TRAFFIC IMPACT STUDY

FOR

GATEWAY VILLAGE

Madera, California

November 2006

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TRAFFIC IMPACT STUDY
FOR
GATEWAY VILLAGE

EXECUTIVE SUMMARY/INTRODUCTION

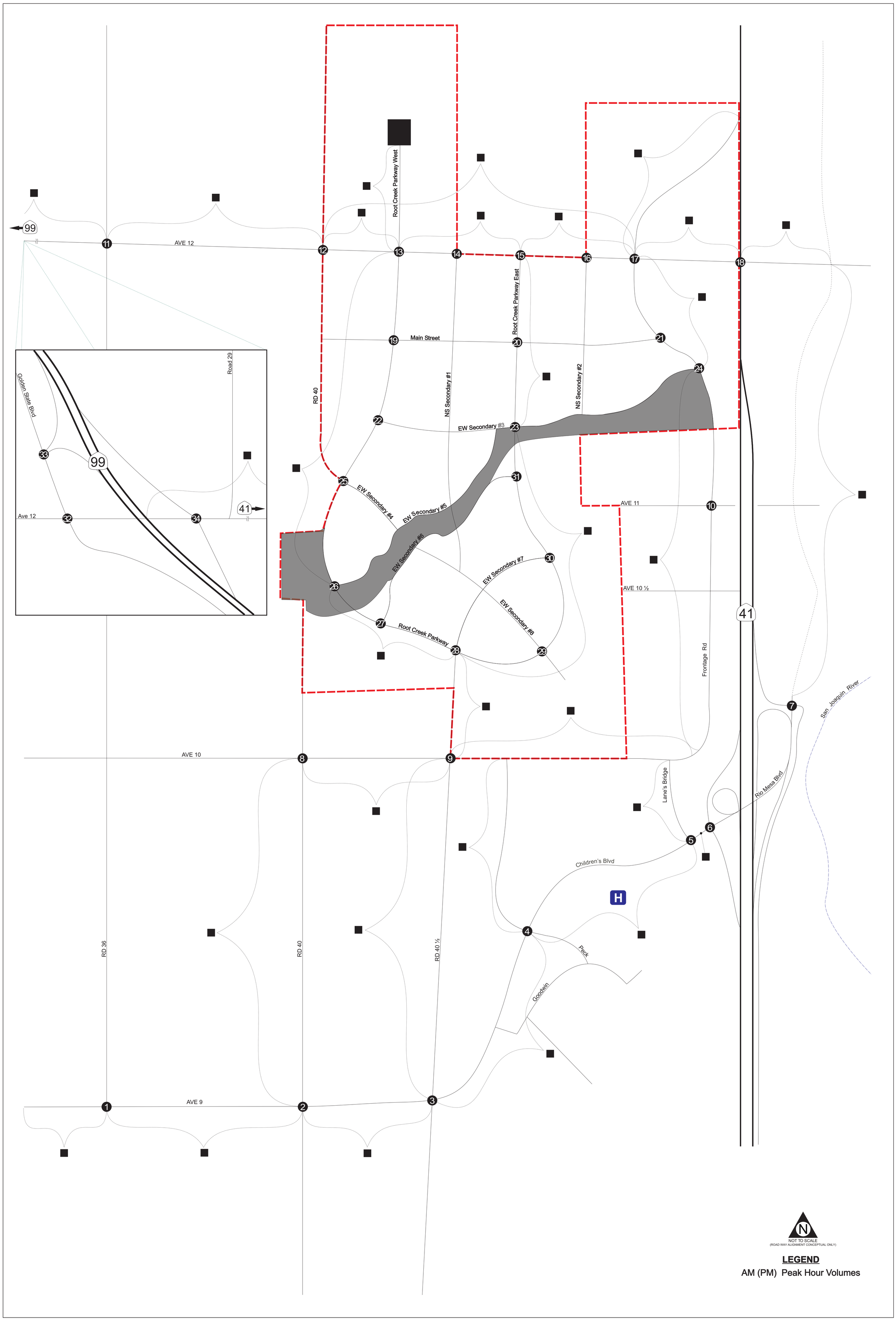
This Traffic Impact Study (TIS) has been prepared to assess the existing and projected traffic conditions resulting from development of the approximately 2,062 acre Gateway Village Project (Project), and will be used in the preparation of a Program Environmental Impact Report (EIR) and an Infrastructure Master Plan (IMP). The Project is located in southeast Madera County north of Avenue 10, south of Avenues 12, 12 ½, and 13, east of Road 40, and west of State Route (SR) 41 and the Rolling Hills community. Figure 1 shows the Project location.

The Project will consist of the following land uses (approximate):

- 1,326 acres (4,978 dwelling units (DU)) of Single Family Residential
- 128 acres (1,600 DU) of Multi-family of which 48 acres is mixed use with Community Commercial
- 88 acres of Community Commercial of which 48 acres is mixed use with Multi-family
- 32 acres of Neighborhood Commercial/Village Core
- 102 acres of Office
- 2 acres of Government Uses
- 3 Elementary Schools (36 acres)
- 225 acres of Park/Open Space

Construction and occupation of the Project for purposes of this study is expected to be completed by 2025. Currently, the Project site is primarily agricultural in use with some industrial and commercial uses.

The Project study area for the analysis of traffic impacts extends from Avenue 12 (north) to Avenue 9 (south) and from Golden State Boulevard (west) to Rio Mesa Boulevard (east). This report analyzes 30 segments and 34 intersections for two (2) time periods (weekday AM and PM). Segments were analyzed using the Madera County Transportation Commission (MCTC) Capacity Tables developed by Korve Engineering. Unsignalized intersection levels of service (LOS) were calculated using the *2000 Highway Capacity Software (HCS +*), which is an industry standard and is recognized for use by Caltrans and in the County of Madera. The *HCS +* software is based on the *2000 Highway Capacity Manual (HCM 2000)* methodology, which is also an industry standard. Roundabout levels of service were calculated using Rodel. Signalized intersection levels of service were calculated using *Synchro 6.0* software, which also incorporates the *HCM 2000* methodologies. *Synchro 6.0* is recognized for use by Caltrans and in the County of Madera. Signal warrants were prepared using the *California Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways*.



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VICINITY MAP

Gateway Village
Madera County

Figure 1

95-250.4

To analyze the traffic impacts resulting from the build out of the Project, nine (9) scenarios were evaluated. The MCTC Traffic Model (Model) was used to develop the 2013 No Project/"0" Project, 2013 Project only, 2025 No Project/"0" Project, and 2025 Project only volumes. The model years used to develop the 2013 No/"0" Project, and 2025 No Project/"0" Project increments and growth percentages were 2000 and 2025. The 2013 and 2025 Project only volumes were developed from the 2025 Model.

The 2013 No Project/Project and 2025 No Project/Project roadway improvements were based on the network improvements shown in the 2025 Model, the 2004 Madera County Regional Transportation Plan (RTP), information provided by County staff, and Project planned improvements.

Tables 1 and 2 show the level of service (LOS) summary for the study segments for the various scenarios, while Tables 3 and 4 show the level of service summary for the study intersections for the various scenarios. The signalized, all-way stop-controlled (AWSC), and roundabout intersection levels of service shown in Tables 3 and 4 are representative of the whole intersection. Individual intersection movements or approaches may operate above or below the signalized, AWSC, and roundabout level of service or delay shown in Tables 3 or 4.

As shown in Tables 1, 2, 3, and 4, the following locations by scenario and time period are projected to operate below the appropriate adopted level of service standard:

Existing (Without the Project)

Segments

- Avenue 12 – Road 40 to SR 41 West Frontage Road - AM/PM peak hours – LOS "E"
- Avenue 12 – SR 41 West Frontage Road to SR 41 - PM peak hour – LOS "E"

Intersections

- Childrens Boulevard at Lanes Bridge Drive
  - Southbound (SB) Approach – AM/PM peak hours – LOS "F"
- Avenue 12 at Road 36 – AM/PM peak hours – LOS "E"
- Avenue 12 at Golden State Boulevard
  - Northbound (NB) Approach –PM peak hour – LOS "F"
  - SB Approach – PM peak hour – LOS "F"
- SR 99 SB ramps at Golden State Boulevard
  - Westbound (WB) Approach – PM peak hour – LOS "E"
- Avenue 12 at SR 99 NB ramps
  - NB Approach – AM/PM peak hours – LOS "E"/"F"

2013 No Project (Without the Project)

Segments

- Avenue 9 – SR 99 to Road 36 - AM/PM peak hours – LOS "E"
- Childrens Boulevard – Road 40 ½ to Peck Boulevard - AM peak hour – LOS "E"
- Avenue 12 – SR 99 to Road 36 - AM/PM peak hours – LOS "E"
- Avenue 12 – Road 36 to Road 40 - AM/PM peak hours – LOS "E"
- Avenue 12 – Road 40 to SR 41 West Frontage Road - AM/PM peak hours – LOS "E"
- Avenue 12 – SR 41 West Frontage Road to SR 41 - AM/PM peak hours – LOS "E"

TABLE 1:
WEEKDAY LEVELS OF SERVICE SUMMARY FOR THE STUDY SEGMENTS
EXISTING, 2013 NO PROJECT, MITIGATED 2013 NO PROJECT, 2013 PROJECT, & MITIGATED 2013 PROJECT

	Existing		2013 No Project		Mitigated 2013 No Project		2013 Project		Mitigated 2013 Project	
Segment	**LOS AM/PM Pk Hr**	**V/C AM/PM Pk Hr**	**LOS AM/PM Pk Hr**	**V/C AM/PM Pk Hr**	**LOS AM/PM Pk Hr**	**V/C AM/PM Pk Hr**	**LOS AM/PM Pk Hr**	**V/C AM/PM Pk Hr**	**LOS AM/PM Pk Hr**	**V/C AM/PM Pk Hr**
Road 40 – Avenue 9 to Avenue 10	A/A	0.001/0.000	A/A	0.002/0.000	A/A	0.002/0.000	A/A	0.004/0.002	A/A	0.004/0.002
Root Creek Pkwy West – Root Creek Greenbelt to Avenue 12	n/a	n/a	n/a	n/a	n/a	n/a	A/A	0.044/0.044	A/A	0.044/0.044
Root Creek Pkwy West – Avenue 12 to northern Project boundary	n/a	n/a	n/a	n/a	n/a	n/a	A/A	0.536/0.536	A/A	0.536/0.536
Road 40 ½ - Avenue 9 to Avenue 10	A/A	0.004/0.007	A/A	0.041/0.044	A/A	0.041/0.044	A/A	0.023/0.023	A/A	0.023/0.023
Root Creek Pkwy East – Root Creek Greenbelt to Avenue 12	n/a	n/a	n/a	n/a	n/a	n/a	A/A	0.227/0.227	A/A	0.227/0.227
SR 41 West Frontage Road – Avenue 10 to Root Creek Greenbelt	A/A	0.123/0.165	A/A	0.286/0.325	A/A	0.286/0.325	A/A	0.371/0.362	A/A	0.371/0.362
SR 41 West Frontage Road – Root Creek Greenbelt to Avenue 12	A/A	0.123/0.172	A/A	0.308/0.383	A/A	0.308/0.383	A/A	0.417/0.437	A/A	0.417/0.437
SR 41 West Frontage Road – Avenue 12 to northern Project boundary	n/a	n/a	n/a	n/a	n/a	n/a	A/A	0.548/0.548	A/A	0.548/0.548
Rio Mesa Boulevard – Avenue 10 to Avenue 12	n/a	n/a	n/a	n/a	n/a	n/a	B/B	0.180/0.173	B/B	0.180/0.173
Avenue 9 – SR 99 to Road 36	D/D	0.367/0.355	**E/E**	**0.702/0.689**	**E***(B)*/**E***(B)*	**0.702** *(0.351)* / **0.689** *(0.345)*	**F/F**	**1.067/1.051**	**F***(A)*/**F***(A)*	**1.067** *(0.533)* / **1.051** *(0.526)*
Avenue 9 – Road 36 to Road 40	C/C	0.300/0.271	D/D	0.537/0.523	D/D	0.537/0.523	C/C	0.786/0.746	C/C	0.786/0.746
Avenue 9 – Road 40 to Road 40 ½	C/C	0.300/0.273	D/D	0.578/0.577	D/D	0.578/0.577	C/C	0.791/0.749	C/C	0.791/0.749
Childrens Boulevard – Road 40 ½ to Peck Boulevard	C/C	0.308/0.269	**E**/D	**0.610**/0.569	**E***(B)*/D*(B)*	**0.610** *(0.350)* / 0.569 *(0.284)*	**E/E**	**0.699/0.628**	**E***(C)*/**E***(C)*	**0.699** *(0.349)* / **0.620** *(0.314)*
Childrens Boulevard – Peck Boulevard to Lanes Bridge Drive	A/A	0.204/0.189	B/B	0.501/0.480	B/B	0.501/0.480	C/C	0.636/0.577	C/C	0.636/0.577
Childrens Boulevard – Lanes Bridge Drive to SR 41 SB ramps	A/A	0.171/0.173	B/B	0.307/0.308	B/B	0.307/0.308	B/B	0.405/0.380	B/B	0.405/0.380
Lanes Bridge Drive – Avenue 10 to Childrens Boulevard	A/A	0.070/0.084	A/A	0.152/0.164	A/A	0.152/0.164	C/C	0.711/0.714	C/C	0.711/0.714
Avenue 10 – Road 40 to Road 40 ½	A/A	0.049/0.064	B/C	0.214/0.231	B/C	0.214/0.231	A/A	0.259/0.277	A/A	0.259/0.277
Avenue 10 – Road 40 ½ to SR 41 West Frontage Road	A/A	0.071/0.083	A/A	0.216/0.229	A/A	0.216/0.229	A/A	0.259/0.275	A/A	0.259/0.275
Avenue 12 – SR 99 to Road 36	D/D	0.464/0.517	**E/E**	**0.825/0.885**	**E***(B)*/**E***(B)*	**0.825** *(0.412)* / **0.885** *(0.443)*	**F/F**	**1.014/1.033**	**F***(A)*/**F***(A)*	**1.014** *(0.507)* / **1.033** *(0.516)*
Avenue 12 – Road 36 to Road 40	D/D	0.591/0.580	**E/E**	**0.691/0.681**	**E***(B)*/**E***(B)*	**0.691** *(0.345)* / **0.681** *(0.340)*	**F/F**	**1.614/1.601**	D/C	0.807/0.800
Avenue 12 – Road 40 to SR 41 West Frontage Road	**E/E**	**0.622/0.629**	**E/E**	**0.749/0.722**	**E***(B)*/**E***(B)*	**0.749** *(0.374)* / **0.722** *(0.361)*	n/a	n/a	n/a	n/a
Avenue 12 – Road 40 to Root Creek Pkwy West	n/a	n/a	n/a	n/a	n/a	n/a	**F/E**	**0.906/0.877**	**F***(A)*/**E***(A)*	**0.906** *(0.604)* / **0.877** *(0.585)*
Avenue 12 – Root Creek Pkwy West to Root Creek Pkwy East	n/a	n/a	n/a	n/a	n/a	n/a	**F/F**	**1.196/1.168**	**F***(C)*/**F***(C)*	**1.193** *(0.797)* / **1.164** *(0.778)*
Avenue 12 – Root Creek Pkwy East to SR 41 West Frontage Road	n/a	n/a	n/a	n/a	n/a	n/a	**F/F**	**1.119/1.102**	**F***(D)*/**F***(D)*	**1.119** *(0.841)* / **1.100** *(0.827)*
Avenue 12 – SR 41 West Frontage Road to SR 41	D/**E**	0.572/**0.643**	**E/E**	**0.812/0.832**	B/B	0.406/0.416	**F/F**	**1.441/1.449**	**F***(D)*/**F***(D)*	**1.441** *(0.865)* / **1.449** *(0.869)*
Avenue 12 – SR 41 to Rio Mesa Boulevard	A/A	0.007/0.024	A/B	0.265/0.271	A/A	0.265/0.271	A/A	0.438/0.438	A/A	0.438/0.438

Pk = peak *Pkwy = Parkway* *E-W = East-West* *SR = State Route* *SB = southbound* *N-S = North-South* *n/a = not analyzed*
E/F = segment LOS shown bold and italicized in Mitigated 2013 Project and Mitigated 2025 Project scenarios include mitigations that are required based on intersection control
() = segment LOS shown in parentheses and italicized in Mitigated 2013 Project and Mitigated 2025 Project scenarios include mitigations that are required based on MCTC Capacity Table

TABLE 2:
WEEKDAY LEVELS OF SERVICE SUMMARY FOR THE STUDY SEGMENTS
EXISTING, 2025 NO PROJECT, MITIGATED 2025 NO PROJECT, 2025 PROJECT, & MITIGATED 2025 PROJECT

	Existing		2025 No Project		Mitigated 2025 No Project		2025 Project		Mitigated 2025 Project	
Segment	**LOS AM/PM Pk Hr**	**V/C AM/PM Pk Hr**	**LOS AM/PM Pk Hr**	**V/C AM/PM Pk Hr**	**LOS AM/PM Pk Hr**	**V/C AM/PM Pk Hr**	**LOS AM/PM Pk Hr**	**V/C AM/PM Pk Hr**	**LOS AM/PM Pk Hr**	**V/C AM/PM Pk Hr**
Road 40 – Avenue 9 to Avenue 10	A/A	0.001/0.000	A/A	0.001/0.000	A/A	0.001/0.000	A/A	0.124/0.122	A/A	0.124/0.122
Root Creek Pkwy West – Road 40 ½ to Root Creek Greenbelt	n/a	n/a	n/a	n/a	n/a	n/a	A/A	0.036/0.036	A/A	0.036/0.036
Root Creek Pkwy West – Root Creek Greenbelt to Avenue 12	n/a	n/a	n/a	n/a	n/a	n/a	A/A	0.042/0.042	A/A	0.042/0.042
Root Creek Pkwy West – Avenue 12 to northern Project boundary	n/a	n/a	n/a	n/a	n/a	n/a	A/A	0.556/0.556	A/A	0.556/0.556
Road 40 ½ - Avenue 9 to Avenue 10	A/A	0.004/0.007	A/A	0.311/0.314	A/A	0.311/0.314	A/A	0.064/0.066	A/A	0.064/0.066
Road 40 ½ - Avenue 10 to Root Creek Pkwy West/East	n/a	n/a	n/a	n/a	n/a	n/a	A/A	0.505/0.505	A/A	0.505/0.505
Root Creek Pkwy East – Road 40 ½ to Root Creek Greenbelt	n/a	n/a	n/a	n/a	n/a	n/a	A/A	0.123/0.123	A/A	0.123/0.123
Root Creek Pkwy East – Root Creek Greenbelt to Avenue 12	n/a	n/a	n/a	n/a	n/a	n/a	A/A	0.275/0.275	A/A	0.275/0.275
SR 41 West Frontage Road – Avenue 10 to Root Creek Greenbelt	A/A	0.123/0.165	A/A	0.236/0.315	A/A	0.236/0.315	A/A	0.105/0.125	A/A	0.105/0.125
SR 41 West Frontage Road – Root Creek Greenbelt to Avenue 12	A/A	0.123/0.172	A/A	0.390/0.442	A/A	0.390/0.442	A/A	0.288/0.305	A/A	0.288/0.305
SR 41 West Frontage Road – Avenue 12 to northern Project boundary	n/a	n/a	n/a	n/a	n/a	n/a	B/B	0.611/0.609	B/B	0.611/0.609
Rio Mesa Boulevard – Avenue 10 to Avenue 12	n/a	n/a	n/a	n/a	n/a	n/a	C/C	0.272/0.268	C/C	0.272/0.268
Avenue 9 – SR 99 to Road 36	D/D	0.367/0.355	**E/E**	**0.623/0.611**	**E** *(A)* / **E** *(A)*	**0.623** *(0.200)* / **0.611** *(0.196)*	**F/F**	**1.071/1.055**	**F** *(A)* / **F** *(A)*	**1.071** *(0.535)* / **1.055** *(0.528)*
Avenue 9 – Road 36 to Road 40	C/C	0.300/0.271	D/D	0.529/0.501	D/D	0.529/0.501	C/C	0.779/0.742	C/C	0.779/0.742
Avenue 9 – Road 40 to Road 40 ½	C/C	0.300/0.273	**E/E**	**0.781/0.756**	**E** *(A)* / **E** *(A)*	**0.781** *(0.251)* / **0.756** *(0.243)*	**F/F**	**1.009/0.977**	A/A	0.504/0.489
Childrens Boulevard – Road 40 ½ to Peck Boulevard	C/C	0.308/0.269	A/A	0.218/0.205	A/A	0.218/0.205	A/A	0.180/0.195	A/A	0.180/0.195
Childrens Boulevard – Peck Boulevard to Lanes Bridge Drive	A/A	0.204/0.189	D/D	0.875/0.859	D/D	0.875/0.859	C/C	0.631/0.614	C/C	0.631/0.614
Childrens Boulevard – Lanes Bridge Drive to SR 41 SB ramps	A/A	0.171/0.173	C/C	0.529/0.530	C/C	0.529/0.530	D/D	0.745/0.737	D/D	0.745/0.737
Peck Boulevard – Avenue 10 to Childrens Boulevard	n/a	n/a	n/a	n/a	n/a	n/a	A/A	0.488/0.492	A/A	0.488/0.492
Lanes Bridge Drive – Avenue 10 to Childrens Boulevard	A/A	0.070/0.084	A/A	0.214/0.228	A/A	0.214/0.228	**F/F**	**1.086/1.089**	**F** *(D)* / **F** *(D)*	**1.086** *(0.815)* / **1.089** *(0.817)*
Avenue 10 – Road 40 to Road 40 ½	A/A	0.049/0.064	C/C	0.319/0.306	C/C	0.319/0.306	A/A	0.513/0.521	A/A	0.513/0.521
Avenue 10 – Road 40 ½ to SR 41 West Frontage Road	A/A	0.071/0.083	C/C	0.327/0.342	C/C	0.327/0.342	**F/F**	**1.073/1.080**	**F** *(C)* / **F** *(C)*	**1.073** *(0.715)* / **1.080** *(0.720)*
Avenue 12 – SR 99 to Road 36	D/D	0.464/0.517	**F/F**	**1.311/1.364**	B/B	0.421/0.438	**F/F**	**1.245/1.262**	B/B	0.622/0.631
Avenue 12 – Road 36 to Road 40	D/D	0.591/0.580	**E/E**	**0.794/0.813**	A/A	0.255/0.261	D/D	0.867/0.873	D/D	0.865/0.873
Avenue 12 – Road 40 to SR 41 West Frontage Road	**E/E**	**0.622/0.629**	A/A	0.262/0.265	A/A	0.262/0.265	n/a	n/a	n/a	n/a
Avenue 12 – Road 40 to Root Creek Pkwy West	n/a	n/a	n/a	n/a	n/a	n/a	**E/E**	**0.932/0.935**	**E** *(B)* / **E** *(B)*	**0.931** *(0.621)* / **0.935** *(0.623)*
Avenue 12 – Root Creek Pkwy West to Root Creek Pkwy East	n/a	n/a	n/a	n/a	n/a	n/a	**F/F**	**1.322/1.325**	**F** *(D)* / **F** *(D)*	**1.322** *(0.881)* / **1.325** *(0.883)*
Avenue 12 – Root Creek Pkwy East to SR 41 West Frontage Road	n/a	n/a	n/a	n/a	n/a	n/a	**F/F**	**1.305/1.307**	**F** *(C)* / **F** *(C)*	**1.305** *(0.783)* / **1.307** *(0.784)*
Avenue 12 – SR 41 West Frontage Road to SR 41	D/**E**	0.572/**0.643**	B/B	0.324/0.344	B/B	0.324/0.344	**F/F**	**1.646/1.662**	**F** *(D)* / **F** *(D)*	**1.646** *(0.823)* / **1.662** *(0.831)*
Avenue 12 – SR 41 to Rio Mesa Boulevard	A/A	0.007/0.024	B/B	0.449/0.453	B/B	0.449/0.453	**F/F**	**1.027/1.036**	C/C	0.771/0.777

Pk = peak *Pkwy = Parkway* *E-W = East-West* *SR = State Route* *SB = southbound* *N-S = North-South* *n/a = not analyzed*
E/F = segment LOS shown bold and italicized in Mitigated 2013 Project and Mitigated 2025 Project scenarios include mitigations that are required based on intersection control
() = segment LOS shown in parentheses and italicized in Mitigated 2013 Project and Mitigated 2025 Project scenarios include mitigations that are required based on MCTC Capacity Table

TABLE 3:
WEEKDAY LEVELS OF SERVICE SUMMARY FOR THE STUDY INTERSECTIONS
EXISTING, 2013 NO PROJECT, MITIGATED 2013 NO PROJECT, 2013 PROJECT, & MITIGATED 2013 PROJECT

	Existing		2013 No Project		Mitigated 2013 No Project		2013 Project		Mitigated 2013 Project	
Intersection	**LOS AM/PM**	**Delay[1] AM/PM (secs)**	**LOS AM/PM**	**Delay[1] AM/PM (secs)**	**LOS AM/PM**	**Delay[1] AM/PM (secs)**	**LOS AM/PM**	**Delay[1] AM/PM (secs)**	**LOS AM/PM**	**Delay[1] AM/PM (secs)**
Avenue 9 at Road 36					B/B	11.9/16.5	B/B	13.7/16.8	B/B	13.7/16.8
• EB Left-Through	A/A	7.8/8.1	A/A	8.9/9.5						
• SB Approach	B/B	11.4/11.4	D/D	32.3/34.6						
Avenue 9 at Road 40					A/B	6.2/14.9	B/B	14.4/16.0	B/B	14.4/16.0
• EB Left-Through-Right	A/A	7.7/7.8	A/A	8.2/8.2						
• WB Left-Through-Right	A/A	8.0/7.8	A/A	8.3/8.7						
• NB Approach	B/B	11.3/11.0	B/C	13.6/23.3						
• SB Approach	B/B	12.3/11.9	C/D	19.1/26.4						
Avenue 9 at Road 40 ½										
• EB Left-Through-Right	A/A	7.7/7.8	A/A	8.6/8.7	A/A	8.6/8.7	A/A	8.8/8.8	A/A	8.8/8.8
• WB Left-Through-Right	A/A	8.0/7.8	A/A	8.6/8.4	A/A	8.6/8.4	A/A	8.8/8.6	A/A	8.8/8.6
• NB Approach	B/B	12.5/11.9	C/C	23.0/21.0	C/C	23.0/21.0	D/C	25.9/23.4	D/C	25.9/23.4
• **SB Approach**	B/B	12.3/10.8	C/B	23.0/13.8	C/B	23.0/13.8	C/B	24.7/14.7	C/B	24.7/14.7
Childrens Boulevard at Peck Boulevard					B/C	14.4/34.0	D/**E**	54.2/**78.6**	B/B	13.7/11.5
• EB Left-Through	A/A	7.8/7.6	A/A	8.8/8.5						
• **WB Left**	A/A	9.8/8.2	**F**/C	**83.6**/17.6						
• **NB Approach**	B/B	11.0/14.8	**F/F**	**---/284.1**						
• SB Approach	n/a	n/a	n/a	n/a						
Childrens Boulevard at Lanes Bridge Drive					A/A	9.1/8.5	B/B	14.8/12.7	B/B	15.7/12.0
• **EB Left**	A/A	9.8/8.8	D/D	25.3/18.6						
• WB Left	A/A	8.2/9.3	B/B	11.5/13.7						
• **SB Approach**	**F/F**	**127.3/58.5**	**F/F**	**8700/4487**						
Childrens Boulevard at SR 41 SB ramps	B/A	11.3/8.5	A/A	7.8/5.6	A/A	7.8/6.0	B/B	14.9/14.2	B/B	15.0/13.3
Rio Mesa Boulevard at SR 41 NB ramps	B/B	17.7/13.6	B/B	18.9/18.7	B/C	19.6/21.0	C/C	21.3/22.9	C/B	21.4/19.7
Avenue 10 at Road 40										
• EB Left-Through-Right	A/A	7.3/7.3	A/A	7.7/7.8	A/A	7.7/7.7	A/A	7.7/7.8	A/A	7.7/7.8
• WB Left-Through-Right	A/A	7.3/7.3	A/A	7.5/7.5	A/A	7.5/7.5	A/A	7.5/7.5	A/A	7.5/7.5
• NB Approach	A/A	8.9/8.4	B/A	10.7/9.0	B/A	10.7/9.0	B/B	11.7/10.9	B/B	11.7/10.9
• SB Approach	A/A	8.8/9.0	A/B	10.0/11.6	A/B	10.0/11.6	A/B	10.0/11.5	A/B	10.0/11.5
Avenue 10 at Road 40 ½										
• WB Left-Through	A/A	7.3/7.5	A/A	7.6/7.7	A/A	7.6/7.7	A/A	7.6/7.7	A/A	7.6/7.7
• NB Approach	A/A	9.5/9.3	B/B	12.2/11.8	B/B	12.2/11.8	B/B	12.3/11.8	B/B	12.3/11.8
Avenue 11 at SR 41 West Frontage Road										
• NB Left	A/A	7.4/7.4	A/A	7.4/7.4	A/A	7.4/7.4	A/A	8.0/8.1	A/A	8.0/8.1
• SB Left	A/A	7.3/7.4	A/A	7.6/7.7	A/A	7.6/7.7	A/A	8.6/8.7	A/A	8.6/8.7
• WB Approach	A/A	8.5/9.8	A/B	9.2/11.1	A/B	9.2/11.1	C/C	17.2/23.7	C/C	17.2/23.7
• EB Approach	A/A	9.0/9.3	B/B	10.1/10.9	B/B	10.1/10.9	C/C	22.0/20.4	C/C	22.0/20.4
Avenue 12 at Road 36	**E/E**	**35.04/48.74**	**F/F**	**83.75/111.81**	C/C	26.9/24.2	**F/F**	**96.1/96.5**	C/C	30.8/29.5
Avenue 12 at Road 40										
• EB Left-Through-Right	A/A	8.2/9.0	A/A	8.3/9.1	A/A	8.3/9.1	B/B	11.1/12.6	B/B	11.1/12.6
• WB Left-Through-Right	A/A	9.4/8.3	A/A	9.9/8.7	A/A	9.9/8.7	C/B	15.8/13.0	C/B	15.8/13.0
• **NB Approach**	D/C	25.8/19.5	D/C	32.1/22.6	D/C	32.1/22.6	**F/F**	**---/5077**	**F/F**	**---/5077**
• **SB Approach**	C/C	22.6/22.7	D/D	27.6/27.6	D/D	27.6/27.6	**F/F**	**---/351.2**	**F/F**	**---/351.2**

TABLE 3:
WEEKDAY LEVELS OF SERVICE SUMMARY FOR THE STUDY INTERSECTIONS
EXISTING, 2013 NO PROJECT, MITIGATED 2013 NO PROJECT, 2013 PROJECT, & MITIGATED 2013 PROJECT

	Existing		2013 No Project		Mitigated 2013 No Project		2013 Project		Mitigated 2013 Project	
Intersection	**LOS AM/PM**	**Delay[1] AM/PM (secs)**	**LOS AM/PM**	**Delay[1] AM/PM (secs)**	**LOS AM/PM**	**Delay[1] AM/PM (secs)**	**LOS AM/PM**	**Delay[1] AM/PM (secs)**	**LOS AM/PM**	**Delay[1] AM/PM (secs)**
Avenue 12 at Root Creek Pkwy West	n/a	n/a	n/a	n/a	n/a	n/a	D ***(E)*** / D ***(E)***	44.8 (**66.4**) / 35.5 (**66.6**)	D/D	45.1/36.3
Avenue 12 at N-S Secondary #1	n/a	n/a	n/a	n/a	n/a	n/a	C *(D)* / B *(B)*	23.1 *(38.9)* / 15.4 *(13.6)*	C/B	23.2/14.9
Avenue 12 at Root Creek Pkwy East	n/a	n/a	n/a	n/a	n/a	n/a	**E** ***(F)*** / D *(D)*	**73.2** ***(84.1)*** / 44.5 *(53.1)*	B/B	19.7/11.7
Avenue 12 at N-S Secondary #2	n/a	n/a	n/a	n/a	n/a	n/a	A *(A)* / A *(B)*	5.2 *(5.8)* / 6.2 *(11.2)*	A/A	5.4/5.0
Avenue 12 at SR 41 West Frontage Road					C/B	24.0/12.4	**F** ***(F)*** / **F** ***(F)***	**133.0** ***(214.0)*** / **155.7** ***(281.6)***	D/D	46.0/35.4
• WB Left	A/A	9.5/8.6	B/A	12.0/9.5						
• **NB Approach**	D/C	25.1/23.5	**F/F**	**180.8/98.7**						
Avenue 12 at SR 41	C/C	34.5/21.0	**E/F**	**78.2/338.5**	C/C	26.2/34.1	**F** ***(F)*** / **F** ***(F)***	**1409.5** ***(1561.5)*** / **1681.3** ***(1796.1)***	**F/F**	**1409.5/1681.3**
Main Street at Root Creek Pkwy West	n/a	n/a	n/a	n/a	n/a	n/a	A/A	1.9/1.9	A/A	1.9/1.9
Main Street at Root Creek Pkwy East	n/a	n/a	n/a	n/a	n/a	n/a	A/A	2.6/2.6	A/A	2.6/2.6
Main Street at SR 41 West Frontage Road										
• NB Left-Through	n/a	n/a	n/a	n/a	n/a	n/a	A/A	7.8/7.8	A/A	7.8/7.8
• EB Approach	n/a	n/a	n/a	n/a	n/a	n/a	B/B	12.2/12.2	B/B	12.2/12.2
E-W Secondary #3 at Root Creek Pkwy West	n/a	n/a	n/a	n/a	n/a	n/a	A/A	1.7/1.7	A/A	1.7/1.7
E-W Secondary #3 at Root Creek Pkwy East	n/a	n/a	n/a	n/a	n/a	n/a	A/A	2.3/2.3	A/A	2.3/2.3
E-W Secondary #3 at SR 41 West Frontage Road										
• NB Left-Through	n/a	n/a	n/a	n/a	n/a	n/a	A/A	7.8/7.8	A/A	7.8/7.8
• EB Approach	n/a	n/a	n/a	n/a	n/a	n/a	A/A	9.2/9.2	A/A	9.2/9.2
Root Creek Pkwy West at E-W Secondary #4	n/a	n/a	n/a	n/a	n/a	n/a	A/A	2.4/2.4	A/A	2.4/2.4
Avenue 12 at Golden State Boulevard			D/**E**	44.7/**72.5**	C/D	30.0/46.2	D/D	38.4/45.6	D/D	38.4/45.6
• EB Left	A/A	8.5/8.7								
• WB Left	A/A	8.1/8.6								
• **NB Approach**	C/**F**	20.9/**279.6**								
• **SB Approach**	D/**F**	31.9/**111.1**								
SR 99 SB ramps at Golden State Boulevard					B/B	14.8/16.8	B/B	18.4/19.2	B/B	18.4/19.2
• SB Left-Through	A/A	8.3/8.7	A/B	9.5/11.1						
• **WB Approach**	B/**E**	11.3/**44.9**	**F/F**	**321.5/624.8**						
Avenue 12 at SR 99 NB ramps			B/B	12.3/15.4	B/B	12.6/15.3	B/C	15.7/23.9	B/C	15.7/23.9
• EB Left-Through	A/A	8.9/8.9								
• **NB Approach**	**E/F**	**46.9/95.1**								

[1] *Delay per vehicle* *secs = seconds* *n/a = not analyzed* *WB = westbound* *NB = northbound* *SB = southbound* *EB = eastbound* *Pkwy = Parkway* *E-W = East-West* *N-S = North-South*
--- = beyond software capabilities *SR = State Route*
F *– Intersection LOS along Avenue 12 shown in the 2013 Project scenario is based on the assumption that the Ave 12 signals from Root Creek Pkwy West to the SR 41 West Frontage Road are coordinated and the SR 41 at Ave 12 intersection is not part of this coordination*
(F) *– Intersection LOS along Avenue 12 shown in parentheses in the 2013 Project scenario is based on the assumption that the Ave 12 signals from Root Creek Pkwy West to SR 41 are coordinated*

