGOs successfully challenged the Agencies’ use of the procedural exemption in the early 1990s. From 1991 to 1995, species listing increased to an average of 73 species per year, compared to an average of 39 in the period spanning 1983-1990. In response to the increase in private enforcement suits, the Republican-led Congress placed a year-long moratorium on listings in 1995, and the Secretary of the Interior developed an administrative policy to limit listing petitions by lawsuits (Scott et al., 2010). Listings slowed, but remain above the 1980s levels.

Alongside ESA expansion, rapid urbanization, often co-incident with transportation investments that facilitated development, encroached on endangered species’ habitats, and created conflict between biodiversity and economic development. Because of the Supreme Court’s holding, developments often face expensive compliance requirements coupled with

decreasing financial support from federal sources (G. Brown and Shogren, 1998; Goble, 2005). Recently, the scale and scope of compliance with ESA-related environmental requirements have challenged the ability of public agencies and private land developers to finance projects (Greer and Som, 2010; Pincetl et al., 2011; Venner, 2005).

2.1.2 Habitat Conservation Plans

The ESA requires development activity that may “take” an endangered species to compensate for this taking by providing permanent conservation of endangered species habitat. Development projects must obtain permits from FWS, the federal agency charged with ESA enforcement,⁵ before they can lawfully proceed (16 USC 1538-9). Section 7 of the ESA required that federal agencies and actors pursue a “consultation” with FWS to address any impact to endangered species or their habitat, but did not provide any analogous option to state and local governments and agencies, or private landowners. This made illegal those developments by private entities and state and local governments that harmed endangered species, but this provision was rarely enforced (Christopher McGrory Klyza and Sousa, 2007). Congress amended the ESA in 1982, adding Section 10, allowing the “taking” of a listed species if it was incidental to an otherwise lawful activity, such as land development. The ESA requires proponents whose projects may “take” an endangered species to provide “compensatory mitigation” to reduce or offset any potential taking (Environmental Law Institute, 2007).⁶

⁵ The ESA is administered jointly by United States Fish and Wildlife Service (FWS) and the National Oceanic Atmospheric Administration (NOAA). FWS is responsible for regulating impacts on terrestrial and inland water species, and NOAA regulates impacts on oceanic species. Thus, FWS is the relevant regulatory agencies for RHCPs and transportation projects.

⁶ Mitigation measures may include payment into an established conservation fund or bank; preservation (via acquisition or conservation easement) of existing habitat; enhancement or restoration of degraded or a former habitat; establishment of buffer areas around existing habitats; modifications of land use practices, and restrictions on access (Williamson County Conservation Foundation, 2008b).

Mitigation can take many forms, but must compensate for potential harm to endangered species by providing permanent conservation of endangered species habitat. In order to balance the benefits of economic development by meeting legal conservation requirements, project proponents must receive an “Incidental Take Permit” (ITP) from the FWS to legally proceed with development (U.S. Fish and Wildlife Service et al., 1996).⁷ The ITP effectively binds permittees to planned conservation and mitigation strategies for activities covered by the permit that balance harm to the species.

ITP applications require a Habitat Conservation Plan (HCP), a document outlining the proposed development, its impact on endangered species, and necessary compensatory mitigation measures (Liebesman and Petersen, 2010). HCP applicants must collaborate with FWS to plan compensatory mitigation strategies, typically through acquisition and permanent conservation of endangered species habitat. HCPs are extensive plans that balance development with the possibility of harm to endangered species by outlining avoidance, minimization, and mitigation actions that will be taken by the agency responsible for development. HCPs incorporate a list of the development activities for which the applicant seeks ESA clearance (the “covered activities”), a biological opinion as to how these activities will affect endangered species and their habitat, and a mitigation strategy for the covered activities that must be followed by the applicant. Covered activities can include any type of legal development activity, and frequently include transportation projects, along with commercial and residential development. HCP documents for regional plans that are the focus of this study typically consist of hundreds of pages, including descriptions of the applicants, covered activities, potential

⁷ FWS and NMFS share joint authorities under the ESA for administering the incidental take permit program. Generally, the FWS is responsible for “terrestrial and freshwater aquatic species” while NMFS is responsible for listed “marine mammals, anadromous fish, and other living marine resources.” This research focuses only on HCPs that deal with urban development, and therefore implicates FWS as the enforcement agency.

biological impacts, planned conservation, implementation guidelines, and an outline of funding sources (U.S. Fish and Wildlife Service).⁸

Incidental Take Permit Issuance Criteria

In order for an ITP to be issued, the HCP must meet the following criteria under Section 10(a)(2)(B) of the ESA: (1) taking will be incidental; (2) applicant will, to the maximum extent practicable, minimize and mitigate the impacts of the taking; (3) applicant will ensure that adequate funding for the plan will be provided; (4) taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and (5) other measures, as required by the Secretary of the Interior will be met (50 CFR §17.32).

Under criterion 1, a taking is incidental if it results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant (50 CFR §17.32). For example, takings that may occur during otherwise allowed transportation projects and residential development are incidental.

Criterion 2 requires that the applicant specify a plan in the HCP to minimize or mitigate the impact of the taking. According to the FWS:

Mitigation measures are actions that reduce or address potential adverse effects of a proposed activity on species included in an HCP. They should address specific conservation needs of the species and be manageable and enforceable. Mitigation measures may take many forms, including, but not limited to, payment into an established conservation fund or bank; preservation (via acquisition or conservation easement) of existing habitat; enhancement or restoration of degraded or a former habitat; establishment of buffer areas around existing habitats; modifications of land use practices, and restrictions on access. Which type of mitigation measure used for a specific HCP is determined on a case by case basis, and is based upon the needs of the species and type of impacts anticipated (U.S. Fish and Wildlife Service, 2011, p. 2).

⁸ Though each plan is unique, FWS provides a template to outline what should be included.

The goal of mitigation is to offset the immediate incidental take, and the ultimate goal of the ESA, according to the FWS, is species recovery and delisting – which lifts the regulatory burden for everyone. The actual mitigation measures vary among HCPs, but the majority of regional HCPs rely heavily on off-site mitigation, in which the agency administering the HCP acquires land in a conservation area to off-set the effects of any development activities.⁹

Criterion 3 requires that permit applicants demonstrate that there is “sufficient” funding to meet the outlined mitigation requirements. The cost of RHCPs can range from hundreds of millions of dollars to several billion, and the plans must detail what sources of funding will be used to cover the costs. If the funding provided is inadequate, this can be ground for a lawsuit against FWS for improperly issuing an ITP. This criterion will be discussed in greater detail in Chapter 5.

Criterion 4 outlines the legal requirements that FWS must fulfill to ensure that the HCP adequately protects species covered under the plan. Fulfillment of this requirement depends on the biological data gathered about the species covered by the HCP, the effect of development activities specified under the plan on these species, and the sufficiency of the mitigation measures agreed upon in the plan.

Criterion 5 is specific to each HCP and negotiations with FWS. Most typically, it results in an “implementing agreement,” a legally binding contract that defines each stakeholder’s responsibility in implementing the plan, including the FWS and state wildlife department’s responsibilities. Another typical “other measure” may be ensuring adequate and sustained

⁹ RHCPs typically do their own off-site mitigation as opposed to purchasing credits from a private conservation bank because, as the land use control agency, they are able to mitigate cheaply by themselves due to economies scale. Some RHCPs, for example the Western Riverside MSHCP, incorporate conservation banks within their plan areas in their conservation acreage total.

funding to carry out the monitoring of compliance with the ITP conditions (Bergstein, Mo, Wachs, and Chatman, 2012).

If the regional office of FWS concludes that the above five criteria have been met by the strategies outlined in the HCP, it can issue an ITP permit to the applicant (U.S. Fish and Wildlife Service et al., 1996).¹⁰ Permits vary in duration, based on factors outlined in 50 CFR 17.32, in an attempt to balance the biological impacts of the HCP and the time horizon of the covered activities. For example, if the activities occur over a long period of time, as is the case with timber-harvesting or general growth and development plans of regional HCPs, long permit duration will be necessary. If the conservation activities specified in the HCP increase the survivability of a listed species or enhance its habitat, the service is more likely to issue a permit with longer time duration. These determinations are also based on the availability of data at the time of HCP planning, both in terms of the time length of development activities planned and the availability of the scientific data to provide certainty (U.S. Fish and Wildlife Service, 1999).¹¹

After FWS issues an ITP, the planned development and mitigation both may proceed without additional FWS approval (Liebesman and Petersen, 2010). HCP permittees have included private individuals, corporations, local governments, and state and local transportation and infrastructure agencies. HCPs mitigate such diverse activities as residential development, public highways, private pipeline infrastructure, and timber harvesting and fisheries management (Lederman and Wachs, 2014c). Figure 1 shows total number of HCPs between 1983 and 2009. As of 2015, there were 697 permitted HCPs across the U.S., most of which outline mitigation

¹⁰ In addition, FWS must issue a review under NEPA since its issuance of the permit is a “federal action”. See Section 4 of this report for more information.

¹¹ Some may go longer if they employ adaptive management to give time for data collection. This means uncertainty in data makes for a longer duration.

procedures for a single private development project (U.S. Fish and Wildlife Service, 2015b). However, experts increasingly argue that focusing on the impact of an individual project can be both detrimental to the survival of a species and administratively inefficient. Moreover, developers and public agencies seeking to obtain permits for individual projects frequently must provide redundant and costly biological analyses and incur long waits for permits (Callihan, Kleinman, and Tirnavor, 2009; Dixon et al., 2008).

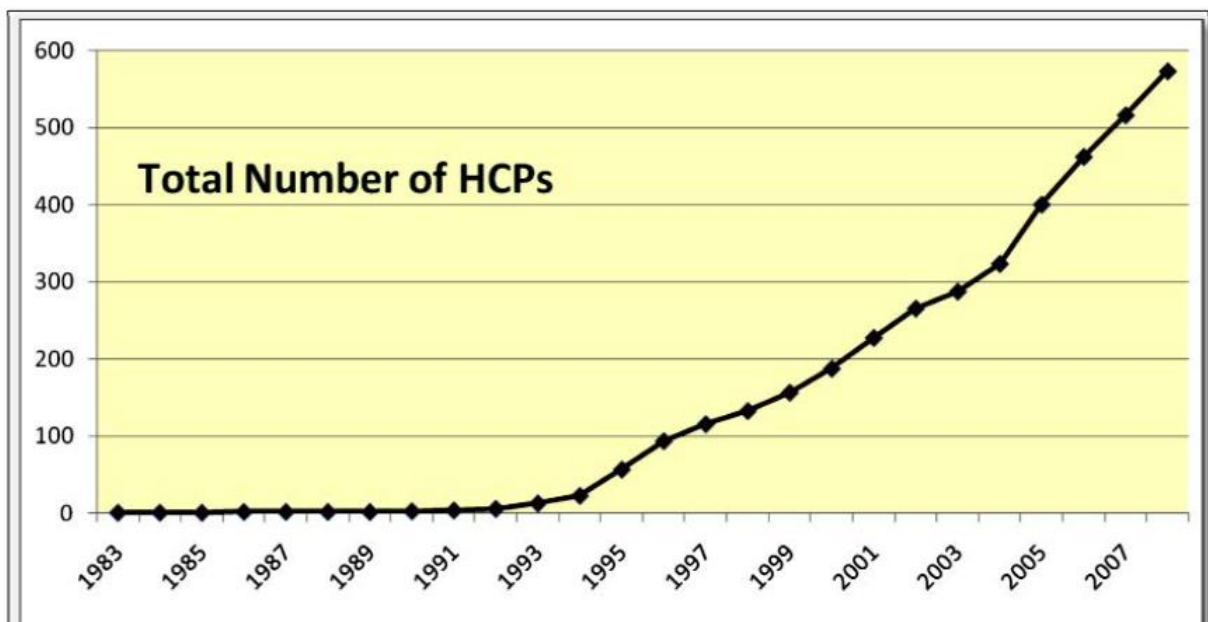


Figure 1. Total Number of HCPs¹²

Source: Callihan et al. (2009, p. 11).

2.1.3 RHCPs

In rapidly urbanizing areas, environmental damage resulting from development can most effectively be addressed on a scale that exceeds that of individual projects and often crosses jurisdictional boundaries. Permitting projects individually can require redundant and costly biological analysis and long waiting periods for permits (Lederman and Wachs, 2014a).

¹² FWS does not keep publically available records on all RHCPs. Figure 1 and Figure 2 are taken from an internal audit performed in 2009 and present the latest aggregate data available.

Considering the impact of each project outside the context of rapid development is both administratively inefficient and detrimental to a species' survival.

In such cases, the FWS encourages, though does not require, regional habitat conservation planning (U.S. Fish and Wildlife Service et al., 1996). RHCPs¹³ provide better conservation for multiple species and cover years of future planned development projects. RHCPs have become an increasingly popular solution to the high administrative costs, long waits, and regulatory uncertainty associated with individual project HCPs; they therefore have the ability to reduce the cumulative time and cost of HCP processing requirements (Callihan et al., 2009; Dixon et al., 2008; Gau and Jarrett, 1992).

The HCP Handbook, the FWS's policy guidance document for HCP planning, states:

...regional or multi-species HCPs have many benefits. They can, for example: (1) maximize flexibility and available options in developing mitigation programs; (2) reduce the economic and logistic burden of these programs on individual landowners by distributing their impacts; (3) reduce uncoordinated decision making, which can result in incremental habitat loss and inefficient project review; (4) provide the permittee with long-term planning assurances and increase the number of species for which such assurances can be given; (5) bring a broad range of activities under the permit's legal protection; and (6) reduce the regulatory burden of ESA compliance for all affected participants (U.S. Fish and Wildlife Service et al., 1996, p. 15).

Regional Habitat Conservation Plans are conservation mechanisms by which transportation projects (and many other types of projects), can meet the requirements of the Endangered Species Act. Instead of time consuming and costly project-specific negotiations with the FWS over endangered species and required mitigation, RHCPs offer an alternative by which agencies engage in "landscape-level" planning that provides advance clearance under the Act. RHCPs allow for negotiation over the effects and required mitigation for included suites of development activities, including transportation infrastructure as well as residential and

¹³ Also referred to as Multi-Species Habitat Conservation Plans (MSHCP) or "Area-Wide HCPs".

commercial construction. The RHCP provides an outline of allowable impacts on endangered species and their habitats through development activities that are consistent with the conservation goals of the ESA. This allows for an environmentally preferable regional conservation approach where growth and development impinge upon endangered species habitats. Advanced landscape-level mitigation presents numerous benefits for both government agencies and private parties undertaking development activities. RHCPs can increase the amount of protected habitat, reduce the time and cost of negotiating suitable mitigation with FWS and increase certainty in the environmental clearance process (Bergstein et al., 2012; Marsh and Lallas, 1995).

RHCPs, often specifically referred to as Multi-Species Habitat Conservation Plans, are large and expensive collaborative planning efforts. RHCPs are a key feature of Section 10 of the ESA, allowing multiple stakeholders to apply jointly for one permit that covers multiple projects in a defined area such as a county (U.S. Fish and Wildlife Service et al., 1996). Permittees typically include local governments and transportation and other public agencies, and the planning process incorporates feedback from other stakeholders such as the building industry. After FWS issues the permit, a managing entity, typically comprising representatives of all permittees, implements the plan. The managing entities are often joint powers agencies governed by local government representatives; local governments use their land use control powers to manage private development and other stakeholder activities according to the ITP conditions (Tarlock, 2006). For example, the Coachella Valley Association of Governments and the local water district manage the Coachella Valley RHCP. Travis County and the City of Austin jointly manage the Balcones Canyonlands Conservation Plan (BCCP) through an interlocal agreement (Eagle and Thompson, 1998).

RHCPs preserve large, contiguous tracts that increase the chances of species reproduction and recovery compared with the “patchwork” conservation resulting from per-project mitigation (Eagle and Thompson, 1998; Marsh and Lallas, 1995). A survey of RHCPs shows that they are concentrated in regions where rapid development, including transportation infrastructure, impinges upon endangered species habitat. While a single project may affect tens or hundreds of acres of endangered species habitat, RHCPs may cover hundreds of thousands or even millions of acres and provide permitting for development activities (“covered activities”) as far as 75 years into the future (Callihan et al., 2009; Coachella Valley Association of Governments, 2016).

RHCPs are part of a larger movement towards “regional advance mitigation,” in which collaborative environmental planning and permitting is completed for multiple future projects simultaneously, as opposed to the more common contemporaneous project-by-project approach (Venner, 2005). Regional Advance Mitigation ensures landscape-level integrated and cohesive conservation programs (Dixon et al., 2008; Porter and Salvesen, 1995), and can reduce the time and cost of negotiating suitable mitigation with the FWS for particular projects, and increases certainty in the environmental clearance process (Bergstein et al., 2012; Greer and Som, 2010; Porter and Salvesen, 1995; Sciara and Stryjewski, 2015).

Usage of HCPs, and in particular RHCPs, grew slowly until FWS implemented the “no surprises” policy in 1998, which assured that the responsibility of the applicants would not increase once the permit was issued, regardless of new biological findings. The “no surprises” policy, as well as vigorous public support for the program from the federal government, has led to a steady increase in the number of HCPs permitted each year, and to the increasing use of the regional plans (D. Wheeler and Rowberry, 2010). Figure 2 shows the increase in acreage covered by HCP permits from 1983 to 2007. As of 2011, the date of the last FWS internal report on

HCPs, 59 HCPs covered more than 10,000 acres (Figure 3) (Bergstein et al., 2012). Those 59 represent over 99 percent of the total land subject to an HCP (Callihan et al., 2009).

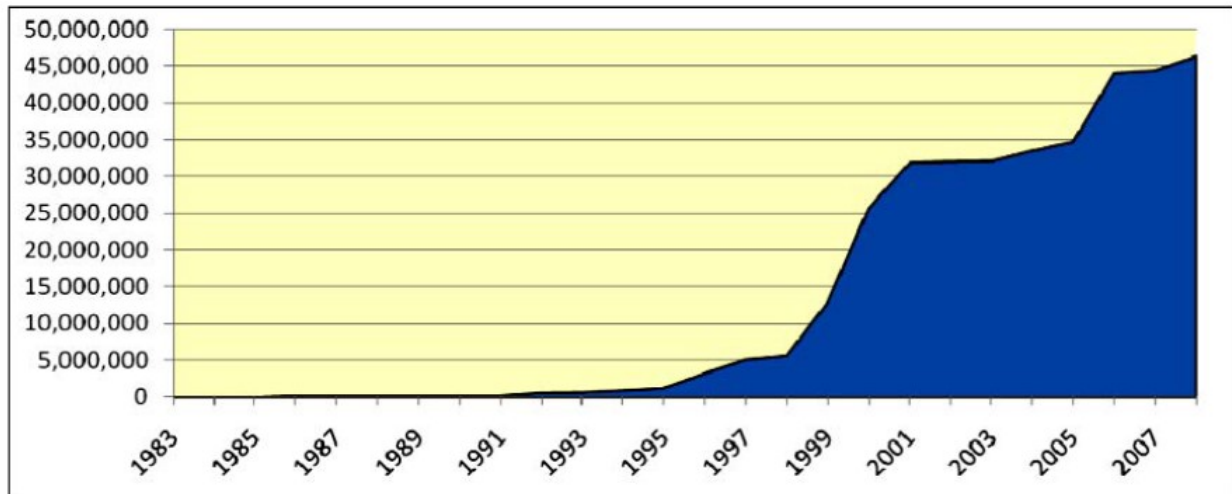


Figure 2. Total Acres Covered by HCPs by Year.

Source: Callihan et al. (2009, p. 10).

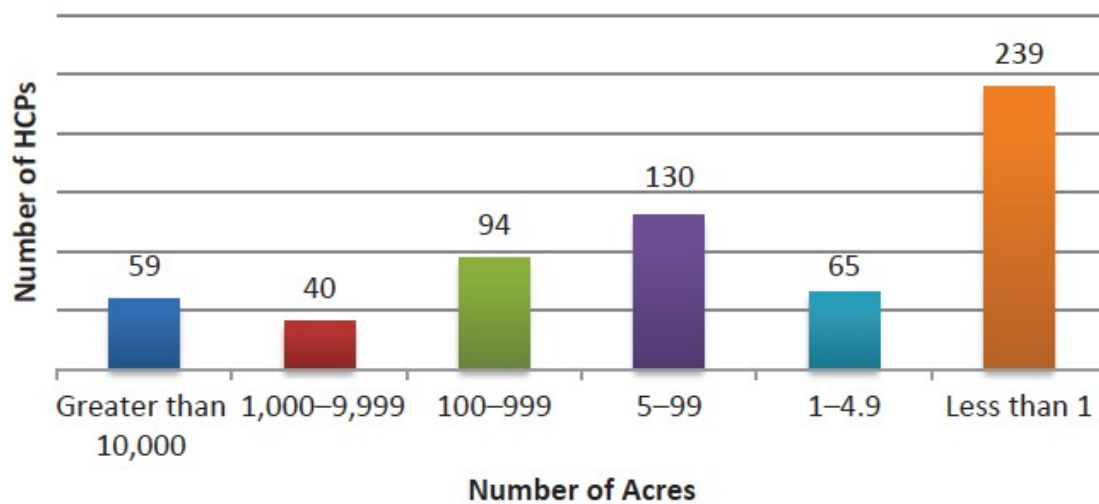


Figure 3. Total Number of HCPs by Area.

Source: Bergstein et al. (2012).

2.1.4 RHCP Benefits/Motivation for Transportation Agency participation in RHCPs

Biological Benefits of RHCPs

While much has been written about the biological benefits of HCPs, and habitat level-conservation in general, the biological science underpinning HCPs is beyond the scope of this report. In general, it is ecologically preferable to have a large, contiguous area of preserved habitat, rather than smaller, disconnected parcels that often result from project-by-project mitigation (Callihan et al., 2009). Larger conservation parcels minimize inferior habitats that border development (Murcia, 1995), and increased connectivity is advantageous to breeding activities and other ecological processes (Spencer et al., 2010; Taylor and Gerrodette, 1993). This is illustrated in Figure 4.

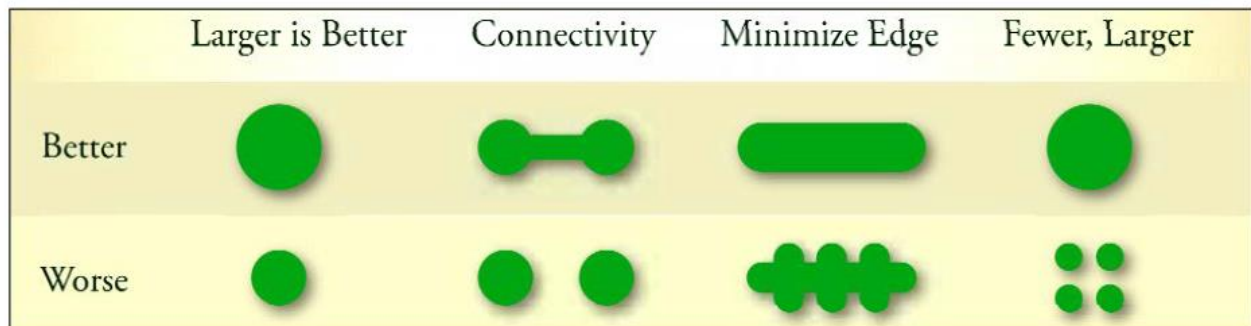


Figure 4. An Introduction to Conservation Biology

Source: East Contra Costa County Habitat Conservation Plan Association (2006a).

Since RHCPs encompass many local stakeholders, they can provide for conservation that spans multiple property boundaries, enabling the integrated habitat conservation recommended by conservation biologists (Raymond, 2006). For example, countywide plans allow for the conservation of millions of acres, including large, contiguous conservation preserves. As one

commentator observes, RHCPs provide “economies of scale” for both conservation and biological studies (Porter and Salvesen, 1995; Raymond, 2006).

Others have noted that the environmental community supports HCPs because they bolster habitat preservation with assured funding and political support. According to an independent audit of the HCP program:

The HCP program provides a total conservation package, which includes: landscape-scale conservation and development planning; generation and use of science for HCP development; the ability to leverage significant funding; the collection of vast amounts of scientific data to monitor implementation progress; and the establishment of conservation management structures, which may take the form of non-profit entities, government programs or committees, or multi-organizational task forces (Callihan et al., 2009, p. 7).

HCPs provide the additional benefit of allowing conservation for currently unlisted species. Because of the incentives provided by the “no surprises” clause, HCPs often incorporate species that may be listed in the future in order to mitigate possible harm to those species. These large-scale conservation efforts may in fact prevent a future need to list these species (White and Ernst, 2003). Environmental interests similarly receive assurances and increased certainty that habitat conservation will occur under the plan (Porter and Salvesen, 1995).

The long time horizons of the plans encourages regional planning that integrates conservation biology goals, limiting development in large areas and promoting the acquisition of land for permanent conservation (Raymond, 2006). Since the plans are forward looking, they provide opportunities to acquire large-tracts of suitable habitat in advance of development while it is still available (Wilkinson, McElfish, Kihlsinger, Bendick, and McKenney, 2009). Without the plans, projects may be built on land that would have been best suited for conservation would have been privately acquired for other development uses. The plans look forward to integrate conservation ideals into planning while the opportunity for large-scale conservation still exists

(Greer and Som, 2010; Wilkinson et al., 2009), and can further be integrated with other ecological or regional planning goals (J. W. Brown, 2006). A recent overview of the forty-year history of the ESA stressed the needs for regional conservation:

Conservation problems unfold at large scales, and solving them requires combined public and private actions across human-made boundaries. These challenges put a premium on developing tools for cross-jurisdictional, public-private, and private-private coordination and cooperation (Scarlett and Epanchin-Niell, 2013, p. 25).

RHCP Permitting Benefits to Development

RHCPs provide benefits for development activities, including transportation infrastructure development, in areas containing endangered species habitat. HCPs benefit development activities by streamlining environmental permitting and reducing the regulatory burden on individual projects by providing both certainty about ESA requirements and protection from liability. HCPs additionally lead to consideration of environmental concerns earlier in the planning process, providing greater funding while simultaneously reducing the specific fiscal burden of mitigation on a per-project basis. Overall, RHCPs are able to address environmental concerns throughout an entire region, spread the burdens of environmental protection among multiple stakeholders, and consider past and future, as well as direct and indirect impacts (Porter and Salvesen, 1995).

FWS, in its HCP Handbook, stresses its philosophical shift towards the benefits of Regional HCPs, stating that:

The cumulative total of HCP processing requirements is far greater when regional or area-wide activities are permitted individually than when addressed comprehensively under a regional HCP. Consequently, a second guiding principle of this handbook is that FWS and NMFS [National Marine Fisheries Service] will continue to encourage state and local governments and private landowners to undertake regional and multi-species HCP efforts as appropriate and will assist such efforts to the maximum extent practicable (U.S. Fish and Wildlife Service et al., 1996, p. 15).

FWS has recently encouraged the establishment of regional HCPs, touting the benefits in the HCP Handbook:

...regional or multi-species HCPs have many benefits. They can, for example: (1) maximize flexibility and available options in developing mitigation programs; (2) reduce the economic and logistic burden of these programs on individual landowners by distributing their impacts; (3) reduce uncoordinated decision making, which can result in incremental habitat loss and inefficient project review; (4) provide the permittee with long-term planning assurances and increase the number of species for which such assurances can be given; (5) bring a broad range of activities under the permit's legal protection; and (6) reduce the regulatory burden of ESA compliance for all affected participants (U.S. Fish and Wildlife Service et al., 1996, p. 14).

Streamlining

RHCPs reduce the time and cost of negotiating suitable mitigation with FWS for specific projects, and increase certainty in the environmental clearance process. Streamlined permitting on a per-project basis is one of the foremost benefits of RHCPs. In the absence of an RHCP, project-by-project mitigation requires that each project be permitted separately by FWS, contributing to long delays obtaining permits due to the heavy workload of staff at FWS. RHCPs provide early and comprehensive biological analysis and planning for mitigation over large areas, for non-federal projects to be permitted individually by FWS. Instead project proponents must only certify that their development and mitigation are compliant with the RHCP (Bergstein et al., 2012; Callihan et al., 2009; Greer and Som, 2010; Marsh and Lallas, 1995).

The administrative benefits can be enormous, as per-project mitigation approval under Section 10 of the ESA can take up to two years (Callihan et al., 2009). Dixon et al. (2008) found that most of the survey respondents from the Western Riverside Multiple Species Habitat Conservation Plan (WRMSHCP), an RHCP in California, reported that the presence of the MSHCP reduced permitting time for transportation projects by one to two years. In one case, the MSHCP enabled a project to proceed that otherwise would not have been able to at all.

Lederman and Wachs (2014a) found that streamlined permitting is often a primary motivation for RHCP creation. Multiple RHCP managers reported to them that the permitting backlog for potential single project HCPs has effectively halted development. One interviewee, citing the long wait for a project to even begin consultation with FWS in order to begin the ESA permitting process, said they formed their RHCP because “there had to be a way” (W. Conrad, personal communication, March 7, 2013). For example, the listing of the desert tortoise in Clark County threatened to virtually shut down all new construction in the Las Vegas area during a period of rapid economic growth without the formation of the Clark County RHCP (Raymond, 2006). According to a representative of the RHCP, the county was in the middle of a housing boom that included new master planned communities, and with a single local FWS office there would have been no way to handle necessary project permitting on an acceptable timeline without the RHCP (M. Hansen, personal communication, February 22, 2013). Butte County was motivated to prepare an RHCP after a five-mile section SR-149 was delayed over 4 years due to environmental permitting difficulties, with costs increasing from \$58 million to \$130 million due to the delays (J. Clark, personal communication, April 16, 2013).

Lederman and Wachs (2014a) also found that streamlined permitting under RHCP permits can increase economic development at the margins by attracting investment by non-local developers. The degree to which additional development can be encouraged is typically dictated by the underlying land-use plans present in the area covered by the HCP and the current room for expansion. According to a representative of the Clark County MSHCP, the RHCP has helped by providing certainty for developers. According to the interviewee, the RHCP works so smoothly to benefit the development community that local developers forget the travails and delays of project-by-project permitting, though non-local builders appreciate the ease of building in Clark

County as compared to locations with endangered species habitat but without an HCP (Marci Hansen, personal communication, February 22, 2013).¹⁴

Regulatory Certainty

RHCPs also provide regulatory certainty for development projects. As long as the development activity is “covered” under the ITP and the specified mitigation is undertaken, the project developer can be certain of FWS approval of compliance with the ESA. This certainty is both a benefit in itself, and also a contributing factor to streamlined permitting because it removes the need to negotiate environmental clearance with regulators. Dixon et al. (2008) found that the presence of the MSHCP increased certainty for permitting not only for transportation projects that affected endangered species habitat, but for other transportation projects within the area as well. In a study by Lederman and Wachs (2014), RHCP managers generally praised the resulting regulatory certainty for development projects, and many specifically addressed previous permitting issues for transportation projects. Though Caltrans was not an original signatory to and RHCP in East Contra Costa, or part of the development process, they opted in as a “special participating entity” by paying an extra fee once they saw the plan working because they valued the certainty it provided. Other benefits flow directly from this certainty. The ITP given under the RHCP is a determination that the development activities and corresponding mitigation requirements are compliant with the ESA.

¹⁴ Representatives of the Western Riverside and Bakersfield RHCPs also noted that the beauty of the HCP is that when it works it practically is invisible. The Bakersfield representative noted that this is also a curse, as this efficiency may actually produce the harm of allowing stakeholders to take for granted the benefits afforded by HCPs, as memories of onerous ESA processes fade. The Bakersfield HCP was set to expire in 2014, but the permit was extended through 2019 by FWS. Bakersfield is currently developing a new HCP that will expand its geographic boundaries to include unincorporated county land, and are finding that many developers have forgotten how difficult permitting was before the HCP, and are less willing to contribute money to the in-development HCP (P. Elisheva, personal communication, February 16, 2013).

Thus covered activities are immune from legal liability as long as they are consistent with the mitigation requirements agreed upon in the permit (U.S. Fish and Wildlife Service et al., 1996). These findings are further supported by a survey of a wide range of stakeholders conducted by Dixon et al. (2008), in which a sizeable percentage of those surveyed believed that the adoption of an HCP had reduced potential lawsuits for transportation projects. A representative of the Western Riverside MSHCP cited a reduction of environmental lawsuits under the ESA as the biggest reason they created their MSHCP. Before the HCP, environmental interests sued over almost every development project in the region. Since the enactment of the HCP, Western Riverside has had no lawsuits on road projects; lawsuits on other development projects occurred, though less frequently than before the HCP. There has been only one transportation-related lawsuit, brought against a rail line extension, which was ultimately dismissed because the Riverside County Transportation Commission (RCTC) had complied with the guidelines in the MSHCP (Charlie Landry, personal communication, July 16, 2013).

Cost Savings

Large-scale HCPs also allow the cost of mitigation to be spread among all development in the plan area, increasing administrative efficiency and enabling the development of landscape-scale mitigation (Callihan et al., 2009; Marsh and Lallas, 1995). For developers of projects, including agencies responsible for transportation projects, this provides certainty of ESA approval if they meet requirements specified in the HCP, greatly reducing the time and cost of environmental clearance on a per-project basis. Cost savings by developers (including infrastructure agencies) can be attributed various aspects of streamlined permitting and increased certainties. There are project-specific costs savings and cumulative benefits to the local

development community derived from tasking the RHCP managing organization to identify and purchase mitigation land.

RHCPs spread the costs of ESA compliance throughout the region, particularly benefitting smaller projects such as local roads and private landowner development on smaller parcels. These smaller projects may shoulder a disproportionate responsibility under project-by-project permitting. Most of the threats to endangered species habitats in a region may be posed by larger projects, but developers of small projects must work within the resulting biological framework as well. Without a regional HCP, these projects would be subject to the costs of developing individual HCPs, which could ultimately be prohibitive (U.S. Fish and Wildlife Service et al., 1996).

Economies of scale in land acquisition are an important component of the financial motivation for advance mitigation. RHCPs identify specific projects on potential development sites with similar mitigation needs, allowing fewer, larger, parcels to be acquired to satisfy the mitigation requirements. On average, larger parcels cost less on a per/acre basis than smaller parcels so the purchase of larger parcels may also permit additional savings (James Thorne, Huber, Girvetz, Quinn, and McCoy, 2009). In addition, reducing the number of necessary real estate transactions needed to satisfy regional mitigation requirements can potentially offer significant savings. A study of the Balcones Canyonlands Conservation Plan (BCCP) in Travis County, Texas found that compliance with the ESA without the HCP cost private landowners \$9,000 per acre, compared to fees up to \$1,300 under the HCP, concluding that the HCP “is a more cost effective method of complying with the Endangered Species Act than individual compliance by Travis County landowners with habitat” (Gau and Jarrett, 1992, p. 1.12).

RHCPs also greatly reduce cumulative environmental permit processing requirements with respect to total permitting time and expenses for the comprehensive suite of covered activities (U.S. Fish and Wildlife Service et al., 1996). Gau and Jarrett (1992) found that the BCCP would save up to \$200 million compared to the cumulative cost of project-by-project consultations (Beatley, Fries, and Braun, 1995). Similarly, an internal estimate comparing the costs of per-project ESA clearance for the Clark County, Nevada HCP found that projects processed under the planned HCP would save the community over \$300 million on permitting costs over project-by-project permitting (Lederman and Wachs, 2014c). RHCPs provide mitigation for a significant portion of economic development in California, and are expected to provide ITP coverage for projects with a cumulative value of \$1.6 trillion over the life of the permits (California Habitat Conservation Planning Coalition, 2013).

Additionally, the HCP shoulders the burden of environmental permitting for projects occurring within the covered area. In Butte County, California, the local metropolitan planning organization (MPO) is the agency responsible for planning their HCP, which is still in development. An interviewee at the Butte County MPO took pride in the organization's ability to coordinate among local jurisdictions and its efficiency in planning, pursuing an RHCP to alleviate understaffed local agencies' burden to meet ESA requirements. A representative of the Clark County HCP also discussed how the HCP removes the burden of ESA compliance from local infrastructure agencies and developers. While identifying this as the biggest benefit of the HCP, this representative also observed that the HCP process worked so well that it made ESA compliance almost invisible within the HCP area (Lederman and Wachs, 2014c).

It is important to note that RHCP formation faces significant roadblocks. The time and cost savings that result from RHCPs must be balanced with the cost and time of developing the

RHCP (D. Wheeler and Rowberry, 2010). RHCP planning is typically a lengthy and cumbersome collaborative planning exercise, which is discussed at further in Chapter 5. Further, incentives of participation must be made clear to participants, who are often hesitant to invest in changing their permitting processes, and cities are particularly reluctant to give up land use control, either or perceived. Communities must bear the costs of the planning process before reaping the development benefits of a permitted RHCP, and must work diligently to gain and maintain political support throughout the region (Lederman and Wachs, 2014a).

2.2 Advanced Mitigation for Transportation Projects

2.2.1 Road Ecology: The environmental impacts of transportation projects

Transportation infrastructure causes many concerns for endangered species, so RHCPs are increasingly used to address endangered species challenges facing transportation construction projects, to the benefit of both the species in question as well as the agencies leading the transportation projects. Many studies that inform the practice of advance mitigation and formation of RHCPs come from Road Ecology, an emerging subdivision of the ecological sciences (Forman et al., 2003). These works address the adverse impacts of transportation infrastructure on the natural environment (National Research Council, 2005; Trombulak and Frissell, 2000). Harm to endangered species and other wildlife populations can be divided into road mortality, habitat loss, and reduced connectivity (Forman et al., 2003).

Transportation infrastructure may also cause direct “take” of endangered species through road kill, which for some species exceeds the death rate from natural causes. Several endangered species are particularly threatened by road kill; inducing multiple Florida HCPs to protect the Florida panther and the Key Deer, and leading to Desert Tortoise protection under the Clark County RHCP (Seo, Thorne, Choi, Kwon, and Park, 2015).

Habitat loss includes direct loss of habitat (that once stood where the road now is) and habitat degradation, and is the most significant threat to endangered species, imperiling 85 percent of significant habitat loss, with one study finding that up to 48 acres of habitat is lost per one mile of interstate highway. This “road zone,” in which the impacts can occur, covers between 15 and 20 percent of the U.S. Land Area (Bissonette and Rosa, 2009; Girvetz, Thorne, Berry, and Jaeger, 2008). Road use additionally increases the spread of invasive species that may destroy the balance of delicate ecosystems (Gelbard and Belnap, 2003).

Automobiles further degrade endangered species habitat through air, soil, and water pollution. One study of important roadside pollutants found that 83 percent came from cars and trucks. Aside from direct taking of habitat, roads (and parking infrastructure required for automobile usage) are traditionally impervious surfaces. Impervious roads further harm habitat through runoff that includes oils and other particulates emitted by auto travel. A one-acre parking lot produces about 16 times as much runoff as a one-acre meadow. Waterways can become biologically degraded if more than 10 percent of a watershed is covered by impervious surfaces, and road salting was responsible for 11 percent of impaired streams (White and Ernst, 2003). Vehicle Greenhouse Gas emissions that contribute to climate change will also have long-term impacts on endangered species habitat (Fuglestedt, Berntsen, Myhre, Rypdal, and Skeie, 2008; Kennedy et al., 2009).

Road infrastructure also imperils the breeding behavior of many animals. Noise pollution from highways can cause high levels of stress in animals leading to abnormal reproductive behavior. Bird species are particularly vulnerable if automobile sounds drown out mating calls (Reijnen and Foppen, 1995). Reproductive behavior is further threatened by habitat fragmentation caused by roads and other linear infrastructure, as existing populations of

endangered species are bifurcated. This at least limits the expanse of the gene pool for reproduction, and at worst may separate breeding females from the male population of the species (White and Ernst, 2003).

Categorizing the Impact of Transportation Projects on Endangered Species: Direct, Indirect, and Cumulative Impacts

Under the ESA, the project proponent is required to perform an analysis of a project's impact on endangered species, known as a Biological Assessment (BA). Transportation projects can be considered to have three types of impacts: direct, indirect, and cumulative.

- **Direct Effects** are “the direct or immediate effects of the project on the species or its habitat.” For example, direct effects of constructing a new highway includes habitat destroyed by building a highway, as well as habitat degraded within the “road effect” zone as defined by ecologists. Direct effects also include “interrelated” and “interdependent” actions that would have “no utility” apart from the primary project under review (for example, an access road would be considered along with a newly constructed highway interchange, and a station parking lot would be considered along with a rail line extension) (U.S. Fish and Wildlife Service and National Marine Fisheries Service, 1998).
- **Indirect Effects** are “caused by or will result from the proposed action and are later in time, but are still reasonably certain to occur” (50 CFR §402.02). Indirect effects may occur outside of the area directly affected by the action. For example, private development occurring at a proposed new highway interchange would be considered an indirect effect of the highway construction (“National Wildlife Federation v. Coleman,” 1976; U.S. Fish and Wildlife Service and National Marine Fisheries Service, 1998).

Direct and Indirect effects are considered together in the biological assessment, and indirect effects most often result from infrastructure projects (including transportation) that are necessary for other development (American Association of Highway and Transportation Officials, 2016).

- **Cumulative Effects** “include effects of future state or private activities (not Federal activities) that are “reasonably certain” to occur within the action area of the proposed project” (U.S. Fish and Wildlife Service and National Marine Fisheries Service, 1998). Cumulative effects include economic development that is not tied to the project but likely to occur, and can occur outside of the area of direct and indirect effects. For example, increased development in the area surrounding an improved intersection or transit stop (50 CFR §402.14(h)).

Transportation (and other infrastructure) project proponents in particular must include biological analysis of indirect and cumulative effects under the ESA. Transportation facilitates private development and stimulates urban growth, which may cyclically require further transportation investment (White and Ernst, 2003).

Because of these impacts, transportation infrastructure projects often require extensive mitigation, and are accordingly subject to complex, costly, and time-consuming environmental review and requirements from multiple resource agencies, including FWS. Sciara, Bjorkman, Lederman, Thorne, et al. (2015) found that transportation project managers frequently found that projects had under-budgeted for mitigation, and had additional difficulty finding small, suitable parcels of mitigation land to satisfy ESA requirements. Transportation projects can accrue similar benefit to private development through advanced mitigation by assuring funds for mitigation earlier in the planning process, securing suitable mitigation land earlier in the

planning process when there is increased availability, and enhancing regulatory predictability (Greer and Som, 2010).

Regional-level planning can best find a balance between infrastructure development and open space preservation for biodiversity conservation (Kark, Levin N., Grantham, and Possingham, 2009; Lehtomäki and Moilanen, 2013). RHCP planning is a regional planning activity, because the plans include large-scale mitigation efforts capable of addressing ESA issues at a regional level (Thornton, 1991). The FWS Section 7 handbook specifically notes that RHCP planning is considered the cumulative effects analysis for impacts of large federal infrastructure projects (U.S. Fish and Wildlife Service and National Marine Fisheries Service, 1998), and Lederman and Wachs (2014c) found that RHCPs streamlined indirect and cumulative effects analysis for transportation projects.

Transportation infrastructure is therefore a crucial element in planning for regional conservation through an RHCP. Thorne et al. (2009) further argue that transportation projects are well suited to advanced, comprehensive mitigation strategies since long-range transportation planning requirements mean that transportation agencies typically have projects scheduled well into the future. Since transportation projects play a crucial role in shaping both public and private development covered under RHCP permits, transportation agencies have the ability to support regional advanced mitigation efforts that better addresses the needs of endangered species (Sciara, Bjorkman, Lederman, Thorne, et al., 2015).¹⁵

¹⁵ “It is in the transportation community’s interests to actively facilitate green infrastructure planning because it creates a more predictable environmental review context. On the other hand, for landscape-level green infrastructure, transportation planning and development is much more established and better funded and can provide a means of supporting green infrastructure planning and implementation, thereby enhancing conservation of ecological function” (U.S. Fish and Wildlife Service, 2011).

2.2.2 Surveying the landscape of landscape-level conservation as part of transportation policy

Transportation agencies at the federal (112th Congress, 2012; J. W. Brown, 2006), state (California Department of Transportation, 2016; California Department of Water Resources), and local levels (Orange County Transportation Authority, 2014b; San Diego Association of Governments, n.d.-b) have issued guidance to incorporate advanced mitigation into the transportation planning process, in some cases providing support for successful pilot programs throughout the county. This section briefly surveys national and state programs that support advanced mitigation programs for transportation projects.

National

Eco-logical: An Ecosystem Approach to Developing Infrastructure Projects

At the federal level, advanced mitigation was first promoted by the US Federal Highway Administration through the 2006 program ‘Eco-Logical,’ which “puts forth the conceptual groundwork for integrating plans across agency boundaries. It endorses ecosystem-based mitigation – an innovative method of mitigating infrastructure impacts that cannot be avoided” (J. W. Brown, 2006, p. vi). Eco-logical is predicated on collaborative planning that integrates traditionally “siloe” agencies at all levels of government,¹⁶ and was supported by numerous Executive Orders calling for coordination in environmental planning.¹⁷ Eco-logical is promoted

¹⁶ The Eco-Logical authors include representatives from the Bureau of Land Management, U.S. Environmental Protection Agency, Federal Highway Administration, National Oceanic and Atmospheric Administration Fisheries Service, National Park Service, U.S. Army Corps of Engineers, U.S. Department of Agriculture Forest Service, U.S. Fish and Wildlife Service and several State Departments of Transportation.

¹⁷ “The Executive Order for Environmental Stewardship and Transportation Infrastructure Project Reviews (EO 13274) and the Work Group on Integrated Planning established under it advance this effort by ensuring that agencies work to integrate planning. Similarly, the Executive Order for the Facilitation of Cooperative Conservation (EO 13352) reinforces Eco-Logical by ensuring that agencies of the Departments of the Interior, Agriculture, Commerce, and Defense and the Environmental Protection Agency implement laws relating to the environment and natural

by the U.S. Federal Highway Administration (FHWA) as part of its “environmental toolkit” oriented towards accelerating project delivery through a standardized approach to environmental review and mitigation based on improved coordination among stakeholders (U.S. Department of Transportation, 2012). The FHWA stressed that coordination is “essential to meeting the mandates for highway and transit projects under MAP-21 and SAFETEA-LU.” Figure 5 shows a FHWA visual representation of the Eco-Logical process:



Figure 5. Visual Representation of the Eco-Logical Process

Source: (U.S. Department of Transportation, n.d.-c).

The Ecological Report outlines an eight-step framework for Integrated Planning, and repeatedly calls for the FHWA to build collaborative institutional capacity by integrating environmental mitigation planning with existing federal and non-federal ecosystem management plans, of which RHCPs are an example. Eco-logical recommends that transportation projects be planned consistently with pre-existing regional environmental plans, specifying that

resources in a manner that promotes cooperative conservation, with an emphasis on appropriate inclusion of local participation in Federal decision-making, in accordance with respective agency missions, policies, and regulations” (Marcucci and Jordan, 2013, p. 182).

transportation project design should be done in consultation with resource agencies and not as a “surprise” (J. W. Brown, 2006).

Eco-logical also promotes the value of funding to purchase mitigation land earlier in time compared to standard mitigation, describing the “vanishing opportunities” faced by infrastructure proponents when timely action could result in the acquisition of land with “outstanding ecological benefits.” The report continues: “Delay could lead to a loss of the opportunity, perhaps never to see another one like it. These circumstances are becoming increasingly common as pristine or critical ecological resources are developed, many permanently. This is the crux of ecosystem-based mitigation – to take advantage of these vanishing opportunities before they are lost. It is difficult, if not impossible, to ‘turn back the clock’ and restore ecological functions and benefits of natural landscapes, communities, and habitats that have been severely altered or have experienced land-use change” (J. W. Brown, 2006, p. 40).

Implementation of Eco-Logical principles is supported by grants from the FHWA. In 2007, the FHWA offered \$1.4 million in grants to support cooperative agreements with 15 agencies, including state and local departments of transportation, state resource agencies, metropolitan planning organizations, local governments, non-governmental organizations, and one university (U.S. Department of Transportation, n.d.-a, n.d.-b). In 2013, the FHWA, in partnership with the American Association of State Highway and Transportation Officials and the Transportation Research Board, offered \$1.9 million in Implementation Assistance Grants, funded by the Second Strategic Highway Research Program (U.S. Department of Transportation,

2014). Grants were awarded to 14 State DOTs and MPOs for research and pilot programs to further Eco-Logical implementation (U.S. Department of Transportation).¹⁸

SAFETEA-LU

SAFETEA-LU (2005) was the first federal transportation bill to codify portions of the programmatic approach endorsed by Eco-Logical (23 USC §139). Specifically, it required states and MPOs to “Include a discussion of types of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the plan” during long-range planning. Section 6001 further required that environmental mitigation planning be done in “discussion” with relevant Federal and State resource agencies. While many transportation-planning agencies were already following such guidance in practice, the SAFETEA-LU authors strove to formalize these informal practices, and established uniform policy to consider environmental impact early in the process and to use collaborative planning to mitigate for impacts (U.S. Department of Transportation, 2009).

Every Day Counts Initiative

In 2009, the FHWA launched Every Day Counts in cooperation with AASHTO, one aspect of which is to extend expedited project delivery lessons of Eco-Logical to the delivery of state highway projects (U.S. Department of Transportation, n.d.-d). The Every Day Counts initiative focuses on the use of programmatic agreements to streamline project delivery (U.S.

¹⁸ Recipients include: Atlanta, Charlottesville, Idaho TD, Maine DOT, Michigan DOT, North Central Texas Council of Governments, Pikes Peak Council of Governments, Association of Monterey Bay Area Governments, Caltrans, Missouri DOT, New Hampshire DOT, Ohio Kentucky Indiana Regional Council of Governments (OKI) and Southern California Council of Governments. Further accomplishments of the Eco-Logical initiative can be found at the Eco-Logical ten-year retrospective website (J. W. Brown, 2006, p. ES1).

Department of Transportation, 2015b). The FHWA has undertaken a series of two-year pilot projects in collaboration with state or local transportation agencies. These projects are then evaluated, and findings are used to revise innovative best practices guidelines. Below is a summary of Every Day Counts case studies involving Section 7 of the ESA, taken from a research report prepared by the Volpe National Transportation Systems Center (U.S. Department of Transportation, 2015a):

- *Kentucky's ESA Section 7 Programmatic Agreement (PA) focusing on [protecting the] Indiana Bat has resulted in estimated savings of \$150,000 in minor road construction projects in 2014 (\$5,000 per project over 30 projects), against implementation costs of \$43,000. Complying with the Agreement obviated the need for seasonal tree cutting restrictions, which has led to shortened project timelines.*
- *Oregon's statewide ESA Section 7 PA has resulted in estimated savings of \$1.23 million over an 18 month period against implementation costs of approximately \$350,000. Project review time has also been streamlined and decreased from an average of 200 days to an average of 29 days.*
- *Washington's statewide ESA Section 7 PA has resulted in estimated annual savings of \$103,000 over the last two and a half years, 98% time savings for WSDOT biologists, and increased predictability and efficiency against total estimated costs of \$216,000. Even with ongoing maintenance costs, the estimated break-even point for the PA was just over two years after implementation.*

Moving Ahead for Progress in the 21st Century (MAP-21)

Moving Ahead for Progress in the 21st Century (MAP-21) (112th Congress, 2012), the 2012 federal surface transportation bill, codifies many of the streaming approaches recommended by Eco-Logical based on subsequent agency experience (23 USC §120; Schwarzer and Peckett, 2013). MAP-21 explicitly permits states and MPOs to develop programmatic mitigation plans within the statewide or regional long-range transportation planning process, providing guidelines for the potential content and collaboration (Sec. 1201-02).

Programmatic mitigation plans must be developed in collaboration with resource agencies, and must be made available for public comment (Sec. 1311).

MAP-21 also allows “any environmental mitigation activity” as qualified use of funding from the newly established Transportation Alternatives Program. However, the amount of funding available through the Program is small (~\$800 million per year), and mitigation is one of a number of possible uses of funding under the highly competitive program (Sec. 1122).

FAST ACT

The FAST Act of 2016 continues many of the environmental streamlining provisions of MAP-21 and incorporates best practices that emerged from the Every Day Counts program (114th Congress, 2015; U.S. Department of Transportation, 2016). The FAST Act codifies the development of federal programmatic agreement template used to expedite permitting and delivery for smaller transportation projects, and expands transparency requirements by building on the existing permitting dashboard to track NEPA and permitting progress per project (U.S. Department of Transportation, 2017). The FAST Act additionally contains new procedural requirements intended to broaden the scope of NEPA processes to encompass analysis of other environmental impacts (including compensatory mitigation and habitat preservation) in one document. Under Sec 1304 of the FAST Act, project proponents must develop a schedule for inter-agency coordination, and the DOT will develop a checklist for project proponents to identify potential natural resources impacted by the proposed project.

The FAST Act converted the long-standing Surface Transportation Program into the Surface Transportation Block Grant Program, distributing formula funding to the states based on allocation formulas in Map-21. The FAST Act eliminated the Transportation Alternatives

Program, of MAP-21, and rolls funding for transportation alternatives into the Surface Transportation Block Grant Program as a “set-aside” portion set to average \$844 million per year. The FAST Act maintains the list of qualified uses under MAP-21, including advanced mitigation (U.S. Department of Transportation, 2016).

State DOT Advanced Mitigation Efforts

Numerous State DOTs have independently established and funded programs to provide for advanced mitigation of multiple transportation projects. The drive towards landscape-level advanced mitigation largely responded to concerns over water quality and wetlands mitigation, and was undertaken at a watershed-scale. Additionally, AASHTO endorses advanced mitigation as a way for a project to meet environmental goals cost effectively (Venner, 2005). This section surveys some of the earliest and most successful state DOT mitigation programs. It then discusses the current development of an Advanced Mitigation Program in California.

North Carolina

North Carolina DOT provides advanced mitigation at the watershed scale using the North Carolina Ecosystem Enhancement Program, founded in 2003. The Program specifically dedicated fund for transportation projects created within the preexisting Wetland Restoration Program, operated by the North Carolina Department of Environment and Natural Resources. North Carolina Ecosystem Enhancement Program provides flexibility both in purchasing lands in advance of project construction to prevent project delays from environmental permitting. Situating the North Carolina Ecosystem Enhancement Program within the preexisting Wetland Restoration Program allows consolidated mitigation programs for transportation and environmental agencies, and the DOT hands-off land management to NC Department of

Environment and Natural Resources. North Carolina DOT conducts an annual assessment of project impacts to wetlands and pays into the fund for mitigation. As of 2015, the North Carolina Ecosystem Enhancement Program had facilitated \$8 billion of transportation-infrastructure improvements (Sciara, Bjorkman, Lederman, Thorne, et al., 2015).

Florida

Florida has a long history of funding advanced mitigation at the state level, particularly in relation to water quality and wetland habitat conservation. Florida's Water Resources Act of 1972 created five Water Management Districts to administer flood protection programs, study water resources, and develop water management plans, including actions to acquire and manage lands for water management. Since 1996, Florida law has acknowledged that regional, advance mitigation planning can more effectively achieve mitigation goals than the project-by-project approach and has thus directed the Florida Department of Transportation to undertake regional, long-range planning for the environmental mitigation of wetland impacts of proposed transportation projects (Florida Statute 373.4137).

The Florida Department of Transportation submits to the state's Water Management Districts an annual inventory of the environmental impacts of projects to be implemented in the next three years of its work plan. The DOT pays the Water Management Districts to undertake mitigation on its behalf (Florida Department of Environmental Protection, 2017). This program takes a yearly look at project impacts, and in 2015 the Florida Department of Transportation expanded its advanced mitigation capabilities through an annual \$5 million fund "for purchase of advanced mitigation of wetlands and other surface water impacts and species impacts of transportation projects and for ecosystem or environmental management projects" (Florida Department of Transportation, 2013).

Washington

Washington State DOT established the Advanced Environmental Mitigation Revolving Account in 1997 to provide for watershed-scale planning and mitigation, and eventually expanded the program to include endangered species habitat conservation. The Advanced Environmental Mitigation Revolving Account was initially funded by a line item appropriation in the DOT budget. The DOT can borrow from the fund to purchase large, environmentally valuable land parcels to mitigate multiple projects. The DOT repays the fund per-project environmental funding if a project warrants mitigation (Greer and Som, 2010; Sciara, Bjorkman, Lederman, Thorne, et al., 2015).

California

In 2009, the California legislature introduced but failed to pass AB 1321, the Advanced Infrastructure Mitigation Program Act, to authorize the identification of future projects by state infrastructure agencies for the purpose of facilitating advanced mitigation on a regional scale (Greer and Som, 2010). According to a Caltrans representative, the agency has been exploring regional advanced mitigation, recently commissioning the study “Transcending Boundaries: Collaborative Planning in California Regions” by the University of California, Riverside. The study explored innovative approaches to regional advanced mitigation across the state (Allison et al., 2007; American Association of Highway and Transportation Officials, 2016). In 2008, Caltrans, as part of a coalition of infrastructure and natural resource agencies, NGOs, and academic researchers launched the Regional Advance Mitigation Planning (RAMP) pilot program. RAMP aims to ensure that advanced planning for transportation project mitigation is integrated with regional conservation priorities. The program began with a regional pilot

program in the Central Sacramento Valley, with the goal of developing a RAMP Statewide Framework (James Thorne, Huber, O'Donoghue, and Santos, 2014).

California's Senate Bill 1, enacted in 2017, creates an Advanced Mitigation Program to “enhance communications between the department [of Transportation] and stakeholders to protect natural resources through project mitigation, to meet or exceed applicable environmental requirements, to accelerate project delivery, and to fully mitigate environmental impacts from transportation infrastructure projects.” Senate Bill 1 will dedicate at least \$30 million annually for four years to the planning and implementation of advanced mitigation projects, allowing internal flexibility to address mitigation requirements. The bill does not specify guidelines for disbursement of Advanced Mitigation Program funding, but funding may be used for specific projects or larger, more comprehensive mitigation programs. Guidelines are currently being developed with input from the California Department of Fish and Wildlife (CDFW), and CDFW is trying to incorporate language that specifically allows for Advanced Mitigation Program funding to be used integrating transportation planning into existing conservation initiatives such as HCPs.

In 2017, CDFW began the Regional Conservation Investment Strategy pilot program. Created under 2016's Assembly Bill 2087, the program aims to encourage “a voluntary, non-regulatory regional planning process intended to result in higher-quality conservation outcomes and includes an advance mitigation tool” (California Department of Fish and Wildlife, 2017). CDFW Habitat Conservation Planning Branch in Sacramento administers the program. There are currently four pilot programs, exemplified by a mitigation credit agreement with Caltrans to mitigate environmental impacts of the Laurel Curve Wildlife Habitat Connectivity Project on Highway 17 in Santa Cruz County. Highway 17 fragments an important wildlife habitat linkage

corridor for mountain lions and other wildlife, and roadkill deaths are common. Caltrans in partnership with the Land Trust of Santa Cruz County acquired conservation land abutting the highway and connected by newly-constructed wildlife highway undercrossings (Diamond, Snyder, Siepel, and Robertson, 2015). CDFW cites this pilot as a possible model for statewide integrated planning promoted under Senate Bill 1 (California Department of Fish and Wildlife, 2016).

2.2.3 Transportation Specific Benefits from Advanced Mitigation

Cost savings from advanced mitigation have been studied largely in terms of reducing delays and minimizing uncertainty in the transportation planning and delivery process, but also include examples of cost savings from economies of scale in mitigation

A study funded by the National Highway Cooperative Research Program found that 65 percent of the DOTs surveyed had experienced delay due to environmental factors, and that the median delay attributable to such factors was 12 months. A small fraction of transportation projects can experience severe delays of as much as 10 to 15 years (TransTech Management, 2002). At a recent hearing before the U.S. House of Representatives Transportation and Infrastructure Committee, Thomas Margro, CEO of Transportation Corridor Agencies in Orange County, testified that the federal environmental review process added 15 years to development of State Road 241 in California (Bergstein et al., 2012).

In California, an internal Caltrans report found that 35 percent of 4,090 programmed projects from 2002-2004 required some form of environmental mitigation (not necessarily related to endangered species), and that 61 percent of these projects spent more than budgeted amounts for environmental mitigation. Caltrans calculated that these environmental delays cost

the agency \$59,000,000/year. Sciara and Stryjewski (2015) found that a statewide advanced mitigation program could accelerate project delivery on average by between 1.3 and 5 months.

The Michigan Department of Transportation has implemented a programmatic wetlands advance mitigation approach utilizing statewide data on the wetlands ecosystem to target best-value mitigation land in cooperation with the Michigan Department of Natural Resources.

Though still funding mitigation of individual projects, the program reduced mitigation costs from \$75-\$150K/acre to \$25-30K/acre. The Michigan DOT additionally reduced permitting delays, with 66 percent of all permits processed in 30 days (Sciara and Stryjewski, 2015). The Oregon Department of Transportation instituted a programmatic approach to environmentally sensitive bridge construction and repair, saving \$73 M over conventional permitting (U.S. Department of Transportation, 2015a).

2.3 Summary and Gaps in the Literature

The literature review focused on two threads in the literature. The first section provided an overview of the Regional Habitat Conservation Plans. I first outlined the history of the Endangered Species Act and reasons for the trend towards using Regional Habitat Conservation Plans to mitigate for harm to endangered species by non-federal development projects. I then discussed how RHCPs can integrate biological and development planning on a regional-scale, providing superior conservation outcomes while conferring many benefits on participating development projects, including time and costs savings, and regulatory certainty.

The second section of this chapter focused on the need to integrate advanced mitigation into transportation planning. Findings from the road ecology literature demonstrate the potentially adverse impacts of transportation projects on endangered species and their habitats, justifying the need to improve transportation planners' approach to mitigating impacts. I traced

development of policy guidance from federal transportation agencies on the use of programmatic agreements and advanced mitigation to streamline environmental permitting and accelerate project delivery. At the state level, I surveyed selected advanced mitigation programs successfully implemented by DOTs. Finally, I reviewed findings on advanced mitigation cost and time savings resulting from various forms of programmatic environmental review.

These two strands of literature taken together present a compelling case for the participation of transportation agencies in landscape-level conservation planning, including RHCPs. Nonetheless, there is a lack of research that directly examines integrated environmental planning undertaken by transportation agencies in collaboration with local government and private development. Accordingly, the following sections focus on this intersection, examining each in chapters addressing the legal, financial, and political economy dynamics of transportation agency participation in Regional Habitat Conservation Planning.

3 Research Design: Mixed-Methods Study of RHCPs and Transportation

3.1 Case Selection

I looked at whether participation in RHCPs has affected the transportation planning process or its outcomes. RHCPs require mitigation for species harm on a regional level that alters environmental planning by local jurisdictions and private developers, but their impact on the transportation planning process is less clear. RHCPs are a form of regional conservation that result from a federal statutory mandate that has existed since 1983, and provide more experience to draw upon than do newer forms of regional conservation, such as advanced mitigation programs at state DOTs (Callihan et al., 2009).

To examine the effect of RHCPs on transportation planning, I employed multiple qualitative research methods. Qualitative methods are increasingly used in applied policy research, especially as a way to understand complex relationships and processes within a system (Bazeley, 2013). Ritchie and Spencer (2002) note that qualitative research provides insights, explanations, and theories grounded in the experience of those who enact or are affected by a policy decision.

I identified RHCPs for study using a FWS database of all permitted HCPs for which:

- the acreage covered under the permit is more than 1,000 acres,
- permittees included a governmental entity, and
- mitigation of the environmental effects of transportation projects was one of the goals of the plan.

This eliminated small HCPs that cover single projects and large HCPs managed by private entities (such as timber companies). I also conducted an internet search of those so identified to find RHCP planning documents for in-development RHCPs; based on the review, I composed an

initial list of RHCPs that cover mitigation for transportation projects. The cases included all RHCPs, either permitted or still in-development, that met these requirements. Using multiple cases allows for a comparison among RHCPs that can provide the basis for a best practices guide for integrating transportation and conservation planning on a regional scale (Baxter and Jack, 2008). I identified 22 RHCPs that cover or plan to cover multiple transportation projects. The majority of RHCPs that meet the criteria for inclusion are located in California due to the coincidence of high biodiversity and rapid growth, strong state conservation laws, and a tradition of HCPs that increases familiarity with the process among both applicants and local FWS staff. But nationwide familiarity with the RHCP model is growing, and RHCPs now can be found in diverse set of states outside of California, including Texas, Nevada, Florida, Georgia, Washington, Oregon, and Arizona.

3.2 A Mixed Methods Study

I relied on both document analysis and interviews for this research. I began each case study by collecting data from RHCP planning documents, including planning agreements and public meeting minutes, to provide background on the role of transportation agencies in RHCP formation, management, and funding. These materials were found by conducting internet searches or were provided by interviewees. For RHCPs that had received permits, I focused primarily on HCP documents that had been submitted to the FWS, supplemented by other public documents from the planning phase, as well as annual reports tracking implementation progress published by RHCP managing agencies.¹⁹ I also reviewed FWS service training materials and RHCP-related policy documents that discussed the goals and requirements for permitting.

