APPENDIX G
VMT ANALYSIS

Technical Memorandum

June 24, 2026

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Subject: Cabazon Infrastructure Plan and Cabazon Community Plan – Vehicle Miles Traveled Analysis

Introduction

The County of Riverside (County) is undertaking a comprehensive Programmatic Environmental Impact Report (PEIR) providing a program-level environmental analysis of the Cabazon Infrastructure Plan and Cabazon Community Plan (proposed project). The Cabazon Infrastructure Plan (CIP) aims to promote the future growth of the region's housing, industrial, and commercial sectors by evaluating the necessary infrastructure for their expansion in the Cabazon area, assessing feasibility for implementation, and analyzing the environmental impacts of potential projects to promote streamlined development. The Cabazon Community Plan establishes a long-term land use vision for the area, identifying land use changes, new policies, ordinance updates, and design guidelines to support anticipated growth, including the possibility of accommodating up to 25,000 new housing units over the next 30 years. The PEIR is intended to facilitate streamlined environmental review and permit processing for future individual CIP and subsequent area buildout projects by providing a comprehensive program-level assessment of potential environmental impacts. The purpose of this memorandum is to document a vehicle mile traveled (VMT) analysis for the proposed CIP and CCP in support of the transportation component of the PEIR. **Table 1** provides key project information. **Figure 1** shows the location of the project and **Figure 2** shows the proposed CCP land use plan.

Table 1 – Project Information Summary

Project Title	Cabazon Infrastructure Plan and Cabazon Community Plan
Project Location	The proposed project is located in the northwestern portion of Riverside County, immediately east of the city of Banning (**Figure 1**). Regionally, the proposed project is accessible from Interstate 10 (I-10), which bisects the area in an east-west direction and provides access at Malki Road, Morongo Trail, and Main Street. The Union Pacific rail line also bisects the proposed project and runs generally parallel to I-10. The project area encompasses 7,769 acres.
Surrounding Uses	The project is bounded by the Morongo Indian Reservation to the north, unincorporated areas of Riverside County to the north and south, the cities of Desert Hot Springs and Palm Springs to the east, and the city of Banning to the west (**Figure 1**).