TABLE 4:
WEEKDAY LEVELS OF SERVICE SUMMARY FOR THE STUDY INTERSECTIONS
EXISTING, 2025 NO PROJECT, MITIGATED 2025 NO PROJECT, 2025 PROJECT, & MITIGATED 2025 PROJECT

	Existing		2025 No Project		Mitigated 2025 No Project		2025 Project		Mitigated 2025 Project	
Intersection	**LOS AM/PM**	**Delay[1] AM/PM (secs)**	**LOS AM/PM**	**Delay[1] AM/PM (secs)**	**LOS AM/PM**	**Delay[1] AM/PM (secs)**	**LOS AM/PM**	**Delay[1] AM/PM (secs)**	**LOS AM/PM**	**Delay[1] AM/PM (secs)**
Avenue 9 at Road 36			B/B	11.6/13.9	B/B	11.6/13.9	B/B	14.4/18.1	B/B	14.4/18.1
• EB Left-Through	A/A	7.8/8.1								
• SB Approach	B/B	11.4/11.4								
Avenue 9 at Road 40			C/B	20.1/18.6	C/B	20.1/18.6	B/B	19.7/18.4	B/B	19.7/18.4
• EB Left-Through-Right	A/A	7.7/7.8								
• WB Left-Through-Right	A/A	8.0/7.8								
• NB Approach	B/B	11.3/11.0								
• SB Approach	B/B	12.3/11.9								
Avenue 9 at Road 40 ½					C/C	21.2/21.3	B/B	12.2/10.6	B/B	12.2/10.6
• EB Left-Through-Right	A/A	7.7/7.8	B/B	10.8/10.7						
• WB Left-Through-Right	A/A	8.0/7.8	A/A	8.3/8.5						
• **NB Approach**	B/B	12.5/11.9	**E/F**	**48.4/52.4**						
• **SB Approach**	B/B	12.3/10.8	**F/F**	**995.7/1098**						
Childrens Boulevard at Peck Boulevard			**F/F**	**356.8/419.8**	D/D	54.8/42.4	**E**/D	**62.6**/41.1	D/D	52.2/35.6
• EB Left-Through	A/A	7.8/7.6								
• WB Left	A/A	9.8/8.2								
• NB Approach	B/B	11.0/14.8								
• SB Approach	n/a	n/a								
Childrens Boulevard at Lanes Bridge Drive			D/B	38.9/15.7	D/C	41.8/25.6	**F/F**	**175.1/150.6**	C/C	25.9/26.0
• EB Left	A/A	9.8/8.8								
• WB Left	A/A	8.2/9.3								
• **SB Approach**	**F/F**	**127.3/58.5**								
Childrens Boulevard at SR 41 SB ramps	B/A	11.3/8.5	C/**D**	28.0/**35.6**	C/C	28.4/34.6	**F/F**	**246.3/212.2**	C/C	23.6/21.0
Rio Mesa Boulevard at SR 41 NB ramps	B/B	17.7/13.6	C/C	29.6/31.1	C/C	29.7/28.1	C/C	30.2/31.3	C/C	30.8/33.4
Avenue 10 at Road 40										
• EB Left-Through-Right	A/A	7.3/7.3	A/A	8.2/8.2	A/A	8.2/8.2	A/A	8.4/8.5	A/A	8.4/8.5
• WB Left-Through-Right	A/A	7.3/7.3	A/A	7.6/7.4	A/A	7.6/7.4	A/A	8.1/8.1	A/A	8.1/8.1
• NB Approach	A/A	8.9/8.4	B/B	12.1/11.5	B/B	12.1/11.5	C/C	19.2/20.4	C/C	19.2/20.4
• SB Approach	A/A	8.8/9.0	B/B	12.3/12.2	B/B	12.3/12.2	C/D	18.1/26.4	C/D	18.1/26.4
Avenue 10 at Road 40 ½							C/C	22.3/22.0	C/C	22.3/22.0
• WB Left-Through	A/A	7.3/7.5	A/A	7.6/7.8	A/A	7.6/7.8				
• NB Approach	A/A	9.5/9.3	B/B	14.6/13.8	B/B	14.6/13.8				
Avenue 11 at SR 41 West Frontage Road										
• NB Left	A/A	7.4/7.4	A/A	7.5/7.6	A/A	7.5/7.6	A/A	7.5/7.6	A/A	7.5/7.6
• SB Left	A/A	7.3/7.4	A/A	7.3/7.6	A/A	7.3/7.6	A/A	7.4/7.7	A/A	7.4/7.7
• WB Approach	A/A	8.5/9.8	A/B	9.6/11.3	A/B	9.6/11.3	B/B	10.3/11.7	B/B	10.3/11.7
• EB Approach	A/A	9.0/9.3	A/B	9.9/10.3	A/B	9.9/10.3	B/B	11.3/13.7	B/B	11.3/13.7
Avenue 12 at Road 36	**E/E**	**35.04/48.74**	C/C	30.3/27.2	C/C	30.3/27.2	D/C	36.6/34.4	D/C	36.6/34.4
Avenue 12 at Road 40										
• EB Left-Through-Right	A/A	8.2/9.0	A/A	8.4/9.2	A/A	8.4/9.2	B/B	12.3/14.4	B/B	12.3/14.4
• WB Left-Through-Right	A/A	9.4/8.3	B/A	10.6/9.2	B/A	10.6/9.2	C/B	15.5/12.9	C/B	15.5/12.9
• **NB Approach**	D/C	25.8/19.5	D/C	25.7/21.8	D/C	25.7/21.8	**F/F**	**2033/1740**	**F/F**	**2033/1740**
• **SB Approach**	C/C	22.6/22.7	D/D	25.3/31.9	D/D	25.3/31.9	**F/F**	**216.5/362.7**	**F/F**	**216.5/362.7**

TABLE 4:
WEEKDAY LEVELS OF SERVICE SUMMARY FOR THE STUDY INTERSECTIONS
EXISTING, 2025 NO PROJECT, MITIGATED 2025 NO PROJECT, 2025 PROJECT, & MITIGATED 2025 PROJECT

	Existing		2025 No Project		Mitigated 2025 No Project		2025 Project		Mitigated 2025 Project	
Intersection	**LOS AM/PM**	**Delay[1] AM/PM (secs)**	**LOS AM/PM**	**Delay[1] AM/PM (secs)**	**LOS AM/PM**	**Delay[1] AM/PM (secs)**	**LOS AM/PM**	**Delay[1] AM/PM (secs)**	**LOS AM/PM**	**Delay[1] AM/PM (secs)**
Avenue 12 at Root Creek Pkwy West	n/a	n/a	n/a	n/a	n/a	n/a	**E**/D	**55.6**/50.1	D/D	49.5/50.1
Avenue 12 at N-S Secondary #1	n/a	n/a	n/a	n/a	n/a	n/a	B/B	10.2/12.6	B/B	12.3/12.7
Avenue 12 at Root Creek Pkwy East	n/a	n/a	n/a	n/a	n/a	n/a	C/C	29.3/22.7	C/C	29.3/22.6
Avenue 12 at N-S Secondary #2	n/a	n/a	n/a	n/a	n/a	n/a	B/A	12.1/9.0	A/B	9.9/10.2
Avenue 12 at SR 41 West Frontage Road			B/B	18.1/14.0	B/B	17.2/13.9	**F/E**	**83.4/64.6**	D/C	51.0/32.9
• WB Left	A/A	9.5/8.6								
• NB Approach	D/C	25.1/23.5								
Avenue 12 at SR 41	C/C	34.5/21.0	**F/F**	**179.2/142.2**	C/C	32.3/28.5	**F/F**	**1007.8/831.5**	**F/F**	**964.2/831.4**
Main Street at Root Creek Pkwy West	n/a	n/a	n/a	n/a	n/a	n/a	A/A	1.9/1.9	A/A	1.9/1.9
Main Street at Root Creek Pkwy East	n/a	n/a	n/a	n/a	n/a	n/a	A/A	2.5/2.5	A/A	2.5/2.5
Main Street at SR 41 West Frontage Road										
• NB Left-Through	n/a	n/a	n/a	n/a	n/a	n/a	A/A	7.4/7.4	A/A	7.4/7.4
• EB Approach	n/a	n/a	n/a	n/a	n/a	n/a	A/A	9.4/9.4	A/A	9.4/9.4
E-W Secondary #3 at Root Creek Pkwy West	n/a	n/a	n/a	n/a	n/a	n/a	A/A	1.6/1.6	A/A	1.6/1.6
E-W Secondary #3 at Root Creek Pkwy East	n/a	n/a	n/a	n/a	n/a	n/a	A/A	1.9/1.9	A/A	1.9/1.9
E-W Secondary #3 at SR 41 West Frontage Road										
• NB Left-Through	n/a	n/a	n/a	n/a	n/a	n/a	A/A	7.3/7.3	A/A	7.3/7.3
• EB Approach	n/a	n/a	n/a	n/a	n/a	n/a	A/A	8.4/8.4	A/A	8.4/8.4
Root Creek Pkwy West at E-W Secondary #4	n/a	n/a	n/a	n/a	n/a	n/a	A/A	1.8/1.8	A/A	1.8/1.8
Root Creek Pkwy West at E-W Secondary #5	n/a	n/a	n/a	n/a	n/a	n/a	A/A	1.6/1.6	A/A	1.6/1.6
Root Creek Pkwy West at E-W Secondary #6	n/a	n/a	n/a	n/a	n/a	n/a	A/A	1.5/1.5	A/A	1.5/1.5
Road 40 ½ at Root Creek Pkwy West/East / E-W Secondary #7	n/a	n/a	n/a	n/a	n/a	n/a	A/A	2.5/2.5	A/A	2.5/2.5
Root Creek Pkwy East at E-W Secondary #8	n/a	n/a	n/a	n/a	n/a	n/a	A/A	3.0/3.0	A/A	3.0/3.0
Root Creek Pkwy East at E-W Secondary #7	n/a	n/a	n/a	n/a	n/a	n/a	A/A	1.6/1.6	A/A	1.6/1.6
Root Creek Pkwy East at E-W Secondary #6	n/a	n/a	n/a	n/a	n/a	n/a	A/A	1.8/1.8	A/A	1.8/1.8
Avenue 12 at Golden State Boulevard			**E/F**	**56.5/120.3**	D/D	38.2/41.8	**E/F**	**75.0/96.3**	C/D	26.2/35.9
• EB Left	A/A	8.5/8.7								
• WB Left	A/A	8.1/8.6								
• **NB Approach**	C/**F**	20.9/**279.6**								
• **SB Approach**	D/**F**	31.9/**111.1**								
SR 99 SB ramps at Golden State Boulevard			**E/F**	**72.6/157.0**	B/C	13.9/20.1	C/C	26.3/20.9	C/C	20.7/20.2
• SB Left-Through	A/A	8.3/8.7								
• **WB Approach**	B/**E**	11.3/**44.9**								
Avenue 12 at SR 99 NB ramps			**F/F**	**145.9/176.1**	B/C	19.9/21.7	**F/F**	**105.3/105.4**	C/C	20.6/26.8
• EB Left-Through	A/A	8.9/8.9								
• **NB Approach**	**E/F**	**46.9/95.1**								

[1] *Delay per vehicle* *secs = seconds* *n/a = not analyzed* *WB = westbound* *NB = northbound* *SB = southbound* *EB = eastbound* *Pkwy = Parkway* *E-W = East-West* *N-S = North-South*
--- = beyond software capabilities *SR = State Route*

Intersections

- Childrens Boulevard at Peck Boulevard
  - WB Left – AM peak hour – LOS "F"
  - NB Approach – AM/PM peak hours – LOS "F"
- Childrens Boulevard at Lanes Bridge Drive
  - SB Approach – AM/PM peak hours – LOS "F"
- Avenue 12 at Road 36 – AM/PM peak hours – LOS "F"
- Avenue 12 at SR 41 West Frontage Road
  - NB Approach – AM/PM peak hours – LOS "F"
- Avenue 12 at SR 41 – AM/PM peak hours – LOS "E"/"F"
- Avenue 12 at Golden State Boulevard – PM peak hour – LOS "E"
- SR 99 SB ramps at Golden State Boulevard
  - WB Approach – AM/PM peak hours – LOS "F"

2013 Project (With the Project)

Segments

- Avenue 9 – SR 99 to Road 36 - AM/PM peak hours – LOS "F"
- Childrens Boulevard – Road 40 ½ to Peck Boulevard - AM/PM peak hours – LOS "E"
- Avenue 12 – SR 99 to Road 36 - AM/PM peak hours – LOS "F"
- Avenue 12 – Road 36 to Road 40 - AM/PM peak hours – LOS "F"
- Avenue 12 – Road 40 to Root Creek Parkway West - AM peak hour – LOS "F"; PM peak hour – LOS "E"
- Avenue 12 – Root Creek Parkway West to Root Creek Parkway East - AM/PM peak hours – LOS "F"
- Avenue 12 – Root Creek Parkway East to SR 41 West Frontage Road - AM/PM peak hours – LOS "F"
- Avenue 12 – SR 41 West Frontage Road to SR 41 - AM/PM peak hours – LOS "F"

Intersections

- Childrens Boulevard at Peck Boulevard – PM peak hour – LOS "E"
- Avenue 12 at Road 36 – AM/PM peak hours – LOS "F"
- Avenue 12 at Road 40
  - NB Approach – AM/PM peak hours – LOS "F"
  - SB Approach – AM/PM peak hours – LOS "F"
- Avenue 12 at Root Creek Parkway East – AM peak hour – LOS "E"
- Avenue 12 at SR 41 West Frontage Road – AM/PM peak hours – LOS "F"
- Avenue 12 at SR 41 – AM/PM peak hours – LOS "F"

2025 No Project (Without the Project)

Segments

- Avenue 9 – SR 99 to Road 36 - AM/PM peak hours – LOS "E"
- Avenue 9 – Road 40 to Road 40 ½ - AM/PM peak hours – LOS "E"
- Avenue 12 – SR 99 to Road 36 - AM/PM peak hours – LOS "F"
- Avenue 12 – Road 36 to Road 40 - AM/PM peak hours – LOS "E"

Intersections

- Avenue 9 at Road 40 ½
  - NB Approach – AM/PM peak hours – LOS "E"/"F"
  - SB Approach – AM/PM peak hours – LOS "F"
- Childrens Boulevard at Peck Boulevard
  - WB Left – AM peak hour – LOS "F"
  - NB Approach – AM/PM peak hours – LOS "F"
- Avenue 12 at SR 41 – AM/PM peak hours – LOS "F"
- Avenue 12 at Golden State Boulevard – AM/PM peak hours – LOS "E"/"F"
- SR 99 SB ramps at Golden State Boulevard – AM/PM peak hours – LOS "E"/"F"
- Avenue 12 at SR 99 NB ramps – AM/PM peak hours – LOS "F"

2025 Project (With the Project)

Segments

- Avenue 9 – SR 99 to Road 36 - AM/PM peak hours – LOS "F"
- Avenue 9 – Road 40 to Road 40 ½ - AM/PM peak hours – LOS "F"
- Lanes Bridge Drive – Avenue 10 to Childrens Boulevard - AM/PM peak hours – LOS "F"
- Avenue 10 – Road 40 ½ to SR 41 West Frontage Road – AM/PM peak hours – LOS "F"
- Avenue 12 – SR 99 to Road 36 - AM/PM peak hours – LOS "F"
- Avenue 12 – Road 40 to Root Creek Parkway West - AM/PM peak hours – LOS "E"
- Avenue 12 – Root Creek Parkway West to Root Creek Parkway East - AM/PM peak hours – LOS "F"
- Avenue 12 – Root Creek Parkway East to SR 41 West Frontage Road - AM/PM peak hours – LOS "F"
- Avenue 12 –SR 41 West Frontage Road to SR 41 - AM/PM peak hours – LOS "F"
- Avenue 12 – SR 41 to Rio Mesa Boulevard - AM/PM peak hours – LOS "F"

Intersections

- Childrens Boulevard at Peck Boulevard – AM peak hour – LOS "E"
- Childrens Boulevard at Lanes Bridge Drive – AM/PM peak hours – LOS "F"
- Childrens Boulevard at SR 99 SB ramps – AM/PM peak hours – LOS "F"
- Avenue 12 at Road 40
  - NB Approach – AM/PM peak hours – LOS "F"
  - SB Approach – AM/PM peak hours – LOS "F"
- Avenue 12 at SR 41 West Frontage Road – AM/PM peak hours – LOS "F"/"E"
- Avenue 12 at SR 41 – AM/PM peak hours – LOS "F"
- Avenue 12 at Golden State Boulevard – AM/PM peak hours – LOS "E"/"F"
- Avenue 12 at SR 99 NB ramps – AM/PM peak hours – LOS "F"

The following intersections, by scenario, either meet or are projected to meet the rural or urban peak hour volume signal warrant:

Existing (Without the Project)

- Childrens Boulevard at Peck Boulevard - Rural
- Childrens Boulevard at Lanes Bridge Drive - Rural
- Avenue 12 at Road 36 - Rural
- Avenue 12 at SR 41 West Frontage Road - Rural
- Avenue 12 at Golden State Boulevard – Urban

level of service is signal coordination and spacing, which ultimately affects the segment operating speed. Therefore, if fewer through lanes are required for the study intersections bracketing the study segment, then two (2) mitigations are shown for the segments of which one shows the MCTC Capacity Table recommended improvements and the other shows the intersection controlled recommended improvements. Likewise, the mitigated segment levels of service derived from the MCTC Capacity Table and the mitigated segment levels of service derived from the intersection analyses are shown in the level of service tables. Per County direction, the required intersection improvements will control the segment mitigations. Therefore, the signals will need to be fully coordinated and optimized in order for the segments to operate at an acceptable level of service.

Existing (Without the Project)

Intersections

- Childrens Boulevard at Lane's Bridge Drive – County/GRW/RM
    - Signalize the intersection
    - Restripe/widen the SB approach, north leg, from a one (1) left-turn lane and one (1) right-turn lane to dual (2) left-turn lanes and one (1) right-turn lane
- Avenue 12 at Road 36 – County/GRW/RM
    - Signalize the intersection
- Avenue 12 at SR 41 West Frontage Road – County/GRW/RM
    - Signalize the intersection
    - Restripe/widen the NB approach, south leg, from a shared left-right lane to one (1) left-turn lane and one (1) right-turn lane
- Avenue 12 at Golden State Boulevard
    - Signalize the intersection – Caltrans/County
    - Restripe the NB approach, south leg from a shared left-through and separate right-turn to a separate left-turn and a shared through-right-turn lane – Caltrans/County
    - Restripe/widen the SB approach, north leg from a shared left-through and separate right-turn to a separate left-turn, one (1) through lane and one (1)right-turn lane – Caltrans/County

    Additional improvements beyond Caltrans scheduled improvements
    - Restripe/widen the NB approach, south leg, from a separate left-turn and a shared through-right-turn lane to one (1) left-turn lane, one (1) through lane and one (1) right-turn lane – Caltrans/County/GRW/RM
    - Restripe/widen the SB approach, north leg, from a separate left-turn, one (1) through lane and one (1)right-turn lane to dual (2) left-turn lanes and a shared through-right lane – Caltrans/County/GRW/RM
    - Restripe/widen the eastbound (EB) approach, west leg, from one (1) left-turn lane, one (1) through lane and one (1) right-turn lane to dual (2) left-turn lanes and a shared through-right lane – Caltrans/County/GRW/RM
- Avenue 12 at SR 99 NB ramps
    - Signalize the intersection – Caltrans
    - Restripe/widen the EB approach, west leg, from a shared left-through lane to one (1) left-turn lane and one (1) through lane – Caltrans

    Additional improvements beyond Caltrans scheduled improvements
    - Restripe/widen the WB approach, east leg, from a shared through-right lane to one (1) through lane and one (1) right-turn lane - Caltrans/County/GRW/RM

2013 No Project (Without the Project)

Segments

- Avenue 9 – SR 99 to Road 36 - County/GRW/RM
  - MCTC Capacity Table
    - Restripe/widen from two (2) lanes to four (4) lanes
  - Intersection Analysis
    - No mitigations needed
- Avenue 12 – SR 99 to Road 36 – County/GRW/RM
  - MCTC Capacity Table
    - Restripe/widen from two (2) lanes to four (4) lanes
  - Intersection Analysis
    - No mitigations needed
- Avenue 12 – Road 36 to Road 40 – County/GRW/RM
  - MCTC Capacity Table
    - Restripe/widen from two (2) lanes to four (4) lanes
  - Intersection Analysis
    - No mitigations needed
- Avenue 12 – Road 40 to SR 41 West Frontage Road - County/GRW/RM
  - MCTC Capacity Table
    - Restripe/widen from two (2) lanes to four (4) lanes
  - Intersection Analysis
    - No mitigations needed
- Avenue 12 – SR 41 West Frontage Road to SR 41 - County/GRW/RM
  - MCTC Capacity Table
    - Restripe/widen from two (2) lanes to four (4) lanes
  - Intersection Analysis
    - No mitigations needed
- Avenue 12 – SR 41 to Rio Mesa Boulevard – RTP (Mitigation Funds/RM)
  - Widen from two (2) lanes to six (6) lanes
- Childrens Boulevard – Road 40 ½ to Peck Boulevard – RTP (Mitigation Funds/GRW)
  - Widen from two (2) lanes to four (4) lanes
- Childrens Boulevard – Lanes Bridge Drive to SR 41 SB ramps – RTP (Mitigation Funds/GRW)
  - Widen from six (6) lanes to eight (8) lanes

Intersections

- Avenue 9 at Road 36 - County/GRW/RM
  - Signalize the intersection
  - Restripe/widen the SB approach, north leg, from a shared left-right lane to one (1) left-turn lane and one (1) right-turn lane
  - Restripe/widen the EB approach, west leg, from a shared left-through lane to one (1) left-turn lane and one (1) through lane
- Avenue 9 at Road 40 – County/GRW/RM
  - Signalize the intersection
  - Restripe/widen the NB approach, south leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane
  - Restripe/widen the EB approach, west leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane

    - Restripe/widen the WB approach, east leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane
- Childrens Boulevard at Peck Boulevard - County/GRW/RM
    - Signalize the intersection
    - Restripe/widen the WB approach, east leg, from one (1) left-turn lane and two (2) through lanes to dual (2) left-turn lanes and two (2) through lanes
- Avenue 12 at SR 41 – Caltrans/County/GRW/RM
    - Restripe/widen the NB approach, south leg, from one (1) left-turn lane, one (1) through lane and one (1) right-turn lane to dual (2) left-turn lanes, four (4) through lanes and one (1) right-turn lane
    - Restripe/widen the SB approach, north leg, from one (1) left-turn lane, two (2) through lanes and one (1) right-turn lane to dual (2) left-turn lanes, three (3) through lanes and one (1) right-turn lane
    - Restripe/widen the EB approach, west leg, from a shared left-through lane and one (1) right-turn lane to one (1) left-turn lane, one (1) through lane and dual (2) right-turn lanes
    - Restripe/widen the WB approach, east leg, from a shared left-through lane and one (1) right-turn lane to dual (2) left-turn lanes, one (1) through lane and one (1) right-turn lane

The improvements shown for the Avenue 12 at SR 41 intersection are what would be required in lieu of constructing an interchange. These improvements were utilized in generating the levels of service shown in the Mitigated 2013 No Project scenario tables and figures for this intersection. However Caltrans has determined that the maximum standard intersection improvements that they will construct prior to construction of an interchange will consist of the following:

- Restripe/widen the NB approach, south leg, from one (1) left-turn lane to dual (2) left-turn lanes to a depth of approximately 1,000 feet on SR 41 south of Avenue 12
- Restripe/widen the SB, EB, and WB approaches from one (1) left-turn lane to two (2) left-turn lanes to a depth of 250 to 300 feet
- Restripe/widen the NB, SB, WB, and EB approaches from one (1) through lane to two (2) through lanes to the following depths
    - SB SR 41 through lanes south of Avenue 12 shall be continuous
    - WB Avenue 12 through lanes west of SR 41 shall continue for a distance of approximately 1,350 feet
    - NB SR 41 through lanes north of Avenue 12 shall continue for a distance of approximately 250 to 300 feet
    - EB Avenue 12 through lanes east of SR 41 shall continue for a distance of approximately 250 to 300 feet
- Restripe/widen/lengthen the separate right-turn lanes in all four (4) directions to a depth of 250 to 300 feet

The SR 41 at Avenue 12 ultimate intersection improvements were used in the 2025 Project scenario.

- SR 99 SB ramps at Golden State Boulevard - Caltrans/County/GRW/RM
    - Signalize the intersection
    - Restripe/widen the SB approach, north leg, from a shared left-through lane to dual (2) left-turn lanes and one (1) through lane
    - Restripe/widen the WB approach, east leg, from a shared left-right lane to one(1) left-turn lane and dual (2) right-turn lanes

- Rio Mesa Boulevard at SR 41 NB ramps – Caltrans/RM
    - Restripe/widen the NB approach, south leg, from dual (2) left-turn lanes and one (1) right-turn lane to dual (2) left-turn lanes, one (1) through lane, and one (1) right-turn lane
    - Construct the SB approach, north leg to one (1) left-turn lane and a shared through-right lane

2013 Project

Segments

- Avenue 12 – Road 40 to Root Creek Parkway West – Project (Circulation Plan)
    - Widen from two (2) lanes to four (4) lanes
- Avenue 12 – Road 40 to Root Creek Parkway West – Gateway Village Mitigations
    - MCTC Capacity Table
        - Restripe/widen from four (4) lanes to six (6) lanes
    - Intersection Analysis
        - No mitigations needed
- Avenue 12 – Root Creek Parkway West to Root Creek Parkway East – Project (Circulation Plan)
    - Widen from two (2) lanes to four (4) lanes
- Avenue 12 – Root Creek Parkway West to Root Creek Parkway East – Gateway Village Mitigations
    - MCTC Capacity Table
        - Restripe/widen from four (4) lanes to six (6) lanes
    - Intersection Analysis
        - Root Creek Parkway West to N-S Secondary #1
            - No mitigations needed
        - N-S Secondary #1 to Root Creek Parkway East
            - Restripe/widen from four (4) lanes to six (6) lanes
- Avenue 12 – Root Creek Parkway East to SR 41 West Frontage Road – Project (Circulation Plan)
    - Widen from two (2) lanes to six (6) lanes
- Avenue 12 – Root Creek Parkway East to SR 41 West Frontage Road – Gateway Village Mitigations
    - MCTC Capacity Table
        - Restripe/widen from six (6) lanes to eight (8) lanes
    - Intersection Analysis
        - Root Creek Parkway East to N-S Secondary #2
            - No mitigations needed
        - N-S Secondary #2 to SR 41 West Frontage Road
            - Restripe/widen from six (6) lanes to seven (7) lanes [three (3) WB and four (4) EB]
- Avenue 12 – SR 41 West Frontage Road to SR 41 – Project (Circulation Plan)
    - Widen from two (2) lanes to six (6) lanes
- Avenue 12 – SR 41 West Frontage Road to SR 41 – Gateway Village Mitigations
    - MCTC Capacity Table
        - Restripe/widen from six (6) lanes to ten (10) lanes

    - Intersection Analysis
        - Restripe/widen from six (6) lanes to seven (7) lanes [three (3) WB and four (4) EB]
- SR 41 West Frontage Road – Root Creek Greenbelt/E-W Secondary #3 to northern Project boundary – Project (Circulation Plan)
    - Widen from two (2) lanes to four (4) lanes
- Root Creek Parkway West – Root Creek Greenbelt/E-W Secondary #5 to north of Avenue 12 - Project (Circulation Plan)
    - Construct a four (4) lane roadway
- Root Creek Parkway East – Root Creek Greenbelt/E-W Secondary #3 to Avenue 12 - Project (Circulation Plan)
    - Construct a four (4) lane roadway
- Road 40 – Avenue 12 to Root Creek Parkway West - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- N-S Secondary #1 – E-W Secondary #5 to Avenue 12 - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- N-S Secondary #2 – E-W Secondary #3 to Avenue 12 - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- E-W Secondary #3 – Root Creek Parkway West to SR 41 West Frontage Road - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- E-W Secondary #4 – Root Creek Parkway West to E-W Secondary #5 - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- E-W Secondary #5 – Root Creek Parkway West to E-W Secondary #3 - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- Main Street – Road 40 to SR 41 West Frontage Road - Project (Circulation Plan)
    - Construct a two (2) lane roadway

Intersections

- Childrens Boulevard at Peck Boulevard – Gateway Village Mitigations
    - Restripe/widen the NB approach, south leg, from one (1) left-turn lane and one (1) right-turn lane to one (1) left-turn lane and two (2) right-turn lanes
- Avenue 12 at Road 36 – Gateway Village Mitigations
    - Restripe/widen the EB approach, west leg, from one (1) left-turn lane and a shared through-right to one (1) left-turn lane, one (1) through lane and a shared through-right lane
    - Restripe/widen the WB approach, east leg, from one (1) left-turn lane and a shared through-right to one (1) left-turn lane, one (1) through lane and a shared through-right lane
- Avenue 12 at Root Creek Parkway West – Project (Circulation Plan)
    - Signalize the intersection
    - Construct the NB approach, south leg, to provide one (1) left-turn lane, and a shared through-right lane
    - Construct the SB approach, north leg to provide two (2) left-turn lanes, and a shared through-right lane

- Avenue 12 at Root Creek Parkway East – Project (Circulation Plan)
  - Signalize the intersection
  - Construct the NB approach, south leg, to provide one (1) left-turn lane, and two (2) right-turn lanes
- Avenue 12 at SR 41 West Frontage Road – Gateway Village Mitigations
  - Restripe/widen the EB approach, west leg, from one (1) left-turn lane, two (2) through lanes and a shared through-right lane to one (1) left-turn lane, four (4) through lanes and one (1) right-turn lane
  - Restripe/widen the NB approach, south leg, from one (1) left-turn lane, one (1) through lane, and one (1) right-turn lane to one (1) left-turn lane, one (1) through lane and two (2) right-turn lanes
- Avenue 12 at SR 41 – Project (Offsite Mitigation)
  - Restripe/widen the NB approach, south leg, from a separate left-turn lane, one (1) through lane, and a separate right-turn lane to dual (2) left-turn lanes to a depth of approximately 1,000 feet on SR 41 S of Avenue 12, one (1) through lane, and a separate right-turn lane
  - Restripe/widen the WB departure, west leg, from one (1) through lane to two (2) through lanes for approximately 1,000 feet west of SR 41
- Root Creek Parkway West at Main Street – Project (Circulation Plan)
  - Construct a roundabout
- Root Creek Parkway West at E-W Secondary # 3 – Project (Circulation Plan)
  - Construct a roundabout
- Root Creek Parkway West at Road 40/E-W Secondary # 4 – Project (Circulation Plan)
  - Construct a roundabout
- Root Creek Parkway West at E-W Secondary #5 – Project (Circulation Plan)
  - Construct a roundabout
- Root Creek Parkway East at E-W Secondary #3 – Project (Circulation Plan)
  - Construct a roundabout
- Root Creek Parkway East at Main Street – Project (Circulation Plan)
  - Construct a roundabout

Even though the Avenue 12 at Road 40 intersection fails in the 2013 Project scenario it is not shown as being mitigated since it did not meet the rural peak hour volume signal warrant. Three (3) options could be considered that would bring the intersection to levels of service at or above the Madera County level of service standard. These options, along with associated LOS and seconds (sec) of delay by time period (AM/PM) include:

- Signalizing the intersection – LOS A (4.7)/LOS A (5.7)
- Restricting left-turn movements out of the intersection and allowing only left-turning movements in – LOS C (23.4)/LOS C (20.1)
- Restricting all left-turning movements into and out of the intersection – LOS C (18.0)/LOS C (20.1)

Please note that with the use of any of these three (3) options LOS and delay at other intersections in the corridor would potentially be different than those currently reported in this study. It should be noted that restricting movements at the Avenue 12 at Road 40 intersection would cause an increase/shifting in the traffic to the next available intersections thereby possibly decreasing the LOS and increasing the delay at those intersections.

2025 No Project

Segments

- Avenue 9 – Road 40 to Road 40 ½ - County/GRW/RM
  - MCTC Capacity Table
    - Restripe/widen from two (2) lanes to four (4) lanes
  - Intersection Analysis
    - No mitigations needed
- Childrens Boulevard - Road 40 to Road 40 ½ - GRW
  - Widen from two (2) lanes to four(4) lanes
- Childrens Boulevard - Peck Boulevard to Lanes Bridge Drive - GRW
  - Widen from four (4) lanes to six (6) lanes
- Peck Boulevard – Childrens Boulevard to Avenue 10 – GRW
  - Construct a four (4) lane roadway
- Avenue 12 – SR 99 to Road 30 – RTP
  - Restripe/widen from two (2) lanes to four (4) lanes
- Avenue 12 – Road 30 to Road 36- RTP/County/GRW/RM
  - MCTC Capacity Table
    - Restripe/widen from two (2) lanes to four (4) lanes
  - Intersection Analysis
    - No mitigations needed
- Avenue 12 – Road 36 to Road 38- County/GRW/RM
  - MCTC Capacity Table
    - Restripe/widen from two (2) lanes to four (4) lanes
  - Intersection Analysis
    - No mitigations needed
- Avenue 12 – Road 38 to SR 41- RTP
  - Restripe/widen from two (2) lanes to four (4) lanes

Intersections

- Avenue 9 at Road 40 ½ - County/GRW/RM
  - Signalize the intersection
  - Restripe/widen the NB approach, south leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane
  - Restripe/widen the SB approach, north leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane
  - Restripe/widen the EB approach, west leg, from a shared left-through lane and a shared through-right lane to one (1) left-turn lane, one (1) through lane and a shared through-right lane
  - Restripe/widen the WB approach, east leg, from a shared left-through lane and a shared through-right lane to one (1) left-turn lane, one (1) through lane and a shared through-right lane
- Childrens Boulevard at Peck Boulevard - County/GRW/RM
  - Restripe/widen the NB approach, south leg, from a one (1) left-turn lane and a shared through-right lane to one (1) left-turn lane, one (1) through lane and three (3) right-turn lanes
  - Construct the SB approach, north leg, from one (1) left-turn lane and a shared through-right lane to dual (2) left-turn lanes and a shared through-right lane

  - Restripe/widen the WB approach, east leg, from dual (2) left-turn lanes, one (1) through lane and a shared through-right lane to dual (2) left-turn lanes, two (2) through lanes and one (1) right-turn lane
  - Restripe/widen the EB approach, west leg, from a separate left-turn lane, one (1) through lane and a shared through-right lane to a separate left-turn lane, two (2) through lanes and one (1) right-turn lane
- Avenue 12 at SR 41 - Caltrans/County/GRW/RM
  - Restripe/widen the NB approach, south leg, from dual (2) left-turn lanes, four (4) through lanes and one (1) right-turn lane to dual (2) left-turn lanes, four (4) through lanes and three (3) right-turn lanes
  - Restripe/widen the SB approach, north leg, from dual (2) left-turn lanes, three (3) through lanes and one (1) right-turn lane to dual (2) left-turn lanes, four (4) through lanes and one (1) right-turn lane
  - Restripe/widen the EB approach, west leg, from one (1) left-turn lane, one (1) through lane and dual (2) right-turn lanes to one (1) left-turn lane, one (1) through lane and four (4) right-turn lanes
  - Restripe/widen the WB approach, east leg, from dual (2) left-turn lanes, one (1) through lane and one (1) right-turn lane to four (4) left-turn lanes, one (1) through lane and one (1) right-turn lane

The improvements shown for the Avenue 12 at SR 41 intersection are what would be required in lieu of constructing an interchange. These improvements were utilized in generating the levels of service shown in the Mitigated 2025 No Project scenario tables and figures for this intersection. However Caltrans has determined that the maximum standard intersection improvements that they will construct prior to construction of an interchange will consist of the following:

- Restripe/widen the NB approach, south leg, from one (1) left-turn lane to dual (2) left-turn lanes to a depth of approximately 1,000 feet on SR 41 south of Avenue 12
- Restripe/widen the SB, EB, and WB approaches from one (1) left-turn lane to two (2) left-turn lanes to a depth of 250 to 300 feet
- Restripe/widen the NB, SB, WB, and EB approaches from one (1) through lane to two (2) through lanes to the following depths
  - SB SR 41 through lanes south of Avenue 12 shall be continuous
  - WB Avenue 12 through lanes west of SR 41 shall continue for a distance of approximately 1,350 feet
  - NB SR 41 through lanes north of Avenue 12 shall continue for a distance of approximately 250 to 300 feet
  - EB Avenue 12 through lanes east of SR 41 shall continue for a distance of approximately 250 to 300 feet
- Restripe/widen/lengthen the separate right-turn lanes in all four (4) directions to a depth of 250 to 300 feet

The SR 41 at Avenue 12 ultimate intersection improvements were used in the 2025 Project scenario.