¹⁹ For example, various RHCPs have produced annual reports that document progress in land conservation and project delivery.

I then interviewed RHCP representatives and other state and federal officials. I contacted by e-mail 22 RHCP agencies that included transportation projects, followed in many cases by telephone calls during which I asked representatives to participate in interviews. I eventually completed telephone or in-person interviews with people associated with 20 RHCPs. I studied in greatest depth 11 of the RHCP agencies that had been issued permits at the time of the interviews.

Following an initial analysis of each Plan, I conducted semi-structured interviews of relevant stakeholders. The interview guide can be found in Appendix B. The potential interviewees were contacted via email with a request, and either in-person or telephone interviews were held with the respondents to those emails. RHCPs that were in-development and not yet permitted that met the relevant criteria were also identified and contacted. I used a snowball technique to identify further interviewees, including former RHCP employees, transportation agency planners who collaborated with RHCP managers, and resource agency staff.

I conducted 55 interviews (see Appendix C for an interviewee list). Interviewees included representatives of identified RHCPs, transportation agencies, FWS, and local governments. Depending on the structure and participants in the RHCP, these interviewees included representatives of the following:

- HCP managing entities
- Government representatives
- Transportation Agencies; including local transportation agencies and State DOTs.
- Other transportation stakeholders, such as Metropolitan Planning Organizations, American Association of State Highway and Transportation Officials, and the Federal Highway Administration.
- FWS (including HCP planning staff and transportation liaisons)

- 3rd Party HCP Participants (HCP consultancies, facilitators, lawyers, and environmental interest groups).

The interviews were based on an outline developed from the document analysis and literature review. I conducted semi-structured interviews to encourage new information to emerge and allow for follow-up questions (Merriam and Tisdell, 2015). Each interview included general questions and questions specific to the position of the interviewee and the plan or program in which he or she participated. I continued a series of communications with most interviewees, either through follow-up emails or through in-person communications at events related to my research.

I also participated in conferences, dialogues, and meetings with RHCP stakeholders over the course of my research that provided valuable information and insights. These included:

- Attending a five-day HCP training course held by FWS on how to legally and practically implement HCPs. This course is oriented towards regional FWS staff members.
- Attending three annual meetings of the California Habitat Coalition. Each meeting lasted a full day in which representatives of every California RHCP discuss their projects and concerns and share experiences. Meeting attendance ranged from about 35 to about 125 people, and attendees included USFWS and CFWD staff, Caltrans and local transportation agency representatives, city staff, and other stakeholders.
- Participating in a research team for the Statewide Advance Mitigation Funding and Financial Strategies research project for Caltrans (led by UC-Davis), during which multiple Technical Advisory Committee meetings were held with Caltrans. This project covered advance mitigation for Caltrans generally, and included research and discussion of Caltrans' role in RHCPs
- Attending and making a presentation at the International Conference for Ecology and Transportation. This conference is attended mainly by biological staff of transportation agencies and includes a policy-focused track.
- Attending, and assisting in organizing, a series of dialogues focused on improving collaborative governance for conservation (and other) environmental goals. This included three California dialogues thus far, and two dialogues held in Washington D.C., hosted by the Environmental Law Institute. In 2015, the dialogue participants held a meeting with the Council on Environmental Quality.

- Attending numerous public meetings held by RHCP managing entities, mostly in Southern California, including meetings held by OCTA, SANDAG, and RCTC.

The research methodology has several limitations. I interviewed people associated only with functioning RHCPs and did not examine in-depth attempts to create RHCPs that had failed. To do so would have been possible, and likely informative, but difficult. Second, it was not practical and often impossible to conduct interviews with planners who participated in the formation of a few of the earliest RHCPs because the staff involved had retired and were unreachable. And third, the research described here leads to the possibility that the findings may not be generalizable to most or all U.S. states both because there are states in which there are no RHCPs, and because I did not have the time and resources to review laws applicable to RHCPs in every state.

4 The Legal and Practical Dynamics of Integrating Transportation Projects into RHCPs

Regional HCPs are created to reconcile conflicts between development and preservation in areas that are home to endangered species. Among the RHCPs surveyed, transportation development activities feature prominently among the covered activities, as their construction threatens to “take” an endangered species if not mitigated (Callihan et al., 2009). Among RHCP applicants interviewed, environmental clearance for transportation projects was a motivation for developing many HCPs.

HCPs were often created as the result of the inability to come to agreement on a mitigation strategy for a specific transportation project. For example, the Butte County HCP, currently in development by the Butte County Association of Governments (BCAG), was formed after Caltrans had difficulty with ESA permitting for a large regional highway project. According to a BCAG staff member working on the HCP, the Caltrans project was delayed for two years and costs increased greatly while they struggled to get the ESA permit. BCAG staff were concerned the project would lose funding so they enlisted local political leaders to find a way to get the project built. As a result of these struggles they sought an easier way to get big projects done and decided on an HCP (J. Clark, personal communication, April 16, 2013).

The Santa Clara Valley Habitat Plan, permitted in 2013, originated as a requirement by FWS in exchange for permitting local transportation projects, including the widening of US Route 101. The FWS’s biological opinion as to the impacts of the project recommended an RHCP as a condition for approval of the projects in order to off-set the cumulative indirect growth effects on threatened species (Santa Clara Valley Habitat Agency, 2012). This recommendation is not unique, and biological opinions led to the creation of other Northern

California HCPs, including Yuba/Sutter and Placer Counties, according to interviews with HCP staff (L. Mueller, personal communication, May 20, 2013; L. Clark, personal communication, May 22, 2013). A staff member at the Coachella Valley Multiple Species HCP cited environmental clearance for transportation infrastructure as a primary impetus for creation of the HCP, saying that the inclusion of transportation projects will allow them to complete 75 years of planned projects within 25 years, and the resulting expedited project delivery enabled them to garner public support for the Plan (Coachella Valley Association of Governments, 2016).

4.1 How RHCPs Cover Transportation: The Technicalities

For a transportation project to be a “covered activity” in an HCP, it must be specified in the plan to a level at which FWS can ascertain the effect on endangered species to the legally required degree of biological certainty. Based on a review of plans that cover transportation projects, there are a variety of ways these projects have been successfully enumerated.

As the HCP process has matured, FWS staff reported that they increased the required specificity for covered activities in order to increase the accuracy of its biological analysis to avoid potential lawsuits. For example, the original Metropolitan Bakersfield HCP, issued in 1994, covered county activities in general, including transportation projects. The ITP issued for the Metropolitan Bakersfield HCP was extended in 2014, and they are currently planning a new RHCP. According to a Bakersfield HCP staff member, the new HCP will, like the earlier one, cover transportation infrastructure, but the service now requires more specific delineation of covered projects (P. Elisheva, personal communication, February 16, 2013). More recent plans include detailed maps of planned transportation projects over the life of the plan, and Western Riverside specified the allowable miles of transportation construction permitted in certain areas under their plan (Riverside County Transportation and Land Management Agency, 2003).

While it is preferable for the planned transportation projects to be detailed to the extent possible to facilitate the biological finding and determination of required mitigation, the achievable degree of specificity is determined by a number of factors. Projects occurring sooner generally tend to have more definite details, as do projects within urbanized areas, whereas the developers of projects occurring later or in rural areas may still be debating, among other things, transportation project alignments as the RHCP is developed. The degree of specificity also depends on how information was gathered for planning. Typically, more involvement from regional transportation agencies or state DOTs leads to more specific project definition, and this is why both applicants and FWS encourage the involvement of transportation planning agencies early in HCP planning.

One unique approach was that taken by the Balcones Canyonlands Conservation Plan in Travis County, Texas, which includes the City of Austin. Because of what an interviewee considered a weak regional planning tradition in Texas, there weren't very explicit plans for future development in Travis County. Typically, infrastructure planning and provision follow private commercial and residential development (R. Farmer, personal communication, February 22, 2013). This conflicted with the goals of the long term planning required by the long lives of the HCP permits (in this case, 30 years). The applicants dealt with this by determining "infrastructure corridors" in which future transportation capacity can be added and be covered by the plan. These corridors were determined by considering the likelihood of where future growth would occur and where rights-of-way were already located. As stated in the plan:

The principal objective is to provide future community services and facilities in a manner consistent with the objectives of habitat conservation, i.e., in a manner which minimizes habitat conversions and fragmentation. A second objective is to reduce overall economic cost of providing public services to the area. Planning in advance of future infrastructure needs and delimiting the number and location of infrastructure corridors in and adjacent

to preserve areas will aid in accomplishing these objectives (City of Austin and Travis County Texas, 1996, p. B.1).

Transportation development is not explicitly limited to such corridors, but must take place in them to benefit from the structure of the HCP. Outside the corridors, those developing the infrastructure would need to seek FWS approval for individual projects. A city staff member referred to this as “a death sentence for a project,” citing neighboring Williamson County’s struggle to get approval for a local highway project (W. Conrad, personal communication, March 7, 2013).

Thus, while providing a high-level of specificity regarding planned transportation projects that facilitates the HCP process, the flexibility of the process can accommodate the inclusion of more general transportation planning goals.

4.2 Understanding the relationship between ESA Section 7 and Section 10

Under the ESA, federal and non-federal activities are subject to different permitting processes, both of which are relevant to transportation planning. Section 10 of the Endangered Species Act applies only to actions by non-federal entities, such as state and local governments and agencies. While Sections 7 and 10 both require FWS to evaluate the impact of the proposed action and minimize the harm to endangered species, they are distinguished by both procedural and substantive differences that are beyond the scope of this article.

Actions having a federal nexus, defined as an action “authorized, funded, or carried out” by a federal agency are evaluated under Section 7 of the Endangered Species Act, which covers interagency cooperation (16 U.S.C 1536(a)(2)) (see Figure 6). HCPs have successfully integrated transportation projects with a federal nexus, both facilitating the regional environmental planning

that is the ultimate goal of the HCP, and expediting the review for projects that must undergo a Section 7 consultation.

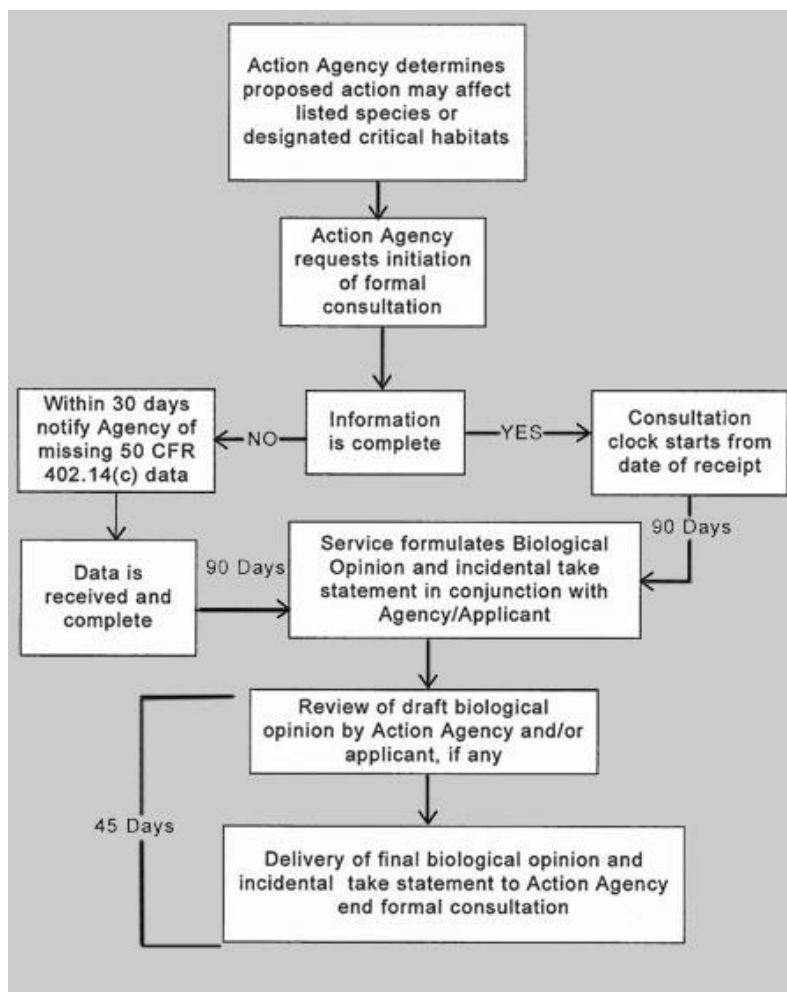


Figure 6. Section 7 Formal Consultation Process Flowchart

Source: U.S. Fish and Wildlife Service and National Marine Fisheries Service (1998).

Understanding the interaction of transportation planning and the ESA is complicated by the Section 7 vs. Section 10 dichotomy, particularly because of the prevalence of federal funding for transportation projects, which is a qualifying “federal nexus.” Many larger transportation projects, even at the county level, receive federal funding that leads to the conclusion that there is a “federal nexus” that places the ESA concerns under a Section 7 “consultation” requirement as opposed to Section 10 Habitat Conservation Planning (Bergstein et al., 2012). Additionally, the

FHWA, whose activities as a federal agency fall under Section 7, delegated its authority under the ESA to some State DOTs, including California. Projects of these state DOTs are thus being evaluated by FWS under Section 7 (Nelson, 2016; Nicol, 2002).

The distinction between Section 7 and Section 10 notwithstanding, HCPs are increasingly being used to facilitate environmental clearance for transportation projects. As federal and state funding for transportation decreases, more and more counties provide the majority of their transportation funding from local sales taxes dedicated to transportation, leading them to be referred to as “self-help” counties (Goldman and Wachs, 2003).²⁰ This funding mechanism removes many transportation projects from state control and thus from nexus, and one county transportation agency is in the process of forming its own HCP for projects approved under a local transportation sales tax.

Many HCPs chose to include transportation projects having a federal nexus so as to streamline the Section 7 consultation process. Although these projects will ultimately be subject to a Section 7 consultation, they have been included as a covered activity in most RHCPs. The analysis done for the HCP provides the biological data necessary for the Section 7 consultation, reducing the time consumed by the Section 7 process. Furthermore, since the project was included in the RHCP plan, time has already been spent negotiating with FWS over what is acceptable mitigation, and that mitigation has been approved with the issuance of the ITP for the RHCP. HCPs that include federally-funded transportation projects often specify the mechanism for this “expedited” Section 7 consultation in the RHCP. Typically, FWS writes a letter certifying that the project and planned mitigation for its harm to endangered species habitat is

²⁰ This practice is currently common in California, but not in other states. It is important to a discussion of transportation and RHCPs since many of the current RHCPs are located in California, but its future importance depends on whether transportation sales taxes are more widely adopted in other states.

consistent with the project details in the already-approved RHCP. This presents the same benefits that RHCPs do in general, namely cost-efficient mitigation, time savings, certainty, and a better environmental outcome for the species (Bergstein et al., 2012). The Western Riverside MSHCP lists “Establishes consistent mitigation standards for MSHCP Covered Species for potential application by the FWS under Section 7...” as one of the enumerated goals of its RHCP, and has been able to clear Section 7 projects in 45 days that they estimate would have taken three years without the RHCP (Riverside County Transportation and Land Management Agency, 2003, p. 1.2.3). For further illustration, Section 6.9 of the Coachella Valley MSHCP states:

...any consultation under section 7 ... with regard to Covered Species and Covered Activities, the FWS shall ensure that the FESA [Federal Endangered Species Act] biological opinion issued in connection with the proposed project that is the subject of the consultation is consistent with the internal FESA biological opinion. Such projects must be consistent with the terms and conditions of the MSHCP and this Agreement. Any terms and conditions included under the reasonable and prudent measures of a FESA biological opinion issued subsequent to the Effective Date with regard to the Covered Species and Covered Activities shall, to the maximum extent appropriate, be consistent with the implementation measures of the MSHCP and this Agreement (Coachella Valley Association of Governments, 2007).

As illustrated in the quotation above, the vast majority of transportation projects in the region can be incorporated into an RHCP, even if they are required to undergo a Section 7 analysis due to federal funding. Interviewees representing both FWS and RHCPs have found that the time and cost of the environmental review process for transportation projects is reduced, and agencies are able to approach ESA mitigation with increased certainty of approval as long as the guidelines of the HCP are followed.

Since issuing an ITP is a federal action, it is required to meet the procedural requirements of the National Environmental Policy Act (NEPA), which considers the effects of the federal action with respect to a larger number of factors than endangered species. When issuing a permit

for an HCP, NEPA requires FWS to prepare an environmental impact analysis of the HCP, which is typically prepared in conjunction with RHCP planning. Therefore, the NEPA analysis of an HCP must include direct, indirect and cumulative effects of the covered activities, and FWS is required to address the growth resulting from the transportation projects allowed under the ITP. HCPs respond to the growth inducing and other indirect effects of transportation infrastructure development that must be considered in the Environmental Impact Statement (or other findings) required under the NEPA, for issuance of an ITP and under state environmental laws (D. Wheeler and Rowberry, 2010). Since an HCP responds to potential development over a long time frame of transportation, other infrastructure projects, and residential and commercial construction, the environmental analysis conducted for purposes of the HCP can also be used for the NEPA analysis of a specific transportation project if it is required. These mechanics are illustrated in the San Joaquin County Multi-Species HCP (“SJMSCP”):

The SJMSCP Permitted Activities include one category which has been determined by the Permitting Agencies to result in indirect effects to SJMSCP Covered Species--Transportation Projects. Specifically, the Permitting Agencies have determined that at least some of the SJMSCP Covered transportation projects are potentially growth-inducing. This potential impact has been considered by the SJMSCP and is addressed by the Plan. This is because the Plan assumes that full build-out of the Cities' and County's general plans will occur over the next 50 years, and includes all this development in its habitat compensation program. Thus, any indirect growth-inducing effects of any transportation projects constructed under the SJMSCP is addressed by the Plan and is fully mitigated, since all potential urban development in San Joaquin County (with the exception of Tracy Hills, as described in Section 6.5) is included in its mitigation requirements (San Joaquin Council of Governments, 2000, p. 6.7).

As this quotation demonstrates, HCPs frequently cover the endangered species requirements for many of the planned transportation projects in the plan area, and one interviewee referred to the ability of HCPs to supply information for the indirect effect analysis as a “get out of jail free card” that is an often-overlooked benefit (G. Boyd, personal

communication, March 17, 2014). Gathering biological data and development information for indirect and cumulative effects for NEPA analysis under project-by-project environmental permitting is typically time consuming and is a frequent subject of litigation. The analysis required for an RHCP provides much of this information and has furthermore been accepted by FWS through their issuance of an ITP. Thus, the inclusion of planned transportation projects in an RHCP greatly expedites the eventual Section 7 permitting process for included transportation projects, greatly increasing support for RHCPs.

4.3 The Role of Transportation Planning Agencies in RHCPs

A growing body of research argues for including all relevant stakeholders in the RHCP planning process and providing for frequent communication among them. According to interviewees, including the agencies responsible for local transportation facilitates the RHCP planning process because involving all parties at the early stages of planning increases long-term cooperation, which reduces the chance of lawsuits and results in a more comprehensive and integrated HCP (Marsh and Lallas, 1995). FWS, according to a staff member, has begun urging the involvement of transportation planning agencies to enhance its ability to expedite the permitting process (anonymous UWFS California Office staff, personal communication, June 14, 2013).

One of the most salient features of Habitat Conservation Plans is that they are uniquely constructed to meet both biological needs of the endangered species and the development and planning needs of the governmental body seeking a permit, and no two plans are identical (Bergstein et al., 2012; Marsh and Lallas, 1995). While this makes the RHCP process useful to any entity required to address endangered species, it is difficult to generalize about the structure of RHCPs. Because of the variation among HCPs and the political environments of the areas

they cover, there are many ways in which transportation agencies and projects have been incorporated in RHCPs. According to one representative of the FWS, each HCP approaches integrating transportation planning uniquely because “they have different tools in their toolbox” (anonymous UWFS California Office staff, personal communication, June 14, 2013). The following sections illustrate different mechanisms by which state and local transportation agencies have been incorporated into RHCPs.

4.3.1 State DOTs

Few state DOTs are the primary permittees under RHCPs. State DOTs are most often included as permittees in plans having multiple permittees, including county and local governments and other utility and infrastructure agencies. One example of a state DOT holding its own ITP is the Coachella Valley MSHCP. Under this RHCP, Caltrans is responsible for acquiring over 7,500 acres of land for mitigation and contributing over \$8.6 million for monitoring and management of land acquired by the MSHCP in exchange for construction of freeway interchanges and arterials under the plan (Coachella Valley Association of Governments, 2007). The Nevada DOT is a permittee under the Clark County MSHCP, but, according to an HCP staff member, has continued to mainly use Section 7 consultation for its road construction, using the HCP coverage for its gravel extraction pit activities (M. Hansen, personal communication, February 22, 2013). The Six-Points Road Interchange HCP in Indiana covers only one federal project, an interchange on I-70 near the Indianapolis Airport, with permittees including the Indiana Department of Transportation and the FHWA. After the required Section 7 consultation with FWS, the applicants chose to use an HCP to address the “impacts of the road construction, as well as commercial development and airport improvements

that will occur in the area following the road construction” (U.S. Fish and Wildlife Service, 2002).

Other RHCPs are structured so that there is one or a few direct permittees, but other stakeholders are legally bound under the plan without their own permits. One example is the statewide Wisconsin HCP for the Karner Blue Butterfly, which covers the entire state but only requires mitigation in areas identified as butterfly habitats. Wisconsin Department of Transportation DOT is officially designated a “partner,” rather than a direct permittee. According to an HCP representative, the DOT agreed to construction and maintenance activities that conform to the guidelines of the HCP to avoid or minimize hazards to Karner Blue Habitat in exchange for the incidental take allowance. The inclusion of DOT projects under the HCP provides advantages to all parties, reducing the need for Section 7 consultations that can add 1 to 2 years to a project, and allows FWS to devote staff time and resources to facilitating other projects (Federal Highway Administration, 2002).

While direct participation provides efficiency benefits to State DOTs and other applicants and is the preferred alternative of many interviewees, the interviews revealed inconsistency in the state DOT staff perceptions of RHCPs. Some applicants interviewed stated that Caltrans staff has been hesitant to participate in HCPs, choosing instead to continue with the traditional project-by-project Section 7 consultation. According to an interviewee at Caltrans, there is no policy or comprehensive approach to RHCPs, and the state sometimes is at the table when a specific project is planned (K. Benour, personal communication, April 16, 2013). However, within California, different districts show different levels of comfort and enthusiasm for participation in RHCPs; two HCPs in District 8 (Western Riverside and Coachella) include Caltrans as a permittee. Recently, Caltrans has shown more support by helping fund the in-

development Yuba-Sutter RHCP through FHWA “smart growth” planning funds (City of Yuba City, 2012), in response to difficulty getting ESA clearance for multiple state highway projects in the area and the urging of FWS to form an RHCP as a solution, a situation both parties have found beneficial to the process according to interviews. According to interviewees, Caltrans additionally funded initial biological data gathering for the Butte County RHCP through its Regional Blueprint program (J. Clark, personal communication, April 16, 2013).

Even when a State DOT does not participate in the development of the HCP, the applicant municipalities have an interest in providing for mitigation of state DOT projects located in the RHCP area. Therefore, many HCPs cover planned transportation projects, including those having a federal nexus, even without DOT participation in the planning process. The State DOT uses the RHCP biological findings and mitigation strategy for their Section 7 consultation, streamlining the process. The Santa Clara HCP, according to an HCP representative, even without State DOT participation, explicitly included Section 7 transportation projects in its list of covered activities with the understanding that Caltrans mitigation will follow the HCP guidelines (K. Schreiber, Personal communication, March 20, 2013).

Caltrans, though not a permittee, actively plans for project mitigation with the multiple HCPs located in the San Diego-area, attending monthly meetings on environmental mitigation held by SANDAG and working closely with HCP managers. The HCPs include planned Caltrans projects over the life of the plan, and Caltrans works with the HCPs on a project-by-project basis to identify current priorities, with the HCP funding and managing the acquisition of land for advance mitigation according to the Plan. The Caltrans projects fall under Section 7, but according to an HCP staff member, the HCP’s goal is to work with Caltrans to align the projects and the mitigation with the HCP. Both parties see the benefit of working together, and have been

able to expedite projects both by facilitating environmental review and leveraging funding available through the HCP. As the San Diego District Caltrans representative stated, you need “everyone at the table to have great government” (B. April, personal communication, 2014).

Other HCPs have initially had difficulty coordinating with the State DOT, although they have developed a better working relationship while implementing the plan after the ITP was granted. In East Contra Costa County, Caltrans declined to participate but applicants anticipated local Caltrans projects and included them in the plan. The HCP negotiated with FWS that, even without Caltrans participation, FWS would not require any additional mitigation beyond the HCP requirements during Section 7 consultations. Caltrans eventually joined the plan as a participating “special entity,” without its own permitting ability after the ITP was issued, when it had difficulty reaching agreement with FWS on a specific project, but was able to come to agreement on mitigation as outlined in the HCP.

San Joaquin MSHCP began its negotiations with Caltrans as a potential permittee, but Caltrans later dropped out when it felt that there wasn’t a sufficient emphasis on transportation projects to make the HCP planning beneficial compared to standard project-by-project permitting. San Joaquin crafted the HCP so that Caltrans projects would be able to use the biological information and mitigation plan to address the impacts of its projects under traditional Section 7 review, but Caltrans did so only once in the first six years of the plan on a particularly environmentally problematic project for which Caltrans was unable to come to agreement with FWS. Otherwise, Caltrans continued to use the traditional Section 7 process and San Joaquin expedited local transportation projects having a federal nexus under the HCP. San Joaquin has recently seen more involvement from Caltrans, a result attributed by an interviewee to multiple factors. Firstly, a change in state leadership has increased the presence of environmental

programs within Caltrans in the years since the beginning of the plan, and, secondly, there is growing familiarity with the model. After struggling with FWS on the biological outcomes of a particular project, Caltrans brought the project under the plan and was able to get approval after only 90 days. Caltrans realized it could benefit both from the certainty the plan provided and from the HCP taking responsibility for fulfilling many more environmental obligations, including the acquisition and monitoring of mitigation land (S. Mayo, personal communication, March 4, 2013).

Even without the listing of state DOT projects in local HCPs, state DOT projects may benefit from the existence of an HCP by using biological information that was gathered in the HCP planning process even for projects that were not covered. The gathering of biological information on endangered species is both costly and time-consuming (Callihan et al., 2009), and by using this information state DOTs can shorten the time to review projects even when they are unrelated to the HCP. Using biological information gathered for HCP formation in a Section 7 process also alleviates the burden on FWS, which can use the same Biological Opinion issued under the HCP and reduce consultation time, a strategy preferred by FWS staff. Similarly, State DOTs have used existing HCPs to purchase mitigation land for projects not included in the plan at a lower cost due to the economies of scale of the HCP, as reported by representatives of both Bakersfield and San Diego HCPs (P. Elisheva, personal communication, February 16, 2013; K. Greer, personal communication, April, 24, 2013).

4.3.2 MPOs and Local Transportation Planning Agencies

Planning and administering HCPs requires a method by which to collect and balance the inputs and desires of municipalities and stakeholders in the covered region, and applicants often find it easier to work with existing regional organizations than to create new ones. Metropolitan

Planning Organizations (MPOs) can play a large role in the HCP universe. One challenge in HCP planning is determining a governance structure for the HCP, as well as a process for gathering and meeting the needs of stakeholders or permittees, such as counties and incorporated municipalities. When possible, applicants find it easier to conduct HCP planning within a pre-existing regional planning entity. This is often a Council of Governments (COG) or an MPO in areas where the MPO overlaps with the HCP planning area. Having the MPO as the lead agency in HCP planning allows the plans to build on existing inter-governmental relationships while facilitating an integration of transportation and HCP planning.

The San Diego HCP was developed and is administered by the local MPO. The San Joaquin Valley MSHCP was developed by the San Joaquin Council of Governments, the local MPO, which is a direct permittee on the plan, though it is administered by a Joint Powers Authority formed specifically for this purpose (San Joaquin Council of Governments, 2000). The planning of the in-development Butte County HCP is also being done by the local MPO. Involvement of the MPO has greatly facilitated the integration of transportation planning into the HCP. According to a member of the Environmental Mitigation Program at SANDAG, the San Diego MPO, the placing environmental planning for the HCP under the control of the local MPO has enabled integration of transportation, land-use planning, and environmental mitigation in the region (K. Greer, personal communication, April, 24, 2013).

While having an MPO as the governing structure of an RHCP is beneficial, it is only possible where there is an overlap of transportation planning and RHCP areas. Particularly in areas having multi-county MPOs, Regional Transportation Agencies, which manage local transportation systems, also play a large role in HCP's. These transportation agencies often participate as direct permittees, and in Coachella Valley, the Coachella Valley Association of

Governments (CVAG) is both the local transportation planning agency and the agency that led the creation of the plan. The San Joaquin County Transportation Authority is a permittee on the San Joaquin HCP, and the Riverside County Transportation Commission (RCTC) is a permittee on the Western Riverside MSHCP. According to a staff member of the HCP, RCTC staff were initially hesitant about the plan's ability to facilitate its transportation projects, but the RHCP has helped reduce the time required for their average NEPA analysis by 6 months by using biological data from the HCP, which has also increased their competitiveness for federal funding (J. Standiford, personal communication, May 16, 2016). The Santa Clara Valley Transportation Agency, and the Placer County Transportation Planning Agency are both intended permittees of the HCPs currently under development in both locations. In the Balcones Canyonlands Conservation Plan, the Travis county transportation and natural resources department and the city of Austin public works and transportation departments are known as "associated utilities" with respect to the plan, similar to the partner status of some State DOT's discussed above and without their own permitting authority (City of Austin and Travis County Texas, 1996).

Local transportation planning agencies play large roles in HCPs because of the prevalence of local funding of transportation through county-level transportation specific sales taxes. The most prominent example of the influence of the county-level transportation sales taxes on the RHCP process is the Orange County Transportation Authority (OCTA) RHCP. OCTA is a county transportation commission in the Los Angeles Region, and will be the sole permittee. The HCP will be funded by a county-level transportation specific sales tax, and according to an OCTA staff member the HCP was included in the ballot measure as environmental mitigation for planned transportation projects. County-level transportation sales taxes have been an important element for funding HCP planning and administration of plans in California. Similar taxes have

been used to partially fund the Western Riverside MSHCP, Coachella Valley MSHCP, The San Joaquin MSHCP, and the San Diego MSCP. Measure A in Riverside County (which provides funding for the Western Riverside MSHCP), also is projected to provide \$30 million of funding for the Coachella Valley MSHCP according to an HCP representative. San Diego County's sales tax measure, Transnet, includes funds dedicated to advanced mitigation under the region's HCP plans as part of its Environmental Mitigation Program (San Diego Association of Governments).

The flexibility of the HCP planning process allows for the participation of transportation planning agencies at all levels, from state to local, regardless of the institutional structure of transportation planning in the region.

4.4 Findings

The RHCP model is increasingly being used to provide ESA approval for transportation projects, including those with a federal nexus. By incorporating planned transportation projects into RHCP planning, agencies have been able to expedite environmental clearances and gain certainty by approaching conservation from a regional perspective as opposed to standard project-by-project mitigation. RHCPs can facilitate environmental clearance of transportation projects of all types and sizes, and this flexibility allows for participation that can benefit both state and local transportation agencies. As HCPs become more prevalent, transportation agencies may increasingly use the model to simultaneously achieve project delivery and environmental goals.

5 The Growing Role of Transportation Funding in Regional Habitat Conservation Planning

The previous Chapter shows that Regional Habitat Conservation Plans are increasingly being developed on a landscape scale to integrate regional land-use and environmental planning in areas that contain endangered species habitat. However, RHCPs require upfront funding for planning and implementation that is difficult to obtain while relying on per-project mitigation. RHCPs permits require that RHCPs maintain land preserves that are greater than the amount of land used to mitigate for completed projects under the permit. Thus RHCPs are challenged to both fund an often onerous and multi-year planning process without any dedicated sources, and to continually expend money on mitigation land purchased before receiving corresponding revenue from participating development projects.

In this Chapter I first identify common RHCP funding challenges during both the planning and implementation phases, focusing on land acquisition for the latter. I then describe the most funding streams most commonly used by RHCPs, and evaluate their strengths and weaknesses. I then describe the role that transportation agency funding plays in funding RHCPs, particularly during lulls in private development.

I find that collaborations between conservation and transportation agencies have facilitated regional conservation and simplified infrastructure project planning. I recommend that federal and state programs acknowledge and facilitate such collaborations. This study is one of very few to have addressed this subject; continuing study over time should contribute to the refinement of this promising mechanism that addresses development and conservation together.

5.1 RHCP Costs and Funding Problems

Obtaining sufficient funding to plan and implement an RHCP is challenging (Beatley, 2000; Camacho, Taylor, Kelly, and Talavera, 2016; Greer, 2004). RHCPs require large initial investments, although the cumulative permitting and mitigation costs are usually lower than those of project- by-project permitting (Gau and Jarrett, 1992; Greer and Som, 2010; Sciara and Stryjewski, 2015).

RHCPs need funding to support three distinct phases of operation: planning, implementation, and management. First, RHCP agencies must work with all relevant public and private stakeholders in a time-consuming, labor-intensive collaborative planning process before applying for the environmental permits required by the ESA, the Clean Water Act, and other environmental statutes. Second, RHCPs require funds for implementation after a permit is issued. The RHCP agency must acquire land, fund other conservation activities, and support ongoing administrative costs. It must plan far in advance for early land acquisition because

The ESA requires conservation acreage to exceed the number of acres developed. RHCP agencies also require sufficient funding to manage and monitor conserved land in perpetuity. This typically is financed by an endowment built over time by reserving a portion of implementation phase funding (Camacho et al., 2016).

RHCP planning often takes longer than anticipated and includes unpredictable pauses in activity, many related to funding shortages (Lederman and Wachs, 2014c). RHCP planning partners must also provide planning funding before receiving any revenues (Beatley, 2000; Porter and Salvesen, 1995). Planning costs include staff time and payments to consultants and lawyers. RHCP planners must cobble together financial commitments from many federal, state, and local sources throughout a multiyear process (Camacho et al., 2016). The Butte County

RHCP, currently in development, estimates annual planning costs of \$1.1 million. The Yolo County RHCP estimates planning costs of \$2.4 million over a three-year planning period (Butte County Association of Governments, 2008; Yolo National Heritage Program, 2013).

The ESA requires that each RHCP provide assured long-term funding (16 U.S.C. §1539(a) (2)(B)). Permit applicants must demonstrate that they have “reasonably secure” funding through a detailed breakdown of expected revenues and expenses for the life of the permit (Liebesman and Petersen, 2010; *National Wildlife Federation v. Babbitt*, 2000). This presents a challenge for RHCPs because long-term implementation costs, mainly for land acquisition, are substantial and difficult to predict. Most RHCP funding for mitigation comes from individual project permitting fees during the later implementation phase, but planning for implementation must take place in advance and in consideration of multiple years of project delivery. RHCP planners must make concerted efforts to develop political support for funding mechanisms that support RHCPs because net benefits are difficult to estimate at the outset (Layzer, 2015; Press, 2002).

The largest cost category for RHCP implementation is typically land acquisition, accounting for about 72 percent of capital costs for one RHCP. Coachella Valley’s estimated budget for land acquisition is \$316 million (in 2006 dollars), East Contra Costa’s is between \$191 and \$235 million (in 2006 dollars), and San Joaquin’s is \$160 million over the life of the respective permits (Callihan et al., 2009).

Revenue from fees linked to development result in two land price-timing problems. First, land values increase with urban growth, increasing the cost of mitigation as development occurs. The Coachella Valley MSHCP and other RHCPs try to purchase targeted lands before prices rise (Alagona and Pincetl, 2008). Second, during economic downturns, development activity slows,

reducing both the price of land and development fee revenue (Callihan et al., 2009). Thus, revenue for land acquisition is lowest when the cost of the land acquisition is lowest, resulting in missed opportunities for low-cost land procurement, a catch-22 among RHCPs that rely heavily on development fees for their funding (Dixon et al., 2008; Press, 2002).

5.1.1 *Transportation Agencies and RHCP Funding*

As discussed in Chapter 2, the participation of transportation agencies in collaborative regional initiatives is explicitly encouraged by federal and state transportation agencies. State transportation agencies, however, typically address environmental consequences on a per-project basis, often after project design and engineering are completed. Federal and state environmental funding and financing mechanisms evolved along with per-project mitigation, and funding is typically received late in the project-planning process.

Transportation agencies have increasingly partnered in RHCP planning and implementation as the RHCP model becomes more familiar. Participating transportation agencies often contribute funding to RHCPs in exchange for the benefits of coverage under the RHCP. Transportation agencies benefit from restructuring funding programs to provide opportunities for holistic response to the environmental consequences of transportation infrastructure while minimizing administrative costs of the permitting process (Sciara, Bjorkman, Lederman, Thorne, et al., 2015; Venner, 2005).

Dixon et al. (2008) illustrate the variety of funding sources used by the Western Riverside (CA) MSHCP and the importance of transportation agency funding. The Western Riverside RHCP provides mitigation for several county and state highway projects in addition to private development. Private development impact fees constitute 60 percent of the RHCP's total

income, supplemented by fees paid by state and county transportation agencies (12%), fees charged when expanding other infrastructure systems, including water and power (11%), landfill tipping fees (11%), and grants from federal and state conservation programs (6%).

Transportation projects have been catalysts for many RHCPs that seek a cooperative solution for mitigating construction and growth impacts (Sciara, Bjorkman, Lederman, Thorne, et al., 2015; Venner, 2005). The Santa Clara RHCP, for example, was developed to mitigate the impacts of highway widening in the rapidly growing Silicon Valley. Difficulty mitigating state highway projects also led to the development of the Williamson County RHCP (Williamson County Conservation Foundation, 2008b). Other RHCPs gain political support for conservation by accelerating infrastructure delivery in growing regions (e.g., the Coachella Valley MSHCP and the Orange County Transportation Authority RHCP).

RHCPs are a voluntary form of regional-scale conservation that can benefit from the participation of transportation agencies in a process that serves the needs of transportation stakeholders. RHCPs, and regional conservation more generally, are frequent topics of conservation biology research (Cowling, Pressey, Rouget, and Lombard, 2003; Goble, 2005; Noss, O'Connell, and Murphy, 1997; Regan et al., 2008; Wilhere, 2002). However, the planning community has paid comparatively little attention to RHCPs, and the role of transportation projects in RHCPs (Beatley, 2000; Layzer, 2008; Pincetl et al., 2011). Given growing interest in transportation agency participation, I seek to understand the circumstances under which transportation agencies have contributed funding to RHCPs, how transportation-funding streams differ from standard local funding mechanisms, and how RHCPs can best use transportation funding to stabilize finance structures and contribute to the long-term success of regional habitat conservation planning.

5.2 RHCPs and Transportation Agencies Work Together but Encounter Common Problems

In this section, I discuss funding for RHCP planning and report examples of transportation agency funding helping the planning process. I then discuss funding for implementation, focusing largely on land acquisition costs. I describe the most common private funding sources and dilemmas inherent in these funding sources, and report on occasions where transportation agencies have provided stabilizing funding. Last, I describe an emerging model that integrates local transportation sales taxes and RHCP funding.

5.2.1 Planning Process Funding

Most RHCPs rely on planning grants from FWS and money from a variety of local sources to support the planning process. The most consistent source of funding for planning is annual federal planning grants under Section 6 of the ESA, known as the Cooperative Endangered Species Conservation Fund (16 U.S.C. §1535). Most RHCP representatives interviewed reported receiving Section 6 planning grants, many in multiple years. Total annual Section 6 funding peaked at \$10.8 million in 2011, decreasing every year since (California Department of Fish and Wildlife, 2014) even as the number of RHCPs competing for grants has increased, prompting concern among interviewees for future RHCP efforts. RHCPs in the sample received an average annual planning grant of \$494,475. The grant size depended on the size and scope of the proposed plan.

The percentage of planning costs covered by Section 6 planning grants varies and is difficult to ascertain. Section 6 funding requires a 25 percent match from recipients (U.S. Fish and Wildlife Service, 2015a), and interviewees reported that they typically contributed staff time as their match. The San Joaquin MSHCP supplemented a grant with seed money contributed by

local developers. Placer County estimated that Section 6 grants would provide 10 percent of the necessary funding for RHCP planning, with the rest coming mostly from the county general fund (Johnson, 2012). The Williamson County RHCP supplemented a \$1.2 million Section 6 grant with \$400,000 from county general funds (G. Boyd, personal communication, March 17, 2014).

Transportation agencies contributed resources to RHCP planning that will facilitate mitigation for their planned projects. Interviewees told me that the Butte County RHCP, currently in development, funded initial biological studies with a grant from a Caltrans environmental program. The RHCP will facilitate planned improvements to State Route 99 in the area (California Department of Transportation, 2013). A Texas Department of Transportation (TxDOT) biologist stated that difficulties mitigating for species harmed by construction of Loop 1604 highway led to TxDOT involvement in the in-development Southern Edwards Plateau Habitat Conservation Plan in San Antonio. TxDOT has multiple upcoming projects in the area, contributing biological information and staff time and integrating its existing conservation planning with RHCP planning (S. Robertson, personal communication, November 19, 2015). The Santa Clara Valley Transportation Authority reported that it was one of the original proponents of the Santa Clara RHCP and that it provided funding for the planning phase (Santa Clara Valley Habitat Agency, 2012). Both planning for and implementation of the OCTA RHCP is funded by a dedicated portion of a LOST (L. Hill, personal communication, May 2, 2013).

5.2.2 Funding for Implementation

Implementation of the plan includes land acquisition, monitoring, management, and administration. Each RHCP uses a unique mix of funding and financing sources related to local conditions and politics. The two most common funding mechanisms are local development impact fees and tax benefit financing. The RHCPs studied also receive funding from

transportation agencies and a variety of local sources specific to the RHCP. Table 1 lists the benefits and struggles associated with each funding stream, and describes how funding from transportation agencies can insulate RHCPs from the timing problems associated with development impact fees and property tax revenues.

Table 1. The Pros and Cons of RHCP Implementation and Land Acquisition Funding Sources

Funding source	Pros	Cons
Development fees	• Directly linked to development activities permitted through the RHCP. • Administratively simple since they are predetermined and paid by developers as an additional fee for a building permit application. • Flexibility to vary within one HCP to account for the cost compensatory mitigation.	• Permissibility dependent on state law. • Must have mechanism to adjust to price changes for mitigation land acquisition. • Directly linked to upturns and downturns in development and does not provide an RHCP opportunities to take advantage of low land prices.
Tax Benefit Financing	• Invisible to builders and encourages HCP participation. • Captures percentage of increased property value from development.	• Permissibility dependent on state law. • Large time-lag between development and revenue that must be compensated for by other sources.
Mitigation Payments from Transportation Agencies	• Less dependent on economic conditions than development funding. • Can provide up-front funding that allows for lower-cost land acquisition. • Funding from local transportation sales tax measures can be specifically tailored to complement other RHCP funding sources.	• Dependent on the magnitude and schedule of locally planned transportation projects. • Transportation funding from Federal and state sources are mostly tied to individual projects and not available for advanced mitigation.

Development Impact Fees

RHCP impact fees are levied in exchange for coverage under the RHCP, and are paid to the RHCP by developers when applying for local building permits. These fees are highly variable among RHCPs, depending on local land prices, the availability of suitable mitigation land, fee structure, and other local factors.

Development fees are highly dependent upon local land prices and political conditions, and also vary for different land types and locations within each RHCP. For these reasons, I caution that comparing fees among different RHCPs studied in this article would be misleading. The following are some examples of development fee charges by RHCPs. The Coachella Valley MSHCP development fees for 2015 to 2016 range from \$239 per unit, per acre, for residential development with 14 or more units per acre, to \$5,809 per acre for industrial or commercial development (Coachella Valley Mountains Conservancy, 2015). The San Joaquin MSCP charges \$7,807 per acre for development of multipurpose open space land, \$15,596 per acre for development of agricultural land, and \$90,273 per acre for development of land containing vernal pools (San Joaquin Council of Governments, 2000). Figure 7 shows the designation of land types for fee determination under the Santa Clara Valley MSHCP. Development fees for 2016 to 2017 range from \$4,853 per acre for development on small vacant urban sites, to \$19,159 per acre for ranchlands, to \$407,119 per acre for development on seasonal wetlands. (Santa Clara Valley Habitat Agency, 2016).

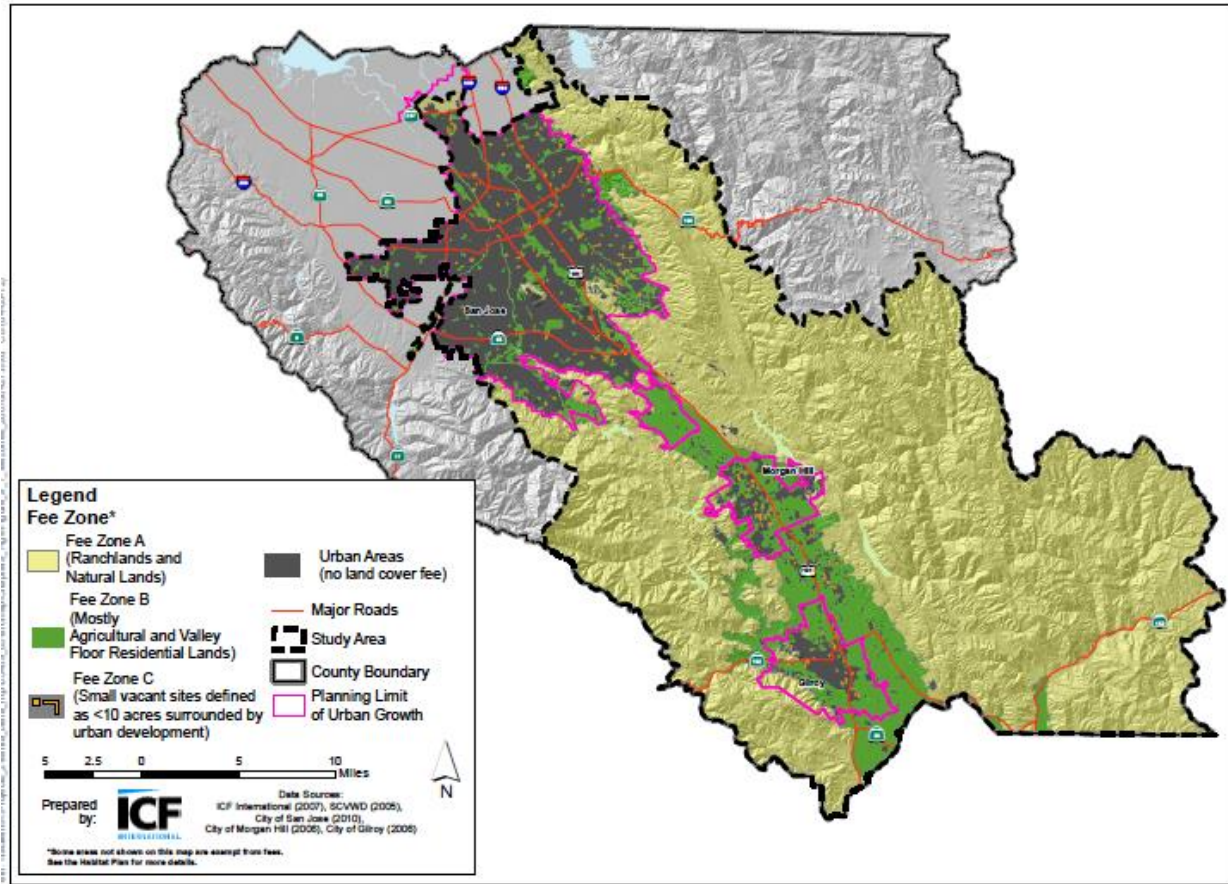


Figure 7. Santa Clara Fee Zone Map

Source: Santa Clara Valley Habitat Agency (2012, p. 9.1).

In many plans, every locally permitted development project must pay a per-acre development impact fee, even when the project does not directly impinge on endangered species habitat, thereby spreading the cost across the entire development community (Board of Lincoln County Commissioners, 2010; Clark County Department of Comprehensive Planning, 2000; Metropolitan Bakersfield Habitat Conservation Plan Steering Committee, 1994). This avoids penalizing specific land- owners, recognizes the cumulative impacts from development, and acknowledges the region-wide benefits of the RHCP.

A few RHCPs levy impact fees only on developments that directly harm endangered species habitat (City of Austin and Travis County Texas, 1996; Coachella Valley Association of

Governments, 2013). Interviewees noted that doing so increases administrative costs because the RHCP governing entity must determine the presence of endangered species habitat for each building permit. RHCPs use this approach in regions where interviewees report that an “everyone pays” approach is legally prohibited or politically difficult to achieve.

Some RHCP planning entities reason that the cumulative effects of past development also affect endangered species and divide implementation cost between new development and the larger community. The East Contra Costa RHCP states, “...future development should pay a share of the costs of habitat conservation...proportionate to its share of the overall habitat impacts” (East Contra Costa County Habitat Conservation Plan Association, 2006b). The San Joaquin RHCP “fair share” apportionment of costs states that new development is responsible for 62 percent of the required land acquisition, and the remaining funding will come from state and federal grants and local government revenues from previous conservation investments (San Joaquin Council of Governments, 2000).

Representatives of older RHCPs reported initially setting fixed development fees, but because land prices rapidly increased, development impact fees became insufficient to cover land acquisition costs. The San Joaquin MSHCP, for example, amended its plan in the mid-2000s to increase fees due to escalating land prices. Currently, most RHCPs index development fees to either the consumer price index or local housing costs.

RHCPs can require development fees as a flat fee per acre or a percentage of land value; fees also vary based on the species present, the type of habitat, or level of development activity. Western Riverside MSHCP charges two different per-acre flat fees: one for residential development and a higher fee for commercial or industrial development (Riverside County Transportation and Land Management Agency, 2003). Under the San Joaquin MSHCP, different

types of habitat require different amounts of compensatory mitigation and fees vary with their mitigation costs (San Joaquin Council of Governments, 2000). The Southeastern Lincoln County RHCP charges higher fees in areas considered critical habitat for the desert tortoise (Board of Lincoln County Commissioners, 2010). Central Texas RHCPs, which mitigate harm done to bird and invertebrate species found in local Karst caves, typically set fees based on the type of species habitat (see Appendix D.8 and D.9). The Santa Clara MSHCP, which covers a region diverse in both habitat and land use, delineates four fee zones that depend on level of urbanization and include overlay fees based on vehicle trips generated, wetlands, or specific species habitat (Santa Clara Valley Habitat Agency, 2012). In contrast to a flat fee, the Washington County RHCP assesses a fee of 2 percent of construction costs when issuing a building permit (Washington County Commission, 1995).

In some RHCPs, transportation agencies pay development fees similar to those borne by private development. Caltrans, for example, did not participate in the planning for either the East Contra Costa or the San Joaquin RHCP because the agency did not have many planned projects in the areas; now, according to plan representatives, it currently pays development fees based on the acreage needed to mitigate their projects. The Clark County RHCP covers Nevada DOT construction and maintenance activities that may harm the desert tortoise. Nevada DOT pays the same development fees as private developers for covered activities within the county, as well as for rights-of-way in neighboring counties that contain desert tortoise habitat (Clark County Department of Comprehensive Planning, 2000).

Property Tax Financing

Property taxes provide funding for some RHCPs. Development fees finance the BCCP, the first Texas RHCP. In response, Texas enacted legislation banning development fees for

conservation tied directly to building permits (Texas Parks and Wildlife Code §83.014(d)). The Hays County RHCP uses the county's general maintenance and operations fund to partially fund RHCP implementation (Hays County Commissioners' Court, 2010).

Some Texas RHCPs rely on tax benefit financing to fund conservation because of this limitation. Using tax benefit financing, RHCPs capture a dedicated portion of the resulting increased property tax revenue from the development they enable. According to interviewees, tax benefit financing increases voluntary participation in the RHCP by allowing development to proceed without upfront mitigation payments, which would be required when seeking individual permits. The Williamson County RHCP will be funded by 15 percent of the increased property tax revenue from private developments seeking coverage under the plan, which they estimate to return \$56 million over 30 years, assuming a 10 percent participation rate (Williamson County Conservation Foundation, 2008b). The Comal County RHCP, currently in development, intends to use both general fund and tax benefit financing funding (Comal County Commissioners Court, 2011). Property taxes also fund the Southeastern Lincoln County RHCP in Nevada, which established a general improvement district in areas benefitting from HCP coverage. This enables them to collect revenues from a general ad valorem property tax at a rate of \$0.03 per \$100 of assessed value, estimated to generate more than \$11 million over the life of the plan (Board of Lincoln County Commissioners, 2010).

5.2.3 Timing and Cost of Land Acquisition

FWS requires that RHCPs preserve more land than the land area for which development permits have been issued. This means that each RHCP must establish a preserve before it issues local development permits. While initial land acquisition is challenging for all RHCPs, it is particularly onerous for those that rely on property tax financing. Development fees are collected

when building permits are issued, and RHCPs can rely on development fees to maintain the necessary preserve/take ratio. In comparison, two or more years typically separate development permitting and the collection of property tax funds. Due to this lag, property tax–financed RHCPs are typically required to assemble substantial initial preserves before allowing local development. Initial preserves are most commonly assembled through donated public land or, increasingly, through transportation funding for advance mitigation.

Interviewees noted that funding from transportation agencies helped assemble initial preserves. Environmental funding dedicated to mitigating transportation projects that spur the need for an RHCP is often incorporated into the draft plan, allowing a road to be permitted and the HCP to purchase required initial preserve land. Interviewees told me that TxDOT contributed \$2 million to fund the initial preserve for the Williamson County RHCP, and similarly provided funding to the Southern Edwards Plateau RHCP, in exchange for permit coverage of planned county highways.

RHCPs often seek to include transportation projects that help them access a variety of federal, state, and local transportation funding sources that are stable income streams. The East Contra Costa RHCP relied on both payments from infrastructure agencies and grant funding during the recession to capitalize on low land prices, acquiring land at twice their originally projected pace and reserving later development fees to fund long-term monitoring and management.

I also found that transportation agencies partnered in RHCP planning and implementation. Interviewees reported that funding from transportation agencies was negotiated separately to meet the needs of each RHCP and each participating transportation agency. This role is distinct from that of private developers; the funding can help RHCPs overcome timing

problems. Caltrans districts in southern California commit to large investments in RHCPs. Caltrans, for example, is a permittee in the Western Riverside MSHCP, contributing directly to acquiring mitigation land and funding an endowment to provide salaries for three positions devoted to managing and monitoring preserves (Riverside County Transportation and Land Management Agency, 2003). Caltrans is also a permittee under the Coachella Valley MSHCP and pledged specific funding and land contributions to compensate for planned highway projects (Coachella Valley Association of Governments, 2007).

5.2.4 Local Option Sales Tax Measures and RHCPs: An Emerging Model

Funding shortfalls have led to novel partnerships in support of transportation investments, including conservation. Devolution of transportation project funding from federal and state to local governments is a prevalent trend in transportation finance. Many local transportation agencies now receive the bulk of their funding from local sources, most often countywide voter-approved local option sales tax measures (LOSTs) dedicated to transportation. These measures usually include a list of specific projects to be funded by the tax. In California, counties may borrow against future sales tax revenue, providing access to transportation funding years before revenues are realized (Crabbe, Hiatt, Poliwka, and Wachs, 2005). Some RHCPs in California have benefited from funding in LOSTs dedicated to environmental mitigation. In these cases, local transportation agencies have provided substantial amounts of funding to RHCPs for planning and purchasing land in advance of development. RHCP representatives credit sales tax revenues with providing them a consistent stream of funding compared with that of development fees, particularly during development lulls.

OCTA is developing a countywide RHCP specifically to mitigate transportation projects, funded by 5 percent of the total revenue from a LOST (Orange County Transportation Authority,

2014b). At both OCTA and San Diego Association of Governments (SANDAG), environmental planners credited the support of environmental groups garnered through commitments of mitigation funding with helping create the majorities needed to pass the measures. According to an OCTA representative, OCTA included environmental groups when planning the measure and incorporated them into an oversight committee for HCP planning and implementation. OCTA took advantage of depressed land prices through an “early action plan” to acquire land using proceeds from bonding against future sales tax revenues (L. Hill, personal communication, May 2, 2013).

In 2004, San Diego County residents voted to extend the TransNet half-cent sales tax for transportation infrastructure by 40 years, which included \$650 million to purchase land through the local RHCPs (San Diego Association of Governments, 2014).

In the first 25 years of the Western Riverside MSHCP, \$12 billion worth of transportation projects will contribute \$371 million of mitigation funding. Some \$121 million comes from Riverside County’s voter-approved LOST. The local transportation agency, the Riverside County Transportation Commission, must participate in the MSHCP to receive funding from the measure (Riverside County, 2002) and is a permittee under the Plan (Riverside County Transportation and Land Management Agency, 2003). The stability of sales tax revenues relative to revenues from local private development, and the ability to bond against future revenues, helps insulate RHCPs from the timing problems described above.

5.3 Looking to the Future

The benefits of advance mitigation are gradually being recognized but funding, as illustrated by my study of HCPs, must still be pieced together from disparate sources. Funding comes mainly from local governments, with state and federal agencies contributing to a lesser

extent when allowed by restrictive program rules. Figure 8 present a simplified breakdown of funding sources by categories for the Coachella Valley MSHCP.²¹

<i>Amount</i>	<i>Revenue Source</i>
\$516,802,000	Local Development Mitigation Fee (from Table 5-3c)
\$227,604,000	Conservation Trust Fund (from Table 5-3b)
\$31,077,000	Regional Road Projects Mitigation (Measure A Sales Tax total contribution to acquisition and endowment; and freeway interchange/associated arterials contribution to endowment)
\$60,208,000	Regional Infrastructure Mitigation (Caltrans, CVWD, and IID contributions to acquisition and endowment)
\$247,500,000	Eagle Mountain Environmental Mitigation Trust Fund (from Table 5-3b)
\$3,200,000	Transfer from CVFTL HCP Endowment
\$952,149,000	Interest on Investments (from Tables 5-3b, 5-3c, and 5-3d; interest generated on money in the Operating Fund, the Land Acquisition and Improvement Fund, and the Endowment Fund)
<i>\$2,038,540,000</i>	<i>TOTAL Revenues</i>

Figure 8. Coachella Valley MSHCP Revenues by Category

Source: Coachella Valley Association of Governments (2007, p. 5.1).

Agencies that participated in this study indicated that consolidation of funding from state and federal programs to enable regional advanced mitigation planning would be enormously helpful. This might be accomplished by the creation of what they call state- and federal-level “conservation clearinghouses” that provide one point for accessing available grant money, facilitating larger-scale conservation projects and programs while reducing administrative costs of the local applicants. One example of this is the Conserve Florida Water Clearinghouse, a collaboration of the Florida Department of Environmental Protection and regional water management districts, supported by state legislation to unify water conservation efforts (Conserve Florida Water Clearinghouse, 2008; Florida Department of State, 2014). Similar funding consolidation programs include a consolidated grant application for federal and state

²¹ For more detailed funding tables refer to Chapter 5 of the Plan.

public transportation funding through the (Washington State Department of Transportation, 2014).

Establishing low-interest revolving loan funds dedicated to species conservation would also increase access to streamlined funding for HCPs. This could be done under the auspices of state infrastructure banks or through financing by the federal Transportation Infrastructure Finance and Innovation Act. HCPs can access wetlands conservation loans from a fund established under the Clean Water Act (U.S. Environmental Protection Agency, 2014), and have pursued similar loans through federal infrastructure loan programs. Establishment of a revolving loan fund dedicated to species protection, perhaps under the ESA, would provide greater access to low-interest loans for HCPs pursuing efficient, lower-cost land acquisition strategies and would be especially valuable when development slows.

This research approach has limitations. First, it does not account for failed attempts at RHCPs, and therefore misses the opportunity to describe funding sources that have failed to sustain planning and implementation. In some older RHCPs it was not possible to interview any staff personally involved in planning. For these RHCPs, I relied upon document analysis and the institutional knowledge of current staff. Last, this research only covers the funding of RHCP planning, and the funding strategies of RHCPs at the time of permitting. As illustrated by the amendment to the San Joaquin RHCP, it is possible that the funding and financing forecasted at the time of permitting has changed due to myriad factors, such as the addition of new stakeholders or abandonment of some transportation projects.

5.4 Changing the Status Quo

Transportation and environmental control agencies have for decades clashed with one another. RHCPs have provided an avenue for collaboration benefiting agencies that expand

infrastructure and others that protect threatened and endangered species. Since most disputes about environmental protection and the construction of infrastructure ultimately boil down to raising sufficient funds and deciding how to spend them, RHCPs set a precedent for potential future collaborations that may be broadened to include other environmentally sensitive areas and expanded within the transportation sector and applied to other elements of urban economic development. Willingness to collaborate requires recognizing that the high upfront costs compared with per-project mitigation fee revenues and difficulty in accessing funds can be alleviated when adopting longer-term regional collaborative strategies. Transportation agencies have taken active roles in RHCP planning and implementation, contributing funding to RHCPs to pay for compensatory mitigation for harm done to habitat by their projects. RHCPs have gained access to federal, state, and local transportation funding by including transportation projects among covered permitted activities, which complement income from fees on local private development. Funding streams provided by transportation agencies have helped fund initial planning and land acquisition. Transportation funding also offers RHCPs some insulation from volatility during cyclic economic trends. Decisions to participate by transportation agencies depend on local political dynamics and the environmental challenges facing planning transportation projects in the area.

6 Regional Governance and Transportation Planning: A Review of Literature and Policy

Planning scholars frequently assert the benefits of regional planning to overcome problems of fragmented governance common in American metropolitan areas. Regional planning advocates believe that traditional dynamics of city politics and local government power tend to thwart regional planning. Suburbanization and fragmentation of government, they say, have undermined our ability to deal effectively with urban poverty, affordable housing, urban sprawl, and environmental problems such as air pollution, greenhouse gas emissions and habitat destruction. Many observers suggest that government officials must think and act at a regional scale in order to address issues that manifest at larger than local scales. Structural limitations on regional governance in the U.S. encourage each municipality to act in self-interested ways that cater to its residents, workers, and customers in order to improve its fiscal condition largely without regard negative impacts of their actions outside its borders (Dreier et al., 2004; Logan and Molotch, 2007; National Research Council, 1999; Orfield, 2011).

Over the past century American urban regions have evolved from dense monocentric cities to larger regions composed of multiple municipalities, which can include low-density suburban areas as well (Teaford, 1997). Many scholars argue that suburbanization and the proliferation of local governments and special-purpose districts have undermined our ability to deal effectively with urban poverty, affordable housing, urban sprawl, and environmental problems such as air pollution, greenhouse gas emissions and habitat destruction. Government officials must think and act on a regional scale in order to address issues that become manifest at larger than local scales, but structural limitations on regional governance in the U.S. encourage each municipality to act in its self-interest, maximizing its revenue and catering to its citizens

largely without regard for negative impacts outside its borders. This has prevented meaningful regional planning and undermined the ability of regional actions towards environmental goals in all but a handful of notable cases (National Research Council, 1999).

Regionalism came to prominence through the writings of Lewis Mumford on the “ecological region” and the formation of the Regional Planning Association of America in the 1920s. Environmental needs are again stirring our thinking about regions, with frequent advocacy of a “more holistic” approach to regional planning. Advocates call for integrating topics including transportation, land use, and the environmental, enlarging scales of planning to meet regional goals, and a focus on how urban structure is a function of its unique historical evolution. Taking into account that formal government initiatives are difficult to achieve on a regional scale, there has been a trend towards issue-specific informal coordination between local governments and other stakeholders in solving regional problems (Brenner, 2002; Christopher McGrory Klyza and Sousa, 2007; Christopher McGrory Klyza and Sousa, 2013; Savitch and Vogel, 2000; S. M. Wheeler, 2002).

Scholars argue that regional planning can be increased through state- or federal-level legislation (Peterson, 1981; Stephens and Wikstrom, 2000). Simultaneously, there is growing concern that environmental problems should be dealt with at the regional scale because ecosystem boundaries are defined independently from political ones (Pincetl et al., 2011). Environmental laws have been shown to guide transportation planning activities and influence land use, on both a national (e.g. the National Environmental Policy Act, or NEPA) and state level (e.g. Florida’s Growth Management Act) (Arrant, 2014; Bosselman and Callies, 1971). As problems such as global warming, poor water quality, and loss of species habitat have become more pressing, a consensus has emerged that these environmental problems must be dealt with at

a regional scale not limited by jurisdictional boundaries (Pincetl et al., 2011; C. R. Smith, 2009; Stokes, Hanson, Oaks, Straub, and Ponio, 2010).²² There is a growing number of case studies that examine innovative collaborations in transportation planning to meet environmental goals (Innes, Booher, and Di Vittorio, 2010; S. M. Wheeler, 2002). As evidence mounts it can safely be said that environmental law is encouraging, if not forcing, more regional planning.

