

6. CUMULATIVE EFFECTS

A technical report describing the detailed analysis conducted to assess cumulative impacts associated with the proposed project is provided in **Appendix Q: Cumulative Impacts Analysis Technical Report**. The analysis in the technical report was developed using TxDOT's 2016 *Cumulative Impacts Analysis Guidelines*, in accordance with NEPA, TxDOT, and AASHTO policies and guidance (TxDOT, 2016). Key steps in the analysis and major findings from this report are summarized below. The *Cumulative Impacts Analysis Technical Report* will be updated before publication of the FEIS to reflect TxDOT's and the Mobility Authority's decision to pursue non-tolled mainlanes for this project.

6.1 Scoping and Resource Study Areas

Scoping for the proposed project, including cumulative impacts, was conducted via the following methods: regular coordination among the project team and the proposed project's sponsors and stakeholders, agency stakeholder meetings, public involvement through public information meetings, and information obtained after the distribution of an indirect impacts questionnaire to local planning entities via e-mail and phone interviews. The scoping process, in addition to the direct and indirect impacts analyses, led to the identification of key resources for detailed cumulative impacts analysis. The following resources are analyzed in detail in **Appendix Q Cumulative Impacts Analysis Technical Report** for potentially substantial cumulative impacts: threatened and endangered species, groundwater, and surface water. For each resource analyzed for cumulative impacts, resource study areas (RSAs), goals, trends, and current conditions were established. **Figure 6-1** depicts the RSAs. Additionally, cumulative energy impacts were also analyzed.