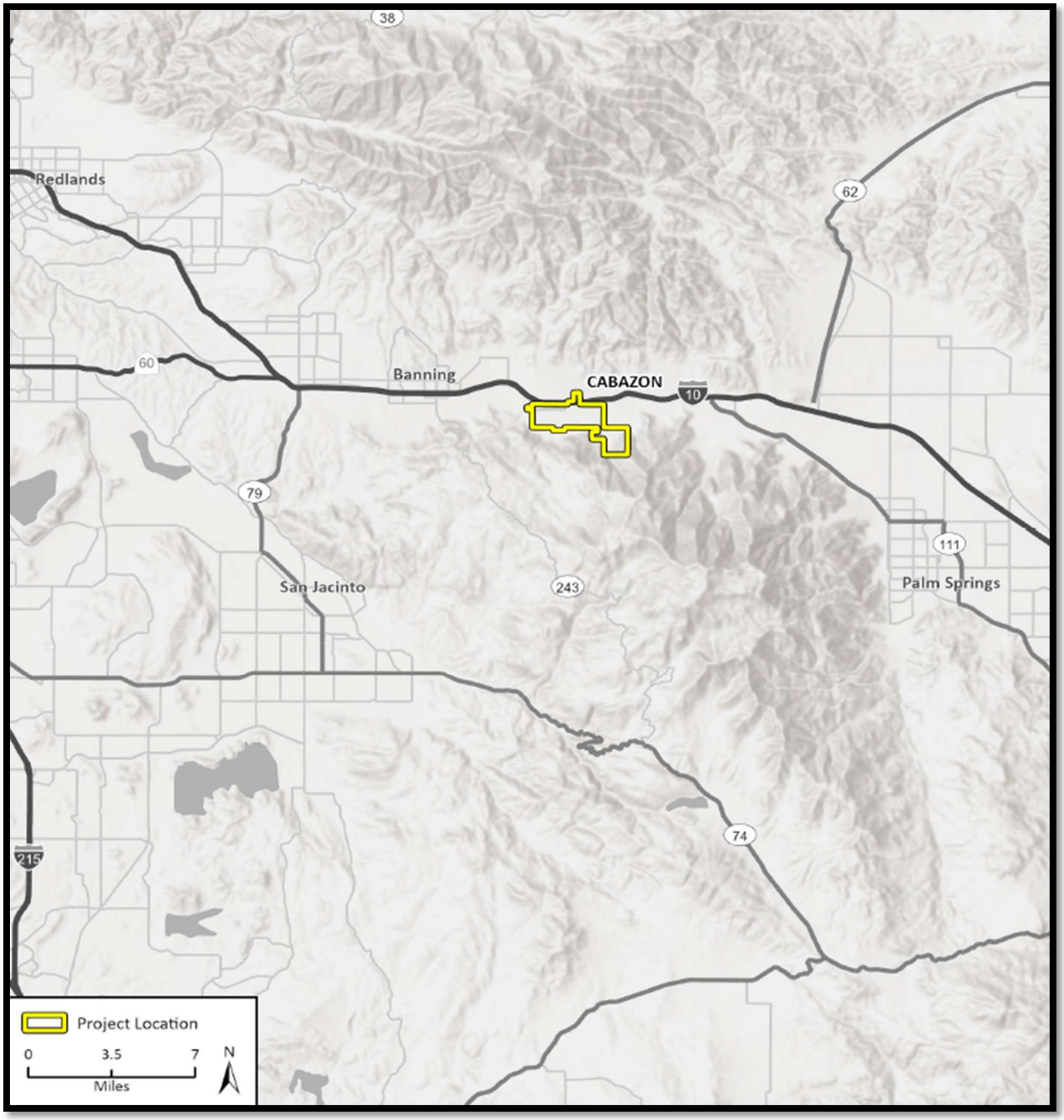

FIGURE 1 – PROJECT LOCATION MAP

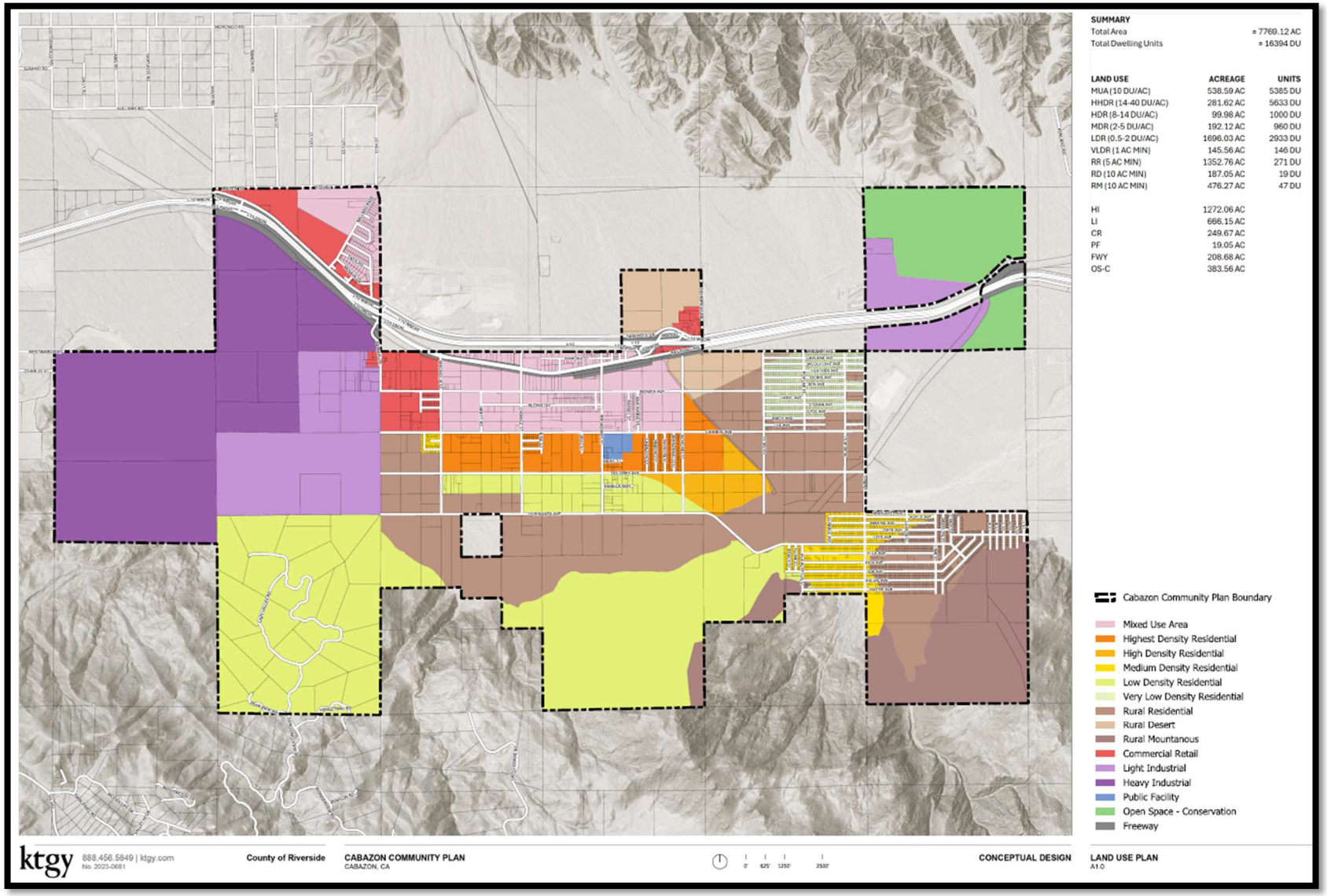

FIGURE 2 – CABAZON COMMUNITY PLAN – LAND USE PLAN

Cabazon Community Plan - Land Use Summary

The proposed project includes both residential and non-residential land uses. **Table 2** summarizes each land use category, along with the associated densities, acreage, and the minimum and maximum allowable development intensities within the project. As shown, the project allows for development of up to 22,888 dwelling units and approximately 49,420,323 square feet of non-residential uses. For the purposes of this VMT analysis, the maximum development scenario was evaluated to provide a conservative assessment of potential transportation impacts.

Table 2 – Cabazon Community Plan – Land Use Summary

Land Use	Density	Acreage	Minimum	Maximum
RESIDENTIAL LAND USES				
Mixed Use Area	10 DU/AC	538.59	5,386 DU	5,386 DU
Highest Density Residential	14 – 40 DU/AC	281.62	3,943 DU	11,265 DU
High Density Residential	8 – 14 DU/AC	99.98	800 DU	1,400 DU
Medium Density Residential	2 – 5 DU/AC	192.12	384 DU	961 DU
Low Density Residential	0.5 – 2 DU/AC	1,696.03	1,696 DU	3,392 DU