Policy makers have long argued that the benefits of regional planning outweigh the costs of overcoming political roadblocks to implementation, and transportation policy has always been a key element in debates over regionalism (Jonas et al., 2014). Many view transportation policy — especially funding for the Interstate Highway System — as aiding and abetting the sprawl and proliferation of governments that contributed to the problems listed. Regional theorists have argued that transportation planning for smart growth is required to reverse this pattern and is essential to the success of regional environmental initiatives (Dreier et al., 2004; National Research Council, 1999).

Many scholars of cities and planning argue that regional planning can address negative externalities of the city, including growing urban inequality, poor access to jobs, and environmental damage from sprawl and increased congestion. Unfortunately, political and legal roadblocks—including municipal land-use control, competition among jurisdictions for tax-revenue, and the growing dependence on local (rather than state and regional) transportation funding—stymie the creation of powerful regional planning organizations. These have prevented meaningful regional planning in all but a handful of notable cases (Orfield, 2011).

²² One of the strengths of environmental law is that it provides a comparatively empirical target that can be used to identify and quantify planning outcomes. In legal terminology, a “bright line rule,” that is less prone to subjective interpretations.

Peterson (1981) argued in *City Limits* that regional planning could only be expanded through state- or federal-level legislation to overcome these roadblocks. Simultaneously, there is growing consensus that many environmental problems must be dealt with at the regional scale, as ecosystem boundaries are defined independently from political ones.

6.1 Defining a Region

The definition of a region (and by extension of regional planning) is inchoate and changing over time. Attempts to bound a region serve differing purposes by discipline: economists typically use regions to denote a single geographic economic unit (a “commuter-shed” for labor) for regional economic development research (Krugman, 1991; Orfield and Luce, 2010; Storper, 1995), while conservation biologists rely on ecosystem and watershed boundaries (as “ecological region”) (Foster, 2002; C. Groves, 2003; C. R. Groves et al., 2002; Olson et al., 2001). This fluidity is acknowledged throughout the planning literature, evidenced by the oft-quoted Jane Jacobs statement that “a region is an area safely larger than the last one to whose problems we found no solution” (Jacobs, 2016, p. 410). In the spirit of the quotation, planning researchers have delineated a wide-range of regional planning activities, generally considering any planning task that is outside the scope of a single political unit as one that falls under regional planning. For example:

- Friedmann (1963, p. 149) stated “Regional planning is the process of formulating and clarifying social objectives in the ordering of activities in the supra-urban space—that is any area which is larger than a single city.”
- Martins (1986, p. 3) defined regional planning as “the ordering of activities and facilities in space at a scale greater than a single local authority and smaller than the state.”

- Innes et al. (2010, p. 56) avoided formally defining a region, instead declaring that a region can be in the eye of the beholder and that their research is “not dependent on any specific definition of a megaregion...examples and theory are pertinent to any scale or sector where issues cross boundaries and solutions depend on the participation by many players.”
- Brenner (2002, pp. 4-5) stated “metropolitan regionalism refers to all strategies to establish institutions, policies, or governance mechanisms at a geographic scale which approximates that of existing socioeconomic interdependencies within an urban agglomeration. Thus defined, metropolitan regionalism encompasses a broad range of institutional form, regulatory strategies and governance projects – attempts to modify existing boundaries, proposals to establish supra or inter-municipal agencies, councils, administrative districts or planning bodies; legal measures imposed by higher level government to regulate urban expansion; and a variety of intergovernmental and inter-organizational strategies to enhance cooperation and coordination among government agencies as well as between public and private institutions and stakeholders.”

Flowing from this multiplicity of views, “regionalism” is a mode of thinking about and acting like a region is greater than the sum of its political divisions. The greatest proponent of the modern regional planning research was John Friedmann, who put forth regional planning as a field of study distinct from city planning in a series of articles in the 1950s and 60s. This period was defined by the “post-Fordist” decentralization of industry, globalization, and contemporary federal policies contributed to the sprawling and fragmented metropolis that made obsolete the historic conceptualization of a “city” (Teaford, 1997). Friedmann himself struggled to define the area of study, concluding “the concept of the region as a ‘natural’ unit capable of being defined

unambiguously in space has been abandoned” (Friedmann, 1963). Despite these difficulties, the benefits of regional thinking and achievable regional planning configurations have been and continue to be advanced by both academics and practitioners.

6.2 Regional Transportation Planning

Transportation and its integration with land use is a fundamental element of regionalism. From the perspective of transportation research, infrastructure investment, particularly the interstate system, is considered by many to have enhanced connectivity and accessibility, enabling metropolitan areas to grow (Garrison, Berry, Marble, Nystuen, and Morrill, 1959; Garrison and Levinson, 2014). Political economists take the view that transportation planning has traditionally ignored the governance structure of the region it connects. They consider sprawl-enabling highways to be key factors in the jurisdictional fragmentation of regions, arguing that the ease of transport, coupled with lax incorporation requirements, contributed to urban decentralization and the increase in municipalities that drives the need for regional planning (Dreier et al., 2004; National Research Council, 1999; Teaford, 1997). Consequently, regional transportation planning is often included as an essential element of achieving increased regionalism.

Many regional theorists have argued that increasing the emphasis of transportation planning on connectivity and reducing externalities at the regional scale can begin to undo some of these negatives (Dreier et al., 2004; National Research Council, 1999; Teaford, 1997). Over time there have been victories for regionalism, with transportation planning taking a prominent role in regional thinking through the creation of MPOs. Mandated by the Federal-Aid Highway Act of 1962, MPOs are charged to conduct regional transportation planning that dictates the

distribution of federal funding in all metropolitan areas with 50,000 or more inhabitants (Lewis and Sprague, 1997).

In 1962, the Federal Highway Act made regional “comprehensive, cooperative, and continuing” planning a condition for the receipt of federal transportation funds in all regions with populations over 50,000, beginning the era of federally mandated regional transportation planning by designated Metropolitan Planning Organizations (MPOs).²³ Under 23 USC §134 metropolitan transportation planning is intended:

to encourage and promote the safe and efficient management, operation, and development of surface transportation systems that will serve the mobility needs of people and freight and foster economic growth and development within and between States and urbanized areas, while minimizing transportation-related fuel consumption and air pollution through metropolitan and statewide transportation planning processes... (23 USC § 134(a)(1)).

MPO’s are responsible for preparing a Regional Transportation Plan, a comprehensive plan that outlines transportation projects in the region over the next 20+ years.²⁴ Only projects included in the RTP are eligible for federal funding, and the RTP must meet several requirements in order to maintain eligibility for federal transportation funding for the region. The RTP must be updated every four years, it must be financially constrained so that proposed spending does not exceed available transportation funding, and the planning process must meet procedural requirements for interagency cooperation and public involvement. Each RTP must also meet environmental goals, including meeting federal air-quality goals under the Clean Air Act, and in

²³ The designation of MPOs formalized the production of regional transportation studies that had existed in some places for decades, as some major areas began preparing these studies for state highway agencies in the 1950s. Examples include the Chicago Area Transportation Study, the Penn-Jersey Transportation Study, the Los Angeles Regional Transportation Study and the Tri-State Transportation Commission.

²⁴ In California, Regional Transportation Planning Agency (RTPA) is a state designation for regional transportation planning agencies. The RTPA designation also covers areas that do not meet the population-threshold to be designated MPOs at the federal level. Sixteen of California’s 43 RTPAs are also MPOs, including SCAG. For the purpose of this report, all MPOs are RTPAs. For a map of California MPOs and RTPAs, see Figure 9 below.

California, meeting GHG reduction goals enumerated in SB 375. At a minimum, MPOs are responsible for developing and adopting the RTP, but they are not necessarily responsible for implementing transportation projects or transit operations.

MPO's are also a product of local political-economy, and these dynamics differ among regions. Metropolitan Planning Organizations are designated for each urban area having a population greater than 50,000 by agreement between the Governor of the state and local governments within the metropolitan area under 23 USC § 134(d)(1)(A). The Governor and the MPO jointly determine the Metropolitan Planning Area boundaries (the "region") subject to the following provisions under 23 U.S.C. § 134(e):

Each metropolitan planning area—

(A) shall encompass at least the existing urbanized area and the contiguous area expected to become urbanized within a 20-year forecast period for the transportation plan; and

(B) may encompass the entire metropolitan statistical area or consolidated metropolitan statistical area, as defined by the Bureau of the Census.

6.3 Regional Governance and Transportation Planning

Regional transportation planning can be defined as planning activities undertaken by a formal regional transportation planning organization, such as an MPO. But as discussed above, regional planning also covers a wide-range of planning actions and processes that occur at a scale greater than a single jurisdiction. One gap in the literature that this research addresses is whether the study of regional transportation planning should or should not be limited to the boundaries of an MPO; transportation agencies are increasingly entering into innovative partnerships beyond the traditional scope of regional transportation – such as in a multi-agency corridor planning – often in furtherance of environmental goals. Conversely, the literature on

collaborative environmental planning only rarely focuses on the role of transportation in planning (Alpert, Gainsborough, and Wallis, 2006; Weir, Rongerude, and Ansell, 2009).

As all that was once old is new again, regional planning proponents in late 90s retreated from advocacy of formal regional government and increasingly focused on voluntary collaborations that address regional issues. What is today called “New Regionalism” has direct roots in historic regional movements, such as the landmark Regional Planning Association of America, founded in 1923, and the Tennessee Valley Authority. New regionalism urges a renewed focus on the spatial distribution of urban issues resulting from urban decentralization, and has been particularly prominent in the fields of urban political economy and environmental planning (Brenner, 2002; Christopher McGrory Klyza and Sousa, 2013; Savitch and Vogel, 2000). New regionalism advocates a “more holistic” approach to regional planning, integrating other disciplines with urban planning (including transportation, land use, and environmental issues), integrating scales of planning to meet regional goals. It considers how urban structure is a function of its historical evolution. Taking into account that formal government initiatives are difficult to achieve on a regional scale, new regionalists support issue- specific informal coordination between local governments and other stakeholders. Wheeler urges that the new regionalism framework does not only have to be “bottom up” but that:

Local government action on items of regional concern can often be leveraged by state government or existing single-purpose regional agencies. States, for example, might provide incentive grants to localities that make progress toward increasing their housing production to meet regional goals for fair-share affordable housing, as is currently happening in California. Or they might provide planning grants and technical assistance for local growth management efforts, as is being done in Oregon. State or regional agencies might condition infrastructure funding on local adoption of smart growth planning frameworks or other local actions. Or they might make urban territories designated within these plans “priority funding areas” as happens under Maryland’s smart growth framework first implemented in 1998. In these ways, state or provincial

governments and our existing weak regional institutions can stimulate local progress toward addressing regional problems (S. M. Wheeler, 2002, p. 275).

New regionalism broadens the universe of regional transportation planning beyond the scope of MPOs and Regional Transportation Plans, but literature on new regionalism and environmental goals only rarely focuses on the role of transportation in planning. This study of RHCPs employs a more inclusive definition of a region by addressing any conservation initiative that involves multiple jurisdictions in partnership with a transportation agency. Therefore, regional transportation planning as defined in this dissertation will focus on, but not be limited to, transportation participation in an informal governance arrangement at a regional scale done under an informal governance arrangement.²⁵ This research will thus explore the role of transportation agencies in regional conservation programs and partnerships under the Endangered Species Act, a form of regional planning that is virtually ignored in the planning literature while fitting squarely under the voluntary, informal, and collaborative regionalism framework.

6.4 A brief note on the link between transportation and land use planning

Transportation and land use patterns are deeply integrated—it is impossible to consider one without the other, particularly in the context of rapid economic development that drives RHCP formation. This interplay between transportation infrastructure and land use patterns can change where people live and work, altering individuals' travel behavior. On the regional level, this interdependency gives rise to changes in travel patterns that gradually alter use of the transportation system (Boarnet, 2011). These changes in travel patterns shapes the urban

²⁵ Wheeler (2002) specifically notes Council of Governments (COGs) or Joint Powers Authorities (JPAs) as examples of informal governance organizations utilized for regional planning initiatives.

geography of the region, particularly in a region with rapid economic growth and an abundance of low-cost undeveloped land (Hanson and Giuliano, 2004).

As discussed in further in the case studies below, transportation infrastructure improvements are built simultaneously with a large-scale development projects (e.g. airport extensions in Contra Costa, new highway interchanges for specific office developments in Santa Clara). In other cases, transportation planning is integrated into development planning over the long-term planning horizon (e.g. Riverside County Integrated Project (RCIP) planning in Riverside County and transportation corridors in BCCP).

But whether or not transportation and other development are planned integrated in an institutional sense, they are deeply interconnected. New infrastructure, including highways, arterials, and transit can increase desirability of destinations by making them more accessible, thus both increasing vehicle miles travelled in the region, and the value of land in proximity to transportation investment. Similarly, improving infrastructure though, for example, widenings or improved interchanges, can increase nearby land desirability by decreasing travel times for existing trip routes (Ewing and Cervero, 2010).

Simultaneously, transportation projects are planned in response to the needs of people and their travel habits, serving to increase mobility and accessibility to jobs and housing. Private and other economic development—such as a residential subdivision, office park, or shopping mall—can generate trips to the area that the current transportation infrastructure poorly accommodates. Thus, intensifying land use can directly cause the need for transportation improvements. Therefore, directing urban growth through an RHCP may also direct transportation planning by predicating that these development patterns accommodate endangered species habitat. Long-term regional planning aims to integrate these interrelated forces shaping

urban geography, and conservation plans under RHCPs are another factor that must be considered.

7 Comparing California and Texas State Law Differences Pertaining to RHCPs

State laws in California and Texas guide each county's role in land use and transportation planning, as well as the legally permissible types of collaborative governance structures. While not exhaustive, this section offers a brief summary of the legal and institutional differences impacting RHCP governance and the ability of transportation and conservation planning to guide each other.

I first compare state laws that are specific to RHCPs and other large-scale conservation initiatives, which mostly target the regulatory powers of RHCP managing entities. I next discuss the different models for regional planning—including both formal and collaborative planning organization—which are allowed under law in each state, and describe situations in which they are employed. Lastly, I compare the regional transportation planning process in both states, focusing on countywide transportation planning, as the county is the most often the boundary of an RHCP.

Ultimately, this comparison informs my analysis of RHCP governance and impact of regional planning using case studies in both states. This comparison also highlights the role of state law and policy in crafting the dynamics of possible conservation solutions, and more generally provides an example of how state law and policy can alter implementation of federal law.

7.1 Laws Specific to RHCPs

7.1.1 *California: Natural Community Conservation Planning (NCCP)*

In addition to using RHCPs to meet Federal Endangered Species requirements, California HCPs are also subject to the requirement of the state's Natural Community Conservation Planning (NCCP) Act (California Department of Fish and Wildlife, 2017b). Enacted in 1991, the NCCP program is administered by the California Department of Fish and Wildlife. The program is similar to the ESA, but oriented to preserving the land within an ecosystem, and not exclusively based on protecting listed species. By conserving large tracts of land based on the ecosystem, NCCPs aim to help with the recovery of the species. California plans include protection for many species that are not federally or state listed, but are part of the conserved ecosystems. Additionally, while HCPs may cover a single project, NCCPs must be regional, covering a portion of an ecosystem (Santa Clara Valley Habitat Agency, n.d.-b). If a single ecosystem spans multiple counties or regions, it can be divided into "subregional planning units," displaying the same compromise between biological and political boundaries inherent in RHCPs. In California, all NCCPs are RHCPs, but some RHCPs are not NCCPs (mostly because of when they were permitted) (California Department of Fish and Wildlife, 2017b).

The distinction between RHCPs and NCCPs in California is minor, as evidenced by all NCCPs being RHCPs. The differences are biological, and largely beyond the scope of this research, but it must be noted that biological features that are the focus of NCCPs (for example, stressing linkages between vulnerable species populations) have been incorporated in the best standards for adaptive management of RHCP preserve land, further muting the differences. The State of California provides a context to support the creation and implementation of RHCPs, by working habitat preservation requirements into state law.

7.1.2 Texas: Texas Parks and Wildlife Code

Similar to California, Texas has numerous regional HCPs that were formed by county or local governments to deal with the growing conflict between development and endangered species habitat.²⁶ The earliest RHCP in Central Texas is the Balcones Canyonlands Conservation Plan (BCCP) (permitted in 1996). The BCCP received strong federal support as a “proof of concept” for RHCPs.

Law Changes in Reaction to the Balcones Canyonlands Conservation Plan (BCCP)

In Texas, provisions for species protection fall under the Chapter 83 of the Texas Parks and Wildlife Code and the Texas Administrative Code. In 1996, the BCCP was the first RHCP permitted in Texas. Subsequently, the Texas legislature passed a series of laws aimed at limiting mitigation-based RHCPs as direct backlash to the regulatory control exhibited in the plan (Ingram, 2017). The philosophy and mechanism of the BCCP ran against the strong private property rights tradition in Texas, and was moreover viewed as a federal incursion into local land control. It is particularly notable that the BCCP was spearheaded by the City of Austin, which is politically liberal compared to the rest of the state, and the largest rapidly developing city facing endangered species issues in Texas. As a city, Austin had more power compared to counties (and cities in California) to enact a plan featuring aspects of land use control. While the justification for the plan was the facilitation of development in the face of struggles with long FWS permitting wait times, the regulatory aspects of its financing and implementation, including fees

²⁶ Texas has numerous other landscape level HCPs that do not fit this model, including the Edwards Aquifer Habitat Conservation Plan (2012) that spans multiple counties, and the Great Plains Wind Energy HCP that is currently in development.

linked to building permits and designated infrastructure corridors, made it a target for the state legislature (J. Lessard, personal communication, August 28, 2014).²⁷

A 1999 addition to the Texas Parks and Wildlife Code limited the powers of governments in implementing RHCPs. The Hays County Plan, discussed below, provides a summary of the amendments (Hays County Commissioners' Court, 2010):

Texas state law establishes requirements related to the development of regional habitat conservation plans by Texas governmental entities, including counties and municipalities (Subchapter B, Chapter 83 of the Texas Parks and Wildlife Code). Among other things, state law requires that the governmental entity or entities participating in the development of a regional habitat conservation plan (otherwise known as "plan participants") must appoint a Citizens Advisory Committee and a Biological Advisory Team, comply with open records and open meetings laws and public hearing requirements, in certain circumstances provide notice to affected landowners, and acquire identified preserves by specific deadlines.

In addition, plan participants are prohibited from:

- *Imposing any sort of rule or regulation related to federally listed species (other than regulations involving groundwater withdrawal) unless that rule or regulation is necessary to implement a habitat conservation plan or regional habitat conservation plan for which the plan participant was issued a federal permit (Texas Parks and Wildlife Code § 83.014(a));*
- *Discriminating against a permit application, permit approval, or provision of utility service to land that has been designated as a habitat preserve for a regional habitat conservation plan, is designated as critical habitat under the ESA, or has listed species or listed species habitat (Texas Parks and Wildlife Code § 83.014(b));*
- *Limiting or denying water or wastewater service to land that has been designated as habitat preserve or potential habitat preserve, is designated as critical habitat under the ESA, or has federally listed species or listed species habitat present (Texas Parks and Wildlife Code § 83.014(c));*
- *Requiring a landowner to pay a mitigation fee or set aside, lease, or convey land as a habitat preserve as the condition to the issuance of a permit, approval, or service (Texas Parks and Wildlife Code § 83.014(d)); and*
- *Accepting a federal permit in conjunction with a regional habitat conservation plan unless the qualified voters of the plan participant have authorized the*

²⁷ State law is weaker Texas, and that the mechanisms of the BCCP would likely have been politically unpalatable in most other counties without the legislation (A. Glen, personal communication, August 28, 2014).

issuance of bonds or other debt financing in an amount equal to the estimated cost of acquiring all land for habitat preserves within the time frame required by Chapter 83 (see below) or the plan participant has otherwise demonstrated that adequate sources of funding exist to acquire all land for habitat preserves within the required timeframe (Texas Parks and Wildlife Code § 83.013(d)).

In addition to the above prohibitions, Texas state law stipulates that the mitigation included in a regional habitat conservation plan, including any mitigation fee and the size of proposed habitat preserves, must be based on the amount of harm to each listed species the plan will protect (Texas Parks and Wildlife Code § 83.015(a)-(b)). However, after notice and hearing by the plan participants, a regional habitat conservation plan, its mitigation fees, and the size of proposed habitat preserves may be based partly on any of the USFWS recovery criteria for listed species covered by the plan (Texas Parks and Wildlife Code § 83.015(f)).

Additionally, amendments required that RCHPs must demonstrate that they have funding to purchase any designated conservation land within four years.

Chapter 83 also stipulates that governmental entities participating in an RHCP must demonstrate that adequate sources of funding exist to acquire the land for designated habitat preserves within four years, or the voters must have authorized bonds or other financing in an amount equal to the estimated cost of acquiring all of the land needed for habitat preserves within four years (Texas Parks and Wildlife Code § 83.018). The four-year deadline is calculated from the time that a particular parcel is designated as proposed habitat preserve, a provision that gives governmental entities flexibility to acquire preserves on a rolling basis as the plan is implemented. ^[L]_{SEP}No land has been designated in the RHCP as a proposed habitat preserve; therefore, the RHCP need not demonstrate that adequate sources of funding exist to acquire any specific parcel within any specific time frame (Texas Parks and Wildlife Code Chapter 83).

According to Chapter 83, governmental entities participating in an RHCP must make offers to acquire the land designated as proposed habitat preserve no later than four years after the issuance of the Federal permit or six years after the initial application for the permit, whichever is later. Acquisition of all habitat preserves in the RHCP must be completed no later than the sixth anniversary of the date the Federal permit was issued (Texas Parks and Wildlife Code §83.018(c)).

7.2 Comparing California and Texas Governance and Planning Affecting RHCPs

7.2.1 The County's Role in Planning

California and Texas differ distinctly in the powers of different levels of government to implement land use controls and financial mechanisms that support the success of RHCPs. In this section I discuss some of the key legal differences that affect the institutional dynamics of the planning, funding, and governances of RHCPs. Since RHCPs are often at the county, or at least at the supra-local level, the difference in powers granted to counties in California and Texas impacts the governance structures of RHCPs

California County Powers

Counties' governing powers are vested in them by the state, in contrast to cities self-governing authority. California counties are each governed by a five-member Board of Supervisors, in which a majority vote is necessary for an action (California Government Code Section 65800). Each county is required to establish a Planning Agency, though the County may specify the structure of the Planning Agency. Through the Agency, each county must prepare a general plan, and engage in zoning and long-range planning of unincorporated county land. In some counties, the planning agency may also be tasked with transportation planning (California State Association of Counties, 2014).

Annexation is the general term for the way a city expands its incorporated boundaries. In California, the Local Agency Formation Commission (LAFCO), a countywide public agency established in each county under a 1964 state statute, regulates city growth through annexation. LAFCOs are comprised of elected representatives from the city and county as well as a public representative. LAFCOs also have the power to regulate the boundaries of certain special

districts (e.g. public utility districts), and in such cases the LAFCO may include representatives from the special district (Governor's Office for Planning and Research, 2003).

LAFCOs are regional agencies that plan for long-term development and service provision in each county. Under the 2000 Cortese-Knox-Hertzberg Local Government Reorganization Act, LAFCOs are explicitly tasked with discouraging urban sprawl and efficiently providing public services (California Association of Local Agency Formation Commissions, 2015). LAFCOs were established under state statute as an extension of state power. The state delegates to each LAFCO power over proposed municipal annexations, reorganizations and incorporations. Local legislation can't circumvent the role of LAFCOs, and cities cannot provide services outside of their current jurisdictional boundaries without LAFCO's approval (Governor's Office for Planning and Research, 2003).

Local governments in California have control of planning, land use regulation, and zoning within their boundaries. State law requires each city to adopt a general plan that outlines long-term development for all incorporated territory. However, local governments are also responsible for including long-term impacts on "any land outside its boundaries which ...bears relation to its planning" (Section 65300) into their general plan. LAFCOs and city general plans interact at the foreseeable growth boundaries of jurisdictional long-term planning. These areas are called a city's "sphere of influence" and are determined by the LAFCO (Governor's Office for Planning and Research, 2003). LAFCOs rely on planning in these spheres of influence to reconcile individual cities growth plans and coordinate to an efficient provision of services within the county (California Association of Local Agency Formation Commissions, 2015).

Texas County Powers

Texas Counties are each divided into four precincts, and are governed by a Commissioner's Court consisting of four commissions elected by delineated precincts, and one county judge elected at-large (Gilmartin, Avery, and Cartrite, 2015). Counties in Texas have weak land use control compared to counties in California and most other states (Capital Area Council of Governments, 2009), with cities filling the power vacuum. In contrast to California, Texas cities have the power to annex land unilaterally, without seeking county approval, and can exercise this power over the objections of private landowners in some situations (Houston, 2012).²⁸

Similar to cities in California and other states, Texas cities are required to adopt a comprehensive plan that outlines future development. The city then adopts a zoning ordinance that is required to work in concert with its comprehensive plan. If a city wishes to adopt an in-conflict zoning ordinance, it must amend its comprehensive plan (Texas Local Government Code Chapter 211; Young, 2013). However, Texas cities exercise a unique power outside their jurisdictional boundaries. The area surrounding a city's current jurisdictional boundaries is known as Extraterritorial Jurisdiction (ETJ). Before 1963, cities could incorporate up to a neighboring city's boundary, resulting in a race between neighboring cities to expand quickly, encouraging sprawl. In response to the perceived encroachment on private property rights and the resulting poor planning, the state legislature passed the Texas Municipal Annexation Act in 1963, creating ETJs. The Act aimed to guide urban annexation and "promote and protect the general health, safety, and welfare of persons residing in and adjacent to the municipalities"

²⁸ A home rule city (usually over 5,000 population) may do anything authorized by its charter that is not specifically prohibited or preempted by the Texas Constitution or state or federal law; A general law city (usually under 5,000 population) has no charter and may exercise only those powers that are specifically granted or implied by statute.

(Texas Local Government Code Chapter 42.001). The geographical extent of an ETJ is determined by a city's population, and increases in accordance with growth (Welch, n.d.). Laws governing ETJs work on a "first-in-time" principle: neighboring cities cannot expand into another city's ETJ, and the annexation extends ETJ's boundaries. Overall, the Act slowed municipal growth, though did little to change the underlying incentives to expand city boundaries (Young, 2013).

Texas cities may only govern by regulations or ordinance within their incorporated boundaries, but not within the ETJ unless granted exception by statute.²⁹ Cities in Texas have more power over planning and land use in ETJ than California cities do over their analogous SOIs (Capital Area Council of Governments, 2009).³⁰ The main interaction of city and county power in an ETJ is over subdivision planning. A city can regulate subdivision ordinances within the ETJ, with regulations falling under the legal right of the city to provide for health, safety, and welfare (Young, 2013). These regulations, however, are subject to County subdivision review power, a power they also wield over private landowners of unincorporated land (Texas Local Government Code Chapter 232). Under this review power, a county can impose conditions based on water supply, drainage, transportation infrastructure, and environmental controls on subdivisions.

The power and governance sophistication of cities in Texas has caused much debate in a time of rapid development. Counties' power to engage in any regional land use planning that may order efficient development and achieve other policy goals is minimal. Recent challenges by

²⁹ Cities can contract with landowners in the ETJ to apply some city ordinances and services, or to contractually prevent annexation for a limited time (Young, 2013).

³⁰ This is relatively rare, supporting the strength of cities in the Texas governance dynamics.

counties surrounding growing metropolitan areas have been unsuccessful and counties remain limited in their planning power (Capital Area Council of Governments, 2009).

7.2.2 Collaborative Governance Models

California: Joint Powers Authority and Council of Governments

Intergovernmental relationships in California are most often formalized through a Joint Powers Agreement under California Government Code Section 6500. A Joint Powers Authority (JPA) is created when two or more counties, cities, special districts, or other public agencies enter into a cooperative agreement to provide any service that each could provide on their own. The JPA is an organization that is distinct from its member organizations. The JPA also has a separate operating board of directors with the powers inherent in the participating members for matters specified in the agreement, and can have direct employees. JPAs are often formed to pool resources, and can set policy independently from the member organizations (California Government Code Section 65800, 2007; California State Association of Counties, n.d.).

Council of Governments (COG) is a type of JPA that is the basis for a formal structure of regional government. COG structure and membership differs across the state, but it typically consists of elected representatives from member governments. According to California Association of Councils of Governments, an advocacy agency for COGs in California, there are four types of COGs (California Association of Councils of Governments, 2016):

- ***Councils of Governments or “COGs.”*** General purpose regional agencies that can undertake any action in which their member cities and counties share in common. Although many COGs are formed to focus on transportation planning and programming, some COGs have been tasked by their local governments to address homelessness, water infrastructure, energy efficiency, earthquake safety, and more.
- ***Regional Transportation Planning Authorities.*** County or multi-county entities charged by state law in meeting certain transportation planning requirements.

- ***Metropolitan Planning Organizations.*** *An MPO is a designation under federal law that encourages large urbanized areas to engage in regional transportation planning. California has 18 MPOs, four of which are multi-county MPOs that coordinate planning in three or more counties.*
- ***Transportation Commissions and Authorities; Congestion Management Agencies.*** *Most commissions and authorities are located within the multi-county MPOs. They provide a more localized focus to transportation planning within the larger region and often manage county-raised revenue from sales tax measures.*

California Association of Councils of Governments, notes that these designations are not exclusive, and some COGs are also Regional Transportation Planning Authorities (RTPAs) under state law and MPOs under Federal law (California Association of Councils of Governments, 2016). The above list shows the force of transportation planning in regional governance in California. While there are COGs that serve, and general-purpose organizations that deal with common regional issues (Coachella Valley Association of Governments), many also play a specific statutory role in transportation planning (e.g., SANDAG), or exist expressly for that purpose (e.g., Los Angeles Metro, OCTA). Figure 9 below shows the interrelated landscape of COGs, MPOs, and RTPAs in California.



Figure 9. MPOs and RTPAs in California.

Source: California Department of Transportation Division of Transportation Planning (2009).

Texas: Interlocal Agreements and Multi-County COGs

Texas also has Councils of Governments, referred to as Regional Councils. Like California, Regional Councils in Texas often form the collaborative basis for MPO designation. Unlike California, Figure 10 shows that all Texas Regional Councils cover multiple counties — there are no single- or sub-county Regional Council.



Figure 10. Regional Councils in Texas

Source: Texas Association of Regional Councils (n.d.).

JPA's are not provided for in Texas law. Instead, collaborative partnerships (other than COGs) form through “interlocal” agreement, a type of contractual agreement between two “local governments” as defined under Texas State law (Texas Government Code Chapter 791, 1991).³¹

³¹ Texas Government Code, Title 7, Chapter 791, Interlocal Cooperation Contracts, Subchapter A, General Provisions:

Interlocal agreements typically exist as a contract to share services, including one local government paying a second to perform services. Due to the historic lack of regionalism and the relative weakness of county government, interlocal agreements are rarely used to form the basis of a regional governance system. With no historical precedent of regionalism, cities find little incentive to cede power to a regional organization including county representatives.

7.3 Transportation Planning in California and Texas

7.3.1 Transportation Planning in California Counties

In California, transportation planning is divided among the state, regional transportation planning agencies, and local governments (including both cities and counties). Regional Transportation Planning Agencies (RTPAs) are created by state statute (California Government Code Section 29532), and are required to develop Regional Transportation Plans. In California, 18 RTPAs are also federally designated Metropolitan Planning Organizations (MPOs), while 26 RTPAs fall outside of MPO boundaries. Most MPOs, and all RTPAs in California are coterminous with county jurisdictional boundaries (California Association of Councils of Governments, 2009).³²

Three regions in California have multi-county MPOs:

- Sacramento Council of Governments (SACOG): El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba Counties

(4) "Local government" means a: (A) county, municipality, special district, junior college district, or other political subdivision of this state or another state; (B) local government corporation created under Subchapter D, Chapter [431](#), Transportation Code; (C) political subdivision corporation created under Chapter [304](#), Local Government Code; (D) local workforce development board created under Section [2308.253](#); and (E) combination of two or more entities described by Paragraph (A), (B), (C), or (D). Available at <http://www.statutes.legis.state.tx.us/SOTWDocs/GV/htm/GV.791.htm>.

³² The only exception is the Tahoe Regional Planning Agency, which covers land in both California and Nevada, and created by the federal government. In California, the TRPA covers parts of El Dorado and Placer County, and the remaining parts of the counties have their own RTPAs.

- Metropolitan Transportation Commission (MTC): Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties
- Southern California Association of Governments (SCAG): Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties

Of the three multi-county MPOs in California, only the counties within SCAG have their own RTPAs. Each county has a County Transportation Commission responsible for county-level transportation planning and implementation, which is aggregated in SCAG's Regional Transportation Plan.³³ In both Sacramento and the Bay Area, the counties within the MPO do not have a separate, county-level RTPA. Still, most counties within these areas choose to have transportation planning agencies, many of which administer Local Options Sales Taxes for transportation in their respective counties.

7.3.2 Transportation Planning in Texas Counties

The hierarchy of transportation agencies in Texas differs from that of California. In Texas, transportation planning is under the authority of the state Department of Transportation (TxDOT), County Transportation Departments, and local public works departments. Unlike California, there are no designated transportation planning agencies at a scale smaller than a multi-county MPO and larger than a city's jurisdiction and ETJ. County transportation departments are a division of the County government. They are responsible for the maintenance and improvement of County roads, County road signs, and rights-of-way, a relatively thin sliver of the transportation planning and delivery process. In order to fall under the management authority of a County Transportation Department (Hays County Government, n.d.):

³³ These include: The Imperial County Transportation Commission, the Los Angeles County Metropolitan Transportation Authority, the Orange County Transportation Authority (OCTA), the Riverside County Transportation Commission (RCTC), the San Bernardino Associated Governments, and the Ventura County Transportation Commission (Southern California Association of Governments, n.d.).

- 1. The road is not within a corporate/city boundary*
- 2. It does not have an FM (Farm-to-Market), RR (Ranch Road), RM (Ranch-to-Market), LP (Loop), IH (Interstate Highway) or SH (State Highway) designation (which are led by TXDOT)[sic]*
- 3. It is not a privately maintained road*
- 4. It is in a subdivision where the developer has met County road standards and thereby has given the maintenance rights to the County, which has accepted them.*

As demonstrated by the description above, the county's role in transportation planning and implementation is similar to its role in the government scheme of Texas in general, essentially covering the "leftovers" from state, city, and private transportation infrastructure.

Still, transportation is one way that counties in Texas can exert influence over regional planning. Construction and maintenance of roads and bridges within the county is one of the primary responsibilities of the Commissioner's Court, with each commission administering the road and bridge program in his/her precinct (Gilmartin et al., 2015). This authority over transportation planning is one of the few ways in which counties exert pressure on land use planning. Counties can require setbacks on ETJ land and have increased review powers over subdivision planning to ensure that any development does not interfere with planned major transportation corridors. In urban counties, the county can require increased right-of-way for major thoroughfares, as classified by either the county or the MPO. Counties in the Austin-area are attempting to use their limited authority pertaining to road planning, including regulating setbacks and safety standards, to increase their influence on land use planning (Capital Area Council of Governments, 2009).

RHCPs have been mentioned as an experimental tool that counties are attempting to utilize in service of regional planning. While RHCPs are purely voluntary and non-regulatory in Texas, they still present many of the same streamlining advantages as other states, and this incentivizes voluntary participation. Since they cannot work through zoning or designated

conservation areas, Texas RHCPs may ultimately function as a county-run mitigation bank, with the county establishing preserves on county land. In choosing the mitigation bank location(s), counties can theoretically exert influence over development patterns. Furthermore, by providing off-site mitigation as opposed to designating patchwork conservation on existing private property, RHCPs may encourage denser development. Another avenue that counties can pursue under environmental auspices and through RHCPs is the use of conservation easements. While conservation easements are contractual and must be negotiated with landowners, counties can seek to establish conservation easements that will provide a buffer against future development (Capital Area Council of Governments, 2009).

7.4 California and Texas Law Differ Significantly in Governmental Powers, Limitations on RHCPs and Regional Transportation Planning

California and Texas law and policy present differences that have the potential to greatly affect the governance structure and role of transportation agencies in RHCPs. Texas counties yield little to now power over land use—including on unincorporated land—and do not have any pre-established mechanisms to coordinate with cities. They are also blocked from using land use and financial regulatory tools that California RHCPs use to encourage city participation. Finally, there is little history of coordination between local, county, and state transportation agencies, typically a hallmark of regionalism.

In the next chapter I discuss how RHCP planning and governance structure is largely determined by existing relationships and governance mechanisms, resulting in a large variation between California and Texas RHCPs. Further, in both states, RHCPs must create incentives to encourage cities to invest in the RHCP planning process, and—in some case—cede power to

regional organizations. This hurdle is difficult to overcome in even the counties with the strongest history of regional planning. Thus the differences in state law and policy may largely effect the implementation of Federal law under the ESA.

8 California and Texas RHCP Case Studies

In this Chapter, I examine how institutional frameworks of planning and governance affect regionalism in transportation and conservation planning. This chapter studies RHCPs in California and Texas to compare and contrast how local governance and transportation planning can guide the implementation of a federal law. I summarize 11 case studies, detailed in Appendix D, discussing the background, planning process, collaborative governance structure, role of transportation agencies, and the Plans' impact on regional planning and land use.

As described above, this research employs an inclusive definition of a region by addressing any conservation initiative that involves multiple jurisdictions in partnership with a transportation agency, most often determined through compromise between political and ecological boundaries.³⁴ In this Chapter, I examine the impact of environmental law from the New Regionalist perspective, looking at how and why transportation agencies participate in regional conservation plans and whether the RHCP managing entity, as an informal regional planning agency, can influence transportation agencies decision-making process and planning outcomes.

In this chapter I examine RHCP's impact on the transportation planning process, transportation project delivery, and economic development more generally. I seek to answer multiple questions regarding interaction between institutional structure and regional planning:

- What influences the participants and types of governance structures that are used for RHCP planning and implementation?

³⁴ For example, the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) covers the Western half of Riverside County, California while the Coachella Valley MSHCP covers an eastern portion of Riverside County, which features a different ecosystem, though both regions are covered by the same countywide transportation planning agency and located within the same MPO planning region.

- How does governance structure determine the effectiveness of an RHCP's ability to guide regional land use patterns?
- What institutional factors encourage the participation of transportation agencies in regional-conservation initiatives?
- Does transportation agency participation in RHCPs alter future land use patterns?
- Does RHCP participation change transportation agencies' planning processes to incorporate regional objectives and collaboration?
- What can we say about the role of RHCPs in increasing regionalism?
- How does state law affect governance structure, distribution of power, and the role of transportation in RHCP planning?

I rely on analysis of these case studies to compare the dynamics of RHCP formation and governance, the participation of transportation agencies, and the impact on regional planning and institutions in California and Texas. These case studies are included in Appendix D. In the case studies, I discuss the general background of the locations, reasons for forming an RHCP, and the biological requirements for the permit. I then describe the planning process, governance structure, and role of transportation projects and agencies in each RHCP. Lastly, I discuss the impact of the RHCP on regional planning.

I first situate the RHCPs from California and Texas within the ecological environments of their respective states and discuss how the boundaries of an RHCP result from a compromise between this ecology and political economy. I then compare the institutional structure of and participants in planning and implementation for the case study RHCPs. Last, I look at the participation of transportation agencies in RHCP governance, and how participation is linked to coverage for projects under the plan.

I find that a pre-existing capacity for regional institutions strongly influences participants in RHCP planning and implementation. Further, participation by governments and agencies is

almost always consistent across the planning and implementation phases of the RHCP. Thus, results vary significantly between California and Texas, a function of a comparatively stronger regional governance tradition in California and differences between ecological geography. These differences extend to the participation of transportation agencies in planning and implementation, but are less determinant of whether transportation projects can be mitigated through an RHCP.

8.1 Overview of Case Studies

8.1.1 California Plans

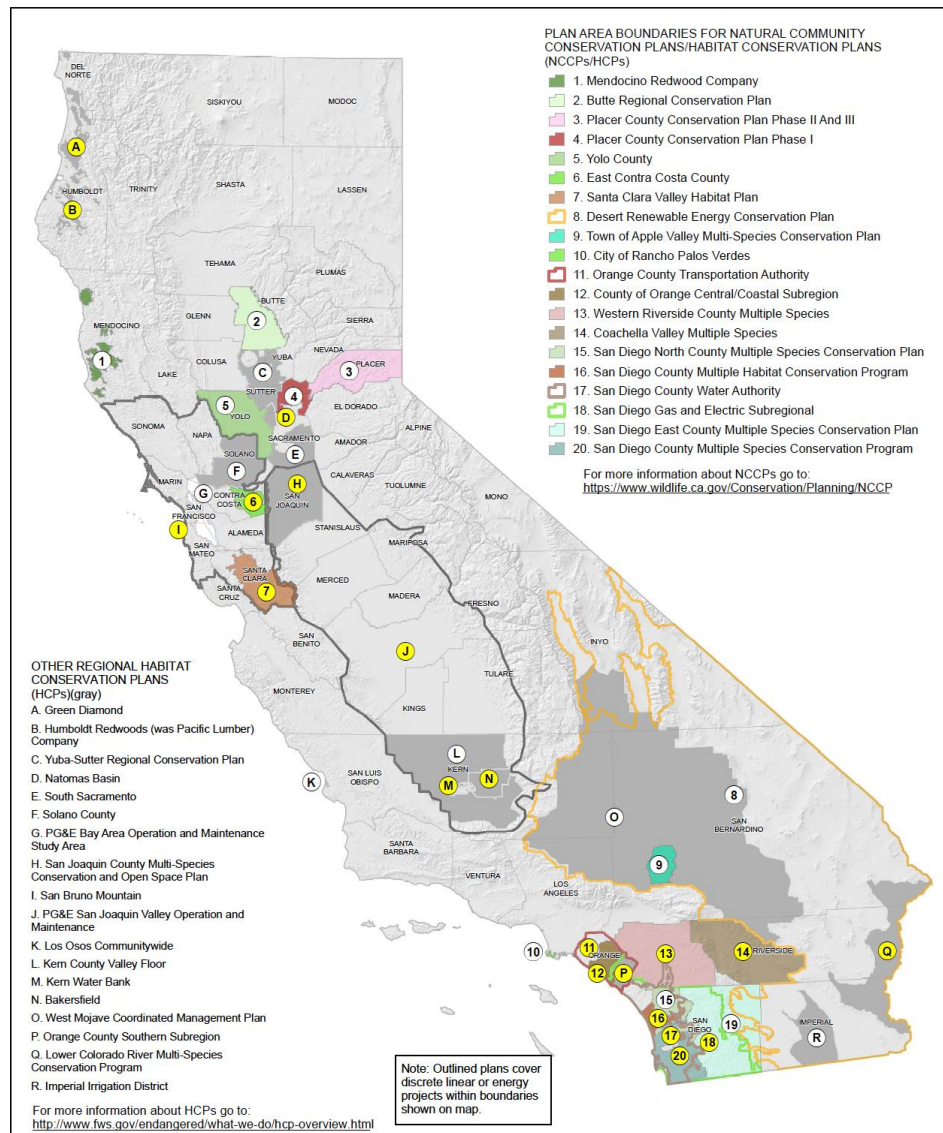
The California RHCPs included in the case studies are listed below, with the year the permit was issued in parentheses:

1. Western Riverside Multi-Species Habitat Conservation Plan (2004)
2. Coachella Valley Multiple Species Habitat Conservation Plan (2008)
3. San Diego Association of Governments TransNet Environmental Mitigation Program (2004)
4. East Contra Costa County Habitat Conservation Plan / Natural Community Conservation Plan (2007)
5. Santa Clara Valley Habitat Plan (2013)
6. San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (2001)
7. OCTA Measure M2 Natural Community Conservation Plan/Habitat Conservation Plan (2017)

Figure 11 shows all of the Regional Conservation Plans in California, including permitted and in-development RHCPs. Permitted RHCPs are located primarily in Southern California because of high biodiversity coupled with rapid urban growth and development that occurred earlier in time than in many northern California counties currently developing RHCPs.

CALIFORNIA REGIONAL CONSERVATION PLANS

July 2017



NCCP: Natural Community Conservation Plan (California Fish and Game Code §2800)

HCP: Habitat Conservation Plan (Federal Endangered Species Act Section 10)



- ① HCP/NCCP - Planning Stage
- ② HCP/NCCP - Implementation Stage
- Ⓐ HCP - Planning Stage
- Ⓐ HCP - Implementation Stage

Conservation plans may be in various stages of review, and subject to change. In some cases, boundaries have not been submitted by participants, and are **estimated locations**.

Data Sources: California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, Kern Water Bank, City of Bakersfield, Orange County, Dudek, Orange County Transportation Authority, Bureau of Land Management, Natomas Basin Conservancy, Contra Costa County, Mendocino Redwood Company, San Diego Association of Governments, Santa Clara Valley Habitat Agency, Placer County, Kern County, San Diego County Water Authority, Coachella Valley Association of Governments, City of Bakersfield.

Projection: Teale Albers, units in meters, NAD83. D. Mastalir 20170705.

Figure 11. All Regional Conservation Plans in California, including RHCPs and in-development RHCPs.

Source: Mastalir (2017).

California's varied landscape includes intertidal coastal zones, hillsides, agricultural lands, desert valleys, and mountains, and California is one of the world's biodiversity hotspots.

California's biodiversity means that an endangered species' habitat is often quite small, with little overlap between ecological boundaries—and different RHCPs. Figure 12 shows the breakdown of 59 unique terrestrial wildlife habitat regions defined by California Department of Fish and Wildlife (California Department of Fish and Wildlife, n.d.).



Figure 12. California Wildlife Habitats.

Source: California Department of Fish And Wildlife (2017a).

8.1.2 Texas RHCPs

Texas RHCPs are concentrated in Central Texas on the Interstate 35 corridor between Austin and San Antonio, an area that has been rapidly developing over the last 20 years. This development threatens the habitat of multiple endangered species. The Texas RHCPs included in the case studies are listed below, with the year the permit was issued in parentheses:

8. Balcones Canyonlands Conservation Plan (1996)
9. Williamson Country Regional Habitat Conservation Plan (2009)
10. Hays Country Regional Habitat Conservation Plan (2013)
11. Comal County Regional Habitat Conservation Plan (2014)

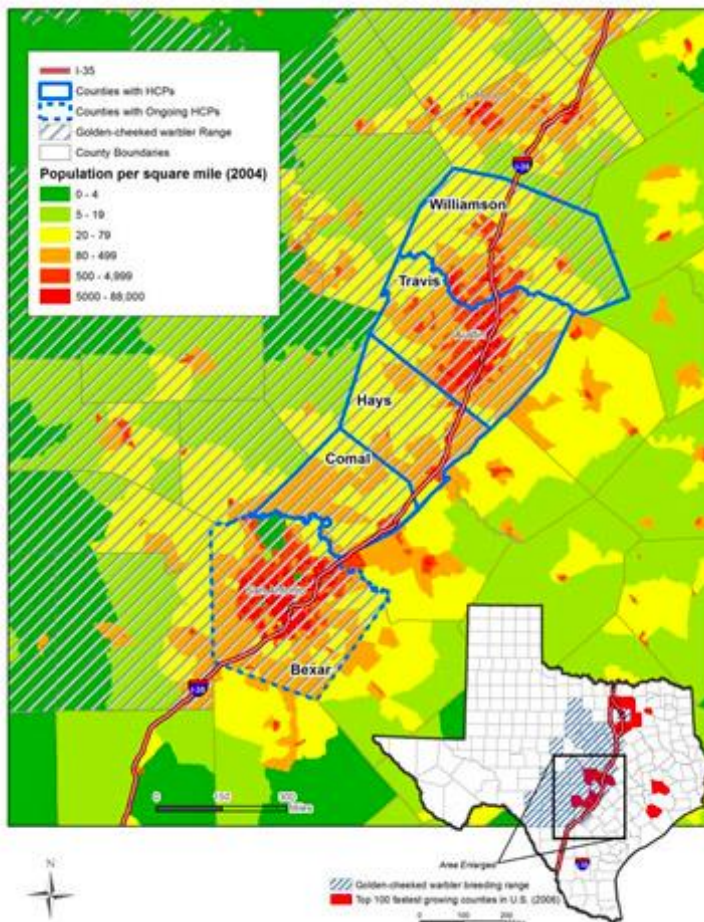


Figure 13. Regional Conservation Plans and Golden-cheeked Warbler Habitat in Central Texas (2016).

Source: U.S. Fish and Wildlife Service (2016).

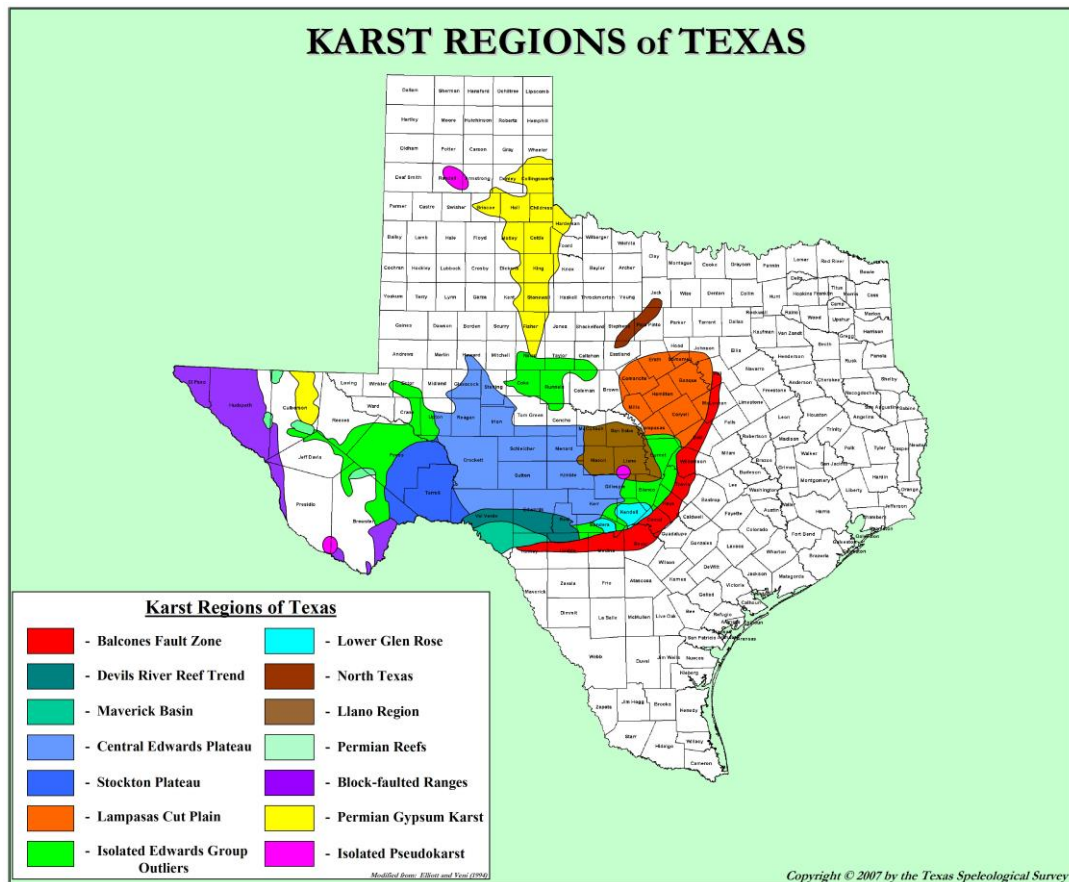


Figure 14. Karst Regions of Texas

Source: Texas Speleological Survey (2007).

Figure 14 shows the counties in this region with RHCPs, population density, and habitat for the endangered Golden-cheeked Warbler (which is covered by all studied Texas RHCPs).

Figure 14 shows karst regions of Texas. The Texas case-study RHCPs are all located along the Balcones Fault Zone (in red), and Karst region that is home to multiple endangered invertebrate species. Only the BCCP and the Williamson County RHCP—located in the two most densely populated counties—cover take of karst invertebrates.³⁵

³⁵ See Appendix D.8 for a detailed explanation of how karst invertebrate habitat differs from other terrestrial covered species.

8.2 Species and Area Covered

California RHCPs often cover many species—both listed as endangered at the time of permitting or as a safeguard against future listings of species over the life of the permit). Texas RHCPs fall within the contiguous breeding range of two songbirds and a Karst zone, which while contiguous, is home to a wide range of endangered invertebrates—many found only within one county.

Table 2 compares the number of species covered by RHCPs in both states. The number of species covered ranges considerably (from 13 species covered by the OCTA Plan to 146 species covered by the Western Riverside Plan), but is consistently greater than the number of species covered by Texas RHCPs (which range from covering two to eight species).

Table 2. Summary of RHCP Case Studies

Name	County	State	Permit Year	Area Covered	Number of Species Covered³⁶
Western Riverside Multiple Species Habitat Conservation Plan	Riverside County	California	2004	Portion of County	146
Coachella Valley Multiple Species Habitat Conservation Plan	Riverside County	California	2008	Portion of County	27
San Diego TransNet Environmental Mitigation Program	San Diego County	California	2004	County, but only covers impact of transportation projects	N/A
East Contra Costa County Habitat Conservation Plan / Natural Community Conservation Plan	Contra Costa County	California	2007	Portion of County	28
Santa Clara Valley Habitat Plan	Santa Clara County	California	2013	Portion of County	18
San Joaquin County Multi-Species Habitat Conservation and Open Space Plan	San Joaquin County	California	2001	County	97
OCTA Measure M2 Natural Community Conservation Plan/Habitat Conservation Plan	Orange County	California	2017	County, but only covers select highway projects	13
Balcones Canyonlands Conservation Plan	Travis County	Texas	1996	Portion of County	8
Williamson County Regional Habitat Conservation Plan	Williamson County	Texas	2008	County	5
Hays County Regional Habitat Conservation Plan	Hays County	Texas	2012	County	2
Comal County Regional Habitat Conservation Plan	Comal County	Texas	2013	County	2

³⁶ Covered species totals include animal and plant species. The Hays County RHCP monitors 26 additional species but they are not covered by the Plan. The San Diego EMP uses RHCPs for some, but not all, of its mitigation.

Even though they vary in geographic orientation and species biology, the Texas and California RHCPs examined in this dissertation were formed due to similar pressures from the conflict between development and endangered species habitat preservation. As discussed in Chapter 4, difficulty mitigating for transportation projects and corresponding growth was a driver for RHCP formation in both states.

8.3 RHCP Planning and Governance Organizations

The case studies describe the planning and implementation phases of each RHCP, with a focus on the participants in each stage, as well as the ultimate permittees of each plan. Table 3 summarizes these findings. Note that this Table ignores the input from various other stakeholders that play a role in shaping and implementing RHCPs, including, but not limited to environmental organizations, chambers of commerce, and homeowners associations.

This Table describes planning participants and permittees as depicted in the Plan itself. Counties played a significant role in planning all RHCPs, but some Plans specified the county governing body as the planning entity (for example, the Commissioners Court in Texas RHCPs and the County Supervisors in Western Riverside). Further, some California Plans specified that the county led planning, while others specified the county participated through the local COG (in Texas, there is no equivalent of a countywide COG). I find that this difference is immaterial when the RHCP covers the entire county, and in all RHCPs the county played a large role in planning.³⁷

³⁷ The sole exception is the OCTA Measure M2 RHCP, which was planning and is implemented by OCTA, the countywide transportation-planning agency. OCTA is technically the Orange County COG, but the RHCP only mitigates for select freeway projects, but targets mitigation land purchases throughout the County.

Table 3. Summary of RHCP Planning Participants and Governance Structure

Name	Planning Participants	Implementing Agency	Governance Organization	Permittees
Western Riverside Multi-Species Habitat Conservation Plan	Led by County Supervisors All Permittees participated	Western Riverside County Regional Conservation Authority (RCA)	JPA	County of Riverside Riverside County Flood Control and Water Conservation District Riverside County Regional Parks and Open Space District Riverside County Waste Management District Riverside County Transportation Commission Cities (14): Banning, Beaumont, Calimesa, Canyon Lake, Corona, Hemet, Lake Elsinore, Moreno Valley, Murrieta, Norco, Perris, Riverside, San Jacinto, Temecula Caltrans California Department of Parks and Recreation
Coachella Valley Multiple Species Habitat Conservation Plan	Coachella Valley Association of Governments (CVAG)	Coachella Valley Conservation Commission (CVCC)	JPA	Riverside County Cities (Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage) Coachella Valley Water District Imperial Irrigation District Riverside County Flood Control and Water Conservation District Riverside County Regional Park and Open Space District Riverside County Waste Resources Management District California Department of Parks and Recreation Coachella Valley Mountains Conservancy Caltrans
San Diego TransNet Environmental Mitigation Program	SANDAG The City of San Diego San Diego County	SANDAG	MPO	SANDAG The City of San Diego San Diego County

Name	Planning Participants	Implementing Agency	Governance Organization	Permittees
East Contra Costa County Habitat Conservation Plan / Natural Community Conservation Plan	East Contra Costa Habitat Conservation Plan Association, a JPA formed by the eventual permittees.	East Contra Costa County Habitat Conservancy	JPA	Contra Costa County Cities of Brentwood, Clayton, Oakley, and Pittsburg Contra Costa County Flood Control and Water Conservation District East Bay Parks and Recreation Department
Santa Clara Valley Habitat Plan	The City of San Jose County of Santa Clara Santa Clara Valley Transportation Santa Clara Valley Water District	Santa Clara Valley Habitat Agency	JPA	Santa Clara County The Cities of San Jose, Morgan Hill, and Gilroy Santa Clara Valley Transportation Authority Santa Clara Valley Water District
San Joaquin County Multi-Species Habitat Conservation and Open Space Plan	Led by San Joaquin Council of Governments Participants included: San Joaquin County The Cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton and Tracy Caltrans U.S. Army Corps of Engineers	San Joaquin Council of Governments	COG	San Joaquin County The Cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy Stockton East Water District East Bay Municipal Utility District San Joaquin Council of Governments San Joaquin Area Flood Control Agency South San Joaquin Irrigation District
OCTA Measure M2 Natural Community Conservation Plan/Habitat Conservation Plan	OCTA Caltrans	OCTA	Transportation Agency	OCTA Caltrans is a special participating entity
Balcones Canyonlands Conservation Plan	Travis County Austin City Council Lower Colorado River Authority	BCCP Coordinating Committee	Interlocal Agreement	Travis County The City of Austin Lower Colorado River Authority
Williamson County Regional Habitat Conservation Plan	Williamson County Conservation Foundation Williamson County	Williamson County Conservation Foundation	Non Profit/County	Williamson County
Hays County Regional Habitat Conservation Plan	Hays County	Hays County	County	Hays County
Comal County Regional Habitat Conservation Plan	Comal County	Comal County	County	Comal County

8.3.1 RHCPs are a Compromise Between Ecosystem and Political Boundaries

RHCPs are developed in negotiation with FWS, and one of the main determinants for RHCP coverage area is the compromise between political and ecosystem boundaries. This compromise leads to variability in the scale of studied RHCPs, which either cover an entire county or a portion thereof.³⁸ California and Texas differ greatly both in governmental powers and the spatial dynamics of endangered species ecosystems covered by RHCPs.

Smaller habitat areas and complicated interactions between cities, counties, and regional planning agencies lead to diversity in the scale of California RHCPs. When the boundaries of endangered species habitat are largely contiguous with those of preexisting regional planning organizations, governance naturally falls to these pre-existing organizations.

Only two California RHCPs cover development in an entire county (San Joaquin and San Diego). Both rely on pre-existing COGs to manage the planning and implementation of the RHCPs. In San Joaquin, all cities within the county participated in planning are permittees of the Plan. In San Diego, the Plan acts as an “umbrella” that mitigates for transportation projects throughout the county, and cities have the option to join the Plan at any point, but are not required to. The City of San Diego manages and implements an RHCP in coordination with SANDAG.

Many California RHCPs cover only portions of the counties in which they are located.

³⁸ In contrast Yuba and Sutter Counties in Northern California are in the process of planning an RHCP that would cover portions of both counties. These counties are home to part of the same ecosystem, and are both anticipating growth from the same planning highway improvements (Houston, 2012).

- *Western Riverside MSCP and Coachella Valley MSHCP*: Both RHCPs both occupy portions of Riverside County, yet base their coverage areas on the boundaries of preexisting general-purpose COGs (WRCOG and CVAG respectively).
- *OCTA RHCP*: The RHCP is managed by the designated countywide transportation-planning agency, which is also the COG for the county. Though it technically covers the entire county, and can mitigate throughout the county, it only covers take resulting from specific highways projects designated under OCTAs Measure M2.
- *East Contra Costa and Santa Clara RHCP*: Only a portion of each county contain endangered species habitat. The governance structure reflects these ecological boundaries, as well as a political process to determine which cities would participate (see Appendix D for a full description). These RHCPs each formed new JPAs for implementation, including the county and participating cities within the Permit area (as well as public agencies).

The Santa Clara Valley Habitat Agency explains:

The Habitat Plan covers approximately 510,000 acres, primarily within south Santa Clara County. This permit area covers land from the Santa Clara / Alameda County border south to the Santa Clara/ San Benito County border and from the western edge of San José east to the eastern edge of the Coyote Creek watershed or the County boundary.

The boundaries are based on political, ecological, and hydrologic factors,³⁹ as well as the location of covered activities and conservation activities. The permit area includes all of the Lagas / Uvas / Pacheco watersheds within Santa Clara County and all of the Coyote Creek watershed except for the Baylands. A large portion of the Guadalupe watershed is also within the permit area.

A small portion of the northern edge of the County (portions of the cities of San José, Santa Clara, Mountain View, Milpitas, Sunnyvale), Fremont in Alameda County, and a small portion of San Mateo County are included for the implementation of conservation action for western burrowing owl (Santa Clara Valley Habitat Agency, n.d. , pp. 4-5).

³⁹ The Santa Clara RHCP is the first Plan to successfully negotiate jointly with FWS and the Army Corps of Engineers resulting in Plan that covers permitting for both the ESA and the Clean Water Act.

As detailed in Appendix D, the planning participants sought to cover the entire county, but negotiations with both cities and FWS resulted in excluding less developed areas of the County and a portion of San Jose with a unique ecosystem. The City of Gilroy was reluctant to join the Plan, but ultimately joined in the late stages of planning when a new mayor championed the Plan.

In comparison, Texas counties that contain RHCPs are all part of the contiguous breeding ground for two endangered songbirds, and a corridor of Karst formations that are home to numerous endangered invertebrates.⁴⁰ In Texas, county governments typically plan and implement RHCPs, covering the entire county even though endangered species habitat typically is only found in the Western portion of the counties. RHCPs in Texas lack regulatory control to force participation through zoning or mandatory fees, thus cities rarely participate in planning and governance, but can still use the RHCP for mitigation if they prefer to. Since local governments typically do not participate in RHCP management, the County does not need to negotiate to include and exclude cities based on their location and permitting needs (as in California). RHCPs can cover the county without forming a governance structure that includes the cities within endangered species habitat.⁴¹

The exception is the BCCP, which only covers the western portion of the county, including Austin and county land but excluding incorporated cities in the eastern portion of the county. This is likely due to how developed the Austin area was at the time of permitting compared to surrounding counties.

⁴⁰ The Karst formations are home to different invertebrates depending on the county.

⁴¹ The Williamson County RHCP is governed by a non-profit that was established by the county to receive donations, but is run solely by county staff. See Appendix D.9.

8.3.2 Political Economy and Institutional Capacity for Regionalism

Literature on regionalism has long reflected an ongoing debate about the relative powers of different governance structures, consistently holding out formal regional government with direct power over an entire metropolitan area as the gold standard of regional planning organizations. An excellent (though not dispositive) summary can be found in Stephens and Wikstrom (2000). However, previous research on this topic typically considers the strongest regional institution an “all-purpose” government that provides many services and undertakes many services typically at a sub-regional scale (for example, transportation and land use planning, emergency services, public health resources and waste systems).

Certain types of RHCPs exist in areas with strong regional governance, having previously established institutions that coordinate relationships with the county, cities, and public agencies. RHCP planning is onerous, and it is natural that participants repeatedly declare that they prefer the path of least resistance in coordinating planning and establishing governing entities, unless there are attractive incentives to compensate for the friction of process. The cases show that largely, the same entities participate in planning and governance for each RHCP, although there are numerous exceptions detailed in the case studies, and discussed further in Appendix D.⁴² Thus the ability for an RHCP to increase regional planning is limited in the short term, and their ability influence land use is limited by pre-existing regional capacity.

Focusing on this institutional “inertia,” it is the general case that California has a greater capacity for regional planning compared to Texas because it has a stronger tradition of collaborative planning. This finding is evident in the lack of participation by cities and public agencies in Texas RHCPs.

⁴² For example, two additional cities, Gilroy and Morgan Hill, joined the Santa Clara RHCP after initial planning.

