Appendix Q: Criteria Refinement Analysis Relocation of Proposed Constrained Linkage 1

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CRITERIA REFINEMENT ANALYSIS

RELOCATION OF PROPOSED CONSTRAINED LINKAGE 1

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December 12, 2023

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EXHIBITS

1.0 INTRODUCTION

This document summarizes a Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Criteria Refinement proposed by the City of Corona to relocate the alignment of Proposed Constrained Linkage 1 (PCL-1) to an alternate location. Due to several constraints associated with the existing alignment of PCL-1, the conceptual relocation of the Linkage has been discussed multiple times over the past 15 years, including through the submittal of a prior analysis in 2016. Although a Criteria Refinement was not approved in 2016, the underlying need for the refinement has been generally acknowledged by the City of Corona (City), Regional Conservation Authority (RCA), and the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife (collectively the "Wildlife Agencies").

This Analysis presents that the proposed Criteria Refinement would be at least equivalent to the existing Criteria as it applies to Effects on Habitats, Effects on Covered Species, Effects on Core Areas, Effects on Linkages and Constrained Linkages, Effects on Non-Contiguous Habitat Blocks, Effects on MSHCP Conservation Area Configuration and Management, Effects on Ecotones, and Acreage Contributed to the MSHCP Conservation Area.

2.0 LOCATION

PCL-1 is in the northwestern portion of Western Riverside County, near the San Bernardino and Orange County lines [Exhibit 1 – Regional Map]. Lands associated with existing PCL-1 are located within both sectioned (31) and un-sectioned portions of Township 3 South, Range 7 West, as depicted on the Black Star Canyon and Prado Basin 7.5" U.S. Geological Survey (USGS) quadrangle maps [Exhibit 2 – Vicinity Map].

The proposed alternate alignment for PCL-1 includes 11 parcels, including one parcel that is already conserved as Additional Reserve Lands (101-180-036), and ten parcels intended for acquisition by the RCA (101-210-003, 101-201-004, 101-201-012, 101-201-013, 101-201-015, 101-201-016, 101-201-018, 101-201-020, 101-201-022, and 101-201-023). The area proposed for conservation to support the alternate PCL-1 alignment is depicted on Exhibit 3 [Proposed Criteria Refinement]. Table 2-1 lists the APNs for the alternate alignment.

Table 2-1. APNs for the Alternate PCL-1 Alignment

APNs	Cell
101-180-036*	1702, 1811
101-210-003*	1702, 1811
101-201-004	1811, 1812
101-201-012	No Cell
101-201-013*	1812, 1896, 1898
101-201-015	No Cell
101-201-016	No Cell
101-201-018	No Cell
101-201-020	No Cell
101-201-022	No Cell
101-201-023	No Cell

3.0 CRITERIA REFINEMENT

3.1 Proposed Constrained Linkage 1 (Existing)

The MSHCP defines a constrained linkage as a "constricted connection expected to provide for movement of identified Planning Species between Core Areas, where options for assembly of the connection are limited due to existing patterns of use." As described in *Section 3.2.3* of the MSHCP, PCL-1 is intended to connect Existing Core A (Prado Basin/Santa Ana River) with Existing Core B (Cleveland National Forest) to the south. Existing urban Development constrains the Linkage at its northern terminus, including State Route (SR) 91, the Burlington Northern Santa Fe (BNSF) railroad line and Green River Road, although the Linkage is unconstrained in the south. Despite these constraints, the MSHCP recognizes that PCL-1 likely provides for movement of mountain lion (*Puma concolor*) and bobcat (*Lynx rufus*) from the Santa Ana Mountains to the Chino Hills area beyond the Plan Area. Maintenance of contiguous habitat blocks with appropriate refugia for resting, such as rockpiles, brush piles, windfalls, hollow snags and hollow trees, is important for dispersal of juveniles in this proposed Linkage. Additional PCL-1 Planning Species include the coastal California gnatcatcher (*Polioptila californica californica*) and Cooper's hawk (*Accipiter cooperi*).

The MSHCP defines a Constrained Linkage as a "constricted connection expected to provide for movement of identified Planning Species between Core Areas, where options for assembly of the connection are limited due to existing patterns of use." PCL-1 is intended to connect Existing Core A (Prado Basin/Santa Ana River) with Existing Core B (Cleveland National Forest) to the south and is expected to provide for movement of mountain lion (*Puma concolor*), bobcat (*Lynx rufus*), and other wildlife between the Santa Ana Mountains and the Chino Hills area that lies beyond the MSHCP Plan Area. Additional PCL-1 Planning Species include the coastal California gnatcatcher (*Polioptila californica californica*) and Cooper's hawk (*Accipiter cooperi*). Although the current alignment of PCL-1 is unconstrained to the south, there are a

number of existing land uses that constrain PCL-1 at its northern terminus, including State Route (SR) 91, the Burlington Northern Santa Fe (BNSF) railroad line and Green River Road.

The existing PCL-1 alignment is in the northwestern corner of Riverside County, near the San Bernardino and Orange County lines [Exhibit 1 – Regional Map]. Lands associated with existing PCL-1 are located within both sectioned (31) and un-sectioned portions of Township 3 South, Range 7 West, as depicted on the Black Star Canyon and Prado Basin 7.5" U.S. Geological Survey (USGS) quadrangle maps [Exhibit 2 – Vicinity Map]. Exhibit 3 [PCL-1 Overlay Map] provides the approximate location of the existing PCL-1 alignment, along with Public/Quasi-Public (PQP) Conserved Lands associated with existing Core A and Core B.

The MSHCP identifies seven Criteria Cells (1702, 1704, 1811, 1812, 1896, and 1898) within the Temescal Area Plan (Subunit 1 – Santa Ana River to Santa Ana Mountains) where conservation lands are described for the assembly of PCL-1 [Exhibit 3]. Each Independent Cell and Cell Group has specific Criteria that describes the amount of each Cell or Cell Group to be conserved, the intended location of the conservation within the Cell or Group, specific Habitat types that are to be conserved, and any applicable Cores or Linkages that conserved land is to support. The acreage of described conservation is based on a percentage of the Cell or Cell Group, expressed either as a specific percentage goal or as a percentage range. The acreage of described conservation for each Cell or Group is calculated using the percentage goal and the gross acreage of the Cell or Cell Group. The Criteria for the six Cells are provided below in Table 3-1. Altogether for the six Criteria Cells, approximately 328.30 acres[1] are described for conservation for PCL-1. Table 3-1 also includes the gross acreage for each Cell and the approximate amount described for conservation.

[1] The 328.30-acre total is based on a boundary drawn by GLA estimating the overall area of PCL-1 from an interpretation of the Criteria for each Cell making up PCL-1.

Table 3-1. Cell Criteria for PCL-1

Cell	Gross Cell Acreage	Criteria	Described for Conservation
1702	187	Conservation within this Cell will contribute to assembly of Proposed Constrained Linkage 1. Conservation within this Cell will focus on coastal sage scrub and grassland. Areas conserved within this Cell will be connected to coastal sage scrub habitat proposed for conservation in Cells #1704 to the east and #1811 to south. Conservation within this Cell will range from 20%-30% of the Cell focusing on the eastern portion Cell.	37.4 to 56.1 acres
1704	185	Conservation within this Cell will contribute to assembly of Proposed Constrained Linkage 1. Conservation within this Cell will focus on coastal sage scrub. Areas conserved within this Cell will be connected to coastal sage scrub habitat proposed for conservation in Cells #1812 and #1702 to the south and west. Conservation within this Cell will be approximately 5% focusing on the southwestern portion of the Cell.	9.25 acres
1811	145	Conservation within this Cell will contribute to assembly of Proposed Constrained Linkage 1. Conservation within this Cell will focus on coastal sage scrub, chaparral, and water. Areas conserved within this Cell will be connected to uplands proposed for conservation to the south, east, and north in Cells #1896, #1812, and #1702. Conservation within this Cell will range from 50%-60% focusing on the eastern portion of the Cell.	72.5 to 87 acres
1812	145	Conservation within this Cell will contribute to assembly of Proposed Constrained Linkage 1. Conservation within this Cell will focus on coastal sage scrub and chaparral. Areas conserved within this Cell will be connected to chaparral and coastal sage scrub habitat proposed for conservation in Cells #1898, #1811, and Cell #1704 to the south, west, and north. Conservation within this Cell will range from 25%-35% focusing on the western portion of the Cell.	36.25 to 50.75 acres
1896	144	Conservation within this Cell will contribute to assembly of Proposed Constrained Linkage 1. Conservation within this Cell will focus on chaparral and coastal sage scrub. Areas conserved within this Cell will be connected to chaparral and coastal sage scrub habitat proposed for conservation in Cells #1898 and #1811 to the east and north. Conservation within this Cell will range from 5%-15% focusing on the northeastern portion of the Cell.	7.2 to 21.6 acres
1898	144	Conservation within this Cell will contribute to assembly of Proposed Constrained Linkage 1. Conservation within this Cell will focus on chaparral and coastal sage scrub. Areas conserved within this Cell will be connected to chaparral and coastal sage scrub habitat proposed for conservation in Cell #1812 to the north. Conservation within this Cell will range from 50%-60% focusing on the eastern and northern portions of the Cell.	72 to 86.4 acres