Very Low Density Residential	1 AC MIN	145.56	29 DU	146 DU
Rural Residential	5 AC MIN	1,352.76	135 DU	271 DU
Rural Desert	10 AC MIN	187.05	9 DU	19 DU
Rural Mountainous	10 AC MIN	476.27	24 DU	48 DU
TOTAL UNIT COUNT			**12,406 DU**	**22,888 DU**
NON-RESIDENTIAL LAND USES				
Heavy Industrial	N/A	1,272.06	8,311,640 SF	27,705,467 SF
Light Industrial	N/A	666.15	7,254,374 SF	17,410,496 SF
Commercial Retail	N/A	249.67	2,175,125 SF	3,806,469 SF
Public Facilities	N/A	19.05	0 SF	497,891 SF
TOTAL SQUARE FOOTAGE			**17,741,139 SF**	**49,420,323 SF**

Project Trip Generation

The proposed CIP projects are not anticipated to increase roadway capacity or generate substantial new trips during operations. However, most CIP projects would include periodic inspection, maintenance, and repair activities, which would result in limited vehicle trips (e.g., maintenance crews, light-duty service vehicles, and occasional equipment transport). These maintenance-related trips would be infrequent and low in intensity compared to typical traffic-generating land uses (as shown in Table 2) and would not represent a substantial increase in VMT.