The RHCPs with the least institutional capacity for regional planning when formed are those with only one general-purpose government permittee, in which RHCPs do not directly expand the regional capacity of governance. Texas RHCPs led by the County are particularly weak in terms of regional governance and land-use coordination. Counties have little to no land use control, and as RHCP governing organizations cannot designate preserves or implement RHCP requirements through regulatory tools. Conversely the relatively strong cities in Texas are not direct participants in these Plans. Cities have very little incentive to join the plan as permittees, especially so early in the growth curve. Texas Plans are not regulatory, working instead on contractual basis, thus there is no advantage for incorporated cities to be a permittee, and take on monitoring and reporting (A. Glen, personal communication, August 28, 2014). Thus, landowners in incorporated cities and city-sponsored projects often times continue to seek single-project HCP permits without consultation with the RHCP.

While subject to the same laws that relegate duties between cities and counties, Texas case studies with larger cities (BCCP and SEP-HCP), have greater regional planning powers as these larger cities are tasked with comprehensive planning requirements, including transportation planning that often includes county land due to the need to coordinate major highways and commuters. Still, this is a regional planning tradition in terms of sheer size, and not in terms of collaboration and coordination with other governmental entities. These RHCPs are governed by an interlocal agreement between the County and the City,⁴³ an example of collaboration and shared management of the land. The strength of this collaboration is tempered by the size and comprehensive planning requirements of Austin and San Antonio, compared to other cities,

⁴³ The Lower Colorado River Authority is also a permittee of the BCCP.

making them “special cases” compared to other, more rural Texas counties (anonymous UWFS Austin Office staff, personal communication, October 26, 2017).

Other RHCPs are governed by collaborative governance organizations with fewer members than the preexisting regional governance organization (typical the regional COG). This may be due to the RHCP covering only the portion of the county with endangered species habitat, but also due to cities opting not to participate within boundaries of the ultimate permit coverage area. While these improve coordination between participants on a specific issue, they are not intrinsically related to general-purpose pre-existing collaborations. Still, these RHCPs are governed by JPA, a stronger collaborative arrangement than an interlocal agreement.

- *Santa Clara*: The regional planning entity for the Bay Area is the Association of Bay Area Governments, which coordinates regional land use planning for all nine counties and 101 cities within the greater Bay Area.⁴⁴ There is no general purpose COG exclusive to the County. Originally aiming for a Plan that would cover the entire county, the planners made strategic decisions to limit coverage to increase coordination ability, and focus the plan on the southern portion of the county, which has the most endangered species but also the highest growth pressures. The RHCP struggled to get Gilroy and San Jose to join, even though they were critical to the success of the RHCPs. In the end San Jose was pressured by FWS to join in exchange for permitting construction of a new highway interchange. A Plan representative speculates that it would have been easier if there were a pre-existing collaborative organization.

⁴⁴ The Association of Bay Area Governments merged with the Metropolitan Transportation Commission, the Bay Area MPO, in 2017. However, this merger took place after the formation of the case study RHCPs, and its impact is beyond the scope of this research (Association of Bay Area Governments, 2017).

- *ECC*: Located in the Bay Area, Contra Costa County similarly lacks a countywide COG, instead participating in regional decision-making at the nine-county level. The county of Contra Costa and cities permitted under the RHCP are part of ABAG, and have worked together in that capacity. For county specific issues, the County traditionally works in concert with cities in the county, though not as the formal COG. The ECC Habitat Conservancy, a JPA developed from a previous collaboration to map and preserve biodiversity in portions of the county, governs the RHCP. The coverage area and RHCP permittees were determined by the JPA's decision to "pick their battles," excluding the more developed western portion of the county, as well as specifically excluding large (non-transportation) infrastructure projects.

Three case-study RHCPs were planned and implemented by the general purpose COG, the strongest institutional "baseline." In these examples, there was already a relatively strong history of regional planning and relationships between the county and cities. In these cases, the governmental "path of least resistance" was to allow an already strong regional governance organization to add the RHCP to its list of duties.

- *Coachella Valley MSHCP*: The local COG in the Coachella Valley, CVAG, led the planning of the RHCP. During the planning stage, one local city, Desert Hot Springs declined to participate in the RHCP. The RHCP is managed by the CVCC, which is composed of the same members (and typically representatives) as CVAG, without a representative from Desert Hot Springs and with the addition of the local water district.
- *San Joaquin*: The San Joaquin HCP is managed by the general purpose COG in the county, including one representative from each of the covered cities (except Stockton which has two elected representatives), and two representatives from the San Joaquin

County Board of Supervisors. Originally, SJCOG planned to oversee the formation of a new JPA to implement the RHCP, but the cities and county could not agree on a management structure for HCP implementation, so they stayed with the existing regional governance structure. According to the RHCP manager, general purpose COG meetings and RHCP managing committee meetings happen consecutively, and members “change” hats” between meetings. Although the Plan includes additional water infrastructure and utility agency permittees, they are not member of the governing committee.

- *Western Riverside*: WRMSHCP was planned by the preexisting WRCOG, with every member city ultimately a permittee under the plan. The Plan is managed by the WRCA, a newly formed JPA based on the pre-existing COG, but incorporates additional agency permittees, including Caltrans and RCTC (the County Transportation Commission under California law), and has added four newly incorporated cities since the permit was issued.

RHCPs Managed by Transportation Agencies.

Both RHCPs funded and implemented by transportation agencies bear similarities to the preceding RHCP governance structure. While these advanced mitigation programs are limited to RHCPs that mitigate solely for transportation projects, the facilitation of these projects still shapes land use development in the county. Both of these management organizations are pre-existing regional agencies. Both are the only COGs in their region, so have a similar capacity for collaboration between the county, cities and transportation agencies.

- *OCTA*: In California, the only RHCP with a single permittee is the OCTA-led RHCP, OCTA is the COG for Orange County, composed of the county and 34 incorporated cities, but is established for transportation planning specifically, and not general purpose regional governance. Thus while led by a transportation agency, the HCP is also an

example of governance based on a pre-existing regional organization that expanded its duties.

- *SANDAG*: San Diego’s HCPs are managed and funded by SANDAG’s environmental mitigation program, a dedicated portion of its transportation LOST. SANDAG may be the most powerful regional governance collaboration that manages any of the case study RHCPs. SANDAG is the COG for San Diego County, and is also a single-county MPO. SANDAG is responsible for integrating transportation and land use planning in the county, particularly following the passage of SB 375.

8.4 Transportation Agency Participation

Transportation Agencies play a substantial role in RHCPs planning and implementation, and in some cases are permittees (see Chapter 4). Table 4 below shows transportation agency participation for each RHCP. The Table includes the role of COGs, countywide transportation agencies, MPOs, and State DOTs. Merged cells indicate that one organization functions in more than one of these roles.

Table 4. Transportation Agency Participation in RHCP Planning and Implementation

RHCP		Planning Participant			Permittee				Implementing Agency			
	COG	Countywide Transportation Agency	MPO	State DOT	COG	Countywide Transportation Agency	MPO	State DOT	COG	Countywide Transportation Agency	MPO	State DOT
Western Riverside Multi-Species Habitat Conservation Plan	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes
Coachella Valley Multiple Species Habitat Conservation Plan	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes
San Diego TransNet Environmental Mitigation Program	Yes			Yes	Yes			No	Yes			Yes
East Contra Costa County Habitat Conservation Plan / Natural Community Conservation Plan	No		No	No	No		No	No	No		No	No
Santa Clara Valley Habitat Plan	Yes		No	No	Yes		No	No	Yes		No	No
San Joaquin County Multi-Species Habitat Conservation and Open Space Plan	Yes			Yes	Yes			No	Yes			Later
OCTA Measure M2 Natural Community Conservation Plan/Habitat Conservation Plan	Yes (technically COG)		No	Yes	Yes		No	Special Participating Entity	Yes		No	Yes
Balcones Canyonlands Conservation Plan	N/A	Yes (City)	No	No	N/A	Yes (City)	No	No	N/A	Yes (City)	No	No
Williamson County Regional Habitat Conservation Plan	N/A	Yes (County)	No	No	N/A	Yes (County)	No	No	N/A	Yes (County)	No	No
Hays County Regional Habitat Conservation Plan	N/A	Yes (County)	No	No	N/A	Yes (County)	No	No	N/A	Yes (County)	No	No
Comal County Regional Habitat Conservation Plan	N/A	Yes (County)	No	No	N/A	Yes (County)	No	No	N/A	Yes (County)	No	No

Regional planning is considerably weaker in Texas compared to California, and therefore lacks corresponding regional land-use or transportation planning agencies. There are no COGs in Texas. Instead, Texas has Regional Councils, which cover multiple counties and do not play a role in RHCPs. Coordination among cities and the county are typically through an interlocal agreement, which pertains to a single issue. Texas also generally lacks countywide transportation planning agencies. Instead, the County is responsible for projects on unincorporated land, with no formal mechanism for coordination with TxDOT (although there is informal and financial coordination). City transportation projects are planned by the cities without formal coordination with the County. Therefore I consider the county itself as the closest cognate to countywide transportation planning agencies in Texas for the Williamson, Hays, and Comal RHCPs. The BCCP is an exception, since Austin passed an ordinance requiring comprehensive planning. These distinctions are noted in the Table.

Table 5 shows that transportation agency participation is largely consistent across planning and implementation—if an agency participates in planning, it is typically a permittee and part of the RHCP governing organization. Exceptions are noted in red text in the Table.

- *San Diego*: SANDAG is the COG, countywide transportation agency, and MPO. SANDAG receives the revenue from and is responsible for implementing the Environmental Mitigation Program (EMP), which uses multiple RHCPs for mitigation, each of which SANDAG plays a role in implementing. SANDAG and Caltrans coordinate on transportation planning for the county and projects to be funded by TransNet, and a Caltrans representative is a member of the Board that manages the EMP. Caltrans does not, however, play a role in San Diego RHCPs.

- *San Joaquin*: Caltrans participated in the initial phase of RHCP planning with the intent to be a permittee, but dropped out because staff felt that mitigation needs for upcoming projects did not warrant the investment in the RHCP process. After the Plan was permitted, Caltrans had difficulties mitigating for a Highway project, and signed on to the Plan through a special agreement.
- *OCTA*: OCTA administers the dedicated LOST revenue from Measure M2 that funds the RHCP dedicated to freeway mitigation. Many of the covered projects take place on Caltrans right-of-way, and OCTA planned and will implement the RHCP in coordination with Caltrans. But as the recipient of the revenue and lead on the freeway projects, OCTA is the sole permittee on the Plan.

Table 5. City, County, and State DOT Projects covered by each RHCP

RHCP	City Transportation Projects	County Transportation Projects	State DOT Projects
Western Riverside Multi-Species Habitat Conservation Plan	Participating Cities	Yes	Yes
Coachella Valley Multiple Species Habitat Conservation Plan	Participating Cities	Yes	Yes
San Diego TransNet Environmental Mitigation Program	All City Projects funded by TransNet Measure	Yes	Yes
East Contra Costa County Habitat Conservation Plan / Natural Community Conservation Plan	Participating Cities	Most within Permit area, but not all. Includes coverage for planned Bay Area Rapid Transit Extension.	Most within Permit area, but not all.
Santa Clara Valley Habitat Plan	Participating Cities	Yes	Some, if lead by County under LOST
San Joaquin County Multi-Species Habitat Conservation and Open Space Plan	Yes	Yes	Not explicitly, but can pay fee to use RHCP for mitigation
OCTA Measure M2 Natural Community Conservation Plan/Habitat Conservation Plan	No	Freeway Projects under Measure M2	Freeway Projects under Measure M2
Balcones Canyonlands Conservation Plan	Yes	Yes	No
Williamson County Regional Habitat Conservation Plan	Not explicitly, but can pay fee to use RHCP for mitigation	Not explicitly, but can pay fee to use RHCP for mitigation	Not explicitly, but can pay fee to use RHCP for mitigation
Hays County Regional Habitat Conservation Plan	Not explicitly, but can pay fee to use RHCP for mitigation	Not explicitly, but can pay fee to use RHCP for mitigation	Not explicitly, but can pay fee to use RHCP for mitigation
Comal County Regional Habitat Conservation Plan	Not explicitly, but can pay fee to use RHCP for mitigation	Not explicitly, but can pay fee to use RHCP for mitigation	Not explicitly, but can pay fee to use RHCP for mitigation

Table 5 summarizes whether city, county, and state DOT transportation projects are covered by each studied plan. Specific county and state DOT projects are explicitly covered by a plan when the transportation agency participates in planning and implementation. RHCPs cover all city public works projects (and in most cases all development) if the city is a permittee of the Plan. A minority of Plans chose to exclude covering specific transportation projects for which mitigation difficulties was a roadblock to RHCP permitting. For example, the East Contra Costa RHCP specifically bounded the permit coverage area to exclude projects in the western portion of the county (see Appendix D.4).

But, I find that in almost all cases, transportation projects can utilize RHCPs even if they do not participate in the RHCP planning process or the implementing agency.⁴⁵ As discussed further in Chapter 9, I find that the main goal of most RHCPs is to facilitate development, and transportation project delivery is a goal of most plans, irrelevant of transportation agency participation. For example, the Santa Clara RHCP describes how conservation is a means to the development ends:

A primary goal of this Plan is to protect species and their habitats in order to obtain authorization for incidental take of covered species under the ESA and the NCCP Act for certain types of activities in specific areas of Santa Clara County, in accordance with approved land use plans. Covered activities are those projects or ongoing activities that will receive incidental take authorization by the ESA and NCCP permits. Covered activities in the Plan fall into seven general categories (Santa Clara Valley Habitat Agency, 2012, p. 1.6).

Even Comal County, the most rural and conservation oriented of all RHCPs studies, plainly states the primacy of economic development as a driving factor in RHCP adoption, describing its goal as follows:

⁴⁵ One notable exception is State Highway 45 SW, a TxDOT highway project in Travis County that was unsuccessful in mitigating through the BCCP, contributing to over a decade of delays. See Appendix D.8 for a detailed discussion.

*Reduce the economic and logistic burden of these programs on individual landowners. The regional HCP approach introduces an economy of scale in terms of the basic logistical functions by establishing region-wide approach to impacts assessments and consolidating many of the ministerial and other HCP processing steps into one permitting process. This RHCP will provide landowners with a means to develop their property in compliance with the ESA with less processing cost and time than the individual permit process requires. Moreover, an **incidental benefit** [emphasis added] of the RHCP will be the preservation of natural open space in the County at a lower cost to taxpayers than would be likely without an RHCP (Comal County Commissioners Court, 2011, p. vii).*

8.5 Findings

This Chapter summarized detailed case studies of institutional arrangements that guide RHCP planning and implementation, the role of transportation agencies in RHCPs, and the impacts of RHCPs on regional planning. The case studies show how RHCPs are shaped by institutional relationships and regional interdependency between county and city governments and public agencies. They allow a comparison of California RHCPs and Texas RHCPs that elucidate how state laws and policies shape the implementation of RHCPs. In both states, RHCPs are often precipitated by rapid urban development, in which transportation projects play a significant role.

Case studies in each state demonstrate that the area covered by an RHCP is a compromise between ecosystem and governance dynamics, which vary greatly in both states. This results in Texas RHCPs being mainly countywide, with the County government as the sole permittee. In California the size and structure of RHCPs varies greatly, reflecting high biodiversity and comparatively entrenched regional governance structures.

The potential for RHCPs to shape regional planning in the short-term is highly dependent on the pre-existing capacity regionalism, and Texas RHCPs governance structure reflect the weak regional-planning tradition in the state. Participating cities and public agencies are typically involved in both the planning and implementation phases of the RHCP, though there

are notable exceptions. I find that transportation agency participation, particularly on the state level is inconsistent, yet harm resulting from transportation projects can be mitigated through the RHCP in most cases.

9 Discussion

Based on my research, four points emerge regarding the integration of transportation and RHCP governance, and the role RHCPs play in regional planning. I first discuss factors that influence RHCP governance structure, including approaches to countywide planning, the availability and limitations on funding sources and the influence of state law. I next describe the relative capacity of different RHCP governance structures to strengthen regional planning institutions. I then examine mechanisms by which RHCPs guide regional land use patterns, even where they lack direct land use control. Lastly, I explore the interaction between RHCPs and regional transportation planning.

9.1 What influences RHCP Governance Structure?

One of the reasons RHCPs have succeeded is their flexibility. They can provide mitigation in rural or urban settings; for the protection of small or large ecosystems; and through regulatory and market-based mechanisms that adapt to state laws. This adaptability to local political economy leads to place-specific outcomes that vary in terms of their relationships between regional governance and transportation, land use, and conservation planning.

In this section, I discuss the interaction among forces that determine RHCP governance structure. The case studies show that the ESA allows RHCPs to form a governing structure that fits the needs of its participants. I find that RHCP governance structure and participation is based on multiple factors: 1) prioritization of goals by the RHCPs, 2) compromise between regional political economy and ecosystem boundaries, 3) how funding access drives RHCP leadership and implementation, and 4) the impact of state legal requirements and regulatory environment. I find variation in governance structure that reinforces both the difficulty of establishing and sustaining regional governance organizations, and the flexibility of emerging models that empower coalitions to achieve regional compromise.

9.1.1 Types of Integrated Planning Initiatives

While all RHCPs provide the streamlining and biological benefits described in Chapter 4, they can be categorized by their prioritization of goals—facilitating development, preserving open space, delivering specific transportation projects, and, in two cases, integrating transportation, land use, and conservation planning. The stated main goals of an RHCP can determine what parties take part in planning and implementation, how the RHCP guides land use patterns, and how the RHCP incorporates transportation planning and project delivery.

Goal: Provide Mitigation Exclusively for Transportation Projects

The case studies of the OCTA HCP and San Diego’s TransNet environmental mitigation program illustrate conservation planning undertaken by a transportation agency. These plans expressly cover mitigation only for planned transportation projects, and are less focused on private land development. Transportation planning agencies are tasked with meeting policy objectives beyond simply building roads and transit, including but not limited to providing access to jobs, combatting congestion, and transit mobility for low-income residents, as well as meeting environmental responsibilities. Faced with scarce resources, transportation agencies traditionally do not treat environmental permitting as a paramount concern. However, through the course of this study, I found that regional environmental planning has become an increasingly common policy for transportation planning agencies.

Transportation sales tax measures are furthering the integration of regional transportation and conservation planning. Incorporating advanced mitigation into sales tax measures improves environmental outcomes and helps secure the necessary support of the environmental community, but does not typically alter the list of planned transportation projects. This dedicated funding is sometimes specified to support planning and implementation of an RHCP. In these

instances, the transportation agency administering the sales tax is often the managing entity for the resulting RHCP.

- *OCTA*: In Orange County, the OCTA based their RHCP on mitigation for a list of highway projects approved for funding by voters. Environmental interest groups advocating for the Freeway Mitigation Program began cooperative planning after OCTA finalized the list of projects, and engaged in cooperative planning after freeway projects considered environmental “non-starters” were removed from the measure. OCTA relied on the pre-existing Green Vision Project as a framework for mitigation land acquisition.
- *SANDAG*: In San Diego, the TransNet measure provided a dedicated funding stream for transportation projects listed in the measure. The region already had multiple RCHPs either permitted or in the planning stage, and SANDAG created the Environmental Mitigation Program to facilitate project delivery using the RHCPs as the mitigation framework.

In both of these cases, pre-existing conservation plans influenced the transportation agencies’ decision to pursue regional advanced mitigation. For many transportation agencies, lacking the experience or staff for comprehensive environmental planning maintains the institutional inertia for per-project permitting. The involvement of the environmental community in a cooperative manner was crucial, as they had the data, expertise, and in many cases already had the biological surveys available for use by transportation agencies.

Goal: Accommodate Development

The most common driver of RHCP creation is to facilitate development projects during rapid economic growth by reducing onerous permitting requirements. These RHCPs are created to provide mitigation for private and public development within the plan area. Permits typically

cover all urban development and for most—if not all—planned transportation projects in the region to accommodate economic development, with or without the participation of transportation agencies. These examples show the integral role transportation projects play in accommodating growth through private development.

- *Coachella Valley MSHCP* – The Coachella Valley MSHCP was formed specifically to facilitate economic growth and gained political support by stressing accelerated delivery of transportation projects. The marketing materials for the Plan stress “*The CVMSHCP will allow 75 years of Caltrans projects to be permitted and constructed without costly delays and will help expedite construction of all currently planned road projects in the next 25 years*” (Coachella Valley Association of Governments, 2016).
- *Williamson County RHCP* – A suburb of Austin, Williamson County was projected to grow rapidly, and had recently passed a road bond program prior to beginning RHCP planning. The RHCP was formed to facilitate delivery of planned projects, including multiple road-bond highways and other specific projects such as utility infrastructure and planned large-scale residential and commercial developments.

Goal: Proactively Preserve Open Space

A minority of the RCHPs studied were formed early on the growth curve from rural to urban development, seeking to protect large swaths of land before development encroached on existing open space, proactively “anticipating” growth as opposed to “accommodating” it.

- *ECC*: The East Contra Costa County Habitat Conservation Plan states its primary goals to be providing “regional conservation and development guidelines to protect natural resources while improving and streamlining the permit process for endangered species and wetland regulations.” The RHCP was driven by public support for a regional

approach to conservation, and developed from a joint Alameda and Contra Costa County pilot project study to map threats to biodiversity in the region.

- *Comal County:* Comal County is the most rural county having an RHCP in this research, and was formed expressly to preserve habitat if and when growth occurred. The consultants who developed the RHCP characterized the plan as championed by “county old timers” who wanted to preserve its rural nature.

Goal: Integrated Regional Planning

The Riverside County Integrated Project (RCIP) is the foremost example of countywide integration of transportation, environmental and land use planning. The RCIP arose from regional recognition that the rapid growth in Riverside County would tax both existing infrastructure and environmental resources. It coordinated local general plan updates, transportation projects prioritized in a local sales tax measure, and targeted conservation areas for both the Coachella and Western Riverside MSHCPs. The Western Riverside Plan clearly addresses three goals for this integrated process:

- *Biological Goal: In the MSHCP Plan Area, Conserve Covered Species and their Habitats.*
- *Economic Goal: Improve the future economic development in the County by providing an efficient, streamlined regulatory process through which Development [sic] can proceed in an efficient way. The MSHCP and the General Plan will provide the County with a clearly articulated blueprint describing where future Development should and should not occur.*
- *Social Goal: Provide for permanent open space, community edges, and recreational opportunities, which contribute to maintaining the community character of Western Riverside County (Riverside County Transportation and Land Management Agency, 2003, p. 1.3).*

Planning for the BCCP was based primarily on the Austin Comprehensive Plan and planned county transportation projects. The BCCP designated infrastructure corridors in which transportation and utility infrastructure projects were covered by the Plan, guiding future

development away from endangered species habitat.⁴⁶ Simultaneously, mitigation under the plan would augment existing federal and local preserves, particularly enhancing recreation options and water quality in the region.

9.1.2 First you get the money, then you make the governance, and then you take the animals

One of the foremost adages in planning discussions is: “follow the money.” Chapter 5 discussed how transportation agencies play an increasing role in regional conservation planning by providing funding for mitigation, benefitting from time-savings and economies of scale provided by the RHCP. I find that funding sources and other economic incentives dictate governance participation and structure, and thus the extent of regional planning integration achieved by RHCPs.

LOSTs

The funding and financing relationship between LOSTs and RHCPs was discussed at length in Chapter 5. Their interdependency extends to the governance structure of RHCPs in counties that have LOSTs. LOSTs must be administered by a countywide transportation agency. In every county that has an RHCP that benefits from LOST funding,⁴⁷ the transportation agency is a permittee of the RHCP and is represented on the board of the managing entity.

⁴⁶ See Section D.8.

⁴⁷ The exception is Contra Costa County. The Contra Costa Transportation Authority did not join the ECC RHCP until after it was permitted.

Bonds

Texas counties, the sole permittees on most Texas Plans, have a very limited ability to collect sales tax revenue,⁴⁸ and receive their funding largely through property taxes and voter-approved bond funding, backed by property tax levies (Thompson, 2013). For example, Williamson County foresaw rapid growth after passing both a road and open space bond, and used the bond revenues to finance planning (see Appendix D.9). Similar to LOSTs, a county can use bond funding to help plan and implement RHCPs, but this is limited to funding for projects on unincorporated land, which are not formally coordinated with city roads or state highway planning. The impact on RHCP acquisition patterns depends on the purpose of the bond.

- *Road Bonds* –Road bonds are used to fund transportation projects. They are the only source of transportation funding under the discretion of the county government. Bond-funded roads use the RHCP to mitigate take of endangered species. Road projects are typically larger in scope than private development, and therefore provide funding for comparatively larger land acquisitions. In the long term, the growth associated with infrastructure investment may increase market incentives for private landowners to use the RHCP for mitigation.
- *Open Space Bonds* – Open space bonds do not directly fund the acquisition of mitigation land, but often include a plan for county open-space preservation that can guide strategic investment by RHCPs. Multiple counties seek to purchase mitigation land adjacent to

⁴⁸ Sales taxes are most often imposed by cities, and are limited to 2% total (Texas Legislative Council Research Division, 2002). Sales taxes on transportation are only permitted by transit districts, but are rarely used for funding in Texas (Center for Transportation Excellence, 2016).

other “open spaces,” and may adjust management and monitoring of open spaces to contribute to RHCP requirements.⁴⁹

- *Water Quality Bonds* – In counties that include endangered karst species, water quality bond funding has been used for RHCP planning and mitigation. Water quality bonds are politically popular in Texas. They protect aquifer recharge zones in the region, a mission that largely overlaps with Karst preservation. The BCCP relied on water quality bond revenue to fund planning and early acquisition of Karst habitat.

Market Based Approach

Multiple interviewees, including consultants and managers of Texas RHCPs stated that there is a history of consistent non-compliance with the ESA by private landowners. Therefore, Texas RHCPs stress economic incentives to encourage private participation. (A. Glen, personal communication, August 28, 2014).

- *Williamson*: Williamson County negotiated a set price per mitigation credit with a preexisting mitigation bank. County officials reason that a predictable price will both encourage participation in the plan and the creation of local mitigation banks through balancing supply and demand. The existing mitigation banks were established during the planning phase, knowing that the Plan would increase demand for mitigation land. Mitigation banks also reduce administrative cost for land acquisition (A. Aurora, personal communication, August 28, 2014).
- *BCCP*: When BCCP was being planned, the permittees had to convince FWS to allow recreational access to the preserve lands. The permittees argued that recreational access

⁴⁹ For example, see discussion of the Hays County RHCP, Appendix D.11.

made the preserves an amenity, increasing the value of the land to the community, and thus encouraging support for the Plan (A. Glen, personal communication, August 28, 2014).

In Texas, market-based incentives—savings on permitting time and in some cases cost—are used to encourage participation by individual landowners. In California, RHCPs use regulations to ensure landowner participation; linking permit fees to building permits and designated conservation land. In California market-based incentives are employed to encourage participation at the regional and city level (for example, favorable mitigation ratios for permittees).

Leveraging Federal Funding

Many RHCPs are formed to access federal money through Section 6 of the ESA. As discussed in Chapter 5, Section 6 funding cannot fund mitigation required under the ESA, but can be used for planning and land acquisition outside of mitigation requirements. If RHCPs are a rational reaction to market incentives to reduce the cost of mitigation, it follows that the ability to access federal funding can spur RHCP planning. The need to fund planning is obvious, because few counties have adequate resources to spend the money required for planning an RHCP upfront. Receiving a planning grant can increase political support for an RHCP.

Section 6 also allocates money to a competitive grant program for non-mitigation land acquisitions to supplement mitigation purchases and acquire bigger parcels of land. In Comal County, the county applied for a land acquisition grant under Sec 6, but instead FWS offered a planning grant. Although this caused consternation at first it became a major determinant of

successful planning because Comal County proceeded with the RHCP.⁵⁰ Many interviewees in Texas stated that RHCPs are a way to get federal funding for local conservation activities. The Hays County Plan states in its opening section, “The RHCP may give the County a means to secure other funding opportunities for land conservation, such as federal grants for endangered species habitat protection” (Hays County Commissioners’ Court, 2010). Williamson County, in particular, can use land acquisition money to acquire the Karst preserves required under the plan, since these are recovery and not mitigation plans (A. Glen, personal communication, August 28, 2014).⁵¹

9.1.3 State Law Influence on RHCPs

State Law Influence on Regional Governance Structure

The 1999 Amendments to the Texas Parks and Wildlife Code led to many changes in the planning, funding, and implementation of RHCPs. First, landowner participation is voluntary—they pay participation fees only if they choose to utilize the RHCP permit. In California RHCPs, by contrast, mandatory fees can be imposed on all new development. Texas RHCPs must find alternate sources of funding including; tax-benefit funding, funding from county bond sources (for transportation, water quality, and open space), and mitigation payments from large infrastructure projects. As described in Chapter 5, these funding limitations delay revenue flow to the Texas RHCPs, placing additional burdens on them to fund initial habitat preserves (G. Boyd, personal communication, March 17, 2014). RCHPs can target specific initial property acquisitions using revenues from existing bonds, though more often they purchase credits from pre-existing private conservation banks to provide required mitigation in the early years of the

⁵⁰ This also further demonstrates how FWS can set incentives for RHCP creation.

⁵¹ See Appendix D.9 for a discussion of recovery plans.

plan. But some plans must purchase credits from mitigation banks beyond county borders because they are unable to find willing sellers within the county, much to the ire of local residents (A. Aurora, personal communication, August 28, 2014; (T. Hornseth, personal communication, October 4, 2017).

RHCPs in Texas are prohibited from designating land parcels for acquisition in the final plan due to restrictions under § 83.018. Therefore, RHCPs do not include preserve design in their plans, which could lead to a suboptimal biological outcome compared to the long-term preserve design present in California RHCPs (A. Aurora, personal communication, August 28, 2014). The plans rely heavily on conservation banks, from which you can purchase mitigation “credits,” and must present a detailed methodology on how (but not where) they will acquire and perpetually manage preserve land.⁵² This law undermines the long-term regional planning typified by mitigation under RHCPs in California, where RHCPs establish long-term conservation goals that purposefully guide regional development patterns.

The lack of preserve planning also reduces the incentive for cities to take part in planning and permitting. Since city land-use control extends beyond current boundaries via their Extraterritorial Jurisdiction (ETJ), they are automatically given room for future growth that greatly exceeds the “sphere of influence” powers of California’s incorporated cities. Texas cities therefore have little reason to engage in RHCP planning and governance, and do not have incentives to compromise with the county and other cities on future land use.

⁵² The Hays Plan refers to the Texas RHCP model as a “phased conservation bank with a moderate preserve goal,” compared to a “large-scale preserve system” typically employed in California (Hays County Commissioners’ Court, 2010).

State Law Influence on Transportation's Role in RHCPs

California has a robust regional transportation planning tradition, with institutions that coordinate transportation planning among cities, counties, and the state. The majority of California counties have COGs that coordinate countywide planning, including transportation planning requirements under state law.⁵³ The pre-existing role of countywide transportation planning through pre-existing COGs forms the basis of transportation agency participation in California's RHCPs that is absent from RHCP planning and implementation in Texas counties. Texas counties have the power to enact road bonds to sponsor county-led projects, but are not formally integrated with state and city transportation planning. Further, Texas RHCP managers were consistently unable to provide information on upcoming major road projects in incorporated areas and their potential impact on habitat, indicating a lack of coordinated regional planning.

As discussed in the literature review, MPOs in California hold a powerful position compared to other states, including Texas. In Texas, the Capitol Area Metropolitan Planning Organization (CAMPO) is the MPO for the six-county Capitol Area, including Travis, Williamson, and Hays Counties. A representative of CAMPO stated that the MPO has little involvement with area RHCPs, and would only get involved with regional conservation planning across multiple counties (A. Kone, personal communication, November 19, 2015). However, as preserves are not formally designated in Texas, and instead are acquired piecemeal, RHCP mitigation does not appear to rise to the level of CAMPO involvement.

Transportation infrastructure planning guided much of the preserve layout for the BCCP, yet TxDOT did not participate, and the permit did not cover future TxDOT projects. In that

⁵³ For a list of California COGs see (California Association of Councils of Governments, n.d.).

portion of Travis County, regional land use planning coordinated economic development and preserves location over the 20-year history of the BCCP, and there is currently little land left unaccounted for by this planning. As a result, TxDOT now faces difficulties finding available suitable mitigation land for State Highway 45SW, which has contributed to 10-plus years of delay on the project.⁵⁴ For reasons not disclosed due to a pending lawsuit, TxDOT failed to reach an agreement with the BCCP that would allow it to move forward with the project. In California, Caltrans has better relationships with RHCP governing organizations due to the strong regional planning tradition, and cooperation has increased as Caltrans has become more familiar with the benefits of RHCPs. Because countywide transportation planning is not required in Texas, TxDOT faces greater hurdles to integrate its planning with regional conservation (A. Aurora, personal communication, August 28, 2014).

State Regulatory Environment

The ESA enforcement strategy of the local FWS office can greatly influence RHCP governance structure and its ability to adapt to change. Beyond federal and state requirements and guidelines issued in the FWS HCP Handbook, local FWS offices have leeway in enforcement, leading to nationally uneven implementation (Lederman and Wachs, 2014c). RHCPs are formed in negotiation with FWS and, like all collaborative planning, rely heavily on the relationship between organizational representatives, their attitudes towards coordination and persistence, and their managerial skills (Lederman and Wachs, 2014c). Multiple interviewees described how a change in local FWS leadership led to a more cooperative approach that encouraged counties along the I-35 corridor to form RHCPs (S. Robertson, personal communication, November 19, 2015; A. Aurora, personal communication, August 28, 2014).

⁵⁴ See Appendix D.8.

FWS granted California RHCPs the flexibility to add permittees after issuance of the original permit to include newly incorporated cities and former non-participating cities and agencies. I discuss below how changing market incentives may encourage incorporated cities to increase participation and possibly seek inclusion in the permit as the region grows, but how much flexibility Austin’s FWS office will allow as the region grows is an open question.⁵⁵

State DOT participation in RHCPs also depends on the incentives offered to them by FWS to participate. A notable difference between California and Texas is that nearly all California RHCP permits have clauses that allow for an expedited Section 7 process for projects with a federal nexus, and this includes most state DOT projects. This encourages Caltrans to use the RHCP for mitigation, and to participate in and, in some cases, become a permittee under the Plan. In contrast, the FWS Austin office does not allow expedited Section 7 consultations. According to consultants who developed the Williamson (and other) Texas plans, they sought a similar expedited Section 7 feature in the Plan, especially after receiving initial funding from a large TxDOT project. FWS would not accept this, calling it “inappropriate” to expedite independent Section 7 projects using an RHCP. Thus while a TxDOT project may mitigate by paying fees to an RHCP for credits, RHCPs do not streamline Section 7 consultations, and this greatly reduced their interest in participation (A. Aurora, personal communication, August 28, 2014).

9.1.4 Lesson: Flexibility is Key to Allow for Differences Between California and Texas Governance Structure

Comparing Texas and California RHCPs demonstrates that RHCPs can adapt to meet political and biological needs of an area. Texas RHCPs are in many ways “simpler”— and more

⁵⁵ It is less likely that new cities will incorporate in Texas counties due to the ETJ system.

similar to one another—in terms of governance structure, preserve design, and funding sources. California RHCPs require more complicated coordination among cities, counties, and agencies to meet biological need that are place-specific, but regional governance has already evolved to address the density and proximity of incorporated cities in California. However, a representative of the Austin FWS office notes that comparatively simplicity of Texas RHCPs reflects the flexibility of Section 10 at the federal level: RHCPs can still work in Texas in a way that conforms to local politics, and legal limitations.

According to a FWS representative, the current Texas landscape resembles “California 30 years ago.” Most Texas counties are not yet in need of the complicated inter-governmental relationships that form the basis for regional planning in California. As Texas cities grow and come into conflict with each other, the need for regionalism to coordinate competing interests will increase, and RHCPs can form the basis for regional planning coordination.

9.2 RHCPs Support and Advance Regional Planning Institutions

Many researchers have noted that formal government entities are siloed from each other, and each is driven by institutional inertia. This combination results in poor adaptability to engage increasingly pressing environmental concerns. Similarly, local governments having land use powers are loath to cede formal power, a frequent roadblock to environmental planning. RHCPs demonstrate that governments and public agencies flexibility is crucial for effective informal regional governance structure. They can incrementally transcend “silos” by creating incentives for regional planning that overcome institutional inertia. This is a particularly salient finding as RHCPs provide flexibility while meeting the same legal goals. Regional planning activities will only increase in necessity to address environmental challenges such as climate change, and

existing RHCP management agencies can provide avenues for achieving desirable planning outcomes while reinforcing their role as regional actors.

Regional planning depends on establishing, preserving, and empowering institutions, either formal or informal, which engage in supralocal planning. In order to succeed, the planning and governing structure of an RHCP must mirror these objectives and allow for collaboration and cooperation among many stakeholders. The Western Riverside Plan outlines the features necessary for successful implementation:

Successful implementation of the MSHCP requires both a local administrative structure and effective coordination with state and federal partners. Such implementation includes executing, monitoring and reporting coordinated MSHCP Conservation Area System Assembly activities, accumulating and distributing funds, managing and monitoring MSHCP Conservation Area Lands and ensuring Permittee compliance with the MSHCP. Towards that end, the Parties have established an organizational structure for implementation and management of the MSHCP ("Cooperative Organizational Structure"). The Cooperative Organizational Structure facilitates cooperation among the Permittees and the Wildlife Agencies and assures that MSHCP Conservation Area management and monitoring shall be consistent across jurisdictional boundaries. The Cooperative Organizational Structure also creates roles and responsibilities for elected officials (Coachella Valley Association of Governments, 2016).

As described by an Austin FWS representative, the “path of least resistance” often determines the governance structures of RHCPs. The influence that RHCPs have on regional planning organizations is determined by institutional capacity for regional planning that existed before they were formed, and the RHCPs in turn reinforce and expand that capacity.⁵⁶ RHCP governing organizations build on previous collaborations, expanding their power by leveraging inter-agency trust, improving coordination, and increasing the scope of their duties. RHCPs can sometimes establish regional institutions where none existed previously, providing a forum for addressing regional concerns. Chapter 8 discussed the governance structure, permit area, and

⁵⁶ I do not evaluate what has been accomplished by RHCP collaborations both because ecological outcomes are outside the scope of this research, and because case study RHCPs are at varying stages of implementation, making comparison based on accomplishments inappropriate.

relation to pre-existing regional governing organizations for each RHCP. In this section I discuss how governance structures have the potential to strengthen regional planning institutions by increasing the role of pre-existing regional organizations, incorporating stakeholders that had not participated in regional collaboration, or by developing new regional collaborations.⁵⁷

⁵⁷ It should be noted that these are not mutually exclusive, and some RHCP managing organizations can increase regional collaboration in multiple ways.

Table 6. Types of RHCP Governance Structures

RHCP	Governance Type	Permit Area	Relation to Previous Regional Governance
WRMSHCP	JPA	Western Portion of County	Old COG plus additional agencies
Coachella Valley MSHCP	JPA	Coachella Valley portion of Riverside County	Old COG without non-participating cities plus additional agencies (some cities added later)
East Contra Costa County	JPA	Eastern portion of Contra Costa County	New JPA without non-participating cities
Santa Clara	JPA	Portion of Santa Clara County	New JPA without non-participating cities
San Joaquin	JPA	San Joaquin County	Existing COG
OCTA	CTC	Portions of Orange County impacted by Planned Freeway Projects	COG/Transportation Planning Agency
San Diego/SANDAG	JPA/MPO	San Diego County	Existing MPO
BCCP	Interlocal Agreement	Western Travis County	New collaboration
Williamson County RHCP	County	Williamson County	County Government
Hays County RHCP	County	Hays County	County Government
Comal County RHCP	County	Comal County	County Government
SEP-HCP	Interlocal Agreement	Bexar County	New Collaboration

Increasing the Role of Existing Organizations

One way to increase regional planning capacity is to increase the role of an existing collaborative organization. RHCP governance based on pre-existing organizations has broadened the scope of their responsibilities to encompass the administration of plan implementation, including enforcement, planning and land acquisition. Activities that were previously undertaken by local entities have been aggregated to a regional scale and placed under the control of the RHCP managing organization. In all the California case studies, RHCP implementation is governance by a regional organization comprised of elected county and city representatives from within the permit area. These previous efforts built trust and devised a mechanism to facilitate

inter-governmental and interagency approaches to RHCP planning, typically a time consuming and costly process requiring political compromise.

My research examined the institutional structure of planning and implementing RHCPs that include transportation projects, especially the role that transportation agencies have played in governance. The simplest examples of prior-collaborations are pre-existing governmental bodies, often Councils of Governments composed of representatives from cities and the county in which they are located.

- *Western Riverside:* The County Board of Supervisors, which includes representatives of cities, led WRMSHCP planning. A JPA including the County Board of Supervisors and other stakeholders manages RHCP implementation. A representative of the JPA stressed the importance of managing from an existing county body to provide the political buy-in that ensures the success of a Plan. RHCPs require unanimous support among the cities and agencies involved, and pre-existing government bodies facilitate agreement, avoiding delays that can disrupt or prematurely end the plan.
- *San Joaquin:* The San Joaquin Council of Governments (SJCOG) led the planning of the county's RHCP. Unable to reach agreement on the structure for an implementation entity, the county and cities ultimately agreed the SJCOG should continue to manage the RHCP as it had demonstrated its capacity as a well-functioning regional body. According to the RHCP manager, general-purpose COG meetings and RHCP managing committee meetings happen consecutively, and members "change hats" between meetings.

In some areas, RHCP planning grew from earlier regional environmental efforts, which specifically facilitated the formation of governance organizations. Prior collaboration on

environmental planning efforts make it easier to gain necessary support for a RHCP developed to assuage development pressures and satisfy FWS urgings for RHCP formation, or in some cases, led to a proactive approach to RHCP formation (Riverside County Transportation and Land Management Agency, 2003, p. ES.4).

- *San Joaquin*: The roots of the San Joaquin HCP lay in single-species conservation efforts in different areas of the county. Following these efforts, SJCOG led a regional exercise to address biological resource management, known as VISION 2000, which demonstrated the feasibility of an RHCP.
- *East Contra Costa*: The ECC RHCP grew out of a pilot study that mapped local biodiversity. Through the pilot study planning process, it became apparent that the county and the cities needed to anchor the planning process while engaging with other local agency and non-governmental stakeholders. These lessons carried into RHCP planning and implementation, undertaking the process with the support and contribution of both developers and conservation interests in the region.
- *Riverside County*: In Western Riverside and Coachella, the COGs had previous collaborative environmental experience through smaller single species HCPs that had paved the way for environmental collaboration. These resulted in the RCIP (described above), a countywide planning effort to integrate transportation and land use with conservation that set the groundwork for the RHCPs.

In some areas the COG also engages in transportation planning for the region, sometimes as an MPO. In such cases the COG serves as a forum coordinating land-use decisions throughout the region, and integrating regional transportation planning with local and county land-use planning. Additionally, in Riverside county (home to both the WRMSHCP and the CVMSHCP)

RCTC is responsible for countywide transportation planning and implementation, and administers LOST funding.

- *OCTA*: OCTA was established as the County Transportation Commission for Orange County, and is responsible for planning and implementing local transportation projects.⁵⁸ OCTA manages an RHCP that was outlined and funded by the county's transportation LOST measure to provide coverage for take by OCTA-led freeway projects. OCTA manages both transportation project implementation and mitigation purchases under the RHCP throughout the county. While led by a transportation agency, the HCP is also an example of governance based on a pre-existing regional organization that expanded its duties.
- *San Diego*: SANDAG, the San Diego-area MPO, is responsible for regional transportation planning and project implementation, and manages one of the area's RHCPs. SANDAG receives TransNet sales tax revenues and manages the EMP, and has capitalized on the one-county planning environment to integrate the implementation of the regional transportation plan and the RHCPs in the County.
- *San Joaquin*: The SJCOG led the RHCP planning and is central to the implementing JPA. The MPO for San Joaquin County, SJCOG, is responsible for regional transportation planning, and distributes revenue from the local transportation sales tax (Measure K).

In Texas, RHCP governance structure reflects little-to-no increase in regionalism through informal coordination and collaboration, yet increases the role of the supralocal government. As

⁵⁸ OCTA is the only COG in Orange County, composed of the county and 34 incorporated cities, but is only asked with transportation planning and implementation.

discussed above, the county government manages rural RHCPs in Texas without formal city participation in planning or implementation. The county government is best equipped to engage in regional planning, even if it is comparatively limited in its ability to act. By tasking the county with implementation of RHCPs, responsibility for permitting and land acquisition is shifted from individual landowners to the county government, thereby increasing its role.

*RHCP Planning Integrates New Stakeholders Into Regional Organizations*⁵⁹

All interviewees considered political “buy-in” by regional organizations an essential element for successful regional conservation planning. Cities have proven more likely to surrender a degree of local control to a pre-existing governing body that has shown regional competency, gaining the trust of cities by adequately representing their interests in regional matters. Particularly prevalent is management by COGs that are also responsible for regional transportation planning and/or project delivery, likely because of the mandate for regional transportation-planning organizations under federal law. This governing arrangement has facilitated local and regional transportation project delivery by integrating transportation planning and environmental planning for RHCPs within one organization.

It has historically been more difficult to involve State DOTs in RHCP planning, as they only have participated as permittees in a minority of studied RHCPs.⁶⁰ There are a few possible reasons for this. Firstly, environmental permitting has been institutionalized into the State DOT for decades, and it is hard to break institutional patterns without strong incentives, leadership,

⁵⁹ It should be noted that RHCPs managed by pre-existing regional organizations may not include specific cities that choose not to participant, but this is rare.

⁶⁰ RHCPs have also incorporated numerous other infrastructure agencies into their governing structures, including: Lower Colorado River Authority in the BCCP, Santa Clara Valley Water District in the SCVMSHCP, Contra Costa County Flood Control and Water Conservation District in ECC, and the Coachella Valley Water District and Imperial Irrigation District in the CVMSHCP. Additional infrastructure agencies, as well as county open space and parks departments, are permittees on some plans but are not directly represented in the governing organization.

and personal relationships. In California, expedited Section 7 explicitly included in the permitted planning document incentivizes Caltrans' participation in RHCPs, in some cases providing the necessary motivation to overcome institutional inertia. Texas RHCPs do not contain this provision, and TxDOT policy currently directs TxDOT to utilize RHCPs as one of many mitigation tools.⁶¹

The case studies also examined how RHCPs have increased the buy-in of environmental stakeholders in initiatives simultaneously geared towards infrastructure and private development. Some RHCPs have managed to garner the typically rare support of environmental groups for transportation development. In the case of Orange County, the RHCP directly engaged environmental interests with the regional transportation planning entity for the first time. In other cases, such as East Contra Costa County, transportation agencies were integrated into an existing environmental initiative. In either case, the cooperation between environmental and transportation entities either began or was broadened by the RHCP. Involvement in these plans in recent years has increased institutional buy-in between agencies whose goals are typically in conflict.

RHCP planning aligns the goals of participating entities, allowing each participant to play to its strength, and a long-term and stable collaborative relationship with environmental organizations greatly helps transportation agencies achieve environmental goals. The buy-in to RHCPs lets transportation agencies focus on transportation planning while other, better-suited, agencies purchase and manage mitigation land. The availability of biological data and predetermined maintenance and design elements for a specific area can also be more easily

⁶¹ It is also possible that it is cheaper for TxDOT to mitigate independently in Texas counties with large RHCPs, which are mostly rural and have cheaper land prices than California. Also, there are established mitigation banks that are frequently used, which is another way to get mitigation credits outside the RHCPs.

integrated into the transportation planning and maintenance process while relying on outside expertise.

Forming New Regional Institutions

Few RHCPs have faced the more difficult task of building a regional coalition from the ground up, either because there was no pre-existing forum for regional coordination, or because the Plan area, as dictated by ecology, crossed politically-defined regional boundaries. In these examples, the coordination was issue-specific to the RHCP, yet the creation of new regional-planning entities demonstrates the power of the ESA, its impact on land use, and the economic incentives of RHCPs to increase regional governmental cooperation.

In the BCCP (and the newly formed SEP-HCP in San Antonio), the RHCP is governed by city/county interlocal agreement created specifically for BCCP. The BCCP has paved the way for successful collaboration between county and city on other matters, particularly drawing on the trust created by dividing implementation duties by type of development as opposed to location. It is too early to draw conclusions as to whether the SEP-HCP will similarly improve coordination between San Antonio and Bexar County.

In East Contra Costa and Santa Clara, RHCPs cover only the portion of the county containing endangered species habitat. Each of these RHCPs formed new JPAs for implementation, with the creation of new, single-issue collaborations that departed from the pre-existing regional planning process.⁶² As these areas develop, it may be that mutual concerns other than endangered species habitat—such as urban growth patterns, economic industries, and transit

⁶² It should be noted that both of these counties are part of Bay Area MPO, Association of Bay Area Governments/Metropolitan Transportation Commission, and do not have formalized countywide general-purpose COGs.

needs— will prove that these sub-county regions provide a better basis for addressing shared concerns (similar to sub-county COGs within Riverside County).

9.2.1 Lesson: Increasing the Capacity for Regionalism is an Incremental Process

The divergence between strength of Texas and California governance organizations as regional actors is directly attributable to the comparatively stronger regional planning power in California. The short-term ability of RHCPs to engage in regional planning is largely a reflection of already-existing capacity (or requirements) for regional planning, and that government and agency “buy-in” is more likely using a pre-existing regional agency.

But, taken together, these examples imply that strengthening regional planning institutions is an incremental process. Regional governance changes slowly over time as it responds to changing development patterns and pressures, as well state and federal law and policy. These case studies also demonstrate that RHCPs have expanded both the scale and scope of earlier integrated planning initiatives. A stable governing core can support the addition of new stakeholders, such as transportation agencies, irrigation districts, water boards, local parks departments, and private and federal land management agencies.

According to a FWS representative, the current Texas landscape resembles “California 30 years ago.” California counties, at the time of RHCP permitting, are more “locked into” current land use patterns controlled by incorporated cities, necessitating regional collaborations. As the Texas counties with RHCPs develop, they will need to strengthen regional coordination and planning, and RHCPs can be the first step in providing an enduring forum for regional collaboration. The BCCP is an example of a county-city alliance that set the stage for future collaborations, and a similar structure was adopted by the newly-formed SEP-HCP. It is too early

in the implementation of other Texas RHCPs to tell whether regionalism can increase, though if it were to, it would likely be due to economic incentives for participation.

9.3 Regional Conservation Planning as De-Facto Land Use Planning

9.3.1 *RHCPs State they are Not Land Use Plans*

RHCPs are in essence tasked with reorganizing regional land-use geography even though they do not have the legal power to do so directly. While many plans explicitly state otherwise, RHCPs function as a form of land use planning (Cyliner, 2002; Livingston, 2016). The following quotes reinforce that RHCPs state they are not land use plans, and do not directly infringe on private property rights:

- *Santa Clara Valley Habitation Plan*: The FAQ for the Santa Clara states: “What does the Habitat Plan not do? The Habitat Plan is not a land use plan and does not change or amend any local jurisdiction’s policies regarding zoning or allowable growth” (Santa Clara Valley Habitat Agency, n.d.).
- *San Joaquin*: “The key purpose of the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP or Plan) is to: 1. Provide a strategy for balancing the need to conserve Open Space and the need to Convert Open Space to non-Open Space uses while protecting the region's agricultural economy. 2. Preserve landowner property rights” (San Joaquin Council of Governments, n.d.).
- *Coachella Valley*: “Coachella Valley Conservation Commission (CVCC), a joint powers authority of elected representatives, will oversee and manage the Plan. The CVCC has no regulatory powers and no land use authority. Its primary purpose is to buy land from willing sellers in the conservation areas and to manage that land. CVCC meetings are

open to the public and held on the second Thursday of every month” (Riverside County Transportation and Land Management Agency, 2003, p. 6.6.1).

- *San Diego*: The steadfast demand for local land-use control led to an “umbrella” permitting structure that allowed local municipalities the option to hold out and join the plan later as a “subarea.”

In Texas, counties do not have any zoning power, and state law prevents RHCPs from exerting any regulatory control to implement RHCPs. These are facts that are stressed in the Plans and the materials that are marketed to the public:

- *Williamson County RHCP*: The RHCP dismisses the possibility of a zoning-based plan, stating “However, the alternative was rejected because, at this time, the County does not have the regulatory authority to implement land use zoning, and the County is unlikely to gain that authority from the Texas Legislature given the strong tradition of protecting private property rights in the state. In Texas, a county has only the authority expressly granted it by the state constitution or state statutes. No county in Texas has general ordinance-making authority” (Williamson County Conservation Foundation, 2008b, p. 2.7).
- *Comal County RHCP*: The Comal County Plan similarly stresses the voluntary, non-regulatory nature of the Plan, stating prominently on the RHCP website that “Participation in the RHCP would be 100% voluntary” (Comal County Commissioners Court, 2015).

9.3.2 RHCPs Directly Increase the Land Use Powers of Regional Organizations

Protection from Federal Interference

RHCPs can gain power to guide land use from devolution of federal power to enforce the ESA. The head of the EMP program in San Diego offers the perspective that regional planning for RHCPs keeps land use control out of the hands of the federal government. After the permit is issued, local landowners are required only to follow permit guidelines, and are insulated from unpredictable individual negotiations with FWS. Similarly the Hays County RHCP promotes itself as a “locally-controlled approach for compliance with the Federal Endangered Species Act (ESA)” (Bowman Consulting Group, 2013). The Plan is marketed as hitting a sweet spot—a private landowner has the choice to participate in the RHCP, but in doing so relies on the county and not the Federal government for compliance.

Relinquishment of absolute land use control by participating cities

Private or public entities participate in RHCPs to shift the burden of permitting and land acquisition to the RHCP governance organization. This is nonetheless a transfer of duties and decision-making from the local to regional level that contradicts plain statements that RHCPs are not land use plans. RHCP planners negotiate the guidelines for ESA compliance (such as mitigation ratios and management requirements) with FWS, and permit holders are directly tasked with targeting and acquiring suitable preserve land.

RHCPs transfer land use power from the local to the regional level, and many initially resistant cities eventually join these voluntary initiatives. The pressure on cities to participate in an RHCP is one of the biggest drivers of regional integrated planning for conservation. The pressure to join RHCPs comes from a number of sources: political pressure, pressure by developers to facilitate building permits, or pressure from FWS, who typically cannot keep up

with the pace of per-project permitting in an area of rapid growth. Non-participating cities also face pressure to join in order to avoid competing with RHCPs for conservation land in a scarce market of willing sellers. RHCPs can exercise economies of scale in mitigation land acquisitions, often making use of advance funds from transportation measures, and target conservation land otherwise desirable for development.

- *Santa Clara HCP*: The Santa Clara Valley RHCP illustrates how pressure to participate by FWS can shape the plan. The Plan was spurred by the biological opinion for the 101 widening by SCVTA recommended that an RHCP would be necessary to meet mitigation requirements for the direct and indirect impacts of the highway project. The County and the City of San Jose supported the highway project as necessary to reduce congestion and accommodate growth, and were left with no good option but to begin RHCP planning at FWS's urging. Further, the City of Gilroy was initially reticent to participate in the Santa Clara RHCP, but belatedly joined the planning process when it faced issues mitigating for planned subdivisions.
- *Western Riverside*: The complex and comprehensive mechanism to designate preserve land through "criteria cells" is an example of how regional organizations can pressure individual cities into joining. Similarly, newly incorporated cities were essentially left with no option but to join the plan because they were unable to cost-effectively compete with the RHCP for mitigation land. WRMSHCP also used transportation finance incentives to encourage participation, tying the use of LOST funding for transportation by cities to participation in the plan.

- *Coachella*: CVAG struggled to convince Desert Hot Springs to participate in the RHCP.

This was partially due to a clash of personalities, but also because the city felt that the RHCP would limit economic development, especially in light of a planned large development project. Ultimately, in 2016, Desert Hot Springs became a permittee through a Plan amendment.

- *San Joaquin*: According to a Plan representative, local planning departments bring projects that may impact habitat to be discussed among the managing COG, a situation he describes as forming a “regional collective” for planning.

Transportation and other infrastructure agencies face similar competitive pressures to acquire mitigation land, and FWS recommends using RHCPs to purchase and manage mitigation land. In East Contra Costa, neither Caltrans, nor the countywide transportation-planning agency, participated in planning or implementation of the RHCP. Eventually, both experienced difficulties mitigating highway projects and joined the plan as “participating special entities,” a designation for non-permitted regular participants. Participating Special Entities pay higher fees to the RHCP for mitigation than permittees. In Texas, difficulties mitigating for SH 45— and the increasing participation of TxDOT in using RHCPs for mitigation and guidance— show that while state DOTs stand to benefit from participating in RHCPs, but institutional learning is a gradual process.

9.3.3 RHCPs Guide Long-Term Growth Using a Variety of Tools and Incentives

I find that RHCPs only marginally impact short-term growth of existing cities, but can limit urban growth in the long-term. Despite the insistence of many plans that they are not engaged in land-use planning, many RHCPs guide long-term growth to areas that will not harm endangered species. Most cities would not participate if forced to shrink their general plan

boundaries, thus RHCP permits cover urban development to encourage participation.⁶³ Almost all of the studied RHCPs do not directly curtail development within current jurisdictional general plan boundaries, but indirectly guide and limit long-term growth

In the short-terms, RHCPs can influence growth patterns through market incentives and habitat mapping. The scarcer the habitat, the more expensive it is for the RHCP to purchase mitigation land. By setting fees accordingly, the high costs of take of the scarcest types of habitat can discourage development within covered urban areas. For example, in both San Joaquin and East Contra Costa, the high participation fees charged to mitigate take of vernal pool habitat have (purposefully) discouraged growth into those areas, even if they are technically covered by the Plan.

RHCPs' permits last 30 years or longer, and RHCPs can guide and limit long-term expansion of current city boundaries. California cities grow through the annexation of unincorporated land and permits do not necessarily cover take on such land. Texas cities' ETJs extend beyond city boundaries, and the process of enlarging city boundaries is almost automatic. Yet in both states, RHCPs prioritize the acquisition of mitigation land that will face development pressure, which is often located on the fringes of growing cities. They can effectively provide a buffer that limits the expansion of city boundaries because protected land is less desirable than developable for annexation. The ability to do so depends upon finding a willing seller.

Mitigation land acquisition depends on providing incentives to create willing sellers. Designated conservation lands in California (for example, criteria cells in Western Riverside),

⁶³ One exception, the Coachella Valley MSHCP, draws "hardline" boundaries for growth based on existing general plan boundaries. It does however designate some areas within general plan boundaries for conservation, limiting growth to 95% of existing general plan boundaries. Nonetheless, there are a few examples where RHCP planning did alter project outcomes. The abandonment of the 20th Ave. extension in Desert Hot Springs due to conflict with conservation planning under the CVMSHCP, which limited growth within existing general plan boundaries.

can simultaneously reduce potential development of a particular parcel of land, while raising land prices for prime conservation land—creating the incentive to sell land to the RHCP. Newer Texas RHCPs have struggled to purchase unincorporated land for mitigation, possibly because they are still unable to provide sufficient economic incentives for landowners to sell to the RHCPs (or establish a mitigation bank) in the absence of preserve designation. However, private mitigation banks are a profitable enterprise in Texas counties with RHCPs as the Williamson County case study shows. It is likely that as development increases, and with it the demand for mitigation land, mitigation banks will proliferate in Texas counties and targeted acquisitions will be easier.

Lastly, all development, covered or not, depends on the availability and price of mitigation land. While each RHCP outlines mitigation strategies to cover envisioned growth, sometimes growth outpaces these scenarios, either during or after the life of the permit, and RHCPs may struggle to find suitable mitigation land.

9.3.4 Policy Lesson: Regionalism is a Concept in Good Standing

The pressures on cities to join RHCPs should not be considered a usurpation of local power, but rather as a trend towards accepting that it is necessary to engage in compromise for the sake of the region. Cities find that it is beneficial to pool resources to mutual advantage when facing tough planning challenges, moving toward increased acceptance of regionalism. To quote a representative of Lake Elsinore in Riverside County, the city joined the RHCP to be a “good regional player.” Similarly, a representative of the San Joaquin MSHCP states they were fortunate during planning that representatives were mostly “wearing their regional hats,” and they managed to reach a compromise that got all the cities on board (S. Mayo, personal communication, March 4, 2013). The absence of a similar attitude towards regionalism in Texas

reinforces the finding that regionalism is an incremental process, and that California RHCPs are to some degree a glimpse of the future of conservation planning in rural Texas and other less developed regions with endangered species habitat.

Further evidence of this acceptance of regionalism can be seen in the dedication of voter-approved local option sales tax and road bond revenue towards advanced mitigation funding in support of an RHCP. Approving measures that dedicate funding to regional conservation planning show both that this is a concept in good standing, and that local constituents are willing to put this power and responsibility in the hand of the governing bodies administering these funding programs (which are consistently the same as those handling the RHCP).

The case studies show numerous situations in which cities and public agencies that initially chose not to participate eventually sought coverage under the RHCP, and in some cases became additional permittees. Some of these cases can be attributed to personnel and policy changes that brought in decision-makers who were more open to regional participation. In other cases, holdouts realized that going at it alone was a poor decision, particularly as neighboring cities, public agencies, and councils of governments committed to a regional conservation approach, effectively changing the political, economic, and geographic dynamics of mitigation.

9.4 How RHCPs Change Transportation Planning and Project Delivery

Previous chapters have shown that conservation and transportation planning have become more integrated as a result of RHCPs. But a larger and subtler question remains: does participation in RHCPs alter the transportation planning process or the types of projects delivered by transportation agencies? And, if it does, where in the transportation planning process is the impact of an RHCP most readily apparent?

The case studies show that RHCPs have little impact on the regional transportation planning process or project selection, but they force incorporation of environmental data and guidelines that impact project design and delivery. The intent to accelerate transportation project delivery is often the direct impetus for some RHCPs, and is used to increase political support for conservation initiatives. Mitigation for planned projects is typically “built into” an RHCP, due to either transportation and RHCP planning are increasingly integrated, or RHCPs prioritizing transportation infrastructure delivery as a driver of economic growth.

Transportation projects, with or without RHCP coverage, are required to “avoid, minimize, and mitigate” impacts on endangered species habitat. Environmental permitting delays often occur in transportation projects when there is 1) discovery of unknown species habitat and 2) difficulty in acquiring suitable mitigation land. These are precisely the situations that RHCPs seek to minimize in the delivery of projects—transportation or other forms of development. Chapter 4 shows that RHCPs provide certainty in meeting mitigation requirements. Here I expand on that discussion to show that the biological information made available to participating transportation agencies can be incorporated into the project planning stages, and project alignment and design can be specified to minimize damage to habitat.

Programmatic Use of Innovative Design Changes

One of the most important impacts of RHCPs on transportation planning is improving species-friendly transportation project design, institutionalizing habitat protection by transportation agencies. The transportation planning community promotes these values in response to NEPA, the ESA, and other environmental laws, though they cannot always achieve them due to lack of funding and agency coordination at the federal- and state-level. An RHCP functions like a programmatic agreement for transportation projects (see Chapter 2) but covers

the area managed by the RHCP, as programmatic agreements are often statewide. Some interviewees noted that the smaller area of RHCPs and the wealth of biological data from surveys can contribute to species-specific design improvements.

Innovative design policies can protect endangered species. Incremental changes in design, such as underpasses that allow for species migration, smaller interchanges with tighter curves and narrower shoulders, can confer great benefits on endangered species and their habitats. All interviewees discussed the integration of species-friendly design in the transportation planning process as one of the major impacts of RHCPs on transportation planning. Multiple interviewees also reported reconsidering the planned widening of highways due to the impact on species.

Other design changes compensate for the linearity of transportation and other infrastructure projects, which can sever habitat linkages, reducing breeding ground or foraging land for some species. As scientific understanding of the mating and feeding habits of endangered species improves, RHCPs spur underlying biological analyses that provide conservation that is more nuanced and comprehensive than just the number of acres protected.

The provision of biological data for regional transportation planning is one of the largest benefits of RHCPs. Interviewees frequently cite the importance of access to biological data in facilitating mitigation planning. Data availability makes mitigating through an RHCP significantly easier, and increases the benefits, and therefore the likelihood, of transportation agency participation. Transportation agencies have fewer biological resources than environmental agencies to engage in upfront regional environmental planning that can reduce the time need for biological analysis under the ESA (and other environmental laws such as NEPA), reinforcing their reliance on per-project mitigation in absence of access to biological data.

Project Planning and Project Outcomes: the Chicken and the Egg

RHCPs provide identification of endangered-species habitat that can be used by transportation agencies to align projects to avoid habitat during the project design phase. This information is internalized into the design process, and illustrates how RHCPs can provide more certainty in environmental permitting for transportation projects.

- *Williamson County*: The RHCP was formed when TxDOT's difficulties mitigating for Highway 183A signaled a bellwether of future conflicts between habitat and impending growth. The RHCP has identified endangered species habitat, causing multiple highway projects to alter their alignments before construction started, minimizing impact on habitat. Without the identification of habitat by the RHCP, these projects would likely have run into costly delays and onerous mitigation requirements similar to Highway 183A. The Williamson County RHCP gives an example of a road-alignment change to a project covered by the Plan.