3.2 Proposed Criteria Refinement

Volume I, Section 6.5 (Criteria Refinement Process [CRP]) of the MSHCP states that individual public and private projects within the Plan Area are expected to be designed and implemented in accordance with the Criteria for each Area Plan presented in *Volume I, Section 3.2* of the MSHCP document. The goal of the MSHCP is to have a total Conservation Area in excess of 500,000 acres, including approximately 347,000 acres on existing Public/Quasi-Public (PQP) Lands, and approximately 153,000 acres of Additional Reserve Lands (ARL) to be acquired within the MSHCP Criteria Area. Projects located within the Criteria Area must be evaluated to determine if lands within those properties are described to contribute to Reserve Assembly.
Criteria Refinements are an important part of the Reserve Assembly process to achieve goals for Covered Species, Covered Habitats, etc. However, in cases where refinements to the Criteria are desirable to facilitate Reserve Assembly, including for development projects that would otherwise be inconsistent with the existing Criteria, the CRP described in *Volume I, Section 6.5* shall apply. Criteria Refinements may be initiated by Local Permittees, or at the request of private entities to Local Permittees if agreed to by the applicable Local Permittee, either for purposes of correcting minor discrepancies or inaccuracies or for evaluating alternative conservation proposals involving single or multiple landowners and jurisdictions that are of equivalent or superior benefit to Covered Species. Such Criteria Refinements may involve changes to Cores and Linkages as long as it is demonstrated that the Refinements would clearly benefit Covered Species and would be consistent with MSHCP policies and species conservation goals. However, the CRP cannot be used for Criteria changes that would result in a reduction in the amount of lands conserved relative to the minimum acreages described by the Criteria. A Criteria Refinement can be approved with lesser conservation in one or more Cells provided that the decrease is made up with other lands in the Criteria Area not described by the Criteria that satisfy the goals for Covered Habitats, Covered Species, etc., or with lands outside of the Criteria Area that similarly satisfy the goals.

As described above, although the current alignment of PCL-1 is unconstrained to the south, there are a number of existing land uses that constrain PCL-1 at its northern terminus, including SR-91, the BNSF railroad line and Green River Road. However, past biological studies have identified and evaluated an important (and less constrained) linkage area west of the existing PCL-1 alignment that is not described for conservation by the MSHCP. Dr. Paul Beier (2004) analyzed the effectiveness of the existing PCL-1 and an alternative PCL-1 in meeting the stated MSHCP goals for PCL-1, including the potential to connect with the Prado Basin and the Chino Hills [Appendix A], In addition, GLA (2007) performed a wildlife movement study in 2006 and 2007 for the property that contains existing PCL-1 and alternate PCL-1, referred to at that time as the “Corona 850” property [Appendix B]. GLA’s study documented areas of wildlife movement from the Cleveland National Forest through the Corona 850 property and to SR-91. Boydston and Crooks (2013) studied the movement patterns of bobcat and coyote after the widening of California State Route (SR 71) near SR 91 that included

analysis of camera data for other underpasses in the vicinity, including the underpass at B Canyon (u17) within the alternate PCL-1 route [Appendix C].

The proposed Criteria Refinement presents the alternate alignment for PCL-1, which will be made up existing MSHCP Conserved Lands and lands that are to be acquired by the RCA. A total of 711.28 acres of land will be assembled for the alternate PCL-1, consisting of ten parcels listed above in Section 2.0. The alternate PCL-1 alignment is located immediately west of the existing PCL-1 alignment. The existing alignment begins at the boundary with Core B (Cleveland National Forest) and extends north across undeveloped land, Green River Road, and SR-91, terminating just north of SR-91. The alternate alignment would also begin at the boundary with Core B and extend across undeveloped land before terminating at SR-91 [Exhibit 3]. Approximately 538.45 acres of the 711.28-acre total will be associated with the six Criteria Cells, with approximately 172.83 acres associated lands located outside of, but adjacent to, the Criteria Area.

Of the approximately 328.30 acres described for conservation based on the existing Cell Criteria, approximately 82.75 acres of the described lands would not be part of the alternate PCL-1, as these lands represent the northernmost part of the existing alignment that would be removed as part of the Criteria Refinement. As required by the MSHCP, all lands to be proposed as replacement via a Criteria Refinement must not be described for conservation by the current Cell Criteria. In place of those lands to be removed, approximately 292.90 acres of land would be added in alternate locations of the six Criteria Cells, i.e., areas not described for conservation, in addition to the 172.83 acres of lands to be conserved that are not in Criteria Cells. Table 3-2 provides and acreage breakdown for each applicable Criteria Cell (and lands not in Cells) relative to the existing PCL-1 alignment, the described lands to be removed, alternate lands to be added, and the overall adjusted acreage for PCL-1.

Table 3-2. Summary of Acreages for the Proposed Criteria Refinement

Criteria Cell	Existing PCL-1	Described Lands to be Removed From PCL-1	Alternate Lands to be Added to PCL-1	Adjusted Acreage for PCL-1
1702	59.59	(55.24)	29.52	33.87
1704	9.68	(9.68)	0	0
1811	96.71	(13.65)	49.90	132.96
1812	51.01	(3.14)	37.53	85.40
1896	22.46	0	121.68	144.14
1898	88.85	(1.04)	54.27	142.08
No Cell	0	0	172.83	172.83
Total	**328.30**	**(82.75)**	**465.73**	**711.28**

3.3 Rationale for Criteria Refinement

The purpose of the proposed Criteria Refinement is to ensure that areas to the north and south of SR-91 and the Santa Ana River can be linked to provide a viable wildlife Linkage. The MSHCP currently identifies two Proposed Constrained Linkages (PCL-1 and PCL-2) for the Santa Ana River to the Santa Ana Mountains subunit of the Temescal Area Plan. PCL-2 consists of Fresno Canyon, which is located east of PCL-1 along the eastern border of the Temescal Area Plan. Like PCL-1, this Linkage is intended to connect Existing Core A (Prado Basin and Santa Ana River) with Existing Core B (Cleveland National Forest) to the south. Unlike PCL-1, which is intended to provide an upland connection, PCL-2 provides a riparian connection from the Prado Basin and Santa Ana River to the Cleveland National Forest, thus allowing for movement of species such as coast range newt and western pond turtle. According to the MSHCP, this Linkage is also likely to be important for mountain lion movement from the Santa Ana Mountains to the Chino Hills beyond the boundaries of the MSHCP. The proposed Criteria Refinement does not affect the Criteria associated with PCL-2.

As noted above, PCL-1 in its current configuration is not adequate to facilitate movement as intended by the MSHCP, due to the severity of existing constraints. Dr. Beier's analysis considered the two apparent goals for PCL-1: 1) to provide a linkage between the Santa Ana Mountains and the Prado Basin, and 2) to provide a linkage between the Santa Ana Mountains and the Chino Hills. Dr. Beier notes what he interpreted as the true biological goal of PCL-1 for the MSHCP, which was to prevent the isolation of Prado Basin, and which was expressed by the MSHCP as a Linkage to the Santa Ana Mountains. However, as noted above, the MSHCP states that PCL-1 "likely provides for movement of mountain lion and bobcat from the Santa Ana Mountains to the Chino Hills area beyond the Plan Area." As such, Dr. Beier's study separately analyzed two goals for PCL-1, including connecting the Santa Ana Mountains to Prado Basin to avoid the isolation of Prado Basin, and directly connecting the Santa Ana Mountains to the Chino Hills. Dr. Beier noted that the Coal Canyon Linkage is vastly superior to PCL-1 for connecting the Santa Ana Mountains to the Chino Hills, though a secondary route (PCL-1) would be a valuable partner for Coal Canyon.

Dr. Beier concluded that neither the existing PCL-1 nor the alternate PCL-1 is likely to achieve the goal of connecting to Prado Basin due to constraints associated with SR-71 or the Prado Dam and Spillway. However, if those constraints could be lessened, then both the existing PCL-1 and the proposed alternate PCL-1 would each have pros and cons to achieving the goal of connecting to Prado Basin. Although existing PCL-1 provides a shorter distance to Prado Basin and has a larger underpass under SR-91, existing PCL-1 is inferior because 1) it runs alongside SR-91 and the ramps for Green River Road for over 1,200 feet, 2) it is crossed by Green River Road, and 3) it has a railroad line in the SR-91 underpass. Dr. Beier further noted that if connectivity can be maintained between Prado Basin and the Chino Hills, then the direct connection between the Santa Ana Mountains and the Chino Hills would benefit the connection to Prado Basin via the Chino Hills.