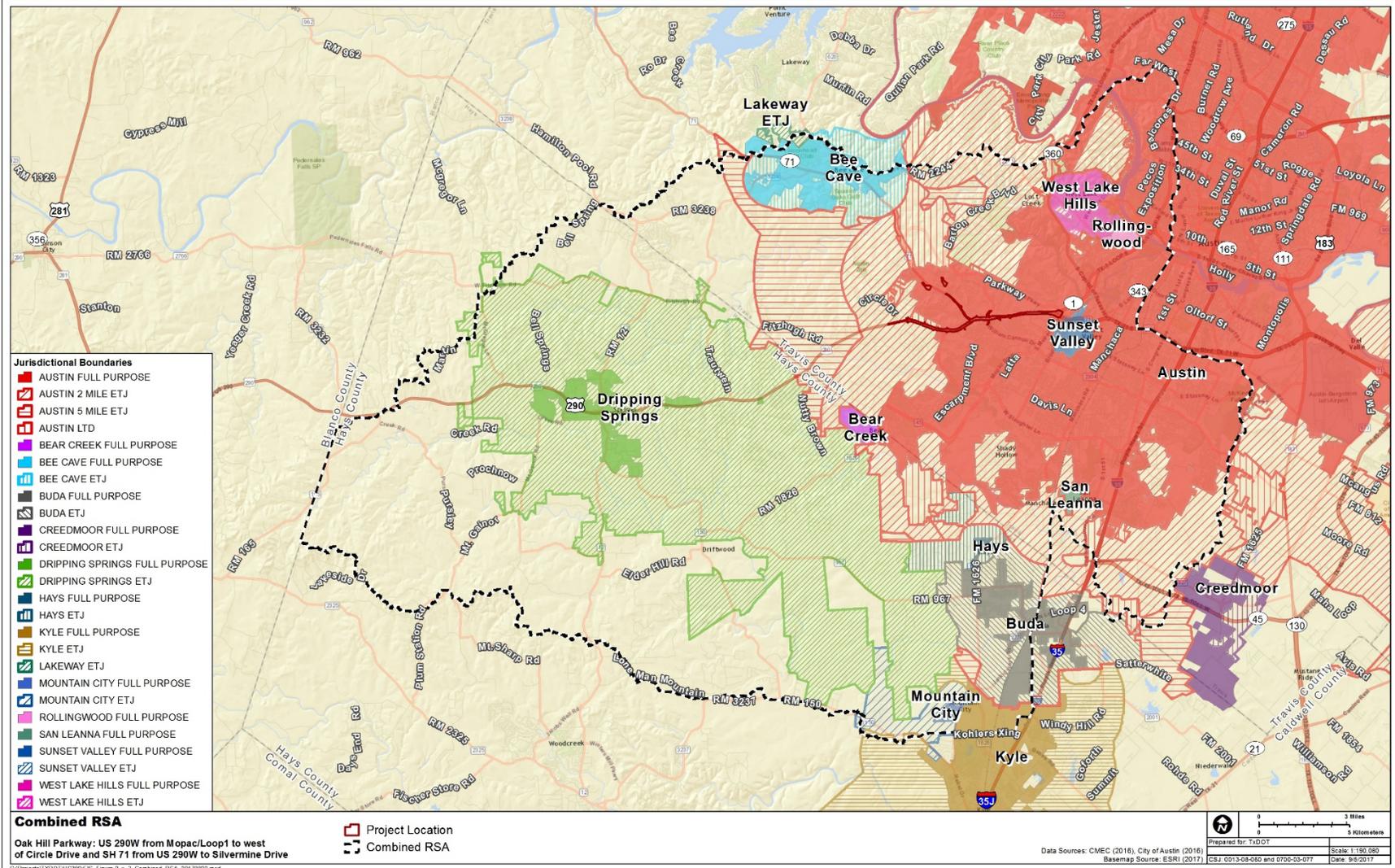


Figure 6-1. The OHP Project combined RSA.

The *Cumulative Impacts Analysis Technical Report* considered the ABS and BSS and their habitats, in addition to groundwater and surface water resources; discussed the health of these resources and relevant trends; and identified specific RSA boundaries and appropriate temporal boundaries for the analysis. Direct and potential indirect impacts are summarized for each sensitive resource. Past, present, and reasonably foreseeable actions are identified through research, interviews, and cartographic analysis. The construction of the proposed project was considered in conjunction with these other actions to consider cumulative impacts. This analysis provided detailed information about sensitive resources within the RSAs for the US 290/SH 71 OHP Project and described the extensive controls that have evolved over time to help protect these resources.

In addition to researching various published documents and plans, a simple questionnaire explaining the proposed project and requesting information about other actions was distributed to several entities, including the cities of Austin, Bear Creek, Bee Cave, Dripping Springs, and Sunset Valley, as well as Hays and Travis Counties. Additional research was conducted to identify transportation plans and future land use plans in smaller communities such as Dripping Springs. See **Figure 6-1** for a map depicting the boundary of the combined RSAs, which was established to identify other actions within that study area. A combination of planner interviews, cartographic techniques, and technical expert research and data collection was used in order to assess the overall effects of the proposed project combined with other actions within each RSA. The *Cumulative Impacts Analysis Technical Report* analyzes sensitive resources within the RSAs and describes the extensive controls that have evolved over time to help protect these resources.

6.2 Analysis Results: Watersheds, Water Quality, and Threatened and Endangered Species

Implementation of *Build Alternative A* or *C* would add a total of approximately 74.0 acres of impervious cover within the Recharge Zone of the Edwards Aquifer. Research has shown a strong correlation between the imperviousness of a watershed and the health of its receiving streams. Past activities have resulted in the development of and changing land uses in the watersheds within the RSAs. The extent of past growth is evident in the change in impervious cover in all watersheds in the groundwater RSA over time: 1970 (1.9 percent), 1990 (4.6 percent), 2012 (8.0 percent), and 2016 (9.0 percent).

As the trend for growth in the Austin area continues, the trend for increased impervious cover in the watersheds in the RSA is expected to continue. The various land use plans identified in the technical report indicate that the municipalities within the RSA anticipate future development, along with the preservation of open space. As discussed in the technical report, the correlation between increased impervious cover and decreased surface water quality is strong. However, with current regulatory measures and future planning efforts to protect water quality, future development would be less likely to adversely affect surface and groundwater quality when compared to the past.

Minimization of impacts to sensitive resources would be achieved through specific design measures and BMPs implemented for the proposed project, and similar requirements would be applicable to developers throughout a large portion of the RSAs, especially where construction is proposed over the Recharge and Contributing Zones of the Edwards Aquifer. Mitigation measures are required for impacts to endangered species habitat, and there are Habitat Conservation Plans (HCPs) in place in Hays County and Travis County (along with the COA) that provide a framework in which developers can comply with the ESA. The larger municipalities with jurisdiction within the RSA all have land development code requirements and plans for their future land use and transportation networks that generally reflect a common commitment to sustainable development. The conservation entities charged with protecting endangered species and sensitive resources have plans in place to continue to protect sensitive habitats. A large portion of land within the RSAs would be protected in perpetuity through conservation easements or WQPLs specifically acquired for that purpose.

6.3 Conclusion

Direct impacts that would be caused by the proposed project would be limited in part by the implementation of extensive BMPs before, during, and after construction. Given the conservation initiatives underway within the RSAs and the incremental contribution the proposed project would make toward induced development in the AOI, within the context of the continuing development trends, the proposed project is not anticipated to result in substantial adverse indirect impacts to sensitive resources. The proposed project, in conjunction with other past, present, and reasonably foreseeable future projects, may contribute to cumulative impacts but is not likely to cause significant cumulative impacts to the resources assessed in this analysis.