It is difficult to present “but for” examples, but more salient are the frequent examples of transportation agencies engaging RHCPs only after discovering endangered species habitat during their construction (as opposed to earlier in the planning process).

- *ECC*: Both Caltrans and the Contra Costa Transportation Authority, the transportation-planning agency for the county, entered into a long-term contractual agreement with the RHCP following difficulties with specific projects. In San Joaquin County, Caltrans work with the RHCPs developed from reactive to proactive after repeated difficulty with mitigation through the Section 7 process.

The BCCP provides certainty for transportation project alignment, guiding infrastructure into designated corridors that protect habitat and reduce permitting to “a paper exercise.” In

contrast SH 45 SW has undergone multiple redesigns to avoid endangered species habitat, and has been unable to find suitable mitigation land in a county where the 20-year old BCCP has enlarged preserves over time. The project is on hold pending a lawsuit, which underscores the importance of RHCPs in providing certainty for planned projects.

9.4.1 Recommendation: Participate Early and Often

As demonstrated by the case studies, early participation by transportation agencies in RHCP planning establishes a solid foundation for integrated planning in the future. When transportation agencies participate in the conservation planning process, political support for transportation projects ensures that the RHCP will facilitate the delivery of desired projects.

The case studies show that participation in RHCPs, especially by transportation agencies, has had origins that have been opportunistic. Participating in the collaborative planning process, where it has happened, has fostered trust and familiarity between cities, counties and transportation agencies. The built-in flexibility of some plans to add participants after permitting has allowed transportation agencies to participate in implementation when it later served their interests. This flexibility led to positive policy outcomes, encouraging mutually beneficial future participation once agencies are familiar with the RHCP permitting process and its benefits. From the opportunistic beginnings have come some lasting and valued collaborations.

Transportation agencies, in cooperation with regional environmental planning organizations, have adapted project alignment and design to minimize take of endangered species. Compared to transportation agencies that engage with RHCPs only after running into mitigation roadblocks, proactive transportation agencies that take part in the planning process can reduce their mitigation requirements, and often negotiate a better “deal” as part of the RHCP, saving both time and money.

I find that transportation agencies have much to gain from early, substantive participation in RHCPs, but often resist due to administrative difficulties evolving from per-project permitting, and limitations on how environmental funding can be used. Currently, RHCPs have gradually started to influence regional planning, encouraging transportation agencies to plan projects in conjunction with conservation and land-use planning. The case studies demonstrate that RHCPs are a promising basis for planning that integrates transportation, land use, and conservation goals for more comprehensive and efficient outcomes.

10 Conclusion

Planning addresses the interrelated nature of competing policy objectives within a defined geographic area. Environmental considerations require planners to consider ever-larger areas and to engage disparate interests in collaborative planning. Transportation and environmental planners are slowly but surely moving from adversaries toward collaboration and plan integration. The main conclusion of this research is that transportation projects play a significant role in RHCP planning and implementation as drivers of regional growth patterns and because large capital investments in transportation often harm vast swathes of habitat. As the balance between development and conservation increasingly shapes land use patterns at a regional level, it is impossible to ignore the interrelation between them. Doing so requires organizations to collaborate in new ways.

RHCPs provide insight into the institutional structures that will guide the evolving integration of transportation and conservation planning on a regional scale. This dissertation explores many aspects of this integration, including practical and legal dynamics of cooperation, leveraging of transportation funding sources, and how RHCP governance structure increases the role of transportation in regional planning. The most interesting finding is that transportation infrastructure development drives the economic development that harms endangered species habitat while simultaneously playing a large role in improving conservation outcomes of endangered species habitat.

10.1 The Conflicted Role of Transportation in Conservation

10.1.1 Transport Plays a Significant Role in RHCPs

RHCPs are most often driven by a strong political preference for economic development, including infrastructure. There are numerous ways in which transportation guides RHCPs:

1. In some cases, transportation agencies take the lead in RHCP planning and implementation. These include MPOs, dedicated countywide transportation agencies, and general-purpose COGs that are responsible for transportation planning and implementation.
2. In other cases, transportation agencies participate in RHCP planning as permittees, integrating their planned projects into the land use and mitigation strategies of the RHCP.
3. Even where transportation agencies do not participate in planning or implementation, mitigation fees paid to enable larger transportation projects provide funding that stabilizes the RHCP.
4. In some cases, in which the permit does not cover transportation projects, the RHCP mitigation plan accounts for the direct and indirect damage to species habitat. Thus, even without transportation agency participation, RHCPs do everything within their power to accommodate projects and corresponding growth. This fosters economic development and increases political support for RHCPs.

RHCPs have had comparatively little impact on the regional transportation planning process. Economic growth is the driving force in forming regional relationships; the planning and delivery of transportation projects is a means to this end. RHCPs are largely an additional step to ensure economic development in regions where endangered species habitat interferes with this goal. Attention to habitat preservation has gradually influenced transportation planning and the accommodation of economic development by making environmental preservation more central to their planning.

The majority of case studies examined included one or more transportation agencies as permittees that participate in order to streamline coverage for planned projects. In California's

urban areas, the density of development, strong regional-planning requirements, and the active role of transportation organizations in coordinating regional interests make transportation a driving force motivating compromise and engagement in the RHCP planning process. However, RHCPs that prioritize the preservation of rural habitat minimize their coverage of infrastructure growth. While most of the planned transportation projects will be built, there was political support for these RHCPs to encourage open space preservation, and to not accelerate development.

In rural counties with RHCPs, the need for coordinated regional transportation planning will increase in tandem with development. The BCCP, and to a lesser extent Williamson County, show that even though Texas lacks the strong regional transportation planning tradition of California, rapidly developing counties consider future transportation planning a key element in RHCP formation and planning, even without a pre-existing organization to coordinate regional transportation planning. It is likely, therefore, that the role of transportation planning agencies in rural counties will evolve over the long life of the permit as competition for mitigation land increases.

Programmatic agreements are developed by federal and state-level transportation agencies to reduce the administrative burden of environmental permitting. Programmatic agreements provide guidelines for project planning and delivery that meet and/or exceed environmental requirements. Advanced mitigation programs, specifically in RHCPs covered in the case studies, are a subset of programmatic agreements pertaining to the ESA. Transportation agencies incorporate environmental goals into their policy decisions, but in practice are hindered by the lack of available biological data, limited environmental staff, and the inability to own and manage conservation preserves.

The most pronounced effect of RHCPs on the transportation planning process is facilitating environmental permitting—and therefore project delivery. This acceleration changes the timing of projects and correspondingly accelerates private development in the region. In almost all California cases, FWS basically “pre-approved” participating transportation projects covered by the permit, which then proceeded with expedited environmental review and avoided lawsuits if RHCPs pursued pre-determined conservation strategies. Where transportation agencies did not participate, RHCPs facilitated projects to a lesser degree, providing information as an input for biological analysis, and paying mitigation fees to shift the burden of acquiring and managing mitigation land to the RHCP.

RHCPs largest impact on transportation planning is providing information to transportation agencies that would be costly and inefficient for them to gather individually for each project. RHCPs provide biological data that can guide environmentally sensitive alignments in the early stages of project planning. RHCPs also provide a roadmap, similar to a programmatic agreement, on how to incorporate species-friendly design features into transportation planning. These design features are engineered to minimize the acreage of direct impact on species habitat, reduce direct mortality from road kill, and provide habitat linkages. Thus transportation projects became more environmentally sensitive in RHCPs areas, even if it transportation planning did not become more regional in nature.

10.1.2 Including Transportation Projects in RHCPs Improves Conservation Outcomes

Perhaps counterintuitively, I found that the inclusion of transportation projects in RHCPs improves conservation outcomes. While transportation projects can damage endangered species habitat, the mitigation funding from transportation agencies turns transportation projects into a source of support for conservation. The larger the project, the more it benefits conservation.

Transportation plays a large role in the creation of RHCPs in numerous ways.

Transportation agencies participate in the planning, permitting, and governance of many RHCPs, and serve as the lead agency in two case studies. Additionally, many large highway construction and widening projects were the impetus for creating RHCPs that ultimately provided biologically superior outcomes. Transportation agencies also played crucial roles in funding the planning phase and initial preserve acquisitions by RHCPs. During the implementation phase, transportation funding provides a stable source of revenue during recessions, bolstering the RHCPs and enabling advantageous land acquisition while revenue from participation fees are low.

The relationship between transportation and RHCPs is more than symbiotic; transportation projects in particular improve conservation and species outcome. There is an obvious contradiction that the more damage a larger transportation project causes to habitat, the larger the payment to the RHCP, and the larger the parcel of habitat that can be acquired—often enabling keystone purchases that provide the economies of scale in mitigation land purchases. Early and active collaboration between transportation agencies and conservation organizations can transform conflict into collaboration.

10.2 RHCPs are Economic Development Plans

It is possible to draw the conclusion that RHCPs are primarily plans to facilitate economic development. Facilitating development is often opposed by the environmental community, as shown by one scholar's law review article entitled "How to Kill Endangered Species, Legally: the Nuts and Bolts of Endangered Species Act HCP Permits for Real Estate Development" (Ruhl, 1999). Incidental take provisions specify that development is the main activity to which a taking would be incidental. In this way, RHCPs may be a second best

ecological solution. Many interviewees cite long individual permitting wait times that curtail economic growth as a primary motivator for RHCP formation. If the goal of ESA implementation was to protect as much habitat as possible, then this stalling of economic growth would be an enforcement success.

The primacy of economic development over environmental protection is demonstrated by my findings that RHCPs have little influence on transportation planning decision-making. Elected officials, property owners and the business community want economic growth, and transportation investments encourage that growth. This desire is so strong that RHCPs will endeavor to accommodate and provide mitigation for transportation projects even without the participation of transportation agencies.

10.3 Increasing the Capacity of Institutions for Regional Planning is an Incremental Process

RHCPs can increase regional planning by strengthening regional organizations, incorporating new stakeholders into the regional planning process, and creating new regional coalitions. By shifting federal enforcement to a regional organization, RHCPs meet environmental goals through collaborative governance structures having local institutional knowledge. It can be beneficial for cities to pool resources to mutual advantage when facing tough planning challenges, moving toward increased acceptance of regionalism. RHCP governance organizations have been successful in convincing holdout cities and agencies to participate in implementation, particularly as neighboring cities and public agencies committed to a regional conservation approach, effectively changing the political, economic, and geographic dynamics of mitigation.

10.4 RHCPs Can Guide Regional Development Patterns

While technically voluntary, economic pressures, and in some cases intergovernmental ones, make participating in RHCPs an economic and political necessity. Thus, RHCPs indirectly devolve enforcement of the ESA to regional governments by granting permitting control to local governments, who then aggregate that control into regional governance coalitions, echoing a theory of regionalism espoused by Peterson's *City Limits*.

RHCPs then guide land use by making strategic land acquisitions that limit urban growth and provide market incentives through mitigation fees. RHCPs in California designate target preserve land and covered areas that facilitate growth in some areas while discouraging it in others. This encourages individual landowner participation while discouraging development in the most valuable habitat areas.

10.5 Policy Recommendations

10.5.1 Transportation agencies, particularly state DOTs and MPOs, should proactively participate in environmental planning

In the future, MPOs and State DOTs can increase their roles in coordinating conservation planning where ecosystems extend beyond county boundaries, especially in California. The recommended planning scale for habitat and ecosystem conservation is steadily increasing as scientific knowledge and mapping technologies advance. Scholars and officials have long recognized the need to understand transportation projects as part of a system on a regional scale.

Federal law codifies the need for regional transportation planning, and MPOs are increasingly tasked with incorporating environmental goals into their regional transportation plans (RTPs), such as the requirement to meet air quality standards under the Clean Air Act. The case studies demonstrate the success of single-county MPOs in integrating transportation, land

use, and conservation planning. *MPOs have limited ability to coordinate activities between counties, particularly as it relates to the transportation system, but the participation of multi-county MPOs in RHCP planning is notably absent.* MPO planning increasingly focuses on open space planning as an amenity and a driver for denser development—for example, ABAG/MTC designates both Priority Development Areas and Priority Conservation Area in coordination—and could improve the coordination of conservation efforts among counties.

State DOTs strive to reach programmatic agreements for environmental permitting, and Caltrans and other state DOTs have or are developing programs for regional conservation surrounding large-scale projects. Though state DOT participation in RHCPs is increasing, it is still inconsistent at best. *State DOTs benefit from RHCP participation, but could also use their experience gained through project delivery statewide, particularly across county lines, to help coordinate environmental approaches to transportation project planning and delivery.*

10.5.2 Transportation funding for mitigation should be uncoupled from projects to facilitate advanced mitigation

Transportation projects contribute a large portion of RHCP revenues, particularly on a per-project basis compared to most private development. Transportation funding is particularly valuable to RHCPs during planning and initial implementation, and can help insulate RHCPs from economic recessions. *These benefits could increase if transportation agencies uncouple mitigation funding from specific projects—a necessary condition for advanced mitigation programs within transportation agencies—that can further leverage funding to reduce the cost of mitigation requirements.* This strategy forms the basis of OCTA and SANDAGs mitigation programs, and has been successfully employed by various state DOTs. Dedicated advanced mitigation funding is a feature of California’s recent transportation funding bill, SB 1, and

Caltrans could increase benefits by using this funding to mitigate through RHCPs where applicable.

10.5.3 RHCPs should allow flexibility to accommodate changing circumstances and opportunistic participation.

RHCP creation and participation are predicated on providing advantages for city and county governments, public agencies, and private landowners in comparison with per-project mitigation. *In order to ensure the best outcomes over the long life of the permit, RHCPs should be able to add additional participants, including newly incorporated cities and formerly reluctant public agencies.*

In many cases, the participation of transportation agencies was purely opportunistic. RHCPs were most likely to incorporate transportation agencies in planning when urged by FWS. In some cases, forward-looking transportation agencies sought to assure receipt of environmental permits for a suite of upcoming projects. In other cases, transportation agencies partnered with RHCP implementation agencies after-the fact when they faced difficulties mitigating local projects. In all of these scenarios, transportation agency (and private developer) participation was opportunistic, and the mutual benefits accrued from including transportation agencies were maximized when, over the long time-frame of a permit, there was the ability to include agencies when the opportunity presented itself. One pressing example is the environmental delays facing implementation of California's high-speed rail program. Integration with RHCPs (and other local conservation plans) can reduce the mitigation burden on the California High Speed Rail Authority, but success depends on proactive engagement by the Authority and the flexibility of RHCPs to accommodate changing development patterns engendered by high-speed rail.

The flexibility to add participants is especially important for Texas RHCPs. As the population grows in counties with RHCPs, the need for regionalism to coordinate competing interests will increase. The ETJ system, in particular, can create conflict between growing cities. Because counties are currently the only permittees in most Texas RHCPs, improving biological outcomes will necessitate expanding coordination and participation to include cities and public agencies. In the future, Texas RHCPs can learn from California how to successfully incorporate local stakeholders.

10.5.4 RHCP Governing Organizations Can be the Basis for Addressing Other Environmental Concerns

By building on existing political currency, RHCP governing coalitions can increase the scope of their planning and garner the support of additional stakeholders. Environmental interest groups historically have often opposed transportation projects and the growth they encourage. Within the collaborative framework of RHCP planning however, these disparate interests have been able to reconcile their objectives to form mutually achievable goals. ***It is increasingly necessary to address other environmental concerns at a regional scale, and the institutional makeup of RHCP planning and implementation can provide a basis for regional coordination on future environmental initiatives.***

The Santa Clara RHCP was the first RHCP to successfully integrate regional permits under both the ESA and the Clean Water Act, compounding benefits from streamlining permitting while integrating biological solutions that conserve habitat and prevent water pollution. The Army Corps of Engineers, which administers the Clean Water Act, has struggled to develop a regional permitting program similar to RHCPs. Relying on RHCP governance organizations to administer both ESA and CWA permits increases the likelihood that the Army

Corps can reach a regional agreement, while governance organizations benefit through consolidated environmental planning and permit administration.

The Role of Conservation Planning in Sustainability Planning

Maintaining the institutional momentum of governance coalitions formed under RHCPs will help us face the planning challenges presented by climate change. In California, Senate Bill 375 has further integrated transportation and environmental planning on a regional scale, requiring MPOs to produce Sustainable Communities Strategies to demonstrate that transportation planning will meet regional Greenhouse Gas reduction goals. Senate Bill 375 requires MPOs to produce regional transportation plans that coordinate transportation and land use planning to reduce GHG emissions by reducing Vehicle Miles Travelled through reducing trip distance and promoting access to high-quality transit. The law aims to encourage the integration of transportation and land use planning to increase urban density by concentrating future growth within existing urban areas, promoting infill development, and providing incentives for multi-family housing.

The roles RHCPs and other regional conservation initiatives play in addressing climate change has only begun to be studied, but open space strategies are an important element of Senate Bill 375 as well as similar sustainability strategies voluntarily undertaken by cities and MPOs (Cyliner, 2002; Livingston, 2016). This law reinforces my findings on the role of regional transportation planning and transportation planning organizations in the increasing scope of regional conservation for biodiversity. It furthermore underscores the increasing scale of struggles to preserve biodiversity by stressing the need for conservation planning that crosses county lines.

10.6 Recommendations for Future Research

10.6.1 How to Integrate Mitigation Land Acquisitions with Public Land Management Agencies?

Biological analysis assesses impact to endangered species through direct, indirect, and cumulative effects, and conservation planning benefits from a holistic view regardless of land ownership. Yet, integrating public and private land management has proven difficult, and this may undercut efforts to form larger and more cohesive reserves. There is a legal division between the environmental review of federal and non-federal projects, creating a separation between stewardship of federal public lands, and management of private and local mitigation lands. ***Future research is needed on how to best capitalize on integrating federal and non-federal conservation lands and management, and also to recommend policy change that would remove legal roadblocks.***

Previous research found that state DOTs have had limited success with regional mitigation in partnership with federal land management agencies, such as the US Forest Service, Bureau of Land Management, and the Department of the Interior. A couple of earlier RHCPs included federal and state conservation lands in their preserve totals, or have contributed funding to public land management agencies. However, both of these examples draw from early RHCPs that benefitted from proactive federal support intended to establish successful RHCPs as a “proof of concept.” Coordination with federal lands has become increasingly difficult. Coachella Valley, the MSHCP with the largest amount of federal land, has problems coordinating land acquisition with BLM, and previous research indicated that Caltrans experienced similar difficulties (Riverside County Transportation and Land Management Agency, 2003). Recently, the in-development Desert Renewable Energy Conservation Plan proposed to integrate renewable energy planning on federal lands across seven counties, including Los Angeles, Riverside, and

San Bernardino (California Energy Commission, 2016). Whether this strategy will be permitted remains unknown, but it demonstrates that integration with Federal land management agencies is a potential way to improve ecological outcomes.

10.6.2 Who Bears the Burden of Regionalism?

Regionalism, particularly as related to coordination and collaboration among governments and agencies, almost always necessitates compromise for the “greater good.” Since most RHCPs cover land in multiple jurisdictions (typically counties and cities), there is potential for conflict among jurisdictions. *Further research could explore the “winners” and “losers” of regional compromise under RHCPs. Research is necessary on both innovative financing mechanisms that can share the financial burden of mitigation, and on ESA enforcement that strives to accommodate future growth in unincorporated areas.* Future research would deepen our understanding of the distribution of costs and benefits, and suggest strategies to share burdens among developments.

This research provides evidence that larger cities are less likely to compromise in reaching regional consensus, a result attributable to their political power within their region and the fact that their participation is crucial for achieving the biological results necessary for permitting. Similarly, transportation agencies rarely compromise on project delivery, because infrastructure is critical to economic growth and politically popular.

Smaller cities participating in RHCPs are likely to face greater growth constraints over time, particularly in Texas due to the ETJ system of city expansion that expands boundaries in proportion to population. The effects on unincorporated land are unclear; *the vast majority of mitigation acquisitions are unincorporated land, but further research is necessary to*

understand whether this increases the value of unincorporated land containing endangered species habitat.

This research also highlights the disproportionate burden placed on new development. Only two California RHCPs attempt to apportion mitigation costs between new and existing development, while most California RHCPs place the burden on all new development.⁶⁴ A minority of California RHCPs require participation fees only for the development of parcels containing identified habitat, a non-regulatory approach shared by Texas RHCPs. These observations reveal a clear pattern that benefits earlier development, which perversely could incentivize a “race to development.”

10.7 In Closing

I examined how Regional Habitat Conservation Planning interacts with transportation planning from the institutional perspective. Regional Habitat Conservation Plans involve multiple stakeholders, such as local governments, resource agencies, infrastructure agencies, and private landowners. The RHCPs featured in this research both facilitate economic growth and provide superior biological outcomes compared to per-project mitigation. The plans in this report cover transportation infrastructure, an integral element of urban development. The participation of transportation agencies often benefits RHCP planning and implementation by facilitating project delivery, and transportation agencies often provide stabilizing funding that contributes to the success of RHCPs. Additionally, transportation agencies increasingly understand the benefits of a single permit that covers a suite of projects, as is evident from mitigation programs funded all or in part by voter-approved transportation funding mechanisms.

⁶⁴ This is a common public policy challenge, demonstrated by Level-of-Service evaluations under CEQA that penalize new construction, and antitrust enforcement that favors earlier mergers in a period of rapid consolidation.

The institutional makeup of RHCP planning and implementation can guide future regional environmental initiatives. Examples include Greenhouse Gas reduction under Senate Bill 375 and similar laws, and regional permitting under the Clean Water Act—with a focus on the role of transportation agencies in planning and implementation. Regional conservation initiatives succeed by building on preexisting regional coalitions that already fostered trust and communication between stakeholders. By building on existing political currency, these coalitions increase the scale of their planning and garner the support of additional stakeholders. For example, environmental interest groups have often historically opposed transportation projects and the growth they encourage. Within the collaborative framework of RHCP planning, the active participation of environmental advocates demonstrates that disparate interests can reconcile their objectives to form mutually achievable goals.

RHCPs consolidate planning authority at the regional level, and have the ability to guide land use. While many plans explicitly state that they are not land use plans, they influence local land use, and therefore affect transportation planning. Some plans may limit growth in existing urban areas to avoid priority conservation areas. Most plans incentivize denser development by covering incidental take in existing urban areas, and increasing competition for mitigation land for non-covered projects. RHCPs also discourage development in endangered species habitat areas by competing for mitigation land and designating land for conservation on the urban boundary.

Transportation agencies are integral parts of the regional environmental planning landscape, and their participation is essential to conserving biodiversity. We need to address today's environmental problems, and must also build the institutional foundations for tackling the increasing scale of future problems. Institutions to support regional conservation find greater success when based on pre-existing organizations, encourage long-term political buy-in, and

have enough flexibility to allow for the opportunistic participation of additional stakeholders.

This research focuses on RHCPs, but lessons learned from regional institution building that supports such large-scale planning efforts provide a solid foundation upon which to tackle other environmental challenges today and in the future.

Appendices

Appendix A Endangered Species Act Sec. 10

Endangered Species Act - 16 U.S.C. Sections 1539 (Section 10).

(a) PERMITS.—(1) The Secretary may permit, under such terms and conditions as he shall prescribe— (A) any act otherwise prohibited by section 9 for scientific purposes or to enhance the propagation or survival of the affected species, including, but not limited to, acts necessary for the establishment and maintenance of experimental populations pursuant to subsection (j); or (B) any taking otherwise prohibited by section 9(a)(1)(B) if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. (2)(A) No permit may be issued by the Secretary authorizing any taking referred to in paragraph (1)(B) unless the applicant therefor submits to the Secretary a conservation plan that specifies— (i) the impact which will likely result from such taking; (ii) what steps the applicant will take to minimize and mitigate such impacts, and the funding that will be available to implement such steps; (iii) what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized; and (iv) such other measures that the Secretary may require as being necessary or appropriate for purposes of the plan. (B) If the Secretary finds, after opportunity for public comment, with respect to a permit application and the related conservation plan that— (i) the taking will be incidental; (ii) the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking; (iii) the applicant will ensure that adequate funding for the plan will be provided; (iv) the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and (v) the measures, if any, required under subparagraph (A)(iv) will be met; and he has received such other assurances as he may require that the plan will be implemented, the Secretary shall issue the permit. The permit shall contain such terms and conditions as the Secretary deems necessary or appropriate to carry out the purposes of this paragraph, including, but not limited to, such reporting requirements as the Secretary deems necessary for determining whether such terms and conditions are being complied with. (C) The Secretary shall revoke a permit issued under this paragraph if he finds that the permittee is not complying with the terms and conditions of the permit.

(b) HARSHIP EXEMPTIONS.—(1) If any person enters into a contract with respect to a species of fish or wildlife or plant before the date of the publication in the Federal Register of notice of consideration of that species as an endangered species and the subsequent listing of that species as an endangered species pursuant to section 4 of this Act will cause undue economic hardship to such person under the contract, the Secretary, in order to minimize such hardship, may exempt such person from the application of section 9(a) of this Act to the extent the Secretary deems appropriate if such person applies to him for such exemption and includes with such application such information as the Secretary may require to prove such hardship; except that (A) no such exemption shall be for a duration of more than one year from the date of publication in the Federal Register of notice of consideration of the species concerned, or shall apply to a quantity of fish or wildlife or plants in excess of that specified by the Secretary; (B) the one-year period for those species of fish or wildlife listed by the Secretary as endangered prior to the effective date of this Act shall expire in accordance with the terms of section 3 of the Act of December 5, 1969 (83 Stat. 275); and (C) no such exemption may be granted for the

importation or exportation of a specimen listed in Appendix I of the Convention which is to be used in a commercial activity. (2) As used in this subsection, the term “undue economic hardship” shall include, but not be limited to: (A) substantial economic loss resulting from inability caused by this Act to perform contracts with respect to species of fish and wildlife entered into prior to the date of publication in the Federal Register of a notice of consideration of such species as an endangered species; (B) substantial economic loss to persons who, for the year prior to the notice of consideration of such species as an endangered species, derived a substantial portion of their income from the lawful taking of any listed species, which taking would be made unlawful under this Act; or (C) curtailment of subsistence taking made unlawful under this Act by persons (i) not reasonably able to secure other sources of subsistence; and (ii) dependent to a substantial extent upon hunting and fishing for subsistence; and (iii) who must engage in such curtailed taking for subsistence purposes. (3) The Secretary may make further requirements for a showing of undue economic hardship as he deems fit. Exceptions granted under this section may be limited by the Secretary in his discretion as to time, area, or other factor of applicability.

(c) NOTICE AND REVIEW.—The Secretary shall publish notice in the Federal Register of each application for an exemption or permit which is made under this section. Each notice shall invite the submission from interested parties, within thirty days after the date of the notice, of written data, views, or arguments with respect to the application; except that such thirty-day period may be waived by the Secretary in an emergency situation where the health or life of an endangered animal is threatened and no reasonable alternative is available to the applicant, but notice of any such waiver shall be published by the Secretary in the Federal Register within ten days following the issuance of the exemption or permit. Information received by the Secretary as a part of any application shall be available to the public as a matter of public record at every stage of the proceeding.

(d) PERMIT AND EXEMPTION POLICY.—The Secretary may grant exceptions under subsections (a)(1)(A) and (b) of this section only if he finds and publishes his finding in the Federal Register that (1) such exceptions were applied for in good faith, (2) if granted and exercised will not operate to the disadvantage of such endangered species, and (3) will be consistent with the purposes and policy set forth in section 2 of this Act.

(e) ALASKA NATIVES.—(1) Except as provided in paragraph (4) of this subsection the provisions of this Act shall not apply with respect to the taking of any endangered species or threatened species, or the importation of any such species taken pursuant to this section, by— (A) any Indian, Aleut, or Eskimo who is an Alaskan Native who resides in Alaska; or (B) any non-native permanent resident of an Alaskan native village; if such taking is primarily for subsistence purposes. Non-edible byproducts of species taken pursuant to this section may be sold in interstate commerce when made into authentic native articles of handicrafts and clothing; except that the provisions of this subsection shall not apply to any non-native resident of an Alaskan native village found by the Secretary to be not primarily dependent upon the taking of fish and wildlife for consumption or for the creation and sale of authentic native articles of handicrafts and clothing. (2) Any taking under this subsection may not be accomplished in a wasteful manner. (3) As used in this subsection— (i) The term “subsistence” includes selling any edible portion of fish or wildlife in native villages and towns in Alaska for native consumption within native villages or towns; and (ii) The term “authentic native articles of handicrafts and clothing” means items composed wholly or in some significant respect of natural materials, and which are produced, decorated, or fashioned in the exercise of traditional native handicrafts without the use of pantographs, multiple carvers, or other mass copying devices. Traditional

native handicrafts include, but are not limited to, weaving, carving, stitching, sewing, lacing, beading, drawing, and painting. (4) Notwithstanding the provisions of paragraph (1) of this subsection, whenever the Secretary determines that any species of fish or wildlife which is subject to taking under the provisions of this subsection is an endangered species or threatened species, and that such taking materially and negatively affects the threatened or endangered species, he may prescribe regulations upon the taking of such species by any such Indian, Aleut, Eskimo, or non-Native Alaskan resident of an Alaskan native village. Such regulations may be established with reference to species, geographical description of the area included, the season for taking, or any other factors related to the reason for establishing such regulations and consistent with the policy of this Act. Such regulations shall be prescribed after a notice and hearings in the affected judicial districts of Alaska and as otherwise required by section 103 of the Marine Mammal Protection Act of 1972, and shall be removed as soon as the Secretary determines that the need for their impositions has disappeared.

(f)(1) As used in this subsection— (A) The term “pre-Act endangered species part” means— (i) any sperm whale oil, including derivatives thereof, which was lawfully held within the United States on December 28, 1973, in the course of a commercial activity; or (ii) any finished scrimshaw product, if such product or the raw material for such product was lawfully held within the United States on December 28, 1973, in the course of a commercial activity. (B) The term “scrimshaw product” means any art form which involves the substantial etching or engraving of designs upon, or the substantial carving of figures, patterns, or designs from, any bone or tooth of any marine mammal of the order Cetacea. For purposes of this subsection, polishing or the adding of minor superficial markings does not constitute substantial etching, engraving, or carving. (2) The Secretary, pursuant to the provisions of this subsection, may exempt, if such exemption is not in violation of the Convention, any pre-Act endangered species part from one or more of the following prohibitions: (A) The prohibition on exportation from the United States set forth in section 9(a)(1)(A) of this Act. (B) Any prohibition set forth in section 9(a)(1)(E) or (F) of this Act. (3) Any person seeking an exemption described in paragraph (2) of this subsection shall make application therefor to the Secretary in such form and manner as he shall prescribe, but no such application may be considered by the Secretary unless the application— (A) is received by the Secretary before the close of the one-year period beginning on the date on which regulations promulgated by the Secretary to carry out this subsection first take effect; (B) contains a complete and detailed inventory of all pre-Act endangered species parts for which the applicant seeks exemption; (C) is accompanied by such documentation as the Secretary may require to prove that any endangered species part or product claimed by the applicant to be a pre-Act endangered species part is in fact such a part; and (D) contains such other information as the Secretary deems necessary and appropriate to carry out the purposes of this subsection. (4) If the Secretary approves any application for exemption made under this subsection, he shall issue to the applicant a certificate of exemption which shall specify— (A) any prohibition in section 9(a) of this Act which is exempted; (B) the pre-Act endangered species parts to which the exemption applies; (C) the period of time during which the exemption is in effect, but no exemption made under this subsection shall have force and effect after the close of the three-year period beginning on the date of issuance of the certificate unless such exemption is renewed under paragraph (8); and (D) any term or condition prescribed pursuant to paragraph (5)(A) or (B), or both, which the Secretary deems necessary or appropriate. (5) The Secretary shall prescribe such regulations as he deems necessary and appropriate to carry out the purposes of this subsection. Such regulations may set forth— (A) terms and conditions which may be imposed on applicants for exemptions under this subsection (including, but not limited to, requirements that applicants

register inventories, keep complete sales records, permit duly authorized agents of the Secretary to inspect such inventories and records, and periodically file appropriate reports with the Secretary); and (B) terms and conditions which may be imposed on any subsequent purchaser of any pre-Act endangered species part covered by an exemption granted under this subsection; to insure that any such part so exempted is adequately accounted for and not disposed of contrary to the provisions of this Act. No regulation prescribed by the Secretary to carry out the purposes of this subsection shall be subject to section 4(f)(2)(A)(i) of this Act. (6)(A) Any contract for the sale of pre-Act endangered species parts which is entered into by the Administrator of General Services prior to the effective date of this subsection and pursuant to the notice published in the Federal Register on January 9, 1973, shall not be rendered invalid by virtue of the fact that fulfillment of such contract may be prohibited under section 9(a)(1)(F). (B) In the event that this paragraph is held invalid, the validity of the remainder of the Act, including the remainder of this subsection, shall not be affected. (7) Nothing in this subsection shall be construed to— (A) exonerate any person from any act committed in violation of paragraphs (1)(A), (1)(E), or (1)(F) of section 9(a) prior to the date of enactment of this subsection; or (B) immunize any person from prosecution for any such act. (8)(A)(i) Any valid certificate of exemption which was renewed after October 13, 1982, and was in effect on March 31, 1988, shall be deemed to be renewed for a six month period beginning on the date of enactment of the Endangered Species Act Amendments of 1988. Any person holding such a certificate may apply to the Secretary for one additional renewal of such certificate for a period not to exceed 5 years beginning on the date of such enactment. (B) If the Secretary approves any application for renewal of an exemption under this paragraph, he shall issue to the applicant a certificate of renewal of such exemption which shall provide that all terms, conditions, prohibitions, and other regulations made applicable by the previous certificate shall remain in effect during the period of the renewal. (C) No exemption or renewal of such exemption made under this subsection shall have force and effect after the expiration date of the certificate of renewal of such exemption issued under this paragraph. (D) No person may, after January 31, 1984, sell or offer for sale in interstate or foreign commerce, any pre-Act finished scrimshaw product unless such person holds a valid certificate of exemption issued by the Secretary under this subsection, and unless such product or the raw material for such product was held by such person on October 13, 1982.

(g) In connection with any action alleging a violation of section 9, any person claiming the benefit of any exemption or permit under this Act shall have the burden of proving that the exemption or permit is applicable, has been granted, and was valid and in force at the time of the alleged violation.

(h) CERTAIN ANTIQUE ARTICLES.—(1) Sections 4(d), 9(a), and 9(c) do not apply to any article which— (A) is not less than 100 years of age; (B) is composed in whole or in part of any endangered species or threatened species listed under section 4; (C) has not been repaired or modified with any part of any such species on or after the date of the enactment of this Act; and (D) is entered at a port designated under paragraph (3). (2) Any person who wishes to import an article under the exception provided by this subsection shall submit to the customs officer concerned at the time of entry of the article such documentation as the Secretary of the Treasury, after consultation with the Secretary of the Interior, shall by regulation require as being necessary to establish that the article meets the requirements set forth in paragraph (1)(A), (B), and (C). (3) The Secretary of the Treasury, after consultation with the Secretary of the Interior, shall designate one port within each customs region at which articles described in paragraph (1)(A), (B), and (C) must be entered into the customs territory of the United States. (4) Any person who imported, after December 27, 1973, and on or before the date of the enactment of the

Endangered Species Act Amendments of 1978, any article described in paragraph (1) which— (A) was not repaired or modified after the date of importation with any part of any endangered species or threatened species listed under section 4; (B) was forfeited to the United States before such date of the enactment, or is subject to forfeiture to the United States on such date of enactment, pursuant to the assessment of a civil penalty under section 11; and (C) is in the custody of the United States on such date of enactment; may, before the close of the one-year period beginning on such date of enactment, make application to the Secretary for return of the article. Application shall be made in such form and manner, and contain such documentation, as the Secretary prescribes. If on the basis of any such application which is timely filed, the Secretary is satisfied that the requirements of this paragraph are met with respect to the article concerned, the Secretary shall return the article to the applicant and the importation of such article shall, on and after the date of return, be deemed to be a lawful importation under this Act.

(i) **NONCOMMERCIAL TRANSSHIPMENTS.**—Any importation into the United States of fish or wildlife shall, if— (1) such fish or wildlife was lawfully taken and exported from the country of origin and country of reexport, if any; (2) such fish or wildlife is in transit or transshipment through any place subject to the jurisdiction of the United States en route to a country where such fish or wildlife may be lawfully imported and received; (3) the exporter or owner of such fish or wildlife gave explicit instructions not to ship such fish or wildlife through any place subject to the jurisdiction of the United States, or did all that could have reasonably been done to prevent transshipment, and the circumstances leading to the transshipment were beyond the exporter's or owner's control; (4) the applicable requirements of the Convention have been satisfied; and (5) such importation is not made in the course of a commercial activity, be an importation not in violation of any provision of this Act or any regulation issued pursuant to this Act while such fish or wildlife remains in the control of the United States Customs Service.

(j) **EXPERIMENTAL POPULATIONS.**—(1) For purposes of this subsection, the term “experimental population” means any population (including any offspring arising solely therefrom) authorized by the Secretary for release under paragraph (2), but only when, and at such times as, the population is wholly separate geographically from nonexperimental populations of the same species. (2)(A) The Secretary may authorize the release (and the related transportation) of any population (including eggs, propagules, or individuals) of an endangered species or a threatened species outside the current range of such species if the Secretary determines that such release will further the conservation of such species. (B) Before authorizing the release of any population under subparagraph (A), the Secretary shall by regulation identify the population and determine, on the basis of the best available information, whether or not such population is essential to the continued existence of an endangered species or a threatened species. (C) For the purposes of this Act, each member of an experimental population shall be treated as a threatened species; except that— (i) solely for purposes of section 7 (other than subsection (a)(1) thereof), an experimental population determined under subparagraph (B) to be not essential to the continued existence of a species shall be treated, except when it occurs in an area within the National Wildlife Refuge System or the National Park System, as a species proposed to be listed under section 4; and (ii) critical habitat shall not be designated under this Act for any experimental population determined under subparagraph (B) to be not essential to the continued existence of a species. (3) The Secretary, with respect to populations of endangered species or threatened species that the Secretary authorized, before the date of the enactment of this subsection, for release in geographical areas separate from the other populations of such species, shall determine by regulation which of such populations are an experimental population

for the purposes of this subsection and whether or not each is essential to the continued existence of an endangered species or a threatened species.

Appendix B Interview Guide

Background Info

I will first verify information about the interviewee, including his/her position and employer. I would then follow up to confirm information about the RHCP that I found from publicly available sources.

HCP Questions

a. HCP Formation

- i. What was the reasoning behind forming an HCP?
 1. Was it always area-wide or was it an aggregation of smaller projects?
- ii. What were the original goals of the HCP?
- iii. Did the goals change throughout the process?
- iv. What would have been the alternative to an HCP?
- v. Did you feel certain of getting an HCP permit?
- vi. Permittees/Partners
 1. Please provide a complete list of the permittees for the HCP?
 2. How did you decide who would be a permittee? Who decided?

b. USFW

- i. At what stage did you involve USFW?
- ii. Describe their involvement?
- iii. Who prepared the EIS for the HCP?

c. Characteristics

- i. Infrastructure*

1. Is one of the goals of this HCP to facilitate transportation infrastructure?
2. Other infrastructure?

ii. Does the HCP involve multiple jurisdictions or agencies?

1. Was one jurisdiction or agency primarily involved in the permitting process?

iii. Mitigation

1. Would you characterize it as offsite mitigation (meaning protected land is located separately from the projects it is mitigating)?
2. How was the decision made for the type of mitigation and by whom?
3. Did the HCP use land already owned by the government?
4. How did you go about acquiring additional land if necessary?

iv. Management

1. Is the HCP managed by a separate agency set up for this purpose (a Habitat Conservation Authority?)
2. If not, how is it managed and by whom?

v. Funding

1. How did you fund the acquisition of land for the HCP?
2. How do you fund the management of the HCP?

vi. Process for building permits

1. Can you please describe the current mechanism for specific project approval under the HCP? For example, does any proposed development pay a per acre fee?

d. Completed HCP questions

i. Facilitation

1. Would you describe the HCP as expediting infrastructure development? The project may have been expedited in different ways, but I am interested in your overall impression of the effectiveness.
 - a. Is there any infrastructure project you feel is has made easier to accomplish? If yes, how was it easier?
 - i. Did it happen quicker?
 - ii. Did it reduce lawsuits?
 - iii. Did it cost less?
 - iv. Did the presence of an HCP increase public support?
2. Has participation in the HCP led to any changes in which projects are implemented?
 - a. Has it enabled for a project that wouldn't have otherwise existed?
 - i. Have any projects been changed or abandoned due to environmental harm?
3. Does the existence of the HCP facilitate inter-jurisdictional cooperation on infrastructure projects?
 - a. Has the HCP increased cooperation for conservation planning?
 - b. Has it increased cooperation for project planning?
4. Did the HCP reduce administrative costs

Appendix C Interview List

Name	Organization	Position	Type	State	HCP (if applicable)	Initial Interview Date
Melanie Schlotterbeck	Consultant	OCTA EOC Vice-Chair	Consultant	CA	OCTA	May 31, 2016
Dave Ziffen	ICF Consulting	Consultant	Consultant	CA	California RHCPs	June 14, 2013
Jon Clark	Butte	Executive Director, Butte County Association of Governments (BCAG) & Butte Regional Transit	HCP	CA	Butte County	April 16, 2013
Chris Devine	Butte	Planning Manager BCAG	HCP	CA	Butte County	April 6, 2016
Brian Lasagna	BCAG	Senior Planning	HCP	CA	Butte County	April 20, 2016
Ivan Garcia	BCAG	Transportation Programming Specialist	HCP	CA	Butte County	April 20, 2016
Katie Barrows	Coachella	Director of Environmental Resources, Coachella Valley Association of Governments	HCP	CA	Coachella Valley MSHCP	May 31, 2013
John Kopchick	ECC	The East Contra Costa County Habitat Conservancy Executive Director	HCP	CA	East Contra Costa	May 13, 2013
Pamela Elisheva	Bakersfield	RHCP Grant Coordinator, Associate Planner City of Bakersfield	HCP	CA	Bakersfield	February 16, 2013
Lesley Hill	OCTA	OCTA, Project Manager, Environmental Programs	HCP	CA	OCTA	May 2, 2013
Loren Clark	Placer County	Assistant Director, Placer County Community Development Resource Agency	HCP	CA	Placer	May 20, 2013
Jen Byous	Placer County	Supervising Planner	HCP	CA	Placer	April, 2016
Steve Mayo	San Joaquin	Program Manager San Joaquin Council of Governments	HCP	CA	San Joaquin	March 4, 2013
Ken Schreiber	Santa Clara	Program Manager , Santa Clara Valley Habitat Plan	HCP	CA	Santa Clara	March 20, 2013

Name	Organization	Position	Type	State	HCP (if applicable)	Initial Interview Date
John Hopkins	South Sacramento	Consultant	HCP	CA	South Sacramento	February 12, 2014
Tom Mullen	Western Riverside	Former Riverside County Supervisor	HCP	CA	Western Riverside	July 16, 2013
Charlie Landry	Western Riverside	Western Riverside County Regional Conservation Authority, Executive Director	HCP	CA	Western Riverside	July 16, 2013
Leanne Mueller	Yuba/Sutter	Senior Planner, Sutter county	HCP	CA	Yuba/ Sutter	May 22, 2013
Roseanne Humphrey	City of Carlsbad	Carlsbad Sub-plan Coordinator	HCP/City	CA	San Diego	March 17, 2017
Jose Nuncio	SANDAG	TransNet Program Director, SANDAG	MPO/ Transportation Agency	CA	San Diego	June 22, 2016
Keith Greer	SANDAG	Senior Regional Planner, SANDAG	MPO/ Transportation Agency/HCP	CA	San Diego	April 24, 2013
Ron Rempel	Consultant/ CDFW	Ex-Deputy Director of California Fish and Wildlife	Other	CA	California RHCPs	
Denny Grossman	Strategic Growth Council	Senior Advisor for Environmental Science and Policy	Other	CA	California RHCPs	June 5, 2017
Amy Baily	Caltrans	Office of Environmental Policy and Advanced Mitigation	State DOT	CA	Caltrans	April 16, 2013
Bruce April	Caltrans	Environmental Analysis	State DOT	CA	San Diego	July 6, 2013
Marilee Mortenson	Caltrans	Caltrans Division of Transportation Planning	State DOT	CA	Caltrans	April 16, 2013
Scott Quinnet	Caltrans District 8	Senior Environmental Planner	State DOT	CA	Coachella Valley MSHCP	October 20, 2013
Mahmoud Sadeghi	Caltrans District 8	Environmental Division	State DOT	CA	Coachella Valley MSHCP	October 20, 2013
Katie Benour	Caltrans	Chief, Caltrans Division of Planning	State DOT	CA	California RHCPs	July 5, 2013
John Standiford	RCTC	Deputy Executive Director	Transportation Agency	CA	Western Riverside/ Coachella	May 16, 2016

Name	Organization	Position	Type	State	HCP (if applicable)	Initial Interview Date
Juan Perez	RTLMA	Director	Transportation Agency	CA	Western Riverside/ Coachella	April 28, 2016
Ann Calnan	SCVTA	Manager, Environmental Programs and Resources Management	Transportation Agency	CA	Santa Clara	May 4, 2017
Tom Fitzwater	SCVTA	Environmental Planning Manager	Transportation Agency	CA	Santa Clara	May 4, 2017
Anonymous	Austin Regional Office	Regional Coordinator	USFW	CA	Texas RHCPs	October 26, 2017
Anonymous	Sacramento Regional Office	HCP Coordinator	USFW	CA	California RHCPs	June 14, 2013
Gerald Solomon	FHWA	Deputy Director, Office of Policy Development, Strategic Planning, and Performance at U.S. Department of Transportation	DOT	National	n/a	June 5, 2017
Doug Wheeler	Hogan Lovells	Lawyer	Other	National	n/a	March 27, 2013
Marc Kramer	The Nature Conservancy	Federal External Affairs	Other	National	n/a	
Kate Kurgan	AASHTO	Senior Program Manager for Strategic Highway Research Program 2	Other	National	n/a	July 31, 2015
Patricia Cole	USFW	Past HCP Program Coordinator Deputy Field Supervisor New York Field Office	USFW	National	n/a	January 17, 2013
Trish Adams	USFW	National Habitat Conservation Planning Coordinator Branch of Consultation and HCPs	USFW	National	n/a	April 8, 2013
Sally Brown	USFW	USFW Transportation Liaison	USFW	National	n/a	February 8, 2013
Tom Davidowicz	USFW	USFW Transportation Liaison	USFW	National	n/a	October 6, 2015
Patricia Robertson	USFW	USFW Transportation Liaison	USFW	National	n/a	October 20, 2014
Marci Hansen	Clark County	Planning Manager in the Clark County Department of Comprehensive Planning and the Administrator of the Clark County Multiple Species Habitat Conservation Plan	HCP	NV	Clark County	February 22, 2013
Alan Glen	Sedgewick LLP	Partner	Consultant	TX	Texas RHCPs	August 28, 2014

Name	Organization	Position	Type	State	HCP (if applicable)	Initial Interview Date
Amanda Aurora	SWCA Environmental Consulting	Senior Scientist / Project Manager	Consultant	TX	Texas RHCPs	August 28, 2014
Joe Lessard	Knudson, LP	Director, Transportation Planning	Consultant	TX	Texas RHCPs	August 28, 2014
Gary Boyd	WCCF	Williamson County Environmental Program Coordinator	HCP	TX	Williamson	March 17, 2014
Tom Hornseth	Comal County	County Engineer, Comal County	HCP	TX	Comal County	October 4, 2017
Will Conrad	City of Austin	Secretary, BCCP Coordinating Committee	HCP/City	TX	BCCP	March 7, 2013
Rose Farmer	Travis County	BCCP Coordinating Committee, Travis County Representative	HCP/County	TX	BCCP	February 22, 2013
Alex Kone	CAMPO	Senior Planner	MPO	TX	Texas RHCPs	March 22, 2016
Stirling Robertson	TxDOT	Lead Biologist, TxDOT	State DOT	TX	TxDOT	November 19, 2015
Jenny Bardeen	KBB	HCP Assistant Coordinator	HCP	WI	Karner Blue Butterfly	March 19, 2013

Appendix D RHCP Case Studies

D.1 Western Riverside Multiple Species Habitat Conservation Plan

Table 7. Western Riverside RHCP Summary

Western Riverside Multiple Species Habitat Conservation Plan	
Location	Western Riverside County, California
Permit Year	2004
Permit Duration	75
Covered Area	1.26 million acres
Preserve Size	500,000 acres. 347,000 acres were already public or quasi-public.
Species	146 Species
Permittees	21 Permittees: 1. Riverside County 2. Riverside County Flood Control and Water Conservation District 3. Riverside County Regional Parks and Open Space District 4. Riverside County Waste Management District 5. Riverside County Transportation Commission 6. Cities (14): Banning, Beaumont, Calimesa, Canyon Lake, Corona, Hemet, Lake Elsinore, Moreno Valley, Murrieta, Norco, Perris, Riverside, San Jacinto, Temecula 7. Caltrans 8. California Department of Parks and Recreation
Goals	“The MSHCP will enhance and maintain biological diversity and ecosystem processes while allowing future economic growth. Preserving a quality of life characterized by well-managed and well-planned growth integrated with an associated open-space system is a component of the RCIP vision.” The overall goals of the MSHCP are: ○ <i>Biological Goal:</i> In the MSHCP Plan Area, Conserve Covered Species and their Habitats. ○ <i>Economic Goal:</i> Improve the future economic development in the County by providing an efficient, streamlined regulatory process through which

	Development can proceed in an efficient way. The MSHCP and the General Plan will provide the County with a clearly articulated blueprint describing where future Development should and should not occur. ○ <i>Social Goal:</i> Provide for permanent open space, community edges, and recreational opportunities, which contribute to maintaining the community character of Western Riverside County.
Planning Process	
Planning Process Length	10 years from Stephens Kangaroo Rat HCP, 4 years from RCIP.
Planning Process Participants	County lead (Board of Supervisors). All other permittees participated.
Management	
Agency	Western Riverside County Regional Conservation Authority (RCA)
Type	Joint Powers Authority (JPA)
Participants	Riverside County and 14 local cities.

Background

The Western Riverside Multi-Species Habitat Conservation Plan (WRMSHCP) is one of the largest and most complex RHCPs managed by public entity. Riverside County is part of the Los Angeles metropolitan area. It is one of the largest counties in the nation, covering 7,300 square miles with a mix of urban, suburban, rural population and protected lands. During the 1990s the county experienced explosive growth, and at the time of the plan the population was approximately 1.5 million in 1999 and was expected to reach approximately 4.5 million by 2040, according to forecasts by the Southern California Association of Governments (SCAG). The Plan covers 1.26 million acres in Western Riverside, west of the San Jacinto Mountains to the borders of Orange County (Riverside County Transportation and Land Management Agency, 2003).

This rapid growth put strain on all of the counties resources, including transportation infrastructure, and posed potential destruction of its environment, included habitat for multiple

endangered species. Stakeholders found that per-project environmental mitigation was inhibiting economic development through high costs and delay. The Plan recognizes that without the MSHCP “the region will miss opportunities to improve the quality of life and economic development opportunities for the current and future residents of the County will also not be realized” (Riverside County Transportation and Land Management Agency, 2003).

Figure 15 below illustrates the area covered by the Western Riverside MSHCP. The Plan boundaries result from compromise between politically achievable and biologically practical boundaries. The RHCP is located in the Western-most portion of the county. The Western portion of the county is comparatively denser than the rest of the county and has different ecosystems than the eastern portion. Limiting the boundaries also allowed the political boundaries to match the area covered by the pre-existing Western Riverside Council of Governments (WRCOG), a regional governing agency.

The MSHCP incorporates transportation construction and improvements by various transportation actors, including the California State DOT (Caltrans), the Riverside County Transportation Commissions (the countywide transportation planning agency), the Riverside County Transportation and Land Management Agency (which manages unincorporated land) and local jurisdictions public works departments.

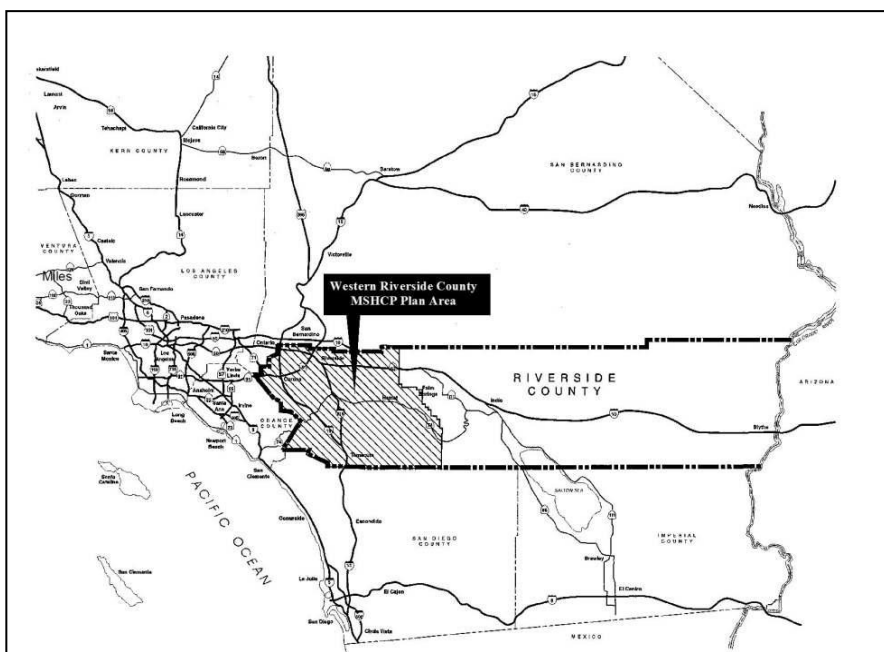


Figure 15. Location of WRMSCHP.

Source: Riverside County Transportation and Land Management Agency (2003).

Biology

The WRMSHCP covers 146 species, 26 of which are federally listed,⁶⁵ and will require 500,000 acres of total conservation. Of the preserve land, 347,000 acres were already in public ownership and protected from development. The RCA acquires conservation land in fee or through conservation easements and deed restrictions. Federal and state agencies are responsible for conserving 56,000 of the 153,000 acres that remain to be acquired by the RCA (Riverside County Transportation and Land Management Agency, 2003).

Planning

Western Riverside had previous experience with a smaller, single-species HCP undertaken by the Riverside County Habitat Conservation Agency (RCHCA) and the Riverside County Regional Parks and Open Space District. These two organizations and the WRCOG began discussing larger-scale conservation in 1992 in response to a combination of local growth,

⁶⁵ For a full list of covered species and accounts of ecological communities, see Riverside County Transportation and Land Management Agency (2003).

the then-anticipated federal listing of the coastal California gnatcatcher, and pressure from FWS (Sciara, Bjorkman, Lederman, Schlotterbeck, et al., 2015).

The Western Riverside MSHCP in its current form began with the 1999 Riverside County Integrated Project (RCIP). The RCIP was an innovative initiative by the Riverside County Board of Supervisors to integrate and coordinate regional planning for transportation, land use, and environmental concerns in the face of rapid urbanization. The RCIP resulted in a Riverside County General plan for housing and other land uses that incorporated regional transportation planning and was coordinated with environmental preservation and species protection (Federal Highway Administration, n.d.-a). The environmental portion formed the bases for developing MSHCP, and representative reports that such a comprehensive MSHCP would not have been possible without the integrated planning of the RCIP (Lederman and Wachs, 2014b).

The coordinated environmental and transportation planning of the RCIP demonstrate the inextricable linkage between infrastructure, development, and the environment. The Riverside County Transportation Commission (RCTC) played an integral part in RCIP planning, and its participation allowed the project to access additional federal transportation funding (Federal Highway Administration, n.d.-a).⁶⁶ The transportation portion of the RCIP is known as the Community and Environmental Transportation Acceptability Process (CETAP).

CETAP identified four transportation corridors that are necessary to meet future growth and corresponding mobility needs in the county, and provides the required circulation element

⁶⁶ The Transportation, Community, and System Preservation (TCSP) program provided additional grant funding for RCIP. The TCSP program was created under the Transportation Equity Act for the 21st Century (TEA-21). Section 1309 of the act calls for coordinated environmental review with FHWA and other Federal agencies. Caltrans used these Federal funds to provide additional staff and resources to resource agencies in order to meet deadlines for environmental review (Federal Highway Administration, n.d.-a).

and arterial highway portion of the County General Plan (see Figure 16). CETAP identifies four priority transportation corridors, two intra-county and two inter-county connectors between Riverside County and neighboring Orange and San Bernardino Counties. The integrated plan forecasted development and environmental needs were centered on these corridors, and this integrated analysis was used as a basis for the MSHCP. Simultaneously, advanced environmental planning facilitated transportation infrastructure delivery on these corridors (Riverside County Transportation Commission, n.d.-b).

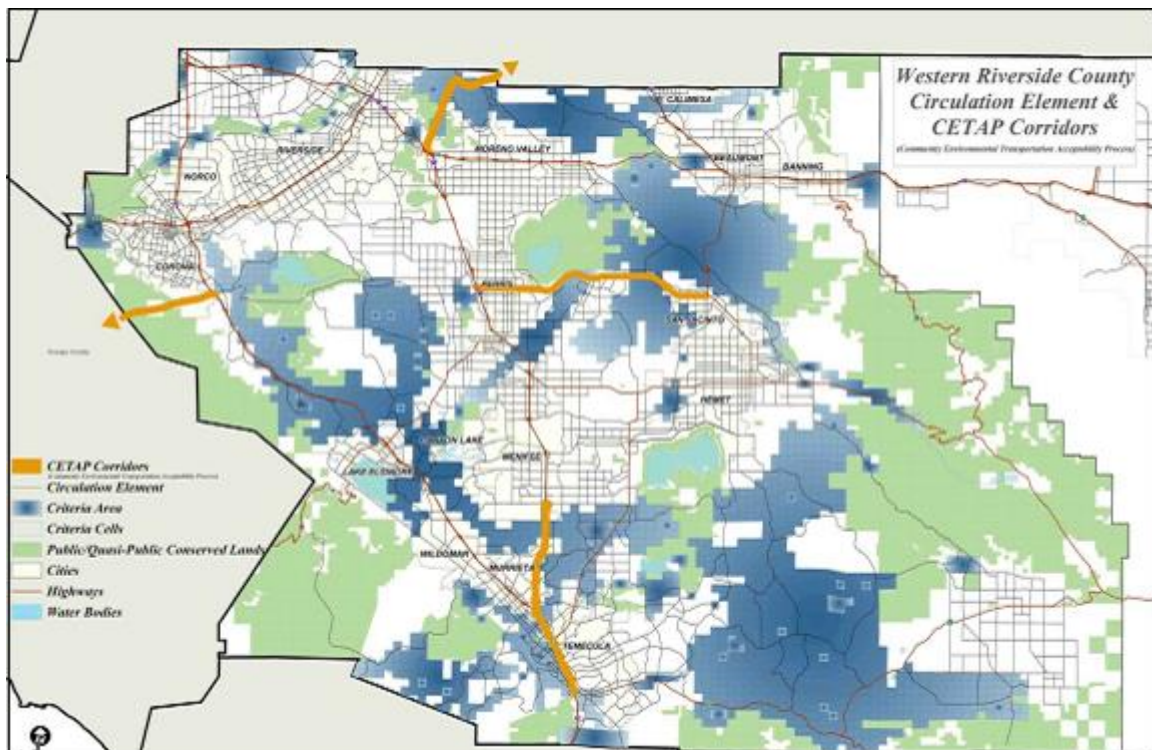


Figure 16. CETAP Corridor Planning in Western Riverside.

Source: Riverside County Transportation and Land Management Agency (2003).

Governance

The MSHCP was approved and permitted in 2003. Riverside County and the cities of Banning, Beaumont, Calimesa, Canyon Lake, Corona, Hemet, Lake Elsinore, Moreno Valley,

Murrieta, Norco, Perris, Riverside, San Jacinto, and Temecula all adopted the HCP in 2003 and early 2004.

The Western Riverside County Regional Conservation Authority (RCA), a JPA, manages the HCP. The RCA Board of Directors includes all five members of the Riverside County Board of Supervisors, and one elected official from each of the cities covered by the Plan (Riverside County Transportation and Land Management Agency, 2003).⁶⁷ Other permittees are Riverside County Flood Control and Water Conservation District, Riverside County Parks and Open Space District, Riverside County Waste Management Department, Riverside County Transportation Commission, California Department of Transportation, and California Department of Parks and Recreation (Lederman and Wachs, 2014c). An Executive Committee of seven members oversees administrative functions, and manages staff positions for the RCA (Western Riverside County Regional Conservation Authority, n.d.-b). The Executive Committee is appointed by the Board Chairperson, and includes the Chairperson and at least two but no more than three representatives of the county (Western Riverside County Regional Conservation Authority, n.d.-a).

Western Riverside was forward-looking in its governance considerations, anticipating the possibility of additional municipal incorporations during the life of the permit and conditioning transportation funding for the new municipalities on joining the existing HCP (Riverside County Transportation and Land Management Agency, 2003). The new cities of Wildomar, Menifee, Eastvale, and Jurupa Valley followed suit after incorporation. The county and cities, which are

⁶⁷ The cities that are covered by the Plan include cities of Banning, Beaumont, Calimesa, Canyon Lake, Corona, Eastvale, Hemet, Jurupa Valley, Lake Elsinore, Moreno Valley, Menifee, Murrieta, Norco, Perris, Riverside, San Jacinto, Temecula, and Wildomar.

permittees under the Plan, all have adopted an ordinance imposing a local development impact fee for development within their jurisdictions (Ouellette and Landry, 2015).

Transportation

One of the Plan's objectives is to "...demonstrate the linkage between conservation, infrastructure, economic development, housing, and job creation within the County (Riverside County Transportation and Land Management Agency, 2003)." The MSHCP provides mitigation for \$12 billion of both state and local transportation projects, including new highways and other capacity building projects (Sciara, Bjorkman, Lederman, Schlotterbeck, et al., 2015). The Plan also provides best practices design standards to minimize impact on endangered species, including culverts and other designs to link species populations, and guidelines for maintenance (Riverside County Transportation and Land Management Agency, 2003). Below is a non-exhaustive list of transportation projects covered by the MSHCP (Riverside County Transportation and Land Management Agency, 2003).

County/Cities Road Improvements

All General Plan Circulation Element facility improvements. SR-74, SR-79, SR-371 and SR-71 receive coverage as General Plan Circulation Element Roads.

Caltrans

- Interstate 215 Improvements - ultimate facility and a 75' rail Corridor
- Interstate 15 Improvements - ultimate facility and a 75' rail Corridor
- Interstate 10 Improvements - ultimate facility and a 75' rail Corridor
- Highway 60 Improvements - ultimate facility and a 75' rail Corridor
- Highway 91 Improvements - ultimate facility and a 75' rail Corridor
- State Route 79 Realignment
- Mid County Parkway

Transportation planning and implementation involves multiple agencies in Western Riverside County. Riverside County Transportation Commission (RCTC) is responsible for transportation planning across the county, and administers federal, state, and local funding (from

transportation sales tax Measure A) to the region (Riverside County Transportation Commission, n.d.-a). The Riverside Transportation and Land Management Agency oversees transportation planning for the unincorporated areas of Riverside County. The California State DOT (Caltrans) maintains rights-of-way in the county.

Riverside County Transportation Commission is the County Transportation Commission for Riverside County. It is responsible for regional planning and providing the list of local projects that will be incorporated into SCAG's RTP to access state and federal transportation funding. The role of RCTC in the region's transportation planning and the MSHCP is largely dictated by Measure A, a voter-approved local ½ cent sales tax for transportation (often referred to as a LOST). Measure A predates the WRMSHCP but was renewed in 2002 during RCIP planning. It includes dedicated revenues for land acquisition under the MSHCP. The set aside both allowed for expedited delivery of projects and increased the support of the environmental communities. According to the Deputy Directory of RCTC, their main role in the MSHCP was to set aside a fixed portion of funding from the measure to meet a ten-year conservation goal. This goal was met in four years due to good opportunities to maximize value with strategic acquisitions. The measure also includes a stipulation that all local cities are required to participate in the MSHCP to receive their local roads and maintenance funding from the measure revenues (Lederman and Wachs, 2014c).

Riverside County Transportation and Land Management Agency was part of the RCIP planning team and continues to work with the RCA to make sure their transportation projects are in compliance with the MSHCP. According to the Riverside County Transportation and Land Management Agency Director, this relationship has allowed for an earlier integration of environmental concerns into the transportation planning process. As a result, the compliance

with the MSHCP facilitates project delivery by expediting the environmental review process (J. Perez, personal communication, April 28, 2016).

Caltrans is an RHCP permittee and contributes directly to the acquisition, monitoring and management of mitigation land. According the Plan, Caltrans committed to acquire approximately 3,000 acres of land for \$36 million to mitigate planned transportation projects by 2012.⁶⁸ All planned Caltrans projects are covered by the plan. According to an RCA representative, Caltrans initially resisted using the Plan and continued doing environmental review under Section 7. FWS encouraged Caltrans to use the MSHCP, and eventually Caltrans realized it was easier and started doing all its mitigation through the HCP. A representative of the HCP attributed Caltrans' reluctance to "institutional drag" that made it difficult to break from status-quo environmental review. In comparison, maintenance activities are overseen by local Caltrans department with more established working relationship with local jurisdictions, and were comparatively easy to subsume into the Plan (C. Landry, personal communication, July 16, 2013).

