

**APPENDIX D**  
**Transportation Analysis**



## Technical Memorandum

Date: May 16, 2023

To: Gus Gonzalez, City of Eastvale

From: Dawn Wilson, PE, TE

Subject: Transportation Analysis – Eastvale General Plan Update

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Michael Baker completed the technical analysis in support of the Envision Eastvale 2040 General Plan Update in conjunction with modeling efforts conducted by Translutions. This technical memorandum outlines the approach to the modeling and the findings of the analysis conducted.

### Land Use Assumptions

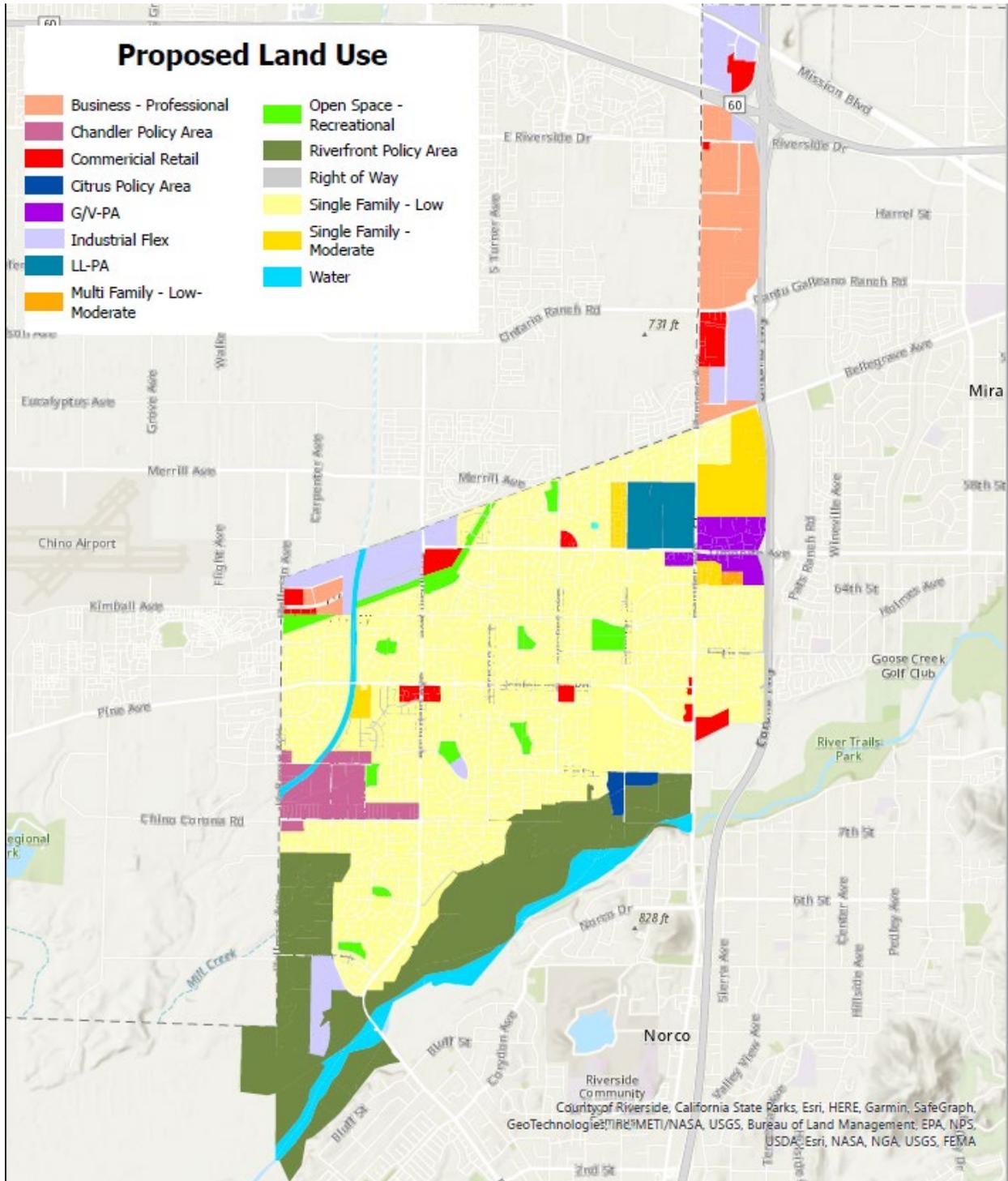
Land uses included in the General Plan include Single Family, Multifamily, Retail, Industrial Flex, Office space, Open Space and Right of Way. In addition to these general land use categories, the General Plan included five Policy Areas, which are primarily mixed use and demonstrate the greatest opportunity for growth and development in the City over the next 20 to 30 years. **Table 1** summarizes the land use categories included in Envision Eastvale Land Use Element and the associated developed and vacant acres in each land use category.