In order to determine vehicular traffic generated by the project, trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 12th Edition were used. Trip rates for proposed land uses within the project are provided in **Table 3**.

Table 3 – ITE Trip Generation Rates

Land Use	ITE Code [1]	ITE Land Use	Daily Trip Rate		AM Peak Hour Rate			PM Peak Hour Rate		
					Total	In	Out	Total	In	Out
Rural Mountainous - Residential (10 AC Min)	260	Recreational Homes	3.68	/DU	0.24 /DU	35%	65%	0.29 /DU	56%	44%
Rural Desert - Residential (10 AC Min)	260	Recreational Homes	3.68	/DU	0.24 /DU	35%	65%	0.29 /DU	56%	44%
Rural Residential (5 AC Min)	260	Recreational Homes	3.68	/DU	0.24 /DU	35%	65%	0.29 /DU	56%	44%
Very Low Density Residential (1 AC Min)	210	Single-Family Detached Housing	9.09	/DU	0.70 /DU	27%	73%	0.93 /DU	62%	38%
Low Density Residential (2 DU/AC)	210	Single-Family Detached Housing	9.09	/DU	0.70 /DU	27%	73%	0.93 /DU	62%	38%
Medium Density Residential (5 DU/AC)	210	Single-Family Detached Housing	9.09	/DU	0.70 /DU	27%	73%	0.93 /DU	62%	38%
High Density Residential (14 DU/AC)	215	Single-Family Attached Housing	6.57	/DU	0.47 /DU	25%	75%	0.51 /DU	57%	43%
Highest Density Residential (40 DU/AC)	220	Multifamily Housing (Low-Rise)	6.21	/DU	0.41 /DU	24%	76%	0.52 /DU	62%	38%
Mixed Use Area (10 DU/AC)	230	Low-Rise Res with Ground-Floor Comm	3.44	/DU	0.44 /DU	23%	77%	0.36 /DU	71%	29%
Commercial Retail	821	Shopping Plaza with Supermarket	101.43	/KSF	3.54 /KSF	60%	40%	8.58 /KSF	49%	51%
Light Industrial	110	General Light Industrial	3.6	/KSF	0.48 /KSF	86%	14%	0.49 /KSF	24%	76%
Public Facilities	730	Government Office Building	22.59	/KSF	3.34 /KSF	75%	25%	1.71 /KSF	25%	75%

[1] Source: ITE Trip Generation Manual, 12th Edition.

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Using the ITE trip generation rates in **Table 3**, vehicle trips were calculated and provided in **Table 4** which shows the project is expected to generate approximately 599,837 daily vehicle trips with 34,372 AM peak hour trips and 54,835 PM peak hour trips.

Table 4 – Project Trip Generation

Land Use	Intensity		Daily Trips	AM Peak Hour Trips				PM Peak Hour Trips			
				Total	In	:	Out	Total	In	:	Out
Rural Mountainous - Residential (10 AC Min)	48	DU	177	12	4	:	7	14	8	:	6
Rural Desert - Residential (10 AC Min)	19	DU	70	5	2	:	3	6	3	:	2
Rural Residential (5 AC Min)	271	DU	997	65	23	:	42	79	44	:	35
Very Low Density Residential (1 AC Min)	146	DU	1327	102	28	:	75	136	84	:	52
Low Density Residential (2 DU/AC)	3392	DU	30833	2374	641	:	1733	3155	1956	:	1199
Medium Density Residential (5 DU/AC)	961	DU	8735	673	182	:	491	894	554	:	340
High Density Residential (14 DU/AC)	1400	DU	9198	658	165	:	494	714	407	:	307
Highest Density Residential (40 DU/AC)	11265	DU	69956	4619	1108	:	3510	5858	3632	:	2226
Mixed Use Area (10 DU/AC)	5386	DU	18528	2370	545	:	1825	1939	1377	:	562
Commercial Retail	3806.469	KSF	386090	13475	8085	:	5390	32660	16003	:	16656
Light Industrial	17410.496	KSF	62678	8357	7187	:	1170	8531	2047	:	6484
Public Facilities	497.891	KSF	11247	1663	1247	:	416	851	213	:	639
TOTAL TRIP GENERATION			**599,837**	**34,372**	**19,216**	**:**	**15,156**	**54,835**	**26,328**	**:**	**28,507**