Regional Planning

Western Riverside MSHCP is one of if not the largest RHCP in in terms of land area, number of species covered, and number of participants. It has been repeatedly heralded as a model for cooperative planning. Participants consistently credit the plan with facilitating delivery of transportation for a number of reasons. Firstly, the plan provides a guideline for projects and conservation that immediately tells project proponents how to minimize impact and mitigate take, as opposed to undergoing analysis for each project (C. Landry, personal communication, July 16, 2013).

⁶⁸Caltrans will also either provide the salaries for three positions for management and monitoring of conservation reserve lands, or fund an endowment to support monitoring and management (Sciara, Bjorkman, Lederman, Schlotterbeck, et al., 2015).

Secondly, participation in the plan has led to transportation agencies taking environmental considerations into account earlier in the planning process. Under Section 7, environmental permitting was not considered until late in the project design state, right before delivery. The MSHCP allows transportation planners to incorporate environmental conservation and mitigation into the design phase of projects. An RTLMA representative describes project planning the contexts of the MSHCP as an “iterative process” of comparing designs against the plan and making changes to design to meet the standards of the plan (J. Perez, personal communication, April 28, 2016). A representative of RCTC notes that it improves the consultation process with regulatory agencies by making it more cooperative. Consultation happens earlier in the project design and planning process and doesn’t “start from scratch all the time.” He furthermore notes that the MSHCP provides guidance for incorporating species-friendly elements into the design process, such as of culverts to allow safe road crossings for species and retaining walls to minimize habitat impact. In the end it is more “results oriented” (J. Standiford, personal communication, May 16, 2016).

Many of the transportation projects under the MSHCP are dictated by the availability of Measure A funding, which committed the region to use the funding big-picture projects that are enumerated in the measure. In that aspect, the MSHCP does not impact Measure-planned projects. But, the Measure project list developed from the RCIP, and in that regard was already planned in coordination with the MSHCP. An RCTC representative characterized the real planning debate as centering on when things in the measure will be implemented, not if they will be implemented. As of this report, most mitigation land acquisition has occurred to mitigate for the East-West CETAP corridor (J. Standiford, personal communication, May 16, 2016).

At the margins, some road planning has been modified to meet the requirements of the Plan. Often these are shifts in the alignment of a narrowing of the roadway to reduce the

“footprint” of the project in terms of impact to covered species because the plan is acreage based. One example was State Route 79 in Temecula, which would have impacted valuable vernal pool habitat. Working with the MSHCP, the road alignment was changed to avoid impacting vernal pools, and also narrowed crossings to avoid impacting a covered plant species (J. Perez, personal communication, April 28, 2016; C. Landry, personal communication, July 16, 2013).

One of the Plan goals states that the “MSHCP and the General Plan will provide the County with a clearly articulated blueprint describing where future Development should and should not occur” (Riverside County, 2002). Occasionally, the blueprint for development and conservation under the MSHCP led to planned roads being removed from the general circulation element. During RCIP and MSHCP planning, open space areas were identified, and roads were removed that either impacted the open space, or would no longer be needed because growth was banned/redirected. This is a clear benefit of integrated planning (J. Perez, personal communication, April 28, 2016).

The MSHCP based land use and conservation land based on the existing general plan guidelines of cities. But, rapid growth in the region has increased pressure for incorporation of new cities or annexation of land by existing cities. The MSHCP limited to ability of new cities or annexation by designating conservation land outside the existing boundaries of cities. This was unpopular with permitted cities, but necessary for environmental approval (C. Landry, personal communication, July 16, 2013). These limits notwithstanding, four cities have incorporated since the plan was permitted and have been granted coverage under the permit. Limited take under the permit limits the potential growth of newly incorporated cities (J. Perez, personal communication, April 28, 2016). The plan also discourages additional capacity enhancements, which limits growth, through additional fees. The RCA Board of Directors implemented a policy

in 2006 that charges and extra five percent of capital contribution to obtain coverage under the plan (Western Riverside County Regional Conservation Authority, n.d.-c).

These factors serve to integrate transportation and land use planning to the end of conserving endangered species habitat. Overall, the plan has continued and furthered efforts collaborative and integrative planning efforts. An RTLMA Director reports that planning is more “holistic” and has evolved to consider not only transportation and land use integration but environmentally sensitive areas as well. There has been increased collaboration with the RCA and RCTC, and any road planning must take into account impacts to other cities and indirect impacts on habitat.

A representative of RCTC reports that the MSHCP has created a better process with the regulatory agencies. It also helped all the cities to buy in together and work together, increasing communication between them. Some cities were initially skeptical because they got hit harder with mitigation requirements, but they understand the value of the environment in the area. The MSHCP sets a blueprint for the region’s explosive growth, and in preventing everything from being “all paved over,” the plan protects both species habitat and the quality of life value in having accessible open space. Still, every city is about their local needs, and the Plan was crafted so that there were not indirect benefits between cities. Overall the MSHCP offers a framework and a governing system to handle regional issues that may not have been there otherwise (J. Standiford, personal communication, May 16, 2016).

D.2 Coachella Valley Multiple Species Conservation Plan

Table 8. Coachella Valley RHCP Summary

Coachella Valley Multiple Species Habitat Conservation Plan	
Location	Riverside County, California
Permit Year	2008
Permit Duration	75
Covered Area (Acres)	1,206,578
Preserve Size	240,000
Species	27 species • 5 plants • 2 insects • 1 fish • 1 amphibian • 3 reptiles • 11 birds • 4 mammals
Permittees	• Riverside County • Local cities (Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage) • Coachella Valley Water District • Imperial Irrigation District • Riverside County Flood Control and Water Conservation District • Riverside County Regional Park and Open Space District • Riverside County Waste Resources Management District • California Department of Parks and Recreation • Coachella Valley Mountains Conservancy • California Department of Transportation (Caltrans)
Planning Process	
Planning Process Length	16 years

Planning Process Participants	Lead - CVAG
Management	
Agency	Coachella Valley Conservation Commission (CVCC)
Type	JPA
Participants	• CVAG (elected representatives of the local permittees including Riverside County, local cities (Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage) • Coachella Valley Water District • Imperial Irrigation District

Background

The Coachella Valley Multiple Species Habitat Conservation Plan is also located in Riverside County, California. The Coachella Valley is located in the central portion of the county, and has a local COG, the Coachella Valley Associations of Governments. The landscape is diverse, consisting of a desert valley surrounded by mountains. The rapid change in landscape puts the Coachella Valley at the intersection of four distinct ecological regions, and is a biodiversity hotspot for endangered species, many of which have very narrow habitats mostly confined to the geographic boundaries of the region. Simultaneously, enormous growth was forecasted in the area, with a projected growth of 600,000 over the first ten years of the Plan (Alagona and Pincetl, 2008).

The goals of the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) provides a “regional vision for balanced growth to meet the requirements of federal and state endangered species laws, while promoting enhanced opportunities for recreation, tourism and job growth” (Coachella Valley Association of Governments, 2013).

Transportation was one of the largest drivers of the plan, and marketing materials frequently tout that:

The CVMSHCP opens the door for timely construction of much needed roads, freeway interchanges, road widening, and bridge improvement projects to help prevent traffic gridlock in the Coachella Valley. The CVMSHCP will allow 75 years of Caltrans projects to be permitted and constructed without costly delays and will help expedite construction of all currently planned road projects in the next 25 years. The CVMSHCP also provides for critical flood control and water infrastructure (Coachella Valley Association of Governments, 2013).

A staff member at the Coachella Valley MSHCP cited environmental clearance for transportation infrastructure as a primary impetus for creation of the HCP. The CVMSHCP also stresses the importance of facilitating infrastructure development to meet the growth demands of the region, aiming to expedite planned road projects in the region for 25 years, and expedited project delivery enabled them to garner public support for the plan. Transportation was a crucial element of garnered political support (K. Barrow, personal communication, May 31, 2013). Alagona and Pincetl (2008) cite the growing traffic congestion in the area and the deterioration of infrastructure was a great catalyst for the plan. The area needed new and improved roads and interchanges, which would all require environmental approval.

Biology

The CVMSHCP covers 27 species, including 11 listed as threatened or endangered, and others than are endemic to or rare in the Plan Area and are likely to become listed during the permit duration (Coachella Valley Association of Governments, 2013). It covers 1.1 million acres in the Coachella Valley region within the Eastern-Central portion of Riverside County, and aims to provide 240,000 of conservation open space by the conclusion of the permit period, including land for recreation in concert with species goals. These boundaries of the plan were determined by both ecology and political economy. The plan area encompasses distinct species

habitats within the Coachella Valley as well as watershed boundaries, but was also limited to the jurisdictional boundaries of CVAG and its member cities. The projected total cost of the plans conservation and management over its 75-year permit is over \$2 billion. (Coachella Valley Mountains Conservancy, 2014).

While RHCPs depend on land conserved by local governments and agencies, the CVMSHCP benefits from its adjacency to federal conservation lands. Many acres of conservation land within the Coachella Valley are owned by federal agencies, including the Bureau of Land Management, Forest Service, National Park Service, and the California Department of Parks and Recreation. This proximity to existing conservation lands makes it comparatively easier for the CVMSHCP to meet conservation goals by purchasing adjacent land that protects existing preserved habitat and crucial linkages (Sciara, Bjorkman, Lederman, Schlotterbeck, et al., 2015).

Planning Process

Similar to Western Riverside, Coachella Valley MSHCP began the planning process with a coalition of stakeholders that had previously worked together on the smaller Fringe-Toed Lizard HCP and had already developed trust, credibility, and a shared sense of mutual accomplishment (Coachella Valley Association of Governments, 2007).⁶⁹ In 1994 Coachella Valley Mountains Conservancy, a state agency responsible for conservation, prepared a scoping study recommending a Multiple Species Habitat Conservation Plan. In late 1995, Coachella Valley Association of Governments (CVAG) became the lead agency for plan development (Lederman and Wachs, 2014c).

⁶⁹ Note that this coalition didn't ultimately survive political turnover (Alagona and Pincetl, 2008).

Initial participants included Riverside County, the cities of Cathedral City, Coachella, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, Rancho Mirage, Bureau of Land Management, U.S. Forest Service and the National Park Service. As planning progressed, other stakeholder became involved, including: Caltrans, Coachella Valley Water District, Imperial Irrigation District, Riverside County Flood Control and Water Conservation District, Riverside County Regional Park and Open Space District, Riverside County Waste Resources Management District, and the California Department of Parks and Recreation (Coachella Valley Association of Governments, 2007).

The planning process for the CVMSHCP began with many advantages. Many of the participants had worked together on the previous HCP and had formed working relationships and trust. The development it anticipated remained in the future and the covered area contained much open space from which to choose conservation land from. They also had access to a large amount of pre-existing biological inventories and participation from researchers at UC Riverside. The planning process was begun with optimism for many reasons. Unfortunately, the Plan fell victim to well-documented delays that extended the process to 16 years, mainly attributed to disagreements over biological findings that are beyond the scope of this report. Unfortunately, delays in the planning process can snowball, as political and resource agency staff turnover during a long planning process, support is lost, and access to funding wanes (Alagona and Pincetl, 2008).

In the case of the CVMSHCP, the length of the planning process caused cities that were initially supportive of the plan to waiver in their support. City buy-in is essential to any regional plan, and often involves a degree of cities putting the region's interests above their own, and looking forward to long term gains. During the planning of the CVMSCHP, County Supervisors

drove the plan for its long-term benefits and invested in getting cities on board in an intensive process involving monthly meetings between stakeholders, and got local cities on board one by one. According to a CVAG representative, cities differed in their reticence to participate, often dependent on the developers of large projects within each city who had a lot of pull at the local level (K. Barrow, personal communication, May 31, 2013).

The City of Desert Hot Springs was reluctant to join the MSHCP. Compared to other cities in the region, it was less developed, and the only city located in the less-developed area north of the Interstate 10, making much of the land around it desirable for limiting growth in favor of conservation (Alagona and Pincetl, 2008; Lederman and Wachs, 2014c). The city was also in talks with a developer to annex county land to build a large golf course, which complicated its participation in RHCP planning. The city ultimately rejected the plan in 2006, in the final stages, forcing delays as the plan was rewritten. Ultimately, Desert Hot Springs, along with the Mission Springs Water District, rejoined the plan as permittees through a major plan amendment in 2015 (Coachella Valley Mountains Conservancy, 2014).

Governance

Coachella MSHCP is managed by a JPA known as the Coachella Valley Conservation Commission (CVCC). The JPA was necessary to incorporate the local water agencies into the HCP governance structure, and the JPA is staffed by CVAG staff (K. Barrow, personal communication, May 31, 2013). The CVCC is comprised of elected representatives of the local permittees including Riverside County, cities (Cathedral City, Coachella, Desert Hot Springs, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage), the Coachella Valley Water District, and the Imperial Irrigation District (Coachella Valley Mountains Conservancy, 2014).

Local agency permittees include the Riverside County Flood Control and Water Conservation District (County Flood Control), Riverside County Regional Park and Open Space District (County Parks), and Riverside County Waste Resources Management District. State agency permittees include the California Department of Parks and Recreation, the Coachella Valley Mountains Conservancy, and Caltrans (Coachella Valley Mountains Conservancy, 2014).

Transportation

The Plan includes a list of planned transportation projects that are covered by the HCP over the life of the permit. During the planning phase, each transportation agency and local city gave CVAG a list of every planned project with funding over the next ten years to be covered by the plan (K. Barrow, personal communication, May 31, 2013). The list of covered transportation projects separated into three groups: interchange projects and associated arterials, Caltrans projects, and regional road projects. Each group of transportation projects is listed in table format with a corresponding map to situate the project within the conservation areas (Lederman and Wachs, 2014c).

While also part of Riverside County, CVAG is the local transportation implementation agency (as opposed to RCTC in Western Riverside). RCTC is not a permittee under the Coachella Valley Plan. CVAG works with RCTC to develop a countywide transportation plan, which is then incorporated into the Regional Transportation Plan by SCAG. The management of the plan by the local transportation agency made it easier for them to sell the plan based on transportation infrastructure improvements, something they credit with garnering public support for the plan (Coachella Valley Association of Governments, 2007). Consequently, RCTC plays a less active role in transportation projects covered by the CVMSHCP.

RCTC provides CVAG funding from Measure A, and CVAG plans and implements local transportation projects. Unlike the Western Riverside RHCP, there is no portion of the Measure A dedicated expressly to mitigation under the CVMSHCP (Lederman and Wachs, 2014c).

Measure A is projected to provide \$30 million of funding for the Coachella Valley MSHCP, according to an HCP representative. Access to early funding from the transportation sales tax enabled Coachella Valley MSHCP to institute an “early action plan” for land acquisition. Private development fees are received concurrently with building permits, but the county bonded against future sales tax revenues to have earlier access to funding. This funding not only facilitated project delivery, but also allowed the CVCC to benefit by buying land earlier. As of 2014, they had spent \$15 million on land acquisition before the transportation projects had even been built. This allowed them to target more expensive conservation purchases before land before prices rose, and to be well ahead of the necessary conservation land to allow development permits (K. Barrow, personal communication, May 31, 2013).

Caltrans is a co-permittee under the MSHCP, with coverage for projects including interchange improvement, arterial widening in the area, and other planned projects in the region. Under this HCP, the California Department of Transportation (Caltrans) is responsible for acquiring over 7500 acres of land for mitigation and contributing over \$8.6 million for monitoring and management of land acquired by the MSHCP in exchange for construction of freeway interchanges and arterials under the Plan.⁷⁰

⁷⁰ More specifically: Caltrans is to acquire 1,795 acres to mitigate the interchange and associated arterial projects, and contributed \$1,077,000 to the endowment for the Monitoring and management. For smaller regional projects Caltrans is obligated to acquire 5,791 acres of mitigation land. The projected cost for this is \$27,875,000 (nominal dollars), and Caltrans will also contribute \$7,600,000 towards the Endowment Fund for monitoring and management of the mitigation land. (Sciara, Bjorkman, Lederman, Thorne, et al., 2015).

Transportation was a critical element for the RHCP, and the region was planning for several large interstate improvement projects, including multiple interchanges on the I-10 with critical mitigation needs.⁷¹ Facilitating and expediting these projects was the lynchpin garnering political support for the plan, and regional advanced mitigation for these projects was begin in parallel to the planning process to demonstrate that it could be successful and garner support among elected officials and political-decision makers. This mitigation was ultimately subsumed within the plan (K. Barrow, personal communication, May 31, 2013).

Apart from contributing to regional mitigation, Caltrans is required as a permittee to incorporate other conservation measures into highway design for the I-10. These measures include requirements from culvert and bridge maintenance and construction that would minimize harm to endangered species by allowed them to safely cross the highway and keep populations intact by providing critical linkages. Another such modification is to deal with the fringe-toed lizard, which requires fencing (Riverside County, 2002).

Regional Planning

The CVMSHCP places a hardline boundary on development. During planning, they defined boundaries for conservation areas first and substantially limited development in these areas, basing the boundaries on the land use plans of the jurisdiction but making adjustments at the margin to create the HCP plan. They then allocated a certain amount of take to each jurisdiction that is covered under the plan. In the end, between 90 to 95 percent of the county can build to their current general plan boundaries and receive HCP coverage (Coachella Valley Association of Governments, 2016).

⁷¹ These include: Indian Ave. I-10 Interchange, Palm Dr. /Gene Autry Trail I-10 Interchange, Date Palm Drive I-10 Interchange, Bob Hope Drive I-10 Interchange, Jefferson Ave. I-10 Interchange and associated local arterial widening, other regional Caltrans projects not connected with I-10 Interchanges (largely on SRs 62,74, 86, 111)

In contrasting their plan to neighboring Western Riverside, located in the same county, a representative from Coachella Valley MSHCP noted that there was less development in Coachella at the time of planning, so they could put hardline boundaries on where future development would be allowed. They then allocated a certain amount of “take” to each city based largely from existing land use plan, and gave the city authority to issue building permits up until their take limits. A representative of the plan stresses that cities can still build on the most desirable land for development to 90 percent of their general plan boundaries, and that much of the conservation land was less desirable for development due to topography, winds, and earthquake restrictions (Coachella Valley Association of Governments, 2007; K. Barrow, personal communication, May 31, 2013).

There has been little change in transportation projects as a result of the MSHCP. CVAG is both the lead in transportation implementation and RHCP planning in the region, which allowed the plan to incorporate preservation that complemented existing transportation plans. Another factor was that the area was less developed, and most planned projects within existing general pan boundaries were unaffected by the MSHCP. The Riverside County Transportation and Land Management Agency Director noted some changes in transportation planning in unincorporated areas of the county. One example to the contrary was the removal of 20th Avenue, a planned road near Desert Hot Springs, from the circulation element of the County General Plan because the area for which it was planned was designated a reserve area during the planning process (J. Perez, personal communication, April 28, 2016).

Similar to Western riverside, there has been much benefit to incorporating environmental design into projects. Design modifications are specific to the ecosystem and threatened species, and the biological framework of the MSHCP provides guidance for design elements that protect

endangered species. For example, fencing is added to the roadside to protect the fringe-toed lizard. In other areas, culverts and overcrossings help maintain wildlife corridors for larger species. The availability of data and guidance for environmental design best practices both increased species protection, but also facilitates the project delivery process (J. Perez, personal communication, April 28, 2016).

Representative of the CVMSHCP noted two ongoing issues that were not addressed in the planning process. The first is that acquiring land adjacent to development areas has been a double-edged sword. On one hand, desirable land for development is permanently conserved. On the other hand, it is proving more difficult to manage and maintain land adjacent to development. This is possibly an outgrowth of having new personnel in FWS, who don't agree with decisions made by FWS staff during the planning process (K. Barrow, personal communication, May 31, 2013).

Another struggle is coordination with federal lands within the Plan area. The plan benefitted from the large numbers of already conserved areas, including national parks and forests. But mitigation on federal lands is done through a Section 7 interagency consultation, and Plan representative notes that it is a challenge to work with both FWS and federal land management to ensure mitigation that is compatible with the HCP (K. Barrow, personal communication, May 31, 2013).

D.3 San Diego TransNet Environmental Mitigation Program

Table 9. San Diego TransNet Summary

San Diego TransNet Environmental Mitigation Program	
Location	San Diego County, California
Permit Year	2004
Program Duration	40 years
Covered Area	County (2.9 million acres)
Preserve Size	N/A
Permittees	Various Transportation Agencies
Management	
Agency	San Diego Association of Governments
Type	MPO

Background

In 2004, San Diego renewed its local ½ cent transportation sales tax measure, TransNet. The measure is expected to return \$14 billion in revenue over 40 years. TransNet dedicated \$850 Million for advanced mitigation acquisition, restoration and management for 11 major transportation corridor improvement and other regional projects through its Environmental Mitigation Program (EMP) (San Diego Association of Governments, n.d.-b).⁷² Section D of the TransNet ordinance states:

The intent is to establish a program to provide for large-scale acquisition and management of critical habitat areas and to create a reliable approach for funding required mitigation for future transportation improvements thereby reducing future costs and accelerating project delivery. This approach would be implemented by obtaining coverage for transportation projects through existing and proposed multiple species conservation plans (San Diego Association of Governments, 2004).

⁷² The program is similar to OCTA's EMP, and the success of the Transnet program influenced OCTA's decision to include the EMP in the measure and plan an RHCP.

TransNet, including the EMP, is administered by SANDAG, the San Diego MPO and RTPA (San Diego Association of Governments, n.d.-a).⁷³ EMP funding is separate from projects, enabling holistic consideration of species impacts and regional mitigation across all of the projects supported by the measure. The EMP builds off of the existing regional habitat conservation plans to identify conflicts with endangered species and prioritize key conservation areas. Thus transportation planning and funding is a key driver to achieving regional conservation goals using the RHCPs as the conservation framework.

There are currently two RHCPs within San Diego County, with two additional RHCPs currently in development. These RHCPs include:

- *San Diego Multiple Habitat Conservation Program.* The MHCP was planned by the San Diego Association of Governments, the regional planning agency and MPO, which coordinated local cities. The Plan was approved in 2003, with permits good for 50 years. Due to the political environment, cities were given the option of individually opting into the plan. Each local jurisdiction has what is known as a “Subarea Plan,” and does its own Plan implementation according to the master agreement set-forth between SANDAG, the cities, and FWS. Seven cities have adopted the plan: Carlsbad, Encinitas, Escondido, Oceanside, San Marcos, Solana Beach, and Vista (California Department of Fish and Wildlife, n.d.-b; Jose Nuncio, personal communication, June 22, 2016). Figure 17 shows the coverage area of the MHCP.

⁷³ “The 18 cities and county government are SANDAG, the San Diego Association of Governments. This public agency serves as the forum for regional decision-making. SANDAG builds consensus; makes strategic plans; obtains and allocates resources; plans, engineers, and builds public transportation, and provides information on a broad range of topics pertinent to the region's quality of life.”

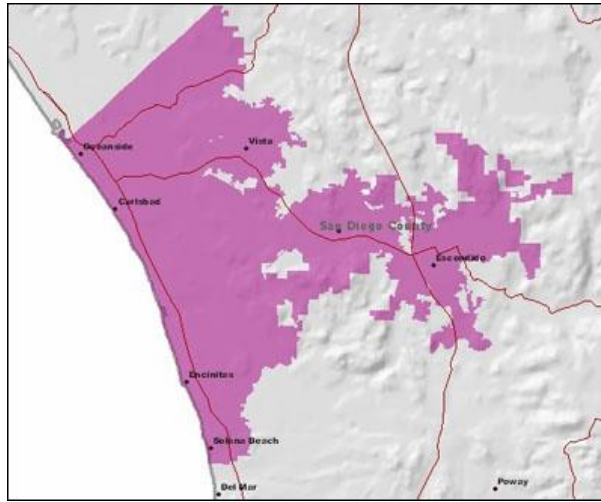


Figure 17. San Diego MHCP Plan Area

Source: California Department of Fish and Wildlife (n.d.-b).

- San Diego Multiple Species Conservation Program.* The MSCP is located in Southern San Diego County. It was planned and implemented through a partnership between the City and County of San Diego. The Plan was approved in 1998 with a permit life of 50 years. Due to the political environment, cities were given the option of individually opting into the plan. Each local jurisdiction has what is known as a “Subarea Plan,” and does its own Plan implementation according to the master agreement set-forth with FWS. Four cities, the county (covering unincorporated land), and various private landowners have signed implementing agreements for Subarea Plans, and an additional four cities are in process of developing Subarea Plans (Lederman and Wachs, 2014c). Figure 18 shows the coverage area of the MSCP.

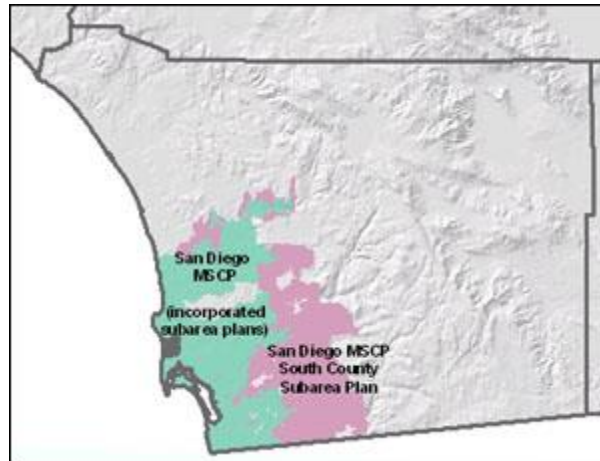


Figure 18. San Diego MSCP Plan Area

Source: California Department of Fish and Wildlife (n.d.-c).

- *North County Multiple Species Conservation Program Plan (in-development)*. The North County MSCP will cover unincorporated land in Northern San Diego County. Planning is led by the County and began in 1998 and the first draft of a Plan was released for public review in 2009 (California Department of Fish and Wildlife, 2017d). Figure 19 shows the proposed coverage area of the North County MSCP.



Figure 19. Proposed North County Multiple Species Conservation Program Plan Area

Source: California Department of Fish and Wildlife (2017d).

- *East County Multiple Species Conservation Program Plan (San Diego County)*. The East County MSCP will cover unincorporated land in Eastern San Diego County. The

County leads planning, and the first draft of a Plan was released for public review in 2009. According to a representative of SANDAG, the future of the plan is uncertain due to the high amount of privately owned land in the eastern portion of the county, but it would be too complicated to annex the area into an existing HCP due to different species and habitat types, as well as political environment (California Department of Fish and Wildlife, 2017c).

Biology

The MSCP covered 582,000 acres with 171,920 to be conserved. The MHCP covers 111,908 acres, with 19,000 to be conserved. Over the course of the 40 years of projects funded by TransNet, SANDAG estimates they will need 2,352 acres of land to mitigate for the planned projects: 226 acres of coastal wetland, 499 acres of non-coastal wetlands, and 1627 acres of upland area. Mitigation is typically achieved through conservation easements, with other government agencies (such as the County Parks Department) tasked with long-term ownership and management of the properties.⁷⁴ The EMP also funds design elements that support habitat connectivity, including wildlife crossings, directional fencing, and culverts (San Diego Association of Governments, n.d.-b).

Planning

The first TransNet measure was passed in 1974 for transportation infrastructure funding and expired in 2004. Similar to Orange County, the measure extension in 2004 included dedicated advanced mitigation funding, though the inclusion of the EMP was due more to the desire to facilitate project delivery than direct pressure from the environmental community (K.

⁷⁴ Due to the economies of scale of participation in the HCPs and combining mitigation across all projects, SANDAG negotiated with the FWS and CDFS for favorable mitigation ratios (Sciara, Bjorkman, Lederman, Thorne, et al., 2015).

Greer, personal communication, April, 24, 2013). TransNet includes highway projects managed by Caltrans District 11 and SANDAG, and transit projects managed by the local transit agencies, the Metropolitan Transit System, and North (San Diego) County Transit District, and other regional road, bicycling, and pedestrian improvements. TransNet is both a mitigation tool, and an implementation mechanism for the Regional Transportation Plan. The existing RHCP frameworks guide EMP land acquisition decisions (San Diego Association of Governments, 2014).

The MSCP, in Southern San Diego was one of the first RHCPs. It was urged by FWS in response to a proposed sewer system upgrade that would enable growth, and ultimately prompted by the decision to list the California Gnatcatcher as an endangered species. The listing put a halt to much development, and San Diego was seen as a prime candidate for one of the first RHCPs. It received support from both the federal and state government to become an archetype of regional conservation (Sciara, Bjorkman, Lederman, Thorne, et al., 2015; K. Greer, personal communication, April, 24, 2013).

Perhaps because it was one of the first RHCPs, local cities were particularly averse to relinquishing any land use control. Cities and the county ultimately compromised on a structure in which the regional plan was a collection of local jurisdiction “subarea plans.” Each city could unilaterally decide to participate at any time in the future, and the plan was entirely severable. During planning, each jurisdiction determined the boundaries of its subarea plan (within its jurisdiction). If a city adopts the subarea plan, only those areas covered at the time of the regional planning can be permitted through the RHCP, and each city is responsible for interpreting the biological opinion to stay within compliance with the biological opinions (K. Greer, personal communication, April, 24, 2013).

Governance

SANDAG is the MPO and the regional transportation agency and the entity that receives TransNet revenues dedicated to environmental mitigation for transportation project. A representative of the Environmental Working Group at SANDAG noted that the revenue stream makes it both a mitigation tool and also an implementation mechanism for the regional transportation plan. SANDAG is a permittee for only one of the two plans, and they use the other RHCP as guidance documents for mitigation as the lead agency on projects, allowing them to coordinate mitigation across a great part of the region. With access to the TransNet funds, SANDAG is essentially “the banker,” working within the regional plan on a project-by-project basis to purchase mitigation land in advance under the HCP. SANDAG created an Independent Taxpayer Oversight Committee to oversee the usage of TransNet funding (Layzer, 2008).

An internal Working Group administers the EMP. The Working Group is managed by internal SANDAG staff, as opposed to political appointees. Members of the working group include representatives of Caltrans, City of San Diego, County of San Diego, the four SANDAG sub-regions, state and federal wildlife agencies, and the Regional Water Quality Control Board, the Army Corp of Engineers, and other regional land managers and stakeholders (San Diego Association of Governments, 2014). The working group meets every other month to discuss habitat acquisition, restoration and management guided by the existing HCP frameworks. SANDAG partners with other government agencies, such as County Parks and local cities, for long-term ownership and management roles (San Diego Association of Governments, 2014).

Transportation

SANDAG and Caltrans partner to build regional freeway projects, with TransNet providing local funding that is matched by state and local transportation funding. Mitigation for

joint projects with Caltrans are mitigated through the EMP. Major construction and infrastructure projects funded and mitigated through TransNet include (Sciara, Bjorkman, Lederman, Thorne, et al., 2015):

- I-5; I-15; I-805; SR 52 and SR 76;
- the Mid-Coast Corridor Transit Project (Trolley) from Old Town to the University of California, San Diego campus and the University City community; the Super Loop Transit Project, also in the University City community;
- the I-15 Managed Lanes and bus rapid transit service from Escondido to San Diego;
- the South Bay bus rapid transit from Otay Ranch to downtown San Diego via I-805.
- Other major highway projects s along Interstates 5, 8, 15, and 805 as well as State Routes 52, 54, 56, 67, 75, 76, 78, 94, 125, and 905 will receive funding.

Similar to Orange County, SANDAG bonded against future TransNet revenue to implement an Early Action Program. The program has been successful in both accelerating the delivery of transportation projects and strategizing mitigation with large conservation purchases from early revenues. The EMP has acquired over 3000 acres of mitigation land that helped accelerate a selection of high-priority transportation projects, including the addition of HOV lanes to the I-5 and I-15, widening the State Road 76, and the expansion of commuter rail services (TransNet, 2017).

Caltrans is not a permittee on any of the San Diego-area HCPs, but similarly uses the HCP as guidance for mitigation, and has a district representative on the Working Group (San Diego Association of Governments, 2014). Before TransNet, Caltrans provided transportation funding for the RHCPs and Caltrans projects have been facilitated using the HCPs, paving the way for better cooperation between Caltrans and SANDAG in transportation planning (Lederman and Wachs, 2014c). Most of the projects in TransNet are on Caltrans right-of-way, and Caltrans provides matching funding to Transnet projects. Under TransNet, Caltrans uses

EMP as funding for project mitigation and meets monthly with SANDAG to discuss upcoming mitigation needs. Many of the projects are approved under an expedited Section 7 process since they align with the HCP frameworks (K. Greer, personal communication, April, 24, 2013).

Regional Planning

The sub-area plans in all of the Caltrans HCPs show the political difficulties inherent in regional planning. Local jurisdictions have control of their land use, and do not have to be part of Regional HCPs. In San Diego, some cities did not participate because they were mostly built out and were not growing, while other jurisdictions maintain they don't have a need or that it would be too costly to adopt. Thus there was no "driver" for plan participation. But the plan has left it open for future participation if there is need in a jurisdiction, and the subarea structure ensures that they can join later without a major amendment, in a way that would benefit both the jurisdiction and the region as a whole.

In San Diego's case, it is the transportation that is leading the environmental regionalism. The EMP has been largely successful due to the coordination between SANDAG, the regional transportation planning and implementation agency, and 3 other transportation agencies: Caltrans, Metropolitan Transit System, and the North County Transit District (Sciara, Bjorkman, Lederman, Thorne, et al., 2015). SANDAG, coordinates both transportation and regional environmental planning, which has facilitated the integration of transportation planning and delivery through TransNet with conservation planning through the multiple regional HCPs.

As with OCTA, transportation provided the financial lever for regional advanced mitigation. The TransNet program has funded the majority of advanced mitigation in San Diego, while habitat conservation by other local governments, public agencies and non-profits was stalled by the recession (San Diego Association of Governments, n.d.-b). Ultimately, Transnet

has supplied the funding for acquisition of conservation lands targeted in the RHCPs, benefiting regional conservation. But, as the EMP is explicitly structured to fund mitigation for projects listed in Transnet, advanced mitigation under the EMP has not impacted on transportation planning and project selection in the region.

D.4 East Contra Costa County Habitat Conservation Plan / Natural Community Conservation Plan

Table 10. East Contra Costa County RHCP Summary

East Contra Costa County Habitat Conservation Plan / Natural Community Conservation Plan	
Location	Eastern Contra Costa County, California
Permit Year	2007
Permit Duration	30
Covered Area	174,018 acres
Preserve Size	Between 23,800 to 30,300 depending on growth scenario
Permittees	7 (Cities of Brentwood, Clayton, Oakley, and Pittsburg; Contra Costa County Flood Control and Water Conservation District; EBRPD; and the County)
Species Covered	28
Goals	“The East Contra Costa County Habitat Conservation Plan / Natural Community Conservation Plan (HCP/NCCP or Plan) is intended to provide regional conservation and development guidelines to protect natural resources while improving and streamlining the permit process for endangered species and wetland regulations.” ⁷⁵
Planning Process	
Planning Process Length	6 years from planning agreement to approval.
Planning Process Participants	This agreement established the East Contra Costa Habitat Conservation Plan Association (HCPA), a joint exercise of powers authority formed by the Cities of Brentwood, Clayton, Oakley and Pittsburg, Contra Costa County, Contra Costa Water District and the East Bay Regional Park District. The HCPA was the lead agency in drafting the Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) for submittal to the governing boards and councils of member agencies and was the lead agency under CEQA for developing the HCP. The HCPA was governed by an Executive Governing Committee consisting of elected officials from each member agency.
Management	
Agency	East Contra Costa County Habitat Conservancy

⁷⁵ See East Contra Costa County Habitat Conservancy (n.d.)

Type	JPA
Participants	County of Contra Costa City of Brentwood City of Clayton City of Oakley City of Pittsburg Contra Costa County Flood Control and Water Conservation District East Bay Regional Park District

Background

Historically, development was concentrated in the Western Contra Costa County along the I-680 corridor. By the 1980's, growth pressures began to spread to the Eastern portion of the county along SR 4. The RHCP grew out of a joint Alameda and Contra Costa County pilot study to map threats to biodiversity in the region. The 1997 East County Pilot Study of the Alameda–Contra Costa Biodiversity Working Group used stakeholder consensus to increase the regional conversation about regional conservation. Public consensus during the process was that comprehensive conservation would be better. The immediate impetus for the RHCP came from FWS, which pressured the County for a regional conservation plan as a condition of future water delivery from the Contra Costa Water District (East Contra Costa County Habitat Conservation Plan Association, 2006b; Sciara, Bjorkman, Lederman, Thorne, et al., 2015). The Plan covers the Eastern portion of the county as illustrated in Figure 20.



Figure 20. East Contra Costa HCP Plan Area

Source: California Department of Fish and Wildlife (n.d.-a).

The goals of the plan specifically address the facilitation of infrastructure projects:

By proactively addressing the long-term conservation needs, the Plan strengthens local control over land use and provides greater flexibility in meeting other needs such as housing, transportation, and economic growth in the area. – A variety of public infrastructure projects would benefit from the Plan; these include roads, flood protection projects, schools, neighborhood parks, and recreational trails (up to 1,126 acres in total). Specific rural transportation projects would receive permits under the Plan: the Buchanan Bypass, Byron Highway widening, and Vasco Road widening. Providing streamlined endangered species approvals for these needed projects would help accelerate congestion relief and support the continued economic development of the region (East Contra Costa County Habitat Conservation Plan Association, 2006a, p. ES).

Biology

The East Contra Costa County HCP covers a small area compared to the Southern California plans, covering 174,000 acres and 28 listed and non-listed species. The Plan will provide permits for between 8,670 and 11,853 acres of development and will permit impacts on an additional 1,126 acres from rural infrastructure projects. The preserve system will encompass 30,300 acres. The plan includes numerous land cover types, including grasslands, chaparral, oak

woodland, evergreen forest, riparian lands and streams, agricultural land, and developed land (East Contra Costa County Habitat Conservation Plan Association, 2006b).

Planning

Preparation of the HCP/NCCP began in October 2001, with seed money for planning provided in part by the Water District (East Contra Costa County Habitat Conservation Plan Association, 2006a). The pilot study participants had overcome initially adversarial relationships over the course of two years of monthly meetings, gradually developed trust in one another. These relationships formed the basis for a smooth, cooperative process for RHCP planning, and a willingness to undergo the upfront planning necessary for an RHCP. The pilot study had already shown the need for cities and the county at the center of RHCP planning and management (J. Kopchick, personal communication, May 13, 2013).

In 2000, the East Contra Costa County Habitat Conservation Plan Association was formed to lead the planning process. It included the Cities of Brentwood, Clayton, Oakley, and Pittsburg; the Contra Costa Water District; the East Bay Regional Park District, and the County (East Contra Costa County Habitat Conservation Plan Association, 2006a). The outreach that had been done under the pilot study had built up trust in the community to the point that HCP planning received a letter of support signed by developers and conservation groups (East Contra Costa County Habitat Conservation Plan Association, 2006a).

The HCPA made the decision to keep the ECC smaller and narrow its focus to facilitate the planning process by “picking their battles.” They expressly excluded certain large infrastructure projects in the region, including a potential wind farm and a reservoir expansion. They also excluded coverage for take of fish or shore birds found within the county (J. Kopchick, personal communication, May 13, 2013).

Governance

The East Contra Costa County Habitat Conservancy, a new JPA distinct from the planning JPA, governs the plan. The Habitat Conservancy is composed of the County of Contra Costa, the cities of Brentwood, Clayton, and Oakley, the Contra Costa County Flood Control and Water Conservation District, and the East Bay Regional Park District. Its Governing Board consists of elected officials from participating city councils and the County Board of Supervisors, and meets quarterly. The Conservancy also has a Public Advisory Committee to provide inputs from a variety of stakeholders. The committee members are appointed by the Governing Board, and include representatives of private development, conservation advocacy organizations, private landowner and agriculturalists, and suburban and rural residents (East Contra Costa County Habitat Conservation Plan Association, 2006b).

Mitigation land acquisitions are made by the JPA. The Conservancy relies on experiences land managers to manage the preserve lands, including the East Bay Regional Park District, California Department of Parks and Recreation, Contra Costa Water District, and local land trusts. Preserve land can be acquired and managed by the East Bay Regional Park District, which is part of the JPA (J. Kopchick, personal communication, May 13, 2013).

Transportation

Facilitating infrastructure provision was explicitly a goal of the plan. The plan covers all transportation activities within Urban Development Areas (UDAs) including “sidewalks, bike paths, paved and unpaved roads, culverts, fords, bridges, and highways.” The plan also covers rural infrastructure projects that occur outside of Urban Development Areas but support regional economic development within it. The planning for rural infrastructure projects was not finalized at the time of the permitting, but the Plan covers up to 933 acres of impact from these projects.

These projects include highway widening and realignments, a proposed SR 239 between Contra Costa and neighboring Alameda County, expansion of the Byron Airport, a possible expansion of transit to link with the end of the Bay Area Rapid Transit line, and bike paths outside of the Urban Development Area (see Figure 21). The County mostly leads these projects. Non County-led projects include the Contra Costa Transportation Authority partnering on the Bay Area Rapid Transit connection and the city of Pittsburg leading one road project (East Contra Costa County Habitat Conservation Plan Association, 2006b). The figure below illustrates the covered potential rural road projects and the covered Urban Development Areas.

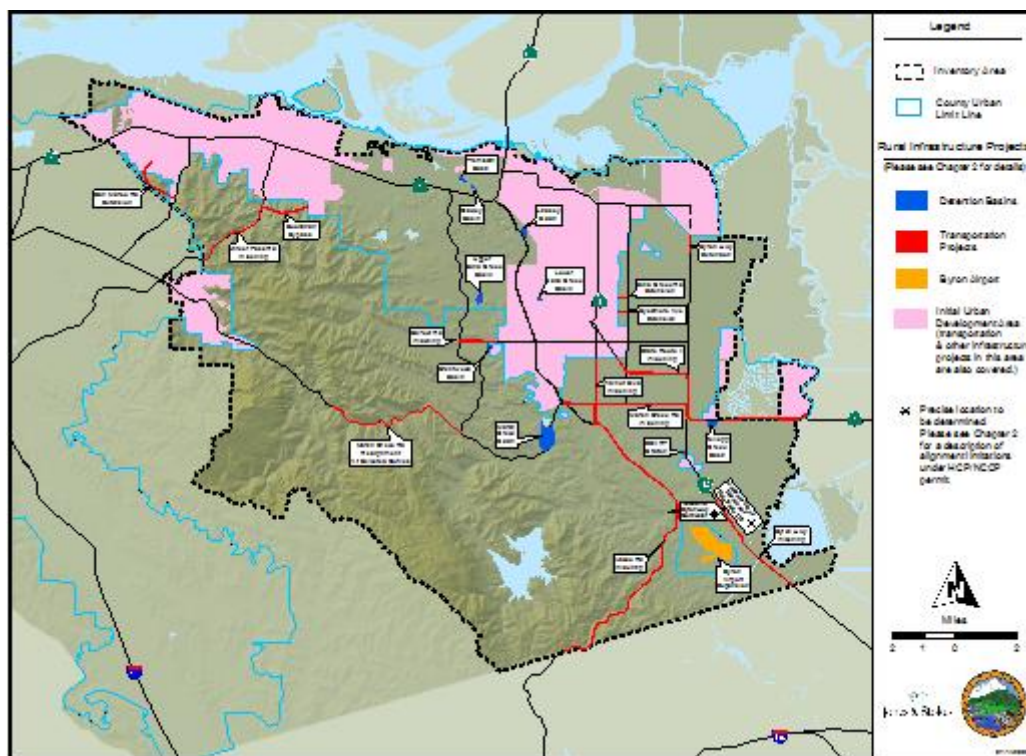


Figure 21. East Contra Costa HCP Covered Infrastructure Projects.

Source: East Contra Costa County Habitat Conservation Plan Association (2006b).

Caltrans did not participate in HCP planning and is not a permittee. However, the HCPA had the foresight to incorporate all planned Caltrans projects in the region into their preserve

planning. The plan covers anticipated transportation improvements as a general corridor, not a specific defined project, allowing them to leave in a placeholder and account for mitigation that would facilitate Caltrans projects even if they were not participating in the plan (East Contra Costa County Habitat Conservation Plan Association, 2006b).

Caltrans later opted into the plan as a “Participating Special Entity,” when it had difficulty mitigating a highway project. Under the plan, Participating Special Entities are agencies that are not subject to local or county authority and are not permittees of the plan, including transportation agencies as well as water districts and other special districts. These entities may contract with the plan on a project basis to gain coverage under the plan. The agencies are required to pay fees above the standard development fees for permittees that are outlined in the plan, typically calculated as a percent of capital costs of the project (J. Kopchick, personal communication, May 13, 2013). This surcharge covers the “indirect costs of extending permit coverage under the HCP/NCCP, including the costs of Implementing Entity staff time to assist with permit coverage, a portion of the costs of the initial preparation of the Plan, and a portion of the costs of conservation actions designed to contribute to species recovery” (East Contra Costa County Habitat Conservation Plan Association, 2006b).

Using the RHCP as a participating special entity, Caltrans is able to adopt the RHCP biological analysis and expedite project review. Revenues from the Entities, particularly Caltrans, have been beneficial to the RHCP by providing them funding during the recession, when there was little development and therefore little fees. During this time the fees from participating entities allowed ECC to purchase cheaper land while there was a lack of competition (J. Kopchick, personal communication, May 13, 2013). The Contra Costa Transportation Authority, the transportation-planning agency for the county, has also entered

into a participating special entity agreement with the HCP for the State Road 4 Bypass project (Contra Costa Transportation Authority, n.d.; East Contra Costa Habitat Conservancy, n.d.).

Regional Planning

The ECC plan balances development flexibility with regional thinking. The permit covers all growth with each participating city's UDAs, and allows for a fixed amount of additional growth for each city as long as it does not conflict with conservation goals (East Contra Costa County Habitat Conservation Plan Association, 2006a). This limits total growth across the county, while steering future growth away from any high-priority conservation area (J. Kopchick, personal communication, May 13, 2013). The Conservancy maintains that by *“proactively addressing the long-term conservation needs, the Plan strengthens local control over land use and provides greater flexibility in meeting other needs such as housing, transportation, and economic growth in the area”* (East Contra Costa County Habitat Conservation Plan Association, 2006a, p. 4). Similar flexibility can be seen in the planning for likely corridors for transportation even though projects have not been planned.

The ECC HCP fee structure demonstrated the regional approaches to conservation. First, by requiring participating special entities to contribute to the planning and administrative costs of the HCP, they are sharing that burden and not allowed other projects to piggy back on their work or funding from development fees. Second, they further regional equity through a temporal “fair share” that allocates conservation costs between future development (those projects covered by the HCP) and the public, based on the premise that past development has contributed to the impact on endangered species habitat.⁷⁶

⁷⁶ “This analysis considers the amount of open space acquisition relative to the amount of development before and after adoption of the HCP/NCCP and assigns the costs of the HCP/NCCP according to the premise that future

D.5 Santa Clara Valley Habitat Plan

Table 11. Santa Clara Valley RHCP Summary

Santa Clara Valley Habitat Plan	
Location	Santa Clara County
Permit Year	2013
Permit Duration	50 years
Covered Area	508,669 acres
Preserve Size	46,900 acres
Permittees	Santa Clara County The cities of San Jose, Morgan Hill, and Gilroy Valley Transportation Authority (VTA) Santa Clara Valley Water District (District)
Species Covered	18
Planning Process	
Planning Process Length	9 years
Planning Process Participants	The City of San Jose, Santa Clara County, Santa Clara Valley Transportation Authority, and Santa Clara Valley Water District
Management	
Agency	Santa Clara Valley Habitat Agency
Type	JPA
Participants	The cities of Gilroy, Morgan Hill and San Jose, Santa Clara County, the Santa Clara Valley Transportation Authority, and the Santa Clara Valley Water District.

development should pay a share of the costs of habitat conservation in the inventory area proportionate to its share of the overall habitat impacts on the inventory area...Because the pace of habitat protection relative to development before Plan adoption was significantly lower than will be required under the HCP/NCCP, new development will pay a share of the costs of implementing the HCP/NCCP, and existing development (i.e., the public) will also pay a share." This approach resulted in a 52/48 cost split, with new development paying 52% (with fees of \$6K to \$24k/acre, depending on location) (East Contra Costa County Habitat Conservation Plan Association, 2006b, p. 9.3.1).

Background

The Santa Clara Valley MSHCP was formed in direct response to concerns over the impact of large transportation projects on species habitat. In 2001, a Section 7 FWS biological opinion conditioned the permitting of the widening of Highway 101, along with two new interchanges, on the formation of an RHCP. These projects (and others) were allowed to proceed in tandem with planning (Santa Clara Valley Habitat Agency, 2012).



Figure 22. The Santa Clara Valley Habitat Plan Area.

Source: California Department of Fish and Wildlife (n.d.-d).

The HCP is located in the Santa Clara valley (Figure 22), a region that was formerly largely agricultural but has experienced rapid growth as the heart of Silicon Valley. The Plan area was determined by political, ecological, and hydrologic factors, and the final plan covers 519,506 acres, 62 percent of the county (Management Audit Division of Santa Clara County, 2011, p. ES2). The HCP/NCCP program is intended to meet the following goals and objectives:

- *To provide a basis for federal and state incidental take permits for impacts to protected species related to ongoing and future projects and activities.*
- *To provide a regional approach to the long-term conservation of threatened and endangered species and their habitats.*
- *To provide long-term certainty and predictability in local land use decision-making (Santa Clara Valley Open Space Authority, n.d.).*

The program goals are further identified through five themes: Biological resources and Conservation, Multi-Purpose and Benefit Plan, Public Participation, Regulatory Compliance, and Effective and Efficient Implementation. Categorized under Multi-Purpose and Benefit Plan, the Plan seeks to simultaneously (Santa Clara Valley Habitat Agency, 2012, pp. 1-2):

- *Preserve and enhance watersheds to protect beneficial uses of water and to provide flood protection for Santa Clara County.*
- *Provide appropriate levels of public access in habitat areas in a manner compatible with conservation goals.*
- *Facilitate economic growth compatible with approved local land use plans.*
- *Preserve agricultural viability.*
- *Integrate the strategies of the Plan with public and private potential partners wherever possible.*

Biology

The RHCP covers 18 listed and non-listed species. These include nine animals and nine plant species. A 46,900-acre reserve system will be assembled through a combination of acquisition and restoration. This includes acquisition of 33,600 acres, restoration of 500 acres of wetlands, and protection of 100 miles of streams. The reserve system will also incorporate 13,300 acres of existing open space, and aims to preserve connections between key habitat areas, and existing protected areas (Santa Clara Valley Habitat Agency, n.d.-a).

Planning

Planning began in 2004 as a collaborative effort between the County, the City of San Jose, VTA, and Santa Clara Valley Water District. In 2005, the cities of Gilroy and Morgan Hill joined the plan. The planning process took 12 years, and representatives credit aggressive plan

management and frequent meetings between stakeholders with the successful permitting. The County also hired lawyers and outside facilitators. Cooperation was aided by previous cooperative efforts, like a regional flood control project, that, although it failed, paved the way for teamwork and an understanding of the aggressiveness needed for the process. Planning was also delayed by the recession, when local stakeholders and the chamber of commerce had problems with previously established fees and the plan became a political lightning rod. In the end this forced Santa Clara to have a leaner plan (K. Schreiber, personal communication, March 20, 2013).

The planners also made strategic decisions as to areas to cover in the plan. They originally agreed to do a countywide plan, but it was too difficult to coordinate 14 cities and many special districts. They eventually negotiated with FWS to limit the plan to the Southern portion of the county, which has the most endangered species but also the highest growth pressures. It was uncertain if San Jose would join the plan, but eventually they were sufficiently pressured to join when they needed a federal permit for a new highway interchange. They ultimately included a portion of San Jose, including the new freeway interchange, and excluded the Baylands, an area with different habitats and species that already was doing its own environmental planning (Santa Clara Valley Habitat Agency, 2012).

Governance

A representative of the Santa Clara Valley MSHCP reiterates that all HCPs are distinct and that ultimate governing structure depends on what local elected officials are comfortable with. Their local strategy was to create a JPA between the six permitted partners to govern implementation: the cities of Gilroy, Morgan Hill and San Jose, the County of Santa Clara, the Santa Clara Valley Transportation Authority, and the Santa Clara Valley Water District. The

JPA, The Santa Clara Valley Habitat Agency, includes as voting members elected officials from each of the municipalities (Santa Clara Valley Habitat Agency, 2012).

The County and the Cities have authority to issue permits within their own jurisdiction, while public agency permittees are responsible for making sure their projects are in conformance with the plan. In accordance to this distinction, the JPA has a two-tier governing system. The Governing Board includes two representatives from the County and cities, and has authority over all development fee matters and the annual budget. The Implementation Board includes public agency representatives and is responsible for all other duties not entrusted to the Governing Board. The Santa Clara County Open Space Authority collaborates with permittees to help manage reserve land, but is not a permittee (Santa Clara Valley Habitat Agency, 2012).

Transportation

The Santa Clara Valley Transportation Authority was one of the initial planning partners and is the permittee for the plan. The SCVTA is the transportation-planning agency for Santa Clara County, and responsible for transit service, transit planning, highway planning, Caltrain commuter train service, and regional transit partnerships throughout the bay area (Santa Clara Valley Habitat Agency, 2012). The VTA also oversees the distribution of funding for Measure A projects (Santa Clara Valley Transportation Authority, 2017). While it participated in planning, the VTA has had few projects that have necessitated the use of the MSHCP. According to an Implementation study, the VTA is expected to contribute \$1.8 million, or 0.2 percent of the total revenue over the life of the plan (Santa Clara Valley Habitat Agency, 2012).

Caltrans did not participate in the planning and has not thus far participated in the implementation of the plan. Representatives of the planning process engaged them initially but found them reluctant to engage with the HCP. While many of the larger transportation projects in

Santa Clara Valley (including the 101 widening) are on Caltrans rights-of-way, they are funded locally through Santa Clara County's Measure A, a local transportation sales tax. The county takes the lead in negotiating for environmental approval. A Plan representative states that Caltrans is frequently pressured by FWS during Section 7 consultations to use the HCP for mitigation, and over time the relationship between the HCP and Caltrans has improved (K. Schreiber, personal communication, March 20, 2013).

Similar to excluding certain lands in order to complete the permitting process, the Conservancy also specifically excluded several large-scale transportation projects planned for the future. These include the Bay Area to Central Valley high-speed train, and construction of a highway between I-5 and the U.S. 101 through the County (Management Audit Division of Santa Clara County, 2011).

Regional Planning

The Plan states that "the Habitat Plan is not a land use plan and does not change or amend any local jurisdiction's policies regarding zoning and allowable growth" (Santa Clara Valley Habitat Agency, n.d.). Nonetheless, the Plan illustrates the instrumental role of transportation in regional planning and the primacy of political economy in regional efforts. In a rapidly growing area such as Santa Clara County, the impact major investments in transportation infrastructure on habitat cannot be separated from those of corresponding urban growth, a situation best addressed by a regional approach to conservation. Yet, there is still institutional reluctance to shift from piecemeal mitigation and the use of Section 7 consultations for projects with a federal nexus. As RHCPs become increasingly popular and understood, they are frequently employed in forward-looking response to major transportation projects that will encourage growth. FWS made similar recommendations to use an RHCP to address the impacts of transportation infrastructure in a

number of Northern California counties not covered by this chapter as they are still in the development phases. These counties include Butte, Sacramento, Solano, Yuba and Sutter Counties.

The plan also demonstrates the process of regional compromise that is necessary for successful HCP planning. Gilroy was initially reluctant to join the Plan. Without Gilroy's participation, the Plan's biological effectiveness was threatened, causing consternation among the planning participants. Eventually, endangered salamanders were discovered during road construction for a new subdivision in Gilroy, which put pressure on the city to join the Plan. Gilroy was ultimately a permittee, but coverage under the Plan was limited to a negotiated urban growth boundary.

D.6 San Joaquin County Multi-Species Habitat Conservation and Open Space Plan

Table 12. San Joaquin RHCP Summary

San Joaquin County Multi-Species Habitat Conservation and Open Space Plan	
Location	San Joaquin County, California
Permit Year	2001
Permit Duration	50
Covered Area	912,640 acres
Preserve Size	100,241 acres
Permittees	• San Joaquin County • The Cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy • Stockton East Water District • East Bay Municipal Utility District • San Joaquin Council of Governments • San Joaquin Area Flood Control Agency • South San Joaquin Irrigation District
Species Covered	97
Planning Process	
Planning Process Length	7
Planning Process Participants	Led by San Joaquin Council of Governments. Participants included: San Joaquin County; the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton and Tracy; Caltrans; the U.S. Army Corps of Engineers; the California Department of Fish and Game; the U.S. Fish and Wildlife Service. Other stakeholders included; the Building Industry Association of the Delta; the Business Council; the Delta Protection Commission; the Delta Habitat Conservancy.
Management	
Agency	San Joaquin Council of Governments
Type	JPA
Participants	One representative from each covered city (except Stockton which has two elected representatives), two representatives from the San Joaquin County Board of Supervisors.

Background

The plan for San Joaquin differs from other plans discussed here due to the large proportion of agricultural land within the plan area. Along with conservation of open spaces for species and preservation for recreation, the plans goals also address the preservation of agricultural land in a way that minimized impact on covered species. The stated goals of the plan, as establish in the planning agreement, are as follows:

- *Establish a program for managing biological resources which addresses the economic, agricultural, conservation and public interests unique to San Joaquin County while complying with local, state and federal conservation laws;*
- *Provide consistent and predictable treatment of development proposals throughout the County to reduce costs and uncertainty and ensure a healthy economic environment for citizens and industries;*
- *Lessen or avoid both site specific and cumulative impacts to species by replacing project-by-project reviews with long-term strategies for conserving, protecting and maintaining viable populations of multiple native special status species;*
- *Replace confrontations between local, state and federal individuals and agencies with consensus-building, compromise and partnerships to encourage a streamlined permitting process, eliminate redundant efforts, reduce unnecessary expenditures of funds and manpower, promote the consolidation of scattered resources and replace litigation with effective mitigation.*
- *Provide a basis for a Countywide multiple-use Open Space plan which contributes to the quality of life of the residents of San Joaquin County; and*
- *Identify a financing and acquisition strategy which spreads implementation costs equitably among all beneficiaries and which is affordable to the region (San Joaquin Council of Governments, 2000, p. 2.2).*

Biology

The San Joaquin MSHCP incorporates agricultural land into its conservation strategy. While some of the mitigation land will be acquired in fee, other impacts are mitigated through easements that allow agricultural uses but prohibit more intensive uses, such as urban development. Maintaining agricultural land was very important to the planners since it is an economic driver for the region, and agricultural land provided important habitat for hawk and owl species protected under the plan (S. Mayo, personal communication, March 4, 2013). The

plan also provides preservation of linkages between existing threatened by the linearity of highway corridors (San Joaquin Council of Governments, 2000).

Planning

The SJMSCP originated from conflicts between development and habitat for Swainson's Hawk and the San Joaquin kit fox. In 1990, Stockton, the largest city in the county, adopted a General Plan that required conservation for the Swainson's Hawk. This inspired a draft conservation plan for the San Joaquin kit fox in the southwestern portion of the county in June 1993 (San Joaquin Council of Governments, 2000). Through these efforts, business and government leaders began supporting a regional conservation approach to meet the needs of new development. The county was experiencing rapid growth and increasing need for housing and transportation infrastructure. The county and the development community wanted to retain local control over growth while streamlining permitting and providing certainty to the regulatory process. Planners were familiar with the RHCP model that was being employed in Southern California, but needed a different model to account for the primacy of agricultural resources in the county (S. Mayo, personal communication, March 4, 2013).

The San Joaquin Council of Governments (SJCOG) and regional stakeholders produced VISION 2000, a plan to address management of biological resources at a regional level. Through these collaborative efforts, stakeholders realized that a regional plan would be needed to both protect species and their habitat, and expedite permitting for planned development. SJCOG Council established a steering committee for RHCP planning in 1994, composed of representatives of a diverse group of stakeholders. These entities included: San Joaquin County; the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton and Tracy; Caltrans; the U.S. Army Corps of Engineers; the California Department of Fish and Game; the U.S. Fish and

Wildlife Service. Other stakeholders included agriculture and conservation interest; the Building Industry Association of the Delta; the Business Council; the Delta Protection Commission; the Delta Habitat Conservancy; and the Central Valley Rock, Sand and Gravel Association (San Joaquin Council of Governments, 2000).

Governance

Originally, SJCOG was going to oversee the formation of a new JPA to implement the RHCP. According to a representative of SJCOG, the cities and county could not agree on a management structure for HCP implementation. The SJCOG constituted a pre-existing forum for regional issues and collaboration, and was already tasked with distributing funding from Measure K, the local LOST measure. Since the COG was working for the region with a functioning board of directors, it was decided by the permittees that they should manage implementation. A non-profit JPA was created with the same board of directors that could acquire easements to manage the RHCP. If necessary, the JPA acquires land outright, attaches an easement, and then resells the land (S. Mayo, personal communication, March 4, 2013). The JPA includes one representative from each of the covered cities (except Stockton which has two elected representatives), and two representatives from the San Joaquin County Board of Supervisors. JPA representatives are elected officials from these jurisdictions (San Joaquin Council of Governments, 2000).

Transportation

SJCOG wanted to ensure facilitation of local transportation projects. The Plan covers all projects listed in the RTP at the time of planning, as well as those projects listed in local general plans. The Plan accounts for future transportation projects that have not yet been planned by covering all projects within urban areas, and projects in designated corridors that were most

likely to support future development (San Joaquin Council of Governments, 2000). Local transportation projects are funded through a transportation sales tax, of which SJCOG distributes the revenues. Local projects covered under the HCP and have been greatly expedited (S. Mayo, personal communication, March 4, 2013).

Caltrans was an original participant in the planning process, but ultimately dropped out and is not a permittee under the Plan. A representative of the JPA recalled that delays in the planning-process led to Caltrans dropping out of being a permittee, though their planned projects are covered by the plan. During the first 6 years of the plan, Caltrans used the HCP only for projects for which it had trouble with the traditional Section 7 consultation process. One such project was the I-205 widening project. Since it is not a permittee, Caltrans pays the same fee structure as private development when it uses the RHCP to purchase mitigation. The JPA often urges Caltrans to use the plan for coverage in order to facilitate local projects, and Caltrans recently approached the MSHCP to help with a curve correction project on Highway 26. The RHCP manager attributes Caltrans increased utilization of the RHCP to a number of factors, including a change in Caltrans management corresponding with a priority shift towards a more environmentally-focused approach, as well as increased comfort with the RHCP process, and demonstrated ability of HCPs (both generally and the SJMSHP specifically) to facilitate delivery of Caltrans projects (S. Mayo, personal communication, March 4, 2013).

Regional Planning

The SJMSHP demonstrates that regional planning is about more than curbing growth, but also addresses preserving the economy in a way that is unique to a given region. The Plan is specific to the agricultural economy and the habitat of its species in a way that protects the existing land uses but allows for growth.

Representatives of the RHCP, and the text of the Plan itself, maintain that it does not guide local land use. While that is true in the urbanized area, as all growth to the general plan boundaries is covered, the RHCP effectively guides land use planning at the regional level (San Joaquin Council of Governments, 2000). The plan restricts growth in specific conservation areas, and acquires land in other areas that would be targeted to accommodate growth. Stockton, the largest city in the county, was initially against the Plan for limiting their local ability to manage their growth, and considered developing their own HCP. Ultimately, the Stockton City Council decided the benefits of participating in the regional plan and the costs associated with forming a single-city HCP outweighed concerns over growth-limitation. The Plan manager acknowledges that they were fortunate in that during the planning process, representatives were mostly “wearing their regional hats,” and they managed to reach a compromise that lowered development fees and got all the cities on board (S. Mayo, personal communication, March 4, 2013).

In the short term, the RHCP has only guided growth at the margins of urban areas, but the Plan anticipates that more severe limits on growth are more likely to come into effect in longer term planning. SJMSHCP also considered the regional impacts of indirect development resulting from covered transportation project. One of the driving factors to include coverage for full urban-build out to general plan boundaries was to compensate for growth-inducing effects of transportation improvements. The plan provides conservation plans for the “worst-case assessment” of growth to ensure environmental conservation and coverage in that scenario (San Joaquin Council of Governments, 2000). But viewed from another perspective, this encourages limiting growth to existing urban areas by facilitating development inside urban boundaries and disincentivizing it elsewhere.

Development impact fees that are tiered for types of habitat are a way of using price signals to guide growth. For example, vernal pool habitat is limited and extremely difficult to restore. As a result impact fees are comparatively high for take of vernal pool species, and that has effectively prevented development of vernal pool habitat even though it is covered under the plan (S. Mayo, personal communication, March 4, 2013).