Due to the severity of constraints associated with the movement of wildlife along the existing PCL-1 from the Santa Ana Mountains to the Chino Hills, Dr. Beier's study and GLA's 2006/2007 wildlife movement study both evaluated the ability of an alternative linkage (alternate PCL-1) to connect with the Chino Hills. The alternate PCL-1 is located west of the existing PCL-1 and has been documented as an important linkage for wildlife movement, while being less constrained than the existing PCL-1 for its connection to the Chino Hills. This proposed alternate for PCL-1 provides both upland and riparian linkage routes to the Santa Ana River (and beyond to the Chino Hills) via the Green River Golf Course. The primary constraint along the alternate PCL-1 route is represented by the crossing of SR-91. The movement of wildlife under SR-91 via alternate PCL-1 is currently achieved at two undercrossings. The B Canyon Undercrossing (named SR 91 u17 by Boydston and Crooks [2013]) consists of a culvert that is approximately 340 feet long, 12 feet high and 12 feet wide. Future California Department of Transportation (Caltrans)/Riverside County Transportation Commission (RCTC) improvement plans for SR-91 at this location include replacing the existing culvert with a larger arch culvert. A second existing undercrossing (a vehicle access tunnel) is located approximately 1,600 feet from the B Canyon Undercrossing. The vehicle access tunnel that is approximately 170 feet long, 16 feet wide and 14 feet high. Based on accessibility to these undercrossings, the B Canyon Undercrossing (SR 91 u17) is judged the primary undercrossing for wildlife. Although the B Canyon Undercrossing was not found to be a hotspot for coyote or bobcat movement, Boydston and Crooks (2013) found relatively high use of surrounding underpasses (not including the vehicle access tunnel) by these two species as well gray fox. However, Beier and Barret (1993) recorded two radio-collared mountain lions using B Canyon Undercrossing and MSHCP monitoring since the Boydston and Crooks (2013) field studies, has documented mule deer use and higher bobcat use than found by Boydston and Crooks (2013); hence concluding the B Canyon Undercrossing could be another critical connectivity linkage for the entire suite of large mammals, assuming the bend in the undercrossing is removed. North of SR-91, wildlife must cross the Santa Ana River floodplain, and then the Green River Golf Course before reaching the Chino Hills. Dr. Beier noted that wildlife such as bobcats and mountain lions would readily cross the golf course at night and would likely use an existing mobile home park footbridge that spans the Santa Ana River.

The alternate PCL-1 alignment is superior to the existing PCL-1 alignment in achieving connection with the Chino Hills because 1) it is not impacted by a busy road such as Green River Road, 2) it quickly crosses SR-91 rather than running alongside the freeway and ramps for as much as 1,200 feet, 3) wildlife would negotiate the BNSF railroad line a half-mile away from SR-91 instead of negotiating both obstacles simultaneously, 4) wildlife could use the existing footbridge across the Santa Ana River, and 5) it leads to Aliso Canyon, which is the largest canyon in Chino Hills State Park, and therefore is a natural travel corridor for mountain lions, bobcats, and other wildlife.

4.0 EXISTING CONDITIONS

4.1 Vegetation Communities/Land Uses

This section describes the vegetation mapping for the existing and proposed alternate PCL-1 alignments. Table 4-1 provides a summary of vegetation communities/land use types using GLA's vegetation mapping using the 1994 MSHCP Rough Step baseline. The table provides the vegetation breakdown for the existing PCL-1 alignment, the alternate PCL-1 alignment, and the relative change (increase or decrease) of conserved vegetation/land uses types. Exhibit 4 provides a vegetation map with the existing and alternate alignments provided as an overlay.

Table 4-1. Summary of Vegetation/Land Use Types for PCL-1 (1994 MSHCP Rough Step Vegetation Mapping) [in acres]

Vegetation Community/ Land Use Type	Existing PCL-1	Alternate PCL-1	Change (+ or -)
Residential/Urban/Exotic	7.76	0	-7.76
Coastal Sage Scrub	127.01	119.86	-7.15
Chaparral	178.98	539.58	+360.60
Non-native Grassland	14.55	50.83	+36.28
Riparian Forest	0	1.01	+1.01
Total	**328.30**	**711.28**	**+382.98**

GLA conducted site-specific vegetation mapping for the lands containing both the existing and alternate PCL-1 alignments. Collectively, the mapping data was obtained during field efforts performed in 2006/2007, 2014/2015 and in 2020. Table 4-2 provides a summary of vegetation communities/land use types using GLA's vegetation mapping using the 1994 MSHCP Rough Step baseline. The table provides the vegetation breakdown for the existing PCL-1 alignment, the alternate PCL-1 alignment, and the relative change (increase or decrease) of conserved vegetation/land uses types.

Table 4-2. Summary of Vegetation/Land Use Types for PCL-1 (GLA Vegetation Mapping) [in acres]

Vegetation Community/ Land Use Type	Existing PCL-1	Alternate PCL-1	Change (+ or -)
Residential/Urban/Exotic	16.67	21.21	+4.54
Coastal Sage Scrub	5.51	55.09	+49.58
Chaparral	250.68	546.16	+295.48
Non-native Grassland	45.84	69.69	+23.85
Coast Live Oak Woodland	9.09	18.39	+9.30
Miscellaneous Riparian	0.51	0.74	+0.23
Total	**328.30**	**711.28**	**+382.98**

Based on the 1994 mapping used for the MSHCP Rough Step baseline, the alternate PCL-1 alignment would have no Residential/Urban/Exotic areas compared with the existing PCL-1 alignment and less Coastal Sage Scrub (119.86 acres with the alternate versus 127.01 acres with the existing), while seeing an increase in all other vegetation categories. However, based on the GLA's site-specific mapping, the 1994 baseline did not accurately characterize disturbed/developed areas (Residential/Urban/Exotic), coastal sage scrub versus chaparral, or grassland areas relative to the two scrub categories. GLA mapped more Residential/Urban/Exotic when factoring all roads (paved and unpaved) and other developed areas; however, the majority of disturbed or developed areas in the alternate PCL-1 alignment consists of dirt roads scattered through the lands to be conserved, compared with Green River Road and other developed areas in the existing alignment that constrain wildlife movement along the Linkage. GLA mapped significantly more chaparral and grassland versus coastal sage scrub for the existing PCL-1 alignment compared with the 1994 baseline. In addition, GLA's mapping captured a significant amount of coast live oak woodland in both alignments that were otherwise mapped as chaparral as part of the 1994 baseline. Overall, all categories of vegetation communities/land uses increase for the alternate PCL-1 alignment compared with the existing alignment based on GLA's mapping.

4.2 Wildlife Movement

The lands within the proposed alternate route for PCL-1 connecting the Santa Ana Mountains to SR-91 have been documented as extensive live-in habitat and as a movement linkage for wildlife. GLA conducted a wildlife movement study between June 21, 2006, and April 26, 2007, for approximately 700 acres of land south of SR-91, including the existing PCL-1 and the proposed alternate PCL-1. The study focused on a number of objectives, including: 1) documenting the distribution and relative abundance of large and medium-size mammal species throughout the study area; 2) determining where local and regional wildlife movement is occurring relative to the linkage area; and

3) evaluating existing PCL-1 and proposed alternate PCL-1 in satisfying the goals of connectivity, as identified by the MSHCP.

The findings of GLA's study, along with Dr. Beier's study, provide the foundation for the proposed Criteria Refinement. The results of the study indicate that the lands south of SR-91, and particularly the lands encompassing the proposed alternate PCL-1, provide for local wildlife movement (including live-in habitat) and regional connectivity between the Santa Ana Mountains and the Chino Hills for mountain lion and bobcat (MSHCP Planning Species), and additional large and medium-size mammals. Wildlife movement and regional connectivity was demonstrated by the 2006/2007 wildlife movement study (GLA 2007, Exhibit 9), which showed wildlife movement based on data (tracks and scat) observed within the study area, including the southern entrance to the B Canyon Undercrossing, and to a lesser extent the Star Ranch Access Tunnel. The extent of wildlife use was further documented with cameras and scent stations (GLA 2007, Exhibits 6 and 7).

The GLA report evaluates the existing PCL 1 with respect to meeting the MSHCP goals to connect Core A with Core B. GLA's report states that "the tenuous linkage across the Green River Ranch Property, Green River Road, Metrolink Rail Line, SR-91 overpass and Prado Road before entering a degraded section (that is often gated) of Chino Hills State Park are formidable constraints to regional movement." This, coupled with approved plans in 2004 for the Green River Ranch development project at the Green River Road interchange, further hinders wildlife movement in this area. This information is further supported by the Beier report (2004), which stressed the importance of the linkage between the Chino Hills and Prado Basin and emphasized the physical constraints of the existing PCL 1 in connecting the Santa Ana Mountains with the Chino Hills. The report recommended a linkage area that encompasses the B Canyon Undercrossing and the associated drainage and ridge system as a critical regional wildlife movement linkage between the Santa Ana Mountains and the Santa Ana River/Chino Hills.

The B Canyon Undercrossing consists of a medium-size box culvert that conveys flows from a large canyon beneath SR-91 and ultimately into the Santa Ana River where it extends between the Green River Golf Course and an existing mobile home park. The culvert is approximately 370 feet long, 14 feet high, and 12 feet wide. The width and height of an underpass opening, along with the underpass length, are important factors in determining the type and size of animals that will use an underpass. The openness of an underpass (as a function of length, height, and width) influences the amount of light that penetrates the interior view of the other side. The cross-sectional area (height X width) divided by the length determines the openness index/ratio of an underpass. The MSHCP provides guidelines for the construction of wildlife crossings (Volume I, Section 7.5.2), including guidelines for height relative to small, medium, and large mammals. For larger mammals such as mule deer, the MSHCP guidelines recommend a minimum of three to four meter high for culverts, with an openness ratio of at least 0.60. The openness ratio of the B Canyon Undercrossing is 0.54, which given the linkage

constraints associated with SR-91, the ratio of the existing undercrossing is adequate to facilitate the movement of wildlife species that would use the alternate linkage.

The vehicle access tunnel consists of a tunnel that connects a frontage road located south of SR-91 with Green River Road located north of SR-91. The tunnel currently has a gate on the northern end that is closed and locked at night. The tunnel could facilitate the movement of wildlife under SR-91, across Green River Road, and through the Green River Golf Course to the Chino Hills. The tunnel is approximately 170 feet long 16 feet high and 14 feet wide, with an openness ratio of 1.31.