Notes:

DU = Dwelling Unit

KSF = 1,000 Square Feet

VMT Analysis Guidelines

The project is within the jurisdiction of the County of Riverside. The County has adopted guidance on evaluating VMT for transportation impacts under CEQA. The primary resource for this VMT screening assessment is the *County of Riverside Transportation Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment*[1] dated December 2020 (County Guidelines). As outlined in the County Guidelines, certain projects, because of their size, nature, or location, are exempt from the requirements of preparing a detailed VMT analysis. The County Guidelines provides screening criteria to determine if the project can be presumed to have a less than significant transportation impact which is discussed in the next section of this memo.

VMT Screening Criteria

Each of the screening criteria outlined in the County Guidelines were evaluated for the project and the results are summarized in **Table 5**. As shown, many of the screening criteria are considered indeterminate at this time as future land use projects will be evaluated independently on a case-by-case basis as development phases are proposed. Therefore, a detailed VMT analysis is provided for the project area as a whole.

Table 5 – VMT Screening Criteria Summary

Screening Criteria		CCP Evaluation	Result
Small Projects	**Presumed to cause a less than significant impact:** • Single-Family Housing projects less than or equal to 110 Dwelling Units; or • Multi-Family (low-rise) Housing projects less than or equal to 147 Dwelling Units; or • Multi-Family (mid-rise) Housing projects less than or equal to 194 Dwelling Units; or • General Office Building with area less than or equal to 165,000 SF; or • Retail buildings with area less than or equal to 60,000 SF; or • Warehouse (unrefrigerated) buildings with area less than or equal to 208,000 SF; or • General Light Industrial buildings with area less than or equal to 179,000 SF; or • Project GHG emissions less than 3,000 Metric Tons of Carbon Dioxide Equivalent (MTCO2e) as determined by a methodology acceptable to the Transportation Department; or • Unless specified above, project trip generation is less than 110 trips per day per the ITE Manual or other acceptable source determined by Riverside County.	At this stage of the planning process, the scale of individual CIP and development projects have not yet been defined. Future CIP and development projects accommodated by the CCP will be evaluated independently on a case-by-case basis as subsequent development phases are proposed. It is anticipated that some projects consistent with the CCP Update may include larger buildings that exceed the small project screening criteria. Accordingly, the applicability of this criterion cannot be determined at this time.	**Screening Criteria Is Indeterminate At This Time**

Table 5 – VMT Screening Criteria Summary

Screening Criteria		CCP Evaluation	Result
Projects Near High Quality Transit	**Presumed to cause a less than significant impact:** • Within a 0.5-mile of an existing major transit stop; and • Maintains a service interval frequency of 15 minutes or less during the morning and afternoon peak commute periods.	Sunline Transit provides transit service via the 10 Commuter Link bus service on weekdays. However, the interval of service during peak commute hours is limited. In addition, the 10 Commuter Link does not stop in the Cabazon area. The Tier 1/Program Level EIS/EIR has been certified in July 2022 for proposed daily passenger rail service between Los Angeles and Coachella Valley. The Riverside County Transportation Commission (RCTC) officially awarded an $80 million contract to HDR Engineering to begin the Tier 2/Project-Level environmental studies and preliminary engineering. The detailed study will outline exact station locations and alignments along the Union Pacific Railroad tracks parallel to I-10. Accordingly, the project does not meet the screening criterion for projects near high quality transit.	**Screening Criteria is NOT Met**
Local-Serving Retail	**Presumed to cause a less than significant impact:** • No single store on-site exceeds 50,000 SF; and • Project is local-serving as determined by the Transportation Department	At this stage of the planning process, the scale of individual CIP and development projects have not yet been defined. Future CIP and development projects accommodated by the CCP will be evaluated independently on a case-by-case basis as subsequent development phases are proposed. It is anticipated that some projects consistent with the CCP may include larger buildings that exceed the local-serving retail screening criteria. Accordingly, the applicability of	**Screening Criteria is Indeterminate At This Time**

