

Bridging the Divide: Connecting Climate Resilient Roads and Wildlife Pathways

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The Nature
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Executive Summary

California stands at a pivotal crossroads where climate resilience, infrastructure modernization, and habitat connectivity must advance together by integrating investments in wildlife crossing infrastructure with highway upgrades. The California Department of Transportation (Caltrans), the California Department of Fish and Wildlife (CDFW), and the Wildlife Conservation Board (WCB), amongst others, each hold critical responsibilities in this effort. Yet the scale of the challenge demands that conservation organizations like The Nature Conservancy (TNC) and partner non-governmental organizations (NGOs) step into a complementary role—not to direct infrastructure priorities, but rather to create the enabling conditions that make success possible.

By focusing on protecting land for connectivity, advancing science, and supporting ecological data integration, TNC and other partners can help ensure that Caltrans' transportation dollars achieve multiple benefits: safer roads, climate resilient infrastructure, and thriving wildlife populations (Center for Large Landscape Conservation, 2022). This partnership approach recognizes that infrastructure agencies can lead on design, engineering, and funding of crossings, while conservation partners and conservation dollars can strengthen the foundation through habitat protection, land acquisition, and science-based analyses.

Bridging the Divide offers a roadmap for how conservation partners can align with Caltrans' existing programs and priorities. It highlights opportunities to streamline solutions, maximize funding efficiency, and deliver lasting benefits for both people and nature—without duplicating or diverting the essential work of state agencies.

This unique study pinpoints:

- **Priority Infrastructure Sites:** Culverts and bridges that already align with Caltrans' climate adaptation priorities and offer immediate opportunities for wildlife connectivity upgrades (California Department of Transportation, 2020).
- **Land Protection Needs:** Locations where wildlife crossings will only succeed if adjacent lands are secured. These sites highlight opportunities for NGOs and land trusts to focus on protection efforts and additional foundational science needed to make connectivity and crossings successful.
- **Alternative Sites:** Structures near existing Caltrans barriers that already have strong land protection, offering cost-effective substitute wildlife crossing locations with high ecological value.
- **Future Opportunities:** Areas requiring coordinated land protection, science and long-term planning to enable crossings in the next generation of Caltrans' Barriers Inventory, Transportation Asset Management Plan (TAMP), and State Highway Operation and Protection Plan (SHOPP), (California Department of Transportation, 2024b), (California Department of Transportation, 2025) (California Department of Transportation 2020),(California Department of Transportation 2024a).

Our analysis mapped culverts and bridges against climate adaptation priorities, TNC's Resilient Connected Network connectivity model (Anderson et al., 2023; Cameron et al., 2022; The Nature Conservancy, 2025) and other data (see methods below), and protected lands. This integrated approach revealed immediate opportunities and longer-term strategies for advancing wildlife connectivity, with a focus on the South Coast and a portion of the Southern Sierra Nevada (California Department of Transportation, 2020; GreenInfo Network, 2025a; GreenInfo Network, 2025b). This region was chosen as a focal area because it is rapidly growing and the impacts of urbanization, including sprawling housing developments and roadways, have led to significant barriers impeding wildlife movement (Anderson et al, 2023) (The Nature Conservancy, 2025).

Key findings of the South Coast-Southern Sierra Nevada analysis include:

- 114 culverts and bridges with full land protection that can deliver immediate benefits.

- 194 culverts and bridges requiring additional land protection to unlock future connectivity.¹
- Identification of major barriers, such as I-10 in the San Geronio Pass, where strategic conservation will be essential.

Our study found that there are opportunities to implement upgrades with multiple benefits—ensuring transportation infrastructure remains climate resilient while enabling wildlife movement. Streamlining these upgrades is more efficient and can leverage multiple funding streams. To further advance alignment between wildlife crossings, transportation infrastructure, and land protection, we recommend the following actions:

- **Integrate Wildlife Crossings into Core Infrastructure:** Formally recognize wildlife crossings as assets and establish performance objectives for connectivity within the asset management system of Caltrans. For example, require targets for connectivity to be included in the Transportation Asset Management Plan (TAMP) and State Highway Operation and Protection Program (SHOPP). Clarify the process for public input and agency collaboration in development of Caltrans’ asset inventory.
- **Align Funding** Expand and enhance transportation dollars (i.e., like those from Senate Bill 1 and other transportation funds) to include wildlife crossings as safety, adaptation, and resilience projects, with performance objectives (California Transportation Commission 2025-2026).
- **Land Protection:** As transportation organizations focus on the infrastructure for wildlife crossings, NGOs and other conservation-focused organizations and agencies like CDFW can work to identify and aid in securing adjacent lands and advancing science to ensure long-term functionality of the future crossings.
- **Scale Through Collaboration and Expansion:** Apply the below model statewide, strengthening partnerships across agencies and NGOs to prioritize strategic sites, guide land use, and share best practices.

Together, these recommendations provide a roadmap for conservation partners to step in where they add the most value—securing land, advancing science, and enabling Caltrans and other agencies to deliver crossings efficiently and at scale.

Introduction

California’s transportation system is at a critical juncture. Accelerating climate change, aging infrastructure, and expanding development have created overlapping challenges that threaten both public safety and ecological connectivity. Roads and highways, while essential for mobility, have fragmented habitats and disrupted wildlife movement (The Nature Conservancy, 2023), placing species such as mountain lions at risk of local extinction (Gustafson et al 2022) (Penrod & Smith, 2022). At the same time, intensifying wildfires, floods, and sea level rise are exposing vulnerabilities in bridges, culverts, and pavements built for a different climate.

Recognizing these interconnected challenges, Caltrans has begun integrating climate adaptation priorities with wildlife connectivity and, pursuant to Assembly Bill 2344 (California State Legislature, 2022) are required to produce a statewide inventory of wildlife crossings. Yet the scale of need to plan and build wildlife crossings more rapidly requires additional support, alignment with transportation projects and funding, and broader collaboration. Conservation organizations like TNC and partner NGOs can play a vital enabling role—securing land, advancing science, and aligning ecological data with infrastructure priorities—we can help to bridge the divide so that Caltrans can deliver crossings efficiently and at scale.

¹ These potential sites are clustered. The report is not recommending upgrading and enhancing all 114 and 194 assets but rather further evaluating the best ones for potential enhancements and ensuring those are implemented with wildlife connectivity performance objectives in mind. Where they cannot be enhanced, new wildlife crossings would be recommended. See Appendix A for the Going with the Flow analysis.

This report, *Bridging the Divide*, builds on a statewide analysis conducted by TNC and partners to identify where climate resilient infrastructure upgrades and wildlife connectivity opportunities overlap. Using the South Coast and a portion of the Southern Sierra Nevada as a case study, the analysis highlights priority sites, gaps in land protection, and pathways for collaboration. The following sections detail the methods, results, and recommendations that can guide California toward a transportation system that is safer, more resilient, and supportive of biodiversity.

Accelerating Climate Change, Outdated Infrastructure and Habitat Fragmentation

California's transportation network faces key interconnected challenges:

Accelerating Climate Change and Outdated Infrastructure

Rising temperatures with prolonged droughts and intensified wildfires; heavier rainfall causing flooding and debris flows; and sea level rise are increasing climate risks to California. The state's transportation system is notably vulnerable (Thorne et al., 2017; Petek, 2022). Much of California's transportation infrastructure, such as bridges, culverts, and pavements, was built for a different climate regime and requires upgrades (California Department of Transportation, 2020). While Senate Bill 1 provides funding, it is becoming insufficient to meet the growing costs of climate adaptation needed to ensure a safe transportation system (California Transportation Commission 2017; Petek, 2022).

Habitat Fragmentation

Roads and development, especially in Southern California, have caused significant habitat fragmentation and have disrupted the movement of wildlife, causing vehicular collisions and genetic isolation (Yap et al., 2021). Such challenges continue to place both people and wildlife at risk. Current efforts to fund, plan and build, in particular terrestrial wildlife crossings, and protect land are disjointed, costly, and are not meeting the challenge at pace or at scale (Yap et al., 2021). Many crossings are planned and funded in piecemeal, resulting in place-based, costly, one-off remedies that merely chip away at the intractable problem facing California's roadways and wildlife, especially in the face of climate change.

Caltrans Coordination Efforts

Caltrans is already advancing efforts to coordinate projects between its Asset Management, Climate Change Adaptation, and Fish and Wildlife Connectivity divisions to address these interconnected challenges:

- TAMP outlines a 10-year financial strategy for managing transportation assets (California Department of Transportation, 2025)
- SHOPP funds critical infrastructure repairs and climate adaptation upgrades (California Department of Transportation, 2024a)
- Caltrans developed statewide adaptation priorities, which helps districts target vulnerable assets like culverts and bridges (California Department of Transportation, 2020)
- Caltrans maintains a statewide inventory of priority wildlife connectivity barriers for remediation (California Department of Transportation, 2024b)

Continued and strengthened coordination across these divisions, along with partner agencies and with NGOs is essential. NGOs and other private partners play a critical supporting role by helping Caltrans scale wildlife crossing and climate adaptation solutions, statewide. This includes investing in land protection needed to make present

and future wildlife crossings function as intended and contributing to the foundational science that demonstrates the challenges, informs design, and documents the outcomes and success of future connectivity and crossing projects.