The critical site of regional connectivity includes the B Canyon Undercrossing and lands located within the alternate PCL-1, which are not currently targeted for conservation by the MSHCP. The analysis of wildlife movement to the B Canyon Undercrossing, and to a lesser extent the vehicle access tunnel, demonstrates the need for refining the Criteria for assembling PCL-1. The current location of PCL-1 does provide for wildlife movement; however, the route has many constraints associated with existing road and rail crossings, barrier fencing, and existing development that do not allow for wildlife movement in the design. In addition, existing PCL-1 does not provide live-in habitat for California gnatcatcher, a Planning Species for this linkage and supports movement in an east-west direction, rather than north-south. The data presented for the Corona 720 property (GLA 2007) demonstrates the active use of the two undercrossings by MSHCP Planning Species, located west of existing PCL-1. Combined with the movement constraints associated with the existing PCL-1, a Criteria Refinement for PCL-1 is warranted.

5.0 EQUIVALENCY ANALYSIS

The following provides an equivalency analysis of the proposed Criteria Refinement as it applies to the following:

- Effects on Habitats
- Effects on Covered Species
- Effects on Core Areas
- Effects on Linkages and Constrained Linkages
- Effects on Non-Contiguous Habitat Blocks
- Effects on MSHCP Conservation Area Configuration and Management
- Effects on Ecotones
- Acreage Contributed to the MSHCP Conservation Area
- Ownership of Mitigation Property

5.1 Effects on Habitats

This MSHCP defines Habitats as “the combination of environmental conditions of a specific place providing for the needs of a species or a population of such species.” The term “habitat” is often synonymous with “vegetation community”, although the intent

of evaluating “effects on habitats” is to also address the functions and values associated with the vegetation communities in addition to demonstrating an equivalency with acreages conserved.

The MSHCP Cell Criteria identifies habitats/vegetation communities described for conservation to the benefit of various Covered Species present or with the potential to occur. The Criteria Cells describing the assembly of PCL-1 identify three Habitat types intended to be conserved throughout the Cells, including chaparral, coastal sage scrub, and grasslands. The habitat accounts described in Volume II, Section C of the MSHCP recognize two subassociations of grasslands (Valley and Foothill Grassland and Non-Native Grassland). The existing and proposed alternate PCL-1 alignments contain only non-native grassland and do not support native grassland (i.e., Valley and Foothill Grassland). As such, all reference to grassland in this document pertain to Non-Native Grassland. This section evaluates and compares the total amount of Habitats (vegetation communities) that are described for conservation by the Cell Criteria versus lands proposed for removal from PCL-1 and lands to be added to support the assembly of the alternate alignment.

As identified above in Section 4.1, the 1994 vegetation baseline mapped six vegetation communities/land use types for the area that includes the existing and proposed alternate PCL-1 alignments. These include Residential/Urban/Exotic, Diegan Coastal Sage Scrub, Riversidean Sage Scrub, Chaparral, Non-Native Grassland and Riparian Forest. The Diegan Coastal Sage Scrub and Riversidean Sage Scrub align broadly with the described Habitat of Coastal Sage Scrub. Tables 4-1 and 4-2 above in Section 4.1 provide a breakdown of vegetation/land use categories comparing the existing and alternate PCL-1 alignments, using both the 1994 MSHCP Rough Step baseline and GLA’s site-specific mapping. This section compares the existing and alternate PCL-1 alignments in terms of Habitat goals for PCL-1. Table 5-1 below summarizes the data presented above in Section 4.1 for both the 1994 MSHCP Rough Step baseline and GLA’s site-specific mapping.

Table 5-1. Vegetation Comparison of Existing Versus Alternate PCL-1 Alignments (both mapping methods) [in acres]

	1994 Baseline MSHCP Rough Step		GLA Mapping	
Vegetation Community/ Land Use Type	**Existing PCL-1**	**Alternate PCL-1**	**Existing PCL-1**	**Alternate PCL-1**
Residential/Urban/Exotic	7.76	0	16.67	21.21
Coastal Sage Scrub	127.01	119.86	5.51	55.09
Chaparral	178.98	539.58	250.68	546.16
Non-native Grassland	14.55	50.83	45.84	69.69
Riparian Forest	0	1.01	0.51	0.74
Coast Live Oak Woodland	0	0	9.09	18.39
Total	**328.30**	**711.28**	**328.30**	**711.28**

The existing and alternate PCL-1 alignments do not each represent distinctly separate alignments. In fact, 245.55 acres are shared between the two alignments, with 82.75 acres being removed from the northern portion of the existing PCL-1 alignment and 465.73 acres being added in replacement, mostly to the west and connecting to the B Canyon undercrossing at SR-91. Tables 5-2 (1994 baseline) and 5-3 (GLA mapping) below provide a breakdown of Habitats for the areas proposed for removal versus areas additional lands proposed as replacement to support the alternate alignment.

Table 5-2. Habitat Summary for the Proposed Criteria Refinement (1994 MSHCP Rough Step Vegetation Mapping) [in acres]

Vegetation Community/ Land Use Type	**Described Lands to be Removed From PCL-1**	**Proposed PCL-1 Replacement Lands**	**Change (+ or -)**
Residential/Urban/Exotic	(7.76)	0	-7.76
Coastal Sage Scrub	(66.22)	59.07	-5.25
Chaparral	(3.22)	363.82	+360.60
Non-native Grassland	(5.55)	41.83	+36.28
Riparian Forest	0	1.01	+1.01
Total	**(82.75)**	**465.73**	**+382.98**

Table 5-3. Habitat Summary for the Proposed Criteria Refinement (GLA Mapping) [in acres]

Vegetation Community/ Land Use Type	Described Lands to be Removed From PCL-1	Proposed PCL-1 Replacement Lands	Change (+ or -)
Residential/Urban/Exotic	(11.47)	16.01	+4.54
Coastal Sage Scrub	(2.01)	51.58	+49.57
Chaparral	(37.38)	332.87	+295.49
Non-native Grassland	(30.32)	54.17	+23.85
Coast Live Oak Woodland	(1.06)	10.36	+9.30
Miscellaneous Riparian	(0.51)	0.74	+0.23
Total	**(82.75)**	**465.73**	**+382.98**

In conclusion, the proposed Criteria Refinement for the alternate PCL-1 alignment will substantially increase overall the Covered Habitats described in the MSHCP for PCL-1, including for coastal sage scrub, chaparral, and grassland. In addition, the new lands proposed for the alternate alignment will include Habitats (i.e., coast live oak woodland) not characterized in the Cell Criteria for the assembly of PCL-1. The total amount of lands to be conserved for PCL-1 will increase by more than 382 acres, with most gains consisting of chaparral vegetation, but also including coastal sage scrub, grassland, and the coast live oak woodland.

5.2 Effects on Covered Species

This section of the Criteria Refinement Analysis evaluates the effects of the Criteria Refinement on Covered Species, including the focal Planning Species for the relevant Criteria Cells, and additional Covered Species that have the potential to occur.

5.2.1 Planning Species

Section 3.2.3 of the MSHCP identifies the following Planning Species for PCL-1: mountain lion (*Puma concolor*), bobcat (*Lynx rufus*), Cooper's hawk (*Accipiter cooperi*) and coastal California gnatcatcher (*Polioptila californica californica*). The proposed Criteria Refinement will support those species with a potential to occur at the Project site. The following analysis discusses the Planning Species relative to the ability for the alternate PCL-1 alignment to support the species.

Mountain Lion and Bobcat

The alternate PCL-1 alignment is superior for the movement of medium to large-size mammals, including mountain lion and bobcat (and their prey), and to achieve the goal of connecting Core A and the Chino Hills with Core B with regards to wildlife movement and gene flow. As discussed above in Section 4.2, both species have been documented

within the alternate alignment, including at the SR-91 culvert. Overall, approximately 690.07 acres of the 711.28 total acreage for the proposed alignment will represent live-in habitat for both species, which represents an increase of 378.44 acres compared with the existing PCL-1 alignment. All habitat types are included in the acreage of live-in habitat except for the residential/urban/exotic category, although the disturbed portions of the site (i.e., the dirt roads) will facilitate the movement of both species. Table 5-4 summarizes live-in habitat for mountain lion and bobcat based on the 1994 baseline vegetation mapping.

Table 5-4. Comparison of Live-In Habitat for Mountain Lion and Bobcat [in acres]

Vegetation Community	Existing PCL-1	Alternate PCL-1	Change (+ or -)
Coastal Sage Scrub	5.51	55.09	+49.58
Chaparral	250.68	546.16	+295.48
Non-native Grassland	45.84	69.69	+23.85
Coast Live Oak Woodland	9.09	18.39	+9.30
Miscellaneous Riparian	0.51	0.74	+0.23
Total	**311.63**	**690.07**	**+378.44**

The topography of the alternate alignment is strongly conducive to north-south movement, including along dirt access roads, ridgelines, and drainage features that orient north to south from the Cleveland National Forest to SR-91. In contrast, the southern portion of the existing PCL-1 alignment crosses a series of steep east-west canyons and ridgelines, which is not ideal to support the overall goal of north-south movement. As is reflected in the term “constrained” linkage, present movement along the existing PCL-1 alignment is severely constrained at the northern end due to the SR-91, the railroad, and Green River Road. In comparison, the alternate PCL-1 alignment is far less constrained with no movement constraints existing between the Cleveland National Forest and the B Canyon Undercrossing at the SR-91. Beyond the SR-91, the railroad spans the Santa Ana River and adjacent access roads, allowing wildlife to pass under the railroad tracks. For alternate PCL-1, the existing culvert at the B Canyon Undercrossing represents the single greatest pinch-point to movement, yet the culvert is currently large enough to accommodate movement, and size of the culvert will be further increased by the future Caltrans SR-91 improvements planned at the B Canyon location.