**Figure 1** on the following page illustrates the land uses included in the Land Use Element as well as the locations of the five policy areas.

Table 1. Proposed Land Uses – Eastvale General Plan Update

Proposed Land Use	Gross Acres	Developed	Vacant Acres
Single Family - Very Low	33.0	33.0	0.0
Single Family - Low	3,018.2	2,927.8	90.4
Single Family - Moderate	255.7	234.7	20.9
Multi Family - Low-Moderate	9.9	0.0	9.9
Commercial Retail	192.8	113.4	79.4
Industrial Flex	481.8	425.0	56.8
Business - Professional	405.1	331.5	73.5
Water	279.6	3.9	275.7
Open Space - Recreational	177.8	137.4	40.4
Riverfront Policy Area	1,369.9	138.8	1,231.1
Downtown West Policy Area	153.1	0.0	153.1
Chandler Policy Area	204.9	165.5	39.4
Downtown East Policy Area	130.2	127.0	3.2
Citrus Policy Area	36.1	11.2	24.9
Right-Of-Way	1,662.8	1,591.9	70.9
<b>TOTAL</b>	<b>8,410.8</b>	<b>6,241.2</b>	<b>2,169.6</b>

Figure 1: Envision Eastvale Land Use Map



### Regional Travel Demand Model

The Riverside County Transportation Model (RIVCOM) was used to prepare the traffic forecasts and VMT for the current General Plan and the General Plan Update (Envision Eastvale). At the time the analysis was conducted, the RIVCOM 3.0 model was the most current model available and is consistent with the latest Southern California Association of Governments (SCAG) Regional Transportation Plan and Sustainable Communities Strategies (RTP/SCS).

The travel demand forecasting model uses traffic analysis zones (TAZ), which contains socioeconomic data (SED) and other model inputs. The key land use inputs used in calculating VMT include population, number of households, and types of employment. Employment is typically broken down by income level to forecast trip length, type and patterns. In addition, employment can be broken out by Industry Type (agriculture, construction, manufacturing, retail, professional services, etc).

When calculating VMT, residential VMT is based on Home Based trips (for all home-based trip types, productions only). Employment VMT is based on Home Based Work trips (attractions only). The process for calculating VMT using the model is outlined in the *County of San Diego Transportation Analysis Guidelines (2020)*.

### Modifications to RIVCOM 3.0

In December 2022, City of Eastvale provided land use revisions to SCAG relative to updated land uses within City of Eastvale. These edits were determined to be based on the existing General Plan land uses and not a reflection of the land uses proposed in the General Plan Update (Envision Eastvale). Therefore, the process of updating the RIVCOM model for this General Plan Update was a two step process:

- Step 1: Update land uses to reflect the Current General Plan based on SCAG model and input from City of Eastvale
- Step 2: Update land uses to reflect the General Plan Update based on data included in the proposed land use element.

**Tables 2 and 3** on the following pages summarizes the TAZs included in the City of Eastvale and the land use changed made for each step of the model development process. **Figure 2** illustrates the locations of the TAZ's within the City used in this analysis.