South Coast-Southern Sierra Nevada Study

To identify how to best align with Caltrans’s efforts and support crossings within transportation infrastructure projects, TNC conducted an analysis on California’s South Coast ecoregion and a portion of the Southern Sierra Nevada (specifically around Tehachapi Pass/State Route 58)—from the Southern Sierra Nevada to the California/Baja California, Mexico border. This region faces heightened climate risks due to wildfires and intense rainstorms that are projected to worsen as the climate changes. These events have already caused repeated damage to transportation infrastructure over the past decade. The region is also experiencing rapid urbanization resulting in an expanding transportation network that has created barriers to wildlife movement. Mountain lions are especially vulnerable, facing local extinction risks due to vehicle collisions and genetic isolation, which reduce population size, diversity, and disease resistance (Gustafson, Ernest, & Vickers, 2022; Shilling & Waetjen, 2023).

Methods

The study examined the intersection of four key factors:

1. TNC’s multi-benefit opportunities for connectivity and climate adaptation
2. Caltrans climate adaptation priorities (California Department of Transportation, 2020)
3. Caltrans priority wildlife connectivity barriers (California Department of Transportation, 2024b)
4. Presence of surrounding protected areas (GreenInfo Network, 2025a; GreenInfo Network, 2025b)

For the first factor, we assigned scores to each culvert and bridge based on its ability to enhance connectivity and its risk of climate vulnerability and filtered for those with both high connectivity and vulnerability (scores ≥ 0.6 out of 1) and that Caltrans identified as high priority (1 or 2) for climate adaptation.

Next, we evaluated each culvert and bridge based on the extent of surrounding land protection, including publicly and privately protected lands, as well as conservation easements. Structures adjacent to protected lands on both sides of the roadway were classified as having full land protection; those lacking protection on one or both sides were identified as needing additional land protection. We considered areas where culverts and bridges fell within tribal lands separately. We applied the same criteria of surrounding land protection to existing Caltrans wildlife connectivity barriers, to support their already inventoried active, planned, and unfunded projects.

This led to three categories of results:

1. Infrastructure in the Caltrans wildlife connectivity barriers inventory that requires additional protection to be successful.
Potential Actions:
 - a. Protect land adjacent to these culverts and bridges to facilitate wildlife movement.
 - b. Consider nearby culverts and bridges that already have land protection in place as alternatives.
We identify some potential alternatives in Section below under “Results.”

2. Infrastructure not yet in Caltrans’ wildlife connectivity barriers inventory where the structure intersects lands that are already protected.
Potential Actions:

- a. Consider incorporating these locations into future versions of Caltrans wildlife connectivity barriers inventory. These culverts/bridges will offer immediate benefits once upgrades are implemented.
3. Infrastructure not yet in Caltrans' wildlife connectivity barriers inventory that also requires more land protection.

Potential Actions:

- a. Coordinate with NGOs to plan for future land protection to support wildlife movement at these bridges and culverts.
- b. Plan for these as longer-term wildlife crossings to be included into Caltrans inventory—once land is protected and into the future TAMP and SHOPP.

For #2 and 3 above, we selected culverts and bridges more than five kilometers from existing Caltrans barriers to ensure wildlife crossings would be spatially distributed throughout the region.

Results: Infrastructure for Wildlife and Climate Resilience

We identified a list of infrastructure locations that would support both wildlife connectivity and transportation system climate adaptation in the South Coast ecoregion (see Appendix B). Our analysis also points to gaps and needed land protection. Figure 1 shows, alongside Caltrans wildlife connectivity barriers, potential alternatives and suggested sites for future inclusion in Caltrans' inventory. These sites could complement and expand upon existing Caltrans efforts where opportunities to enhance existing structures are possible. Where it is not possible, there would be the potential need for a new structure.²

² We recognize that the potential sites identified in this report will require engineering studies to evaluate if the existing culverts or bridges can be enhanced, based on the roadway and structural allowances. This report does not assume all culverts and bridges identified can be upgraded or enhanced for wildlife crossings. Where upgrading existing culverts or bridges or enhancing is not possible, then ensuring smaller culverts continue to function for multiple smaller species and adding a new wildlife crossing could be recommended.



Figure 1. Map of infrastructure (bridges and culverts) in the South Coast and southern Sierra that can enhance wildlife connectivity and climate adaptation. Infrastructure is symbolized based on its surrounding land ownership.

Identified Caltrans Barriers

Eighteen wildlife connectivity barriers identified in Caltrans’ inventory and in the study area do not have sufficient land protection (while 13 are fully protected) (California Department of Fish and Wildlife 2024b). For four of these, we identified potential alternative culverts that have full land protection and meet additional connectivity and climate adaptation goals. These offer the possibility as nearby substitutes and may potentially have more benefits to wildlife movement due to the added land protection.

The alternatives are in these locations:

- Orange County, Route 74: One mile north of “Ortega 74 - Culvert 1”
- Kern County, Route 58: One culvert 0.5 miles west of “Tehachapi 1” and two culverts one mile south of “Hart Flat 2” (TNC is currently working with Caltrans already in these locations and where any additional land needs protection we are working with our partners and partner agencies).

Proposed Additions to Caltrans' Inventory

There are 114 culverts and bridges that could meet connectivity and climate adaptation goals and have full land protection. These sites offer potential immediate benefits for wildlife movement and climate resilience. The locations with the highest density of these culverts and bridges and that have potential immediate upgrade opportunities are:

- Kern County: Route 178
- Los Angeles County: Routes 2, 39
- Riverside County: Routes 74, 243 and Interstate 15 (Temecula Creek Bridge)
- San Bernardino County: Routes 38, 138, 330
- San Diego County: Routes 79 and 94
- Ventura County: Route 33

Along these routes, many of the sites are clustered, reflecting individual culverts or bridges that could benefit from targeted improvements. The clustered sites provide multiple suitable potential options that can be further examined and would need to be further prioritized, for example, prioritizing ones that are already planned for regular maintenance and are slated for upgrades. These sites are surrounded by protected areas and align with climate adaptation needs. They represent high-value opportunities for Caltrans to prioritize the projects in future TAMP and SHOPP.

Future Additions to Inventory (Land Protection Needed)

There are 194 culverts or bridges that could meet connectivity and climate adaptation goals and would require additional land protection. These offer similar benefits but require coordinated land protection efforts to ensure effective connectivity. Key locations include:

- Kern County: Interstate-5
- Los Angeles County: Route 1, Interstate 5
- Orange County: Route 74
- Riverside County: Interstate 10 and Interstate 15
- Santa Barbara County: Route 101
- San Bernardino County: Route 2
- San Diego County: Routes 76, 78, 94 Interstate 8 and Interstate 15
- Ventura County: Routes 1, 33

Similarly, to the above, these routes have clustered groups of suitable culverts that can be further prioritized. Notably, I-10 poses a major barrier to wildlife movement within a critical wildlife corridor and will require strategic land conservation to enable successful crossings.

These sites present strong potential for collaboration between TNC, Caltrans and other partners to:

- Guide future private land protection
- Support site-specific ecological assessments
- Inform design and placement of crossing structures

Concluding Remarks and Recommendations

California stands at a pivotal moment where climate resilience, infrastructure modernization, and wildlife connectivity conservation can be addressed through unified, strategic actions. This study demonstrates that integrating wildlife crossings with transportation upgrades is not only feasible, but that it is essential. By aligning Caltrans' asset management and climate adaptation priorities with ecological connectivity data, we can unlock multi-benefit solutions and funding that protect biodiversity, enhance public safety, and future-proof California's transportation network.

The South Coast-Southern Sierra Nevada case study offers a replicable framework for identifying high-impact infrastructure sites that serve both climate and conservation goals that also offer increased safety and resilience. With targeted investment, interagency and partner collaboration, and expanded land protection, California can lead the nation in building a transportation system that works for both people and wildlife.

Recommendations: Enabling Wildlife Crossings at Scale

Our study found that there are significant opportunities to implement transportation infrastructure upgrades with multiple benefits, ensuring infrastructure remains climate resilient while enabling wildlife movement. This study can easily be expanded and is being expanded to the entirety of the state. The study shows that wildlife crossings can be streamlined, made more efficient, and supported using some of the recommended funding and delivery mechanisms. To further advance alignment between wildlife crossings, transportation infrastructure, and land protection, we recommend the following actions:

- **Integrate Wildlife Crossings into Core Infrastructure:** Formally recognize wildlife crossings as assets and establish performance objectives for connectivity within the asset management system of Caltrans. For example, require targets for connectivity to be included in TAMP and SHOPP. Clarify the process for public input and agency collaboration in development of Caltrans' asset inventory.
- **Align Funding:** Expand and enhance transportation dollars (i.e., like those from Senate Bill 1 and other transportation funds) to include wildlife crossings as safety, adaptation, and resilience projects, with performance objectives.
- **Land Protection:** As transportation organizations focus on the infrastructure for wildlife crossings, NGOs and/or other conservation focused organizations and state agencies like CDFW can work to identify and aid in securing adjacent lands and advancing science to ensure long-term functionality of the future crossings.
- **Scale Through Collaboration and Expansion:** Apply the below model statewide, strengthening partnerships across agencies and NGOs to prioritize strategic sites, guide land use, and share best practices.