Table 5 – VMT Screening Criteria Summary

Screening Criteria		CCP Evaluation	Result
		this criterion cannot be determined at this time.	
Affordable Housing	**Presumed to cause a less than significant impact:** • A high percentage of affordable housing is provided as determined by the Riverside County Planning and Transportation Departments.	Within the CCP, a portion of the proposed residential land uses may be designated affordable housing. However, at this stage of the planning process, the affordability of individual residential development projects has not yet been defined. Individual residential development projects would be analyzed by the Riverside County Planning and Transportation Departments on a case-by-case basis as they are proposed over time. Accordingly, the applicability of this criterion cannot be determined at this time.	**Screening Criteria Is Indeterminate At This Time**
Local Essential Service	**Presumed to cause a less than significant impact:** • Project is local-serving as determined by the Transportation Department; and • Local-serving and Day Care Center; or • Police or Fire Facility; or • Medical/Dental Office Building under 50,000 square feet; or • Government offices (in-person services such as post office, library, and utilities); or • Local or Community Parks	The CCP includes land uses that would allow for public facilities such as police, fire, post office, libraries, and others that would be considered "local essential service." The CCP also identifies open space and parks. The CIP includes utilities needed to accommodate buildout of the CCP. It is possible that future development accommodated by the CCP and CIP projects include local essential services; however, these will be analyzed individually at the project-level. Accordingly, the applicability of this criterion cannot be determined at this time.	**Screening Criteria Is Indeterminate At This Time**

Table 5 – VMT Screening Criteria Summary

Screening Criteria		CCP Evaluation	Result
Map-Based Screening	**Presumed to cause a less than significant impact:** • Area of development is under threshold as shown on screening map as allowed by the Transportation Department.	Traffic Analysis Zones (TAZ) in the Riverside County Transportation Model within the CCP area include TAZ 4429, 4431, 4437, 4438, 4441, 4443, 4447, and 4451. For the purpose of identifying Low VMT Areas, VMT metrics such as VMT per capita and VMT per employee would need to be obtained from County staff. Individual land use projects will be analyzed separately on a case-by-case basis as future development phases are proposed to determine if the project meets the Map-Based Screening criteria. Accordingly, the applicability of this criterion cannot be determined at this time.	**Screening Criteria is Indeterminate At This Time**
Redevelopment Projects	**Presumed to cause a less than significant impact:** • Project replaces an existing VMT-generating land use and does not result in a net overall increase in VMT.	Future development accommodated by the CCP may include redevelopment projects. However, individual projects will be analyzed separately on a case-by-case basis as future development phases are proposed. It is possible that future project submittals consistent with the CCP will include redevelopment projects that meet this criterion. Accordingly, the applicability of this criterion cannot be determined at this time.	**Screening Criteria Is Indeterminate At This Time**

Source: *County of Riverside Transportation Analysis Guidelines for Level of Service and Vehicle Miles Traveled, December 2020*

VMT Metrics and Significance Thresholds

VMT metric and significance thresholds used for VMT analysis in the County of Riverside are based on efficiency metrics including Work VMT per employee and VMT per resident/capita as presented in **Table 6**. The County Guidelines have established thresholds of significance for project generated VMT for use as part of the environmental review process under CEQA. Baseline conditions derived from the RIVCOM model

establish 2018 as the base year for developing VMT metrics prior to future-year forecasting. Future conditions reflect the regional General Plan buildout, accounting for cumulative growth through the horizon year of 2045 to inform projections of long-term growth.