As shown, the adjustments to the RIVCOM model to reflect the baseline (Current General Plan) adds 116 single family units, reduces the multifamily units by 17 and increases employment by 17,343 employees. Adjustments to the baseline model to reflect the General Plan Update increases both the single family (3,880 additional units) and multifamily (850 additional units) and a decrease in employment (3,924). The reduction in employment is largely due to the changes in land uses planned for the Downtown West Policy Area.

Table 2: Land Use Adjustments to RIVCOM model for Baseline (Current General Plan)

TAZ	RIVCOM 3.0 (2045)			Adjusted for Current General Plan		
	Single Family	Multi Family	Total Employment	Single Family	Multi Family	Total Employment
603	1,122	116	98	1,122	316	227
604	418	13	34	418	427	283
605	335	0	133	524	400	133
606	609	94	311	952	147	311
607	442	14	252	647	20	600
608	-	-	1,454	-	-	3,464
609	1	5	1,001	1	7	2,385
610	424	16	2	620	23	463
611	469	22	534	469	22	476
612	1,483	283	976	1,483	283	1,283
613	729	12	21	729	12	21
614	860	8	135	860	8	135
615	716	14	300	716	14	300
616	349	10	102	349	10	102
617	723	15	121	723	15	121
618	462	15	490	462	15	490
619	677	4	536	677	4	536
620	771	3	91	771	3	91
621	785	230	171	785	230	418
622	743	246	319	743	246	270
623	478	61	51	478	61	43
624	667	1,834	2,107	-	660	7,464
625	138	621	28	138	621	28
626	-	-	1,803	-	-	1,803
627	38	605	227	38	605	227
628	693	31	38	448	-	229
629	17	14	1,028	17	14	1,028
630	772	-	43	772	-	43
631	634	-	111	634	-	111
632	-	-	2,499	-	-	5,398
633	-	-	1,180	-	-	2,549