Recommendations: State and Partner Actions and Policies

1. Asset Management Integration (State Action)

- Formally recognize wildlife crossings as infrastructure performance objectives in transportation planning so they are fundable along with pavement, bridge, and culvert upgrades.
- Embed crossings into statewide climate adaptation priorities as core infrastructure.
- Define performance criteria and targets for wildlife crossings that meet both human and wildlife needs (e.g., reduced vehicle collisions, improved habitat connectivity, climate resilience of the highway and for species climate adaptation, barrier removal, and safe passage enhancement).
- Integrate these criteria into Caltrans' Transportation Asset Management Plan and State Highway Operation and Protection Program.

2. Policy and Funding Alignment (State Action)

- Enhance transportation funding like Senate Bill 1 allocations to explicitly include wildlife crossings as eligible projects for funding. Since early 2025, the California Transportation Commission has approved multiple large funding actions—nearly \$1.0B (January 2025), ~\$1–\$1.2B (March 2025), a combined ~\$5B package in June 2025 (\$3.5B in allocations plus \$1.45B in Senate Bill 1 awards), and nearly \$1B again in February 2026—advancing road resiliency, safety, transit, and zero-emission investments across the state (California Transportation Commission 2025-2026).
- Enable transportation funds rather than large sums of conservation dollars to be used for the design and construction of wildlife crossings, freeing up conservation dollars to fund conservation work like climate change adaptation routes protection, land protection, restoration, and connectivity science and planning.
- Provide a mechanism for streamlining environmental permitting through a programmatic Statutory Exemption for Restoration Projects (SERP) to enable infrastructure projects (only those including wildlife crossings as a performance objective and not resulting in a take) to move quickly so that wildlife crossings are achieved at more efficient scales.

3. Land Protection & Science (Partner Action)

- Identify, map, and strategically protect lands adjacent to priority crossing sites in coordination with Caltrans and CDFW.
- Integrate findings from this study into Caltrans' planning processes.
- Advance ecological research to refine crossing criteria, design, and effectiveness, and monitor wildlife movement to inform adaptive management.

4. Land-use Strategies (Partner Action)

- Develop policies and strategies to guide development (housing, infrastructure, etc.) away from wildlife corridors and prevent future development sprawl.
- Prioritize locations where land-use planning can secure long term functionality of crossings.

5. Statewide Expansion (Joint Action)

- Apply this model to other ecoregions and roadways across California to inform connectivity and wildlife crossing infrastructure needs.
- Work jointly to prioritize strategic culverts and bridges that advance connectivity and guide land protection efforts.

6. Cross Sector Collaboration (Joint Action)

- Strengthen partnerships among transportation agencies, wildlife agencies, NGOs, and local governments.
- Share data, tools, and best practices to scale solutions statewide.

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Appendix A

Going with the Flow: Towards a Climate Resilient and Connected Wildlife & Transportation Network

Going with the Flow:

Towards a Climate Resilient and Connected Wildlife & Transportation Network

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Overview

Habitat fragmentation poses one of the greatest threats to biodiversity, and transportation infrastructure is a major source of fragmentation, threatening both species movement and human safety, through wildlife-vehicle collisions. As climate change forces species to migrate farther, they will require more pathways for movement to find the habitats and resources they need to survive. Yet wildlife crossing structures are costly and transportation agencies have limited funding resources.³ Climate change not only affects species; the state highway system is also at risk of climate stressors, including larger and more frequent fires, longer droughts, and heavy rainstorms. As California's infrastructure continues to age and as the climate changes, the state highway system will require significant upgrades to avoid dangerous and costly roadway failures. Caltrans recognizes this threat and has begun assessing the potential impacts to their transportation assets across the state. If the state is investing in upgrades to address its climate vulnerable transportation systems, they may be able to identify objectives that achieve multiple goals by additionally reducing barriers to wildlife movement.

This analysis aims to identify those overlapping opportunities-locating infrastructure that requires climate resilience improvements and can help restore fragmented landscapes—stretching limited financial resources to achieve multiple benefits. The purpose of this study was to identify opportunities to upgrade the state highway system to address climate adaptation priorities for both transportation assets and wildlife connectivity. Specifically, we investigated the nexus between road segments critical to the transportation network, highways susceptible to post-fire debris flow, and areas in need of wildlife crossing infrastructure.

Data & Methods

To identify locations along the state highway system that are vulnerable to climate change events and suitable for wildlife crossings, we identified three key factors to include in this analysis: (1) Wildlife Connectivity, (2) Climate Vulnerability, and (3) Roadway Criticality. Each factor includes 1-2 datasets, which were preprocessed to create the model inputs, as further described below.

Wildlife Connectivity

To create one dataset representing wildlife connectivity across California, we merged two statewide raster datasets together: Resilient Connected Network (RCN)⁴ and Present-day Connectivity in California (Omniscape)⁵. RCN characterizes lands on their biodiversity, resiliency, and connectivity to identify places

³ The Center for Large Landscape Conservation. Wildlife-Vehicle Conflict, Crossing Structures, and Cost Estimates. <https://largelandscapes.org/wp-content/uploads/2021/01/Wildlife-vehicle-Conflict-Crossing-Structures-and-Cost-Estimates.pdf>

⁴ The Nature Conservancy California Science, 2020, <https://maps.tnc.org/resilientland/>

⁵ The Nature Conservancy California Science, 2017, <https://omniscape.codefornature.org/>

that will support biodiversity in a changing climate. Omniscape is wall-to-wall modeling of habitat connectivity potential for plant and animal species. We combined the RCN classes with two subclasses from Omniscape, channelized and intensified linkages, which identify where wildlife movement is more constrained due to surrounding human land uses.

RCN and Omniscape classify highways as places with impeded flow, as roads themselves inhibit wildlife movement. In this study, we wanted to locate priority areas for wildlife movement across roadways and to support biodiversity in a changing climate, to find areas suitable for establishing wildlife crossing infrastructure or improving existing infrastructure to support wildlife movement, so we applied the raster categories of adjacent lands to the roadways to identify resilient areas that are important for habitat connectivity. We did this using the Expand tool in ArcGIS Pro, expanding each raster class by two 90-meter cells.

Climate Vulnerability

While there are many climate change impacts that can affect roadways, this study focused on post-fire debris flow. A combination of multiple climate stressors—wildfires and intense precipitation—post-fire debris flow can damage infrastructure and cause roadway failures.^{6,7} We looked at the risk of post-fire debris flow under both current conditions and future projections. The current risk calculates the likelihood of debris flow based on terrain, wildfire burn severity, soil characteristics, and rainfall intensity.⁸ The future risk uses similar factors, but takes into account future fire and precipitation predictions, using the HadGEM2-ES model (a warmer and drier future) and Representative Concentration Pathway (RCP) 8.5 (a worst-case emissions scenario, where emissions increase until the end of the century).⁸ Current and future debris flow risk, both statewide raster datasets, were made up of values from 0 (no risk) to 7 (highest risk). We applied these values to highway segments.

Roadway Criticality

Roadway criticality is measured using betweenness centrality—a measure of how important each link is to a network.⁸ Betweenness centrality measures of the number of routes that would use a particular link to traverse the network, and higher values represent roadways more critical to the state highway system.

Methods

Each individual factor was evaluated for its contribution to meet the ultimate project objectives: identifying suitability for wildlife crossings, vulnerable to debris flow, and critical to the roadway system. Using GIS analysis, our team scored categories of each spatial dataset on a scale from 0 to 1 on its ability to meet these goals. Roadways with a higher contribution to one of these three conditions (more suitable for wildlife crossing infrastructure, more vulnerable to debris flow, or more critical to the road network) received higher valuations, with the most suitable roadways receiving a score of 1. Roadways with no contribution to these goals received a value of 0. These scores were assigned to individual road segments. The full list of scores is presented in the following table:

⁶ California Department of Conservation. Post-Fire Debris Flow Facts.