The following thresholds are used to determine if the project would result in a significant VMT impact:

VMT Threshold:
A project would result in a significant VMT impact if the following conditions occur:

1. The baseline project-generated VMT per capita or worker VMT per employee exceeds the County of Riverside baseline VMT per capita or worker VMT per employee.
2. The cumulative project-generated VMT per capita or worker VMT per employee exceeds the County of Riverside cumulative VMT per capita or worker VMT per employee.
3. For retail projects, there is a net increase in total VMT.

Table 6 – VMT Metrics and Significance Thresholds

Land Use	VMT Metric	Baseline Year Model (2018)[1]	Future Year Model (2045)[1]	Average County of Riverside VMT Threshold[2]
Residential	Home Based VMT Per Capita	18.2	18.5	15.2
Non-Residential	Home Based Work VMT Per Employee	31.8	28.4	14.2

[1] *VMT Threshold based on data extracted from the RIVCOM model.*
[2] *Obtained from the County of Riverside Transportation Analysis Guidelines for Level of Service and Vehicle Miles Traveled, December 2020.*

The average County of Riverside VMT thresholds for residential and non-residential land uses are provided for informational purposes only.

VMT Analysis

For purposes of this analysis, the RIVCOM model was used to estimate VMT for the CCP as it considers interaction between different land uses based on socio-economic data such as population, households, and employment. A PCC level VMT analysis has been conducted that compares the project generated VMT to the County's thresholds. For the PCC level VMT analysis, the following scenarios are included in the analysis:

- Baseline Year 2018 Plus CCP
- Future Year 2045 Plus CCP

Baseline Year 2018 Plus CCP Conditions

Table 7 shows the calculation details for the project generated VMT extracted from the model under the Baseline Year 2018 Plus CCP Conditions. Under Baseline Year 2018 Plus CCP conditions, the project generates lower home-based (HB) VMT per capita than the County average (12.0 vs. 18.2), indicating it does not exceed the applicable threshold for this metric. However, the project generates higher home-based work (HBW) VMT per employee than the County average (38.7 vs. 31.8), resulting in the project exceeding the threshold for employment-related VMT efficiency. Therefore, the non-residential components of the CCP are expected to have a significant VMT impact on the environment.

Table 7 – Baseline Year 2018 – Project Generated VMT

Year 2018	Cabazon Community Plan (Project)	County of Riverside	Project Exceeds Threshold? (Yes / No)
Population	62,405	2,358,439	--
Employment	46,350	759,857	--
Homebased (HB) VMT	749,038	42,904,715	--
Homebased Work (HBW) VMT	1,791,628	24,164,640	--
HB VMT Per Capita	12.0	18.2	No
HBW VMT Per Employee	38.7	31.8	**Yes**

The County of Riverside evaluates retail by comparing roadway VMT with and without the project. **Table 8** provides a summary of the total roadway VMT with the CCP and without the retail component of the CCP. As shown, the difference between the two conditions is an increase of 36,776 VMT with retail.

Table 8 – Baseline Year 2018 – Roadway VMT

Year 2018	County of Riverside Plus CCP	County of Riverside Without CCP Retail	Difference
Roadway VMT	56,927,951	56,891,175	+36,776

Future Year 2045 Plus CCP Conditions

Table 9 shows the calculation details for the project generated VMT extracted from the model under the Future Year 2045 Plus CCP Conditions. Under Future Year 2045 Plus CCP conditions, the project generates lower home-based (HB) VMT per capita than the County average (12.7 vs. 18.5), indicating it does not exceed the applicable threshold for this metric. However, the project generates higher home-based work (HBW) VMT per employee than the County average (35.0 vs. 28.4), resulting in the project exceeding the threshold for employment-related VMT efficiency. Therefore, the non-residential components of the CCP are expected to have a significant VMT impact.