Cooper’s Hawk

The Cooper’s hawk requires habitat containing trees for breeding, including riparian areas and oak woodlands. It frequents landscapes where wooded areas occur in patches and groves, and it often uses patchy woodlands and edges with snags for perching (Beebe 1974). Within its range in California, the Cooper’s hawk most

frequently uses dense stands of live oak, riparian, deciduous, or other forest habitats near water (Zeiner, *et al.* 1990). The predominant habitat types in both the existing and alternate PCL-1 alignments, which represent live-in habitat for Cooper's hawk, consist of scrub vegetation, whether sage scrub or chaparral, but grassland, oak woodland and miscellaneous riparian habitats are supported. As noted above in Tables 5-3 and 5-4, the Criteria Refinement will result in an overall increase of live-in habitat for Cooper's hawk. Furthermore, lands north of the SR-91 include the Santa Ana River and Green River Golf Course, which both contain numerous large trees providing habitat for Cooper's hawk between the SR-91 and the Chino Hills. As such, the alternate alignment would be superior in providing live-in and dispersal habitat for Cooper's hawk.

Coastal California Gnatcatcher

PCL-1 is intended to provide live-in and dispersal habitat for the coastal California gnatcatcher. The gnatcatcher typically occurs in or near sage scrub habitats, but also will use chaparral, grassland, and riparian habitats where they are located adjacent to sage scrub habitats. As noted above in Tables 5-3 and 5-4, the Criteria Refinement will result in an overall increase of live-in habitat for the gnatcatcher. Focused surveys for the coastal California gnatcatcher were conducted by GLA in 2006 and 2014 for the subject lands, and no gnatcatchers were detected. However, the alternate PCL-1 alignment contains the greater amount of suitable habitat for the gnatcatcher compared with the existing alignment, and therefore the alternate alignment is considered superior as both live-in and dispersal habitat for the gnatcatcher [Exhibit 4 & 5].

5.2.2 Other Covered Species

In addition to the four Planning Species addressed above, the MSHCP identifies other Covered Species for which project-based habitat assessments/surveys are required per designated survey areas and/or based on the presence of suitable habitat (i.e., riparian areas and/or vernal pools). These include Narrow Endemic Plant Species (MSHCP *Volume I, Section 6.1.3*), as identified by the Narrow Endemic Plant Species Survey Areas (NEPSSA); Criteria Area Plant Species (MSHCP *Volume I, Section 6.3.2*) identified by the Criteria Area Plant Species Survey Areas (CAPSSA); animals species (burrowing owl, mammals, amphibians) identified by survey areas (MSHCP *Volume I, Section 6.3.2*); and species associated with riparian/riverine areas and vernal pool habitats, i.e., least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, and designated fairy shrimp (MSHCP *Volume I, Section 6.1.2*).

Section 6.1.2 Species

MSHCP *Volume I, Section 6.1.2* describes the process through which protection of riparian/riverine areas and vernal pools would occur within the MSHCP Plan Area. The MSHCP requires project-based surveys for least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, vernal pool fairy shrimp, Riverside fairy shrimp, and Santa Rosa Plateau fairy shrimp if suitable habitat is present.

GLA detected least Bell's vireo in 2020 utilizing elderberry-dominated riparian habitat located north of Green River Road within the existing PCL-1 alignment. The habitat area consists of scattered patches of elderberry (*Sambucus nigra*) totaling approximately 0.51 acre. This habitat will be removed from PCL-1 as a result of the proposed Criteria Refinement. The proposed alternate alignment will add 0.74 acre of miscellaneous riparian habitat with some potential to support vireo, although the species has not been detected in those areas in the past. Aside from the vireo, the remaining species (southwestern willow flycatcher, western yellow-billed cuckoo and fairy shrimp) are not expected to occur in either alignment due to a lack of suitable habitat.

In addition to the above referenced species, *Section 6.1.2* identifies other species that are to be protected through the implementation of the *Section 6.1.2* procedures, including the following:

- **Amphibians –** arroyo toad, mountain yellow-legged frog, California red-legged frog
- **Birds –** bald eagle, peregrine falcon
- **Fish** – Santa Ana sucker
- **Plants –** Brand's phacelia, California Orcutt grass, California black walnut, Coulter's matilija poppy, Engelmann oak, Fish's milkwort, graceful tarplant, lemon lily, Mojave tarplant, mud nama, ocellated Humboldt lily, Orcutt's brodiaea, Parish's meadowfoam, prostrate navarretia, San Diego button-celery, San Jacinto Valley crownscale, San Miguel savory, Santa Ana River woolly-star, slender-horned spine flower, smooth tarplant, spreading navarretia, thread-leaved brodiaea, vernal barley

Neither the exiting or alternate alignments for PCL-1 contain suitable habitat for any of the above-referenced species, and therefore these species are not relevant to the proposed Criteria Refinement, i.e., the proposed Criteria Refinement would not have an effect (positive or negative) on the *Section 6.1.2* species compared with conservation that would occur based on the existing Cell Criteria.

Section 6.1.3 Species

Volume I, Section 6.1.3 of the MSHCP addresses Narrow Endemic Plant species where project-based focused surveys are required. The majority of the existing PCL-1 alignment, and all of the proposed alternate alignment is in the Narrow Endemic Plant Species Survey Areas (NEPSSA) for San Diego ambrosia (*Ambrosia pumilla*), Brand's phacelia (*Phacelia stellaris*) and San Miguel savory (*Clinopodium chandleri*). GLA botanists conducted rare plant surveys for both the existing and alternate alignments in 2006 and 2014, and in 2020 for the portion of the existing alignment to be removed. None of NEPSSA target species were detected. Neither San Diego ambrosia nor Brandt's phacelia is expected to occur due to a lack of suitable habitat, although San Miguel savory has a potential to occur primarily in the lands proposed for the alternate alignment. Regardless, the proposed Criteria Refinement would result in a substantial

increase in chaparral and coastal sage scrub habitats conserved in support of the goals for PCL-1.

Section 6.3.2 Species

In addition to the species identified through *Section 6.1.2* and *Section 6.1.3* of the MSHCP, Section 6.3.2 identifies additional species to be addressed for individual projects based on the occurrence in one or more survey areas, including the Criteria Area Plant Species Survey Area (CAPSSA), burrowing owl survey area, amphibian survey areas (arroyo toad, California red-legged frog and mountain yellow-legged frog) and mammal survey areas (Aguanga kangaroo rat, San Bernardino kangaroo rat and Los Angeles pocket mouse). The existing and alternate PCL-1 alignments are not in the CAPSSA, amphibian or mammal survey areas. The northern half of the existing and proposed alignments are in the survey area for burrowing owl (*Athene cunicularia*), although the majority is not suitable to support burrowing owls due to the topography and vegetation densities. GLA conducted focused burrowing owl surveys in 2020 for the portion of the existing PCL-1 alignment to be removed but did not detect burrowing owls. As burrowing owls are generally not expected to occur within most of the PCL-1 alignments, the proposed Criteria Refinement is not expected to affect burrowing owls. Furthermore, the remainder of *Section 6.3.2* species are not relevant to the Criteria Refinement.

5.3 Effects on Core Areas

The MSHCP defines a "Core" as a "block of Habitat of appropriate size, configuration, and vegetation characteristics to generally support the life history requirements of one or more Covered Species." The proposed Criteria Refinement will not adversely affect MSHCP Core Areas, as the Criteria Cells associated with existing PCL-1 do not set aside lands for the extension of existing Core areas. However, as discussed above, PCL-1 is intended to connect Core A (Prado Basin) with Core B (Cleveland National Forest). Core A is located north of the SR-91 and the Santa Ana River, whereas Core B is adjacent to the existing and alternate PCL-1 alignments to the south. The proposed alternate PCL-1 alignment will facilitate more effectively the connection of Core A and B, and therefore will have a positive effect by maintaining the movement of wildlife between the Core areas.

5.4 Effects on Linkages and Constrained Linkages

The proposed Criteria Refinement will have a positive effect on PCL-1 by designating a superior, alternate alignment to connect Core A with Core B, thereby supporting the goal of PCL-1. As demonstrated throughout this document, the alternate PCL-1 alignment is less constrained for wildlife movement than the existing PCL-1; is more conducive to the north-south movement needed to support the connectivity goals of PCL-1; and contains a greater amount of habitat types applicable to the Planning Species for PCL-1, including coastal sage scrub, chaparral, grassland, coast live-oak woodland, and riparian habitats.

5.5 Effects on Non-Contiguous Habitat Blocks

The MSHCP defines a "Non-Contiguous Habitat Block" as a "block of Habitat not connected to other Habitat areas via a Linkage or Constrained Linkage." The proposed Criteria Refinement will not affect any Non-Contiguous Habitat Blocks, as none are 1) located within the existing PCL-1 alignment, 2) connected by PCL-1, and 3) associated with Core A or B.