- Avenue 12 at Golden State Boulevard - County/GRW/RM
  - Restripe/widen the EB approach, west leg, from dual (2) left-turn lanes and a shared through-right lane to dual (2) left-turn lanes, one (1) through lane and a shared through-right lane
  - Restripe/widen the WB approach, east leg, from one (1) left-turn lane and a shared through-right lane to one (1) left-turn lane, one (1) through lane and a shared through-right lane

- Avenue 12 at SR 99 NB ramps – Caltrans/County/GRW/RM
    - Restripe/widen the EB approach, west leg, from one (1) left-turn lane and one (1) through lane to one (1) left-turn lane and three (3) through lanes
    - Restripe/widen the WB approach, east leg, from one (1) through lane and a separate right-turn lane to two (2) through lanes and two (2) right-turn lanes
- SR 99 SB ramps at Golden State Boulevard – Caltrans/County/GRW/RM
    - Restripe/widen the NB approach, south leg, from a shared through-right lane to two (2) through lanes and one (1) right-turn lane

2025 Project

Segments

- Lanes Bridge Drive – Avenue 10 to Childrens Boulevard – Gateway Village Mitigations
    - Restripe/widen from six (6) lanes to eight (8) lanes
- Avenue 10 – Road 40 to SR 41 West Frontage Road - Project (Circulation Plan)
    - Widen from two (2) lanes to four (4) lanes
- Avenue 10 – Road 40 ½ to SR 41 West Frontage Road – Gateway Village Mitigations
    - MCTC Capacity Table
        - Restripe/widen from four (4) lanes to six (6) lanes
    - Intersection Analysis
        - No mitigations needed
- Avenue 12 – Root Creek Parkway East to SR 41 West Frontage Road – Gateway Village Mitigations
    - MCTC Capacity Table
        - Restripe/widen from six (6) lanes to ten (10) lanes
    - Intersection Analysis
        - Root Creek Parkway East to N-S Secondary #2
            - No mitigations needed
        - N-S Secondary #2 to SR 41 West Frontage Road
            - No mitigations needed
- Avenue 12 – SR 41 West Frontage Road to SR 41 – Gateway Village Mitigations
    - MCTC Capacity Table
        - Restripe/widen from ten (10) lanes to twelve (12) lanes
    - Intersection Analysis
        - No mitigations needed based on ultimate intersection configuration
- Avenue 12 – SR 41 to Rio Mesa Boulevard – Gateway Village Mitigations
    - Restripe/widen from six (6) lanes to eight (8) lanes
- Root Creek Parkway West – Root Creek Greenbelt/E-W Secondary #5 to Road 40 1/2/E-W Secondary #7 - Project (Circulation Plan)
    - Construct a four (4) lane roadway
- Root Creek Parkway East – Root Creek Greenbelt/E-W Secondary #3 to Road 40 1/2/E-W Secondary #7 - Project (Circulation Plan)
    - Construct a four (4) lane roadway
- Road 40 ½ – Root Creek Parkway West/Root Creek Parkway East/E-W Secondary #7 to Avenue 10 - Project (Circulation Plan)
    - Construct a four (4) lane roadway
- N-S Secondary #1 – E-W Secondary #5 to E-W Secondary #8 - Project (Circulation Plan)
    - Construct a two (2) lane roadway

- E-W Secondary #6 – Root Creek Parkway West to Root Creek Parkway East - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- E-W Secondary #7 – Root Creek Parkway West to Root Creek Parkway East - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- E-W Secondary #8 – E-W Secondary #6 to east of Root Creek Parkway East - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- SR 41 between Avenues 11 and 12 – Project (Offsite Mitigation)
    - Construct the second three (3) lane bridge structure on SR 41 at Avenue 11
    - Construct two (2) new SB through lanes on SR 41 south from Avenue 12 to south of the newly built Avenue 11 bridge
- SR 41 between the San Joaquin River bridge and Childrens Boulevard – Project (Offsite Mitigation)
    - Construct a third NB through lane
    - Construct a third SB through lane
- SR 41 between Childrens Boulevard and Avenue 12 – Project (Offsite Mitigation)
    - Construct a third NB through lane
        - The third NB through lane will become a trap NB to WB left-turn lane per the ultimate intersection configuration.
    - Construct a third SB through lane
        - The third SB through lane will become an EB to SB free right-turn lane per the ultimate intersection configuration.
- SR 41 between Friant Road and the San Joaquin River Bridge – Project (Offsite Mitigation)
    - Construct a third NB through lane
    - Construct a third SB through lane

Intersections

- Childrens Boulevard at Peck Boulevard – Gateway Village Mitigations
    - Recoordinate/reoptimize the intersection
- Childrens Boulevard at Lanes Bridge Drive – Gateway Village Mitigations
    - Restripe/widen the WB approach, east leg, from one (1) left-turn lane, three (3) through lanes and one (1) right-turn lane to one (1) left-turn lane, four (4) through lanes and two (2) right-turn lanes
    - Restripe/widen the SB approach, north leg, from dual (2) left-turn lanes and one (1) right-turn lane to three (3) left-turn lanes and one (1) right-turn lane
- Childrens Boulevard at SR 41 SB ramps – Caltrans/ Gateway Village Mitigations
    - Restripe/widen the EB approach, west leg, from two (2) through lanes and two (2) right-turn lanes to one (1) through lane, one through-right lane and three (3) right-turn lanes
    - Restripe/widen the WB approach, east leg, from three (3) through lanes to five (5) through lanes
- Avenue 12 signalized intersections – Root Creek Parkway West to SR 41 – Gateway Village Mitigations
    - Recoordinate/reoptimize all signalized intersections
- Avenue 12 at SR 41 West Frontage Road – Gateway Village Mitigations
    - Restripe/widen the WB approach, east leg, from dual (2) left-turn lanes, three (3) through lanes and one (1) right-turn lane to dual (2) left-turn lanes, four (4) through lanes and one (1) right-turn lane

- Avenue 12 at SR 41 – Project (Offsite Mitigation)
    - Construct dual NB, SB, EB, and WB left turn lanes to a depth of 250 to 300 feet
    - Construct two (2) through lanes in all four (4) directions
        - SB SR 41 through lanes south of Avenue 12 shall be continuous
        - WB Avenue 12 through lanes west of SR 41 shall continue for a distance of approximately 1,350 feet.
        - NB SR 41 through lanes north of Avenue 12 shall continue for a distance of approximately 250 to 300 feet
        - EB Avenue 12 through lanes east of SR 41 shall continue for a distance of approximately 250 to 300 feet
    - Construct separate right turn lanes in all four (4) directions at a depth of 250 to 300 feet
- Root Creek Parkway West at E-W Secondary #6 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway West/East at Road 40 ½ / E-W Secondary #7 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway East at E-W Secondary #8 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway East at E-W Secondary #7 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway East at E-W Secondary #6 – Project (Circulation Plan)
    - Construct a roundabout
- Avenue 12 at Golden State Boulevard – Gateway Village Mitigations
    - Restripe/widen the NB approach, south leg, from one (1) left-turn lane, one (1) through lane and one (1) right-turn lane to one (1) left-turn lane, one (1) through lane and two (2) right-turn lanes
- Avenue 12 at SR 99 NB ramps – Caltrans/ Gateway Village Mitigations
    - Restripe/widen the EB approach, west leg, from one (1) left-turn lane and two (2) through lanes to one (1) left-turn lane and three (3) through lanes
    - Restripe/widen the WB approach, east leg, from two (2) through lanes and one (1) right-turn lane to two (2) through lanes and three (3) right-turn lanes

Even though the Avenue 12 at Road 40 intersection fails in the 2025 Project scenario it is not shown as being mitigated since it did not meet the rural peak hour volume signal warrant. Three (3) options could be considered that would bring the intersection to levels of service at or above the Madera County level of service standard. These options, along with associated LOS and seconds (sec) of delay by time period (AM/PM) include:

- Signalizing the intersection – LOS A (7.6)/LOS A (6.3)
- Restricting left-turn movements out of the intersection and allowing only left-turning movements in – LOS C (22.9)/LOS C (20.8)
- Restricting all left-turning movements into and out of the intersection – LOS C (23.7)/LOS C (21.3)

Please note that with the use of any of these three (3) options LOS and delay at other intersections in the corridor would potentially be different than those currently reported in this study. It should be noted that restricting movements at the Avenue 12 at Road 40 intersection would cause an increase/shifting in the traffic to the next available intersections thereby possibly decreasing the LOS and increasing the delay at those intersections.

Please note that roadway widenings listed in the RTP did not specifically include intersection improvements such as signalization and turn lanes. Therefore any signalization or turn lane improvements associated with RTP widenings are shown as mitigations in the 2013 No Project and the 2025 No Project scenarios.

The Proportionate Share Percentages for the proposed mitigation measures including signals were calculated by taking the Project trips and dividing by the total 2025 Project volumes minus the Existing volumes for the given study location. The formula used in calculating the Proportionate Share Percentages is:

Proportionate Share Percentage = Project only trips / (2025 Project volume – Existing Volume)

The following Proportionate Share Percentages were developed using the time period projected to cause the highest impact:

Segments

- Avenue 9 – SR 99 to Road 36 – 36.44%
- Avenue 9 – Road 40 to Road 40½ - 11.45%
- Childrens Boulevard – Road 40 ½ to Peck Boulevard – 1.98%
- Lanes Bridge Drive – Avenue 10 to Childrens Boulevard – 91.96%
- Avenue 10 – Road 40 ½ to SR 41 West Frontage Road – 91.20%
- Avenue 12 – SR 99 to Road 36 – 67.12%
- Avenue 12 – Road 36 to Road 40 – 62.09%
- Avenue 12 – Road 40 to Root Creek Parkway West – 61.18%
- Avenue 12 – Root Creek Parkway West to Root Creek Parkway East – 77.21%
- Avenue 12 – Root Creek Parkway East to SR 41 West Frontage Road – 86.36%
- Avenue 12 – SR 41 West Frontage Road to SR 41 – 90.17%
- Avenue 12 – SR 41 to Rio Mesa Boulevard – 17.74%
- SR 41- Avenue 11 to Avenue 12
    - 2nd three (3) lane bridge structure – 100%
    - Two (2) SB through lanes – 100%
- SR 41 – San Joaquin River Bridge to Childrens Boulevard
    - One (1) NB and one (1) SB through lanes – 100%
- SR 41 – Childrens Boulevard and Avenue 12
    - One (1) NB and one (1) SB through lanes – 100%
- SR 41 – Friant Road and San Joaquin River Bridge
    - One (1) NB and one (1) SB through lanes – 100%
- SR 41 – Avenue 12 to Avenue 15 – Pay the County of Madera SR 41 Road Impact Fee for widening from two (2) to four (4) lanes

As shown the Project would typically be responsible for paying the County of Madera SR 41 Road Impact Fee for its impacts on SR 41. However, in order to avoid duplication of mitigation costs, the Caltrans agreement for SR 41 improvements to be constructed by the Project, detailed previously, is intended to provide full mitigation for the Project's SR 41 traffic impacts. These agreed to improvements would supersede and replace the Project's requirement to pay the County of Madera SR 41 Road Impact Fee.

Intersections

- Avenue 9 at Road 36 - 36.32%
- Avenue 9 at Road 40 – 11.34%
- Avenue 9 at Road 40½ - 11.02%

- Childrens Boulevard at Peck Boulevard – 10.63%
- Childrens Boulevard at Lanes Bridge Drive – 40.36%
- Childrens Boulevard at SR 41 SB ramps – 40.10%
- Rio Mesa at SR 41 NB ramps – 47.83%
- Avenue 12 at Road 36 – 56.97%
- Avenue 12 at Road 40 – 62.16%
- Avenue 12 at Root Creek Pkwy West (Project only) – 60.30%
- Avenue 12 at N-S Secondary #1 (Project only) – 59.92%
- Avenue 12 at Root Creek Pkwy East (Project only) – 69.38%
- Avenue 12 at N-S Secondary #2 (Project only) – 70.75%
- Avenue 12 at SR 41 West Frontage Road – 89.19%
- Avenue 12 at SR 41 – 100% (Interim and Ultimate Intersection Improvements Only)
- Avenue 10 at Road 40 – 54.76%
- Avenue 10 at Road 40 ½ - 89.01%
- Main Street at Root Creek Parkway West (Project only) (Roundabout Only) – 100%
- Main Street at Root Creek Parkway East (Project only) (Roundabout Only) – 100%
- Main Street at SR 41 West Frontage Road (Project only) – 100%
- East-West (E-W) Secondary #3 at Root Creek Parkway West (Project only) (Roundabout Only) – 100%
- E-W Secondary #3 at Root Creek Parkway East (Project only) (Roundabout Only) – 100%
- E-W Secondary #3 at SR 41 West Frontage Road (Project only) – 100%
- E-W Secondary #4 at Root Creek Parkway West (Project only) (Roundabout Only) – 100%
- E-W Secondary #5 at Root Creek Parkway West (Project only) (Roundabout Only) – 100%
- E-W Secondary #6 at Root Creek Parkway West (Project only) (Roundabout Only) – 100%
- Road 40½/E-W Secondary #7 at Root Creek Parkway West/East (Project only) (Roundabout Only) – 100%
- E-W Secondary #8 at Root Creek Parkway East (Project only) (Roundabout Only) – 100%
- E-W Secondary #7 at Root Creek Parkway East (Project only) (Roundabout Only) – 100%
- E-W Secondary #6 at Root Creek Parkway East (Project only) (Roundabout Only) – 100%
- Avenue 12 at Golden State Boulevard – 8.24%
- SR 99 SB ramps at Golden State Boulevard – 9.80%
- Avenue 12 at SR 99 NB ramps – 9.94%

METHODOLOGY

This TIS has been prepared to assess the existing and projected traffic conditions resulting from development of the approximately 2,062 acre Project, and will be used in the preparation of a Program EIR and an IMP. The Project is located in southeast Madera County north of Avenue 10, south of Avenues 12, 12 ½, and 13, east of Road 40, and west of SR 41 and the Rolling Hills community, and will consist of the following land uses (approximate):

- 1,326 acres (4,978 dwelling units (DU)) of Single Family Residential
- 128 acres (1,600 DU) of Multi-family of which 48 acres is mixed use with Community Commercial
- 88 acres of Community Commercial of which 48 acres is mixed use with Multi-family
- 32 acres of Neighborhood Commercial/Village Core
- 102 acres of Office
- 2 acres of Government Uses

- 3 Elementary Schools (36 acres)
- 225 acres of Park/Open Space

Construction and occupation of the Project for purposes of this study is expected to be completed by 2025. Currently, the Project site is primarily agricultural in use with some industrial and commercial uses. The Project study area for the analysis of traffic impacts extends from Avenue 12 (north) to Avenue 9 (south) and from Golden State Boulevard (west) to Rio Mesa Boulevard (east).

In order to prepare the traffic evaluation for the Project, a variety of data and technical assumptions had to be developed. This section of the report describes the various sources, data and technical assumptions used in this evaluation.

Sources

This report was prepared using information taken from the following sources:

- *2000 Highway Capacity Manual (HCM 2000)*, Transportation Research Board, 2000.
- *2000 Highway Capacity Software (HCS+)*, Version 5.2, University of Florida, McTrans Center, 2005.
- "Crash Reduction Following Installation of Roundabouts in the United States", Bhagwant N. Persaud, Richard A Retting, Per E. Garder, Dominique Lord, Insurance Institute For Highway Safety, March 2000.
- Dave Merchen, Assistant Director, Planning Department, County of Madera Resource Management Agency, Phone/email discussions, 2004-2006.
- David McGlasson, P.E., P.L.S., Provost & Pritchard Engineering, Inc., Phone/email discussions, 2004-2005.
- Derek Winning, Transportation Planner II, Madera County Transportation Commission, Phone/email discussions, 2004-2006.
- "Designing and Operating Safer Roundabouts (Chapter 2)", Georges Jacquemart, Buckhurst Fish Jacquemart Inc., March 1, 2004.
- *Gateway Village Environmental Impact Report Notice of Preparation*, Dave Merchen, September 9, 2005.
- *Gateway Village, Madera County, California, Density Study*, Hogle-Ireland, Inc., March, 11, 2005.
- *Gateway Village Specific Plan*, March 2006.
- Georges Jacquemart, Principal, Buckhurst Fish & Jacquemart, Phone/email discussions, 2004.
- *Guide for the Preparation of Traffic Impact Studies*, State of California Department of Transportation, December 2002.
- "Introduction to Roundabouts", http://www.roundabouts.ca/introduction.htm, September, 18, 2004.
- Jack Hutchison, PE, Senior Transportation Engineer, ESA, Phone/email discussions, 2006.
- John Liu, PE, Senior Transportation Engineer, Caltrans, District 6, Phone/email discussions, 2004-2006.
- Keith Helmuth, PE, Senior Civil Engineer, Roads Department, Madera County Resource Management Agency, Phone/email discussions, 2004-2006.
- Kimiko Lizardi, Associate Project Manager, Hogle-Ireland, Inc., Phone/email discussions, 2004-2005.
- Madera County 2004 Regional Transportation Plan, Madera County Transportation Commission, July, 21, 2004.

- Madera County Travel Forecasting Model, Madera County Transportation Commission, April 2001.
- Madera County Travel Forecasting Model Documentation, Korve Engineering, November 1, 2001.
- *California Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways*, Part 4 for Highway Traffic Signals, U.S. Department of Transportation Federal Highway Administration, 2006.
- Michael Navarro, Office of Transportation Planning, Caltrans, District 6, Email discussions, 2004-2006.
- *Rodel*, Issue 1.07, Rodel Software Ltd. And Staffordshire County Council.
- "Roundabouts: A Direct Way to Safer Highways", Leif Ourston and Joe G. Bared, http://www.tfhrc.gov/pubrds/fall95/p95a41.htm, September 18, 2004.
- *Roundabouts: An Informational Guide*, FHWA, June 2000.
- Sharri Ehlert, Senior Transportation Engineer, Caltrans District 06, Phone/email discussions, 2004-2006.
- *Synchro 6.0*, Trafficware, 2003.
- *Traffic Access and Impact Studies for Site Development*, A Recommended Practice, ITE, Transportation Planners Council Task Force on Traffic Access/Impact Studies, 1991.
- *Village of Gateway, Draft Environmental Impact Report*, Environmental Science Associates, February 2001.
- *Village of Gateway, Madera County, California, Density Study*, Provost & Pritchard Engineering Group, Inc., September, 8, 2004.

Scenarios

The scenarios that were analyzed for this study included:

- Existing (2004/2006) Traffic Conditions (Without Project)
- 2013 No Project Traffic Conditions (Without Project)
- Mitigated 2013 No Project Traffic Conditions (Without Project)
- 2013 Project Traffic Conditions (With Project)
- Mitigated 2013 Project Traffic Conditions (With Project)
- 2025 No Project Traffic Conditions (Without Project)
- Mitigated 2025 No Project Traffic Conditions (Without Project)
- 2025 Project Traffic Conditions (With Project)
- Mitigated 2025 Project Traffic Conditions (With Project)

The 2013 No Project/Project and 2025 No Project/Project scenarios reflect cumulative conditions analysis as required by CEQA. The 2013 Project scenarios is an interim scenario that was prepared to identify and mitigate any impacts resulting from the Project prior to its connection south across Root Creek Parkway to Avenue 10. The 2025 Project scenario is a build out scenario that was prepared to identify and mitigate any impacts resulting from the build out of the Project and its ultimate connection across Root Creek Parkway to Avenue 10.

Study Locations

Segments

1. Road 40 – Avenue 9 to Avenue 10
2. Root Creek Parkway West – Road 40½ to Root Creek Greenbelt (Project Only)

3. Root Creek Parkway West – Root Creek Greenbelt to Avenue 12 (Project Only)
4. Root Creek Parkway West – Avenue 12 to northern project boundary (Project Only)
5. Road 40½ – Avenue 9 to Avenue 10
6. Road 40½ – Avenue 10 to Root Creek Parkway West/East (Project Only)
7. Root Creek Parkway East – Road 40½ to Root Creek Greenbelt (Project Only)
8. Root Creek Parkway East – Root Creek Greenbelt to Avenue 12 (Project Only)
9. SR 41 West Frontage Road – Avenue 10 to Root Creek Greenbelt
10. SR 41 West Frontage Road – Root Creek Greenbelt to Avenue 12
11. SR 41 West Frontage Road – Avenue 12 to northern project boundary (Project Only)
12. Rio Mesa Boulevard – Avenue 10 to Avenue 12
13. Avenue 9 – SR 99 to Road 36
14. Avenue 9 – Road 36 to Road 40
15. Avenue 9 – Road 40 to Road 40½
16. Childrens Boulevard – Road 40½ to Peck Boulevard
17. Childrens Boulevard – Peck Boulevard to Lanes Bridge Drive
18. Childrens Boulevard – Lanes Bridge Drive to SR 41 SB ramps
19. Peck Boulevard – Avenue 10 to Childrens Boulevard
20. Lanes Bridge Drive- Avenue 10 to Childrens Boulevard
21. Avenue 10 – Road 40 to 40½
22. Avenue 10 – Road 40½ to SR 41 West Frontage Road
23. Avenue 12 – SR 99 to Road 36
24. Avenue 12 – Road 36 to Road 40
25. Avenue 12 – Road 40 to SR 41 West Frontage Road (No Project Only)
26. Avenue 12 – Road 40 to Root Creek Parkway West (Project Only)
27. Avenue 12 – Root Creek Parkway West to Root Creek Parkway East (Project Only)
28. Avenue 12 – Root Creek Parkway East to SR 41 West Frontage Road (Project Only
29. Avenue 12 – SR 41 West Frontage Road to SR 41
30. Avenue 12 – SR 41 to Rio Mesa Boulevard

Intersections

1. Avenue 9 at Road 36
2. Avenue 9 at Road 40
3. Avenue 9 at Road 40½
4. Childrens Boulevard at Peck Boulevard
5. Childrens Boulevard at Lanes Bridge Drive
6. Childrens Boulevard at SR 41 SB ramps
7. Rio Mesa at SR 41 NB ramps
8. Avenue 10 at Road 40
9. Avenue 10 at Road 40½
10. Avenue 11 at SR 41 West Frontage Road
11. Avenue 12 at Road 36
12. Avenue 12 at Road 40
13. Avenue 12 at Root Creek Pkwy West (Project only)
14. Avenue 12 at N-S Secondary #1 (Project only)
15. Avenue 12 at Root Creek Pkwy East (Project only)
16. Avenue 12 at N-S Secondary #2 (Project only)
17. Avenue 12 at SR 41 West Frontage Road
18. Avenue 12 at SR 41
19. Main Street at Root Creek Parkway West (Project only) (Roundabout Only)
20. Main Street at Root Creek Parkway East (Project only) (Roundabout Only)
21. Main Street at SR 41 West Frontage Road (Project only)

22. E-W Secondary #3 at Root Creek Parkway West (Project only) (Roundabout Only)
23. E-W Secondary #3 at Root Creek Parkway East (Project only) (Roundabout Only)
24. E-W Secondary #3 at SR 41 West Frontage Road (Project only)
25. E-W Secondary #4 at Root Creek Parkway West (Project only) (Roundabout Only)
26. E-W Secondary #5 at Root Creek Parkway West (Project only) (Roundabout Only)
27. E-W Secondary #6 at Root Creek Parkway West (Project only) (Roundabout Only)
28. Road 40½/E-W Secondary #7 at Root Creek Parkway West/East (Project only) (Roundabout Only)
29. E-W Secondary #8 at Root Creek Parkway East (Project only) (Roundabout Only)
30. E-W Secondary #7 at Root Creek Parkway East (Project only) (Roundabout Only)
31. E-W Secondary #6 at Root Creek Parkway East (Project only) (Roundabout Only)
32. Avenue 12 at Golden State Boulevard
33. SR 99 SB ramps at Golden State Boulevard
34. Avenue 12 at SR 99 NB ramps

Figure 1 shows the various study segment and intersection locations.

Analysis Time Periods

According to *Traffic Access and Impact Studies for Site Development*, the overall purpose of a traffic impact study is to determine the project impacts that are likely to occur to the surrounding street system. In order to accomplish this purpose you need to determine what occurs when the peak of the project generated traffic overlays the peak of the street traffic. *Traffic Access and Impact Studies for Site Development* states "the peak periods [of the adjacent street and highway system] are generally the weekday morning (7-9 a.m.) and evening (4-6 p.m.) peak hours, although local area characteristics occasionally result in other peaks (e.g., at major shopping or recreational centers)". The peak hours of 7:00 to 9:00 AM and 4:00 to 6:00 PM were analyzed as part of this study. These are the typical peak hours used for analysis in the County of Madera and approved by Caltrans.

Traffic Counts

According to the Caltrans *Guide for the Preparation of Traffic Impact Studies*, one of the common rules for counting vehicular traffic is:

> "Vehicle counts should be conducted on Tuesdays, Wednesdays, or Thursdays during weeks not containing a holiday and conducted in favorable weather conditions."[1]

Table 5 shows the dates and days the Existing peak hour intersection counts were collected for this Project. Prior to conducting these counts it was verified that these were non-holiday weeks.

TABLE 5:
EXISTING INTERSECTION COUNTS
DAYS AND DATES COUNTED

Intersections	AM Peak Hour		PM Peak Hour	
	Day	Date	Day	Date
Avenue 9 at Road 36	Wednesday	3/10/2004	Wednesday	3/10/2004
Avenue 9 at Road 40	Wednesday	3/10/2004	Wednesday	3/10/2004
Avenue 9 at Road 40 ½	Wednesday	3/10/2004	Wednesday	3/10/2004

[1] *Guide for the Preparation of Traffic Impact Studies*, State of California Department of Transportation, December 2002, page 4.

TABLE 5:
EXISTING INTERSECTION COUNTS
DAYS AND DATES COUNTED

Intersections	AM Peak Hour		PM Peak Hour	
	Day	Date	Day	Date
Childrens Boulevard at Peck Boulevard	Wednesday	3/10/2004	Wednesday	3/10/2004
Childrens Boulevard at Lanes Bridge Drive	Wednesday	3/10/2004	Wednesday	3/10/2004
Childrens Boulevard at SR 41 SB ramps	Wednesday	3/10/2004	Wednesday	3/10/2004
Rio Mesa Boulevard at SR 41 NB ramps	Wednesday	3/10/2004	Wednesday	3/10/2004
Avenue 10 at Road 40	Tuesday	3/09/2004	Tuesday	3/09/2004
Avenue 10 at Road 40 ½	Tuesday	3/09/2004	Tuesday	3/09/2004
Avenue 11 at SR 41 West Frontage Road	Tuesday	3/09/2004	Tuesday	3/09/2004
Avenue 12 at Road 36	Tuesday	3/09/2004	Tuesday	3/09/2004
Avenue 12 at Road 40	Tuesday	3/09/2004	Tuesday	3/09/2004
Avenue 12 at SR 41 West Frontage Road	Tuesday	3/09/2004	Tuesday	3/09/2004
Avenue 12 at SR 41	Tuesday	3/09/2004	Tuesday	3/09/2004
Avenue 12 at Golden State Boulevard	Thursday	12/02/2004	Thursday	12/02/2004
SR 99 SB ramps at Golden State Boulevard	Thursday	12/02/2004	Thursday	12/02/2004
Avenue 12 at SR 99 NB ramps	Thursday	12/02/2004	Thursday	12/02/2004

Segment volumes used in this analysis were calculated based on the peak hour intersection counts.

Madera County Traffic Model

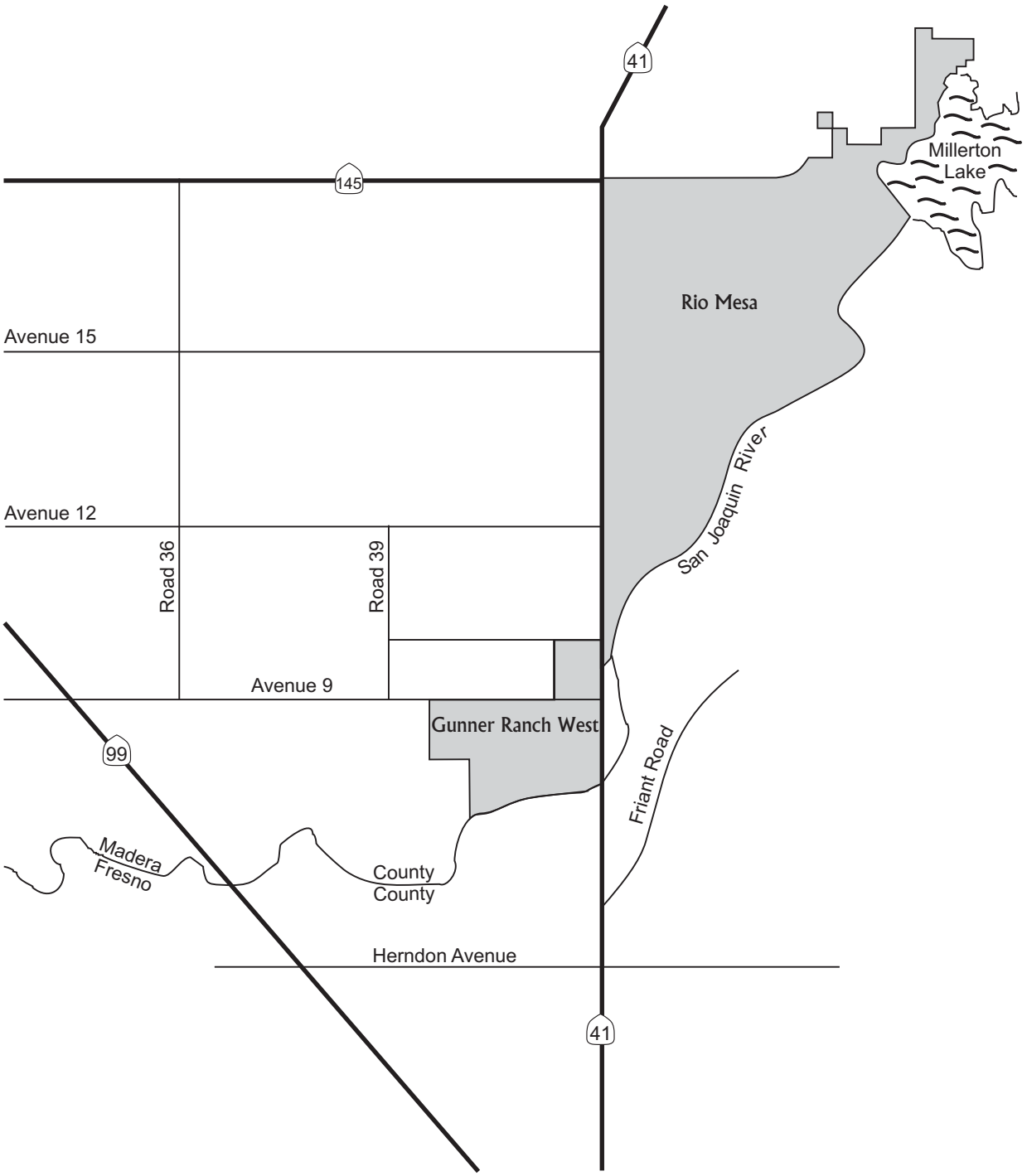
Background

According to the MCTC website, "MCTC is the Regional Comprehensive Planning Agency, Regional Transportation Planning Agency (RTPA), the Metropolitan Planning Organization (MPO), and the Local Transportation Commission for Madera County. MCTC's role is to foster intergovernmental coordination; undertake comprehensive regional planning with an emphasis on transportation issues; provide a forum for citizen input into the planning process; and to provide technical services to its member agencies.

As a RTPA, MCTC is responsible for developing and maintaining a microcomputer-based traffic simulation model that represents Madera County. The current Model was developed to analyze proposed land uses, circulation systems, and air quality and covers the entire Madera County area, as well as portions of Fresno, Merced, and Stanislaus counties.

Model Land Use (2025)

The 2025 Model land use contained portions of the Gunner Ranch West and Rio Mesa development projects. Figure 2 shows the location of these two (2) projects in relation to the Project while Table 6 shows a comparison of Gunner Ranch West and Rio Mesa build out dwelling units and employment to the 2025 Model dwelling units and employment. The adopted Gunner Ranch West and Rio Mesa build out dwelling units and employment data was provided by the Madera County Road Department. Since build out of the Gunner Ranch West and Rio Mesa projects are not included in the Model, a full build traffic impact assessment of both the No Project and Project scenarios are not possible.



N

NOT TO SCALE
(ROAD WAY ALIGNMENT CONCEPTUAL ONLY)

TPG Consulting Incorporated

GUNNER RANCH WEST & RIO MESA

PROJECT LOCATIONS

Gateway Village
Madera County, CA

Figure 2

95-250.4

TABLE 6:
COMPARISON OF MODEL VS. BUILD OUT DWELLING UNITS AND EMPLOYMENT
RIO MESA AND GUNNER RANCH WEST

	Dwelling Units			Employment		
Land Plan	**Adopted**	**2025 Model**	**Delta**	**Adopted**	**2025 Model**	**Delta**
Gunner Ranch West	3,014	2,525	489	10,807	6,460	4,347
Rio Mesa	29,456	4,695	24,761	23,704	3,196	20,508

Project Model Use

The Model was used in this study to develop three (3) pieces of information:

- Project trip distribution
- 2013 No Project/"0" Project growth increments
- 2025 No Project/"0" Project growth increments

The "0" Project growth increment assumes that that Project site is totally vacant in both 2013 and 2025, while the No Project growth increment assumes that the current land uses (agriculture, industrial, and commercial uses) continue to exist in 2013 and 2025.

The Project trip distributions were created using network and associated land use reflective of 2013 and 2025 roadway conditions. The 2013 Project only model run used the 2000 network and the 2025 land use, and should be considered a worst case since no developer driven roadway improvements other than those defined in the RTP are included. The 2025 Project only model run used the 2025 network and the 2025 land use, and included all known developer driven improvements. The 2025 network is consistent with the 2004 Madera County Regional Transportation Plan (RTP).