<https://www.conservation.ca.gov/index/Pages/Fact-sheets/Post-Fire-Debris-Flow-Facts.aspx>

⁷ USGS. Post-Fire Flooding and Debris Flow. <https://www.usgs.gov/centers/california-water-science-center/science/post-fire-flooding-and-debris-flow>

⁸ Mikhail V. Chester, Rui Li. Vulnerability of California Roadways to Post-Wildfire Debris Flows. 2020, <https://doi.org/10.17610/T60W35>

Dataset Name(s)	Dataset Category	Description	Score
Resilient Connected Network & Present-day Connectivity	Channelized linkages	The last remaining options for connectivity between natural areas through a modified landscape, which may also provide climate adaptation capacity.	1
	Coastal migration space	Undeveloped uplands with the potential to become coastal habitat as sea level rises.	1
	Intensified linkages	Limited options for plant and animal movement between natural areas through a modified landscape, which may also provide climate adaptation capacity.	0.8
	Climate migration route	Broadly permeable lands that provide climate adaptation capacity by connecting current climate to similar climate in the future.	0.6
	Resilient and biodiverse	Places where plants and animals are already thriving and that have characteristics that are more likely to make those species more resilient to climate change.	0.4
	Biodiverse	Places where plants and animals are already thriving.	0.2
Post-fire Debris Flow Risk (for both Current & Future)	Values 5-7	Extremely high risk, rainfall recurrence interval of <2 year to 10-year	1
	Values 3-4	High risk, rainfall recurrence interval of 10 to 50-year	0.75
	Value 2	Medium risk, rainfall recurrence interval of 50 to 100-year	0.5
	Value 1	Low risk, rainfall recurrence interval of >100-year	0.25
	Value 0	No risk of post-fire debris flow	0
Betweenness Centrality	4 th quartile	Very high criticality to the roadway network	1
	3 rd quartile	High criticality to the roadway network	0.75
	2 nd quartile	Medium criticality to the roadway network	0.5
	1 st quartile	Low criticality to the roadway network	0.25

After each dataset is scored on its own, all datasets are summed together, and divided by the number of inputs, to get final results. We used the following calculation:

$$\frac{(RCN/Omniscape) + (Current Debris Flow Risk * 0.5) + (Future Debris Flow Risk * 0.5) + (Centrality)}{3}$$

The results, a final prioritization of highway segments in California, have scores ranging from 0 to 1 (called “climate connectivity priority scores”). A final score of 1 indicates the highest priority for infrastructure upgrades – locations along the state highway system which are at high risk of post-fire debris flow, key opportunities for wildlife crossings, and are highly critical to the transportation network. The final scores, initially calculated on the state highway system lines, were then applied to bridges, culverts, and Caltrans State Highway Operation and Protection Program (SHOPP) projects (from quarter one of Fiscal Year 2021/2022).

By identifying segments of the state highway system that are crucial for wildlife movement, vulnerable to debris flow, and critical to the flow of transportation, Caltrans can focus infrastructure upgrades in fewer locations to meet a broader set of internal goals.

Secondary Factors

This analysis includes additional information on a number of secondary factors. These are datasets that may be of interest to end users but did not influence our prioritization. This additional information can be used to further filter the asset prioritization to identify key places to work, depending on which topics are of interest to the user. Some of these factors may lead to additional funding streams (for example,

working within or near lands protected by government agencies). The prioritization scores are overlaid with the following additional factors:

- Distance from protected lands, using data from California Protected Areas Database (CPAD)⁹. Having protected lands on both sides of the state highway system may make it more feasible to implement wildlife crossing infrastructure improvements.
- Distance from conservation easements, using data from the California Conservation Easement Database (CCED)¹⁰
- Whether or not the asset falls within a habitat linkage. The habitat linkages included are South Coast Missing Linkages (SCML)¹¹, Bay Area Critical Linkages (BACL)¹², and the California Desert Linkage Network¹³. SCML is a regional network of landscape-scale linkages between existing reserves in the South Coast ecoregion that are essential routes for wildlife connectivity in the U.S. BACL are lands essential to maintain or restore functional connectivity among wildlands for all species in the California Bay Area. Desert Linkages are areas where maintenance or restoration of ecological connectivity is essential for conserving the unique biological diversity of California's deserts. Prioritizing upgrades to roadways within these linkages will provide additional benefits for wildlife connectivity.
- Whether or not the asset falls within a quarter mile of Threatened & Endangered (T&E) Species Active Critical Habitat.¹⁴ Prioritizing upgrades to roadways near critical habitat may provide additional benefit for wildlife connectivity for T&E species.
- Whether or not the asset falls within a quarter mile of rare, threatened, or endangered plants and animals, using data from California Natural Diversity Database (CNDDDB).¹⁵ We filtered CNDDDB to only include species categorized as Threatened, Endangered, Rare, Proposed Threatened, Proposed Endangered, or Candidate Endangered. Prioritizing upgrades to roadways near species occurrences may provide additional wildlife connectivity benefits for T&E species.

⁹ GreenInfo Network, Version 2021b, <https://www.calands.org/cpad/>

¹⁰ GreenInfo Network, Version 2021b, <https://www.calands.org/cced/>

¹¹ SC Wildlands, 2008, <http://www.scwildlands.org/reports/scmlregionalreport.pdf>

¹² Penrod et al., 2013, http://www.scwildlands.org/reports/CriticalLinkages_BayAreaAndBeyond.pdf

¹³ Penrod et al., 2012, <http://www.scwildlands.org/reports/ALinkageNetworkForTheCaliforniaDeserts.pdf>

¹⁴ U.S. Fish & Wildlife Service, <https://ecos.fws.gov/ecp/report/table/critical-habitat.html>

¹⁵ California Department of Fish and Wildlife, <https://wildlife.ca.gov/Data/CNDDDB>

Appendix B

Infrastructure Locations Supporting Wildlife Connectivity and
Transportation System Climate Adaptation in the South Coast
Ecoregion

Route	Route Type	Route Direction	Culvert/Bridge ID	Bridge Name	Bridge PM	PMRouteID	bPM	ePM	bOdometer	eOdometer	AlignCode
1	State	SB	520010000371	NA		VEN001...L	0	14.2019 9966	87.9670028 7	102.1689987	Left
1	State	SB	530010004317	NA		LA.001...L	40.01599 884	62.8670 0058	65.11599731	87.9670028 7	Left
2	State	WB	530020003628	NA		LA.002...L	25.9720 0012	82.264 99939	15.6990003 6	71.99199677	Left
2	State	WB	530020005747	NA		LA.002...L	25.9720 0012	82.264 99939	15.6990003 6	71.99199677	Left
2	State	WB	530024002815	NA		LA.002...L	25.9720 0012	82.264 99939	15.6990003 6	71.99199677	Left
2	State	WB	530024003463	NA		LA.002...L	25.9720 0012	82.264 99939	15.6990003 6	71.99199677	Left
2	State	WB	540020000032	NA		SBD002...L	0	6.35799 98	71.99199677	78.3499984 7	Left
2	State	WB	540020000218	NA		SBD002...L	0	6.35799 98	71.99199677	78.3499984 7	Left
2	State	WB	530020006670	NA		LA.002...L	25.9720 0012	82.264 99939	15.6990003 6	71.99199677	Left
2	State	WB	530020007091	NA		LA.002...L	25.9720 0012	82.264 99939	15.6990003 6	71.99199677	Left
2	State	WB	530020007181	NA		LA.002...L	25.9720 0012	82.264 99939	15.6990003 6	71.99199677	Left
2	State	WB	54 0361	NA		SBD002...L	0	6.35799 98	71.99199677	78.3499984 7	Left
5	Interstate	SB	500050000330	NA		KER005...L	0.55299 997	5.15199 995	205.462005 6	210.061004 6	Left
5	Interstate	NB	570050004872	NA		SD.005.R.R	31.18799 973	55.1549 9878	30.8640003 2	54.8310012 8	Right
5	Interstate	NB	530050004465	NA		LA.005.R.R	43.3240 0131	59.6529 9988	159.5189972	175.848007 2	Right
5	Interstate	SB	500050000589	NA		KER005...L	5.151999 95	10.4079 9999	210.061004 6	215.3170013	Left Split Align
5	Interstate	SB	500050000589	NA		KER005..LL	5.151999 95	10.4079 9999	210.061004 6	215.3170013	Left Split Align
5	Interstate	SB	500054000418	NA		KER005...L	0.55299 997	5.15199 995	205.462005 6	210.061004 6	Left
5	Interstate	SB	500054000973	NA		KER005..LL	5.151999 95	10.4079 9999	210.061004 6	215.3170013	Left Split Align

5	Interstate	NB	500054000973	NA		KER005..R R	5.151999 95	10.4079 9999	210.054000 8	215.309997 6	Right Split Align
5	Interstate			NA							
5	Interstate			NA							
5	Interstate			NA							
5	Interstate			NA							
5	Interstate			NA							
8	State	EB	570080002674	NA		SD.008.R.R	18.18099 976	34.5159 9884	20.1380004 9	36.4729995 7	Right
8	State	WB	570080004424	NA		SD.008.R.L	41.65700 15	48.1520 0043	43.5270004 3	50.0219993 6	Left
8	State	WB	570080005588	NA		SD.008.R.L	54.9090 004	56.354 00009	54.4819984 4	55.9269981 4	Left
8	State	WB	570080005800	NA		SD.008.R.LL	56.3540 0009	61.5340 004	55.9269981 4	61.1069984 4	Left Split Align
8	State	WB	570080006930	NA		SD.008.R.L	61.53400 04	77.6279 9835	61.1069984 4	77.2009964	Left
8	State	EB	570080006931	NA		SD.008.R.R	61.53400 04	77.6279 9835	61.0870018	77.1809997 6	Right
8	State	EB	570084003630	NA		SD.008.RR R	34.51599 884	36.2130 0125	36.4729995 7	38.16999817	Right Split Align
8	State	EB	570084004119	NA		SD.008.RR R	37.85599 899	41.6570 015	39.7989997 9	43.5999984 7	Right Split Align
8	State	EB	570084004603	NA		SD.008.R.R	41.65700 15	48.1520 0043	43.5999984 7	50.0950012 2	Right
8	State	WB	570084004615	NA		SD.008.R.L	41.65700 15	48.1520 0043	43.5270004 3	50.0219993 6	Left
8	State	WB	570084004905	NA		SD.008.R.LL	48.15200 043	50.2169 9905	50.0219993 6	52.0870018	Left Split Align
8	State	WB	570084006202	NA		SD.008.R.L	61.53400 04	77.6279 9835	61.1069984 4	77.2009964	Left
8	State	WB	570080004344	NA		SD.008.R.L	41.65700 15	48.1520 0043	43.5270004 3	50.0219993 6	Left
8	State	EB	570080004344	NA		SD.008.R.R	41.65700 15	48.1520 0043	43.5999984 7	50.0950012 2	Right
8	State	EB	570084003941	NA		SD.008.RR R	37.85599 899	41.6570 015	39.7989997 9	43.5999984 7	Right Split Align
8	State	WB	570084003941	NA		SD.008.R.LL	37.85599 899	41.5699 9969	39.8129997 3	43.5270004 3	Left Split Align