5.6 Effects on MSHCP Conservation Area Configuration and Management

The proposed Criteria Refinement will have a positive effect on the MSHCP Conservation Area by conserving a greater amount of high-quality habitat that will support the intended functions of PCL-1, including connectivity between Core A and Core B, and live-in habitat for the PCL-1 Planning Species. As noted above, the new lands proposed for the alternate alignment will include Habitats (i.e., coast live oak woodland) not characterized in the Cell Criteria for the assembly of PCL-1. The total amount of lands to be conserved for PCL-1 will increase by more than 382 acres, with most gains consisting of chaparral vegetation, but also including coastal sage scrub, grassland, and the coast live oak woodland. Furthermore, the alternate PCL-1 alignment is less constrained for wildlife movement when compared with the existing alignment, is more conducive to north-south wildlife movement, and contains a greater amount of habitat to support the Planning Species, as discussed previously.

5.7 Effects on Ecotones

The MSHCP defines ecotones as areas of adjoining vegetation communities that are generally characterized by greater biological diversity. Both the existing and alternate PCL-1 alignments contain ecotonal areas, i.e., transitional areas between upland habitats and riparian habitats, and between scrub habitats and grassland habitats. Because the alternate PCL-1 alignment has a greater amount of vegetated habitats than the existing PCL-1 alignment, the alternate alignment also contains a greater amount of transitional area (i.e., ecotones) between habitat types. Therefore, the proposed Criteria Refinement will have a net positive effect in conservation of ecotones areas.

5.8 Acreage Contributed to the MSHCP Conservation Area

As presented above in Section 3.2, the proposed Criteria Refinement would result in a net gain of approximately 382.98 acres for the MSHCP Conservation Area. Of the approximately 328.30 acres described for conservation based on the existing Cell Criteria, approximately 82.75 acres of the described lands would not be part of the alternate PCL-1, as these lands represent the northernmost part of the existing alignment that would be removed as part of the Criteria Refinement. In place of those lands to be removed, approximately 292.90 acres of land would be added in alternate locations of the six Criteria Cells, i.e., areas not described for conservation, in addition to the 172.83 acres of lands to be conserved that are not in Criteria Cells.

5.9 Ownership of Mitigation Property

The MSHCP requires for Criteria Refinements that applicants have control over lands to be used as replacement for described conservation lands to be remove pursuant to the Criteria Refinement. Approximately 38.78 acres (APN 101-180-036) is already conserved as ARL, and the remaining lands (672.50 acres) are pending acquisition from the RCA as ARL.

6.0 CONCLUSION

Volume I, Section 6.5 (Criteria Refinement Process [CRP]) of the MSHCP states that individual public and private projects within the Plan Area are expected to be designed and implemented in accordance with the Criteria for each Area Plan presented in *Volume I, Section 3.2* of the MSHCP document. In cases where refinements to the Criteria are desirable to facilitate Reserve Assembly, resulting in adjustments to the Criteria, the CRP described in *Volume I, Section 6.5* shall apply. Such Criteria Refinements may involve changes to Cores and Linkages as long as it is demonstrated that the Refinements would clearly benefit Covered Species and would be consistent with MSHCP policies and species conservation goals. Furthermore, the CRP cannot be used for Criteria changes that would result in reductions in the Criteria Area.

PCL- 1 in northwestern Riverside County is intended to connect Existing Core A (Prado Basin/Santa Ana River) with Existing Core B (Cleveland National Forest) to the south and is intended to provide live-in/dispersal habitat for four Planning Species (mountain lion, bobcat, coastal California gnatcatcher, and Cooper's hawk). However, the northern portion of the existing PCL-1 alignment is severely constrained.

Besides the existing development constraints, the topography of the existing PCL-1 alignment is not ideal to facilitate north to south wildlife movement. Although the northern portion of the alignment is topographically oriented north to south along ridgelines and canyons, the southern portion of the alignment bisect steep east-west ridgelines and canyons, with wildlife primarily moving to the west and east out of the intended alignment for PCL-1. Furthermore, the habitat types located within the existing alignment, though mostly native, are dominated by chaparral, which is not suitable for two of the MSHCP Planning Species (coastal California gnatcatcher and Cooper's hawk).

The proposed Criteria Refinement would re-align PCL-1 to the west of the existing location. The alternate PCL-1 location is heavily used by wildlife, with extensive movement of large to medium-size mammals documented from the National Forest Boundary to the SR-91 undercrossing. Lands within the alternate alignment are topographically oriented north to south from the National Forest boundary to the freeway, including multiple access roads, ridgelines, and canyon routes. Furthermore, the habitat types within the alternate PCL-1 alignment have a greater suitability for the

Planning Species, including habitats dominated by coastal sage scrub vegetation, as well as a greater riparian component.

The proposed Criteria Refinement would result in net gain of 382.98 acres of Conserved Land compared with the existing PCL-1 alignment, with 465.73 acres of lands offsetting the 82.75 acres of lands to be removed from the northern portion of the existing alignment.

In conclusion, the proposed Criteria Refinement would result in a superior MSHCP Conservation Area configuration compared with the existing PCL-1 alignment. The Refinement would result in an increase in conservation lands for the MSHCP Reserve, including an increase in native habitat types benefitting Covered Species. The alternate PCL-1 alignment will indirectly benefit the existing Core Areas (A and B) by providing a less-constrained connection between the Core Areas. Overall, the proposed Refinement would support the goals of the MSHCP as it applies to linking the Cleveland National Forest to the Prado Basin, Santa Ana River, and the Chino Hills.

7.0 REFERENCES

Beier, P. 2004. Potential Wildlife Linkages affecting Mindeman Ranch Property, Riverside County, California.

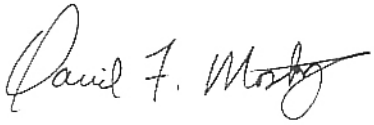
Boydston, E. E. and Crooks, K. R., eds., 2013. Movement Patterns of Bobcats and Coyotes after Widening of CA-71 near CA-91 in southern California. U.S. Geological Survey. Prepared for Caltrans. 194 pp.

Dudek & Associates, Inc. 2003. Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), Final MSHCP, Volumes I and II.

Glenn Lukos Associates, Inc. 2007. Corona 850 Study Area, Wildlife Movement Study.

8.0 CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.



SIGNED:_____ DATE: 12/12/23

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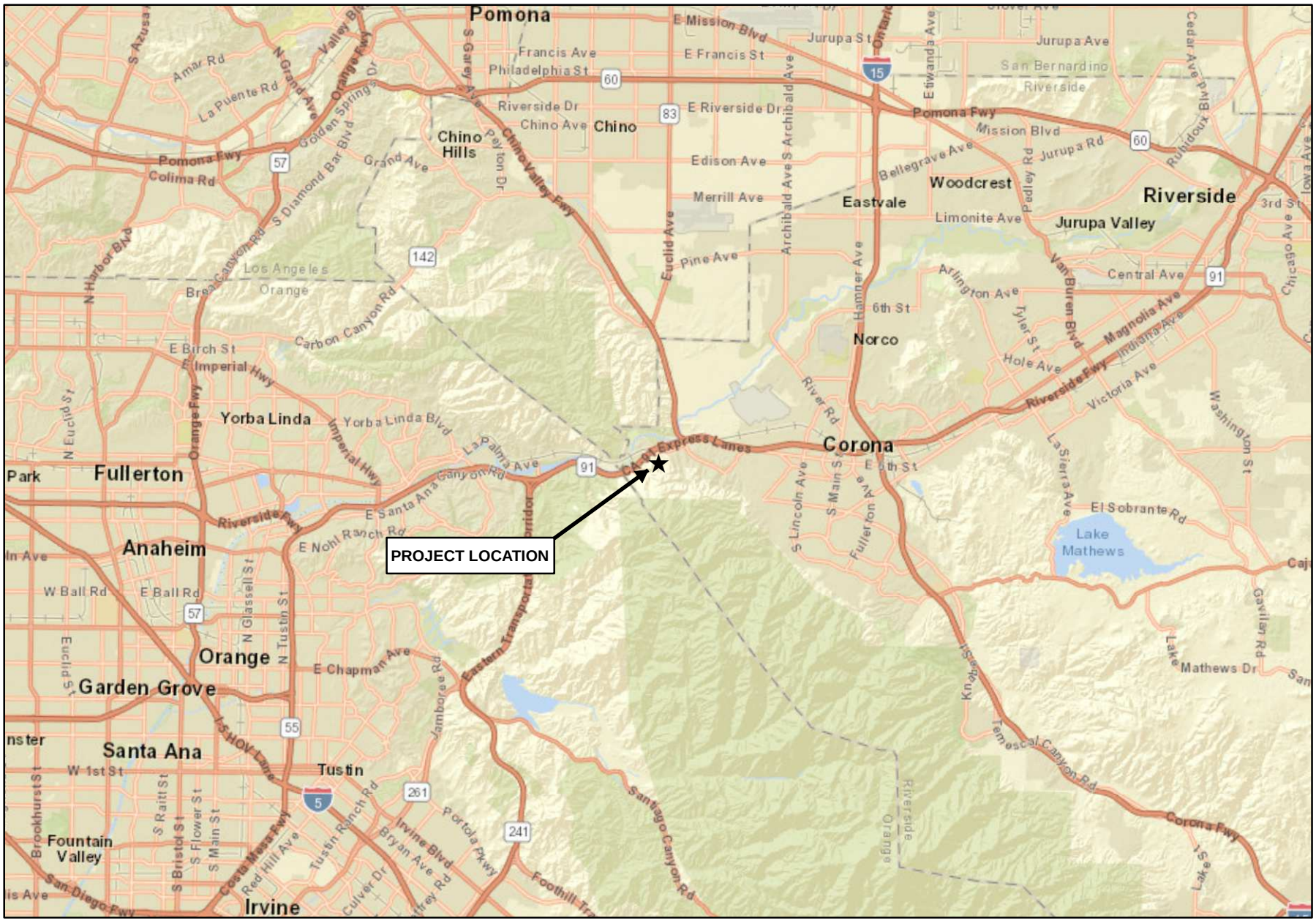