Network Improvements

Several roadway improvement projects are projected/needed to be built in the study area. At the intersections where signalization is projected to occur single or dual left-turn lanes and separate right-turn lanes are projected to be constructed as warranted. Implementing party/mechanisms for these various improvements include:

- 2004 RTP (RTP) including Regional Transportation Improvement Program (RTIP), Mitigation Fees from Rio Mesa Area Plan and Gunner Ranch West Area Plan, and County Wide Impact Fee (CWIF) funding;
- County of Madera (County) including other background developer sponsored improvement fees not associated with the Rio Mesa Area Plan, Gunner Ranch West Area Plan, and Gateway Village;
- Caltrans;
- Gunner Ranch West Area Plan (GRW);
- Rio Mesa Area Plan (RM);
- the Gateway Village Specific Plan Circulation Plan (Project – Circulation Plan) [internal to the Project];
- and, previously determined Gateway Village Project mitigations (Project – Offsite Mitigation) [external to the Project]

The roadway improvements, by scenario and implementing party/mechanism, that are projected/needed to be in place include:

Existing (Without the Project)

Intersections

- Childrens Boulevard at Lane's Bridge Drive – County/GRW/RM
  - Signalize the intersection
  - Restripe/widen the SB approach, north leg, from a one (1) left-turn lane and one (1) right-turn lane to dual (2) left-turn lanes and one (1) right-turn lane
- Avenue 12 at Road 36 – County/GRW/RM
  - Signalize the intersection
- Avenue 12 at SR 41 West Frontage Road – County/GRW/RM
  - Signalize the intersection
  - Restripe/widen the NB approach, south leg, from a shared left-right lane to one (1) left-turn lane and one (1) right-turn lane
- Avenue 12 at Golden State Boulevard
  - Signalize the intersection – Caltrans/County
  - Restripe the NB approach, south leg from a shared left-through and separate right-turn to a separate left-turn and a shared through-right-turn lane – Caltrans/County
  - Restripe/widen the SB approach, north leg from a shared left-through and separate right-turn to a separate left-turn, one (1) through lane and one (1)right-turn lane – Caltrans/County

  Additional improvements beyond Caltrans scheduled improvements
  - Restripe/widen the NB approach, south leg, from a separate left-turn and a shared through-right-turn lane to one (1) left-turn lane, one (1) through lane and one (1) right-turn lane – Caltrans/County/GRW/RM
  - Restripe/widen the SB approach, north leg, from a separate left-turn, one (1) through lane and one (1)right-turn lane to dual (2) left-turn lanes and a shared through-right lane – Caltrans/County/GRW/RM
  - Restripe/widen the EB approach, west leg, from one (1) left-turn lane, one (1) through lane and one (1) right-turn lane to dual (2) left-turn lanes and a shared through-right lane – Caltrans/County/GRW/RM
- Avenue 12 at SR 99 NB ramps
  - Signalize the intersection – Caltrans
  - Restripe/widen the EB approach, west leg, from a shared left-through lane to one (1) left-turn lane and one (1) through lane – Caltrans

  Additional improvements beyond Caltrans scheduled improvements
  - Restripe/widen the WB approach, east leg, from a shared through-right lane to one (1) through lane and one (1) right-turn lane - Caltrans/County/GRW/RM

2013 No Project (Without the Project)

Segments

- Avenue 12 - SR 41 to Rio Mesa Boulevard – RTP (Mitigation Funds/RM)
  - Widen from two (2) lanes to six (6) lanes
- Childrens Boulevard - Lanes Bridge Drive to SR 41 SB ramps – RTP (Mitigation Funds/GRW)
  - Widen from six (6) lanes to eight (8) lanes

Intersections

- Rio Mesa Boulevard at SR 41 NB ramps – Caltrans/RM
    - Construction of the SB approach, north leg to one (1) left-turn lane and a shared through-right lane

Mitigated 2013 No Project (Without the Project)

Segments

- Avenue 9 – SR 99 to Road 36 - County/GRW/RM
    - MCTC Capacity Table
        - Restripe/widen from two (2) lanes to four (4) lanes
    - Intersection Analysis
        - No mitigations needed
- Avenue 12 – SR 99 to Road 36 – Project
    - MCTC Capacity Table
        - Restripe/widen from two (2) lanes to four (4) lanes
    - Intersection Analysis
        - No mitigations needed
- Avenue 12 – Road 36 to Road 40 – Project
    - MCTC Capacity Table
        - Restripe/widen from two (2) lanes to four (4) lanes
    - Intersection Analysis
        - No mitigations needed
- Avenue 12 – Road 40 to SR 41 West Frontage Road - County/GRW/RM
    - MCTC Capacity Table
        - Restripe/widen from two (2) lanes to four (4) lanes
    - Intersection Analysis
        - No mitigations needed
- Avenue 12 – SR 41 West Frontage Road to SR 41 - County/GRW/RM
    - MCTC Capacity Table
        - Restripe/widen from two (2) lanes to four (4) lanes
    - Intersection Analysis
        - No mitigations needed
- Childrens Boulevard
    - Widen from two (2) lanes to four (4) lanes from Road 40 ½ to Peck Boulevard – RTP (Mitigation Funds/GRW)

Intersections

- Avenue 9 at Road 36 - County/GRW/RM
    - Signalize the intersection
    - Restripe/widen the SB approach, north leg, from a shared left-right lane to one (1) left-turn lane and one (1) right-turn lane
    - Restripe/widen the EB approach, west leg, from a shared left-through lane to one (1) left-turn lane and one (1) through lane
- Avenue 9 at Road 40 – County/GRW/RM
    - Signalize the intersection
    - Restripe/widen the NB approach, south leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane

  - Restripe/widen the EB approach, west leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane
  - Restripe/widen the WB approach, east leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane
- Childrens Boulevard at Peck Boulevard - County/GRW/RM
  - Signalize the intersection
  - Restripe/widen the WB approach, east leg, from one (1) left-turn lane and two (2) through lanes to dual (2) left-turn lanes and two (2) through lanes
- Avenue 12 at SR 41 – Caltrans/County/GRW/RM
  - Restripe/widen the NB approach, south leg, from one (1) left-turn lane, one (1) through lane and one (1) right-turn lane to dual (2) left-turn lanes, four (4) through lanes and one (1) right-turn lane
  - Restripe/widen the SB approach, north leg, from one (1) left-turn lane, two (2) through lanes and one (1) right-turn lane to dual (2) left-turn lanes, three (3) through lanes and one (1) right-turn lane
  - Restripe/widen the EB approach, west leg, from a shared left-through lane and one (1) right-turn lane to one (1) left-turn lane, one (1) through lane and dual (2) right-turn lanes
  - Restripe/widen the WB approach, east leg, from a shared left-through lane and one (1) right-turn lane to dual (2) left-turn lanes, one (1) through lane and one (1) right-turn lane

The improvements shown for the Avenue 12 at SR 41 intersection are what would be required in lieu of constructing an interchange. These improvements were utilized in generating the levels of service shown in the Mitigated 2013 No Project scenario tables and figures for this intersection. However Caltrans has determined that the maximum standard intersection improvements that they will construct prior to construction of an interchange will consist of the following:

- Restripe/widen the NB approach, south leg, from one (1) left-turn lane to dual (2) left-turn lanes to a depth of approximately 1,000 feet on SR 41 south of Avenue 12
- Restripe/widen the SB, EB, and WB approaches from one (1) left-turn lane to two (2) left-turn lanes to a depth of 250 to 300 feet
- Restripe/widen the NB, SB, WB, and EB approaches from one (1) through lane to two (2) through lanes to the following depths
  - SB SR 41 through lanes south of Avenue 12 shall be continuous
  - WB Avenue 12 through lanes west of SR 41 shall continue for a distance of approximately 1,350 feet
  - NB SR 41 through lanes north of Avenue 12 shall continue for a distance of approximately 250 to 300 feet
  - EB Avenue 12 through lanes east of SR 41 shall continue for a distance of approximately 250 to 300 feet
- Restripe/widen/lengthen the separate right-turn lanes in all four (4) directions to a depth of 250 to 300 feet

The SR 41 at Avenue 12 ultimate intersection improvements were used in the 2025 Project scenario.

- SR 99 SB ramps at Golden State Boulevard - Caltrans/County/GRW/RM
  - Signalize the intersection
  - Restripe/widen the SB approach, north leg, from a shared left-through lane to dual (2) left-turn lanes and one (1) through lane
  - Restripe/widen the WB approach, east leg, from a shared left-right lane to one(1) left-turn lane and dual (2) right-turn lanes

- Rio Mesa Boulevard at SR 41 NB ramps – Caltrans/RM
    - Restripe/widen the NB approach, south leg, from dual (2) left-turn lanes and one (1) right-turn lane to dual (2) left-turn lanes, one (1) through lane, and one (1) right-turn lane

2013 Project

Segments

- Avenue 12 – Project (Circulation Plan)
    - Widen from two (2) lanes to six (6) lanes from Root Creek Parkway East to SR 41
    - Widen from two (2) lanes to four (4) lanes from Root Creek Parkway West to Root Creek Parkway East
    - Widen from two (2) lanes to four (4) lanes from Road 40 to Root Creek Parkway West
- SR 41 West Frontage Road – Project (Circulation Plan)
    - Widen from two (2) lanes to four (4) lanes from Root Creek Greenbelt/E-W Secondary #3 to northern Project boundary
- Root Creek Parkway West – Project (Circulation Plan)
    - Construct a four (4) lane roadway from Root Creek Greenbelt/E-W Secondary #5 to north of Avenue 12
- Root Creek Parkway East – Project (Circulation Plan)
    - Construct a four (4) lane roadway from Root Creek Greenbelt/E-W Secondary #3 to Avenue 12
- Road 40 – Project (Circulation Plan)
    - Construct a two (2) lane roadway from Avenue 12 to Root Creek Parkway West
- N-S Secondary #1 – Project (Circulation Plan)
    - Construct a two (2) lane roadway from E-W Secondary #5 to Avenue 12
- N-S Secondary #2 – Project (Circulation Plan)
    - Construct a two (2) lane roadway from E-W Secondary #3 to Avenue 12
- E-W Secondary #3 – Project (Circulation Plan)
    - Construct a two (2) lane roadway from Root Creek Parkway West to SR 41 West Frontage Road
- E-W Secondary #4 – Project (Circulation Plan)
    - Construct a two (2) lane roadway from Root Creek Parkway West to E-W Secondary #5
- E-W Secondary #5 – Project (Circulation Plan)
    - Construct a two (2) lane roadway from Root Creek Parkway West to E-W Secondary #3
- Main Street – Project (Circulation Plan)
    - Construct a two (2) lane roadway from Road 40 to SR 41 West Frontage Road

Intersections

- Avenue 12 at Root Creek Parkway West – Project (Circulation Plan)
    - Signalize the intersection
    - Construct the NB approach, south leg, to provide one (1) left-turn lane, and a shared through-right lane
    - Construct the SB approach, north leg to provide two (2) left-turn lanes, and a shared through-right lane

- Avenue 12 at Root Creek Parkway East – Project (Circulation Plan)
    - Signalize the intersection
    - Construct the NB approach, south leg, to provide one (1) left-turn lane, and two (2) right-turn lanes
- Avenue 12 at SR 41 – Project (Offsite Mitigation)
    - Restripe/widen the NB approach, south leg, from a separate left-turn lane, one (1) through lane, and a separate right-turn lane to dual (2) left-turn lanes to a depth of approximately 1,000 feet on SR 41 S of Avenue 12, one (1) through lane, and a separate right-turn lane
    - Restripe/widen the WB departure, west leg, from one (1) through lane to two (2) through lanes for approximately 1,000 feet west of SR 41
- Root Creek Parkway West at Main Street – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway West at E-W Secondary # 3 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway West at Road 40/E-W Secondary # 4 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway West at E-W Secondary #5 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway East at E-W Secondary #3 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway East at Main Street – Project (Circulation Plan)
    - Construct a roundabout

2025 No Project

Intersections

- Childrens Boulevard - GRW
    - Widen from two (2) lanes to four(4) lanes from Road 40 to Road 40 ½
    - Widen from four (4) lanes to six (6) lanes from Peck Boulevard to Lanes Bridge Drive
- Peck Boulevard – Childrens Boulevard to Avenue 10 – GRW
    - Construct a four (4) lane roadway
- Avenue 12 – RTP (RTIP/CWIF)
    - Widen from two (2) lanes to four (4) lanes from SR 99 to Road 30
    - Widen from two (2) lanes to four (4) lanes from Road 38 to SR 41

Mitigated 2025 No Project

Segments

- Avenue 9 – Road 40 to Road 40 ½ - County/GRW/RM
    - MCTC Capacity Table
        - Restripe/widen from two (2) lanes to four (4) lanes
    - Intersection Analysis
        - No mitigations needed
- Avenue 12 – SR 99 to Road 36- RTP/County/GRW/RM
    - MCTC Capacity Table
        - Restripe/widen from two (2) lanes to four (4) lanes
    - Intersection Analysis
        - No mitigations needed

- Avenue 12 – Road 36 to Road 40- County/GRW/RM
    - MCTC Capacity Table
        - Restripe/widen from two (2) lanes to four (4) lanes
    - Intersection Analysis
        - No mitigations needed

Intersections

- Avenue 9 at Road 40 ½ - County/GRW/RM
    - Signalize the intersection
    - Restripe/widen the NB approach, south leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane
    - Restripe/widen the SB approach, north leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane
    - Restripe/widen the EB approach, west leg, from a shared left-through lane and a shared through-right lane to one (1) left-turn lane, one (1) through lane and a shared through-right lane
    - Restripe/widen the WB approach, east leg, from a shared left-through lane and a shared through-right lane to one (1) left-turn lane, one (1) through lane and a shared through-right lane
- Childrens Boulevard at Peck Boulevard - County/GRW/RM
    - Restripe/widen the NB approach, south leg, from a one (1) left-turn lane and a shared through-right lane to one (1) left-turn lane, one (1) through lane and three (3) right-turn lanes
    - Construct the SB approach, north leg, from one (1) left-turn lane and a shared through-right lane to dual (2) left-turn lanes and a shared through-right lane
    - Restripe/widen the WB approach, east leg, from dual (2) left-turn lanes, one (1) through lane and a shared through-right lane to dual (2) left-turn lanes, two (2) through lanes and one (1) right-turn lane
    - Restripe/widen the EB approach, west leg, from a separate left-turn lane, one (1) through lane and a shared through-right lane to a separate left-turn lane, two (2) through lanes and one (1) right-turn lane
- Avenue 12 at SR 41 - Caltrans/County/GRW/RM
    - Restripe/widen the NB approach, south leg, from dual (2) left-turn lanes, four (4) through lanes and one (1) right-turn lane to dual (2) left-turn lanes, four (4) through lanes and three (3) right-turn lanes
    - Restripe/widen the SB approach, north leg, from dual (2) left-turn lanes, three (3) through lanes and one (1) right-turn lane to dual (2) left-turn lanes, four (4) through lanes and one (1) right-turn lane
    - Restripe/widen the EB approach, west leg, from one (1) left-turn lane, one (1) through lane and dual (2) right-turn lanes to one (1) left-turn lane, one (1) through lane and four (4) right-turn lanes
    - Restripe/widen the WB approach, east leg, from dual (2) left-turn lanes, one (1) through lane and one (1) right-turn lane to four (4) left-turn lanes, one (1) through lane and one (1) right-turn lane

The improvements shown for the Avenue 12 at SR 41 intersection are what would be required in lieu of constructing an interchange. These improvements were utilized in generating the levels of service shown in the Mitigated 2025 No Project scenario tables and figures for this intersection. However Caltrans has determined that the maximum standard intersection improvements that they will construct prior to construction of an interchange will consist of the following:

- Restripe/widen the NB approach, south leg, from one (1) left-turn lane to dual (2) left-turn lanes to a depth of approximately 1,000 feet on SR 41 south of Avenue 12
- Restripe/widen the SB, EB, and WB approaches from one (1) left-turn lane to two (2) left-turn lanes to a depth of 250 to 300 feet
- Restripe/widen the NB, SB, WB, and EB approaches from one (1) through lane to two (2) through lanes to the following depths
    - SB SR 41 through lanes south of Avenue 12 shall be continuous
    - WB Avenue 12 through lanes west of SR 41 shall continue for a distance of approximately 1,350 feet
    - NB SR 41 through lanes north of Avenue 12 shall continue for a distance of approximately 250 to 300 feet
    - EB Avenue 12 through lanes east of SR 41 shall continue for a distance of approximately 250 to 300 feet
- Restripe/widen/lengthen the separate right-turn lanes in all four (4) directions to a depth of 250 to 300 feet

The SR 41 at Avenue 12 ultimate intersection improvements were used in the 2025 Project scenario.

- Avenue 12 at Golden State Boulevard - County/GRW/RM
    - Restripe/widen the EB approach, west leg, from dual (2) left-turn lanes and a shared through-right lane to dual (2) left-turn lanes, one (1) through lane and a shared through-right lane
    - Restripe/widen the WB approach, east leg, from one (1) left-turn lane and a shared through-right lane to one (1) left-turn lane, one (1) through lane and a shared through-right lane
- Avenue 12 at SR 99 NB ramps – Caltrans/County/GRW/RM
    - Restripe/widen the EB approach, west leg, from one (1) left-turn lane and one (1) through lane to one (1) left-turn lane and three (3) through lanes
    - Restripe/widen the WB approach, east leg, from one (1) through lane and a separate right-turn lane to two (2) through lanes and two (2) right-turn lanes
- SR 99 SB ramps at Golden State Boulevard – Caltrans/County/GRW/RM
    - Restripe/widen the NB approach, south leg, from a shared through-right lane to two (2) through lanes and one (1) right-turn lane

2025 Project

Segments

- Avenue 10 – Project (Circulation Plan)
    - Widen from two (2) lanes to four (4) lanes from Road 40 to SR 41 West Frontage Road
- SR 41 between Avenues 11 and 12 – Project (Offsite Mitigation)
    - Construct the second three (3) lane bridge structure on SR 41 at Avenue 11
    - Construct two (2) new SB through lanes on SR 41 south from Avenue 12 to south of the newly built Avenue 11 bridge
- SR 41 between the San Joaquin River bridge and Childrens Boulevard – Project (Offsite Mitigation)
    - Construct a third NB through lane
    - Construct a third SB through lane
- SR 41 between Childrens Boulevard and Avenue 12 – Project (Offsite Mitigation)
    - Construct a third NB through lane
        - The third NB through lane will become a trap NB to WB left-turn lane per the ultimate intersection configuration.

    - Construct a third SB through lane
        - The third SB through lane will become an EB to SB free right-turn lane per the ultimate intersection configuration.
- SR 41 between Friant Road and San Joaquin River Bridge – Project (Offsite Mitigation)
    - Construct a third NB through lane
    - Construct a third SB through lane
- Root Creek Parkway West – Project (Circulation Plan)
    - Construct a four (4) lane roadway from Root Creek Greenbelt/E-W Secondary #5 to Road 40 1/2/E-W Secondary #7
- Root Creek Parkway East – Project (Circulation Plan)
    - Construct a four (4) lane roadway from Root Creek Greenbelt/E-W Secondary #3 to Road 40 1/2/E-W Secondary #7
- Road 40 ½ – Project (Circulation Plan)
    - Construct a four (4) lane roadway from Root Creek Parkway West/Root Creek Parkway East/E-W Secondary #7 to Avenue 10
- N-S Secondary #1 – Project (Circulation Plan)
    - Construct a two (2) lane roadway from E-W Secondary #5 to E-W Secondary #8
- E-W Secondary #6 – Project (Circulation Plan)
    - Construct a two (2) lane roadway from Root Creek Parkway West to Root Creek Parkway East
- E-W Secondary #7 – Project (Circulation Plan)
    - Construct a two (2) lane roadway from Root Creek Parkway West to Root Creek Parkway East
- E-W Secondary #8 – Project (Circulation Plan)
    - Construct a two (2) lane roadway from E-W Secondary #6 to east of Root Creek Parkway East

Intersections

- Avenue 12 at SR 41 – Project (Offsite Mitigation)
    - Construct dual NB, SB, EB, and WB left turn lanes to a depth of 250 to 300 feet
    - Construct two (2) through lanes in all four (4) directions
        - SB SR 41 through lanes south of Avenue 12 shall be continuous
        - WB Avenue 12 through lanes west of SR 41 shall continue for a distance of approximately 1,350 feet.
        - NB SR 41 through lanes north of Avenue 12 shall continue for a distance of approximately 250 to 300 feet
        - EB Avenue 12 through lanes east of SR 41 shall continue for a distance of approximately 250 to 300 feet
    - Construct separate right turn lanes in all four (4) directions at a depth of 250 to 300 feet
- Root Creek Parkway West at E-W Secondary #6 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway West/East at Road 40 ½ / E-W Secondary #7 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway East at E-W Secondary #8 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway East at E-W Secondary #7 – Project (Circulation Plan)
    - Construct a roundabout

- Root Creek Parkway East at E-W Secondary #6 – Project (Circulation Plan)
    - Construct a roundabout

Please note that roadway widenings listed in the RTP did not specifically include intersection improvements such as signalization and turn lanes. Therefore any signalization or turn lane improvements associated with RTP widenings are shown as mitigations in the 2013 No Project and the 2025 No Project scenarios.

A copy of the Constrained Candidate Capacity Increasing Project table taken from the 2004 RTP table is included in Appendix A. A copy of the Gateway Village Specific Plan Circulation Plan is shown in Figure 3.

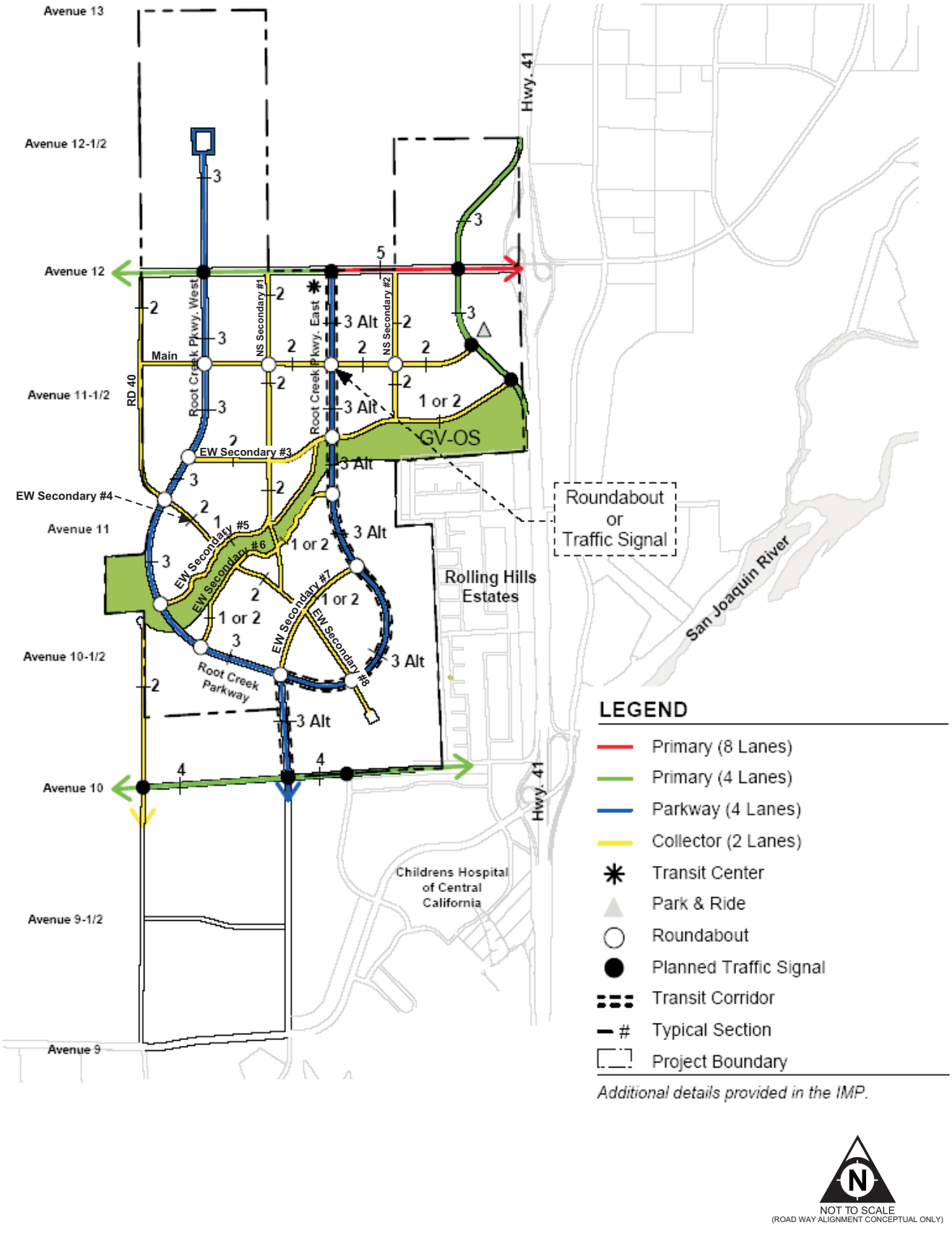
2013 No Project/"0" Project and 2025 No Project/"0" Project Volumes

The majority of the 2013 No Project/"0" Project and 2025 No Project/"0" Project forecasted volumes were calculated using growth increment data developed from the 2000 and 2025 Model runs. Growth increment data is calculated by taking the difference between the 2000 and 2025 daily volumes by link by direction and dividing this difference by the difference in Model years. This 1-year daily increment is then multiplied by a 10% peak hour percentage factor to generate a 1-year peak hour increment. This 1-year peak hour increment is then multiplied by the difference between the year the Existing counts were taken and the future forecast analysis year, i.e. 2013 or 2025. This multi-year peak hour increment by link by direction is then added to the Existing counts and the result is utilized in a Furness method spreadsheet to generate peak hour turning movement volumes for the various study locations. For the County segments and intersections that are not shown in the model or are showing negative or no growth in the various scenarios, a 3% growth factor applied to the Existing count data was used to calculate the forecasted volumes and should be considered a worst-case. The 3% growth factor was supplied by County staff[2] and is considered a common "rule of thumb" that is used by the County and is considered a conservative growth rate. For study locations outside the Gateway Village environs that do not currently exist a 50 peak hour trip minimum was assumed. The 50 peak hour trip minimum is used as a conservative starting basis for future intersection volumes. Additional growth based on model data was also utilized on top of the 50 peak hour trip minimum.

[2] Keith Helmuth, Senior Civil Engineer, Roads Department, Madera County Resource Management Agency, Email discussions, March 2005.

Project Trip Generation

The Gateway Village land use plan is shown in Figure 4. Since the Project land use is not sufficiently defined to use the typical Institute of Transportation Engineers Trip Generation information, Model generated land use was used in this traffic assessment. Since the Model is a daily model there is no peak hour directionality shown in the resulting traffic volumes. To generate a peak hour condition, a 10% peak hour factor was applied to the volumes generated by the Project only traffic analysis zones. Therefore the AM and PM peak hour volumes for Project only trips will be the same. Build-out of the Gateway Village residential component is assumed to occur by 2025 with build out of the employment component occurring after 2025. However for purposes of this study employment is assumed to be built out by 2025 as a worst case analysis. As a result impacts are likely overstated. In addition the Project land use was added to the Model without adjustment to maintain county-wide control totals. As such the 2013 Project and 2025 Project Model population and employment totals do not match Department of Finance (DOF) projections. Addition of the Project land use data to the Model without adjustment to maintain county-wide control totals will likely generate higher forecasted vehicular volumes on most roadways specifically in the Project vicinity and therefore should be considered a worst case condition. Table 7 shows the Gateway Village land uses that were used in this analysis, while Figure 5 shows the traffic analysis zones that correspond to the land uses shown in Table 7.



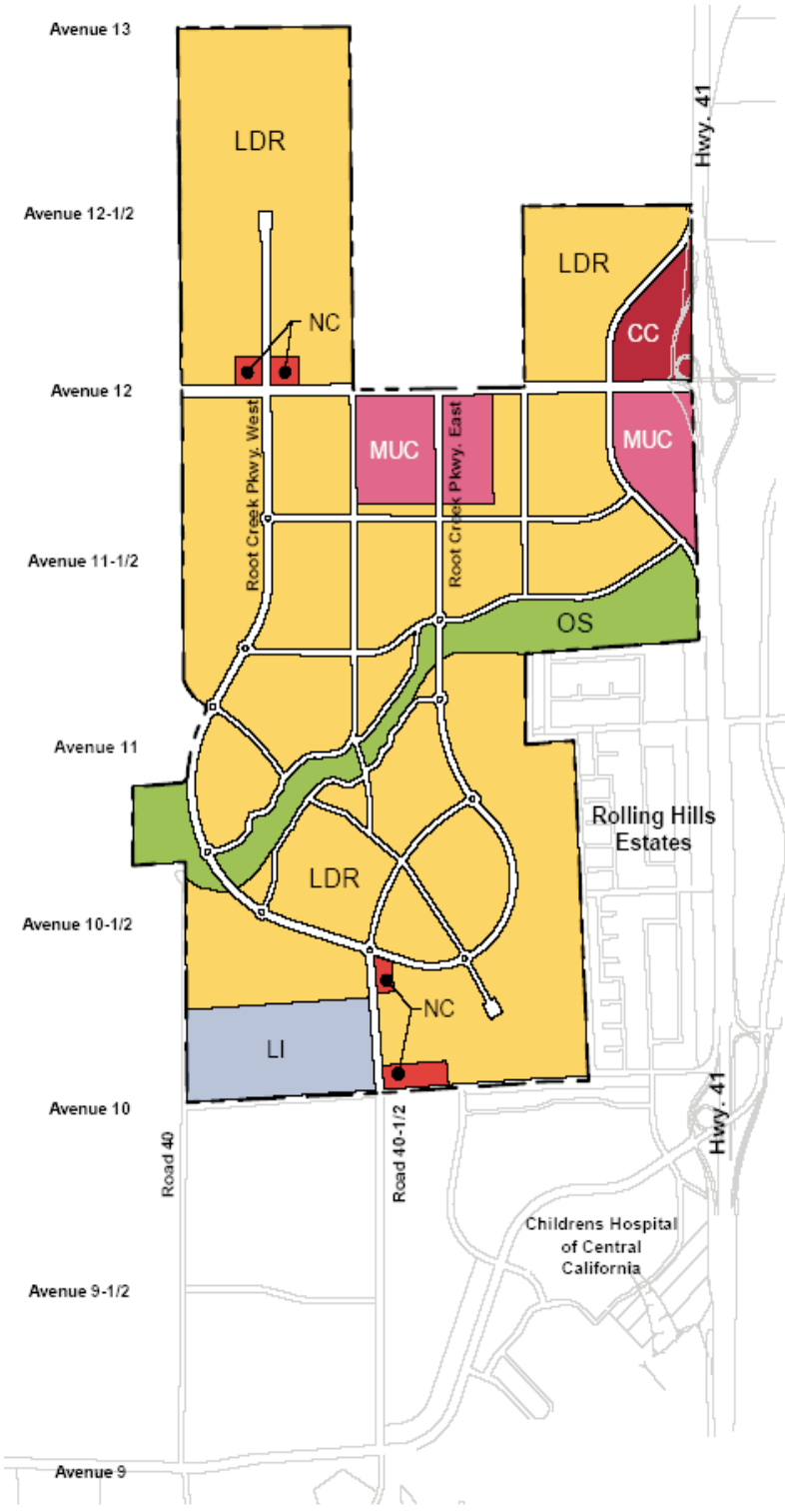
TPG Consulting Incorporated

CIRCULATION PLAN

Gateway Village
Madera County, CA

Figure 3

95-250.4



Land Use Summary

Land Use	Gross Acres	%
LDR	1,457	70.66
MUC	132	6.40
CC	40	1.94
NC	19	0.92
LI	89	4.32
OS	148	7.18
Roads	177	8.58
Subtotal	**2062**	**100%**

LEGEND

- LDR — Low Density Residential
- MUC — Mixed Use Core
- CC — Community Commercial
- NC — Neighborhood Commercial
- LI — Light Industrial
- OS — Open Space
- Project Boundary

N

NOT TO SCALE
(ROAD WAY ALIGNMENT CONCEPTUAL ONLY)

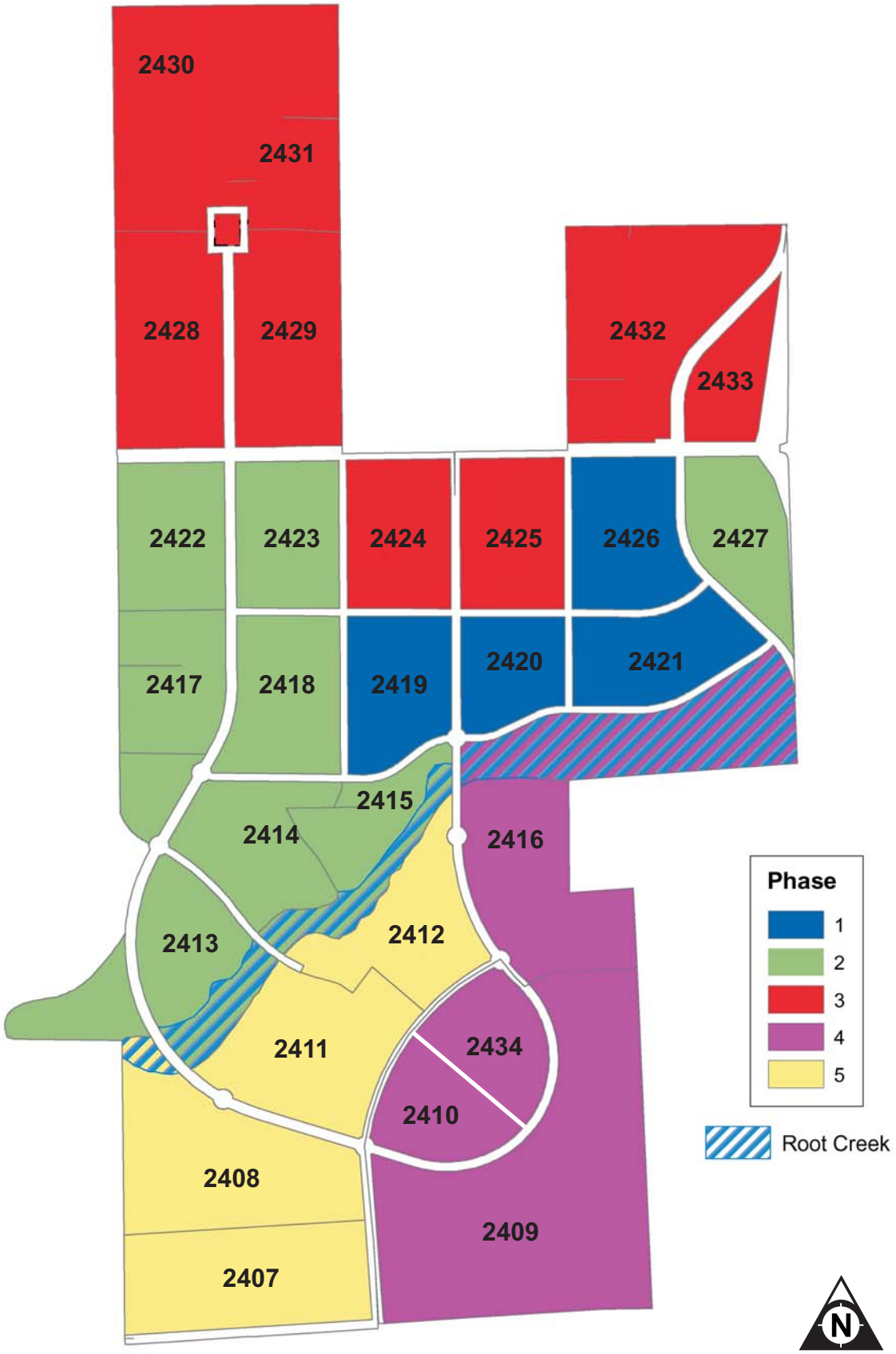
TPG Consulting Incorporated

LAND USE PLAN

Gateway Village
Madera County, CA

Figure 4

95-250.4



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TRAFFIC ANALYSIS ZONES

Gateway Village
Madera County, CA

Figure 5

95-250.4

TABLE 7:
GATEWAY VILLAGE SOCIOECONOMIC DATA

Traffic Analysis Zone	Housing[1]		Employment[2]					
	SF	MF	Retail	Office	Ind	Other	Govt	Edu
2407				3,684				
2408	167							
2409	284		217					
2410	61							
2411	135							34
2412	113							
2413	193							
2414	159							
2415	252							
2416	119						5	
2417	295							
2418	256							
2419	214							
2420	152							
2421	153							33
2422	231							
2423	224							
2424	99		456	462			13	
2425	140	309						
2426	243							
2427		300				1,357		
2428	284	339	79					
2429	286	329	79				5	
2430	484							33
2431 (Park)								
2432	373	323						
2433						1,117		
2434	61							
Total	**4,978**	**1,600**	**831**	**4,146**	**0**	**2,474**	**23**	**100**

[1] =number of dwelling units *[2] =number of employees* *SF = single-family dwelling units*
MF = multi-family dwelling units *Ind = Industrial* *Govt = Government*
Edu = Education

Neo-Traditional Neighborhood Concept

The Gateway Village project is being designed as a neo-traditional neighborhood development. Neo-traditional neighborhood designs "attempt to create a living environment in which the needs of everyday life can be achieved with less reliance on auto use. Their structure makes walking more convenient than is usually the case in most recent suburban developments. In concept walking and bicycle trips replace some vehicle travel and provide access to employment, recreation, shopping and services." To reflect the neo-traditional concept, the Gateway Village model generated trips were reduced by 5% prior to final assignment.