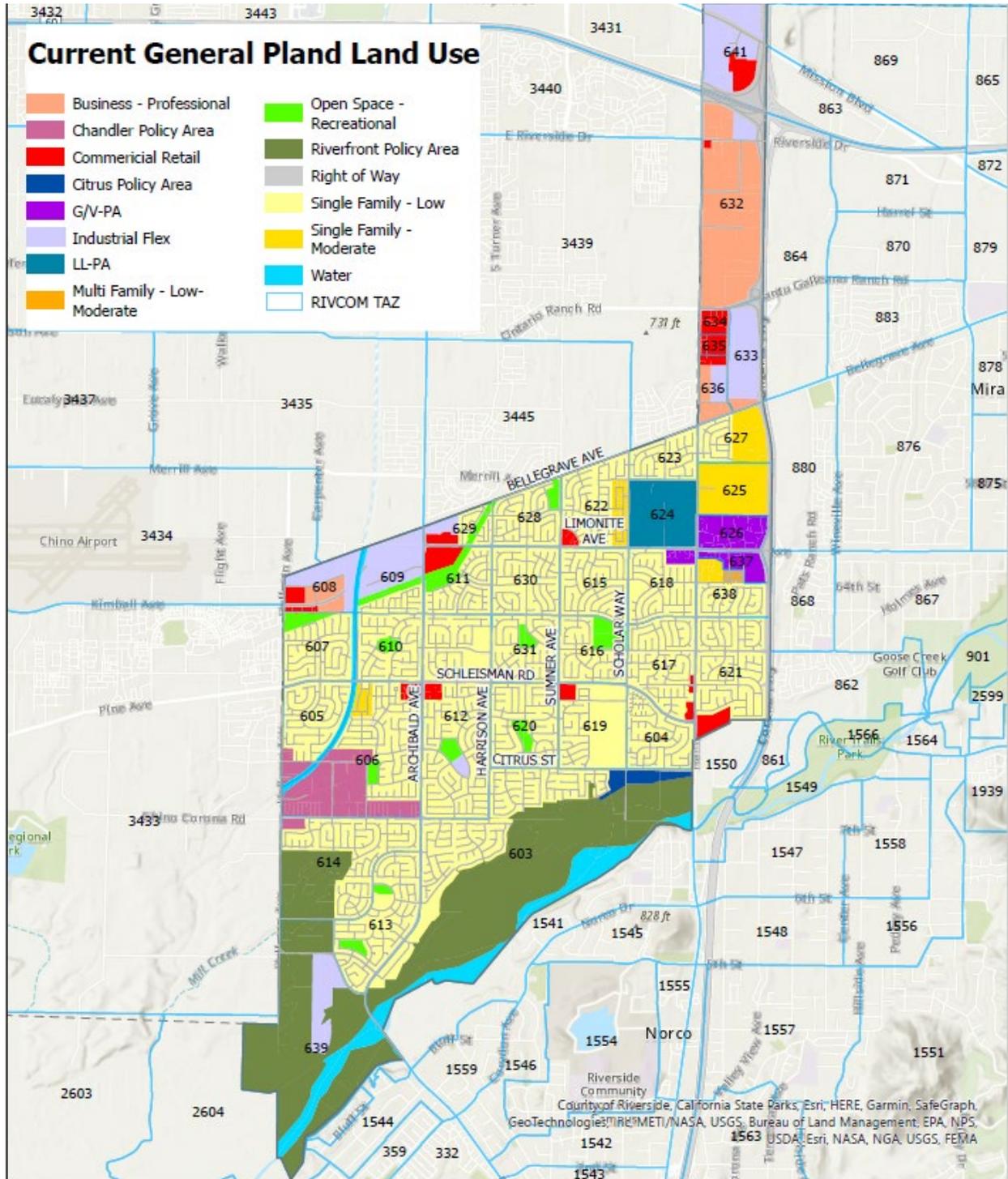
TAZ	RIVCOM 3.0 (2045)			Adjusted for Current General Plan		
	Single Family	Multi Family	Total Employment	Single Family	Multi Family	Total Employment
634	-	-	267	-	-	577
635	-	-	221	-	-	477
636	-	-	683	-	-	1,475
637	-	1	689	-	1	689
638	353	396	48	447	501	48
639	5	-	84	5	-	84
640	-	-	0	-	-	-
641	-	-	272	-	-	1,421
<b>Total</b>	<b>15,913</b>	<b>4,683</b>	<b>18,460</b>	<b>16,029</b>	<b>4,666</b>	<b>35,803</b>

Table 3: Land Use Adjustments to RIVCOM model for Proposed General Plan (Envision Eastvale)

TAZ	Adjusted for Current General Plan			Adjusted for General Plan Update (Envision Eastvale)			Modification Justification
	Single Family	Multi Family	Total Employment	Single Family	Multi Family	Total Employment	
603	1,122	116	98	1,422	416	356	Citrus Policy Area
604	418	13	34	418	427	283	
605	335	0	133	524	400	133	
606	609	94	311	1,152	420	519	Chandler Policy Area
607	442	14	252	647	20	600	
608	-	-	1,454	0	0	3,464	
609	1	5	1,001	1	7	2,385	
610	424	16	2	620	23	921	
611	469	22	534	469	22	476	
612	1,483	283	976	1,483	483	1,697	Citrus Policy Area
613	729	12	21	729	12	21	
614	860	8	135	860	8	135	
615	716	14	300	716	14	300	
616	349	10	102	349	10	102	
617	723	15	121	723	15	121	
618	462	15	490	612	15	490	Growth Area
619	677	4	536	977	4	536	Growth Area
620	771	3	91	771	3	91	
621	785	230	171	785	230	605	Downtown East Policy Area
622	743	246	319	743	246	270	
623	478	61	51	478	61	215	Downtown West Policy Area
624	667	1,834	2,107	1,840	660	1,781	Downtown West Policy Area
625	138	621	28	738	721	28	Growth Area
626	-	-	1,803	0	0	1,803	
627	38	605	227	238	705	227	Growth Area
628	693	31	38	616	45	420	Growth Area
629	17	14	1,028	138	14	1,028	Growth Area
630	772	-	43	772	0	43	
631	634	-	111	634	0	111	
632	-	-	2,499	0	0	5,398	