8	State	WB	570084004240	NA		SD.008.R.L	41.65700 15	48.1520 0043	43.5270004 3	50.0219993 6	Left
8	State	WB	570084004240	NA		SD.008.R.L	41.65700 15	48.1520 0043	43.5270004 3	50.0219993 6	Left
8	State	WB	570084005499	NA		SD.008.R.L	54.9090 004	56.354 00009	54.4819984 4	55.9269981 4	Left
8	State	WB	570084005499	NA		SD.008.R.L	54.9090 004	56.354 00009	54.4819984 4	55.9269981 4	Left
10	Interstate	WB	560104100448	NA		RIV010.R.L	0	6.2829 9999	85.9209976 2	92.2040023 8	Left
10	Interstate	WB	560104100478	NA		RIV010.R.L	0	6.2829 9999	85.9209976 2	92.2040023 8	Left
14	State	NB	531793	NA		LA.014...R	32.4099 9985	47.1010 0174	7.57299995	22.2639999 4	Right
15	Interstate	SB	540150101585	NA		SBD015.R.L	14.49699 974	22.8910 0075	123.827003 5	132.220993	Left
15	Interstate	SB	540150101716	NA		SBD015.R.L	14.49699 974	22.8910 0075	123.827003 5	132.220993	Left
15	Interstate	SB	560150000357	NA		RIV015...L	2.961999 89	21.7919 9982	57.4669990 5	76.2969970 7	Left
15	Interstate	SB	560150002640	NA		RIV015...L	21.81399 918	52.280 99823	76.2969970 7	106.763999 9	Left
15	Interstate	NB	560154003091	NA		RIV015...R	21.81399 918	52.280 99823	76.3069992 1	106.774002 1	Right
15	Interstate	SB	560158203038	NA		RIV015...L	21.81399 918	52.280 99823	76.2969970 7	106.763999 9	Left
15	Interstate	NB	570154004188	NA		SD.015.R.R	28.4309 9976	54.2579 9942	28.6879997 3	54.5149993 9	Right
15	Interstate	SB	570154004750	NA		SD.015.R.L	28.4309 9976	54.2579 9942	28.6779995	54.5050010 7	Left
15	Interstate	SB	570154004764	NA		SD.015.R.L	28.4309 9976	54.2579 9942	28.6779995	54.5050010 7	Left
15	Interstate	SB	570154004848	NA		SD.015.R.L	28.4309 9976	54.2579 9942	28.6779995	54.5050010 7	Left
15	Interstate	SB	570154004848	NA		SD.015.R.L	28.4309 9976	54.2579 9942	28.6779995	54.5050010 7	Left
15	Interstate	SB	570154004889	NA		SD.015.R.L	28.4309 9976	54.2579 9942	28.6779995	54.5050010 7	Left
15	Interstate	SB	570154004889	NA		SD.015.R.L	28.4309 9976	54.2579 9942	28.6779995	54.5050010 7	Left
15	Interstate	SB	570154005109	NA		SD.015.R.L	28.4309 9976	54.2579 9942	28.6779995	54.5050010 7	Left

15	Interstate	SB	540150101500	NA		SBD015.R.L	14.49699 974	22.8910 0075	123.827003 5	132.220993	Left
15	Interstate	SB	560150002517	NA		RIV015...L	21.81399 918	52.280 99823	76.2969970 7	106.763999 9	Left
18	State	SB	540180003294	NA		SBD018...L	17.87899 971	48.506 99997	11.5530004 5	42.1809997 6	Left
18	State	SB	540180003393	NA		SBD018...L	17.87899 971	48.506 99997	11.5530004 5	42.1809997 6	Left
18	State	SB	540180004340	NA		SBD018...L	17.87899 971	48.506 99997	11.5530004 5	42.1809997 6	Left
18	State	SB	540184004041	NA		SBD018...L	17.87899 971	48.506 99997	11.5530004 5	42.1809997 6	Left
18	State	SB	540184006371	NA		SBD018...L	49.10599 899	70	42.5989990 2	63.4930000 3	Left
18	State	NB	540184101173	NA		SBD018.R.R	9.23400 021	14.2869 997	3.15400004	8.20699978	Right
23	State	NB	52 0113	NA		VEN023...R	13.36999 989	20.989 99977	21.2420005 8	28.86199951	Right
23	State	SB	52 0114	NA		VEN023...L	13.36999 989	20.989 99977	21.2420005 8	28.86199951	Left
33	State	SB	520330004218	NA		VEN033...L	37.6440 0101	57.5079 9942	37.6949996 9	57.55899811	Left
33	State	SB	520330005126	NA		VEN033...L	37.6440 0101	57.5079 9942	37.6949996 9	57.55899811	Left
33	State	SB	520330005664	NA		VEN033...L	37.6440 0101	57.5079 9942	37.6949996 9	57.55899811	Left
33	State	SB	520334001638	NA		VEN033...L	11.21000 004	37.3370 018	11.26799965	37.3950004 6	Left
33	State	SB	520334001678	NA		VEN033...L	11.21000 004	37.3370 018	11.26799965	37.3950004 6	Left
33	State	SB	520334001792	NA		VEN033...L	11.21000 004	37.3370 018	11.26799965	37.3950004 6	Left
33	State	SB	520334004143	NA		VEN033...L	37.6440 0101	57.5079 9942	37.6949996 9	57.55899811	Left
33	State	SB	520330003450	NA		VEN033...L	11.21000 004	37.3370 018	11.26799965	37.3950004 6	Left
33	State	SB	520334002417	NA		VEN033...L	11.21000 004	37.3370 018	11.26799965	37.3950004 6	Left
33	State	SB	52 0076	NA		VEN033...L	11.21000 004	37.3370 018	11.26799965	37.3950004 6	Left
33	State	NB	52 0344	NA		VEN033.R. R	2.92000 008	5.67600 012	2.92000008	5.67600012	Right

38	State	WB	540380001560	NA		SBD038...L	14.86699 963	49.520 00046	15.00500011	49.6580009 5	Left
38	State	WB	540380001637	NA		SBD038...L	14.86699 963	49.520 00046	15.00500011	49.6580009 5	Left
38	State	WB	540380001748	NA		SBD038...L	14.86699 963	49.520 00046	15.00500011	49.6580009 5	Left
38	State	WB	540380002036	NA		SBD038...L	14.86699 963	49.520 00046	15.00500011	49.6580009 5	Left
38	State	WB	540380002160	NA		SBD038...L	14.86699 963	49.520 00046	15.00500011	49.6580009 5	Left
38	State	WB	540380002195	NA		SBD038...L	14.86699 963	49.520 00046	15.00500011	49.6580009 5	Left
38	State	WB	540380002253	NA		SBD038...L	14.86699 963	49.520 00046	15.00500011	49.6580009 5	Left
38	State	WB	540380002374	NA		SBD038...L	14.86699 963	49.520 00046	15.00500011	49.6580009 5	Left
38	State	WB	540380002412	NA		SBD038...L	14.86699 963	49.520 00046	15.00500011	49.6580009 5	Left
38	State	WB	540380002520	NA		SBD038...L	14.86699 963	49.520 00046	15.00500011	49.6580009 5	Left
38	State	WB	540380003002	NA		SBD038...L	14.86699 963	49.520 00046	15.00500011	49.6580009 5	Left
38	State	WB	540384003213	NA		SBD038...L	14.86699 963	49.520 00046	15.00500011	49.6580009 5	Left
38	State	WB	540384003391	NA		SBD038...L	14.86699 963	49.520 00046	15.00500011	49.6580009 5	Left
38	State	WB	540384003680	NA		SBD038...L	14.86699 963	49.520 00046	15.00500011	49.6580009 5	Left
38	State	WB	540384004057	NA		SBD038...L	14.86699 963	49.520 00046	15.00500011	49.6580009 5	Left
38	State	WB	540384004240	NA		SBD038...L	14.86699 963	49.520 00046	15.00500011	49.6580009 5	Left
39	State	SB	530390003477	NA		LA.039...L	32.3390 007	44.400 00153	35.20299911	47.2639999 4	Left
39	State	SB	530390003814	NA		LA.039...L	32.3390 007	44.400 00153	35.20299911	47.2639999 4	Left
39	State	SB	530390004121	NA		LA.039...L	32.3390 007	44.400 00153	35.20299911	47.2639999 4	Left
39	State	SB	530390004348	NA		LA.039...L	32.3390 007	44.400 00153	35.20299911	47.2639999 4	Left
39	State	SB	530394002236	NA		LA.039...L	17.81200 027	29.4130 0011	20.8799991 6	32.4809989 9	Left