Project Trip Distribution

Trip distribution for the Project trips was based on Model generated trip distribution data.[3] Basically the Model determines the locations of jobs or service opportunities that the Project home owners are likely to travel to and from the Project as well as the locations of workers or consumers likely to access the Project site. The Model then estimates the roadways that these home owners, workers or consumers would likely use to travel to the site, and calculates the number of Model generated vehicle trips projected to occur on each roadway. Per *Traffic Access and Impact Studies for Site Development*, use of a Model is one of the most commonly accepted methods for estimating trip distribution[4]. Figures 6 and 7 show the 2013 Project segment and intersection assignments. Figures 8 and 9 show the 2025 Project segment and intersection assignments.

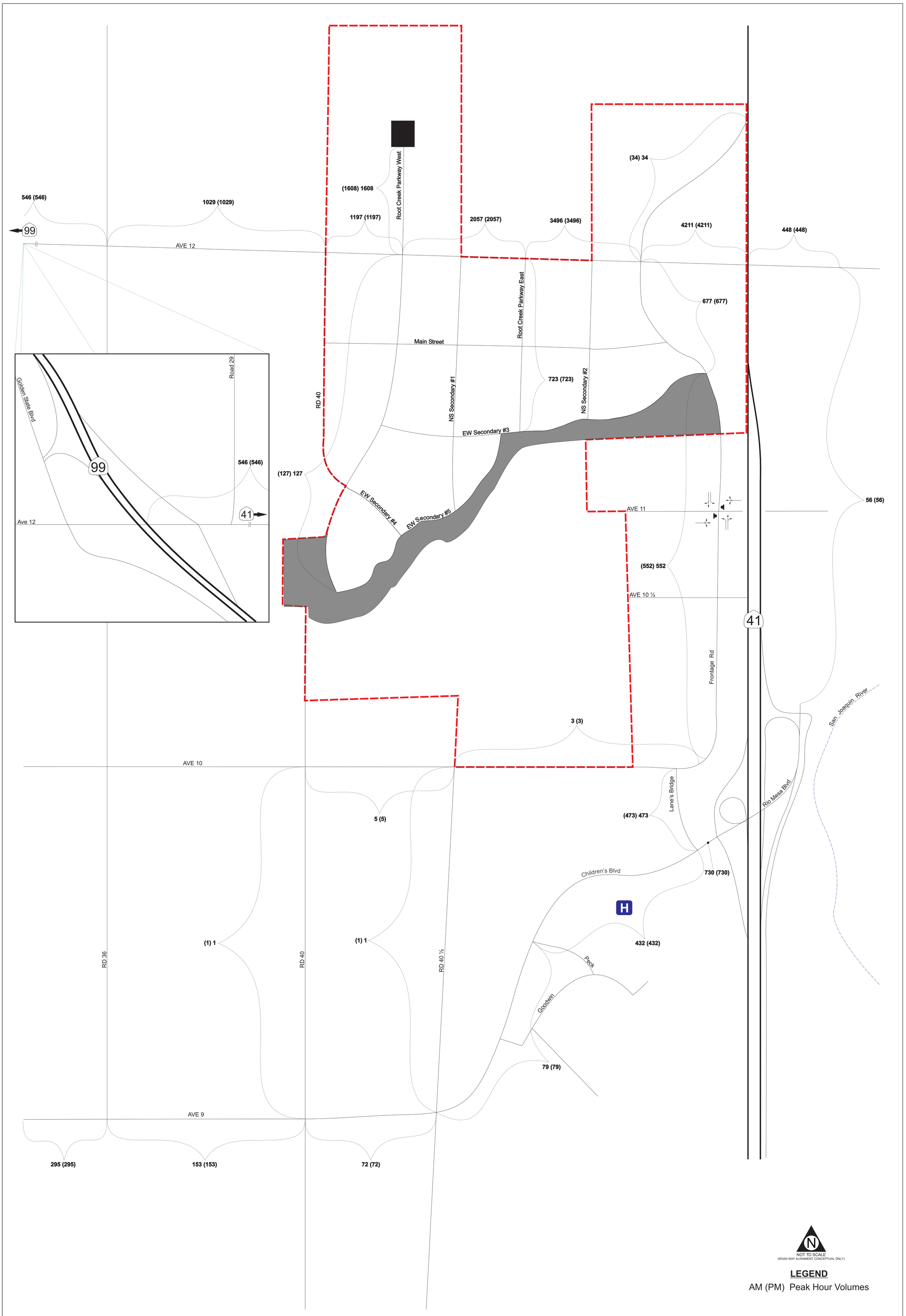
Intersection Analysis and Volume Adjustments

Intersection heavy vehicle percentages were developed from the Existing conditions count data. A minimum default of 2% trucks was used on all intersections. These percentages were used in all study scenarios. A peak hour factor of 0.92 as provided in the *HCM 2000* was used in all intersection analyses.[5] Peak hour intersection volumes were adjusted, or balanced, to show a "smooth" progression of traffic volumes along the corridors of Childrens Boulevard from Peck Boulevard to SR 41 NB ramps/Rio Mesa Boulevard and Avenue 12 from Road 40 to SR 41.

For analysis purposes, it was assumed that Childrens Boulevard is an east-west roadway with any side streets being north-south roadways.

For unsignalized, AWSC and two-way stop-controlled (TWSC), level of service analysis, some study intersections exceeded the number of lane movements allowed in the *HCS+* software. Therefore the unsignalized analyses shown in this document should be representative of a worst case condition since the actual intersection capacity is not taken into account.

[3] Project trip distribution was based on a MCTC Model select zone analysis prepared as part of a full incremental run with the congested speed network for 2025.
[4] *Traffic Access and Impact Studies for Site Development*, A Recommended Practice, ITE, Transportation Planners Council Task Force on Traffic Access/Impact Studies, 1991, page 27.
[5] *HCM 2000*, Exhibit 9-2, page 9-9.



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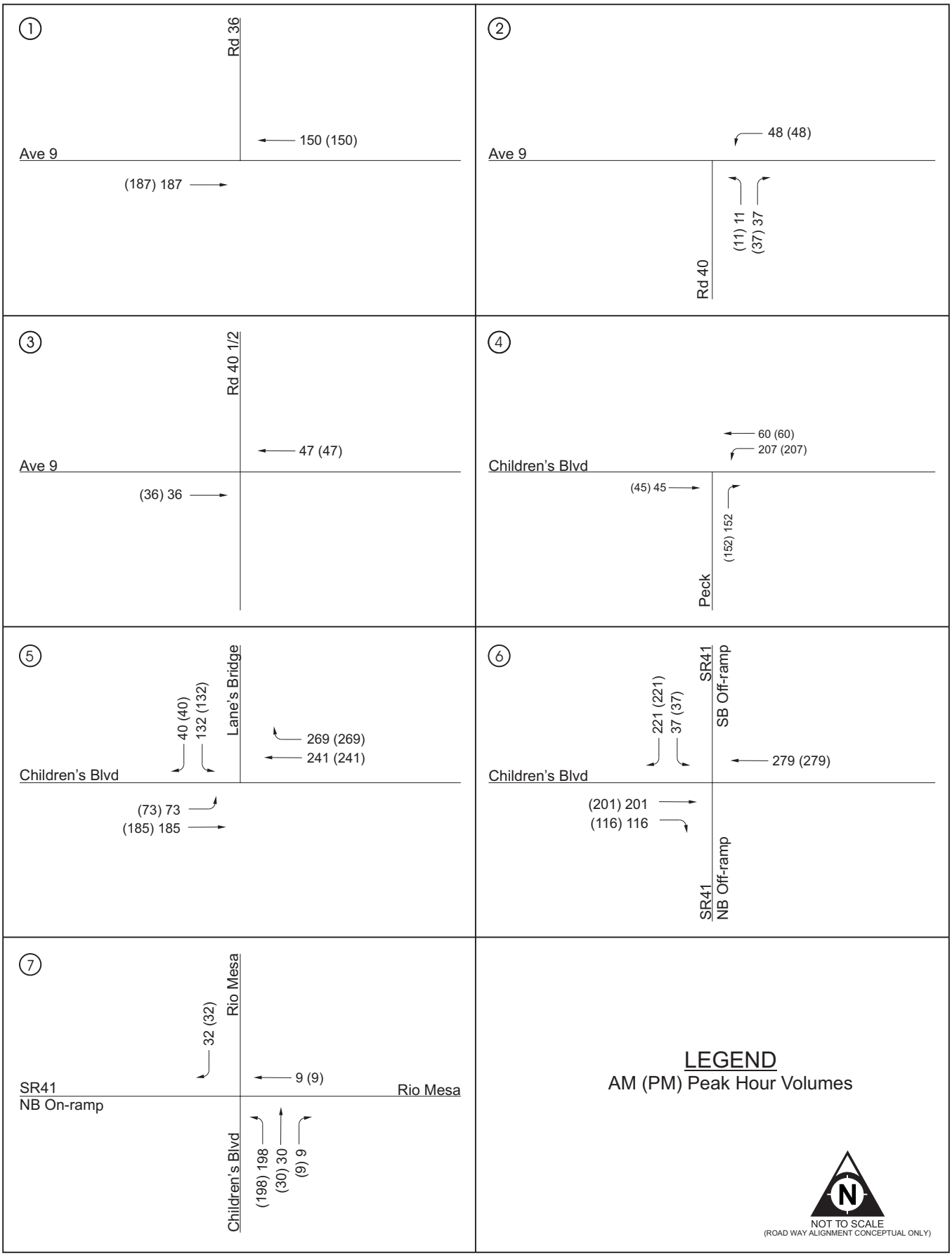
SEGMENT VOLUMES

2013 Project Trips

Gateway Village
Madera County

Figure 6

95-250.4



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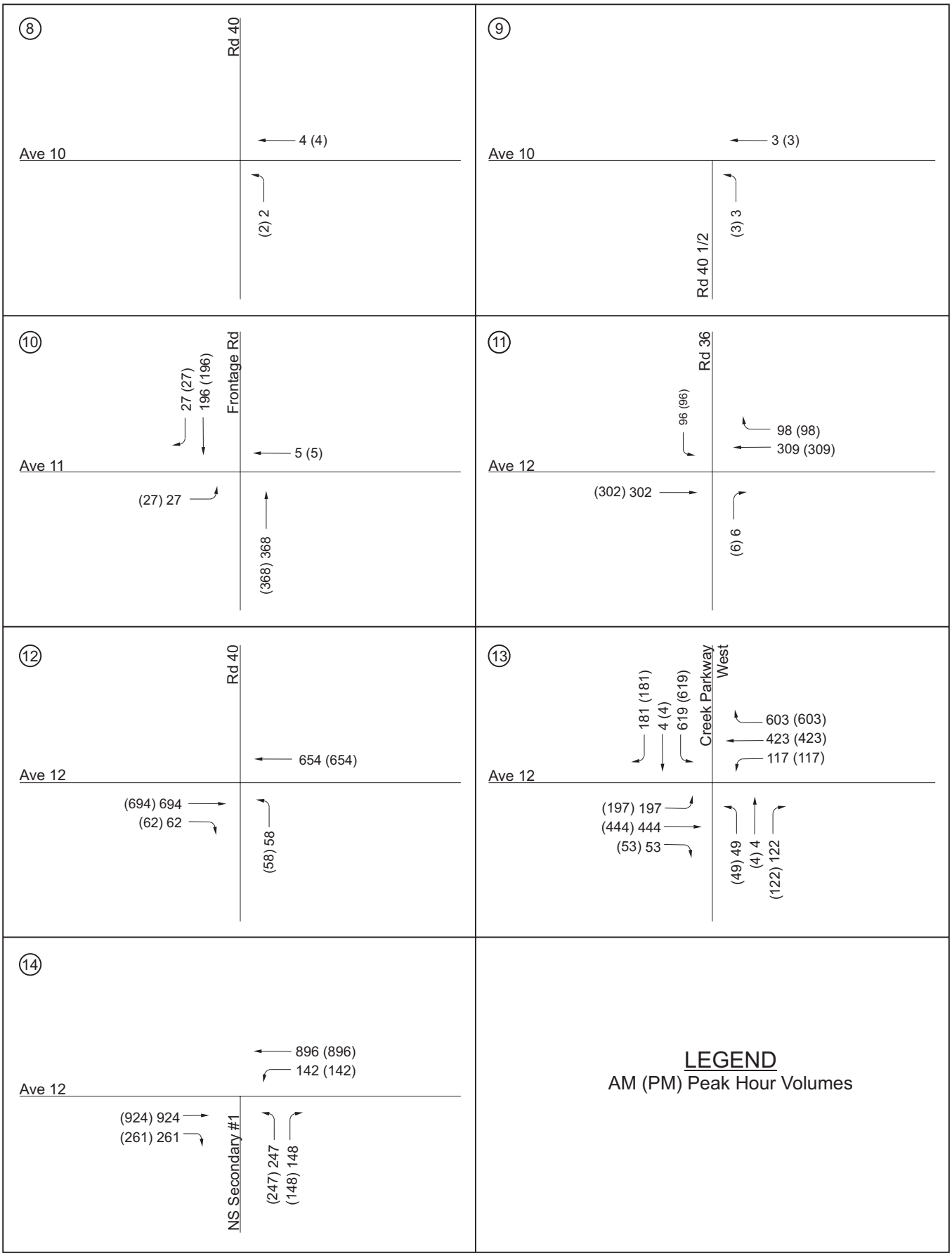
INTERSECTION VOLUMES
2013 Project Trips

Gateway Village
Madera County

Figure 7A

95-250.4



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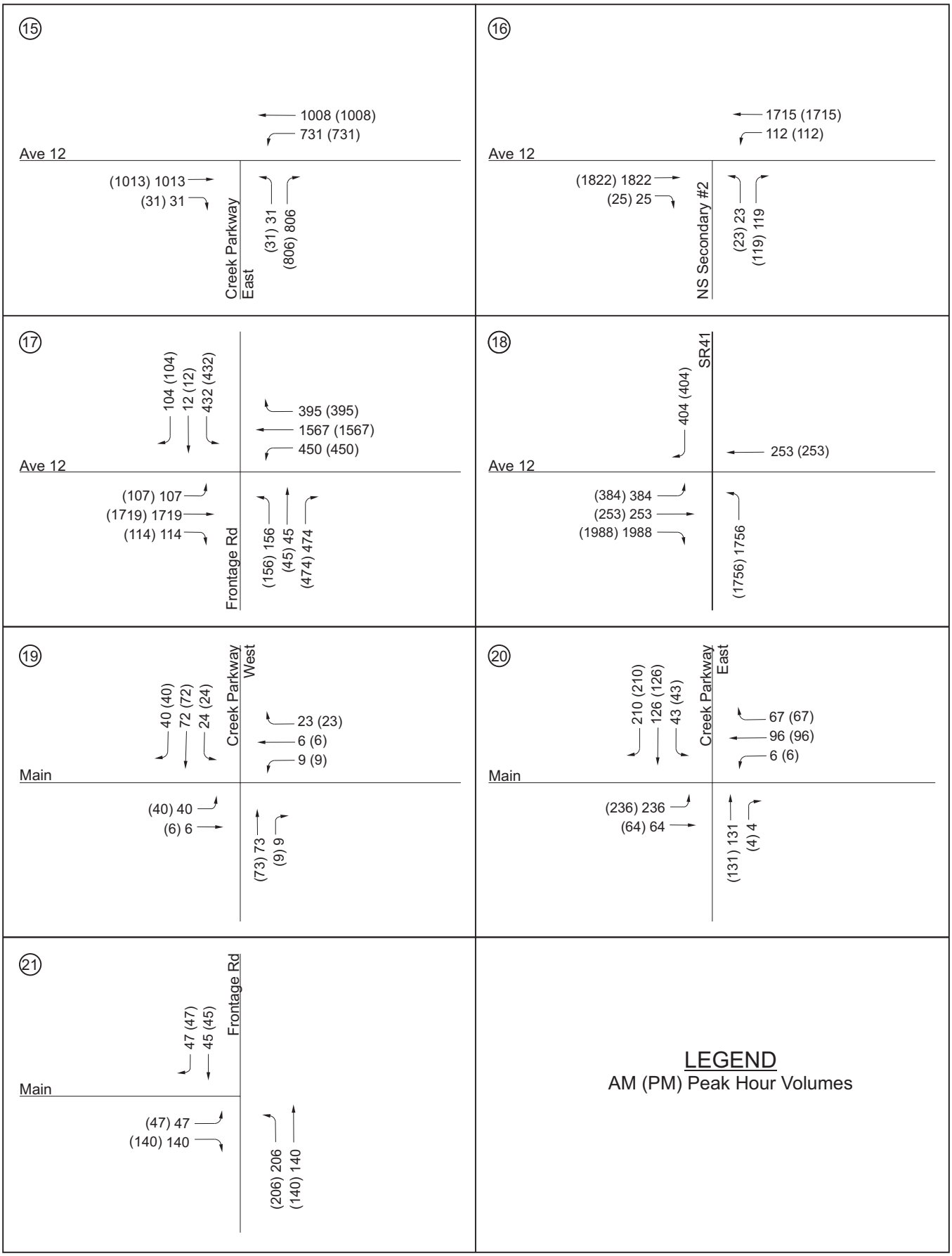
INTERSECTION VOLUMES
2013 Project Trips

Gateway Village
Madera County

Figure 7B

95-250.4



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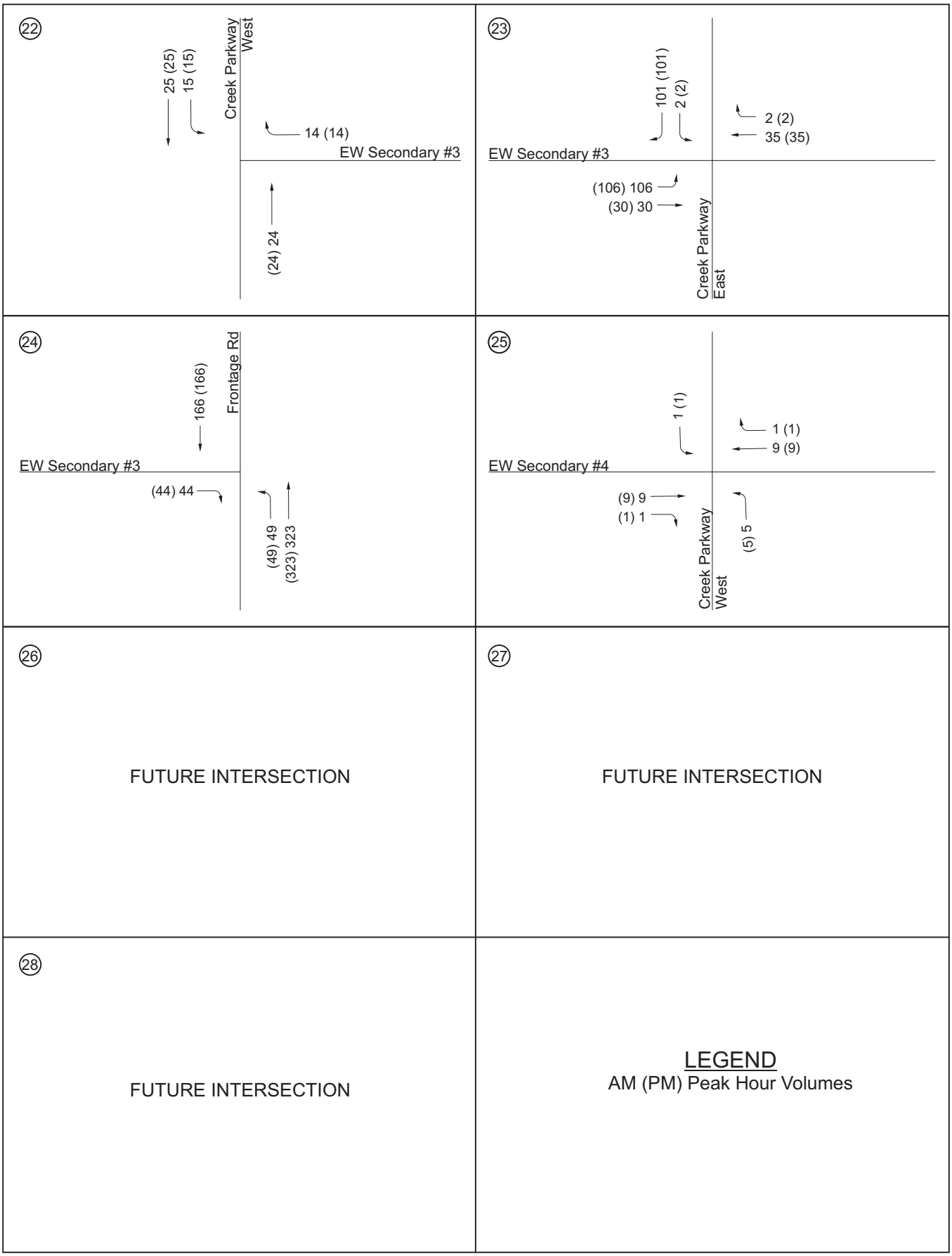
INTERSECTION VOLUMES
2013 Project Trips

Gateway Village
Madera County

Figure 7C

95-250.4



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INTERSECTION VOLUMES

2013 Project Trips

Gateway Village
Madera County

Figure 7D

95-250.4

29

FUTURE INTERSECTION

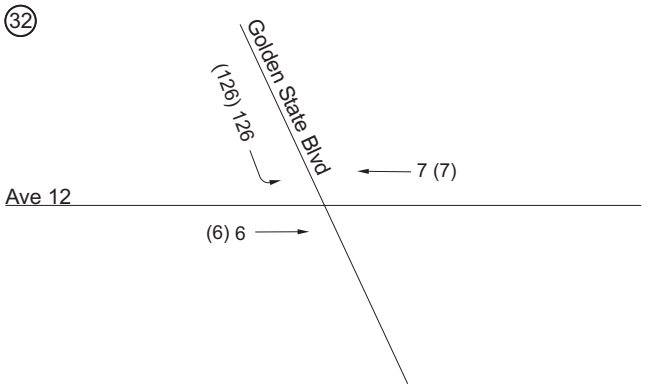
30

FUTURE INTERSECTION

31

FUTURE INTERSECTION

32



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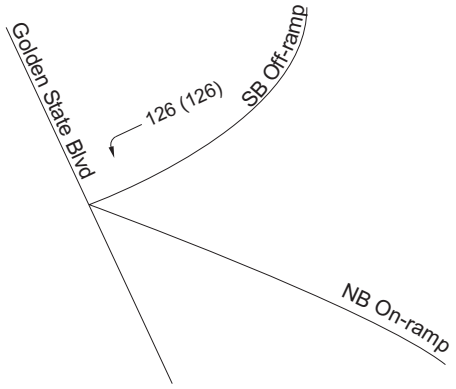

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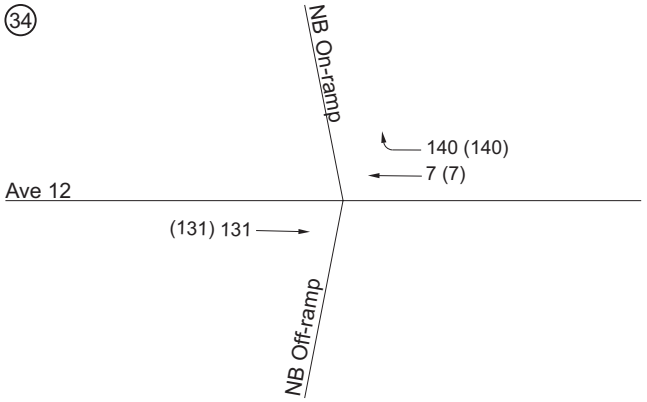

LEGEND

AM (PM) Peak Hour Volumes

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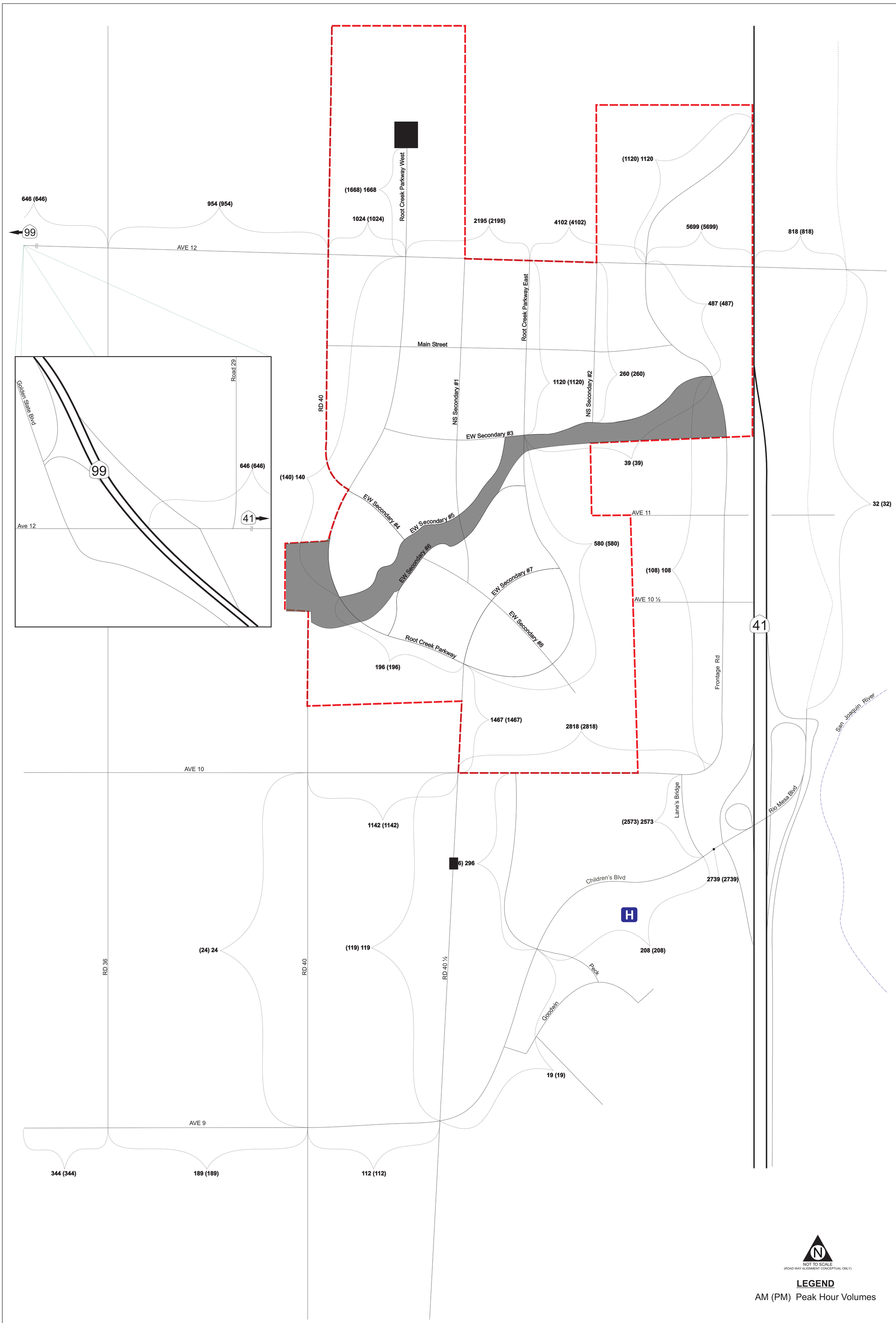
INTERSECTION VOLUMES

2013 Project Trips

Gateway Village
Madera County

Figure 7E

95-250.4



NOT TO SCALE
(ROAD WAY ALIGNMENT CONCEPTUAL ONLY)

LEGEND

AM (PM) Peak Hour Volumes

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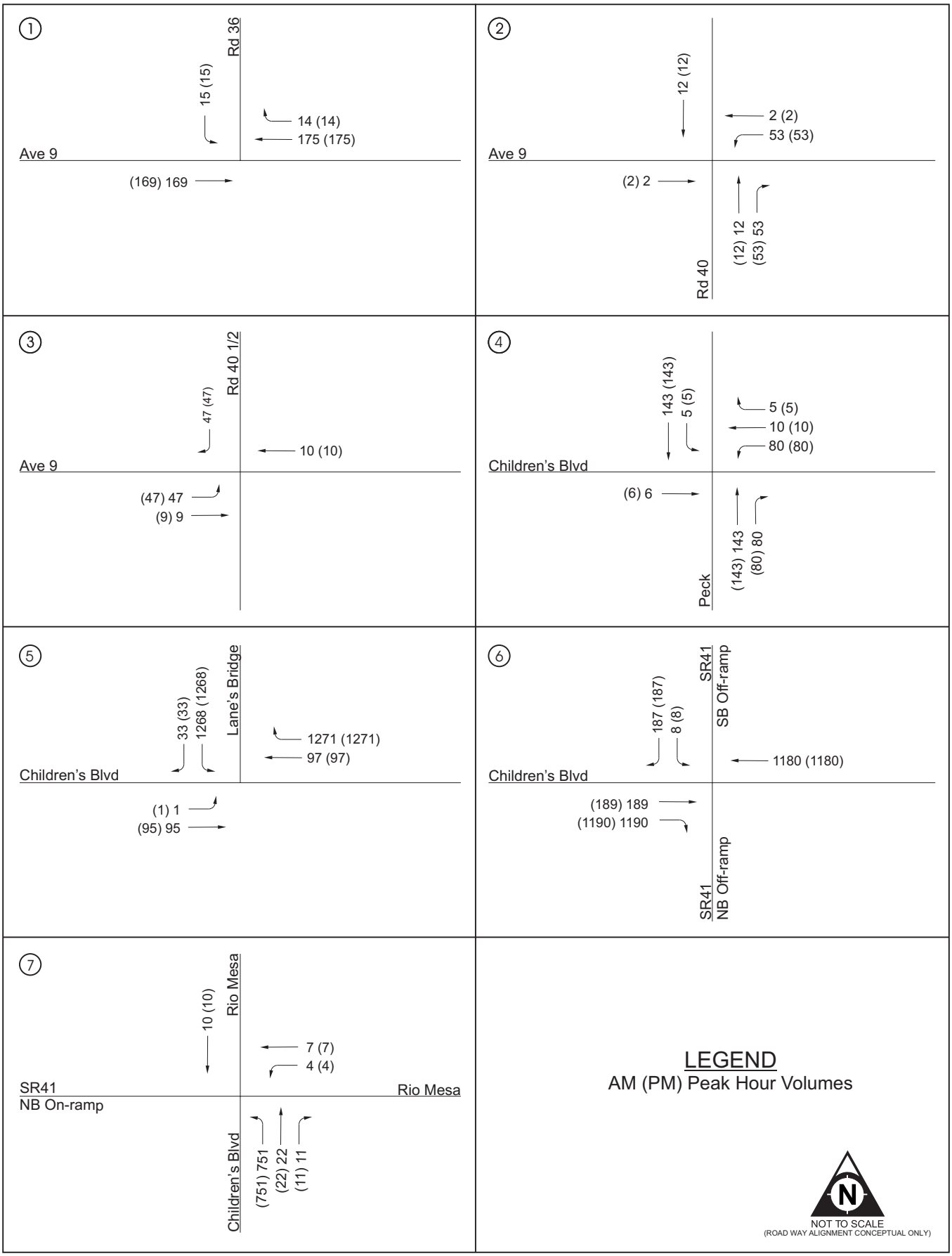
SEGMENT VOLUMES

2025 Project Trips

Gateway Village
Madera County

Figure 8

95-250.4



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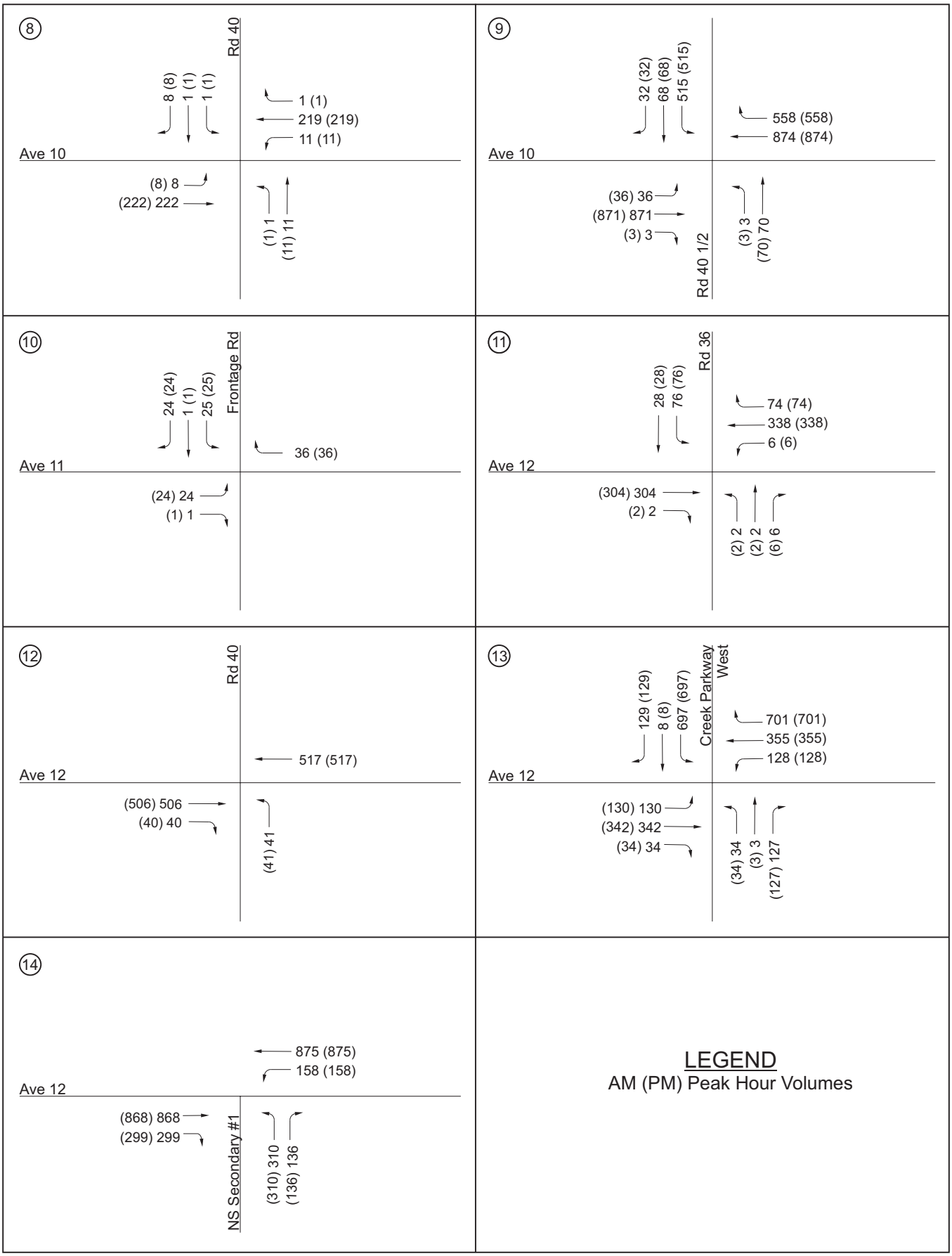
INTERSECTION VOLUMES