TAZ	Adjusted for Current General Plan			Adjusted for General Plan Update (Envision Eastvale)			Modification Justification
	Single Family	Multi Family	Total Employment	Single Family	Multi Family	Total Employment	
<b>633</b>	-	-	1,180	0	0	2,549	
<b>634</b>	-	-	267	0	0	577	
<b>635</b>	-	-	221	0	0	477	
<b>636</b>	-	-	683	0	0	1,475	
<b>637</b>	-	1	689	0	33	689	Downtown East Policy Area
<b>638</b>	353	396	48	447	501	48	
<b>639</b>	5	-	84	5	0	84	
<b>640</b>	-	-	0	0	0	0	
<b>641</b>	-	-	272	0	0	1,421	
<b>Total</b>	<b>16,029</b>	<b>4,666</b>	<b>35,803</b>	<b>19,908</b>	<b>5,516</b>	<b>31,879</b>	

Figure 2: RIVCOM TAZ Map



### Traffic Volume Forecast

Daily traffic volumes generated by the model were post-process based on existing ground counts analyzed in the Existing Conditions report for the General Plan Update. **Table 4** summarizes the daily traffic volumes for the Existing Conditions, Current General Plan and General Plan update. **Figures 3 and 4** illustrate the levels of service for the roadway segments studied.

### Vehicle Miles Travel Findings.

In addition to calculating the daily traffic volumes along the roadway segments, the model was used to forecast citywide VMT for the Current General Plan and the General Plan Update. **Table 5** summarizes the results of the VMT analysis. As shown, the General Plan Update results in an increase in Citywide population and a reduction in number of employees. As such the Homebased VMT (productions) increase and Homebased Work VMT (attractions) decrease as a result of the General Plan Update. Evaluating the residential VMT metric, the General Plan Update VMT per capita decreases compared to both the existing (2018) condition and the Current General Plan. For the employment metric, the General Plan Update results in a decrease in VMT per employee over the existing condition (2018 Eastvale), but the decrease is less than what was previously forecast for the Current General Plan.

Both the VMT per capita and the VMT per employee are well above the Countywide average for year 2045, but are a reduction over the existing conditions indicating the land uses planned in the City align with the regional goal of reducing VMT.