Source: ESRI World Street Map

N

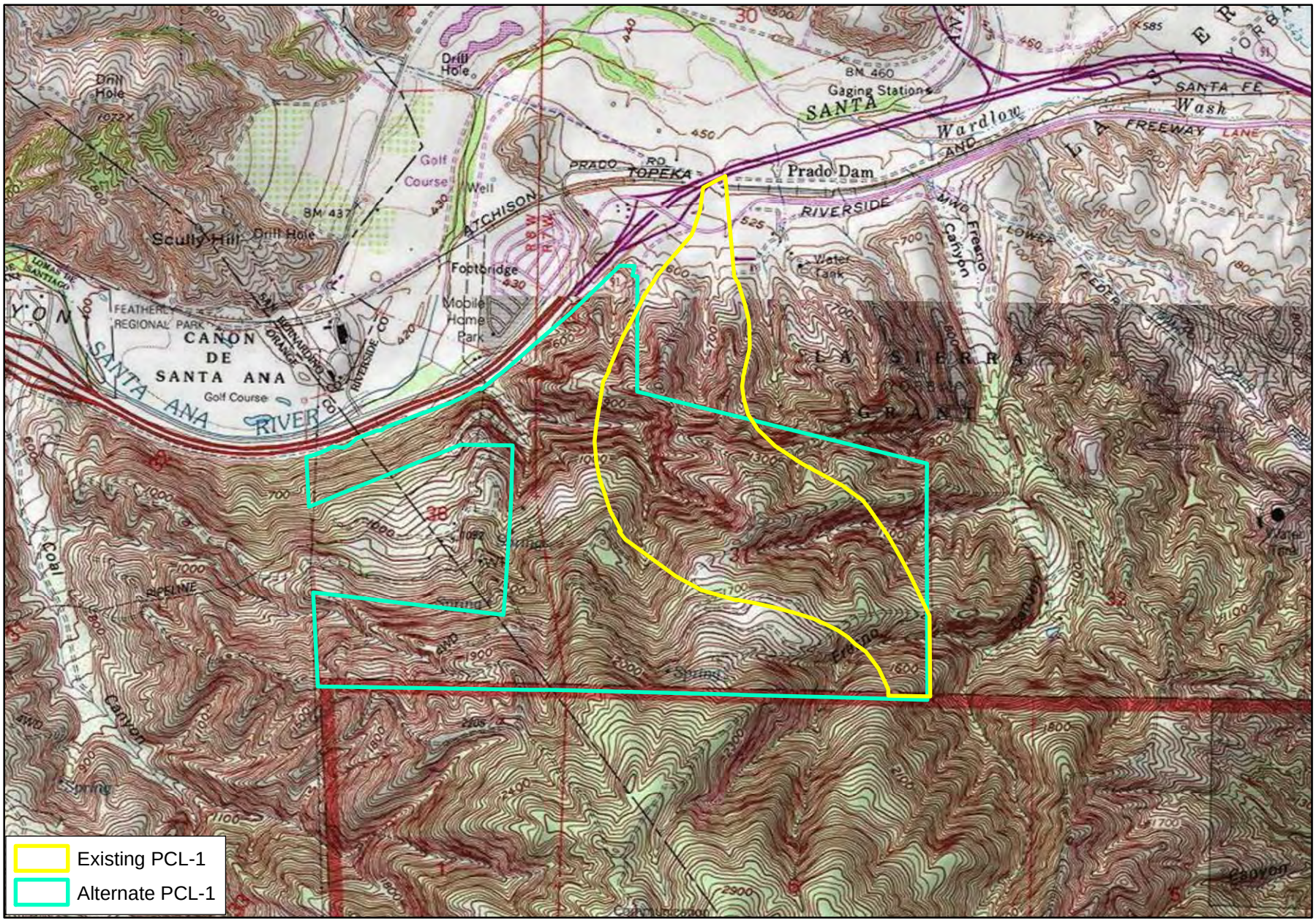
0 2 4 8 Miles

PROPOSED CONSTRAINED LINKAGE 1 CRITERIA REFINEMENT

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1

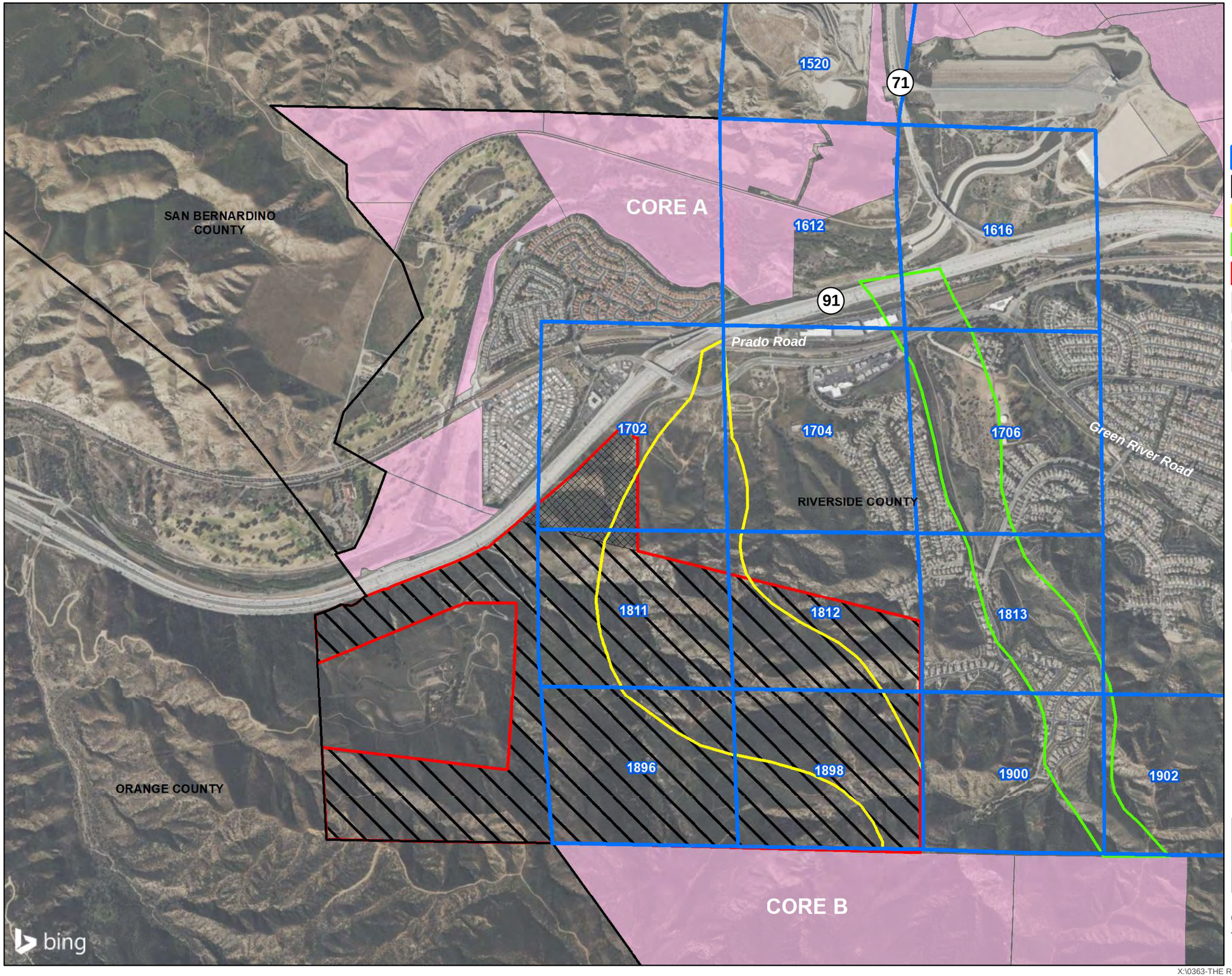


PROPOSED CONSTRAINED LINKAGE 1 CRITERIA REFINEMENT

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2



- Criteria Cell
- Counties
- Existing PCL-1
- Existing PCL-2
- Alternate PCL-1
- Existing Additional Reserve Lands (ARL)
- Pending Additional Reserve Lands (ARL)
- Public/Quasi-Public Lands

N

0 700 1,400 2,800

Feet

1 inch = 1,400 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: K. Kartunen, GLA
Date Prepared: December 7, 2023