2025 Project Trips

Gateway Village
Madera County

Figure 9A

95-250.4



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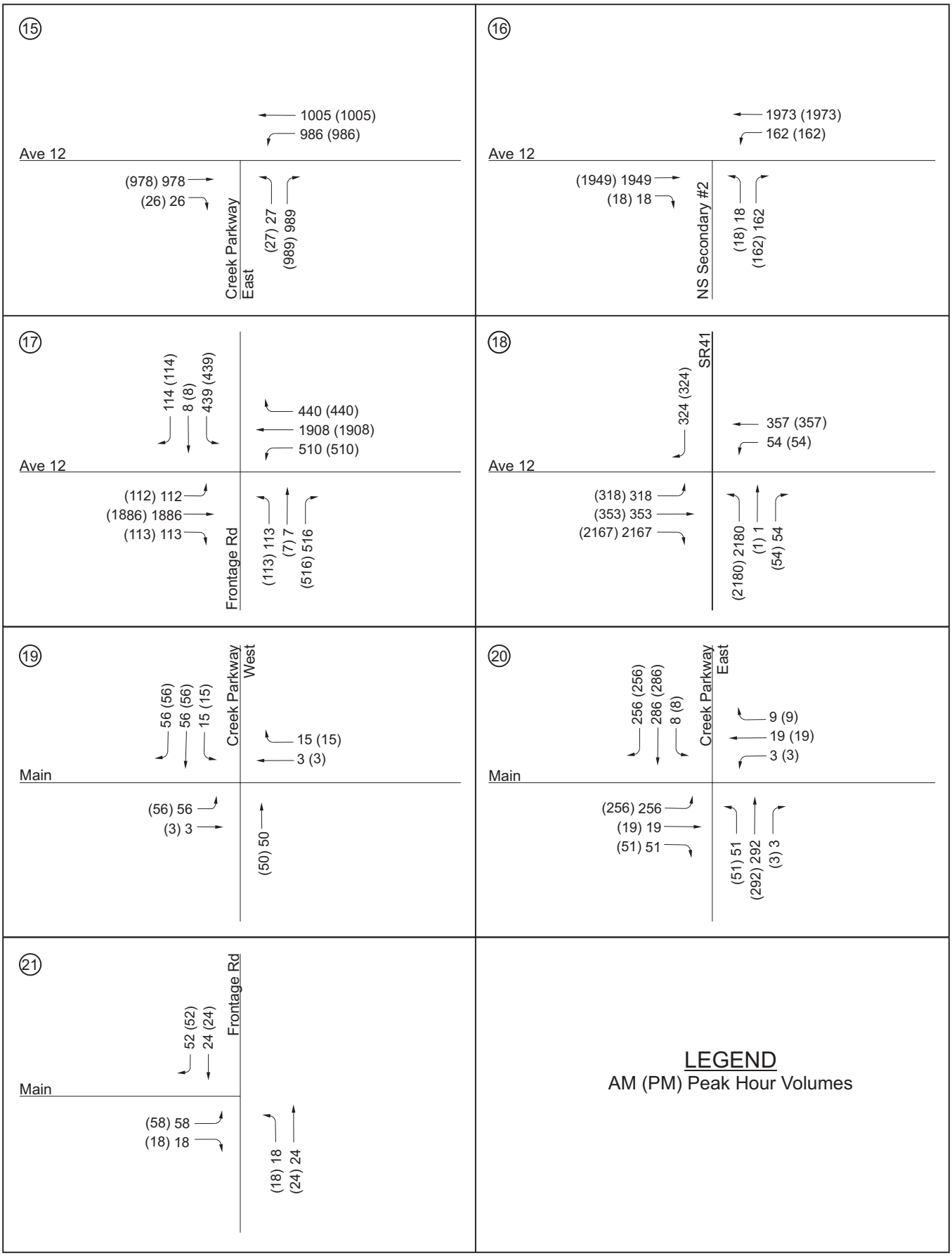
INTERSECTION VOLUMES

2025 Project Trips

Gateway Village
Madera County

Figure 9B

95-250.4



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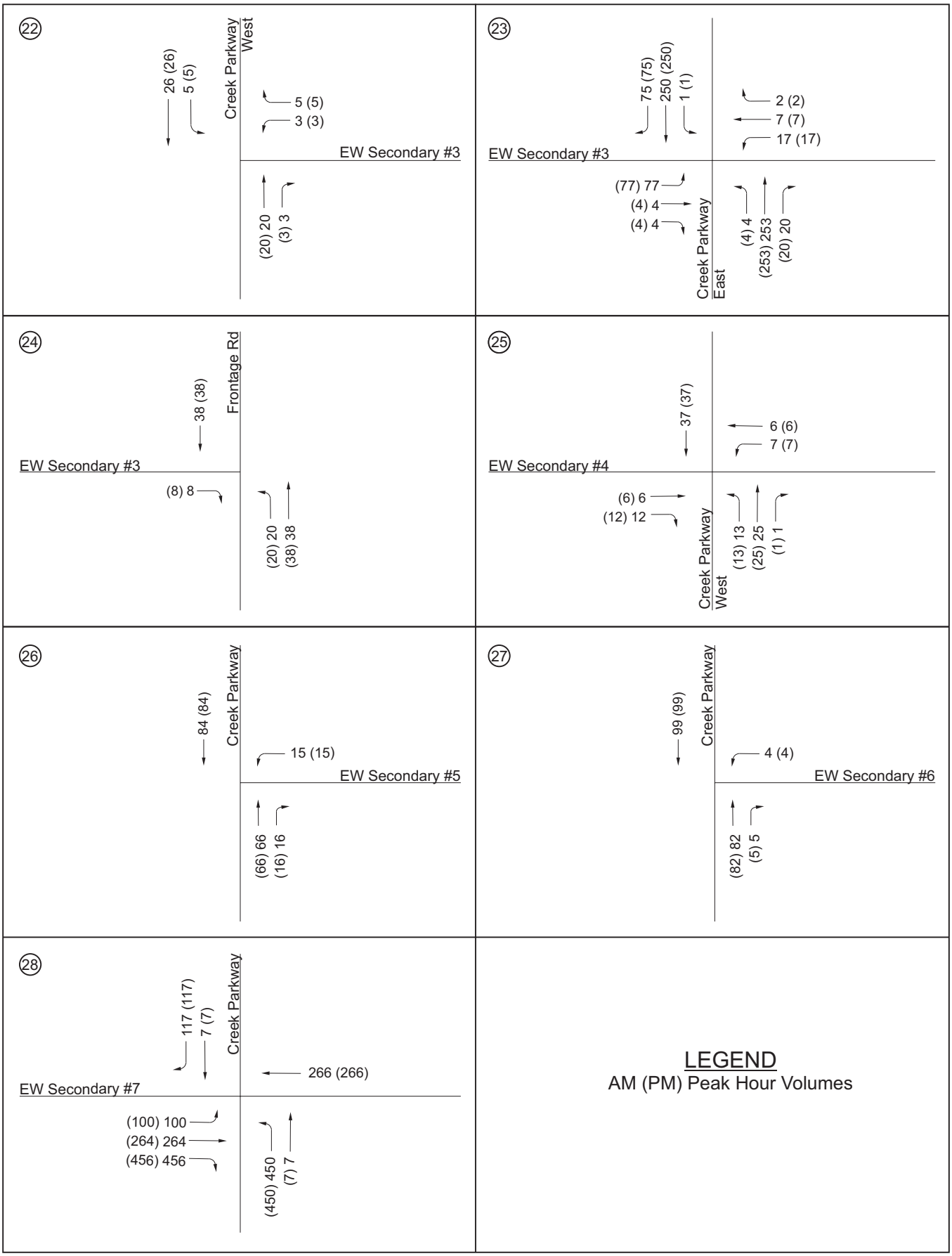
INTERSECTION VOLUMES

2025 Project Trips

Gateway Village
Madera County

Figure 9C

95-250.4



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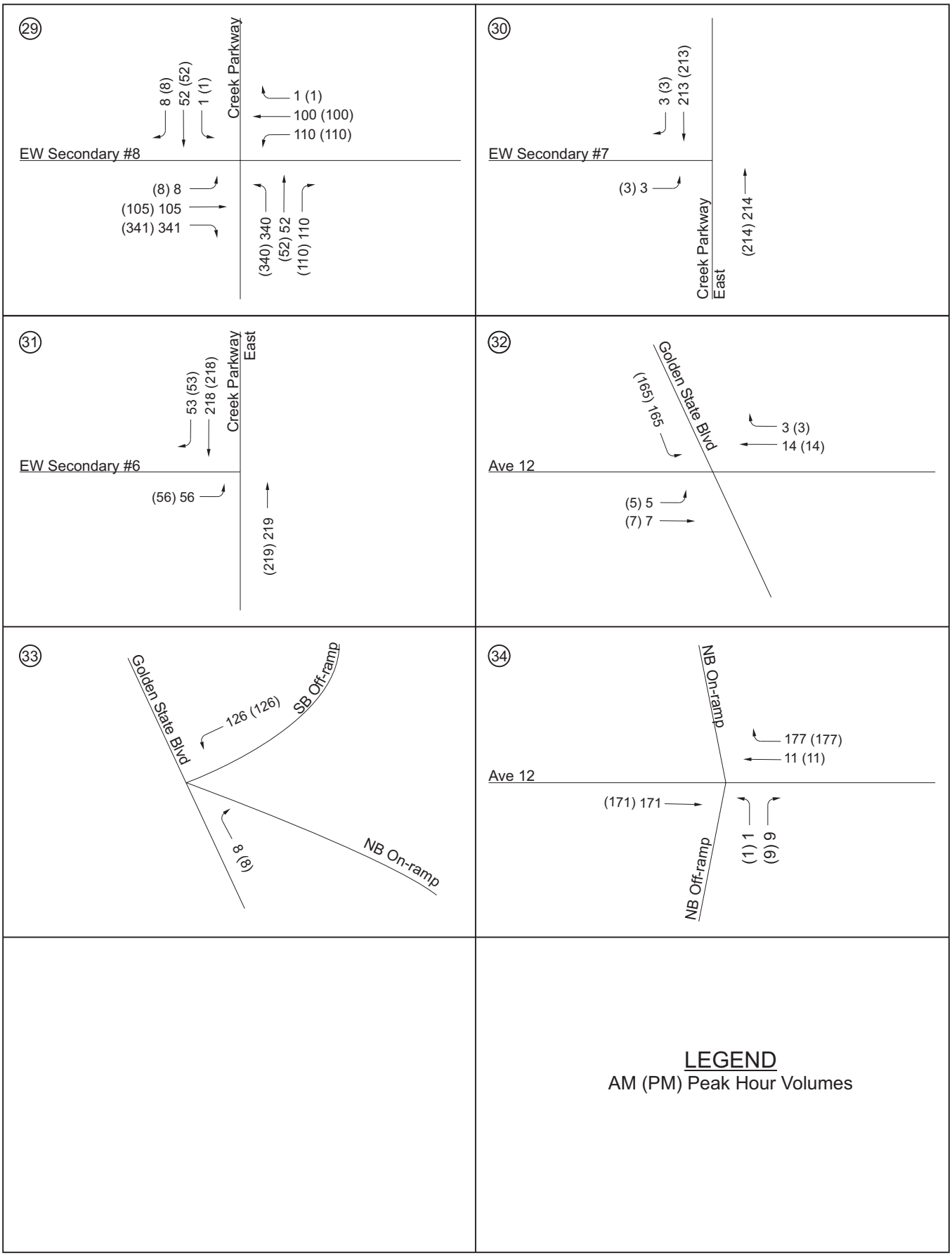
INTERSECTION VOLUMES
2025 Project Trips

Gateway Village
Madera County

Figure 9D

95-250.4



TPG Consulting Incorporated

INTERSECTION VOLUMES
2025 Project Trips

Gateway Village
Madera County

Figure 9E

95-250.4

All signalized intersections analyzed in the Existing conditions scenario were treated as actuated-uncoordinated. All future signalized intersections were analyzed as actuated. Actuated signals use vehicle detectors and an actuated controller unit to assign the right of way based on changing traffic demand. Signalized intersections along Avenue 12 from Road 40 to SR 41 and along Childrens Boulevard from Peck Boulevard to Rio Mesa/SR 41 NB ramps were analyzed as actuated-coordinated for the 2013 Project and 2025 Project conditions scenario. The Avenue 12 at SR 41 intersection level of service analysis results were shown as both coordinated and uncoordinated for the 2013 Project conditions scenario. The reason that both the coordinated and uncoordinated results were provided is because all signals along Avenue 12 from Root Creek Parkway West to and including the SR 41 intersection should be coordinated due to the intersection spacing along the corridor. However due to the heavy biased turning movement volumes at the Avenue 12 and SR 41 intersection exceeding the capacity of the Avenue 12 and SR 41 intersection, inclusion of this intersection in the coordinated pattern causes other intersections along this corridor to become uncoordinated, or causes signal cycle lengths to exceed the 120 second cycle maximum, or requires unreasonable lane additions when the system is optimized. If the Avenue 12 at SR 41 intersection is shown as uncoordinated when the corridor is optimized then the remaining signals function as an optimized system without exceeding the 120 second maximum cycle length or requiring unreasonable lane additions. Coordination between the signals can either be based on pretimed coordination or hardwire coordination. For future scenarios, all signalized intersections were optimized to provide the best level of service and least amount of delay.

Left-turns at signalized intersections are currently either "permitted" or "protected" in the study area. Permitted lefts are left turns that are allowed to complete their turns at the same time that the opposing direction through and right-turn traffic is allowed to complete their movements. Protected lefts are left-turns that are only allowed to go during their "protected" phase of the signal, and the left-turns are not allowed to go at the same time as the opposing direction through and right-turn movements. All intersections with left-turn pockets that are "permitted" in the Existing conditions scenario were converted to "protected" lefts in the 2013 Project and 2025 Project conditions scenario.

For this study, if the unsignalized intersection was projected to operate below the adopted level of service standard or have movements or approaches that were projected to operate below the adopted level of service standard and it did not warrant a signal based on the rural or urban peak hour volume signal warrant, then modifications to the Existing lane configurations were tested to determine if the intersection could be mitigated.

Signal Warrant Analysis

Urban and rural peak hour volume warrants (Warrant 3) were prepared for all unsignalized intersections, as appropriate, based on the methodology presented in the *California Manual on Uniform Traffic Control Devices* (*MUTCD*) for Streets and Highways, pages 4C-4, 4C-5 and 4C-10. Urban signal warrants were prepared for all unsignalized study intersections except along Avenue 12 between Road 36 and SR 41 where rural signal warrants were used. According to the *Manual on Uniform Traffic Control Devices*, "the satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal." Therefore prior to making a final determination on installation of a proposed signal, a thorough engineering investigation, including collision history, should be conducted.

Roundabouts

Roundabouts are circular intersections designed to control traffic flow and speed without the use of stop signs or signals and have specific design features such as:

- Yield-At-Entry – entering vehicles must yield to those already in the circle
- Deflection – entering vehicles are generally deflected around the circle thereby reducing speed
- High Capacity – vehicles entering the intersection do not always have to stop
- Splitter Islands – provide refuge for pedestrians and direct entering vehicles around the circle

These features distinguish the modern roundabout from older traffic circles or rotaries.

Traffic circles typically have some or all of the following characteristics, which can lead to low capacity, high accident conditions:

- No control or stop control on one or more entries
- Circulating traffic to yield to entering traffic
- Pedestrian access to center island
- Parking within the circulatory roadway
- Left-turning vehicles may be allowed to pass to the left of the central island

"Rotaries are typically old-style circular intersections common to the United States prior to the 1960s. Rotaries are characterized by a large diameter, often in excess of 300 feet. This large diameter typically results in travel speeds with the circulatory roadway that exceed 30 mph. They typically provide little or no horizontal deflection or the paths of through traffic and may even operate according to the traditional "yield-to-the-right" rule, i.e. circulating traffic yields to entering traffic."[6]

Roundabouts are generally viewed as safer than traditional intersections because they create slower speeds, fewer conflict points between vehicles and pedestrians, and reduced collision angles. A study of 24 intersections converted to roundabouts showed that collisions of all types were reduced by 39%; injury collisions were reduced by 76%; and fatal/incapacitating collisions were reduced by about 89%.[7] Roundabouts also provide for reduced delay since vehicles do not always have to stop, which can reduce noise, air pollution and fuel consumption.

There are basically six (6) types of roundabouts which are distinguished by the inscribed circle diameter (ICD) or size of the roundabout. These six (6) types and their characteristics are:

- Mini-Roundabouts – typically built in areas with restricted right-of-way and slow speed environments (speeds of 30 mph or less). The ICD is typically 45 to 95 feet.
- Urban Compact Roundabouts – typically built for local or residential streets with a maximum speed of 20 mph. The ICD is typically 100 to 120 feet.
- Urban Single-Lane Roundabouts – designed for higher volumes of traffic with a maximum speed of 25 mph and ICD of 110 to 150 feet.
- Urban Multi-Lane Roundabouts – designed for higher traffic volumes with a least one entry of two or more lanes. Maximum speeds are again 25 mph with ICDs ranging from 140 to 300 feet.
- Rural Single-Lane and Multi-Lane Roundabouts – designed for speeds up to 30 mph with larger ICDs and may not include pedestrian features when pedestrians are not expected.

Single lane roundabouts can typically handle traffic flows in the range of 500 to 2,000 vehicles per hour while multi-lane roundabouts can handle 1,000 to 5,000 vehicles per hour.

[6] *Roundabouts: An Informational Guide*, FHWA, June 2000, page 5.
[7] "Crash Reduction Following Installation of Roundabouts in the United States", Bhagwant N. Persaud, Richard A Retting, Per E. Garder, Dominique Lord, Insurance Institute For Highway Safety, March 2000.

Level of Service Analysis Methods

Segments were analyzed using the MCTC Capacity Table shown in Appendix B. Unsignalized intersection analyses were completed using *HCS+*, which is an industry standard for calculating unsignalized intersections. Roundabouts were analyzed using Rodel. Signalized intersection analyses were completed using *Synchro 6.0*, which also incorporates the *HCM 2000* methodologies. *Synchro 6.0* allows for optimization of signals to provide for the greatest reduction in overall intersection delay. This optimization process can result in different signal cycle lengths for both the AM and PM peak hours of a given scenario and across all scenarios. The changing of the signal cycle length somewhat reflects the agency process whereby the agency will adjust intersection signal cycle lengths for differing traffic conditions based on current count data.

Level of Service

For analysis purposes, the *HCM 2000* defines six levels of service for various facility types. The six levels are given letter designations ranging from "A" to "F", with "A" representing the best operating conditions and "F" the worst. Quantifiable measures of effectiveness that best describe the quality of operation on the subject facility type are used to determine the facilities level of service. For segments, the quantifiable measure of effectiveness is volume-to-capacity (v/c) or demand-to-capacity (d/c) measurements. For signalized and unsignalized intersections, including roundabouts, the quantifiable measure of effectiveness is average control delay.[8]

Segments

Street segment assessments for County roadways were completed using the Capacity Table developed by Korve Engineering for use with the MCTC Model. Levels of service for the segment v/c or d/c ratios developed in this study were derived from the level of service ranges used in the MCTC Model.

Intersections

For signalized intersections or roundabouts, "the average control delay per vehicle is estimated for each lane group and aggregated for each approach and for the intersections as a whole".[9] Level of service for the signalized intersection or roundabout is then based on the aggregated intersection delay. AWSC intersections, which have stop signs on all corners of the intersection and are considered unsignalized, function similarly to a signalized intersection in that control delay per vehicle is estimated for each lane group and aggregated for each approach and for the intersection as a whole. Level of service for the AWSC intersection is likewise based on the aggregated intersection delay. Control delay for TWSC intersections, which have stop signs on only the minor street approaches, is also per vehicle but is computed for the stop-controlled or minor street movements only since theoretically the through movements on the major street are not experiencing any delay. Since there is no aggregation of delay for a TWSC intersection, there is no intersection level of service as a whole, only levels of service for the individual minor movements. The minor movements generally consist of separate lefts on the major street approaches and all movements on both minor street approaches.

[8] Control delay, according to the *2000 Highway Capacity Manual*, page 16-1, includes initial acceleration delay, queue move-up time, stopped delay, and final acceleration delay.
[9] *2000 HCM*, page 16-2.

Table 8 shows the six levels of service and their corresponding ranges of average control delay for signalized/roundabout and unsignalized intersections. Table 8 also contains a brief traffic flow description for signalized intersections for each level of service category.

TABLE 8: INTERSECTION LEVEL OF SERVICE DESCRIPTION			**Intersections**	
			Signalized	**Unsignalized[1]**
Level of Service	**Conditions**	**Signalized Intersection Description**	**Delay (secs/veh)**	**Delay (secs/veh)**
"A"	Free Flow	*Users experience very low delay. Progression is favorable and most vehicles do not stop at all.*	≤ 10.0	≤ 10.0
"B"	Stable Operations	*Vehicles travel with good progression. Some vehicles stop, causing slight delay.*	> 10.0 to 20.0	> 10.0 to 15.0
"C"	Stable Operations	*Higher delays result from fair progression. A significant number of vehicles stop, although many continue to pass through the intersection without stopping.*	> 20.0 to 35.0	> 15.0 to 25.0
"D"	Approaching Unstable	*Congestion is noticeable. Progression is unfavorable, with more vehicles stopping rather than passing through the intersection.*	> 35.0 to 55.0	> 25.0 to 35.0
"E"	Unstable Operations	*Traffic volumes are at capacity. Users experience poor progression and long delays.*	> 55.0 to 80.0	> 35.0 to 50.0
"F"	Forced Flow	*Intersection's capacity is oversaturated, causing poor progression and unusually long delays.*	> 80.0	> 50.0

Source: 2000 Highway Capacity Manual, Transportation Research Board
[1] *Unsignalized intersections include TWSC and AWSC*

Level of Service Standards

The County of Madera has adopted a LOS "D" as their standard for traffic impact study purposes.

"Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than the appropriate target LOS, the existing measures of effectiveness should be maintained."

As such, all County controlled roadway segments and intersections will be evaluated against a LOS "D" policy and all Caltrans controlled intersections will be evaluated against their policy.

EXISTING TRAFFIC CONDITIONS

Transit

Two public transit programs serve the Project area. One program is operated by the Madera County Connection (MCC) and the other is operated by the Fresno Area Express (FAX).

The MCC Eastern Madera County – Madera Route operates a fixed route Monday through Friday (holidays excluded) from 6:00 AM to 8:00 PM. The Eastern Madera County – Madera Route includes North Fork, Bass Lake, Oakhurst, Coarsegold, Yosemite Lakes, Ranchos, and Children's Hospital Central California. No service is provided on dirt, gravel or non-maintained roads.

The FAX Valley Children's Hospital Express Route (Route 58E) operates a fixed route seven days a week. The route operates weekdays from 6:00 AM to 6:00 PM and weekends from 11:30 AM to 6:00 PM. The route operates on one (1) hour headways from Riverpark/Kaiser Hospital to Children's Hospital Central California.

Bike System

One bike lane currently exists on Road 36 north of Avenue 12. The bike lane is a Class II facility.

Roadways

Table 9 describes the Existing street system in the study area including the street classification, number of lanes, and the posted speed limits. The majority of the approximately 2,062 acre Project site is currently in agricultural production with some industrial and commercial uses.

TABLE 9:
DESCRIPTION OF EXISTING STREET SYSTEM

Street	Classification	No. of Lanes (2-dir)	Posted Speed Limit (mph)
SR 41	Highway	2-4	55/65
SR 99	Highway	4	65
Road 36	County Road	2-4	25/45
Road 40	Arterial	2	30/45
Road 40 ½	Arterial	2	NPS
SR 41 West Frontage Road	Collector	2	NPS
Peck Boulevard	Collector	4	NPS
Lanes Bridge Drive	County Road	4	NPS
Avenue 9	County Road	2	55
Avenue 10	Arterial	2	NPS
Avenue 11	Arterial	2	25
Avenue 12	Arterial/County Road	2	35/55
Childrens Boulevard	County Road	2-6	45
Golden State Boulevard	County Road	2	NPS

mph = miles per hour *SR = State Route* *NPS = no posted speed limit*

Table 10 lists the existing study intersections and their associated intersection control.

TABLE 10:
EXISTING INTERSECTION CONTROL

Intersection	Signalized/Unsignalized	Type
Avenue 9 at Road 36	Unsignalized	TWSC
Avenue 9 at Road 40	Unsignalized	TWSC
Avenue 9 at Road 40 ½	Unsignalized	TWSC
Childrens Boulevard at Peck Boulevard	Unsignalized	TWSC
Childrens Boulevard at Lanes Bridge Drive	Unsignalized	TWSC
Childrens Boulevard at SR 41 SB ramps	Signalized	AU
Rio Mesa Boulevard at SR 41 NB ramps	Signalized	AU
Avenue 10 at Road 40	Unsignalized	TWSC
Avenue 10 at Road 40 ½	Unsignalized	TWSC
Avenue 11 at SR 41 West Frontage Road	Unsignalized	TWSC
Avenue 12 at Road 36	Unsignalized	AWSC
Avenue 12 at Road 40	Unsignalized	TWSC
Avenue 12 at SR 41 West Frontage Road	Unsignalized	TWSC
Avenue 12 at SR 41	Signalized	AU
Avenue 12 at Golden State Boulevard	Unsignalized	TWSC
SR 99 SB ramps at Golden State Boulevard	Unsignalized	TWSC
Avenue 12 at SR 99 NB ramps	Unsignalized	TWSC

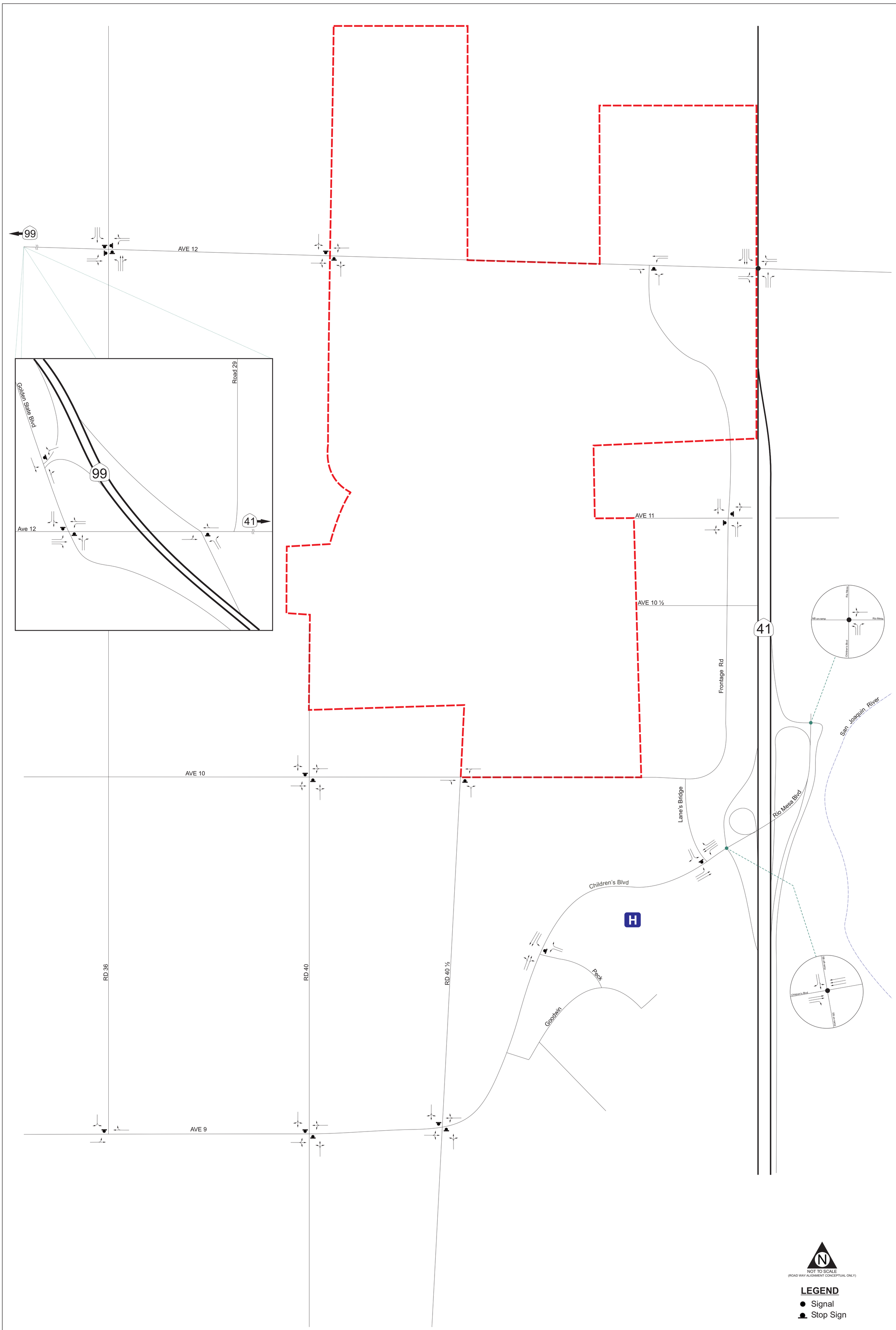
TWCS = two-way stop-controlled *AU = actuated uncoordinated*
AWSC = all-way stop-controlled *SB = southbound* *NB = northbound*

Existing Analyses

The Existing intersection lane configurations and intersection controls are shown on Figure 10. The Existing segment peak hour traffic volumes are shown on Figure 11 and the Existing intersection peak hour traffic volumes are shown on Figure 12. Using the lane configurations shown on Figure 10 and the volumes shown on Figures 11 and 12, the segments and intersections were analyzed for Existing levels of service. Figure 13 and Tables 11 and 12 show the Existing levels of service for the study segments and intersections. The TWSC levels of service shown on Figure 13 are the levels of service for the worst operating movement at that intersection. The signalized and AWSC intersection levels of service shown in Figure 13 and Table 12 are representative of the whole intersection. Individual intersection movements or approaches may operate above or below the signalized and AWSC level of service or delay shown in Figure 13 and Table 12. The Existing intersection levels of service calculations are included in Appendix C.

Segment Analysis

Table 11 shows the Existing conditions segment levels of service.