Figure 3: Current General Plan Daily Volumes and LOS

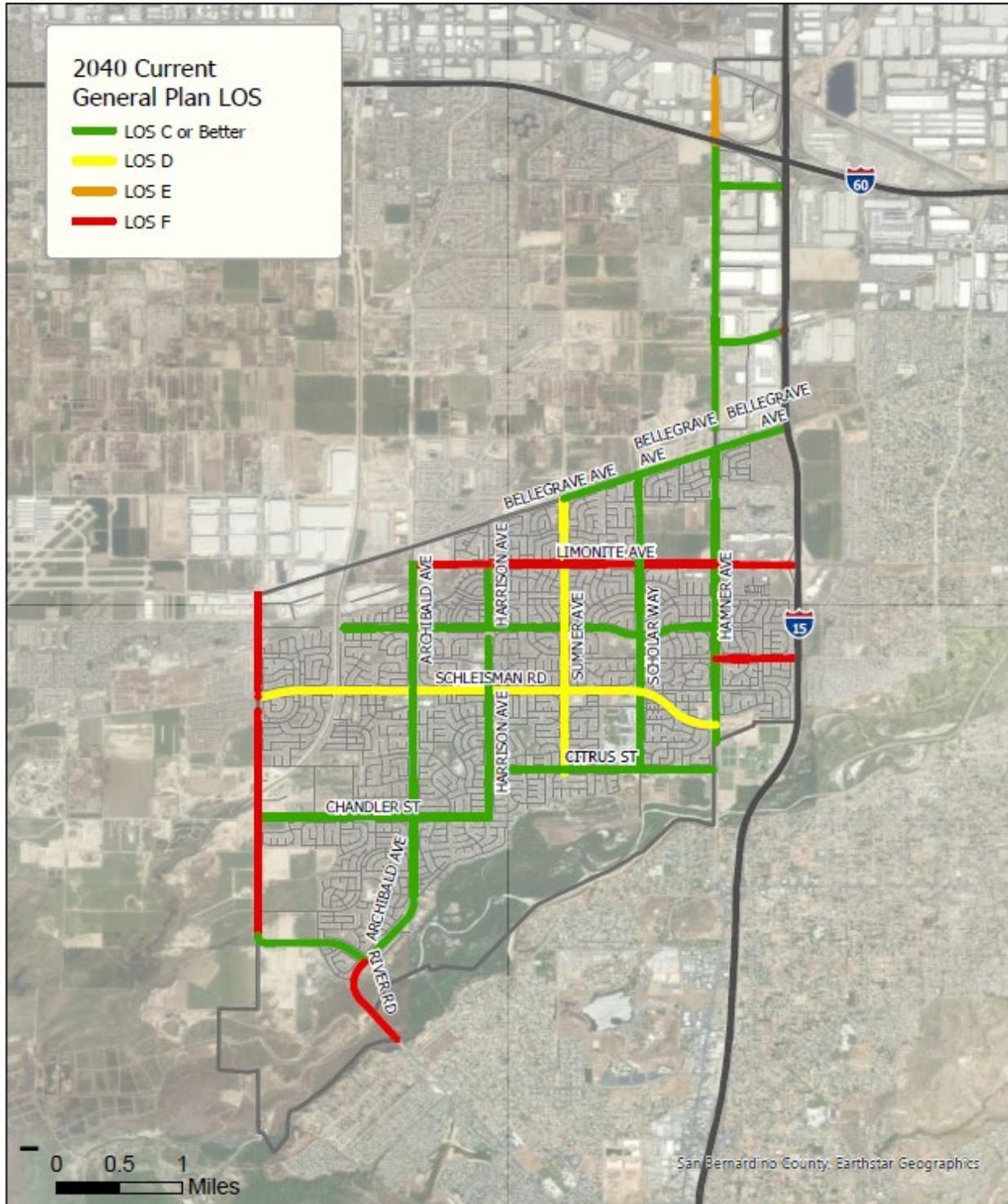


Figure 4: General Plan Update Daily Volumes and LOS

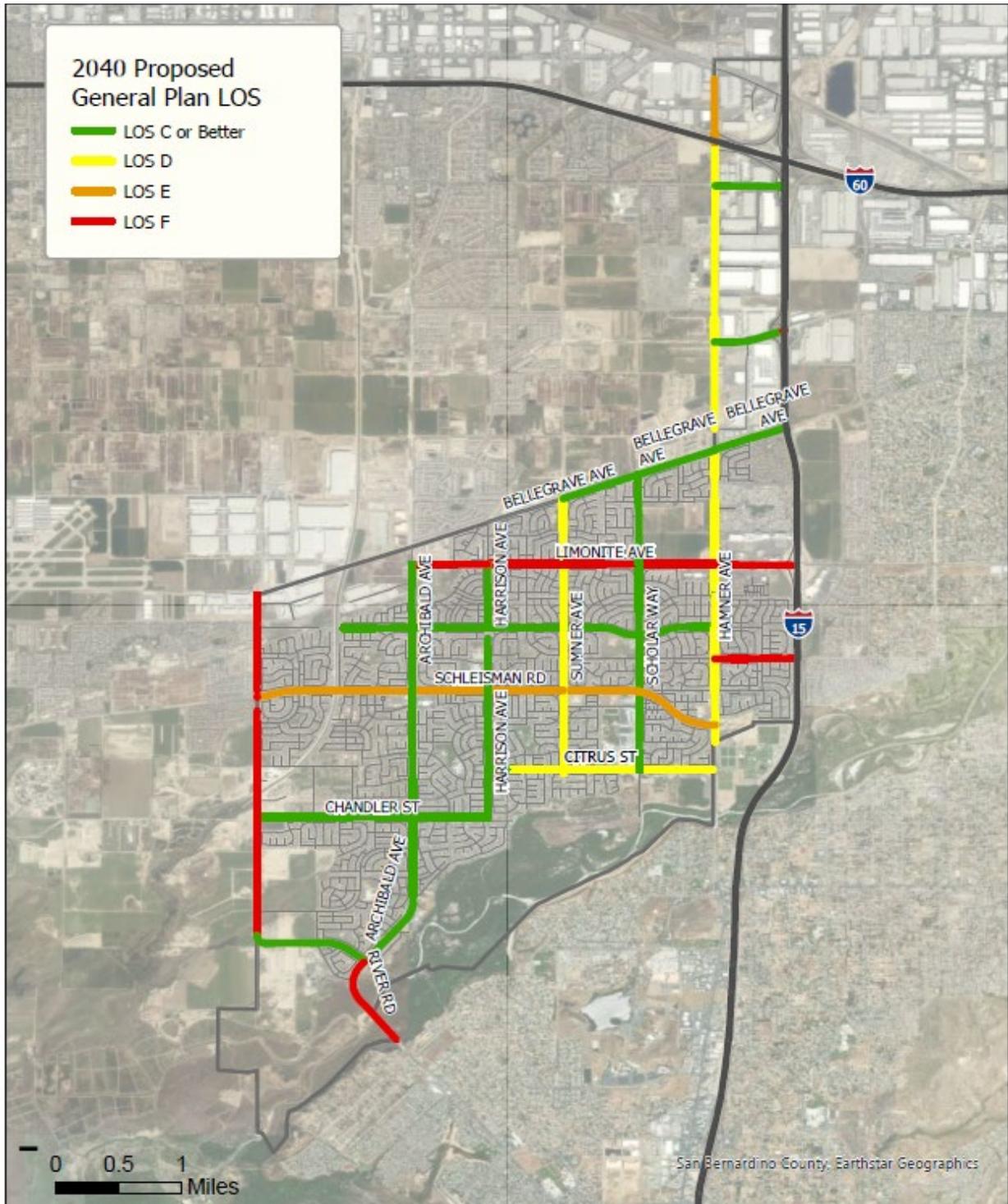


Table 4: Roadway Segment Operational Analysis

Roadway	From	To	Travel Lanes (2-way)	Roadway Classification Per Riverside County TIA Guidelines	Capacity	Existing (2022)			Current General Plan			Change in ADT (Proposed-Current)	General Plan Update		
						ADT	V/C Ratio	LOS	ADT	V/C Ratio	LOS		ADT	V/C Ratio	LOS
Limonite Avenue	Archibald Avenue	I-15 Freeway	6	Urban Arterial	48,500	49,500	1.02	F	80,320	1.66	F	1,802	81,577	1.68	F
65th Street	Coyote Trail Lane	Hamner Avenue	4	Secondary	23,300	10,900	0.47	A	30,202	1.30	F	342	33,596	1.44	F
68th Street	Hamner Avenue	I-15 Freeway	4	Major	30,700	26,700	0.87	D	13,825	0.45	A	911	15,363	0.50	A
Schleisman Road	Hellman Avenue	Hamner Avenue	6	Urban Arterial	48,500	40,000	0.82	D	43,332	0.89	D	1,907	44,689	0.92	E
Citrus Street	Harrison Avenue	Hamner Avenue	4	Secondary	23,300	13,200	0.57	A	17,504	0.75	C	2,437	19,509	0.84	D
Chandler Street	Hellman Avenue	Harrison Avenue	4	Arterial	32,300	7,000	0.22	A	12,530	0.39	A	78	12,564	0.39	A
River Road	Hellman Avenue	Archibald Avenue	4	Major	30,700	16,966	0.55	A	19,014	0.62	B	-302	18,823	0.61	B
River Road	Archibald Avenue	Southern City Limits	4	Major	30,700	40,255	1.31	F	38,014	1.24	F	671	38,472	1.25	F
Milliken Avenue	Philadelphia Street	SR-60 EB Ramps	6	Urban Arterial	48,500	21,300	0.44	A	21,890	0.45	A	776	22,114	0.46	A
Hamner Avenue	SR-60 EB Ramps	Southern City Limits	4 to 6	Urban Arterial	48,500	32,600	0.67	B	35,582	0.73	C	4,988	39,522	0.81	D