In the early years, the biggest changes to transportation projects have been to encourage species-friendly design. Due to the RHCP, countywide transportation planners are internalizing the environmental impact of their future projects. This has led to alignment changes and smaller curves on roads to limit habitat disturbance. Overall, local planning departments are more conscious of considering the regional impacts of projects, rather than just automatically approving everything, according to a SJCOG representative. Now, projects that may impact habitat are discussed both within the COG, and with the development community and other stakeholders. This increased communication and collaboration, including workshops and trainings for habitat conservation, have formed more of a “regional collective” for planning (S. Mayo, personal communication, March 4, 2013).

D.7 OCTA Measure M2 Natural Community Conservation Plan/Habitat Conservation Plan

Table 13. OCTA RHCP Summary

OCTA Measure M2 Natural Community Conservation Plan/Habitat Conservation Plan	
Location	Orange County, California
Permit Year	2017
Permit Duration	40 years
Covered Area	County (511,476 acres)
Preserve Size	546.4 acres
Species covered	13 (10 animal, 3 plant)
Permittees	OCTA (proposed)
Planning Process	
Planning Process Length	In-Development
Planning Process Participants	OCTA and Caltrans
Management (Proposed)	
Agency	OCTA
Type	Transportation Agency
Participants	OCTA and Caltrans

Background

Orange County is both the smallest and most densely populated counties in Southern California. The county is mostly suburban, and 60 percent of the land area is developed or altered from natural state. The majority of the population is located in two coastal valleys. Orange County falls in in an area of high biodiversity, at the intersection of two eco-regions: the Southern California Coast section and the Southern California Mountains and Valleys section (Orange County Transportation Authority, 2015).

The in-development OCTA RHCP is in direct response to the habitat damages resulting from planned freeway projects. Orange County has had in place Measure M, a half-cent local transportation sales tax, since 1990. The original Measure M expired in 2011, but Orange County's growth still necessitated further investment in transportation Infrastructure. Population growth of 13 percent and employment growth of 19 percent are projected by 2035, increasing daily vehicles miles travelled and congestion (Orange County Transportation Authority, 2014a).

In 2006, Orange County voters approved Measure M2, a half-cent sales tax measure that funds freeway expansions, streets and roads, and transit between 2011 and 2041. The measure is expected to return \$11.8 billion over its life, providing \$4.871 billion to fund 13 freeway projects (see Figure 23). Measure M2 dedicates 5 percent (\$243.5 million) of the freeway expenditures for environmental mitigation under the Environmental Mitigation Program (EMP) (Sciara, Bjorkman, Lederman, Thorne, et al., 2015). The ordinance reads:

Innovative Environmental Mitigation. A minimum of \$243.5 million will be available, subject to a Master Agreement, to provide for comprehensive, rather than piecemeal, mitigation of the environmental impacts of freeway improvements. Using a proactive, innovative approach, the Master Agreement negotiated between the Orange County Local Transportation Authority and state and federal resource agencies will provide higher-value environmental benefits such as habitat protection, wildlife corridors and resource preservation in exchange for streamlined project approvals for the freeway program as a whole (Orange County Transportation Authority, 2006, p. 5).

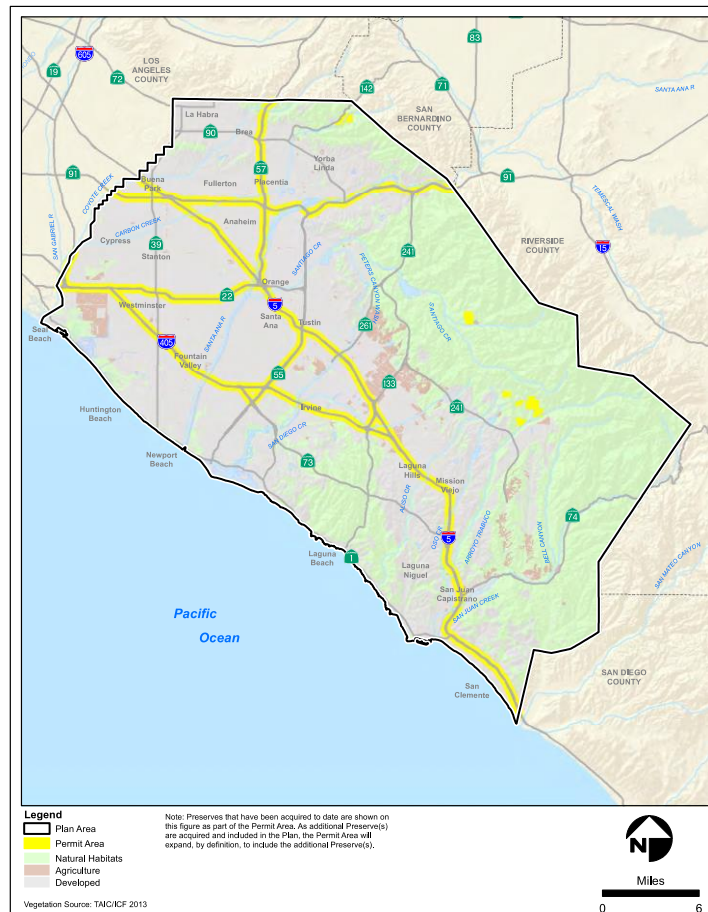


Figure 23. OCTA HCP Permit Area.

Source: Orange County Transportation Authority (2015).

Biology

The RHCP is intended to “provide an effective framework to protect and enhance natural resources in Orange County, while improving and streamlining the environmental permitting process for impacts of Covered Projects and Activities on sensitive, threatened, and endangered species and their habitats” (Orange County Transportation Authority, 2015, p. 1.1). The proposed plan covers impacts to 13 species: 10 wildlife species and 3 plant species. These 13 species include listed and non-listed species. The biological strategy of the plan focused on existing preserves, and tried to enlarge persisting areas and provide habitat linkage between existing preserve areas. OCTA identified 11 Core Habitat Areas and 4 existing or potentially viable linkages that include both protected and potential acquisitions within the plan area, with

potential acquisitions prioritized by position within the core areas and proximity to protected open space to maximize the habitat value of acquisitions (referred to as Priority Conservation Areas) (see Figure 24) (Orange County Transportation Authority, 2015).

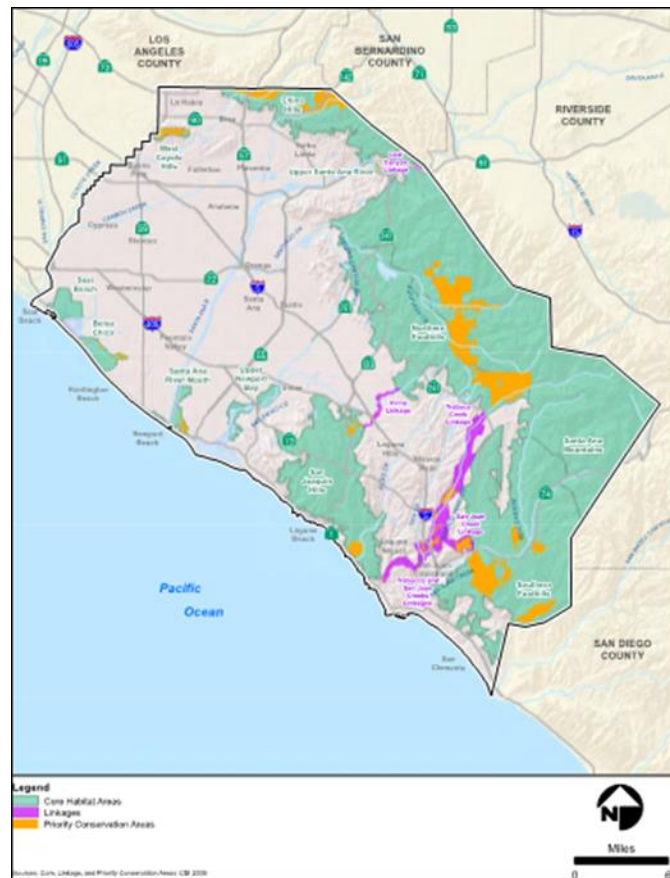


Figure 24. OCTA HCP Core Habitat, Linkages, and Priority Conservation Areas.

Source: Orange County Transportation Authority (2015).

The OCTA plan only covers impacts from Measure-funded transportation projects. OCTA's plan explicitly acknowledges the importance of transportation projects in a considering regional impacts on endangered species. The plan accounts for the direct impacts of the covered freeway projects on 3,431 acres (of which 141 are natural habitat) (Orange County

Transportation Authority, 2015).⁷⁷ It also accounts for indirect impacts on an additional 7,268 acres (of which 484.4 are natural habitat) (Orange County Transportation Authority, 2015).⁷⁸ A representative of the plan for the plan says there are large amounts of existing conservation lands in Orange County (some from an earlier coastal HCP), but that their existing conservation system is problematic due to unprotected habitat linkages. OCTA targets these missing linkages as the first priority for conservation, with secondary priority being adding to existing conservation preserves (L. Hill, personal communication, May 2, 2013).

Funding from Measure M2 covers land acquisition and habitat restoration for mitigation, as well as land management in perpetuity. Of the \$319 Million available under the EMP, 80 percent is allocated to land acquisition and management of that land. Land will likely be acquired through conservation easements or deed restrictions, and managed by numerous agencies and organizations that specialize in land management, including the Orange County Parks Department, the state parks department, and the Audubon Society. Twenty percent is allocated towards habitat restoration (Sciara, Bjorkman, Lederman, Thorne, et al., 2015). Habitat restoration is necessary because one of the covered species is riparian (Least Bell's Vireo), and wetlands to purchase are scarce. The preferred approach is recovery. They work with the county parks to rid degraded wetlands of invasive weeds to restore the species population. This

⁷⁷ Direct effects are defined as activities or projects that remove or alter land cover types or Covered Species habitat, populations, or occurrences (or portions thereof). Direct effects (e.g., ground disturbance, inundation) are caused by the project and occur at the time and place of project implementation. Direct effects can be either permanent or temporary (see definitions of permanent and temporary effects immediately below).

⁷⁸ Indirect effects are caused by or a result of a project action. Indirect effects can occur later in time and possibly at some distance, or they may occur at the time of the proposed action but beyond the footprint of a project or activity (i.e., the effects are beyond the area of land cover disturbance but still reasonably foreseeable). Although more difficult to detect and track, indirect effects can undermine species viability or habitat quality, especially if multiple indirect or direct effects work cumulatively to impair the species or degrade the habitat.

restoration is undertaken on land that is owned by the county within a county park (L. Hill, personal communication, May 2, 2013).

Planning

OCTA worked with the County Board of Supervisors and local city representatives to craft the Measure renewal. OCTA had failed to pass previous transportation sales tax measures by the required 2/3 majority. It was apparent that the measure needed the support of environmental groups, who were typically against freeway construction. Representatives of the environmental community negotiated with OCTA to include the EMP, consolidating mitigation funding across all of the measures projects for regional advance mitigation. A coalition of 30 environmental groups were formed that would support the measure if the EMP was included (Friends of Harbors Beaches and Parks, 2016b).

The EMP is spearheaded by the Environmental Oversight Committee (EOC), which oversees land acquisition process, including the selection of land based on conservation value and OCTA's holistic conservation strategies. The EOC includes 12 members representing the OCTA Board members and representatives from the California Department of Transportation (Caltrans), resource agencies, environmental groups, and the public. The EOC was established in 2007 and is the interagency, inter-organization, and public forum for conservation decisions under the EMP. The EOC reports to the OCTA Board. The OCTA Board will be the high-level manager of the plan and will improve plan amendments and preserve purchase and management. The EOC will continue in this capacity after the HCP is in place. The HCP administrator will report to the EOC regarding HCP implementation (Orange County Transportation Authority, 2015; M. Schlotterbeck, personal communication, May 31, 2016).

Much of the HCP environmental planning and EOC strategy is based on groundwork laid by the Green Vision Project (see Figure 25), a conservation plan developed by the non-profit Friends of Harbors, Beaches and Parks, to “increase the funding for parks, water quality, and open spaces in Orange County” (Friends of Harbors Beaches and Parks, 2016a). The EOC vice-chair notes that the existence of a pre-existing conservation priority list to form the basis of acquisition plans under the HCP ultimately insulated the OCTA EOC from political influence (M. Schlotterbeck, personal communication, May 31, 2016).



Figure 25. Friends of Harbors, Beaches and Parks Orange County Green Vision.

Source: Friends of Harbors Beaches and Parks (2016a)

Formal HCP planning began in 2009, when OCTA, Caltrans, and Federal and State resource agencies entered in a Planning Agreement for the joint preparation of an HCP/NCCP (Orange County Transportation Authority, 2015).

While Caltrans is not seeking its own permit, the Measure M2 freeway improvements will take place on Caltrans right of way (Orange County Transportation Authority, 2015). OCTA coordinates with Caltrans and provides local funding from Measure M2 for these projects and

from the EMP for their mitigation. Since the projects are locally funded, OCTA takes the lead to get ESA clearances through an HCP as opposed to Sec 7 consultation process (L. Hill, personal communication, May 2, 2013).

Representatives of OCTA characterized the HCP planning process as smooth, and lacking in the political struggles that many other RHCPs face. The measure was strongly supported with the EMP included, and the EOC has been instrumental in crafting the plan and monitoring purchases to achieve the best mitigation results. The EOC is a public committee, and representative of OCTA characterizes them as super-involved advocates, crediting them for facilitating the continued support of the environmental community as a whole (L. Hill, personal communication, May 2, 2013).

In addition to mitigation, the EOC urged for other aspects of conservation friendly design be written into the ordinance. This includes incorporating principles of Context Sensitive Solutions design (Federal Highway Administration, n.d.-b), allowed design flexibility to cooperate with EOC, and improving wildlife passages (M. Schlotterbeck, personal communication, May 31, 2016). The ordinance states that “Freeway projects will also be planned, designed and constructed with consideration for their aesthetic, historic and environmental impacts on nearby properties and communities using such elements as parkway style designs, locally native landscaping, sound reduction and aesthetic treatments that complement the surroundings” (Orange County Transportation Authority, 2006).

OCTA Early Action Program

Under the ordinance, Measure M2 mitigation funding would otherwise not be available until April, 2011. In 2007, OCTA bonded against \$55 million of future Measure M2 revenues to fund an Early Action Program (EAP). This funding allowed for the HCP planning and early

acquisitions of preserve lands, even though the Plan is not yet permitted. The EAP additionally provided funds to acquire lands during the recession, when land prices were lower and there was less competitive demand for available parcels. The OCTA Board decided that the money saved by acquiring available parcels sooner, ahead of growing development, outweighed interest to be owed on the bond (Orange County Transportation Authority, 2014c). The EAP also provided funding for the HCP planning process. Matching funds have been provided for restoration from Army Corps of Engineers, Coastal Conservancy and the Nature Reserve of Orange County (Sciara, Bjorkman, Lederman, Thorne, et al., 2015). The EOC provides oversight and review of the EAP. As of 2014, 1,150 acres of open space has been acquired for mitigation under M2 (Orange County Transportation Authority, 2014c).

Regional Planning

The OCTA HCP differs from the previous case studies in that it was drafted and funded directly by the county transportation planning commission. The HCP provides regional advanced mitigation for the projects listed in the measure, and the measure in turn funds the mitigation. The OCTA HCP simply officially permits environmental planning that is part of the voter-approved measure. Thus the HCP itself has no impact on the transportation project selection and alignment beyond environmental planning.

But looking back further, the project selection in the measure was heavily influenced by previous environmental planning and pressure from the existing environmental community. Previous measures had failed and earlier drafts of Measure M2 polled poorly due to the presence of environmentally contentious projects that alienated the environmental community and maintained the adversarial relationship between OCTA and the environmental community. Earlier measure construction included a proposed Southern extension of the State Road 241 toll

road through a state park, an extension of State Road 57 over the Santa Ana River, and a tunnel through the Cleveland National Forest to Riverside.⁷⁹ By the time of EOC's formal involvement, these projects were removed from the ballot due to poor polling. The vice chair of the EOC states that the environmental coalition would not have negotiated with OCTA if any of these three projects were included. EOC members also supported the measure because the new projects were improvements and widenings in existing right-of-way, and not new construction (M. Schlotterbeck, personal communication, May 31, 2016).

As with other plans, representatives also cite the development of strong relationships with state and federal resource agencies as a major benefit of the plan. OCTA is very cognizant of the value of this relationship, and the time it took to establish trust. OCTA believes that this cultivated trust will not only help them get through the Plan projects, but also benefit both parties on projects not included in the HCP or the Measure. A governance structure including the EOC also helped OCTA forge relationships with the local environmental community (L. Hill, personal communication, May 2, 2013).

⁷⁹ This was a CETAP project that is indefinitely delayed.

D.8 Balcones Canyonlands Conservation Plan

Table 14. BCCP Summary

Balcones Canyonlands Conservation Plan	
Location	Travis County, Texas
Permit Year	1996
Permit Duration	30 Years
Covered Area (Acres)	561,000 acres
Preserve Size	30,500 acres
Species	2 song birds: • Golden-cheeked Warbler • Black-capped Vireo 6 Karst invertebrates • Tooth Cave Pseudoscorpion • Bee Creek Cave harvestman • Bone Cave harvestman • Tooth Cave spider • Tooth Case ground beetle • Kretschmarr Cave Mold Beetle
Permittees	Travis County, the City of Austin, Lower Colorado River Authority
Planning Process	
Planning Process Length	8 years
Planning Process Participants	Travis County Commissions Court, Austin City Council, and the Board of Directors of the Lower Colorado River Authority.
Management	
Agency	BCCP Coordinating Committee
Type	Interlocal Agreement

Background

The Balcones Canyonlands Conservation Plan (BCCP), located in Travis County, Texas, encompasses the city of Austin and county land west of the city (see Figure 26). The BCCP was created when, in the mid-1980's, the Black-capped Vireo and six karst invertebrates were listed

as endangered species during a period of rapid growth in the County. The local FWS office could not keep up with the demand for permits, resulting in a practical moratorium on development, including infrastructure, in the area (W. Conrad, personal communication, March 7, 2013). Local newspapers at the time reported on the struggles of individual permitting, with one story reporting that only one local entity in Austin, a newly planned housing community, was able to obtain an individual HCP permit during BCCP permitting – at a cost of \$1.8 million for a 115-acre preserve and consultants’ fees for a biological survey (Collier, 1990).

In an effort to streamline the permitting process, a programmatic agreement for Vireo mitigation was developed, but individual permits still took months or even years for approval. According to a BCCP representative “people were literally lined out the door at FWS [office]” (W. Conrad, personal communication, March 7, 2013). FWS suggested an RHCP that would streamline permitted development and ensure protection of threatened species (Sciara, Bjorkman, Lederman, Thorne, et al., 2015). The planning, and ultimate Permit, area was located exclusively west of I-35, as the eastern portion of the county contained no known habitat for either bird species or the karst invertebrates. Mitigation under the Plan built upon pre-existing conservation areas that were also located exclusively in the western portions of the County. The Plan does not cover incidental take activities in the National Wildlife Refuge.⁸⁰

⁸⁰ Multiple jurisdictions located in the Eastern portion of the county do not participate in the plan. This includes cities whose boundaries and ETJ are completely within Travis County, and cities in neighboring counties for which a portion of the ETJ falls within Travis County (City of Austin and Travis County Texas, 1996).

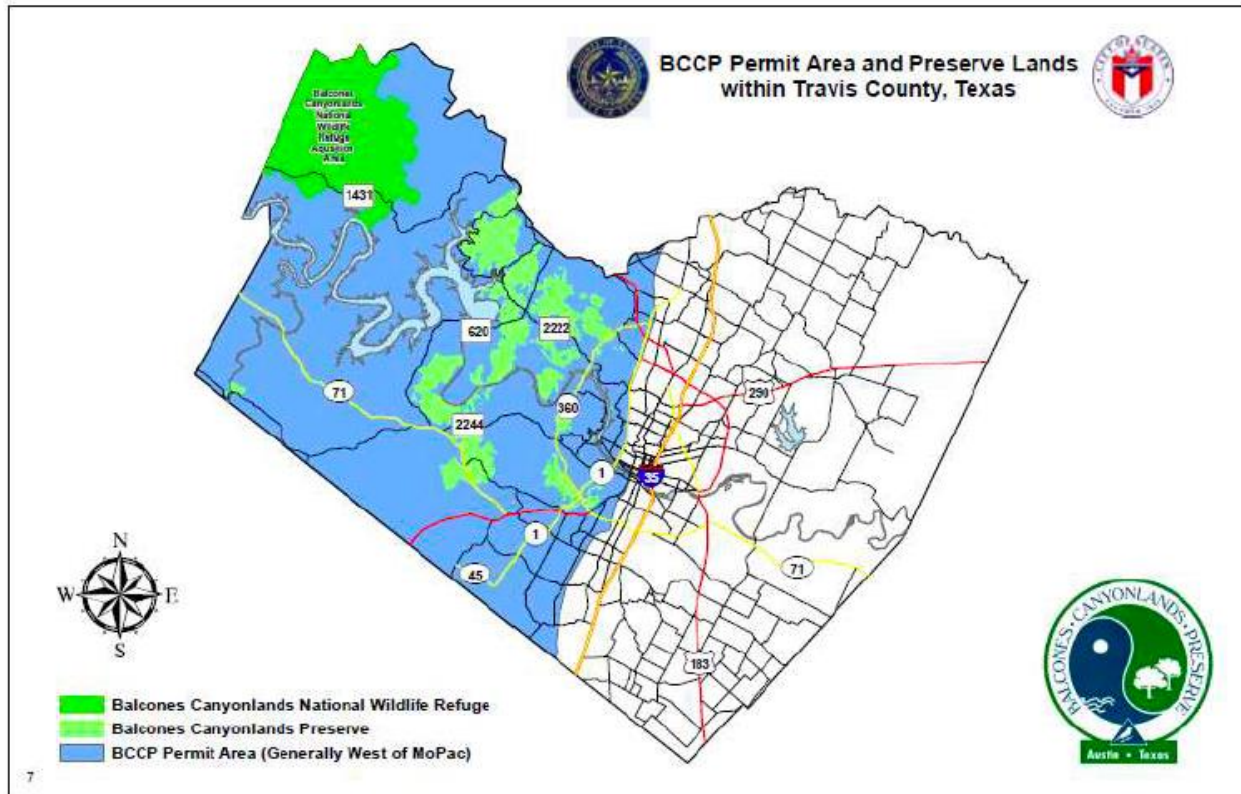


Figure 26. BCCP Permit and Preserve Area

Source: Balcones Canyonlands Conservation Plan Infrastructure Working Group (2013).

Biology⁸¹

Bird Species

The BCCP covers take for two songbird species. FWS declared the Golden-cheeked warbler, which only resides in Central and Southwestern Texas, listed as endangered in 1990 (see Figure 27 and Figure 28). The BCCP also covers the Black-capped Vireo, with similar habitat conditions and range as the warbler (see Figure 29 and Figure 30).

⁸¹ The Central Texas RHCPs studied in this research all protect portions of the same ecosystem. Each one covers the same two endangered bird species in addition to a variety of Karst species using the same avoidance and mitigation mechanisms. This Biology section therefore applies to all other Texas case studies.



Figure 27. A Golden-Cheeked Warbler

Source: U.S. Fish and Wildlife Service (n.d.-a).

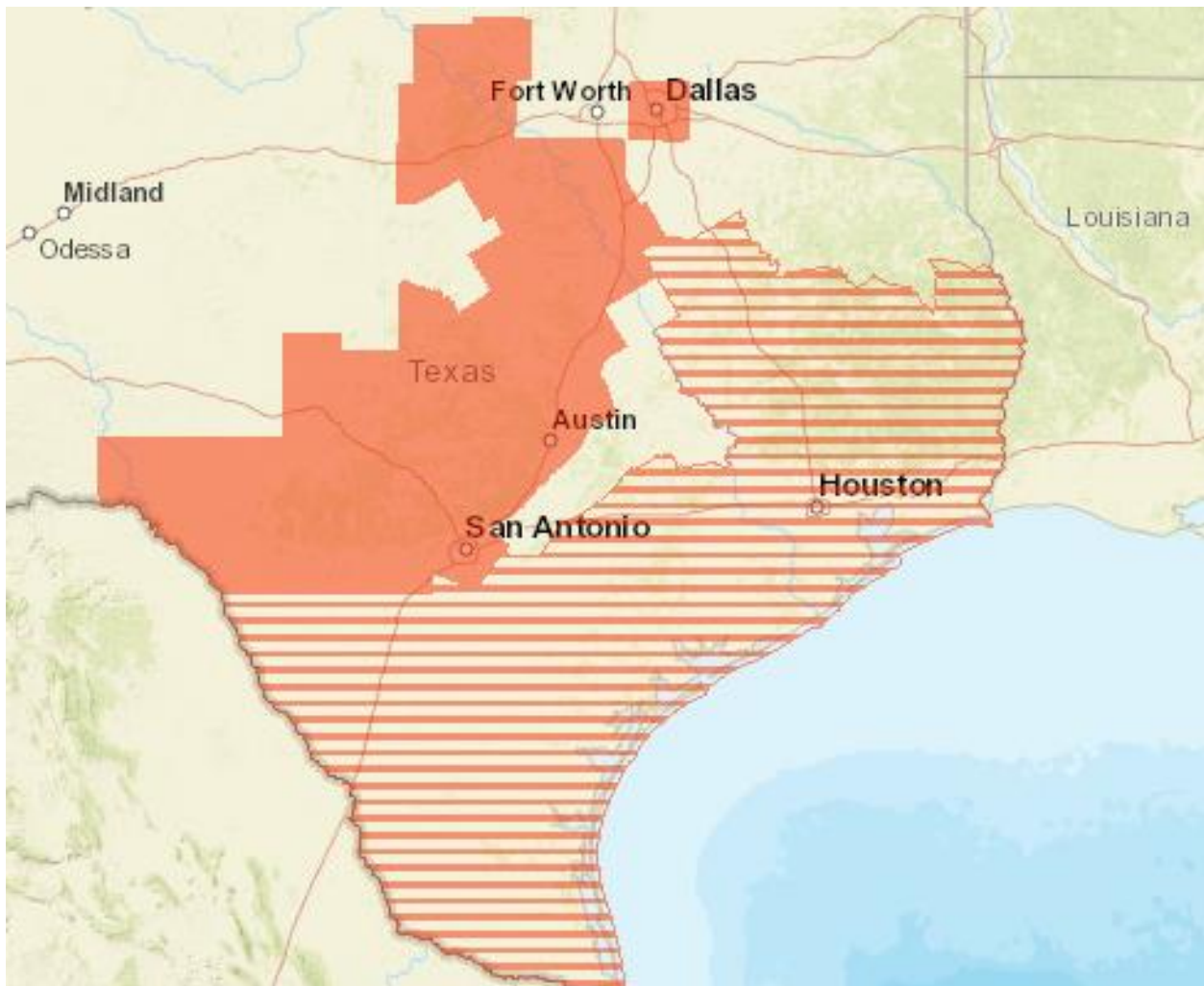


Figure 28. Golden-Cheeked Warbler Habitat

Source: U.S. Fish and Wildlife Service (n.d.-a).



Figure 29. A Black-Capped Vireo

Source: U.S. Fish and Wildlife Service Environmental Conservation Online System (n.d.)

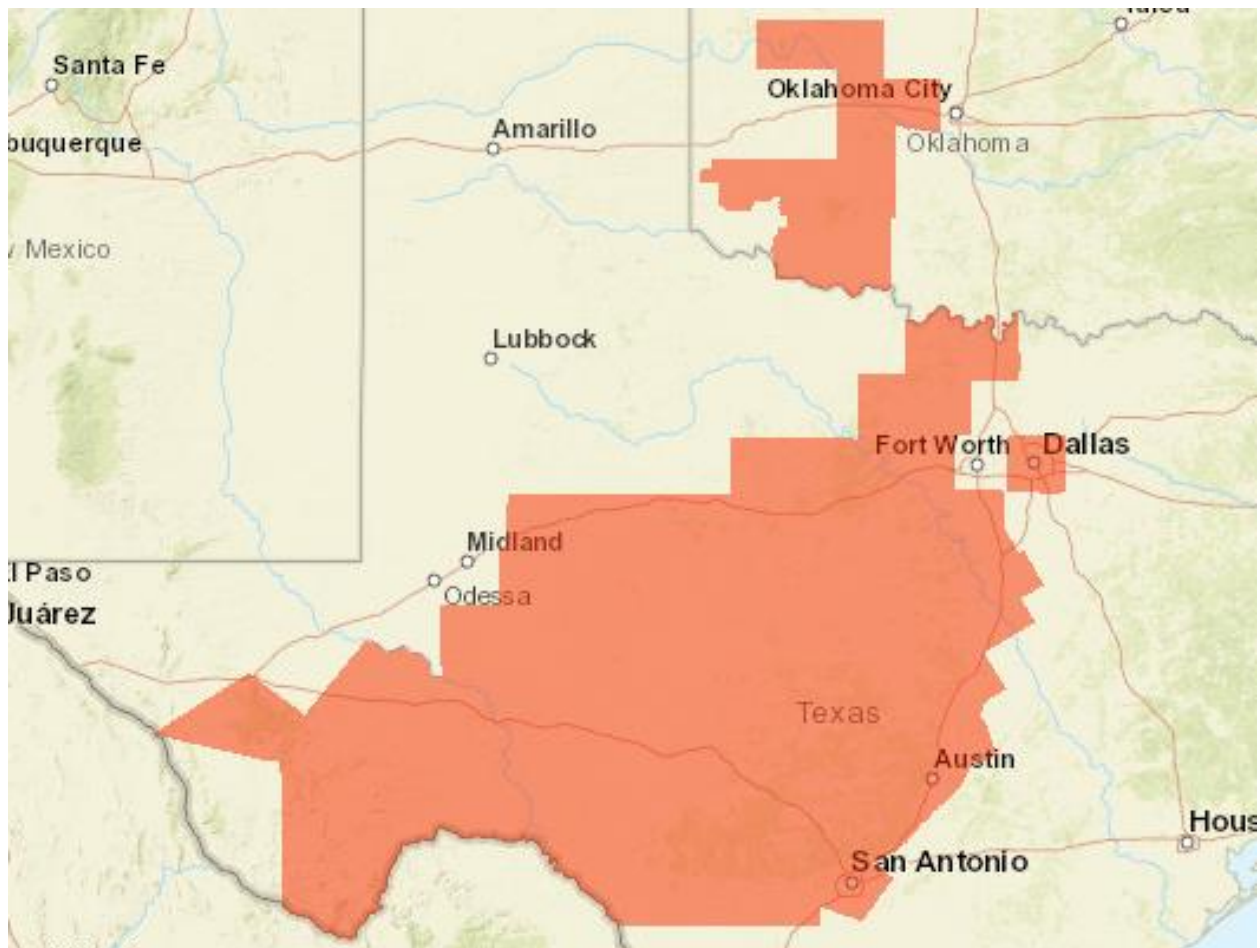


Figure 30. Black-Capped Vireo Habitat

Source: U.S. Fish and Wildlife Service Environmental Conservation Online System (n.d.)

For covered bird species, the BCCP covers 633,000 acres of land and required permittees to acquire and manage a minimum of 30,500 acres of bird habitat over the life of the permit

(Sciara, Bjorkman, Lederman, Thorne, et al., 2015). As of June 2016, the Balcones Canyonlands Preserve, consisting of mitigation land assembled under the Plan, provided over 31,000 acres of habitat, exceeding the minimum preserve acres required under the Plan (Travis County Government, 2017b).

The Plan works similarly to a mitigation bank, with the County and city adding land to preserves and then using acquired land as credits for projects. The BCCP Managing Partners issue an annual report each year that shows the land acquired, which projects used the BCCP permit for coverage, and how many credits that project required. Figure 31 illustrates the accounting of mitigation credits used for infrastructure in 2015. The black numbers indicate the number of additional preserve credits (land) acquired by each permittee, and the red numbers indicate how many credits each party used for mitigation.

City of Austin	
<i>Starting City of Austin Balance</i>	11,588.44 acres
<i>New preserve additions (credits) –</i>	10
AE – RM2244 @ Westlake	0.2
WPD – Sendera South Wet Pond Geotechnical Investigation	0.1
AWU – Four Points Force WW Main	0.7
AWU – Parmer Lane WW Interceptor	4.0
AE – Reconnector / Pole Replacement, W Hwy 71	0.1
PWD – VCT Phase 2a Trail Alignment	1.2
PWD – River Place Water System Improvements	0.2
Remaining Mitigation Credits	11,591.94 acres
Travis County	
<i>Starting Travis County Balance</i>	4,799.491 acres
<i>New preserve additions (credits)</i>	1,200.714
Arkansas Bend Park Improvements	79.0
Remaining Mitigation Credits	5,921.205 acres
Lower Colorado River Authority (LCRA)	
<i>Starting LCRA Balance</i>	2,449.4 acres
<i>New preserve additions (credits) –</i>	0
Marshall Ford to McNeil (T-160) upgrade - Phase 2	2.4
Remaining Mitigation Credits	2,447.0 acres

Figure 31. BCCP Infrastructure Projects in 2015

Source: The Balcones Canyonlands Conservation Plan Coordinating Committee (2016)

Karst Species and Habitat

Figure 32 shows six karst invertebrates covered by the BCCP.

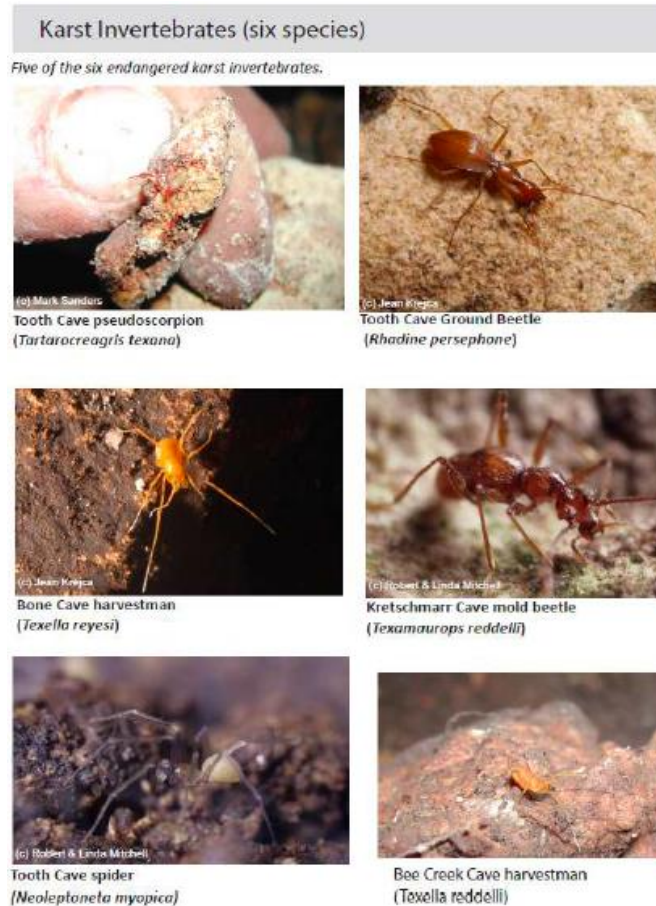


Figure 32. Karst Invertebrates covered by BCCP

Source: Balcones Canyonlands Conservation Plan Infrastructure Working Group (2013).

Karst invertebrate habitat differs biologically from the terrestrial habitat preserved for endangered bird species, as well as most of the habitat preserved in California RHCPs. Karst habitat is located in underground caves, which require maintaining adequate conditions within the entire cave in order to preserve the species. In most cases this means preserving both the surface of the cave and the sub-surface drainage area. Of the 39 identified caves within the permit area that contain endangered karst invertebrates, 35 will be protected under the Plan (Travis County Government, 2017b).⁸²

⁸² While the plan has, at the time of this writing, met and exceeded bird species habitat preserve requirements, a significant amount of cave acquisition is still required over the last ten years of the plan.

Karst habitat is significantly more difficult to identify than terrestrial animal habitat. Mapping habitat conditions for one of the covered birds (or terrestrial species covered by other plans) helps to determine more potential habitat that requires protection or where development would cause take. In comparison, the entirely underground Karst habitat requires extensive and onerous analysis in order to determine the exact extent and location of the cave. Known caves are typically discovered during development activities, and particularly in the Texas RHCPs, transportation projects have often led to the discovery of caves, halting the project. While difficult to avoid on some level, the Plan provides guidelines, negotiated with USFW at the time of permitting, for how far one must build in relation to discovered cave entrances to avoid damaging the cave and corresponding mitigation requirements. Mitigating impact to Karst habitat is additional difficult due to its subterranean nature. Since the integrity of the entire cave must be maintained, mitigation requires preserving an entire known cave site, and not by building a preserve by acquiring incremental acreage.

Planning Process

The Golden-Cheeked Warbler was listed as endangered in 1990, fostering much anger from local landowners. According to Rose Farmer, Travis County's representative on the BCCP coordinating committee, there were years of frustration from the public and even death threats to local resource agency staff until the creation of the BCCP. The push for the BCCP came from FWS, and can be considered a "proof of concept" for RHCPs. During the course of its planning history there were periods where it almost collapsed, but it was bolstered by strong federal political and financial support as one of the first large-scale, regional HCPs, receiving roughly

\$60.5 million of federal Section 6 grants (Sciara, Bjorkman, Lederman, Thorne, et al., 2015).⁸³

Locally, the planners had the general support of the public, as well as the local Chamber of Commerce and Builder's Association. In 1991, The Texas Parks and Wildlife Department issued a biological assessment of possible conservation strategies for both endangered songbirds. In 1992, Travis County Commissions Count, Austin City Council, and the Board of Directors of the Lower Colorado River Authority began the planning process, guided by an Interagency Agreement (City of Austin and Travis County Texas, 1996, p. 37).⁸⁴

During the BCCP planning process, the City of Austin passed a \$22 million general tax revenue-backed bond measure in November 1992 for land acquisition for the preservation for water quality and recreational purposes. This measure has been used to fund land acquisition that also conserves endangered bird habitat, reducing the cumulative mitigation burden under the permit (Sciara, Bjorkman, Lederman, Thorne, et al., 2015). The City used the bond revenue to buy preserve land from the federal government as a price below market value for undeveloped land in the city, acquiring most of their required preserve land before the permit was issued in 1996 (R. Farmer, personal communication, February 22, 2013). Travis County failed to pass a similar \$48 million bond measure for HCP in 1993. Instead, tax benefit (tax increment) financing provides most of the County funding; a portion of the increased property tax that results from the ability to develop a property under the plan is dedicated to mitigation (Sciara, Bjorkman, Lederman, Thorne, et al., 2015).

The required mitigation land has been acquired by a combination of direct land donation and RHCP purchases funded by grants, local bond measures, and development impact fees. The

⁸³ Travis County originally sold participation certificates to developers buying into the HCP in exchange for development rights outside it, which produced only modest revenue.

⁸⁴ The Colorado River Authority was brought into the process to cover electricity infrastructure projects.

BCCP benefitted from its adjacency to the Balcones Canyonlands National Wildlife Refuge, which also contributed to conservation of the threatened species. As one of the first large-scale HCPs, the BCCP received a large amount of federal support through \$60.5 million of federal Section 6 grants. Conservation land was also donated by: Austin (2,562 acres), Travis County (4,023 acres), the Nature Conservancy (13,000 acres), the Lower Colorado River Authority (507 acres), and other sources (2,717 from Travis Audubon, University of Texas, Municipal utility districts, municipalities). The City of Austin's total contribution of preserve land under the Plan is expected to be 7,507 acres. The BCCP was also able to construct its preserve adjacent to the Balcones Canyonlands National Wildlife Refuge, which contributed to conservation of the threatened species (Sciara, Bjorkman, Lederman, Thorne, et al., 2015).

Governance

The governing structure for the BCCP is based on a 1995 Interlocal Agreement between Travis County and the City of Austin, a type of contractual agreement between two “local governments” as defined under Texas State law (Texas Government Code Chapter 791, 1991). The BCCP Coordinating Committee governs the implementation and administration of the Plan. The Coordinating Committee is composed of one elected official each from Travis County and the City of Austin, and two non-voting members - a representative of the U. S. Fish and Wildlife Service, and a Secretary appointed by the voting Committee Members. Congressional representatives have at times stepped in to mediate disagreements (Travis County Government, 2017b). The Travis County Commissioners Court, the Austin City Council, and FWS must approve proposed amendments to original County/City Interlocal Agreement (Travis County Government, 2017a). The BCCP Coordinating Committee is also supported by a Citizens Advisory Committee and a Scientific Advisory Committee. These two advisory committees are

required for all subsequent Texas RHCPs under state law (Travis County Government, 2017c). The Lower Colorado River Authority additionally assists in managing land it owns within the preserve system, and assists in managing through a separate Interlocal Agreement with the Coordinating Committee. The BCCP additionally partners with the Travis Audubon Society and the Nature Conservancy of Texas to manage land containing endangered species (Travis County Government, 2017b).

In general, Travis County processes applications by private landholders and relays development information to FWS, while the city issues permits for infrastructure and other public agency projects and provides an accounting of mitigation to FWS, although this division of duties is informal and not contractual (W. Conrad, personal communication, March 7, 2013). Prospective development projects apply to the County for BCCP coverage, which determines the cost of participation within 15 working days. Participation certificates are then mailed to participants to certify their compliance with the BCCP (Travis County Transportation and Natural Resources, 2014).

According to both city and County representatives, the BCCP changed the nature of intergovernmental cooperation between the city and county. A County representative describes the relationship between the city and county as initially difficult, but now they are “married with no possibility of divorce.” There was little coordination between city and County before the BCCP, and she referred to Austin as a “900-pound gorilla in the room,” a situation that was further aggravated by the weak County government in Texas. The initial joint land management plan took three years. While a lot of the success of coordination is dependent on personalities of those involved, she points to the city/county joint health district that has been plagued by issues of coordination. The relationship steadily improved, and the City and County work together on

scientific surveying for bird species covered by the plan, sponsored by a grant given to Austin. If there are disagreements, they are mediated by the City Council (R. Farmer, personal communication, February 22, 2013).

Transportation

The Plan features an Appendix that focuses solely on infrastructure planning that may impact targeted preserves. This Appendix designates a limited number of existing right-of-way “infrastructure corridors” for potential development that can be mitigated under the Plan. The Plan also designated where widening of existing corridors is permitted, and regulates maintenance activities to minimize harm to species (City of Austin and Travis County Texas, 1996). By designating only specific corridors and conditions for transportation infrastructure, the plan further streamlines transportation permitting. As stated in the Plan:

The principal objective is to provide future community services and facilities in a manner consistent with the objectives of habitat conservation, i.e., in a manner which minimizes habitat conversions and fragmentation. A second objective is to reduce overall economic cost of providing public services to the area. Planning in advance of future infrastructure needs and delimiting the number and location of infrastructure corridors in and adjacent to preserve areas will aid in accomplishing these objectives (City of Austin and Travis County Texas, 1996, p. B1).

Corridors were included based on existing rights-of-way or areas where planners envisioned growth, instead of taking them from a regional plan or an existing list of projects. According to a Plan representative, Texas does not have a strong tradition of regional planning and coordination, so transportation infrastructure was largely reactive to proposed private development at the time the Plan was created. In order to limit future growth into endangered species habitat, the County and City had to determine where future transportation development might occur over the 30-year life of the permit, working closely with the development community while placing limits on future growth (W. Conrad, personal communication, March

7, 2013). The Plan acknowledges that this effectively limited the number and growth of transportation corridors within the region (City of Austin and Travis County Texas, 1996).

According to the BCCP Coordinating Board member representing the County, mitigation for road construction within the Plan's designated corridors is a "paper exercise." The BCCP permit only covers transportation in the pre-determined corridors, and other proposed projects must undergo a separate consultation with FWS to receive a permit (City of Austin and Travis County Texas, 1996).⁸⁵ A representative of the Plan says that they negotiate with project sponsors that want to build outside of the corridor to either realign the project into an existing infrastructure corridor or negotiate for slight deviations. If that is not possible, the BCCP Coordinating Committee determines whether additional mitigation is necessary and achievable under the Plan (R. Farmer, personal communication, February 22, 2013) (see Figure 33 for an illustration of the infrastructure permitting process). Overall, the city representative believes all parties involved realize that anything outside of the covered corridors "is a death sentence" due to the regional structure of the Plan, causing per-project HCP negotiations with FWS to often fail (W. Conrad, personal communication, March 7, 2013).

⁸⁵ The transportation corridors accounted for planned widening of existing primary highways.

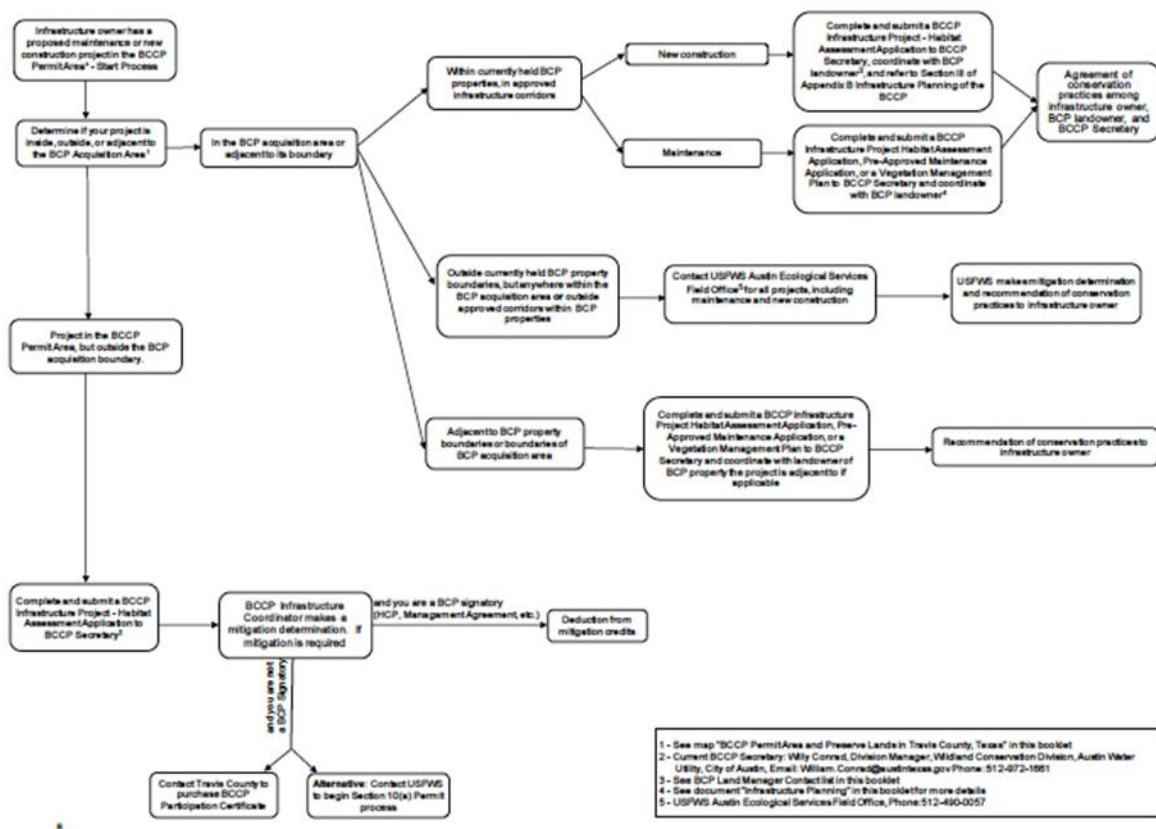


Figure 33. BCCP Infrastructure Permitting Flow Chart.

Source: Balcones Canyonlands Conservation Plan Infrastructure Working Group (2013).

As BCCP was one of the earliest RHCPs, a plan representative declared it the first example of an MSHCP leading regional infrastructure coordination, and one of the most successful aspects of the Plan (W. Conrad, personal communication, March 7, 2013). As discussed above, Western Riverside MSHCP and the HCPs managed by SANDAG and OCTA pursued similar strategies.

Case Study: TxDOT and SH 45

TxDOT has not really used the BCCP for mitigation, partially because they had little to build in such a built up area, and partially because their policy has been to negotiate unilaterally

with FWS.⁸⁶ The SH 45 SW toll road, led by TxDOT, is one of the most contentious transportation projects that may impact lands protected by the BCCP (and is contentious in general). The proposed highway passes through endangered Karst territory; potentially impacting the remaining required Karst acquisition under the Permit. Placed in this context, one of the biggest uncertainties surrounding the proposed road is its environmental impact, not only on endangered species, but on water quality as well. This can be partially attributed to the ever-changing scope of the project after 30-years of planning. The width and volume of the highway passed through a known Karst zone, and implicated issues for water quality of the Barton Springs-Edwards Aquifer Conservation District (Travis County Transportation and Natural Resources, 2012).⁸⁷ As of 2013, biologists determined the road could also impact Warbler habitat.

⁸⁶ TxDOT projects not named as a corridor in the Plan are not covered by the ITP.

⁸⁷ Allows for 2-lane road from Loop 1 to FM 1626. Set access points along SH 45SW at Green Emerald Terrace, Frate Barker Road and Bliss Spillar Road.



Figure 34. SH 45 SW Project Location

Source: https://www.sh45sw.com/upload/images/45_WebMap-01.png

Figure 34 shows the propose location of SH45 SW. A 3.6-mile, four-lane toll road located mostly in Travis County (but extending into Hays County), the SH 45 Outer Parkway was first designated by the TxDOT in 1985 (Travis County Transportation and Natural Resources, 2012). It was included in Austin Transportation Study’s Regional plan, with a portion of a 6-lane highway and a portion of a 4-lane parkway (Travis County Transportation and Natural Resources, 2012).⁸⁸ In 1997 Travis County voters approved \$3.5 million County Road Bond for SH 45 SW right-of-way acquisition for the segment connecting Loop 1 to FM 1626 (Travis County Transportation and Natural Resources, 2012). The Bond was marketed to voters as a safety issue (A. Smith, 2014). Following the bond, Travis and Hays counties passed a resolution supporting construction of the funded segment. In 2001, using money from the bond

⁸⁸SH 45 Outer Parkway included in Austin Transportation Study’s Regional Plan. The 1986 Plan called for an outer Parkway (SH 45) that included a section from US 183 South in south east Travis County to RM 620. Planned section from IH 35 to Loop1 was for a 6- lane parkway. Section from Loop1 to US 290 West was planned as 4-lane parkway.

Travis County completed the Right-of-way purchase for the proposed SH45 alignment. The County then transferred the land to TxDOT for construction of the segment (Travis County Transportation and Natural Resources, 2012).

During this phase of the project planning, the CAMPO Transportation Policy Board and TxDOT began to plan a system of toll-roads in the Austin area, led by a TxDOT initiative to increase funding to accelerate projects in response to rapid regional growth (Travis County Transportation and Natural Resources, 2012). This led to the creation of the Central Texas Regional Mobility Authority to manage toll roads. In 2004 TxDOT they adopted a plan to toll the SH 45 SW portion, and expand the scope to a multi-lane toll road with two free lanes (Travis County Transportation and Natural Resources, 2012), sharing the project management with the Central Texas Regional Mobility Authority.

Between 2003 and 2009, TxDOT conducted environmental review of potential alignments, declaring that the project did not cause enough of an environmental impact to undergo review. In 2006, the Travis County Commissions Court, under pressure to address congestion issues in the proposed SH 45 area, performed the first Environmental Assessment required under NEPA, opting not to do the more extensive EIS (Travis County Transportation and Natural Resources, 2012).

In 2010, Travis County Commissioners Court withdrew its support of SH 45 SW directing CAMPO to remove the project from the CAMPO Transportation Improvement Plan and the RTP, and fund the project through state and local funds. Some speculate that this to deliberately avoid NEPA requirements (W. Conrad, personal communication, March 7, 2013)

(Fowler, 2016; Wear, 2016).⁸⁹ Environmental groups sued for a project injunction for considering segments individually and not taking into account the cumulative effect of the project, further delaying the project (Travis County Transportation and Natural Resources, 2012).

In 2014, the Central Texas Regional Mobility Authority signed an Interlocal Agreement with Travis County, requiring them to construct the project in a manner that keeps the county in compliance with its ITP permit. The City, County, and Central Texas Regional Mobility Authority negotiated to find another way for the latter to pay the BCCP participation fees to get a BCCP Infrastructure Participation Certificate in order to use the BCCP permit, but these negotiations were unsuccessful and USFW required the project to seek its own Section 10 permit. The BCCP coordinating committee pointed out that they are not required to issue a participation certificate to a governmental agency that is not a partner in the BCCP (Clifton, 2016b).⁹⁰ In September 2016, a federal judge ruled that the Central Texas Regional Mobility Authority and TxDOT must comply with NEPA and undergo a Section 7 consultation, stating that they were acting as a federal agency (Clifton, 2016a). The project is currently the subject of active litigation and neither FWS nor TxDOT is able to comment on its future.

Regional Planning

The City of Austin has stronger planning capabilities than the county, other cities within the county, and any city in the Texas RHCP case studies. As a city Austin can make land use ordinances, and is required to adopt a comprehensive plan. Austin is the only jurisdiction in

⁸⁹ Travis County is paying \$15 million toward the road, while Hays County is adding \$5 million. The Capital Area Metropolitan Planning Organization gave a \$28.9 million grant toward construction, and the Texas Transportation Commission approved \$60 million to complete it. Willie Conrad interview.

⁹⁰ They could become partners, but did not want to.

Travis County, including the county, which can issue building permits (City of Austin and Travis County Texas, 1996). Because of this comprehensive planning power, BCCP was able to designate infrastructure corridors and limit development outside of those corridors.

While the permit covers most of the County, potential habitat for covered species was only known at the time of the permit to exist west of Interstate 35, thus the plan anticipated all take and conservation to be done in the western portion of the county (City of Austin and Travis County Texas, 1996). Development in potential BCCP acquisition lands is not allowed under the permit, and anyone wishing to develop land in this area must seek an individual permit from FWS. From the perspective of the County, there was “extra” land to buy in the beginning, the price was cheap and there were many willing sellers as the areas were largely undeveloped. But as the city grows, this creates an interesting conundrum. On one hand, the plan is actively making it undesirable to focus development near its outlined preserves, effectively controlling the western boundaries of city growth. Earlier in the plan this was helpful to landowners because there were few willing buyers other than the RHCP. This was also true during the recession, when the BCCP was one of the only buyers (R. Farmer, personal communication, February 22, 2013).

More recently, as development has returned to the normal rapid pace in Austin, and the city has steadily grown closer to dedicated preserve land, they found it more difficult to acquire land in the dedicated preserve area due to the “holdout” problem. Even though these landowners would need to seek individual permits to develop, and mitigation would be onerous, they are holding out for more money from the BCCP (R. Farmer, personal communication, February 22, 2013).

The mitigation fee is determined based on maps of bird habitat and Karst caves. When a project proponent applies to BCCP for a participation certificate (and coverage), the mitigation fee they must pay is determined by the habitat they are in on the habitat fee zone map. Mitigation fees are only paid to the city if the property being developed is in an area with habitat on the map. A Plan representative admits the map is not perfect, and people can perform their own biological analysis and then either seek an individual permit with the FWS or negotiate with the BCCP. Almost all project proponents choose to forego the burdensome biological analysis and use the BCCP for mitigation (W. Conrad, personal communication, March 7, 2013).

The case study of SH 45 shows the power of large state-funded transportation projects to trump the regional planning under the BCCP, but simultaneously shows the difficulty of transportation planning that is not covered by the plan, and in this case, outside of dedicated corridors. If the project proceeds, it may cause difficulty for the BCCP to preserve suitable Karst formation to compensate for take over the permit, depending on the single project mitigation required by the FWS. The case study additionally shows that transportation agency participation in RHCP planning and permitting can aid in facilitating projects through participation. If TxDOT had been an original permittee, of the Central Texas Regional Mobility Authority could have been brought in as a partner, it would be more likely that SH 45 would have been covered by the BCCP, accelerating delivery while contributing substantially to preserves.

D.9 Williamson County Regional Habitat Conservation Plan

Table 15. Williamson County RHCP Summary

Williamson County Regional Habitat Conservation Plan	
Location	Williamson County, Texas
Permit Year	2008
Permit Duration	30 years
Covered Area (Acres)	Williamson County (1,124 sq. miles).
Preserve Size	• 7000 acres for karst species • 9000 acres for bird species
Species	2 song birds: • Golden-cheeked Warbler • Black-capped Vireo 3 karst invertebrates • Tooth Cave ground beetle • Bone Cave harvestman • Coffin Cave mold beetle
Permittees	Williamson County
Planning Process	
Planning Process Length	7 years
Planning Process Participants	• Williamson County Conservation Foundation • Williamson County Commissioners Court
Management	
Agency	Williamson County Conservation Foundation
Type	Non-Profit Organization

Background

Williamson County is located in Central Texas, immediately North of Travis County and the City of Austin. It is part of the Austin region, and under the regional transportation-planning jurisdiction of the Capital Area MPO (CAMPO). The population of Williamson County is expected to triple over the life of the permit, from 400,000 at the time of the plan to over 1.5 million by the end of the 30- year permit (Williamson County Conservation Foundation, 2008a).

Travis County approached Williamson County in the late 1980's to partake in the Balcones Canyon Conservation Plan (BCCP). Williamson worked with Travis County, the City of Austin, the Nature Conservancy, and on initial BCCP planning. Williamson County Commissioners Court ultimately declined to participate for three major reasons. First, at that point in time, the proposed permit would only cover take of the golden cheek warbler, which Williamson County did not consider enough of problem to warrant an RHCP. Second, Williamson County was largely rural at that time, and did not have any planned large infrastructure or private development. Third, according to the current Williamson RHCP manager, the Williamson Commissioners Court was only motivated to do the "bare minimum" to address endangered species concerns (G. Boyd, personal communication, March 17, 2014).

As the population of Williamson County rapidly grew, endangered Karst invertebrates were discovered during the planning and environmental review of several highway projects, most notably US 183A Toll Road. This growth and the difficulty of individually permitting and mitigating for numerous large projects led Williamson County to reconsider the need for an RHCP (G. Boyd, personal communication, March 17, 2014; W. Conrad, personal communication, March 7, 2013).

Biology

The RHCP covers five federally listed endangered species: two song birds (Black-capped vireo and Golden-cheeked warbler) and three karst invertebrates (Tooth Cave ground beetle, Bone Cave harvestman, and Coffin Cave mold beetle).⁹¹ A discussion of these species and their habitat is described in the Biology section of the BCCP case study.

⁹¹ The Plan also discusses conservation of the Georgetown Salamander, a candidate for federal listing, and several other species that may be declared endangered in the future.

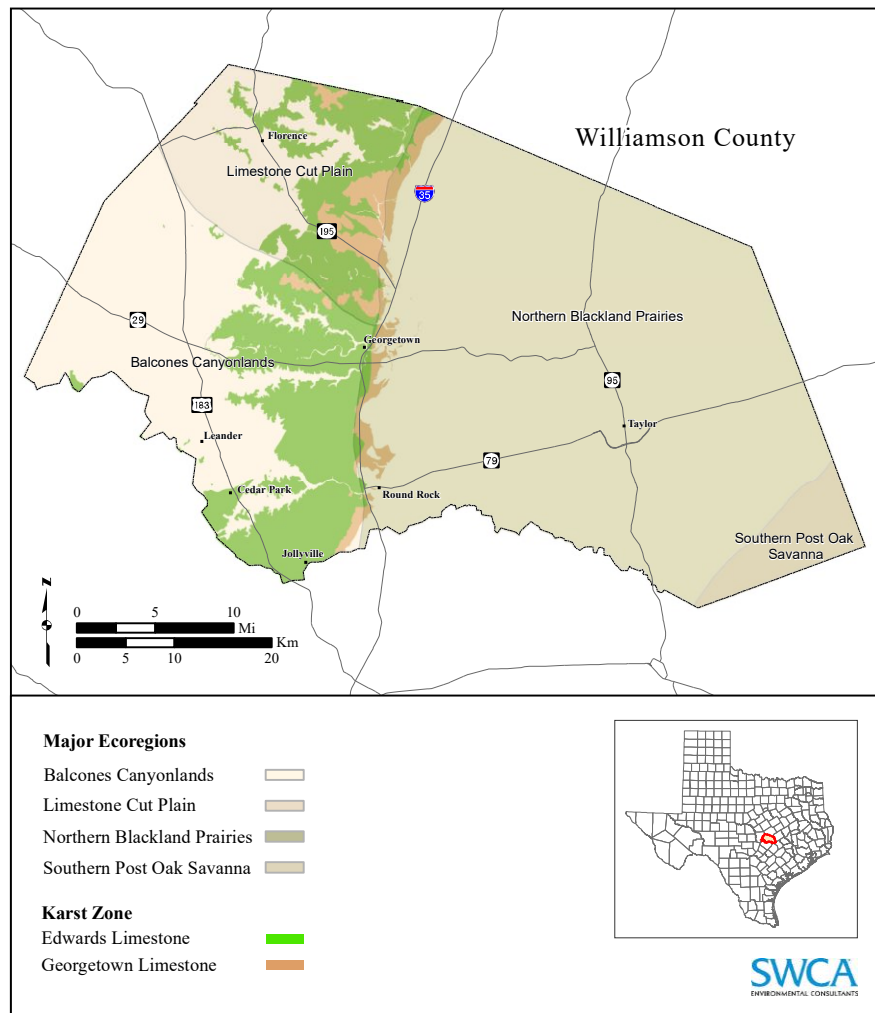


Figure 35. Ecoregions and Karst Zones in Williamson County

Source: Williamson County Conservation Foundation (2008a).

Under the ITP, Williamson County must acquire 9000 acres of songbird habitat to mitigate for projects incidental take, and 7000 acres of Karst habitat to contribute to recovery of the three listed karst species (G. Boyd, personal communication, March 17, 2014). The permit covers the entire county, but the vast majority of endangered species are located in the “Karst zones” west of Interstate 35 (see Figure 35). The majority of Williamson County’s projected population growth is projected to occur in the Karst zone. Accordingly, most take (up to 80,000 acres) and recovery efforts over the life of the permit are anticipated in these areas. Since they

are prohibited from identifying potential preserve land, Williamson County relies heavily on private mitigation banks, and makes acquisitions that are described as “episodic and opportunistic” (A. Glen, personal communication, August 28, 2014).

One of the biggest impacts of an RHCP is its ability to survey the biological resources of the covered land. The Williamson RHCP specifies twenty-four “additional species” that are not currently covered by the permit. These species will be included in biological monitoring with an eye towards helping with species recovery that can either piggy back on RHCP activities, or require amending the Plan to include them (Williamson County Conservation Foundation, 2008a).

Williamson as a Recovery Plan

One major difference between the Williamson RHCP and others discussed is that the Williamson RHCP is a ‘recovery’ plan as related to endangered Karst Invertebrates.⁹² Recovery Plans are not required to identify specific parcels of land for targeted mitigation, which Texas law prohibited following the BCCP. Instead, they only have to achieve a total amount of conservation that is negotiated with FWS. Biologically, a recovery plan aims more broadly to increase the population of the covered species to the point where they are no longer considered endangered and can be delisted (G. Boyd, personal communication, March 17, 2014; A. Glen, personal communication, August 28, 2014; R. Farmer, personal communication, February 22, 2013).

Williamson County is part of a larger recovery strategy for Central Texas Karst Species in 1994 created by FWS that requires preservation of entire caves, as opposed to acreage (U.S.

⁹²It is likely that Hays and Comal County’s Plans, discussed below, would be recovery plans if they covered karst species, but they are limited to endangered songbirds.

Fish and Wildlife Service, 1994). Federal and Texas state law requires minimization and mitigation, and thus far Williamson County is the only RHCP exempted from this requirement in order to develop recovery-based plan. USFW encouraged a recovery plan, finding it both less burdensome for the County and more likely to protect the species through the acquisition of entire caves. Under the Plan as permitted, Williamson must preserve 12 Karst caves in response to forecasted growth, as opposed to 40-50 caves if they took a mitigation approach (A. Glen, personal communication, August 28, 2014).

One benefit of a recovery approach for the county is that it can use Section 6 Land Acquisition funds to acquire preserves, in contrast to mitigation based plans that cannot receive federally supported funds for mitigation. Section 6 funds can directly fund the purchase of land, or it can mix with other sources of funding under the plan in order to acquire larger parcels of land to fulfill recovery requirements (A. Glen, personal communication, August 28, 2014).

Planning Process

Formal planning for the Williamson RHCP began in 2001, following the approval of a \$350 million countywide roads and parks bond in 2000. The bond accelerated development and population growth by implementing a multi-corridor transportation plan adopted by the county in 1999. Due to the impending regional growth following the bond, County Commissioners anticipated endangered species issues. The County hired consultants, and began working with FWS on a regional Plan focused mainly on karst species and cave preservation (Williamson County Conservation Foundation, 2008a).