GREEN RIVER RANCH SPECIFIC PLAN

Proposed Criteria Refinement

GLENN LUKOS ASSOCIATES

Exhibit 3

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Counties
Criteria Cell
Existing PCL-1 (Removed)
Existing PCL-1 (To Remain)
Alternate PCL-1 (New)
Chaparral
Coastal Sage Scrub
Grassland
Riparian Scrub, Woodland, Forest
Residential/Urban/Exotic

N

0 400 800 1,600
Feet

1 inch = 800 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: K. Kartunen, GLA
Date Prepared: December 7, 2023

GREEN RIVER RANCH SPECIFIC PLAN

Vegetation Map (1994 Rough Step Baseline)

GLENN LUKOS ASSOCIATES

Exhibit 4

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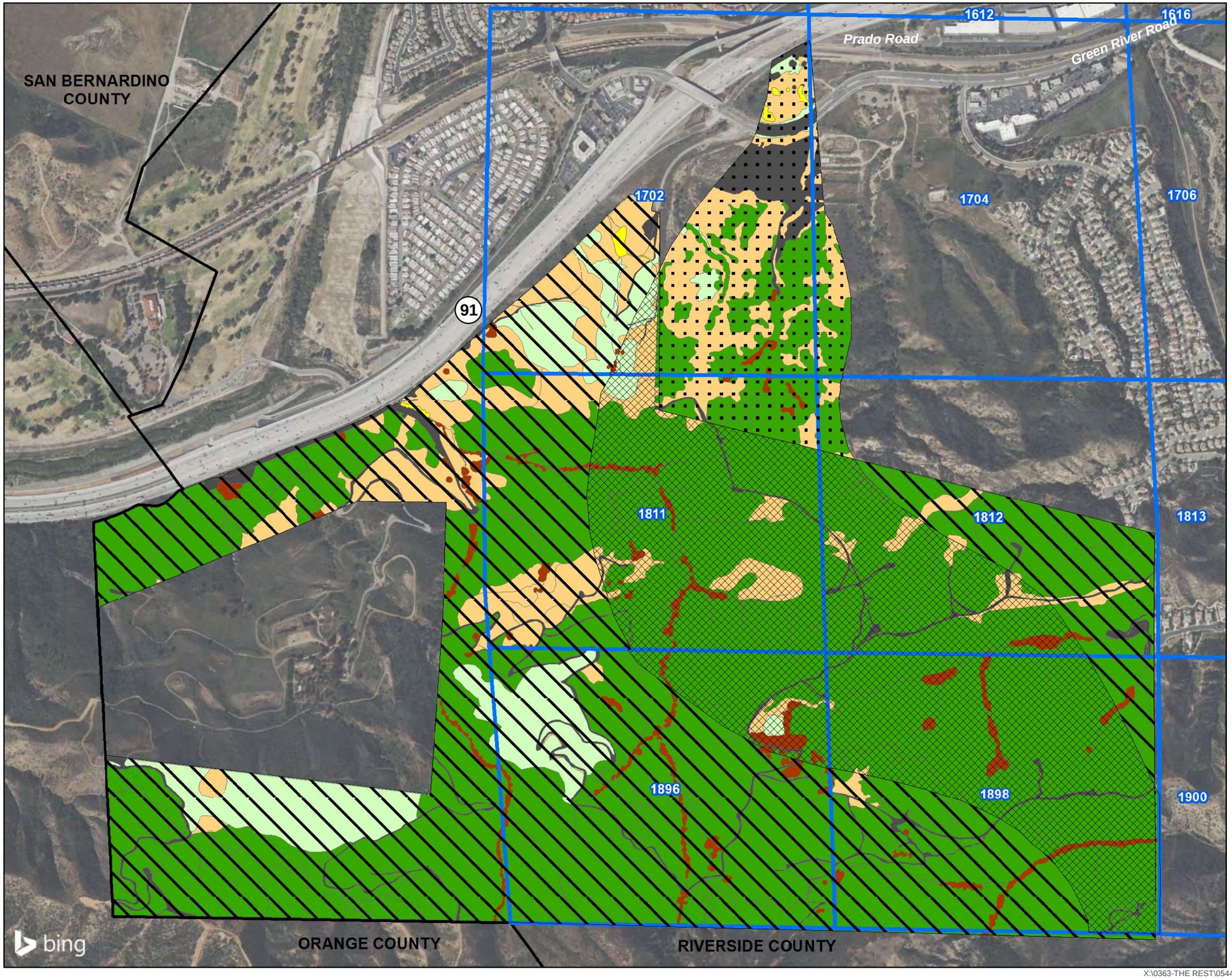

Counties
Criteria Cell
Existing PCL-1 (Removed)
Existing PCL-1 (To Remain)
Alternate PCL-1 (New)
Chaparral
Coast Live Oak Woodland
Coastal Sage Scrub
Grassland
Miscellaneous Riparian
Residential/Urban/Exotic

N

0 400 800 1,600
Feet

1 inch = 800 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: K. Kartunen, GLA
Date Prepared: December 7, 2023

PROPOSED CONSTRAINED LINKAGE 1 CRITERIA REFINEMENT

Vegetation Map (GLA)

GLENN LUKOS ASSOCIATES

Exhibit 5

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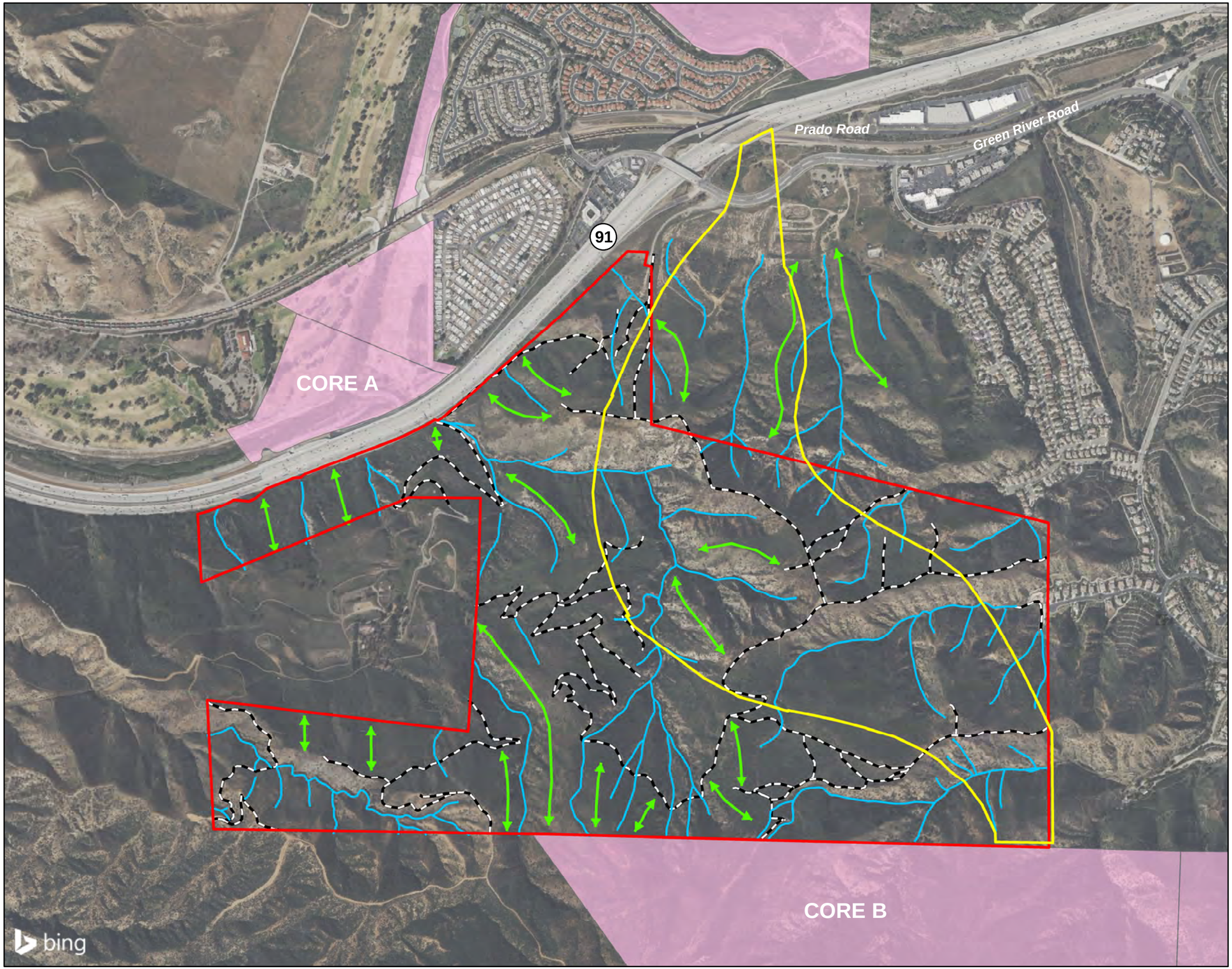

Existing PCL-1

Alternate PCL-1

Public/Quasi-Public Lands

Canyons

Ridgelines

Access Roads

N

0 500 1,000 2,000

Feet

1 inch = 1,000 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD 1983 2011
Map Prepared by: K. Kartunen, GLA
Date Prepared: December 12, 2023

PROPOSED CONSTRAINED LINKAGE 1 CRITERIA REFINEMENT

Wildlife Movement Routes

GLENN LUKOS ASSOCIATES

Exhibit 6

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