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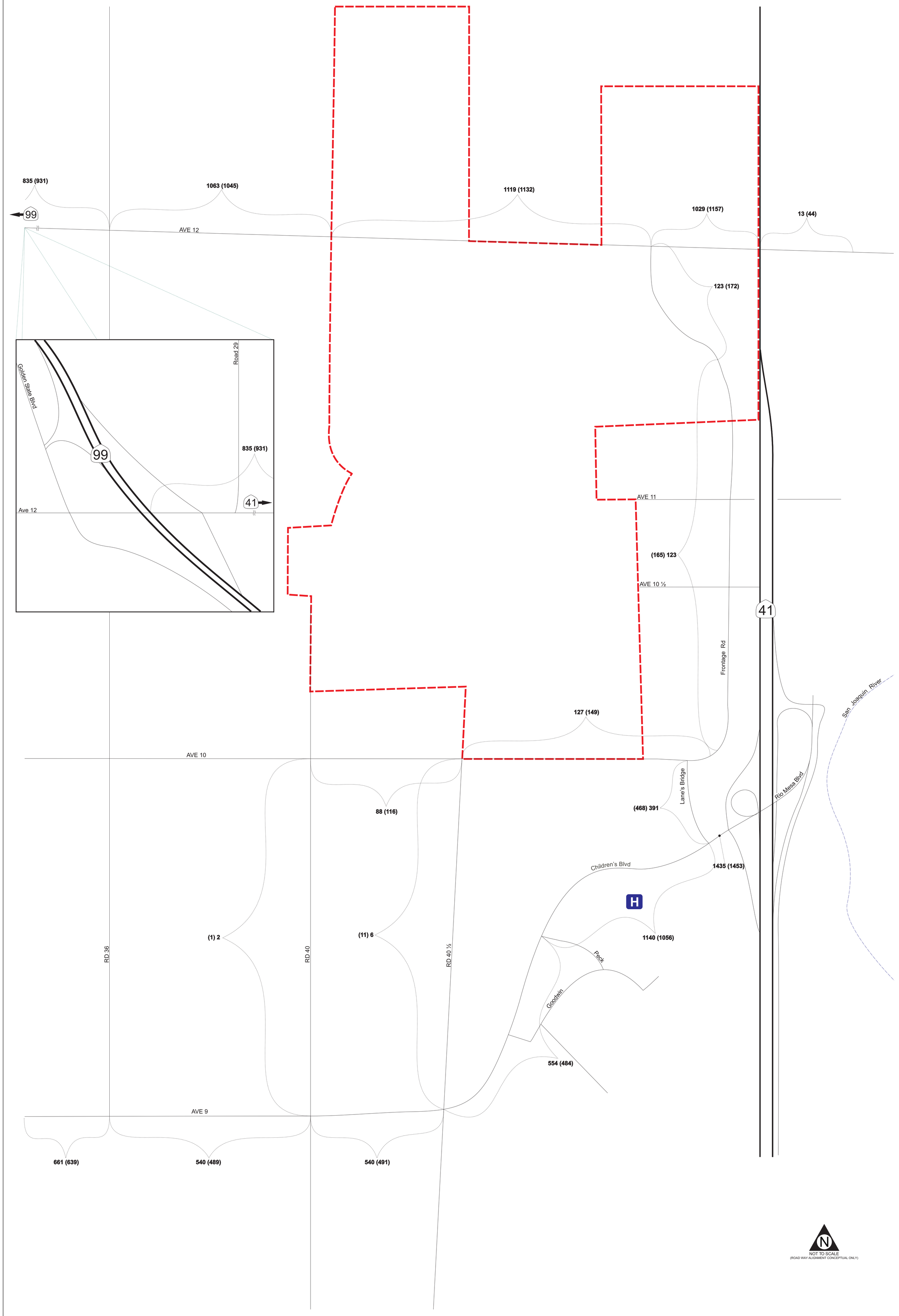
LANE CONFIGURATION AND INTERSECTION CONTROL

Existing

Gateway Village
Madera County

Figure 10

95-250.4



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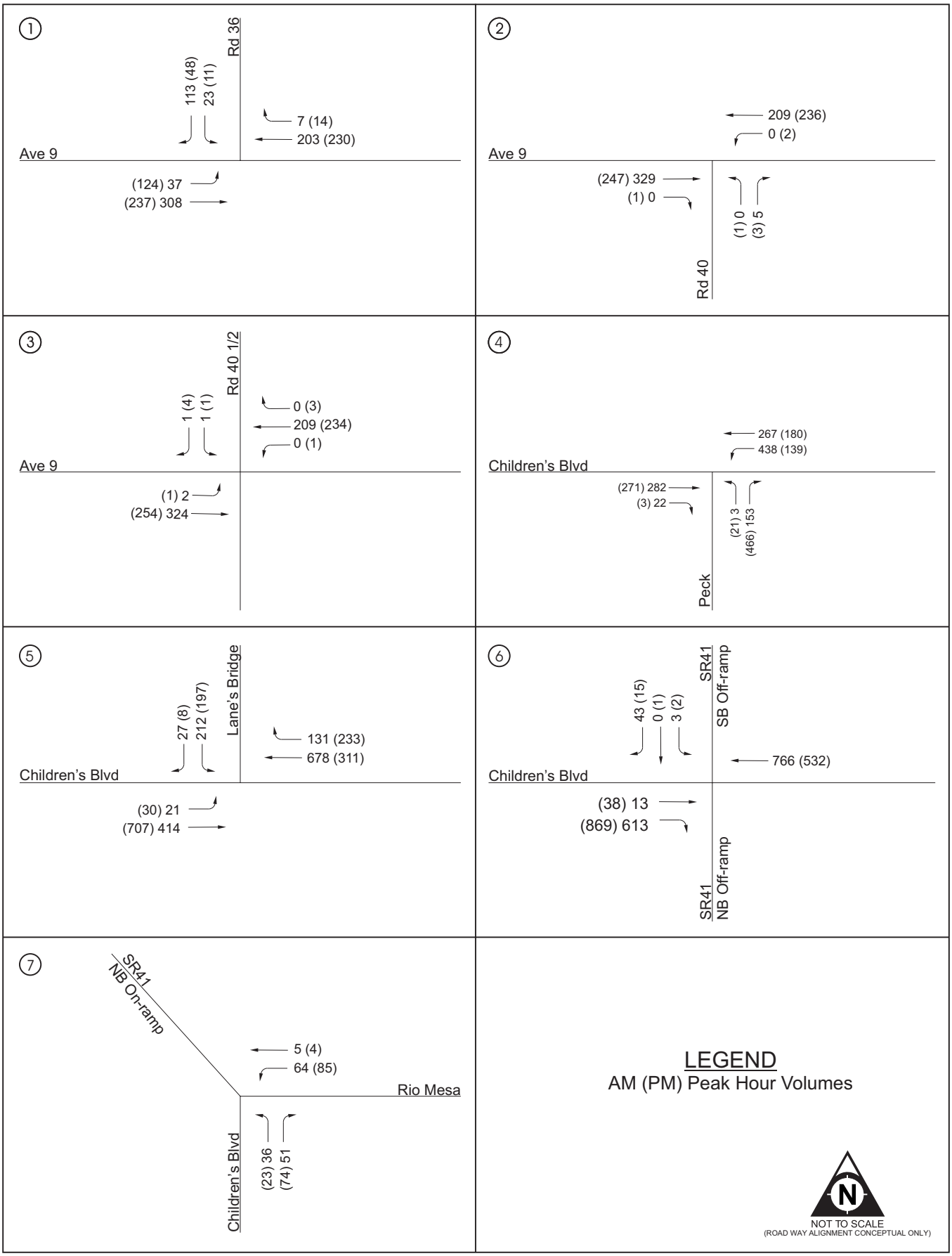
SEGMENT VOLUMES

Existing

Gateway Village
Madera County

Figure 11

95-250.4



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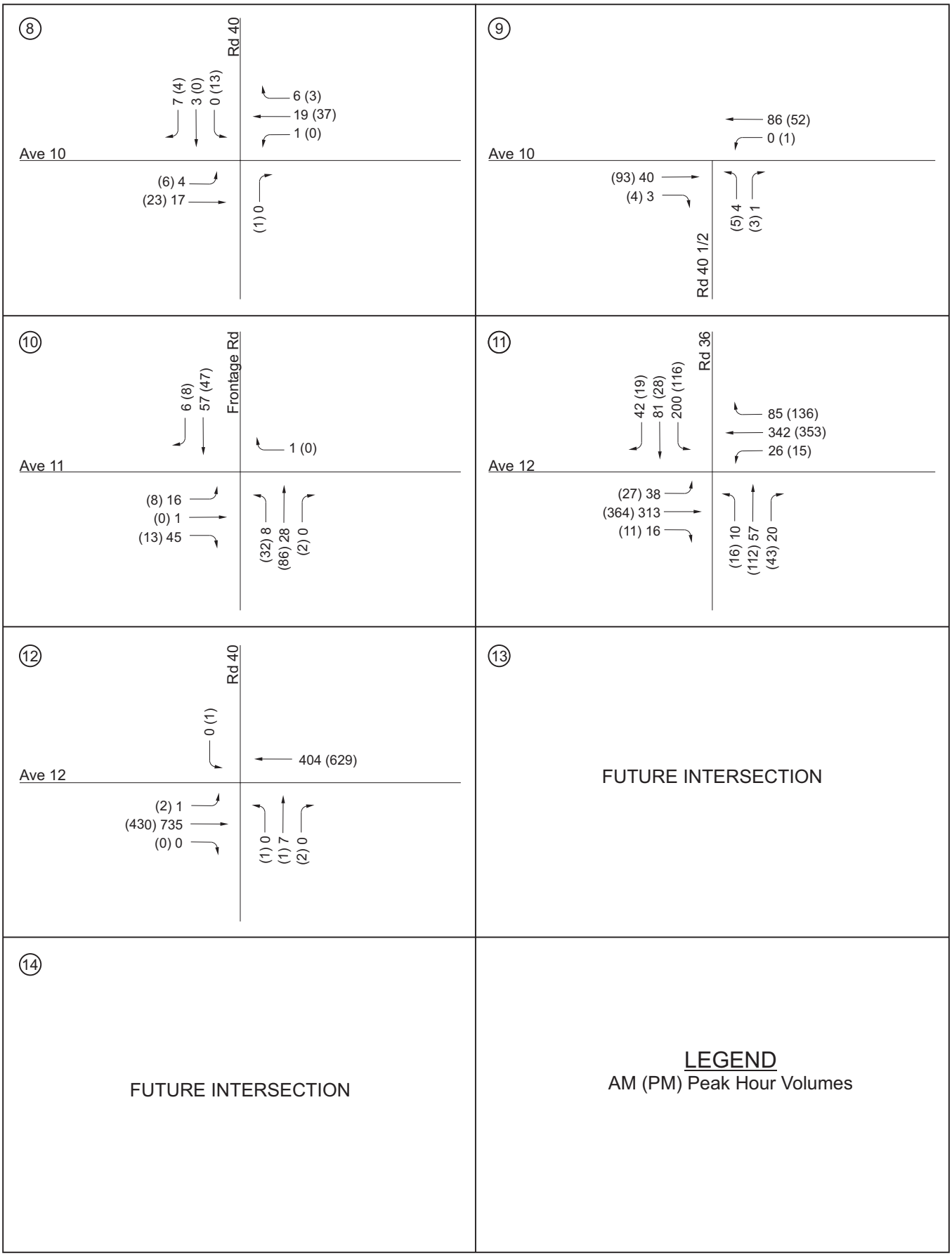
INTERSECTION VOLUMES
Existing

Gateway Village
Madera County

Figure 12A

95-250.4



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INTERSECTION VOLUMES
Existing

Gateway Village
Madera County

Figure 12B

95-250.4

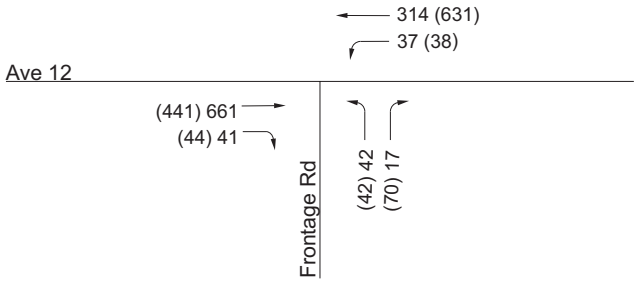
15

FUTURE INTERSECTION

16

FUTURE INTERSECTION

17



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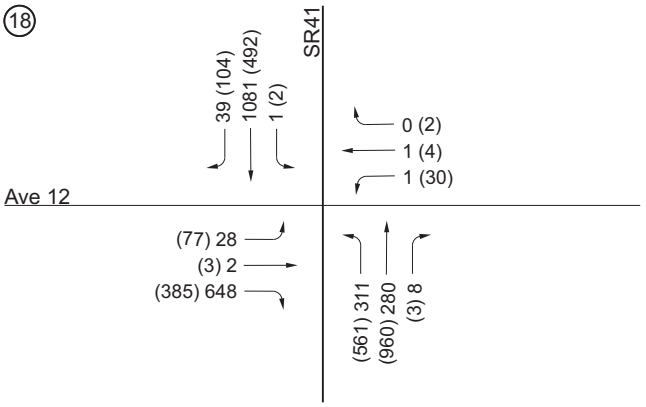


19

FUTURE INTERSECTION

20

FUTURE INTERSECTION

21

FUTURE INTERSECTION

LEGEND

AM (PM) Peak Hour Volumes

TPG Consulting Incorporated

INTERSECTION VOLUMES

Existing

Gateway Village
Madera County

Figure 12C

95-250.4

(22) FUTURE INTERSECTION	(23) FUTURE INTERSECTION
(24) FUTURE INTERSECTION	(25) FUTURE INTERSECTION
(26) FUTURE INTERSECTION	(27) FUTURE INTERSECTION
(28) FUTURE INTERSECTION	LEGEND AM (PM) Peak Hour Volumes

TPG Consulting Incorporated

INTERSECTION VOLUMES
Existing

Gateway Village
Madera County

Figure 12D

95-250.4

29

FUTURE INTERSECTION

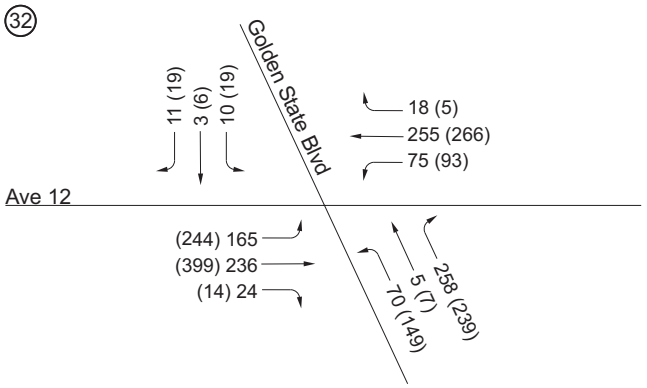
30

FUTURE INTERSECTION

31

FUTURE INTERSECTION

32



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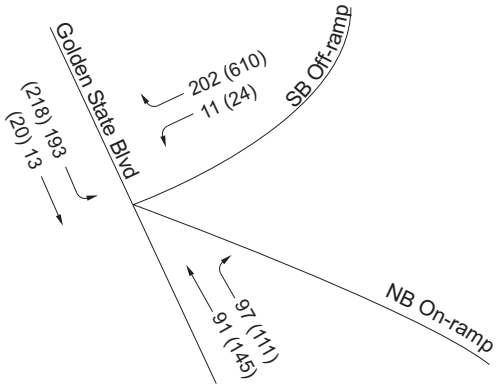

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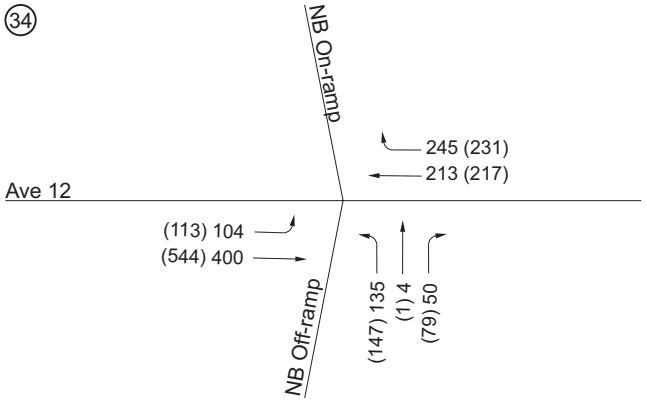


LEGEND

AM (PM) Peak Hour Volumes

TPG Consulting Incorporated

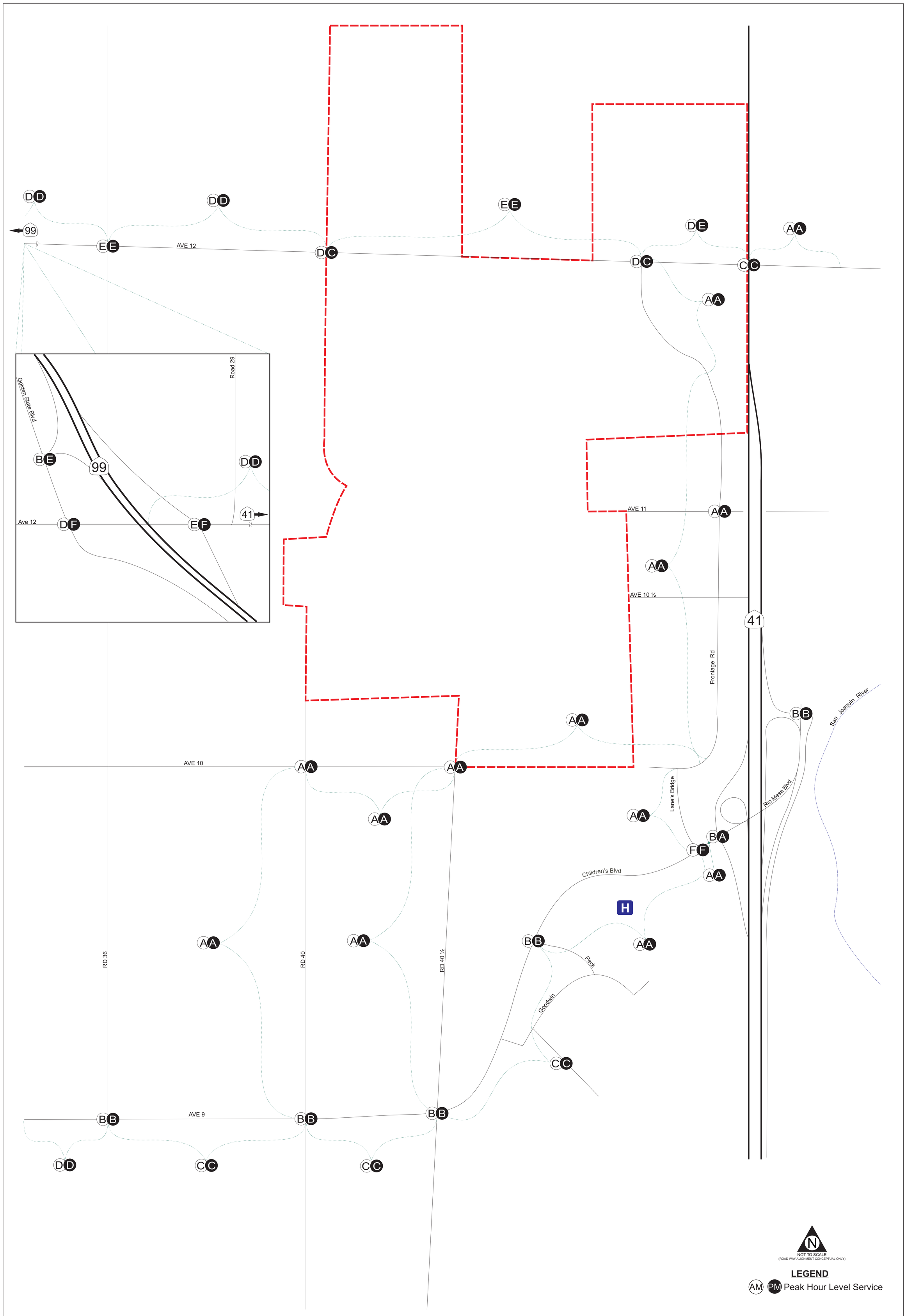
INTERSECTION VOLUMES

Existing

Gateway Village
Madera County

Figure 12E

95-250.4



TPG Consulting Incorporated

LEVELS OF SERVICE

Existing

Gateway Village
Madera County

Figure 13

95-250.4

TABLE 11:
EXISTING CONDITIONS ANALYSIS
SEGMENT WEEKDAY LEVEL OF SERVICE

Segment	Number of Lanes[1]	Median	Facility Type	Capacity[2,3]	AM Peak Hour			PM Peak Hour		
					Volume[4]	LOS	V/C	Volume[4]	LOS	V/C
Road 40 – Avenue 9 to Avenue 10	2	Undivided	Arterial	750	2	A	0.001	1	A	0.000
Road 40 ½ - Avenue 9 to Avenue 10	2	Undivided	Arterial	750	6	A	0.004	11	A	0.007
SR 41 West Frontage Road – Avenue 10 to Root Creek Greenbelt	2	Undivided	Collector	500	123	A	0.123	165	A	0.165
SR 41 West Frontage Road – Root Creek Greenbelt to Avenue 12	2	Undivided	Collector	500	123	A	0.123	172	A	0.172
Avenue 9 – SR 99 to Road 36	2	Undivided	County Road	900	661	D	0.367	639	D	0.355
Avenue 9 – Road 36 to Road 40	2	Undivided	County Road	900	540	C	0.300	489	C	0.271
Avenue 9 – Road 40 to Road 40 ½	2	Undivided	County Road	900	540	C	0.300	491	C	0.273
Childrens Boulevard – Road 40 ½ to Peck Boulevard	2	Undivided	County Road	900	554	C	0.308	484	C	0.269
Childrens Boulevard – Peck Boulevard to Lanes Bridge Drive	4	Undivided	County Road	1,400	1,140	A	0.204	1,056	A	0.189
Childrens Boulevard – Lanes Bridge Drive to SR 41 SB ramps	6	Undivided	County Road	1,400	1,435	A	0.171	1,453	A	0.173
Lanes Bridge Drive – Avenue 10 to Childrens Boulevard	4	Undivided	County Road	1,400	391	A	0.070	468	A	0.084
Avenue 10 – Road 40 to Road 40 ½	2	Undivided	County Road	900	88	A	0.049	116	A	0.064
Avenue 10 – Road 40 ½ to SR 41 West Frontage Road	2	Undivided	County Road	900	127	A	0.071	149	A	0.083
Avenue 12 – SR 99 to Road 36	2	Undivided	County Road	900	835	D	0.464	931	D	0.517
Avenue 12 – Road 36 to Road 40	2	Undivided	County Road	900	1,063	D	0.591	1,045	D	0.580
Avenue 12 – Road 40 to SR 41 West Frontage Road	**2**	**Undivided**	**County Road**	**900**	**1,119**	**E**	**0.622**	**1,132**	**E**	**0.629**
Avenue 12 – SR 41 West Frontage Road to SR 41	**2**	**Undivided**	**County Road**	**900**	1,029	D	0.572	**1,157**	**E**	**0.643**
Avenue 12 – SR 41 to Rio Mesa Boulevard	2	Undivided	County Road	900	13	A	0.007	44	A	0.024

[1] = Number of lanes shown are 2-directional *[2] = Capacities taken from Madera County Travel Forecasting Model Documentation, Table 9* *[3] = Capacity shown is vehicles per lane per hour*
[4] = Volume shown is total 2-directional volume for the segment *V/C = volume to capacity ratio* *SR = State Route*

Segments projected to operate below the Madera County adopted levels of service standard are shown in bold in Table 9. As shown in Table 9, two (2) segments operate below the adopted level of service standard in the Existing conditions scenario. Avenue 12 from Road 40 to the SR 41 West Frontage Road currently operates at a LOS "E" in the AM and PM peak hours. Avenue 12 from the SR 41 West Frontage Road to SR 41 currently operates at a LOS "E" in the PM peak hour. The remaining segments currently operate at or above the Madera County adopted level of service standard in the Existing conditions scenario.

Intersection Analysis

Table 12 shows the Existing conditions intersection levels of service.

TABLE 12:
EXISTING CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

	AM Peak Hour		PM Peak Hour	
Intersection	**LOS**	**Delay[1] (secs)**	**LOS**	**Delay[1] (secs)**
Avenue 9 at Road 36				
• EB Left-Through	A	7.8	A	8.1
• SB Approach	B	11.4	B	11.4
Avenue 9 at Road 40				
• EB Left-Through-Right	A	7.7	A	7.8
• WB Left-Through-Right	A	8.0	A	7.8
• NB Approach	B	11.3	B	11.0
• SB Approach	B	12.3	B	11.9
Avenue 9 at Road 40 ½				
• EB Left-Through-Right	A	7.7	A	7.8
• WB Left-Through-Right	A	8.0	A	7.8
• NB Approach	B	12.5	B	11.9
• SB Approach	B	12.3	B	10.8
Childrens Boulevard at Peck Boulevard				
• EB Left-Through	A	7.8	A	7.6
• WB Left	A	9.8	A	8.2
• NB Approach	B	11.0	B	14.8
Childrens Boulevard at Lanes Bridge Drive				
• EB Left	A	9.8	A	8.8
• WB Left	A	8.2	A	9.3
• **SB Approach**	**F**	**127.3**	**F**	**58.5**
Childrens Boulevard at SR 99 SB ramps	B	11.3	A	8.5
Rio Mesa Boulevard at SR 41 NB ramps	B	17.7	B	13.6
Avenue 10 at Road 40				
• EB Left-Through-Right	A	7.3	A	7.3
• WB Left-Through-Right	A	7.3	A	7.3
• SB Approach	A	8.9	A	8.4
• NB Approach	A	8.8	A	9.0

TABLE 12:
EXISTING CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

Intersection	AM Peak Hour		PM Peak Hour	
	LOS	**Delay[1] (secs)**	**LOS**	**Delay[1] (secs)**
Avenue 10 at Road 40 ½				
• WB Left-Through	A	7.3	A	7.5
• NB Approach	A	9.5	A	9.3
Avenue 11 at SR 41 West Frontage Road				
• NB Left	A	7.4	A	7.4
• SB Left	A	7.3	A	7.4
• WB Approach	A	8.5	A	9.8
• EB Approach	A	9.0	A	9.3
Avenue 12 at Road 36	**E**	**35.04**	**E**	**48.74**
Avenue 12 at Road 40				
• EB Left-Through-Right	A	8.2	A	9.0
• WB Left-Through-Right	A	9.4	A	8.3
• NB Approach	D	25.8	C	19.5
• SB Approach	C	22.6	C	22.7
Avenue 12 at SR 41 West Frontage Road				
• WB Left	A	9.5	A	8.6
• NB Approach	D	25.1	C	23.5
Avenue 12 at SR 41	C	34.5	C	21.0
Avenue 12 at Golden State Boulevard				
• EB Left	A	8.5	A	8.7
• WB Left	A	8.1	A	8.6
• **NB Approach**	C	20.9	**F**	**279.6**
• **SB Approach**	D	31.9	**F**	**111.1**
SR 99 SB ramps at Golden State Boulevard				
• SB Left-Through	A	8.3	A	8.7
• **WB Approach**	B	11.3	**E**	**44.9**
Avenue 12 at SR 99 NB ramps				
• EB Left-Through	A	8.9	A	8.9
• **NB Approach**	**E**	**46.9**	**F**	**95.1**

[1] *Delay per vehicle* *secs = seconds* *WB = westbound* *NB = northbound*
SB = southbound *EB = eastbound*

Intersections within the study area that are currently operating below the adopted level of service standard are shown bolded in Table 12. As shown in Table 12, five (5) intersections are currently operating or have movements operating below the adopted standards. The southbound approach of the Childrens Boulevard at Lanes Bridge intersection is currently operating at a LOS "F in both the AM and PM peak hours. The Avenue 12 at Road 36 intersection is currently operating at a LOS "E" in both the AM and PM peak hours. The NB and SB approaches at the Avenue 12 at Golden State Boulevard intersection are both operating at a LOS "F" in the PM peak hour. The WB approach at the SR 99 SB ramps at Golden State Boulevard intersection is currently operating at a LOS "E" in the PM peak hour. The NB approach at the Avenue 12 at SR 99 NB ramps intersection is currently operating at a LOS "E" in the AM peak hour and at a LOS "F" in the PM peak hour. Even though the

overall NB approach of the Childrens Boulevard at Peck Avenue intersection is operating at a LOS "B" in the PM peak hour the NB left-turn movement is currently operating at a LOS "F" in the PM peak hour. The remaining intersections are operating at or above the adopted level of service standard in the Existing conditions scenario.

Signal Warrant Analysis

Rural and urban peak hour volume signal warrants were prepared for the following fourteen (14) Existing unsignalized intersections:

- Avenue 9 at Road 36 - Rural
- Avenue 9 at Road 40 - Rural
- Avenue 9 at Road 40 ½ - Rural
- Childrens Boulevard at Peck Boulevard - Rural
- Childrens Boulevard at Lanes Bridge Drive - Rural
- Avenue 10 at Road 40 - Rural
- Avenue 10 at Road 40 ½ - Rural
- Avenue 11 at SR 41 West Frontage Road - Rural
- Avenue 12 at Road 36 - Rural
- Avenue 12 at Road 40 - Rural
- Avenue 12 at SR 41 West Frontage Road - Rural
- Avenue 12 at Golden State Boulevard - Urban
- SR 99 SB ramps at Golden State Boulevard - Urban
- Avenue 12 at SR 99 NB ramps – Urban

Based on the rural/urban peak hour volume warrant, the warrant is met at the following six (6) unsignalized study intersections in the Existing conditions scenario:

- Childrens Boulevard at Peck Boulevard - Rural
- Childrens Boulevard at Lanes Bridge Drive - Rural
- Avenue 12 at Road 36 - Rural
- Avenue 12 at SR 41SR 41 West Frontage Road - Rural
- Avenue 12 at Golden State Boulevard - Urban
- Avenue 12 at SR 99 NB ramps – Urban

This warrant analysis is limited to the peak hour volume warrant only and other conditions may exist which meet other traffic signal warrants. Copies of the warrant analyses are included in Appendix D.

2013 NO PROJECT

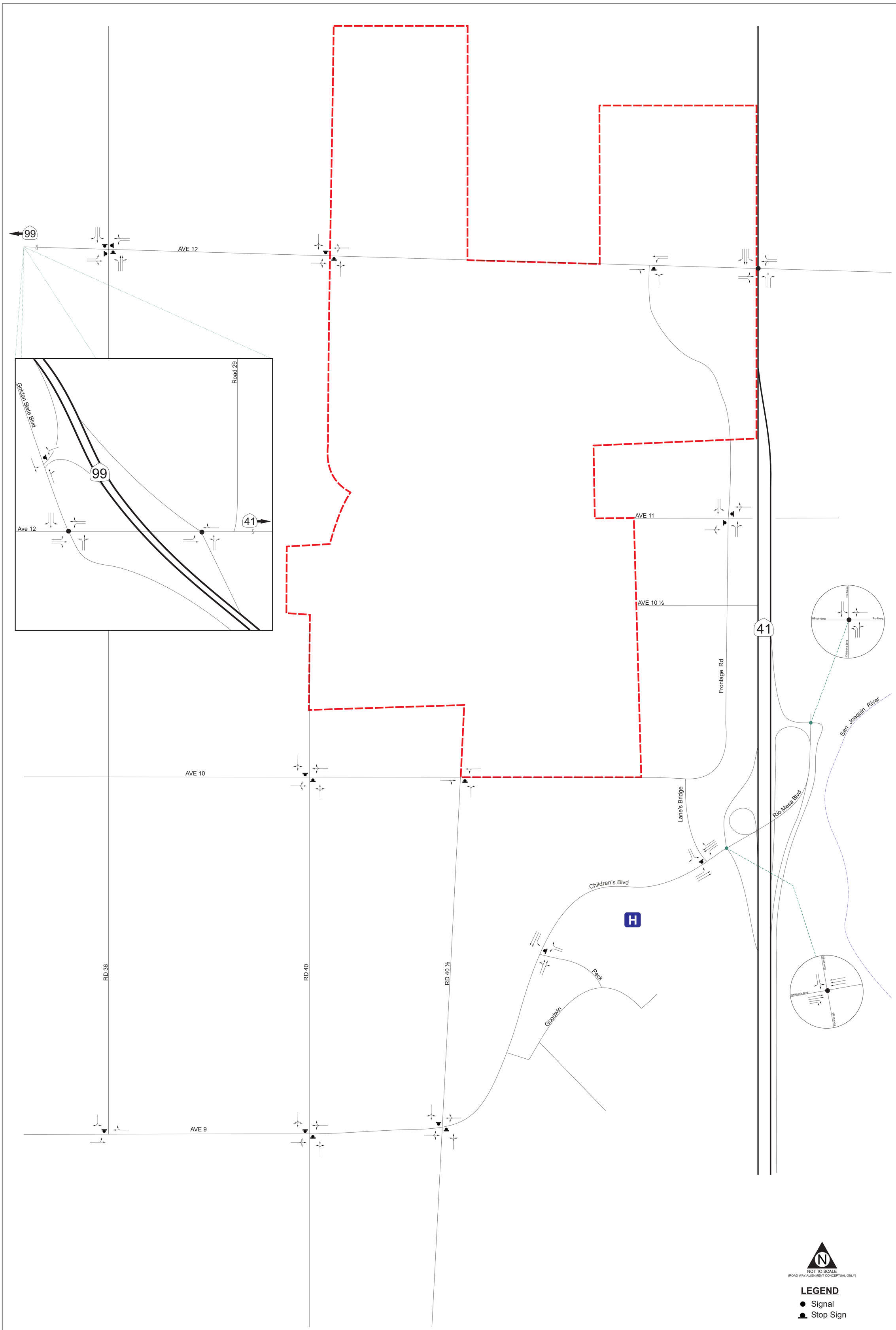
The 2013 No Project lane configurations and intersections control were developed from planned improvements shown in the Madera County 2004 Regional Transportation Plan. The following improvements are projected to be in place by the 2013 No Project scenario:

- Avenue 12: SR 41 to North Rio Mesa Boulevard – restripe/widen from two (2) lanes to six (6) lanes
- Childrens Boulevard: SR 41 SB ramps to Lanes Bridge - Restripe/widen to from six (6) to eight (8) lanes
- Rio Mesa Boulevard at SR 41 NB ramps: Construction of the SB approach, north leg to one (1) left-turn lane, and one(1) shared through-right lane

The 2013 No Project intersection lane configurations and intersection controls are shown on Figure 14. The 2013 No Project segment peak hour traffic volumes are shown on Figure 15 and the 2013 No Project intersection peak hour traffic volumes are shown on Figure 16. Using the lane configurations shown on Figure 14 and the volumes shown on Figures 15 and 16, the segments and intersections were analyzed for 2013 No Project levels of service. Figure 17 and Tables 13 and 14 show the 2013 No Project levels of service for the study segments and intersections. The TWSC levels of service shown on Figure 17 are the levels of service for the worst operating movement at that intersection. The signalized and AWSC intersection levels of service shown in Figure 17 and Table 14 are representative of the whole intersection. Individual intersection movements or approaches may operate above or below the signalized and AWSC level of service or delay shown in Figure 17 and Table 14. The 2013 No Project intersection levels of service calculations are included in Appendix E.

Segment Analysis

Table 13 shows the 2013 No Project conditions segment levels of service.



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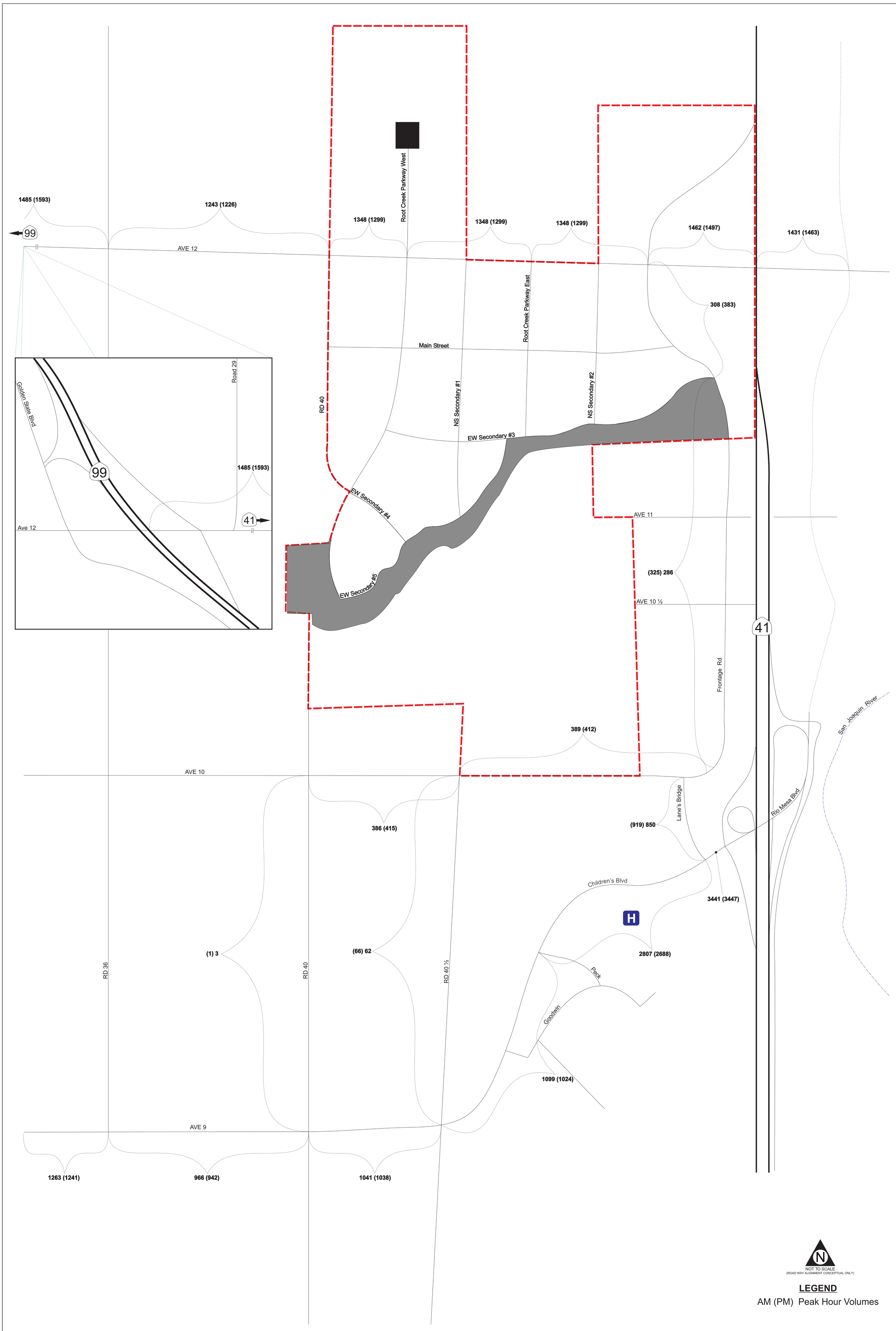
LANE CONFIGURATION AND INTERSECTION CONTROL