In 2002, the Williamson County Commissioners Court established the non-profit Williamson County Conservation Foundation (WCCF), to manage conservation activities. As a non-profit, the WCCF can accept donations and apply for grant funding (G. Boyd, personal

communication, March 17, 2014). The WCCF is overseen by an appointed Board of Directors, which includes the Commissioners from Precinct 2 and 3 (in which the Karst zones are located), representatives from the local cities (Round Rock, Georgetown, and Cedar Park) and the local Water Control and Improvement District. The Commissioners Court and the WCCF worked with consultants to prepare the RHCP (Williamson County Conservation Foundation, 2008a).

Williamson County received a \$200,000 Section 6 Planning Grant in 2003 to complete a draft plan, and then received an additional \$1 million Section 6 grant in 2004 to complete the EIR and final plan (Williamson County, 2017). FWS permitted the Plan in 2009.

Williamson County engaged in recovery and conservation actions while developing the plan. Conservation land acquired during the planning phase cannot mitigate for take that occurs later during the life of the permit, but it does contribute to required goals for recovery. The existence of sizeable initial preserves also allows for recovery through expansion, rather than through acquisition and management of separate conservation lands (Williamson County Conservation Foundation, 2008a).

The main acquisitions during the planning phase were made in connection with mitigation for major road projects using a combination of local, state and federal transportation funding. Major state and federal projects in Williamson County during this time included:

- In 2000, Williamson County directly purchased 3000-acre credits from a pre-existing local Conservation bank to mitigate impact on the golden-cheeked warbler from the extension of Ronald W. Regan Boulevard (Williamson County Conservation Foundation, 2008a).
- The WCCF initial conservation acquisition included two Karst areas totaling 220 acres, funded in part by \$3,200,000 from the Texas DOT as mitigation for a portion of SH 45.⁹³ TxDOT went through a Section 7 consultation with FWS and found formerly unknown

⁹³ Note this is a Northern Portion of SH 45, and its different than the disputed portion (SH 45 SW) discussed in the BCCP case study.

Karst cases in the right-of way. Even though the Plan was not yet approved, TxDOT paid the county to provide mitigation land.⁹⁴

During the planning phase, local transportation projects were funded by local bond packages that included funding for both roads and open space. Open space acquired with bond funding could, in some cases, be used as preserves to offset road impacts on endangered species habitat. The 2000 roads bond enabled the acquisition of 1,321 acres of open space. A subsequent \$250 million bond package, approved by voters in 2006, facilitated 111 local transportation projects that totaled over 175 lane-miles while funding the acquisition of two new park properties totaling 1,348 acres (Williamson County Conservation Foundation, 2008a).⁹⁵

As described in Chapter 5, Williamson County proposed financing the RHCP using Tax Benefit Financing, which typically has a 2+ year lag between development and revenues received from the increased tax base. Due to this lag, FWS required these initial preserves as a condition of permitting to ensure that conservation land always exceeds the amount of permitted take (G. Boyd, personal Communication, March 17, 2014).

Governance

The RHCP covers the entirety of Williamson County, and the county is the sole permit-holder (in contrast to RHCPs in other states, which include local governments and agencies as co-permittees). The WCCF manages RHCP implementation through authority granted by the County via interlocal agreement (Williamson County Conservation Foundation, 2008a). The

⁹⁴ Part of the initial Karst acquisition was funded by TxDOT contributions to mitigate for initial portions of the Northern portion of SH 45. TxDOT went through a formal consultation and found new caves in right of way and county stepped in to provide mitigation and they gave them \$2 million right before plan was approved. Williamson was unable to use programmed Sec. 6 funding to aid in this acquisition because it was for mitigation and not recovery (S. Robertson, personal communication, November 19, 2015).

⁹⁵ The yearly road and bridge county budget and the yearly parks budget only funds operations and maintenance cost expenses. All new safety projects, capacity projects on the roadway system or park enhancements or acquisition of new green space for parks is all done through bond programs (G. Boyd, personal communication, March 17, 2014).

Director of Environmental Programs for the County manages day-to-day activities of the WCCF (Williamson County, 2017).

Williamson County contains four major cities (Round Rock, Cedar Park, Georgetown and Leander). Each city uses the RHCP to mitigate for local road projects. Since the cities are not permittees, they participate through the same mechanism as a private entity (G. Boyd, personal communication, March 17, 2014). The County reserves the right to allow participation in the plan as it “would not be consistent with the biological goals and objectives of the plan or might cause there to be insufficient mitigation available for anticipated County infrastructure needs” (Williamson County Conservation Foundation, 2008a).

Transportation

Road construction is one of the primary drivers for creating the Williamson RHCP, and is listed first in its covered activities (Williamson County Conservation Foundation, 2008a). The RHCP was motivated in part by the desire to streamline permitting to facilitate development in the county after many individual projects required take permits from FWS suffered delays and increased costs of development. Figure 36 lists planned projects covered by the permit, including multiple major extensions of State Highway 45 and numerous local roads projects (Williamson County Conservation Foundation, 2008a). The RHCP also covers roads and bridges in the unincorporated areas of the county, built and managed by the County Road and Bridge Division. The County is currently responsible for maintaining 1,400 miles of county roads (Williamson County Department of Infrastructure, 2015). Figure 37 and Figure 38 show planned projects in the 2016 Williamson County Transportation Plan.

Entity	Examples of Existing or Potential Projects in Williamson County
TxDOT	US 183A, SH 45, SH 195
Williamson County Road Bond Program	Ronald W. Reagan Boulevard, O'Connor Drive, RM 620
Independent School Districts	School Construction
Texas Utilities, LCRA, Brazos River Authority, other utility providers	Electric transmission lines, trunk lines, water lines, wastewater lines
Municipality or County	Infrastructure or parkland programs
Private Land Developers	Residential or commercial development
Capital Metro	Transportation Corridors / Railroad Extension and Re-alignment

Figure 36. Transportation Projects Identified in the Williamson County RHCP

Source: Williamson County Conservation Foundation (2008a, p. 4.2).

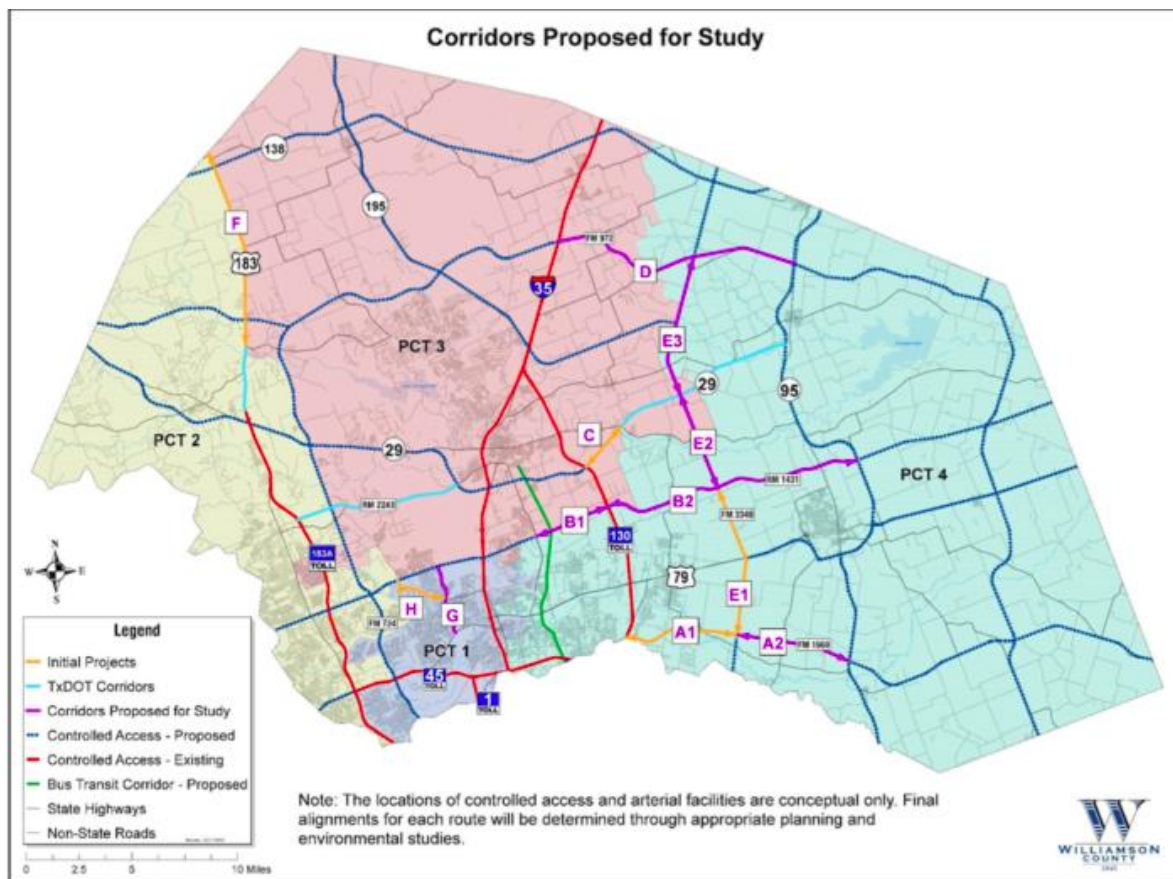


Figure 37. 2016 Williamson County Transportation Plan – Corridors.

Source: Perrone (2016).

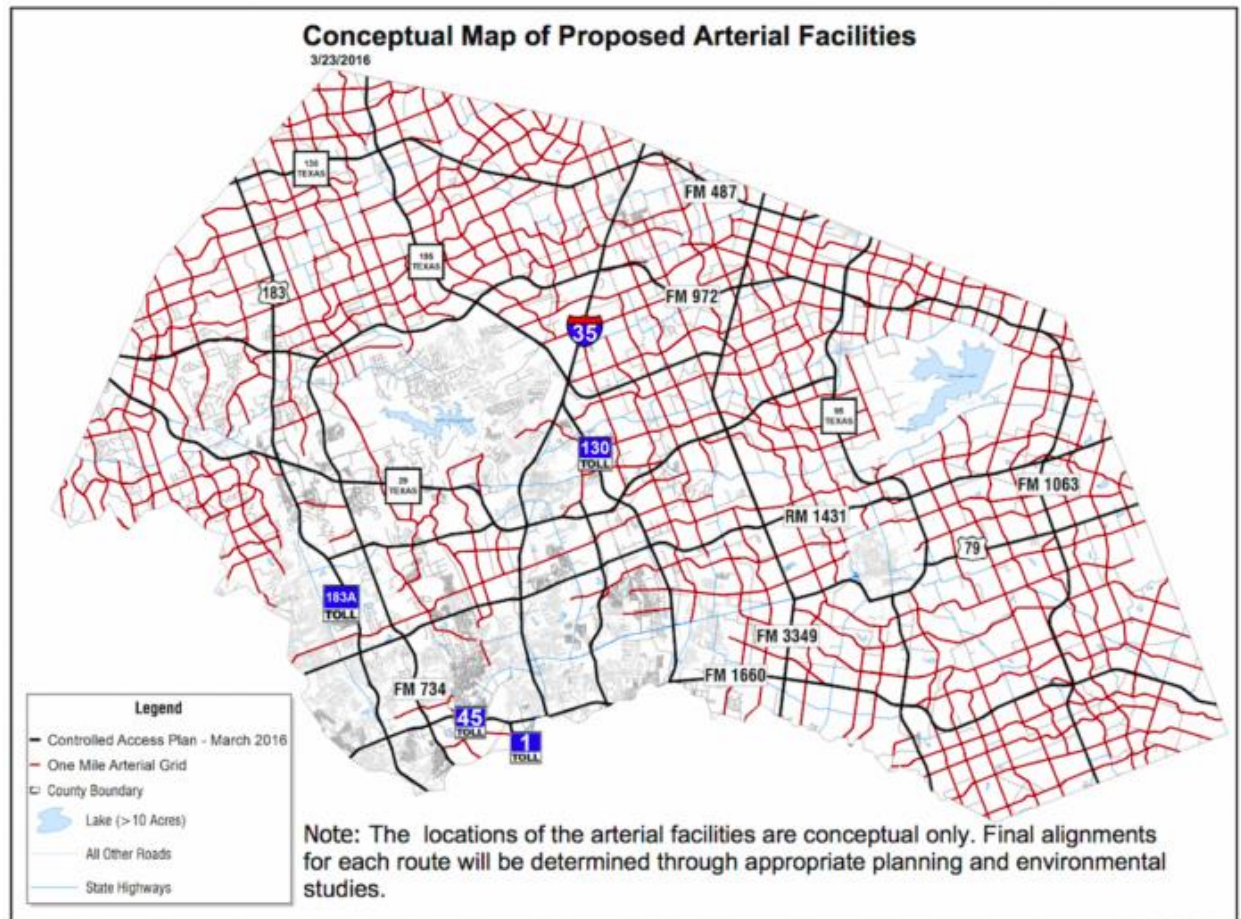


Figure 38. 2016 Williamson County Transportation Plan – Arterials.

Source: Perrone (2016).

Transportation funding contributes to the County's effort to establish preserves. During the first year of the plan, the County used \$3 million of parks and open space bond revenue to acquire Karst preserves¹⁰⁰ Also in the first year of Plan implementation, \$3.25 million of revenues from the county road improvement fund were advanced to the County for land acquisition; an additional \$3 million was similarly loaned to the County in year 4 of implementation. The County will use revenue from Tax Benefit Financing to repay these funds at an interest rate of 4.5 percent, and anticipates repaying these funds fully in Year 26 of implementations (Williamson County Conservation Foundation, 2008a).

The Role of TxDOT

According to TxDOT environmental staff, Williamson is a conservative county and does not plan transportation in coordination with neighboring counties and agencies as is so often the case in California. TxDOT, unlike Caltrans, is generally able to buy and own land, but tries to avoid managing land as a policy objective. Instead, state environmental/open space agencies, private partners, or RHCPs frequently manage TxDOT conservation land. As a result, RHCPs, where they exist, can aid TxDOT by providing superior land management (S. Robertson, personal communication, November 19, 2015).

TxDOT does not enter into binding agreements with RHCPs (i.e. they aren't a permittee, and do not take roles in implementation of RHCPs). They also do not have programmatic agreements with RHCPs for smaller repeated maintenance activities. As a policy matter, TxDOT issued guidance to standardize the conditions and aspects of TxDOT participation in Texas RHCPs:⁹⁶

If an rHCP is available and addresses the species in question, and the activities are consistent with the requirements of the rHCP, then the federal agency (or designated representative) may choose to participate in the rHCP in order to offset effects to federally listed species from a proposed transportation project... If participation is chosen, the agency or representative should request a preliminary determination from the rHCP permit administrator regarding the amount of mitigation and fees that are anticipated.

Sterling Robertson, a Senior Biologist with TxDOT, describes the RHCPs as one of the tools TxDOT uses to mitigate for projects, but not with any distinction from other mitigation that would implicate planning or governance. For example, TxDOT first designed the SR 195 extension project to minimize the potential damage to Karst habitat. Nonetheless, the project still

⁹⁶ TxDOT Environmental Division, Standard Operating Procedure memo, Subject: Steps and procedures for utilization of a Regional Habitat Conservation Plan (rHCP) for Section 7 Consultation under the Endangered Species Act (not public).

required substantial mitigation of Karst habitat. This was partially met by purchasing Karst caves and transferring ownership to the RHCP to manage, but TxDOT had to do additional mitigation that could not be done through the RHCP.

Ultimately, TxDOT is unlikely to partner with an RHCP as to not subjugate itself to a county government, while most counties forming RHCPs in Texas are early in the growth curve and want to preserve land without inviting additional developers. Compared to Caltrans, TxDOT has a smaller environmental division that is unsupported by the state and constantly under threat of being disbanded. As such, it may be that TxDOT utilized RHCPs only as a tool, but may increasingly rely on them for biological analysis and avoidance, minimization and mitigation guidelines (S. Robertson, personal communication, November 19, 2015).

Ronald Regan Boulevard Extension

Appendix C of the Williamson RHCP provides an example of the analysis of impacts and mitigation that was completed for a 5-mile long extension of Ronald Reagan Boulevard between FM 2338 and State Highway 195, with a total project area of 166 acres. This analysis shows the impact of the presence of listed species on the alignment of highway extension (see Figure 39 and Figure 40), and it also contains a breakdown of the amount of money contributed to the RHCP for coverages under the ITP. Even with these alignment changes, the project will contribute \$1,119,560 to the RHCP for mitigation: \$432,860 to mitigate for Karst impact, and \$686,700 for Warbler habitat.

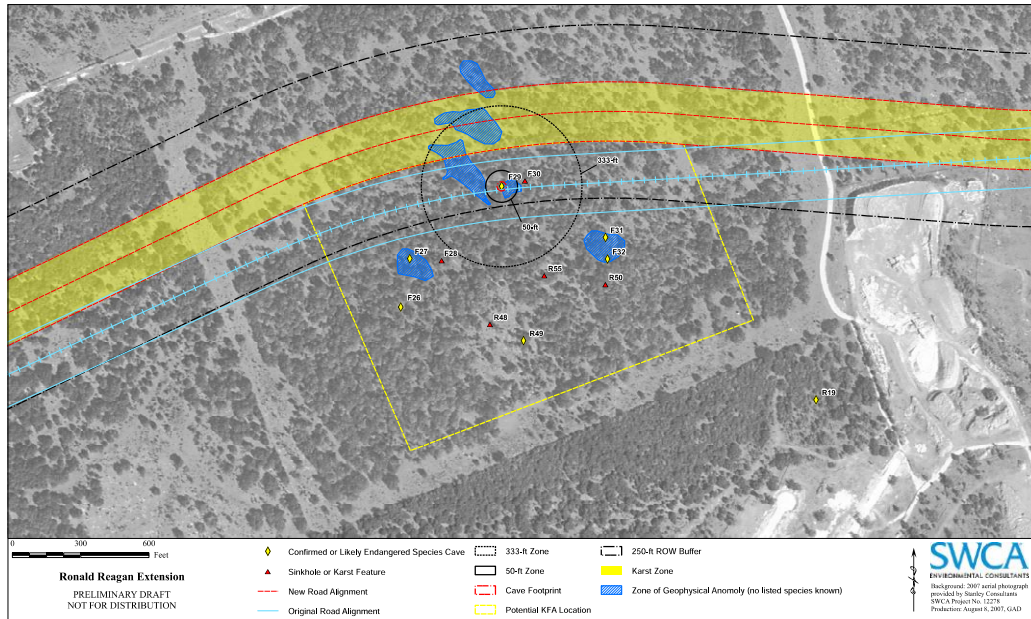


Figure 39. Proposed Alignment Changes to Minimize Impact on Karst Habitat.

Source: Williamson County Conservation Foundation (2008a).

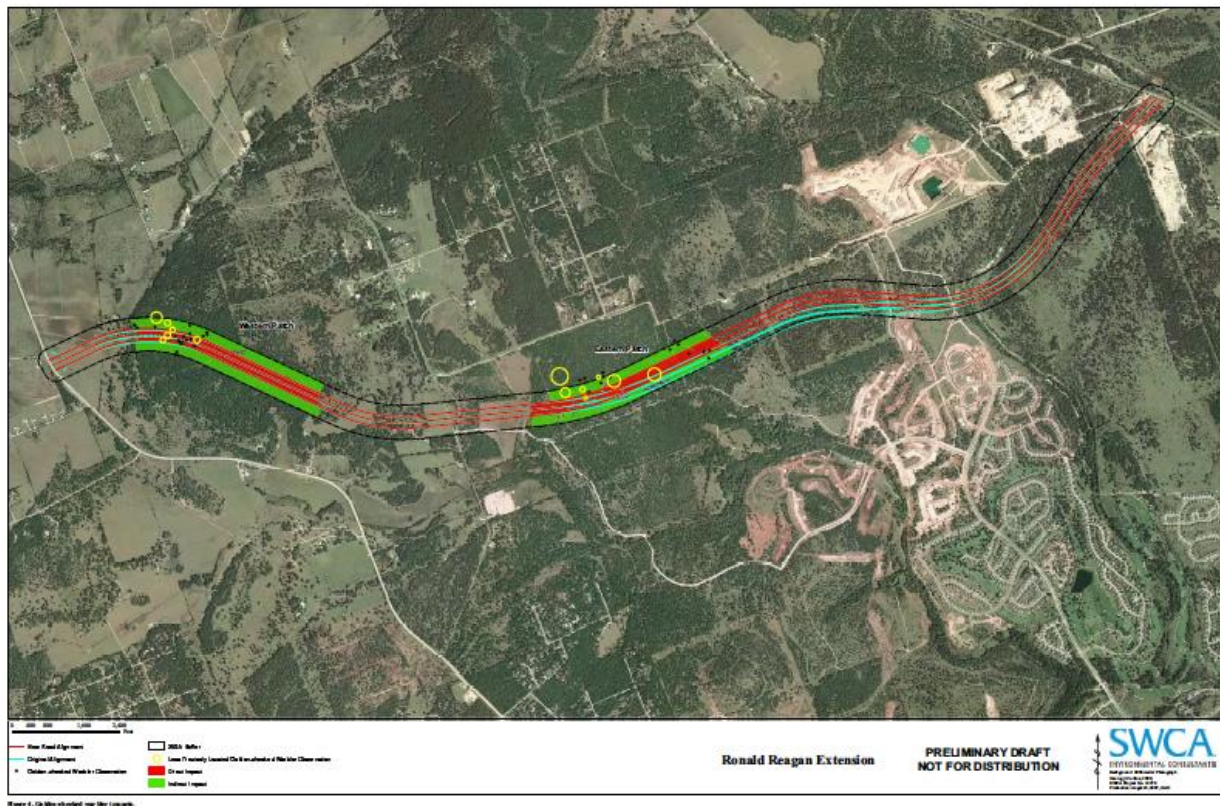


Figure 40. Alignment Changes to Minimize Impact on Golden-cheeked Warbler Habitat.

Source: Williamson County Conservation Foundation (2008a).

Regional Planning

As discussed above, Texas law limits the regional planning power of counties, the only permittees on Texas RHCPs. Williamson was the first RHCP permitted after this amendment. The NEPA EIS and ITP application requires each RHCP to list alternative options to forming an RHCP. Williamson County's plan alternatives section discusses (and subsequently dismisses) the option of a zoning process to address endangered species concerns, which the authors state will increase the streamlining of plan implementation and achieve recovery quicker than the current RHCP, but would increase the cost and time for the planning process. For multiple reasons, this is not allowed in Texas. First, counties are explicitly denied zoning powers unless granted through an exception from state legislature (which has been extremely limited, for example coastal protection and safety on San Padre Island) due to the strong property rights tradition in the state. One exception to this is that the County Commissions Court has the power to approve aspects of subdivision plats on unincorporated land, which includes approval of access roads, but this power is marginal and insufficient in addressing species issues through zoning. Secondly, Texas law after BCCP requires that plan participation is voluntary, and zoning for species protection would not be voluntary because "zoning stipulations would apply to all property within the County's jurisdiction" (Williamson County Conservation Foundation, 2008a)

One fact to note about the Williamson RHCP, compared to BCCP (and plans in California), is that the permit was issued at a comparatively early point in the growth curve. This can have both positive and negative impacts on overall species protection, and affects the degree to which the RHCP will guide development in the county (G. Boyd, personal communication, March 17, 2014).

The County and its residents have also learned from the BCCP experience, which may increase participation in the plan for a number of reasons. First, residents have familiarity with the BCCP and are more comfortable using the RHCP to address ESA issues. One of the biggest incentives to participate in the plan is that RHCP Karst mitigation fees are only \$100/acre if there are no known Karst formations on the property, which the Plan manager referred to as a “get out of jail free” card for potential development that could impact yet-unknown Karst formations (G. Boyd, personal communication, May 7, 2016).

Secondly, receiving a permit earlier in the growth curve and the comparatively short planning period means that comparatively few individual HCP permits were issued in the county, leaving the Plan managers more freedom or where to acquire mitigation land. Conversely, of the projects that did occur before the before the RHCP, including individual HCPs and the major TxDOT projects discussed above, many have already identified and conserved Karst areas. While this does not help in mitigating for additional take of bird species, it does help with overall karst species recovery that the plan must achieve (S. Robertson, personal communication, November 19, 2015).

While these two outcomes seem contradictory in nature, it is possible that the plan achieved a sweet spot between preserving initial land before the permit was issued, but not being constrained in mitigation land purchases due to significant development.

Because little development east of the I-35 has taken place, no assessment of the eastern portion of the county for species habitat has happened. Nonetheless, the permit covers the entire county to anticipate for growth in the eastern portion, and is structured to facilitate any needed amendments if development expands or uncovers additional species habitat. While the County would have little control over expansion of existing cities into the eastern portion of the County,

or the incorporation of new cities, it is possible that developers would avoid Karst cave due to the endangered species issues. On the other hand, the ease of permitting under the RHCP compared to per-project permitting could actually encourage growth in those areas. As a strategy, the RHCP could identify Karst caves and target purchases of currently undeveloped, and therefore less expensive, Karst habitat, although identification would prove burdensome, as Karst is most easily identified during surveying for a specific project.

Conversely, one of the consultants who prepared the Plan, notes that credits are purchased from one pre-existing private conservation bank, though the private landowner likely saw the Plan coming, and capitalized on the economic opportunity (A. Aurora, personal communication, August 28, 2014). Thus, while economic forces drive development patterns, it may also drive the locations of preserves. As take permits increase and land becomes more valuable, owners of undeveloped land containing habitat may find it more valuable to use the land for mitigation banking.

It is interesting to postulate what would have happened if Williamson had joined the RHCP that became the BCCP. According to representatives of all parties, there is little to no direct coordination between counties on transportation, conservation, or other issues. One possible outcome could have been to reduce the burden of planning twice for conservation of the same species in two neighboring counties, which, along with earlier implementation of a Plan in Williamson County, would likely have resulted in comparatively superior conservation. On the other hand, as Austin is the “900-pound gorilla” in the room, possessing the moist political power, it is possible that, as a single plan, Williamson would have provided the majority of the mitigation/preserve land due to its lower land prices. Over time, this could have constrained the eventual economic growth in Williamson County while driving up land prices, resulting in

regional land use pattern that would have contained Austin's northward sprawl, but handicapped Williamson's county ability for economic development.

D.10 Hays County Regional Habitat Conservation Plan

Table 16. Hays County RHCP Summary

Hays County Regional Habitat Conservation Plan	
Location	Hays County, Texas
Permit Year	2012
Permit Duration	30 years
Covered Area (Acres)	Entire county (434,335 acres)
Preserve Size	10,300 acres
Species	• golden-cheeked warblers • black-capped vireos • 40 “evaluation species” • 16 “additional species”
Permittees	Hays County
Planning Process	
Planning Process Length	7 years
Planning Process Participants	Hays County Commissioners Court
Management	
Agency	Hays County Commissioners Court
Type	County Government

Background

Hays County is located in central Texas, southwest of Travis County (see Figure 41). The county is largely rural, dominated by agricultural land. The county had a population of 194,000 people in 2015, but has been experiencing rapid growth in cities along the I-35 corridor between Austin and San Antonio. The Texas State Data Center forecasted a 41 percent increase in population in the county between 2000 and 2007, and a 385 percent population increase over the course of the permit life. The largest city in Hays County is San Marcos (population 60,684) and Kyle (population 39,060). Because Hays County is largely rural, the RHCP was initiated both to

undertake surveying for endangered species, and to streamline the permitting process in anticipation of rapid growth (Hays County Commissioners' Court, 2010; Marlin, 2009).⁹⁷

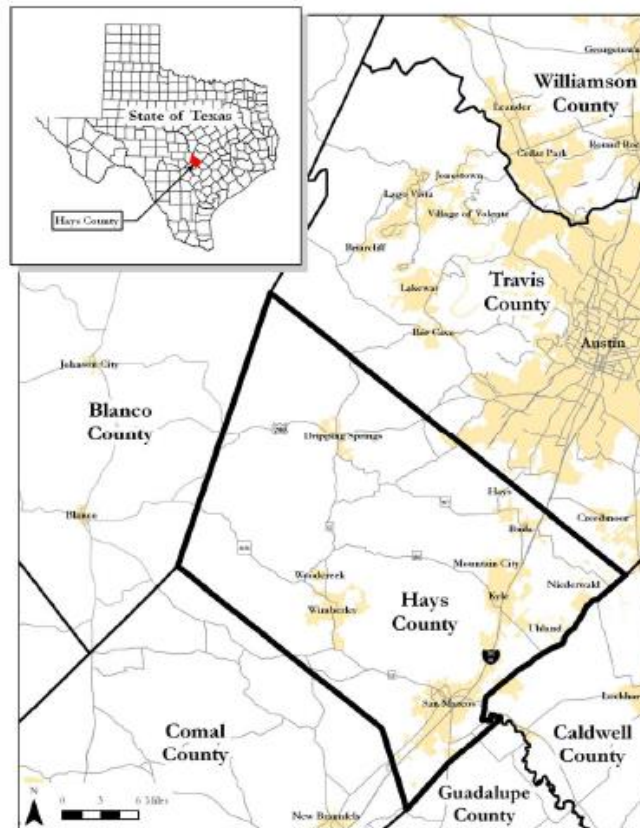


Figure 41. Hays County and Incorporated Cities.

Source: Hays County Commissioners' Court (2010).

Biology

Hays County shares part of the same ecosystem with Travis and Williamson Counties, providing habitat for the Golden-cheeked warbler and Black-capped vireo, similarly located predominantly in the Western portion of the county (Hays County Courthouse, 2013). Both species are considered “covered species” for the purpose of the RHCP. The county projects 57,700 acres of development over the 30-year permit, including 9,600 acres of public

⁹⁷ Even though Hays County is still largely rural and had not yet experience rapid growth on the scale of Williamson County, ITP permits are processed by the Austin Field office, which also processes permits for all of the RHCPs discussed in this research. AS of 2009, permitting for projects in Hays County took up to 2 years.

development. The RHCP will cover up to 9,000 acres of habitat loss for the warbler and up to 1,300 acres of habitat loss for the vireo resulting from participating projects. The County aims to acquire between 10-15,000 acres of preserve land to meet requirements for covered projects (Hays County Commissioners' Court, 2010).

Although Karst caves are found in Hays County, the RHCP does not cover take for karst species. Instead, the Hays County RHCP considers 40 species as “evaluation” species, which have the potential to be listed as endangered, but there is insufficient biological survey data to determine whether development in Hays County would lead to take. The 40 evaluation species include multiple Karst species covered in Travis and Williamson counties. The Hays RHCP posits that biological surveying and conservation required for the ITP may help preclude the need to eventually list these species (Hays County Commissioners' Court, 2010).⁹⁸

The Hays RHCP considers how pre-existing protected lands can contribute to achieving the preserves required under the permit. The county has large-acreage tracts of protected open space that does not have management specific to protecting endangered species. Under the Plan, Hays County aims to increase the ecological value of their preserve by acquiring smaller parcels adjacent to pre-existing open space, and pursues opportunities to partner with owners of pre-existing open spaces to institute a management program that may earn mitigation credits that can mitigate for take under the permit (Hays County Commissioners' Court, 2010).⁹⁹

⁹⁸ The plan also lists 16 “additional” species which includes endangered aquatic species found in the County for which coverage is being addressed by a multi-county aquatic HCP that is currently in the planning stage, and is beyond the scope of this research.

⁹⁹ The recommended acreage for a preserve to qualify as mitigation under the plan is a minimum of 500 acres. Hays will achieve this minimum in some cases by buying smaller parcels adjacent to already conserved open space. Note that this will not qualify as 500 acres of mitigation land, but will make the acreage of the smaller parcels qualify.

Planning

Planning for the Hays County RHCP was precipitated by the 2005 construction of the Winters Mill Parkway raising issues for ESA compliance (A. Glen, personal communication, August 28, 2014). Located in Golden-cheeked warbler territory, the Winters Mill Parkway connects the cities of Woodcreek and Wimberly on unincorporated land (Marlin, 2009). Since the county had passed a Road Bond in 2008, the county anticipated encountering similar challenges with ESA compliance hindering upcoming development. The final Plan focuses on ESA clearance for transportation projects, stating its primary goal is to “provide streamline process for ESA compliance for County-sponsored projects, such as the construction or improvement of roads, bridges, and other County infrastructure” (Hays County Commissioners’ Court, 2010, p. iii). The Plan is also compatible with the Parks and Open Space Master Plan developed by the county for its 2006 Parks and Open Space bond program (Hays County Commissioners’ Court, 2010).

Hays County formally began RHCP planning after receiving a \$733,000 FWS Section 6 Planning Grant in September 2005, and hired biological planning consultants in October 2006. Hays County held advisory team meetings between June 2007 and March 2009. In March 2009, Hays County submitted a draft Plan and EIS to FWS. During this period, Hays County began to acquire land to provide the needed initial preserve through a public call for potential preservation properties. In November 2010, the County used funds from a 2007 parks bond to purchase 800 acres of Warbler habitat that would be managed under RHCP guidelines and provide initial credits for species take throughout the county (The Mercury Staff, 2010). The Commissioners Court worked with the County Parks and Open Space Authority and the Nature Conservancy to evaluate the potential conservation value of existing parks and recreation lands. FWS approved

the final plan in May 2011 and issued the ITP in June 2012. Hays County Commissioners Court formally adopted the Plan in mid-2013.

Governance

Hays County staff manages implementation of the RHCP. RHCP administration will require a program manager, biologists, preserve rangers, and maintenance personnel. Either county staff or contracted outside staff and consultants will fill these positions (Hays County Commissioners' Court, 2010).

Depending on the pattern of development and land acquisition, preserve management has multiple options. Initially, County staff will perform preserve management, likely through a separately appointed preserve manager. The County may also enter agreements with "other municipalities, land trusts, conservation organizations, or other entities" to become part of the RHCP preserve system, pending approval by FWS so long as they adhere to management and monitoring as specified in the permit. As the preserve grows, the county may hire or contract with additional personnel to adequately manage and monitor the preserve (Hays County Commissioners' Court, 2010).

Transportation

Facilitating transportation projects was the primary goal of the RHCP, as stated in the Plan:

The RHCP will provide a streamlined process for ESA compliance for County sponsored projects, such as the construction or improvement of roads, bridges, and other County infrastructure. The RHCP was initiated in response to a need for ESA compliance during the planning and construction of Winters Mill Parkway near Wimberley. With the passage of the 2008 Road Bond program and the general obligation of the County to provide services to its growing population, other County projects are likely to require permitting through the ESA in the coming years. The RHCP will reduce the time and potentially the cost associated with obtaining incidental take authorization for future County projects by streamlining tasks such as assessing impacts and providing appropriate mitigation (Hays County Commissioners' Court, 2010, p. ES).

The Hays RHCP considers general future development based on demographic trends, and also includes development activities considered “reasonably certain to occur” (Hays County Commissioners’ Court, 2010). These include known planned and already approved subdivisions, and the Plan outlines the expected acreage of Road Bond transportation projects that will impact covered species habitat, a total of 1,003 acres (see Figure 42).

Census Tract ¹	Future Capacity in Existing Developments (approx. acres) ²	New Developments Seeking Local Approvals (approx. acres) ³	2008 Road Bond Proposed Transportation Projects (approx. acres) ⁴	All Reasonably Certain Projects (acres)
CT 010700		235	77	312
CT 010801	5,822	1,574	184	7,580
CT 010802	438	685	218	1,341
CT 010901	475	2,087	120	2,682
CT 010902	2,411	35	109	2,555
CT 010904	2,654	2,410	-	5,064
Total	13,341	10,197	1,003	24,541

¹Analysis limited to census tracts located substantially over the Edwards Plateau ecoregion.

²Based on analysis by Capitol Market Research with data from City of Buda, Dripping Springs, Kyle, San Marcos & Wimberley (April 2008). Acreage calculation assumes each developed lot covers approximately 1 acre.

³Based on data provided by Hays County, City of San Marcos, and City of Dripping Springs (October 2008).

⁴Projects identified in the "Hays County 2008 Road Bond Proposition." Acreage estimated based on the approximate project length (as mapped by the Hays County GIS department) and an estimated project width of 200 feet.

Figure 42. Reasonably Certain Road Projects Listed in the Hays County RHCP.

Source: Hays County Commissioners’ Court (2010).

Between 2000 and 2010, the county’s population increased 60 percent, and road development lagged behind the county’s growth (Hays County Government, 2012). Hays County adopted a countywide transportation plan in 2014, after the Plan was permitted, but as shown in Figure 43, most projects are located within the boundaries of incorporated cities and their ETJs (Hays County Government, 2014).

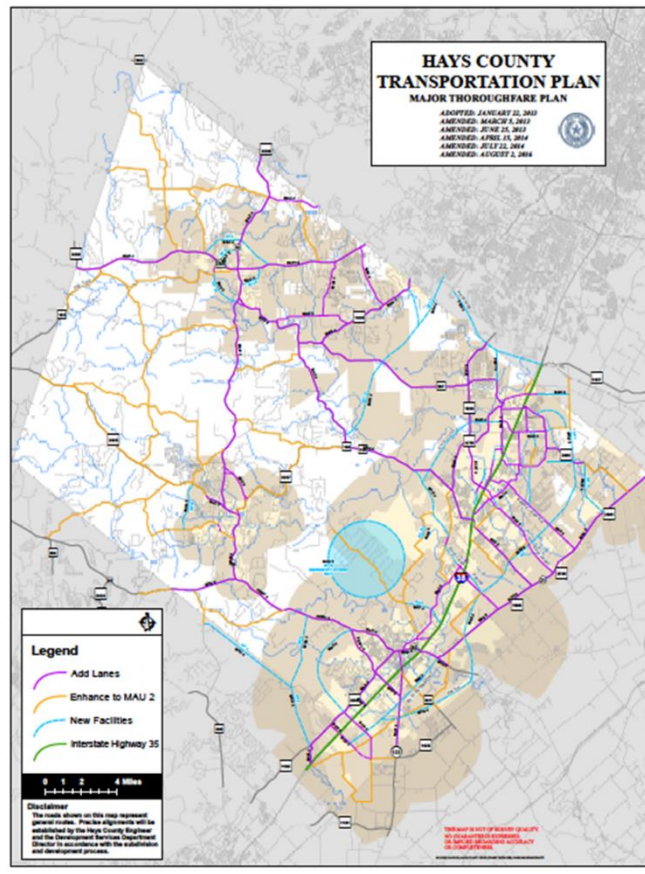


Figure 43. Hays County Transportation Plan Map (2016).

Source: Hays County (2013).

Since permitting, there has been minor road construction in Hays County. Projects include two major road safety projects in 2014, widening existing roads to add center turn lanes and shoulders (Ibarra, 2014). TxDOT completely funded one such project, while TxDOT and the County shared funding burdens on the other. Both projects required tree removal, causing possible impacts to endangered Warbler and Vireo species (Ibarra, 2014).

In 2016, voters approved an additional transportation bond program (Proposition 2) expected to fund \$131 million in transportation projects (described in Figure 44), but the list of prioritized projects is not yet finalized and remains subject to change based on population growth and the availability of state and city matching funds (Hays County Government, 2016a; B. Thorne, 2016). The County dedicated \$22.5 million of the bond revenue to “drainage and low-

water crossing improvements, bike-pedestrian improvements, and environmental mitigation and conservation projects” (Hays County Government, 2016a).

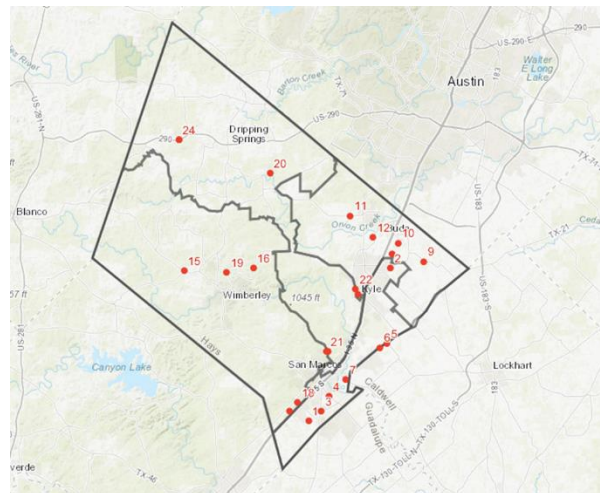


Figure 44. Hays County Proposition 2 Road Projects.

Source: Hays County Government (2016b).

The planned alignment of SH 45, located mostly in Travis County, extends into Hays County to alleviate congestion for commuters. The Plan does not include SH 45 construction as reasonably foreseeable, possibly because it is a TxDOT project and because of injunctions during RHCP planning. The Hays County Commissioners Court, however, strongly supports SH 45 (Hays County Government, 2012), with Hays County contributing \$5 million towards its construction. TxDOT is sponsoring the project, but could potentially acquire preserves in in Hays County as mitigation land.

Regional Planning

Like Williamson County, state law prevents Hays County from designating any land for conservation preserves unless the County can demonstrate that it has funding to acquire the properties within four years. Additionally, Hays County has comparably less available ecological survey information, preventing the County from identifying vireo habitat that could require permit coverage in the Plan. The County intends to use the RHCP to identify this habitat over the

life of the permit (Hays County Commissioners' Court, 2010). Instead the County made "unofficial" maps of potential habitat for covered species and Karst habitat available to the public to inform landowners of potential ESA issues and possibly guide development decisions at the margins (A. Glen, personal communication, August 28, 2014).

Proponents of potential projects that may need coverage from the RHCP would receive guidance about USFW review and RHCP compliance. In essence, Texas laws that bar mandatory RHCP participation or preserve delineation meant that Hays County can only encourage participation by facilitation and not regulation. The RHCP therefore has little influence on regional planning beyond providing information that may guide development away from sensitive habitat at the margins.

While regional planning is lacking in Texas, counties can exert control over land use through the administration of voter approved bond measures. For example, Hays County passed a \$30 million Parks and Open Space Bond in 2006, which included funds to purchase sensitive habitat for preservation (A. Aurora, personal communication, August 28, 2014). While Hays cannot name specific targets for acquisition under the RHCP, they could piggy-back on targeted conservation areas specified in the open space plan for mitigation purposes (Hays County Commissioners' Court, 2010; The Mercury Staff, 2010). This included a 1,000-acre acquisition using Parks bond funds that provided part of the initial preserve requirements for the RHCP (The Mercury Staff, 2010).

The Plan website and the consultants familiar with the area stress that that participation in the RHCP is largely predicated on economic incentives. The website reassures private land owners that the county "constantly considers options to reduce costs and enhance flexibility for landowners" (Bowman Consulting Group, 2013). Nonetheless, the predilection for developers of

larger parcels to continue seeking their own ITP remains one of the major challenges facing the plan.

D.11 Comal County Regional Habitat Conservation Plan

Table 17. Comal County RHCP Summary

Comal County Regional Habitat Conservation Plan	
Location	Comal County, Texas
Permit Year	2013
Permit Duration	30 years
Covered Area (Acres)	Entire County (359,328 acres)
Preserve Size	• 5238 acres golden-cheeked warbler habitat. • 1000 acres black capped vireo habitat
Species	• Golden-cheeked Warbler • Black-capped Vireo
Permittees	Comal County
Planning Process	
Planning Process Length	7 years
Planning Process Participants	Comal County Commissioners' Court
Management	
Agency	Comal County
Type	County

Background

Comal County is located in Texas Hill Country, bordering Hays County to the Northeast and San Antonio County to the Southwest. Comal County is primarily rural. The population is 129,000 as of 2015, though estimates at the time of the permit projected that the population will grow to 306,000 by 2040. Figure 45 shows a map of the County, including the largest city in the County is New Braunfels, with almost 74,000 residents.

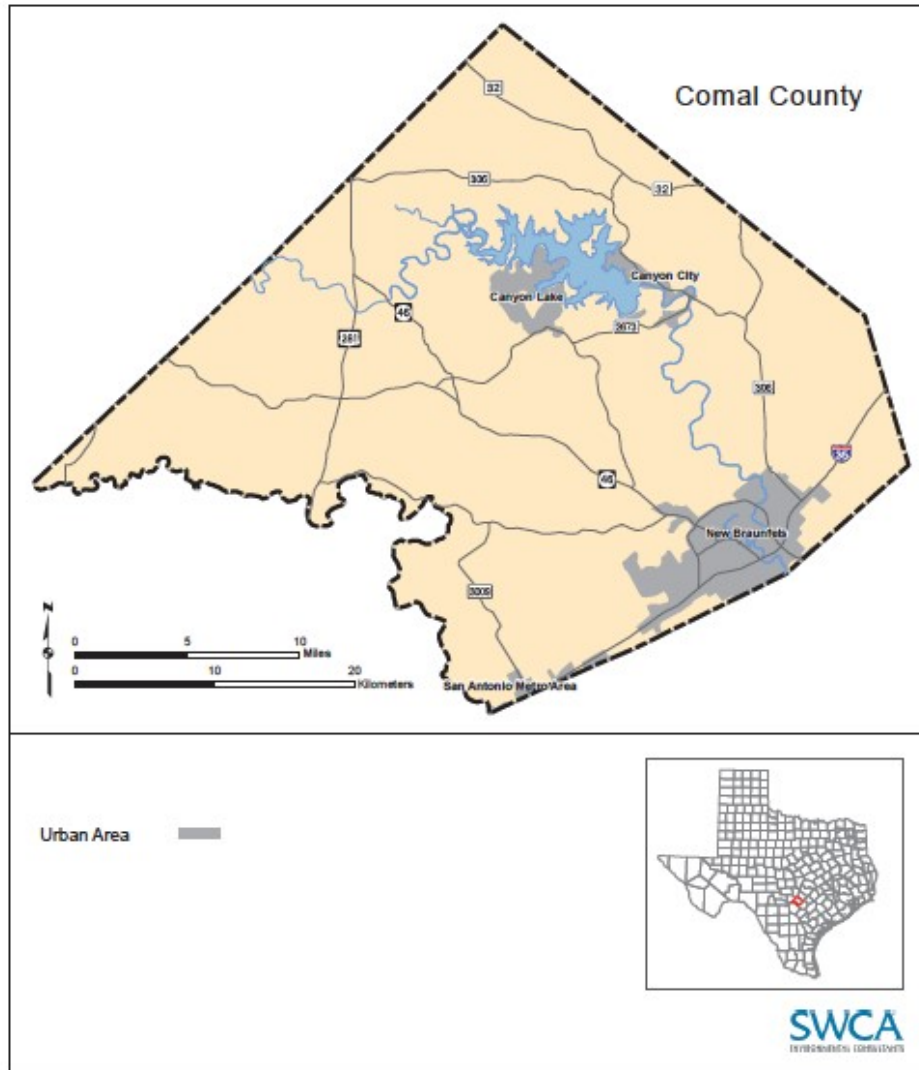


Figure 45. The Comal County Permit Area.

Source: Comal County Commissioners Court (2009).

The Plan describes the rapid growth in the county, stating, “the rural character of the County is losing ground to new subdivisions, commercial property, and other developed land uses. The platting and construction of residential subdivisions is quickly fragmenting the large and contiguous patches of juniper-oak woodland habitat that are most valuable for endangered wildlife” (Comal County Commissioners Court, 2011). As the Plan states: “Most of the rapidly growing communities in central Texas recognize the need to conserve habitat for endangered species and protect water resources” (Comal County Commissioners Court, 2009). The Comal

County RHCP recognizes the significant efforts at conservation in surrounding counties, but refers to a “conservation” gap for the bird species by not including Comal County (Comal County Commissioners Court, 2009).

Biology

The RHCP covers two federally-listed endangered species: two song birds (black-capped vireo and golden-cheeked warbler). A discussion of these species and their habitat is described in the Biology section of the BCCP case study above. The Plan predicts that development over the life of the permit will impact up to 10,476 acres of Warbler Habitat. Depending on the participation rate in the Plan (in a range of 20-50%), the RHCP will cover between 2,095 and 5,238 acres of development in Warbler Habitat (Comal County Commissioners Court, 2009; U.S. Fish and Wildlife Service, 2013). Figure 46 shows potential GCW habitat in the county, and notably does not map habitat within incorporated city boundaries.

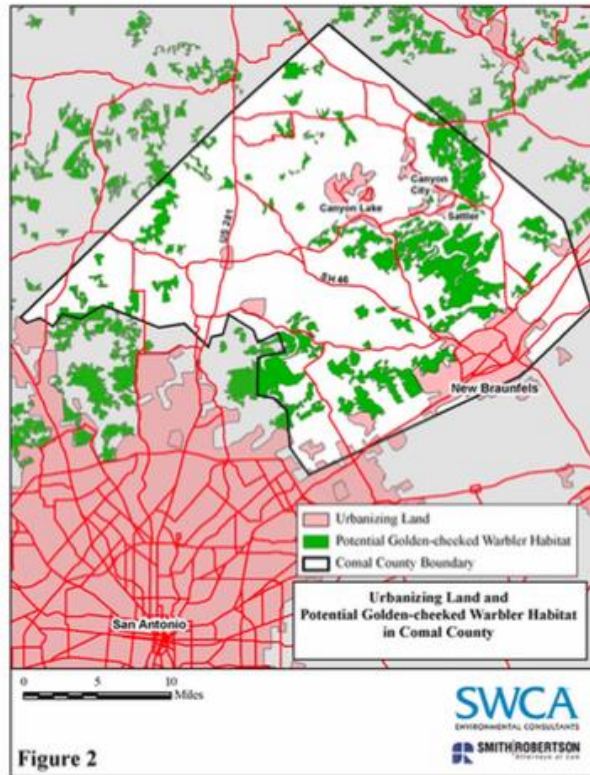


Figure 46. Urbanizing Land and Potential Golden-cheeked Warbler Habitat in Comal County.

Source: Comal County Commissioners' Court (2004)

Potential Vireo habitat is scarce in Comal County, estimated at less than 1000 acres, but the County admits potentially substantial Habitat that has not yet been identified. The Plan thus does not list a fee for “take” of Vireo habitat, and does not have defined strategy for acquiring mitigation credits. The Plan document does not feature a map of potential Vireo Habitat (Comal County Commissioners Court, 2009).

Similar to Hays County, the Plan includes flexibility for amendments to possibly address Karst cave-dwelling “evaluation” species not currently listed as endangered. FWS led the County on what species to cover, and recommended covering the songbirds and not the karst species for a few possible reasons (T. Hornseth, personal communication, October 4, 2017).

First, while the county likely contains Karst habitat, said habitat remains unidentified, and identifying possible habitat containing the evaluation species in question would prove cost prohibitive (Comal County Commissioners Court, 2009). Secondly, the plan manager theorizes that FWS wanted to deal with possible take of Karst species on a per-project consultation basis because of weaknesses in Karst preservation in other plans, and partially because the species remain unlisted (T. Hornseth, personal communication, October 4, 2017).

If these species are eventually listed, the Service will take into account the degree to which existing mitigation for covered species under the RHCP may apply to evaluation species. Next, they will determine if they can adjust conservation or management within the bounds of the permit to protect the newly listed species. Lastly, the plan is written with the flexibility to seek an amendment to add these species if current conservation efforts do not suffice (Comal County Commissioners Court, 2009). This may be a wise move in the face of uncertainty, as the species are a) not yet listed b) may not be present to a high degree within Hays County and c) though unlikely, could be sufficiently covered under earlier Plans in other counties by the time they are listed and development in Hays county increases.

Mitigation Struggles

Comal County faces some obstacles to successful acquisition of preserve land that satisfies the permitting conditions. The Plan lays out three methods to acquire mitigation preserves: 1) fee simple purchase of habitat; 2) public/private cooperation (e.g., conservation easements); and 3) private conservation banks. Under the mitigation requirements of the plan, mitigation parcels for golden-cheeked warbler must have a minimum of 500 acres of high quality habitat (Comal County Commissioners Court, 2009). However, Comal County has relatively small parcels of land in the Plan area, often not meeting the size requirement (A. Aurora,

personal communication, August 28, 2014; T. Hornseth, personal communication, October 4, 2017).

Only two projects within Comal County have used the new and underutilized, plan, for mitigation, both quarries on unincorporated land. The RHCP was unable to find suitable mitigation land, and eventually purchased credits from a privately-owned mitigation bank in Bandera, a neighboring County (T. Hornseth, personal communication, October 4, 2017).

Additionally, during RHCP planning, LCRA paid the RHCP for mitigation required for a project in a neighboring county. FWS gave the RHCP a deadline to acquire land, which has received further extensions, as the RHCP has not acquired suitable land. The Plan manager says that, if they cannot find suitable land they will likely use the same mitigation bank in Bandera County.

The RHCP's inability to find suitable mitigation land within the county is not for lack of trying, as they have been "beating the bushes" for four years. They have negotiated with the owners of 5 or 6 potential preserve acquisitions interested in selling, but the parcel was either too small or too low quality. The County staff made a map of habitat and potential parcels over 600 acres for internal use, and he acknowledges the lack of many options for mitigation land.¹⁰⁰ Due to this, the likelihood of an established preserve in Comal County is remote, especially as the economic development in the county increases. It would be politically unpalatable to purchase reserve land in other counties (especially because the RHCP was oriented towards preserving open space and not towards facilitating development). Thus the RHCP will continue to use

¹⁰⁰ This map was not shared with me as it has not been made public, partially because the habitat has not been fully surveyed so it is only likely, and partially because they do not want to be seen as "designating" any land for potential preserves as it runs into the time limit under Texas state law and could be seen as a taking.

private mitigation banks, and may shut down if they are unable to find suitable mitigation options.

Planning Process

The goal of the Plan, as described by the Plan is to:

*...provide landowners with a means to develop their property in compliance with the ESA with less processing cost and time than the individual permit process requires. **Moreover, an incidental benefit of the RHCP will be the preservation of natural open space in the County at a lower cost to taxpayers than would be likely without an RHCP (emphasis added)** (Comal County Commissioners Court, 2009, p. vii).*

According to the County engineer in charge of planning and managing the implementation of the Comal County plan, the Comal County plan was driven by the desire to preserve the rural character of the county and its open-space in the face of encroaching development (T. Hornseth, personal communication, October 4, 2017). The Plan was prepared by the same consultants as Williamson and Hays County RHCP, one of whom describes the impetus for the plan as a “desire by old timers to preserve the Hill County while being very conservative” (A. Glen, personal communication, August 28, 2014). The County Commissioners thought that charging people for mitigation could create funding for preserves, and did not specifically aim to facilitate projects. County residents simultaneously supported the Plan’s intent for open space preservation, but criticized the Plan for actually facilitating development, particularly for quarry operators in unincorporated land (T. Hornseth, personal communication, October 4, 2017).

With the goal of open space preservation in mind, Comal County received a \$612,000 Section 6 planning grant in September 2006, and used this money to begin formal planning (Comal County Commissioners Court, 2009). The County would likely not have pursued a regional conservation plan without the contribution of Federal funding under Section 6, and in

fact viewed the availability of Federal funding for conservation a reason to form an RHCP. The County Commissioner Court led planning, and as required by Texas law, with input from the Citizen's Advisory Committee and Biological Advisory Committee. City officials did not participate in the planning (T. Hornseth, personal communication, October 4, 2017).

Governance

The County, through its Commissioners Court, formally manages the RHCP, with FWS as an overseer. The county engineer who participated in the planning “inherited” management of implementation. In addition, the Citizen's Advisory Committee includes people from the following organizations, but not in an official representative capacity (Comal County Commissioners' Court, 2004):

- FWS
- Texas Parks and Wildlife Department
- Texas Department of Transportation
- Texas Commission on Environmental Quality
- Comal County
- The Nature Conservancy - Texas Chapter
- Environmental Defense
- Hill Country Conservancy
- New Braunfels Board of Realtors
- The cities of New Braunfels, Garden Ridge, Bulverde, Schertz, Selma, Fair Oaks Ranch
- Comal Independent School District
- New Braunfels Independent School District

Transportation

Led by the desire for open space preservation, and still a largely rural county, transportation plays little role in the Comal County RHCPs. While road construction is a “covered” activity, it is not one of the Plan's main goals. In the last 25 years the County has not built any new roads, reinforcing the description of Comal as a rural county. The County has

performed maintenance and minor expansions of existing roads, but it did not impact any potential habitat. Private developers built the only new roads as part of subdivisions, none of which have utilized the RHCP for mitigation (T. Hornseth, personal communication, October 4, 2017).

In a presentation by the consultants who authored the Plan, they noted the cyclical relation between private and infrastructure development, and sold upcoming infrastructure needs as a reason to form a plan. That said, TxDOT and/or local cities have carried out all major projects, and the Plan representative did not know how they were mitigated, if they even required mitigation. These include:

- FM 306 in New Braunfels
- FM 2252
- Intersection of SH 46 and US 381
- SH 46 section in New Braunfels
- 281 improvements to northern county border

During the planning and early phases of implementation, the county experienced rapid growth in the area surrounding the City of New Braunfels, a suburb of San Antonio. As shown in Figure 47 and Figure 48, New Braunfels created its own regional transportation plan (The City of New Braunfels, 2012). The ETJ system means that most planned roads located outside the current developed area, that will help accelerate urban growth, are under jurisdiction of the city.

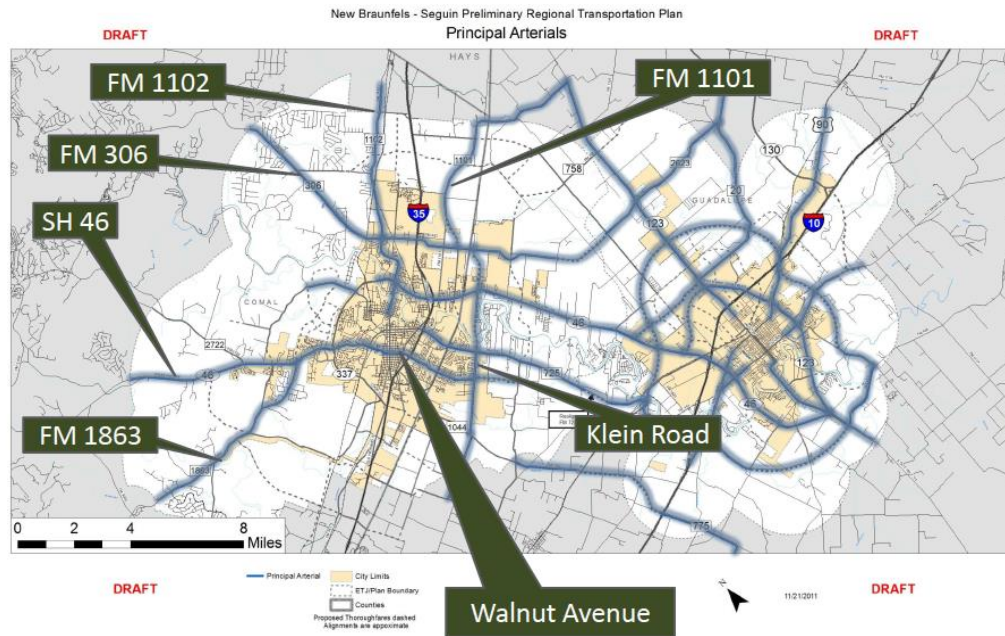


Figure 47. Principle Arterials in the New Braunfels Transportation Plan.

Source: The City of New Braunfels (2012).

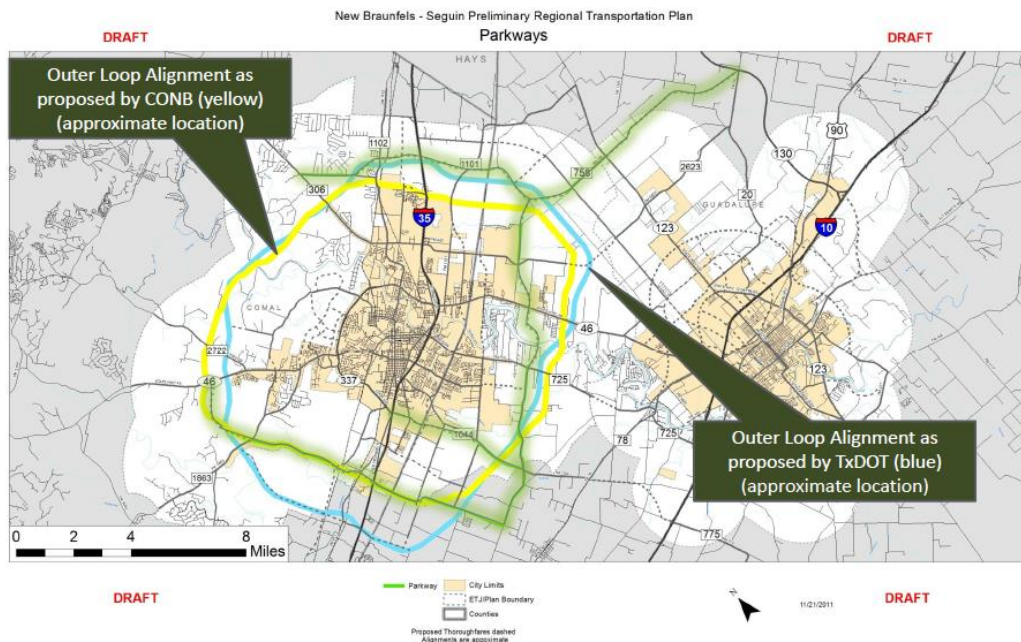


Figure 48. Proposed Alignment of the New Braunfels Outer Loop.

Source: The City of New Braunfels (2012).

According to the plan representative, New Braunfels did not work with the County or the RHCP in developing their transportation plan, and he does not know if they intend to use the RHCP for required mitigation. This further underscores the lack of participation by cities in both the RHCP and countywide transportation planning.

Regional Planning

As with other plans, the Comal County Plan states that participation is purely voluntary:

Participation in the RHCP will be purely voluntary, and public and private entities may choose to obtain authorization for take through avoidance, through an ESA section 7(a)(2) consultation, or through an individual incidental take permit. At no time will the County require any individual or entity to participate in the RHCP, nor does this RHCP create new or additional restrictions on property or requirements upon landowners within Comal County (Comal County Commissioners Court, 2009, p. 1.2).

The Comal County RHCP has little direct impact on regional planning, and the Plan manager repeatedly underscored the lack of regionalism, or planning, in Texas. As discussed above, counties in Texas can only do what is expressly authorized by statute, whereas cities have all powers except what is explicitly barred by statute. These city powers extend into the ETJ, and 40 percent of Comal county land is in an incorporated city or its ETJ. In terms of regional planning, counties have no zoning powers, even on unincorporated land. Counties also do not engage in transportation planning, as only cities and TxDOT give projects lists to MPOs (T. Hornseth, personal communication, October 4, 2017).

He goes as far to specify that only private property owners use the plan so “cities” cannot participate. He was unaware of whether individual landowners had pursued single project HCPs with USFW, or had encountered any potential take that would warrant mitigation. In the end, cities do not endeavor to involve themselves in the enforcement of a federal law issue (T. Hornseth, personal communication, October 4, 2017).

The Comal County Plan shares many similarities to (and is subject to the same state law limitations) the Williamson County Plan discussed above, but the Plan is comparatively simplified in two ways. First, it does not cover Karst Habitat. Second, as much as Williamson compared itself to the BCCP as being early in the growth curve, Comal currently retains almost all of its rural character, specifically aiming to preserve that character with the formation of an RHCP.

Thus in the way that Williamson County is unable to exert direct control over land use in the area, or designate preserve land, Comal County government exerts even less power through the RHCPs. This is particularly evident because, while it protects the same two songbirds, it does not directly cover Karst species, which have the most potential to guide development due to their onerous mitigation requirements.

Even though it is largely undeveloped, Comal County may have difficulty meeting the minimum preserve size requirements of at least 500 acres under the permit due to the small parcel size throughout the county. While most of the counties in Hill Country have larger parcel sizes as they get further from I-35, Comal County does not (A. Aurora, personal communication, August 28, 2014). Because the Plan cannot designate potential preserves, the County must strive to acquire adjacent parcels to meet the minimum requirements set by FWS, and to benefit from the economies of scale that make RHCPs cost effective and biologically superior compared to per-project permitting. Additionally, the public knowledge that Comal County will have to target a limited number of suitable parcels for acquisition may create a holdout problem, driving up the price of acquisition among those who know the Plan “needs” their land.

In the context of weak county governance and little city participation, the County considered an alternative in which the RHCP covered projects on exclusively on county land,

mostly road construction and maintenance projects. They rejected this alternative because: 1) county projects would contribute such a minor part of the incidental take in the County that they feared the inability to establish a meaningful preserve, 2) it would only marginally reduce the workload of the service in processing permits, and thus not streamline private projects within the county, and 3) this would not encourage “broader compliance by providing more efficient ESA compliance alternatives...” (Hays County Commissioners’ Court, 2010, p. 9.8).¹⁰¹

The rural nature of Comal County, and the formation of an RHCP so early in the growth curve, reveals one of the foremost debates about the nature of RHCPs, and particularly its facilitation of transportation projects. More urbanized counties in both California and Texas look to expedite the arduous permitting process, hopefully while striking a delicate balance with conservation. Tom Hornseth stressed that under the RHCP, getting an environmental permit for development has a literal meaning: “...it *permits* development to happen under certain constraints.” Many people in Comal County, however, regard facilitating, or even allowing, economic development, and the Plan has been divisive and thus far underutilized (T. Hornseth, personal communication, October 4, 2017).

¹⁰¹ Since the Plan is developed through negotiation with FWS, rejection of an alternative is subject to both the needs of the county and FWS.

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