39	State	SB	530394003025	NA		LA.039.R.L	29.41300 011	31.9950 0084	32.4809989 9	35.0629997 3	Left
39	State	SB	530394002876	NA		LA.039...L	17.81200 027	29.4130 0011	20.8799991 6	32.4809989 9	Left
39	State	SB	53 0515	NA		LA.039...L	32.3390 007	44.400 00153	35.20299911	47.2639999 4	Left
52	State	WB	570524000983	NA		SD.052...L	0	17.2709 9991	0	17.27099991	Left
58	State	EB	500584110276	NA		KER058...R	102.7369 995	106.612 999	154.332000 7	158.207992 6	Right
58	State	WB	500584110531	NA		KER058...L	102.7369 995	106.612 999	154.332000 7	158.207992 6	Left
60	State	EB	560604002899	NA		RIV060...R	25.7740 0017	30.495 00084	66.6669998 2	71.3880004 9	Right
71	State	NB	560710000126	NA		RIV071...L	0.028	2.8429 9994	13.4460001	16.2609996 8	Left
74	State	WB	550740000443	NA		ORA074...L	2.65400 004	16.5990 0093	2.6500001	16.59499931	Left
74	State	WB	550740000316	NA		ORA074...L	2.65400 004	16.5990 0093	2.6500001	16.59499931	Left
74	State	WB	550740000446	NA		ORA074...L	2.65400 004	16.5990 0093	2.6500001	16.59499931	Left
74	State	WB	550740000597	NA		ORA074...L	2.65400 004	16.5990 0093	2.6500001	16.59499931	Left
74	State	WB	550740000637	NA		ORA074...L	2.65400 004	16.5990 0093	2.6500001	16.59499931	Left
74	State	WB	560740000020	NA		RIV074...L	0	3.99699 998	16.59499931	20.5919990 5	Left
74	State	WB	560740000120	NA		RIV074...L	0	3.99699 998	16.59499931	20.5919990 5	Left
74	State	WB	560740000227	NA		RIV074...L	0	3.99699 998	16.59499931	20.5919990 5	Left
74	State	WB	560740005573	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
74	State	WB	560740005606	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
74	State	WB	560740005680	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
74	State	WB	560740005717	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
74	State	WB	560740005886	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left

74	State	WB	560740006558	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
74	State	WB	560740007178	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
74	State	WB	560740007576	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
74	State	WB	560740007726	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
74	State	WB	560740007743	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
74	State	WB	560740007873	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
74	State	WB	560744005238	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
74	State	WB	560744005266	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
74	State	WB	560744005406	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
74	State	WB	560744005519	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
74	State	WB	560744005633	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
74	State	WB	560744105106	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
74	State	WB	560744105111	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
74	State	WB	560744105159	NA		RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
76	State	WB	570760003690	NA		SD.076...L	34.87799 835	52.3190 0024	34.5340004	51.9749984 7	Left
76	State	WB	570760004785	NA		SD.076...L	34.87799 835	52.3190 0024	34.5340004	51.9749984 7	Left
76	State	WB	570760004905	NA		SD.076...L	34.87799 835	52.3190 0024	34.5340004	51.9749984 7	Left
76	State	WB	570760005050	NA		SD.076...L	34.87799 835	52.3190 0024	34.5340004	51.9749984 7	Left
76	State	WB	570760005095	NA		SD.076...L	34.87799 835	52.3190 0024	34.5340004	51.9749984 7	Left
76	State	WB	570764001308	NA		SD.076.R.L	9.89999 962	13.6759 9964	9.89999962	13.6759996 4	Left
76	State	WB	570764001560	NA		SD.076.R.L	13.83699 989	16.5270 0043	13.8369998 9	16.5270004 3	Left

76	State	WB	570764001677	NA		SD.076.R.L	13.83699 989	16.5270 0043	13.8369998 9	16.5270004 3	Left
76	State	WB	570764001940	NA		SD.076...L	18.74799 919	32.847 00012	18.5	32.5989990 2	Left
76	State	WB	570764003535	NA		SD.076...L	34.87799 835	52.3190 0024	34.5340004	51.9749984 7	Left
76	State	WB	570764003550	NA		SD.076...L	34.87799 835	52.3190 0024	34.5340004	51.9749984 7	Left
76	State	WB	570764003585	NA		SD.076...L	34.87799 835	52.3190 0024	34.5340004	51.9749984 7	Left
76	State	WB	570764004025	NA		SD.076...L	34.87799 835	52.3190 0024	34.5340004	51.9749984 7	Left
76	State	WB	570764004297	NA		SD.076...L	34.87799 835	52.3190 0024	34.5340004	51.9749984 7	Left
76	State	WB	570764004423	NA		SD.076...L	34.87799 835	52.3190 0024	34.5340004	51.9749984 7	Left
76	State	WB	570764004470	NA		SD.076...L	34.87799 835	52.3190 0024	34.5340004	51.9749984 7	Left
76	State	WB	570764004602	NA		SD.076...L	34.87799 835	52.3190 0024	34.5340004	51.9749984 7	Left
76	State	WB	57 0170	NA		SD.076...L	34.87799 835	52.3190 0024	34.5340004	51.9749984 7	Left
78	State	WB	570780005710	NA		SD.078...L	30.3229 9995	95.3130 0354	30.7560005 2	95.7460022	Left
78	State	WB	570780005870	NA		SD.078...L	30.3229 9995	95.3130 0354	30.7560005 2	95.7460022	Left
78	State	WB	570780006230	NA		SD.078...L	30.3229 9995	95.3130 0354	30.7560005 2	95.7460022	Left
78	State	WB	570780006295	NA		SD.078...L	30.3229 9995	95.3130 0354	30.7560005 2	95.7460022	Left
78	State	WB	570780006340	NA		SD.078...L	30.3229 9995	95.3130 0354	30.7560005 2	95.7460022	Left
78	State	WB	570780006360	NA		SD.078...L	30.3229 9995	95.3130 0354	30.7560005 2	95.7460022	Left
78	State	WB	570780006485	NA		SD.078...L	30.3229 9995	95.3130 0354	30.7560005 2	95.7460022	Left
78	State	WB	570780006502	NA		SD.078...L	30.3229 9995	95.3130 0354	30.7560005 2	95.7460022	Left
78	State	WB	570780006570	NA		SD.078...L	30.3229 9995	95.3130 0354	30.7560005 2	95.7460022	Left
78	State	WB	570780006615	NA		SD.078...L	30.3229 9995	95.3130 0354	30.7560005 2	95.7460022	Left

78	State	WB	570780006701	NA		SD.078...L	30.3229 9995	95.3130 0354	30.7560005 2	95.7460022	Left
78	State	WB	570784003780	NA		SD.078...L	30.3229 9995	95.3130 0354	30.7560005 2	95.7460022	Left
78	State	WB	570784004905	NA		SD.078...L	30.3229 9995	95.3130 0354	30.7560005 2	95.7460022	Left
78	State	WB	570784005304	NA		SD.078...L	30.3229 9995	95.3130 0354	30.7560005 2	95.7460022	Left
78	State	WB	570780005065	NA		SD.078...L	30.3229 9995	95.3130 0354	30.7560005 2	95.7460022	Left
79	State	NB	560794003849	NA		RIV079...R	36.3079 9866	40.449 00131	91.4700012 2	95.6110000 6	Right
79	State	SB	570790002115	NA		SD.079...L	20.2299 9954	39.6829 9866	22.9230003 4	42.3759994 5	Left
79	State	SB	570790002330	NA		SD.079...L	20.2299 9954	39.6829 9866	22.9230003 4	42.3759994 5	Left
79	State	SB	570790002740	NA		SD.079...L	20.2299 9954	39.6829 9866	22.9230003 4	42.3759994 5	Left
79	State	SB	570790003199	NA		SD.079...L	20.2299 9954	39.6829 9866	22.9230003 4	42.3759994 5	Left
79	State	SB	570790100095	NA		SD.079.L.L	0.044	2.74699 998	0	2.70300007	Left
79	State	SB	570794000726	NA		SD.079...L	0	20.2199 9931	2.70300007	22.9230003 4	Left
79	State	SB	570794000827	NA		SD.079...L	0	20.2199 9931	2.70300007	22.9230003 4	Left
79	State	SB	570794001072	NA		SD.079...L	0	20.2199 9931	2.70300007	22.9230003 4	Left
79	State	SB	570794001429	NA		SD.079...L	0	20.2199 9931	2.70300007	22.9230003 4	Left
79	State	SB	570794001974	NA		SD.079...L	0	20.2199 9931	2.70300007	22.9230003 4	Left
94	State	WB	570940003765	NA		SD.094...L	34.01499 939	38.3129 9973	32.17399979	36.4720001 2	Left
94	State	WB	570940003980	NA		SD.094...L	38.7980 0034	44.248 0011	36.8979988 1	42.3479995 7	Left
94	State	WB	570944006145	NA		SD.094...L	60.1300 0107	63.700 00076	58.0439987 2	61.61399841	Left
101	US	SB	511014001232	NA		SB.101...L	8.49499 989	13.9650 0015	91.3830032 3	96.8529968 3	Left
101	US	NB	511016001946	NA		SB.101...R	16.09799 957	35.983 00171	98.9889984 1	118.874000 6	Right