Scholar Way	Bellegrave Avenue	Schleisman Road	2	Secondary	23,300	7,300	0.31	A	8,234	0.35	A	894	9,068	0.39	A
Scholar Way	Schleisman Road	Citrus Street	4	Secondary	23,300	7,300	0.31	A	11,364	0.49	A	1,902	13,252	0.57	A
Sumner Avenue	Bellegrave Avenue	Citrus Street	4	Major	30,700	11,100	0.36	A	12,330	0.40	A	685	12,539	0.41	A
Harrison Avenue	Limonite Avenue	Chandler Street	4	Secondary	23,300	9,700	0.42	A	13,617	0.58	A	1,267	14,075	0.60	B
Archibald Avenue	Limonite Avenue	River Road	6	Urban Arterial	48,500	30,700	0.63	B	30,025	0.62	B	2,083	31,306	0.65	B
Hellman Avenue	Northern Terminus	River Road	4	Secondary	23,300	21,917	0.94	E	29,945	1.29	F	431	30,190	1.30	F
Bellegrave Avenue	Sumner Avenue	I-15 Freeway	2 to 4	Major	30,700	7,300	0.24	A	10,824	0.35	A	1,175	11,096	0.36	A
Cantu Galleano Ranch Road	Milliken Avenue	I-15 Freeway	6	Urban Arterial	48,500	12,200	0.25	A	20,245	0.42	A	2,092	20,675	0.43	A
Riverside Drive	Hamner Avenue	I-15 Freeway	2 to 4	Secondary	23,300	6,500	0.28	A	8,780	0.38	A	444	8,994	0.39	A

Table 5. VMT Assessment Findings

2045	2018 Eastvale*	Current General Plan	General Plan Update	2045 Riverside County*
Population	63,243	71,654	89,154	3,424,454
Employment	6,867	35,807	31,881	1,116,025
Service Population	70,110	107,461	121,035	4,540,479
Homebased (HB) VMT	1,496,135	1,637,725	1,998,142	63,976,131
Homebased Work (HBW) VMT	404,430	1,680,878	1,540,035	32,318,620
OD VMT (auto only)	2,747,934	4,723,531	5,097,010	145,958,343
OD VMT (auto + truck)	2,889,694	4,957,197	5,354,161	152,940,057
HB VMT per capita	23.7	22.9	22.4	18.7
HBW VMT per employee	58.9	46.9	48.3	29.0
OD VMT per service population (auto only)	39.2	44.0	42.1	32.1
OD VMT per service population (auto + truck)	41.2	46.1	44.2	33.7

### Recommendations

City of Eastvale is largely built out and will result in only minor spot improvements over the next 20 years or so. Therefore, operational improvements within the City should focus on addressing delays at intersections and providing travel options that reduce overall dependence on automobile travel. Smart signals, improved traffic signal communication infrastructure and other features should be integrated into the City’s traffic signal system to ensure that traffic flow and capacity is optimized along the City’s busiest corridors. Fee programs may be considered to help fund citywide network improvements.

Providing travel options and accommodating multiple travel modes within the public right of way will reduce reliance on the single occupant vehicle trips. Excess space within the right-of-way should be repurposed to provide new, enhanced pedestrian and bicycle facilities. Repurposing can be accomplished without reducing capacity by reducing the width of existing travel lanes and center medians. Providing mobility hubs and charging stations for e-assist bikes or scooters will provide the necessary resources to make these modes viable throughout the City.

In addition, the City should continue to coordinate with local and regional agencies to provide new or enhanced transit service that connects to regional rail and bus routes – further providing travel options for Eastvale’s residents and employees.