Table 9 – Future Year 2045 – Project Generated VMT

Year 2045	Cabazon Community Plan (Project)	County of Riverside	Project Exceeds Threshold? (Yes / No)
Population	62,405	3,424,454	--
Employment	46,350	1,116,025	--
Homebased (HB) VMT	794,563	63,396,364	--
Homebased Work (HBW) VMT	1,621,497	31,708,673	--
HB VMT Per Capita	12.7	18.5	No
HBW VMT Per Employee	35.0	28.4	**Yes**

The County of Riverside evaluates retail by comparing roadway VMT with and without the project. **Table 10** provides a summary of the total roadway VMT with the CCP and without the retail component of the CCP. As shown, the difference between the two conditions is an increase of 31,049 VMT with retail.

Table 10 – Future Year 2045 – Roadway VMT

Year 2045	County of Riverside Plus CCP	County of Riverside Without CCP Retail	Difference
Roadway VMT	78,250,224	78,219,174	31,049

VMT Mitigation

Due to the programmatic nature of the project, it is not possible to quantify the VMT impacts of future individual developments. This limitation stems from project-level variability and uncertainties related to locations, detailed site plans, and other factors that are currently unknown. Because these elements can vary substantially and because individual project operations would occur over time based on numerous variables, the analysis cannot fully account for the effects of specific project design features, policies, or infrastructure improvements that may reduce VMT. Accordingly, the analysis conservatively concludes that the proposed project would result in significant VMT impacts for all non-residential land uses, including industrial, commercial, and public facilities.

During project design and subsequent project-level review, the County will evaluate each proposed development in accordance with the County Guidelines VMT screening criteria. This review will determine whether the submitted project is eligible to be screened out of conducting project-level VMT analysis. Projects meeting one or more screening criteria will be considered to have a less than significant VMT impact and will not require further project-level VMT analysis. Projects that do not qualify for screening must undergo a quantitative VMT analysis to assess potential impacts. If a project is found to have a significant VMT impact, the County will require implementation of project-level VMT reduction measures, as described below, prior to approval and issuance of construction permits.

Transportation Demand Management (TDM) strategies and physical improvements to reduce VMT are identified in the County Guidelines and are also recognized in the most recent version of the *California Air Pollution Control Officers Association (CAPCOA) Handbook* as effective means of reducing VMT to the extent feasible. The CAPCOA Handbook provides methodologies, calculation procedures, and limitations for estimating VMT reductions, including the combined effectiveness of multiple measures.

Potential trip reduction strategies may include, but are not limited to, the following:

1. Provision of bus stop improvements or on-site mobility hubs
2. Pedestrian improvements (on-site or off-site) to enhance connectivity to transit stops, services, schools, and commercial areas
3. Bicycle programs, such as purchase incentives, secure storage, maintenance services, and on-site education programs
4. Enhancements to the citywide bicycle network
5. Parking reductions and/or pricing strategies to encourage transit use, active transportation, or shared mobility
6. Transit subsidies, passes, grants, or financial incentives for public transportation use
7. Provision of enhanced or more frequent bus service
8. Implementation of shuttle services

While TDM measures may reduce VMT, it is unlikely that they would fully mitigate program-level impacts to a less than significant level. Nevertheless, CEQA requires the implementation of all feasible mitigation measures to reduce impacts. Consistent with this mandate, recommended TDM measures identified in Appendix F (Riverside County TDM Measures) of the County Guidelines would be applied to reduce VMT impacts to the extent feasible.

However, due to uncertainties regarding the feasibility, timing, and effectiveness of TDM implementation across varied project settings and the absence of off-site mitigation options, the ability of individual projects to achieve less than significant VMT impacts cannot be guaranteed. Therefore, VMT impacts associated with the proposed project are conservatively determined to be significant and unavoidable, even with mitigation, as some projects may be unable to identify or implement sufficient measures to reduce impacts below the established thresholds.