138	State	WB	541380102589	NA		SBD138.R.L	23.70100 021	30.8719 9974	91.64199829	98.8130035 4	Left
138	State	WB	541380102733	NA		SBD138.R.L	23.70100 021	30.8719 9974	91.64199829	98.8130035 4	Left
138	State	WB	541380102795	NA		SBD138.R.L	23.70100 021	30.8719 9974	91.64199829	98.8130035 4	Left
138	State	WB	541380102866	NA		SBD138.R.L	23.70100 021	30.8719 9974	91.64199829	98.8130035 4	Left
142	State	WB	551424000463	NA		ORA142...L	1.781999 95	6.34999 99	1.18200004	5.75	Left
142	State	WB	551424000621	NA		ORA142...L	1.781999 95	6.34999 99	1.18200004	5.75	Left
150	State	WB	52 0244	NA		VEN150...L	0	13.11999 989	2.12899995	15.2489996	Left
154	State	WB	511544002676	NA		SB.154...L	12.18799 973	30.3770 0081	12.5290002 8	30.7180004 1	Left
154	State	WB	511546002570	NA		SB.154...L	12.18799 973	30.3770 0081	12.5290002 8	30.7180004 1	Left
155	State	WB	501554004617	NA		KER155...L	30.31299 973	53.220 00122	27.3929996 5	50.2999992 4	Left
155	State	WB	501554004846	NA		KER155...L	30.31299 973	53.220 00122	27.3929996 5	50.2999992 4	Left
155	State	WB	501554004030	NA		KER155...L	30.31299 973	53.220 00122	27.3929996 5	50.2999992 4	Left
155	State	WB	501554004061	NA		KER155...L	30.31299 973	53.220 00122	27.3929996 5	50.2999992 4	Left
155	State	WB	501554004288	NA		KER155...L	30.31299 973	53.220 00122	27.3929996 5	50.2999992 4	Left
155	State	WB	501554105728	NA		KER155.R.L	56.7400 0168	61.0439 9872	53.7709999 1	58.0750007 6	Left
178	State	WB	501780002297	NA		KER178...L	11.97999 954	27.5779 9911	12.14700031	27.7450008 4	Left
178	State	WB	501780002583	NA		KER178...L	11.97999 954	27.5779 9911	12.14700031	27.7450008 4	Left
178	State	WB	501780002671	NA		KER178...L	11.97999 954	27.5779 9911	12.14700031	27.7450008 4	Left
178	State	WB	501781102938	NA		KER178.R.L	27.57799 911	29.1970 005	27.7450008 4	29.3640003 2	Left
178	State	WB	501781103003	NA		KER178.R.L	27.57799 911	29.1970 005	27.7450008 4	29.3640003 2	Left
178	State	EB	501784103234	NA		KER178.R.R	30.7099 9908	44.1910 0189	29.3899993 9	42.8709983 8	Right

178	State	EB	501784103274	NA		KER178.R.R	30.7099 9908	44.1910 0189	29.3899993 9	42.8709983 8	Right
178	State	EB	501784103452	NA		KER178.R.R	30.7099 9908	44.1910 0189	29.3899993 9	42.8709983 8	Right
189	State	WB	541890000310	NA		SBD189...L	0	5.5650 0006	0	5.56500006	Left
210	Interstate	EB	532104000043	NA		LA.210.R.R	0	11.5930 0041	0	11.59300041	Right
210	Interstate	WB	532104000930	NA		LA.210.R.L	0	11.5930 0041	0	11.59300041	Left
217	State	WB	512176000099	NA		SB.217...L	0.46399 999	2.9890 0008	0	2.5250001	Left
223	State	WB	502230003007	NA		KER223...L	20.14999 962	31.9200 0008	18.2999992 4	30.0699996 9	Left
243	State	SB	562430000165	NA		RIV243...L	0	22.5	0	22.5	Left
243	State	SB	562430000288	NA		RIV243...L	0	22.5	0	22.5	Left
243	State	SB	562430000518	NA		RIV243...L	0	22.5	0	22.5	Left
243	State	SB	562430000875	NA		RIV243...L	0	22.5	0	22.5	Left
243	State	SB	562430000964	NA		RIV243...L	0	22.5	0	22.5	Left
243	State	SB	562430001081	NA		RIV243...L	0	22.5	0	22.5	Left
243	State	SB	562430001124	NA		RIV243...L	0	22.5	0	22.5	Left
243	State	SB	562430001195	NA		RIV243...L	0	22.5	0	22.5	Left
243	State	SB	562430001201	NA		RIV243...L	0	22.5	0	22.5	Left
243	State	SB	562430001532	NA		RIV243...L	0	22.5	0	22.5	Left
243	State	SB	562434001933	NA		RIV243...L	0	22.5	0	22.5	Left
243	State	SB	562434002240	NA		RIV243...L	0	22.5	0	22.5	Left
243	State	SB	562434002375	NA		RIV243...L	22.5760 0021	29.7010 0021	22.5	29.625	Left
330	State	SB	543300003810	NA		SBD330...L	30.3250 0076	44.1180 0003	1.62899995	15.42199993	Left
330	State	SB	543304003100	NA		SBD330...L	30.3250 0076	44.1180 0003	1.62899995	15.42199993	Left
330	State	SB	543304003143	NA		SBD330...L	30.3250 0076	44.1180 0003	1.62899995	15.42199993	Left
330	State	SB	543304003491	NA		SBD330...L	30.3250 0076	44.1180 0003	1.62899995	15.42199993	Left
330	State	SB	543304003599	NA		SBD330...L	30.3250 0076	44.1180 0003	1.62899995	15.42199993	Left
330	State	SB	543304003625	NA		SBD330...L	30.3250 0076	44.1180 0003	1.62899995	15.42199993	Left

330	State	SB	543304003700	NA		SBD330...L	30.3250 0076	44.1180 0003	1.62899995	15.42199993	Left
330	State	SB	543304004260	NA		SBD330...L	30.3250 0076	44.1180 0003	1.62899995	15.42199993	Left
10	Interstate	EB	56 0003	San Gorgonio Wash	R16.14	RIV010.R.R	14.49600 029	25.7290 0009	100.405998 2	111.6389999	Right
10	Interstate	EB	56 0529R	Millard Canyon Wash	R20.15	RIV010.R.R	14.49600 029	25.7290 0009	100.405998 2	111.6389999	Right
10	Interstate	WB	56 0529L	Millard Canyon Wash	R20.15	RIV010.R.L	14.49600 029	25.7290 0009	100.405998 2	111.6389999	Left
15	Interstate	NB	56 0677R	Indian Wash	30.09	RIV015...R	21.81399 918	52.280 99823	76.3069992 1	106.774002 1	Right
15	Interstate	NB	56 0678R	Horsethief Canyon Wash	29.13	RIV015...R	21.81399 918	52.280 99823	76.3069992 1	106.774002 1	Right
15	Interstate	NB	56 0680R	Temescal Wash	28.04	RIV015...R	21.81399 918	52.280 99823	76.3069992 1	106.774002 1	Right
15	Interstate	NB	56 0543R	Coldwater Wash	32.96	RIV015...R	21.81399 918	52.280 99823	76.3069992 1	106.774002 1	Right
15	Interstate	SB	56 0047L	Temecula River	R2.96	RIV015.R.L	0	2.96199 989	54.5050010 7	57.4669990 5	Left
15	Interstate	SB	56 0726L	Gavilan Wash	25.55	RIV015...L	21.81399 918	52.280 99823	76.2969970 7	106.763999 9	Left
15	Interstate	SB	56 0543L	Coldwater Wash	32.96	RIV015...L	21.81399 918	52.280 99823	76.2969970 7	106.763999 9	Left
15	Interstate	SB	57 0937L	Rainbow Creek	R52.49	SD.015.R.L	28.4309 9976	54.2579 9942	28.6779995 7	54.5050010 7	Left
405	Interstate	NB	53 1185	San Gabriel River	0.03	LA.405...R	0	5.76399 994	23.9479999 5	29.71199989	Right
5	Interstate	NB	57 0282	Agua Hedionda Lagoon	R48.68	SD.005.R.R	31.18799 973	55.1549 9878	30.8640003 2	54.8310012 8	Right
5	Interstate	NB	57 0488	San Dieguito River	R35.66	SD.005.R.R	31.18799 973	55.1549 9878	30.8640003 2	54.8310012 8	Right
5	Interstate	SB	57 0794L	Sweetwater River	9.41	SD.005...L	1.22800 004	9.8800 0011	0.92299998	9.57499981	Left
8	Interstate	WB	57 0705L	Midway Drive Uc	L1.21	SD.008.L.L	0.70999 998	2.3840 0006	0.303	1.977	Left
74	State	WB	56 0178	San Jacinto River	49.16	RIV074.R.L	48.6040 0009	49.1440 0101	54.0349998 5	54.5750007 6	Left
74	State	WB	56 0179	North Fork San Jacinto River	50.29	RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
74	State	WB	56 0180	Strawberry Creek	53.45	RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left

74	State	WB	56 0185	Horse Creek	75.66	RIV074...L	49.15999 985	91.9739 9902	54.5750007 6	97.3889999 4	Left
1	State	NB	52 0011	Big Sycamore Creek	4.54	VEN001...R	0	14.2019 9966	87.9670028 7	102.1689987	Right
1	State	NB	52 0010R	Calleguas Creek	9.87	VEN001...R	0	14.2019 9966	87.9670028 7	102.1689987	Right
1	State	SB	52 0010L	Calleguas Creek	9.87	VEN001...L	0	14.2019 9966	87.9670028 7	102.1689987	Left
138	State	WB	54 0846	West Fork Mojave River	R26.48	SBD138.R.L	23.70100 021	30.8719 9974	91.64199829	98.8130035 4	Left
138	State	WB	54 0858	Sawpit Canyon	R28.07	SBD138.R.L	23.70100 021	30.8719 9974	91.64199829	98.8130035 4	Left
138	State	WB	54 0859	Burnt Mill Canyon	R29.38	SBD138.R.L	23.70100 021	30.8719 9974	91.64199829	98.8130035 4	Left
138	State	WB	54 0860	Seeley Creek	R29.96	SBD138.R.L	23.70100 021	30.8719 9974	91.64199829	98.8130035 4	Left
2	State	WB	54 0360	Sheep Creek	2.44	SBD002...L	0	6.35799 98	71.99199677	78.3499984 7	Left
330	State	SB	54 0345	East Fork City Creek	33.68	SBD330...L	30.3250 0076	44.1180 0003	1.62899995	15.42199993	Left
33	State	SB	52 0440	North Fork Matilija Creek	18.67	VEN033...L	11.21000 004	37.3370 018	11.26799965	37.3950004 6	Left
1	State	NB	53 0026	Arroyo Sequit	62.26	LA.001...R	40.01599 884	62.8670 0058	65.11599731	87.9670028 7	Right
1	State	NB	53 0064	Alamitos Bay	0.98	LA.001...R	0	3.5650 0006	26.4090004	29.9740009 3	Right
1	State	SB	53 0118	Ballona Creek	30.36	LA.001...L	26.8969 9936	33.3359 9854	53.2309989 9	59.6699981 7	Left
1	State	SB	52 0421L	Revolon Channel	10	VEN001...L	0	14.2019 9966	87.9670028 7	102.1689987	Left
1	State	NB	52 0421R	Revolon Channel	10	VEN001...R	0	14.2019 9966	87.9670028 7	102.1689987	Right
1	State	NB	53 0341	Los Angeles River	7.11	LA.001...R	3.612999 92	26.870 00084	29.9740009 3	53.2309989 9	Right
1	State	NB	53 2818	Malibu Lagoon	46.88	LA.001...R	40.01599 884	62.8670 0058	65.11599731	87.9670028 7	Right
1	State	NB	55 0001	Santa Ana River	21.55	ORA001...R	18.53000 069	33.7190 0177	11.2200002 7	26.409000 4	Right
1	State	NB	55 0658	Talbert Channel	21.82	ORA001...R	18.53000 069	33.7190 0177	11.2200002 7	26.409000 4	Right
118	State	WB	52 0409	Mejico Creek	14.53	VEN118...L	1.501000 05	17.4939 9948	1.11000001	17.1030006 4	Left

150	State	EB	52 0358	Ventura River	R13.42	VEN150.R.R	13.11999 989	14.4099 9985	15.2489996	16.5389995 6	Right
150	State	WB	52 0102	Lion Canyon Creek	23.93	VEN150...L	23.5860 0044	34.3979 9881	25.5699996 9	36.3819999 7	Left
155	State	WB	50 0104	Poso Creek	38.79	KER155...L	30.31299 973	53.220 00122	27.3929996 5	50.2999992 4	Left
2	State	EB	54 0359	Swarthout Creek	1	SBD002...R	0	6.35799 98	71.99199677	78.3499984 7	Right
217	State	WB	51 0161	Goleta Slough Br & Uc	0.72	SB.217...L	0.46399 999	2.9890 0008	0	2.5250001	Left
217	State	EB	51 0217	San Jose Creek	1.02	SB.217...R	0.46399 999	2.9890 0008	0	2.5250001	Right
22	State	WB	53 0215L	Los Cerritos Channel	1.09	LA.022...L	0	1.46700 001	0	1.46700001	Left
22	State	EB	53 0215R	Los Cerritos Channel	1.09	LA.022...R	0	1.46700 001	0	1.46700001	Right
22	State	WB	53 0302L	San Gabriel River	1.42	LA.022...L	0	1.46700 001	0	1.46700001	Left
22	State	EB	53 0302R	San Gabriel River	1.42	LA.022...R	0	1.46700 001	0	1.46700001	Right
33	State	SB	52 0042	Sheldon Canyon	14.58	VEN033...L	11.21000 004	37.3370 018	11.26799965	37.3950004 6	Left
33	State	SB	52 0065	San Antonio Creek	7.58	VEN033...L	5.99499 989	11.19999 981	6.0630002	11.26799965	Left
33	State	SB	52 0066	North Fork Matilija Creek	17.41	VEN033...L	11.21000 004	37.3370 018	11.26799965	37.3950004 6	Left
33	State	SB	52 0067	North Fork Matilija Creek	17.84	VEN033...L	11.21000 004	37.3370 018	11.26799965	37.3950004 6	Left
33	State	SB	52 0079	Derry Dale Creek	31.72	VEN033...L	11.21000 004	37.3370 018	11.26799965	37.3950004 6	Left
33	State	SB	52 0080	Potrero Creek	32.1	VEN033...L	11.21000 004	37.3370 018	11.26799965	37.3950004 6	Left
33	State	SB	52 0081	Munson Canyon Creek	33.8	VEN033...L	11.21000 004	37.3370 018	11.26799965	37.3950004 6	Left
33	State	SB	52 0082	Chorro Grande Creek	36.13	VEN033...L	11.21000 004	37.3370 018	11.26799965	37.3950004 6	Left
33	State	SB	52 0084	Adobe Canyon	39.03	VEN033...L	37.6440 0101	57.5079 9942	37.6949996 9	57.55899811	Left
33	State	SB	52 0088	Corral Canyon Creek	51.78	VEN033...L	37.6440 0101	57.5079 9942	37.6949996 9	57.55899811	Left
33	State	SB	52 0092	Castle Creek	50.7	VEN033...L	37.6440 0101	57.5079 9942	37.6949996 9	57.55899811	Left

33	State	SB	52 0173	North Fork Matilija Creek	16.13	VEN033...L	11.21000004	37.3370018	11.26799965	37.39500046	Left
33	State	SB	52 0441	North Fork Matilija Creek	18.84	VEN033...L	11.21000004	37.3370018	11.26799965	37.39500046	Left
38	State	WB	54 0346	Mill Creek	9.6	SBD038...L	5.29899979	9.63700008	5.78000021	10.11800003	Left
39	State	SB	53 2244	North Fork San Gabriel River	R30.63	LA.039.R.L	29.41300011	31.99500084	32.48099899	35.06299973	Left
39	State	SB	53 2245	North Fork San Gabriel River	R31.25	LA.039.R.L	29.41300011	31.99500084	32.48099899	35.06299973	Left
54	State	EB	57 0767R	Sweetwater River	1.41R	SD.054..RR	0	1.75300002	0	1.75300002	Right Split Align
58	State	EB	50 0346R	Cache Creek	R99.82	KER058.R.R	82.7440033	102.1419983	134.9340057	154.3320007	Right
58	State	WB	50 0346L	Cache Creek	R99.81	KER058.R.L	82.7440033	102.1419983	134.9340057	154.3320007	Left
60	State	EB	56 0065	San Timoteo Creek	28.34	RIV060...R	25.77400017	30.49500084	66.66699982	71.38800049	Right
62	State	EB	54 0608	Dry Morongo Wash	0.01	SBD062...R	0	63.0340004	8.77400017	71.80799866	Right
67	State	SB	57 0160	Prairie Creek	22.26	SD.067...L	21.05200005	24.37700081	20.50200081	23.82699966	Left
74	State	WB	56 0184	South Fork San Jacinto River	63.76	RIV074...L	49.15999985	91.97399902	54.57500076	97.38899994	Left
75	State	NB	57 0857	San Diego-Coronado Bay Bridge	R20.49	SD.075.R.R	20.03499985	22.26099968	9.82699966	12.05300045	Right
78	State	WB	57 0096	San Felipe Creek	72.92	SD.078...L	30.32299995	95.31300354	30.75600052	95.7460022	Left
101	US	NB	52 0231R	Figueroa Street UC	30.4	VEN101...R	25.82799911	32.27399826	65.37599945	71.8219986	Right
101	US	NB	51 0052R	Carpinteria Creek	2.44	SB.101...R	1.12	4.72300005	84.04299927	87.64600372	Right
101	US	SB	51 0052L	Carpinteria Creek	2.44	SB.101...L	1.12	4.72300005	84.01599884	87.6190033	Left
101	US	NB	51 0047	San Ysidro Creek	9.56	SB.101...R	8.49499989	13.96500015	91.41000366	96.87999725	Right
101	US	NB	51 0133	Oak Creek	9.66	SB.101...R	8.49499989	13.96500015	91.41000366	96.87999725	Right
101	US	NB	52 0232R	Ventura Avenue Off-Ramp UC	30.59	VEN101...R	25.82799911	32.27399826	65.37599945	71.8219986	Right



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