2013 No Project

Gateway Village
Madera County

Figure 14

95-250.4



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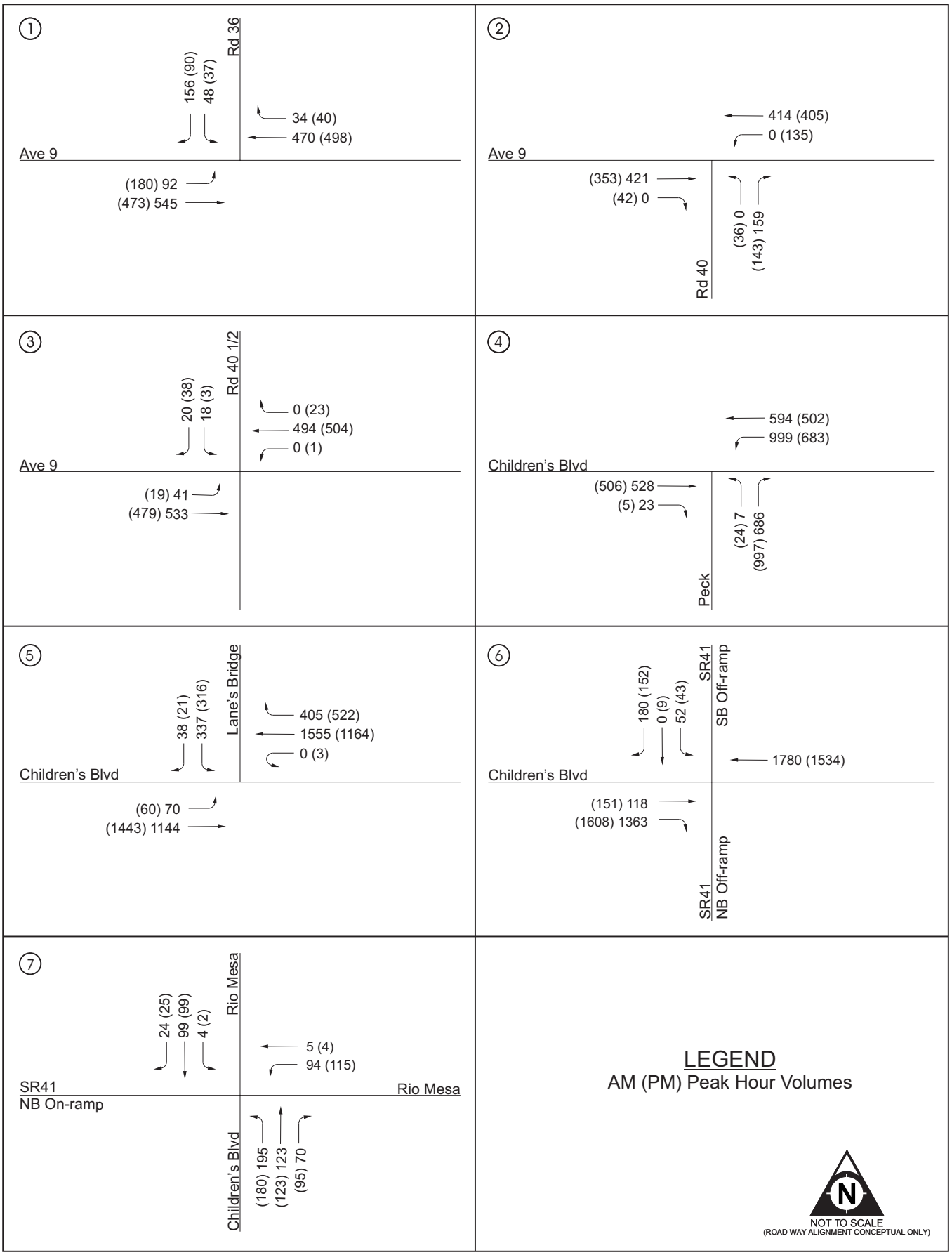
SEGMENT VOLUMES

2013 No Project

Gateway Village
Madera County

Figure 15

95-250.4



TPG Consulting Incorporated

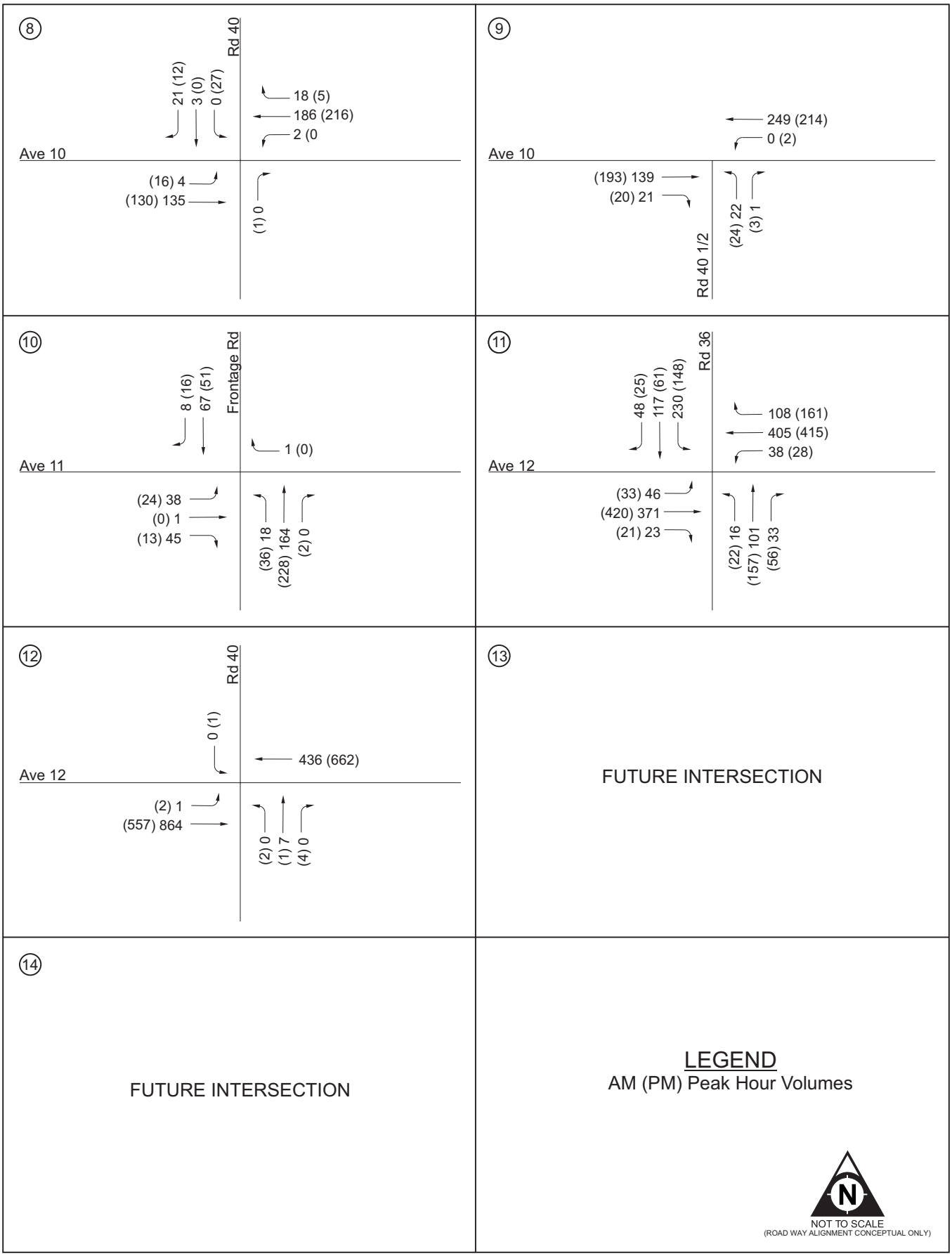
INTERSECTION VOLUMES

2013 No Project

Gateway Village
Madera County

Figure 16A

95-250.4



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INTERSECTION VOLUMES

2013 No Project

Gateway Village
Madera County

Figure 16B

95-250.4

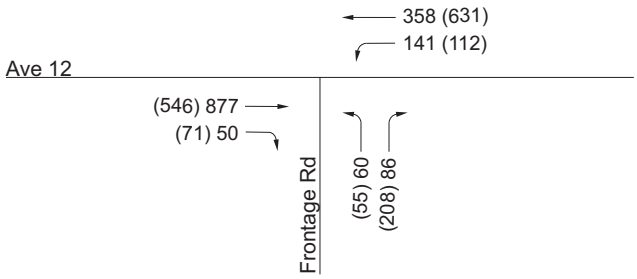
15

FUTURE INTERSECTION

16

FUTURE INTERSECTION

17



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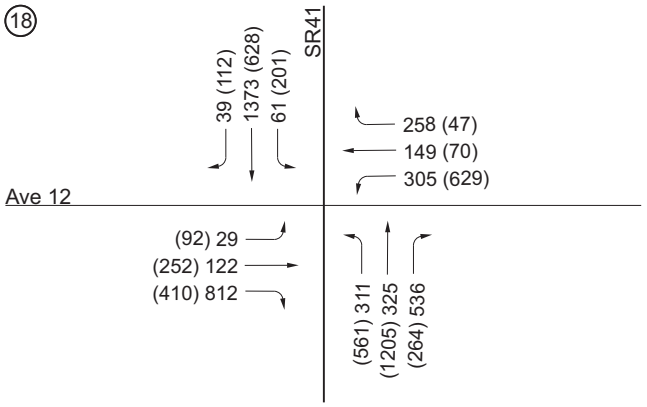


19

FUTURE INTERSECTION

20

FUTURE INTERSECTION

21

FUTURE INTERSECTION

LEGEND

AM (PM) Peak Hour Volumes

N

NOT TO SCALE
(ROAD WAY ALIGNMENT CONCEPTUAL ONLY)

TPG Consulting Incorporated

INTERSECTION VOLUMES

2013 No Project

Gateway Village
Madera County

Figure 16C

95-250.4

(22) FUTURE INTERSECTION	(23) FUTURE INTERSECTION
(24) FUTURE INTERSECTION	(25) FUTURE INTERSECTION
(26) FUTURE INTERSECTION	(27) FUTURE INTERSECTION
(28) FUTURE INTERSECTION	LEGEND AM (PM) Peak Hour Volumes NOT TO SCALE (ROAD WAY ALIGNMENT CONCEPTUAL ONLY)

TPG Consulting Incorporated

INTERSECTION VOLUMES
2013 No Project

Gateway Village
Madera County

Figure 16D

95-250.4

29

FUTURE INTERSECTION

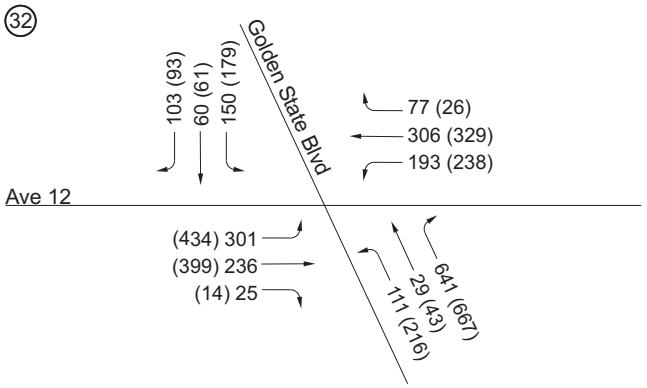
30

FUTURE INTERSECTION

31

FUTURE INTERSECTION

32



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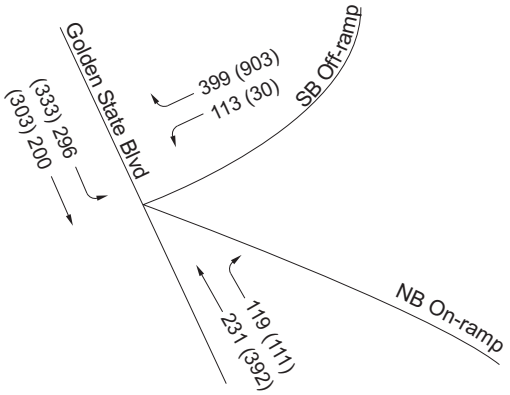

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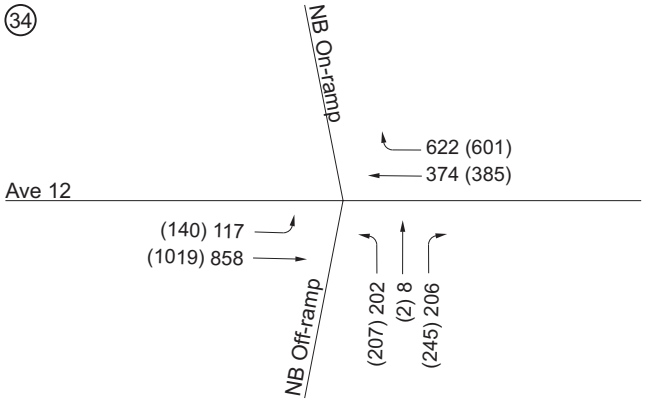


LEGEND

AM (PM) Peak Hour Volumes

N

NOT TO SCALE

(ROAD WAY ALIGNMENT CONCEPTUAL ONLY)

TPG Consulting Incorporated

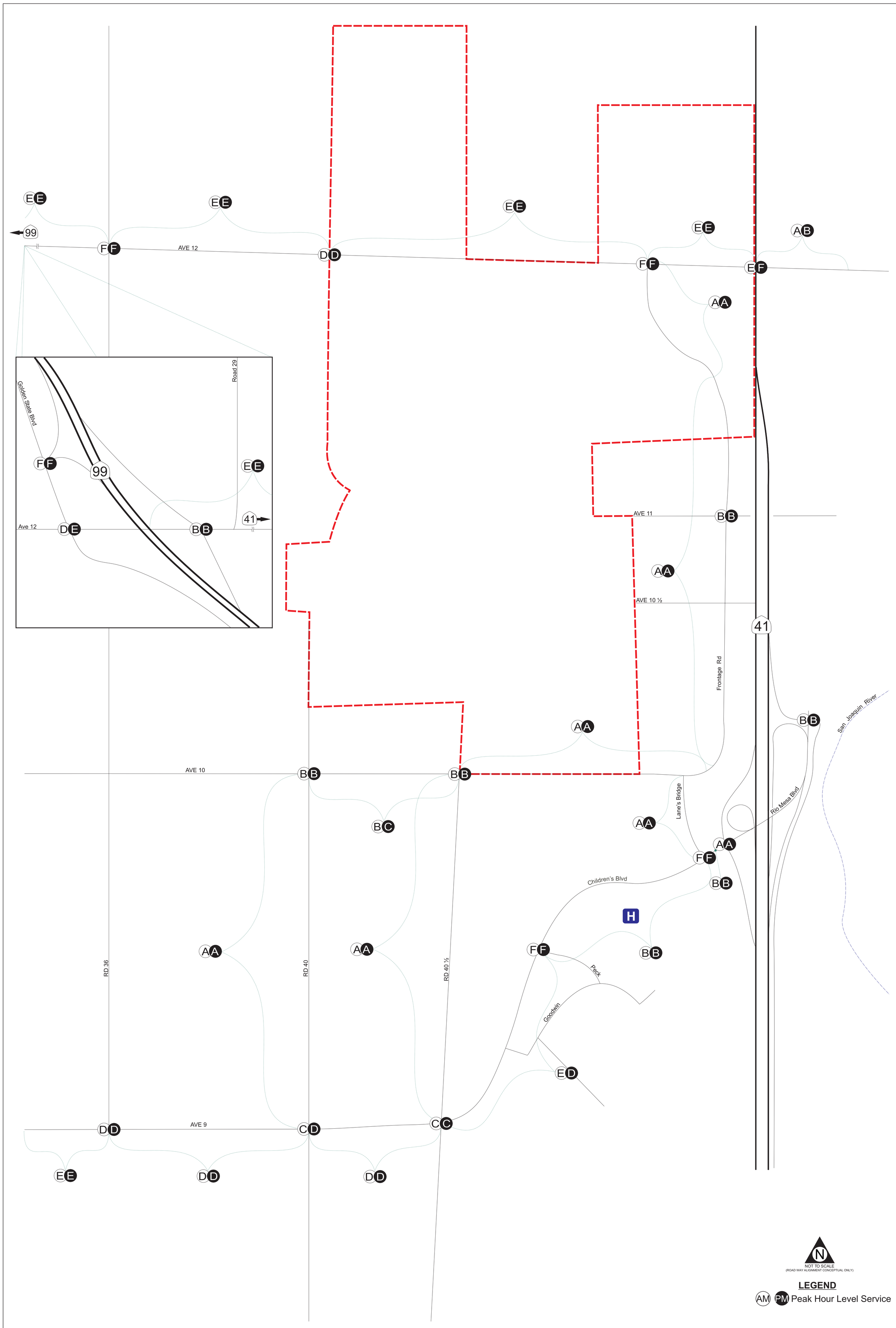
INTERSECTION VOLUMES

2013 No Project

Gateway Village
Madera County

Figure 16E

95-250.4



TPG Consulting Incorporated

LEVELS OF SERVICE
2013 No Project

Gateway Village
Madera County

Figure 17

95-250.4

TABLE 13:
2013 NO PROJECT CONDITIONS ANALYSIS
SEGMENT WEEKDAY LEVEL OF SERVICE

Segment	Number of Lanes[1]	Median	Facility Type	Capacity[2,3]	AM Peak Hour			PM Peak Hour		
					Volume[4]	LOS	D/C	Volume[4]	LOS	D/C
Road 40 – Avenue 9 to Avenue 10	2	Undivided	Arterial	750	3	A	0.002	1	A	0.000
Road 40 ½ - Avenue 9 to Avenue 10	2	Undivided	Arterial	750	62	A	0.041	66	A	0.044
SR 41 West Frontage Road – Avenue 10 to Root Creek Greenbelt	2	Undivided	Collector	500	286	A	0.286	325	A	0.325
SR 41 West Frontage Road – Root Creek Greenbelt to Avenue 12	2	Undivided	Collector	500	308	A	0.308	383	A	0.383
Avenue 9 – SR 99 to Road 36	**2**	**Undivided**	**County Road**	**900**	**1,263**	**E**	**0.702**	**1,241**	**E**	**0.689**
Avenue 9 – Road 36 to Road 40	2	Undivided	County Road	900	966	D	0.537	942	D	0.523
Avenue 9 – Road 40 to Road 40 ½	2	Undivided	County Road	900	1,041	D	0.578	1,038	D	0.577
Childrens Boulevard – Road 40 ½ to Peck Boulevard	**2**	**Undivided**	**County Road**	**900**	**1,099**	**E**	**0.610**	1,024	D	0.569
Childrens Boulevard – Peck Boulevard to Lanes Bridge Drive	4	Undivided	County Road	1,400	2,807	B	0.501	2,688	B	0.480
Childrens Boulevard – Lanes Bridge Drive to SR 41 SB ramps	6	Undivided	County Road	1,400	3,441	B	0.307	3,447	B	0.308
Lanes Bridge Drive – Avenue 10 to Childrens Boulevard	4	Undivided	County Road	1,400	850	A	0.152	919	A	0.164
Avenue 10 – Road 40 to Road 40 ½	2	Undivided	County Road	900	386	B	0.214	415	C	0.231
Avenue 10 – Road 40 ½ to SR 41 West Frontage Road	2	Undivided	County Road	900	389	A	0.216	412	A	0.229
Avenue 12 – SR 99 to Road 36	**2**	**Undivided**	**County Road**	**900**	**1,485**	**E**	**0.825**	**1,593**	**E**	**0.885**
Avenue 12 – Road 36 to Road 40	**2**	**Undivided**	**County Road**	**900**	**1,243**	**E**	**0.691**	**1,226**	**E**	**0.681**
Avenue 12 – Road 40 to SR 41 West Frontage Road	**2**	**Undivided**	**County Road**	**900**	**1,348**	**E**	**0.749**	**1,299**	**E**	**0.722**
Avenue 12 – SR 41 West Frontage Road to SR 41	**2**	**Undivided**	**County Road**	**900**	**1,462**	**E**	**0.812**	**1,497**	**E**	**0.832**
Avenue 12 – SR 41 to Rio Mesa Boulevard	6	Undivided	County Road	900	1,431	A	0.265	1,463	B	0.271

[1] = Number of lanes shown are 2-directional *[2] = Capacities taken from Madera County Travel Forecasting Model Documentation, Table 9* *[3] = Capacity shown is vehicles per lane per hour*
[4] = Volume shown is total 2-directional volume for the segment *D/C = demand to capacity ratio* *SR = State Route*

Segments projected to operate below Madera County adopted levels of service standard are shown in bold in Table 13. As shown in Table 13, six (6) segments are projected to operate below the adopted level of service standard in the 2013 No Project conditions scenario. Avenue 9 from SR 99 to Road 36 is projected to operate at a LOS "E" in both the AM and PM peak hours. Childrens Boulevard from Road 40 ½ to Peck Boulevard is projected to operate at a LOS "E" in the AM peak hour. Segments along Avenue 12 from SR 99 to Road 36, Road 36 to Road 40, Road 40 to the SR 41 West Frontage Road, and from the SR 41 West Frontage Road to SR 41 are all projected to operate at a LOS "E" in both the AM and PM peak hours. The remaining segments currently operate at or above the Madera County adopted level of service standard in the 2013 No Project conditions scenario.

Intersection Analysis

Table 14 shows the 2013 No Project conditions intersection levels of service.

TABLE 14:
2013 NO PROJECT CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

	AM Peak Hour		PM Peak Hour	
Intersection	**LOS**	**Delay[1] (secs)**	**LOS**	**Delay[1] (secs)**
Avenue 9 at Road 36				
• EB Left-Through	A	8.9	A	9.5
• SB Approach	D	32.3	D	34.6
Avenue 9 at Road 40				
• EB Left-Through-Right	A	8.2	A	8.2
• WB Left-Through-Right	A	8.3	A	8.7
• NB Approach	B	13.6	C	23.3
• SB Approach	C	19.1	D	26.4
Avenue 9 at Road 40 ½				
• EB Left-Through-Right	A	8.6	A	8.7
• WB Left-Through-Right	A	8.6	A	8.4
• NB Approach	C	23.0	C	21.0
• SB Approach	C	23.0	B	13.8
Childrens Boulevard at Peck Boulevard				
• EB Left-Through	A	8.8	A	8.5
• **WB Left**	**F**	**83.6**	C	17.6
• **NB Approach**	**F**	**---**	**F**	**284.1**
Childrens Boulevard at Lanes Bridge Drive				
• EB Left	D	25.3	C	18.6
• WB Left	B	11.5	B	13.7
• **SB Approach**	**F**	**8700**	**F**	**4487**
Childrens Boulevard at SR 99 SB ramps	A	7.8	A	5.6
Rio Mesa Boulevard at SR 41 NB ramps	B	18.9	B	18.7

TABLE 14:
2013 NO PROJECT CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

Intersection	AM Peak Hour		PM Peak Hour	
	LOS	Delay[1] (secs)	LOS	Delay[1] (secs)
Avenue 10 at Road 40				
• EB Left-Through-Right	A	7.7	A	7.8
• WB Left-Through-Right	A	7.5	A	7.5
• SB Approach	B	10.7	A	9.0
• NB Approach	A	10.0	B	11.6
Avenue 10 at Road 40 ½				
• WB Left-Through	A	7.6	A	7.7
• NB Approach	B	12.2	B	11.8
Avenue 11 at SR 41 West Frontage Road				
• NB Left	A	7.4	A	7.4
• SB Left	A	7.6	A	7.7
• WB Approach	A	9.2	B	11.1
• EB Approach	B	10.1	B	10.9
Avenue 12 at Road 36	**F**	**83.75**	**F**	**111.81**
Avenue 12 at Road 40				
• EB Left-Through-Right	A	8.3	A	9.1
• WB Left-Through-Right	A	9.9	A	8.7
• NB Approach	D	32.1	C	22.6
• SB Approach	D	27.6	D	27.6
Avenue 12 at SR 41 West Frontage Road				
• WB Left	B	12.0	A	9.5
• **NB Approach**	**F**	**180.8**	**F**	**98.7**
Avenue 12 at SR 41	**E**	**78.2**	**F**	**338.5**
Avenue 12 at Golden State Boulevard	D	44.7	**E**	**72.5**
SR 99 SB ramps at Golden State Boulevard				
• SB Left-Through	A	9.5	B	11.1
• **WB Approach**	**F**	**321.5**	**F**	**624.8**
Avenue 12 at SR 99 NB ramps	B	12.3	B	15.4

[1] *Delay per vehicle* *secs = seconds* *WB = westbound* *NB = northbound*
SB = southbound *EB = eastbound*

Intersections within the study area that are currently operating below the adopted level of service standard are shown bolded in Table 14. As shown in Table 14, seven (7) intersections are projected to operate or have movements projected to operate below the adopted standards. The WB left-turn of the Childrens Boulevard and Peck Boulevard intersection is projected to operate at a LOS "F "in the AM peak hour while the NB approach is projected to operate at a LOS "F" in both the AM and PM peak hours. The SB approach of the Childrens Boulevard and Lanes Bridge intersection is projected to operate at a LOS "F in both the AM and PM peak hours. The Avenue 12 at Road 36 intersection is projected to operate at a LOS "F" in both the AM and PM peak hours. The NB approach of the Avenue 12 and SR 41 West Frontage Road intersection is projected to operate at a LOS "F" in both the AM and PM peak hours. The Avenue 12 at SR 41 intersection is projected to operate at a LOS "E" in the AM peak hour and at a LOS "F" in the PM peak hour. The Avenue 12 at Golden State

Boulevard intersection are both operating at a LOS "E" in the PM peak hour. The WB approach at the SR 99 SB ramps at Golden State Boulevard intersection is projected to operate at a LOS "F" in both the AM and PM peak hours. The remaining intersections are projected to operate at or above the adopted level of service standard in the 2013 No Project conditions scenario.

Signal Warrant Analysis

Rural and urban peak hour volume signal warrants were prepared for the following eight (8) unsignalized intersections:

- Avenue 9 at Road 36 - Rural
- Avenue 9 at Road 40 - Rural
- Avenue 9 at Road 40 ½ - Rural
- Avenue 10 at Road 40 - Rural
- Avenue 10 at Road 40 ½ - Rural
- Avenue 11 at SR 41 West Frontage Road - Rural
- Avenue 12 at Road 40 - Rural
- SR 99 SB ramps at Golden State Boulevard - Urban

Based on the rural/urban peak hour volume warrant, the warrant is met at the following three (3) unsignalized study intersections in the 2013 No Project conditions scenario:

- Avenue 9 at Road 36 – Rural
- Avenue 9 at Road 40 – Rural
- SR 99 SB ramps at Golden State Boulevard - Urban

If an intersection met the rural or urban peak hour volume warrant in a previous scenario it is expected to continue to meet the warrant in all future scenarios due to growth in background volumes. Therefore, the following intersections and warrant type are projected to continue to meet the either the rural or urban peak hour volume signal warrant in the 2013 No Project conditions scenario:

- Childrens Boulevard at Peck Boulevard - Rural
- Childrens Boulevard at Lanes Bridge Drive - Rural
- Avenue 12 at Road 36 - Rural
- Avenue 12 at SR 41SR 41 West Frontage Road - Rural
- Avenue 12 at Golden State Boulevard – Urban
- Avenue 12 at SR 99 NB ramps – Urban

These warrant analyses are limited to the peak hour volume warrant only and other conditions may exist which meet other traffic signal warrants. Copies of the warrant analyses are included in Appendix F.

MITIGATED 2013 NO PROJECT

Based on the information provided in the previous sections, the following locations by scenario and time period are projected to operate below the adopted level of service:

Existing (Without the Project)

Segments

- Avenue 12 – Road 40 to SR 41 West Frontage Road - AM/PM peak hours – LOS "E"

- Avenue 12 – SR 41 West Frontage Road to SR 41 - PM peak hour – LOS "E"

Intersections

- Childrens Boulevard at Lanes Bridge Drive
  - SB Approach – AM/PM peak hours – LOS "F"
- Avenue 12 at Road 36 – AM/PM peak hours – LOS "E"
- Avenue 12 at Golden State Boulevard
  - NB Approach –PM peak hour – LOS "F"
  - SB Approach – PM peak hour – LOS "F"
- SR 99 SB ramps at Golden State Boulevard
  - WB Approach – PM peak hour – LOS "E"
- Avenue 12 at SR 99 NB ramps
  - NB Approach – AM/PM peak hours – LOS "E"/"F"

2013 No Project (Without the Project)

Segments

- Avenue 9 – SR 99 to Road 36 - AM/PM peak hours – LOS "E"
- Childrens Boulevard – Road 40 ½ to Peck Boulevard - AM peak hour – LOS "E"
- Avenue 12 – SR 99 to Road 36 - AM/PM peak hours – LOS "E"
- Avenue 12 – Road 36 to Road 40 - AM/PM peak hours – LOS "E"
- Avenue 12 – Road 40 to SR 41 West Frontage Road - AM/PM peak hours – LOS "E"
- Avenue 12 – SR 41 West Frontage Road to SR 41 - AM/PM peak hours – LOS "E"

Intersections

- Childrens Boulevard at Peck Boulevard
  - WB Left – AM peak hour – LOS "F"
  - NB Approach – AM/PM peak hours – LOS "F"
- Childrens Boulevard at Lanes Bridge Drive
  - SB Approach – AM/PM peak hours – LOS "F"
- Avenue 12 at Road 36 – AM/PM peak hours – LOS "F"
- Avenue 12 at SR 41 West Frontage Road
  - NB Approach – AM/PM peak hours – LOS "F"
- Avenue 12 at SR 41 – AM/PM peak hours – LOS "E"/"F"
- Avenue 12 at Golden State Boulevard – PM peak hour – LOS "E"
- SR 99 SB ramps at Golden State Boulevard
  - WB Approach – AM/PM peak hours – LOS "F"

Rural and urban peak hour volume signal warrants were also prepared for all unsignalized study intersections. Based on either the rural or urban peak hour volume warrant, the warrant is met for the following locations by time frame:

Existing (Without the Project)

- Childrens Boulevard at Peck Boulevard - Rural
- Childrens Boulevard at Lanes Bridge Drive - Rural
- Avenue 12 at Road 36 - Rural
- Avenue 12 at SR 41 West Frontage Road - Rural
- Avenue 12 at Golden State Boulevard – Urban
- Avenue 12 at SR 99 NB ramps – Urban

2013 No Project (Without the Project)

- Avenue 9 at Road 36 – Rural
- Avenue 9 at Road 40 – Rural
- Childrens Boulevard at Peck Boulevard - Rural
- Childrens Boulevard at Lanes Bridge Drive - Rural
- Avenue 12 at Road 36 - Rural
- Avenue 12 at SR 41 West Frontage Road - Rural
- Avenue 12 at Golden State Boulevard – Urban
- SR 99 SB ramps at Golden State Boulevard – Urban
- Avenue 12 at SR 99 NB ramps – Urban

To mitigate the segments and intersections projected to operate below the level of service standard or meet the rural or urban peak hour volume warrants, the following improvements by scenario and potential implementing party/mechanism are recommended:

Existing (Without the Project)

Intersections

- Childrens Boulevard at Lane's Bridge Drive – County/GRW/RM
    - Signalize the intersection
    - Restripe/widen the SB approach, north leg, from a one (1) left-turn lane and one (1) right-turn lane to dual (2) left-turn lanes and one (1) right-turn lane
- Avenue 12 at Road 36 – County/GRW/RM
    - Signalize the intersection
- Avenue 12 at SR 41 West Frontage Road – County/GRW/RM
    - Signalize the intersection
    - Restripe/widen the NB approach, south leg, from a shared left-right lane to one (1) left-turn lane and one (1) right-turn lane
- Avenue 12 at Golden State Boulevard
    - Signalize the intersection – Caltrans/County
    - Restripe the NB approach, south leg from a shared left-through and separate right-turn to a separate left-turn and a shared through-right-turn lane – Caltrans/County
    - Restripe/widen the SB approach, north leg from a shared left-through and separate right-turn to a separate left-turn, one (1) through lane and one (1)right-turn lane – Caltrans/County

    Additional improvements beyond Caltrans scheduled improvements
    - Restripe/widen the NB approach, south leg, from a separate left-turn and a shared through-right-turn lane to one (1) left-turn lane, one (1) through lane and one (1) right-turn lane – Caltrans/County/GRW/RM
    - Restripe/widen the SB approach, north leg, from a separate left-turn, one (1) through lane and one (1)right-turn lane to dual (2) left-turn lanes and a shared through-right lane – Caltrans/County/GRW/RM
    - Restripe/widen the EB approach, west leg, from one (1) left-turn lane, one (1) through lane and one (1) right-turn lane to dual (2) left-turn lanes and a shared through-right lane – Caltrans/County/GRW/RM
- Avenue 12 at SR 99 NB ramps
    - Signalize the intersection – Caltrans
    - Restripe/widen the EB approach, west leg, from a shared left-through lane to one (1) left-turn lane and one (1) through lane – Caltrans

Additional improvements beyond Caltrans scheduled improvements

- Restripe/widen the WB approach, east leg, from a shared through-right lane to one (1) through lane and one (1) right-turn lane - Caltrans/County/GRW/RM

2013 No Project (Without the Project)

Segments

- Avenue 9 – SR 99 to Road 36 - County/GRW/RM
  - MCTC Capacity Table
    - Restripe/widen from two (2) lanes to four (4) lanes
  - Intersection Analysis
    - No mitigations needed
- Avenue 12 – SR 99 to Road 36 – Project
  - MCTC Capacity Table
    - Restripe/widen from two (2) lanes to four (4) lanes
  - Intersection Analysis
    - No mitigations needed
- Avenue 12 – Road 36 to Road 40 – Project
  - MCTC Capacity Table
    - Restripe/widen from two (2) lanes to four (4) lanes
  - Intersection Analysis
    - No mitigations needed
- Avenue 12 – Road 40 to SR 41 West Frontage Road - County/GRW/RM
  - MCTC Capacity Table
    - Restripe/widen from two (2) lanes to four (4) lanes
  - Intersection Analysis
    - No mitigations needed
- Avenue 12 – SR 41 West Frontage Road to SR 41 - County/GRW/RM
  - MCTC Capacity Table
    - Restripe/widen from two (2) lanes to four (4) lanes
  - Intersection Analysis
    - No mitigations needed
- Childrens Boulevard
  - Widen from two (2) lanes to four (4) lanes from Road 40 ½ to Peck Boulevard – RTP (Mitigation Funds/GRW)

Intersections

- Avenue 9 at Road 36 - County/GRW/RM
  - Signalize the intersection
  - Restripe/widen the SB approach, north leg, from a shared left-right lane to one (1) left-turn lane and one (1) right-turn lane
  - Restripe/widen the EB approach, west leg, from a shared left-through lane to one (1) left-turn lane and one (1) through lane
- Avenue 9 at Road 40 – County/GRW/RM
  - Signalize the intersection
  - Restripe/widen the NB approach, south leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane
  - Restripe/widen the EB approach, west leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane

    - Restripe/widen the WB approach, east leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane
- Childrens Boulevard at Peck Boulevard - County/GRW/RM
    - Signalize the intersection
    - Restripe/widen the WB approach, east leg, from one (1) left-turn lane and two (2) through lanes to dual (2) left-turn lanes and two (2) through lanes
- Avenue 12 at SR 41 – Caltrans/County/GRW/RM
    - Restripe/widen the NB approach, south leg, from one (1) left-turn lane, one (1) through lane and one (1) right-turn lane to dual (2) left-turn lanes, four (4) through lanes and one (1) right-turn lane
    - Restripe/widen the SB approach, north leg, from one (1) left-turn lane, two (2) through lanes and one (1) right-turn lane to dual (2) left-turn lanes, three (3) through lanes and one (1) right-turn lane
    - Restripe/widen the EB approach, west leg, from a shared left-through lane and one (1) right-turn lane to one (1) left-turn lane, one (1) through lane and dual (2) right-turn lanes
    - Restripe/widen the WB approach, east leg, from a shared left-through lane and one (1) right-turn lane to dual (2) left-turn lanes, one (1) through lane and one (1) right-turn lane

The improvements shown for the Avenue 12 at SR 41 intersection are what would be required in lieu of constructing an interchange. These improvements were utilized in generating the levels of service shown in the Mitigated 2013 No Project scenario tables and figures for this intersection. However Caltrans has determined that the maximum standard intersection improvements that they will construct prior to construction of an interchange will consist of the following:

- Restripe/widen the NB approach, south leg, from one (1) left-turn lane to dual (2) left-turn lanes to a depth of approximately 1,000 feet on SR 41 south of Avenue 12
- Restripe/widen the SB, EB, and WB approaches from one (1) left-turn lane to two (2) left-turn lanes to a depth of 250 to 300 feet
- Restripe/widen the NB, SB, WB, and EB approaches from one (1) through lane to two (2) through lanes to the following depths
    - SB SR 41 through lanes south of Avenue 12 shall be continuous
    - WB Avenue 12 through lanes west of SR 41 shall continue for a distance of approximately 1,350 feet
    - NB SR 41 through lanes north of Avenue 12 shall continue for a distance of approximately 250 to 300 feet
    - EB Avenue 12 through lanes east of SR 41 shall continue for a distance of approximately 250 to 300 feet
- Restripe/widen/lengthen the separate right-turn lanes in all four (4) directions to a depth of 250 to 300 feet

The SR 41 at Avenue 12 ultimate intersection improvements were used in the 2025 Project scenario.

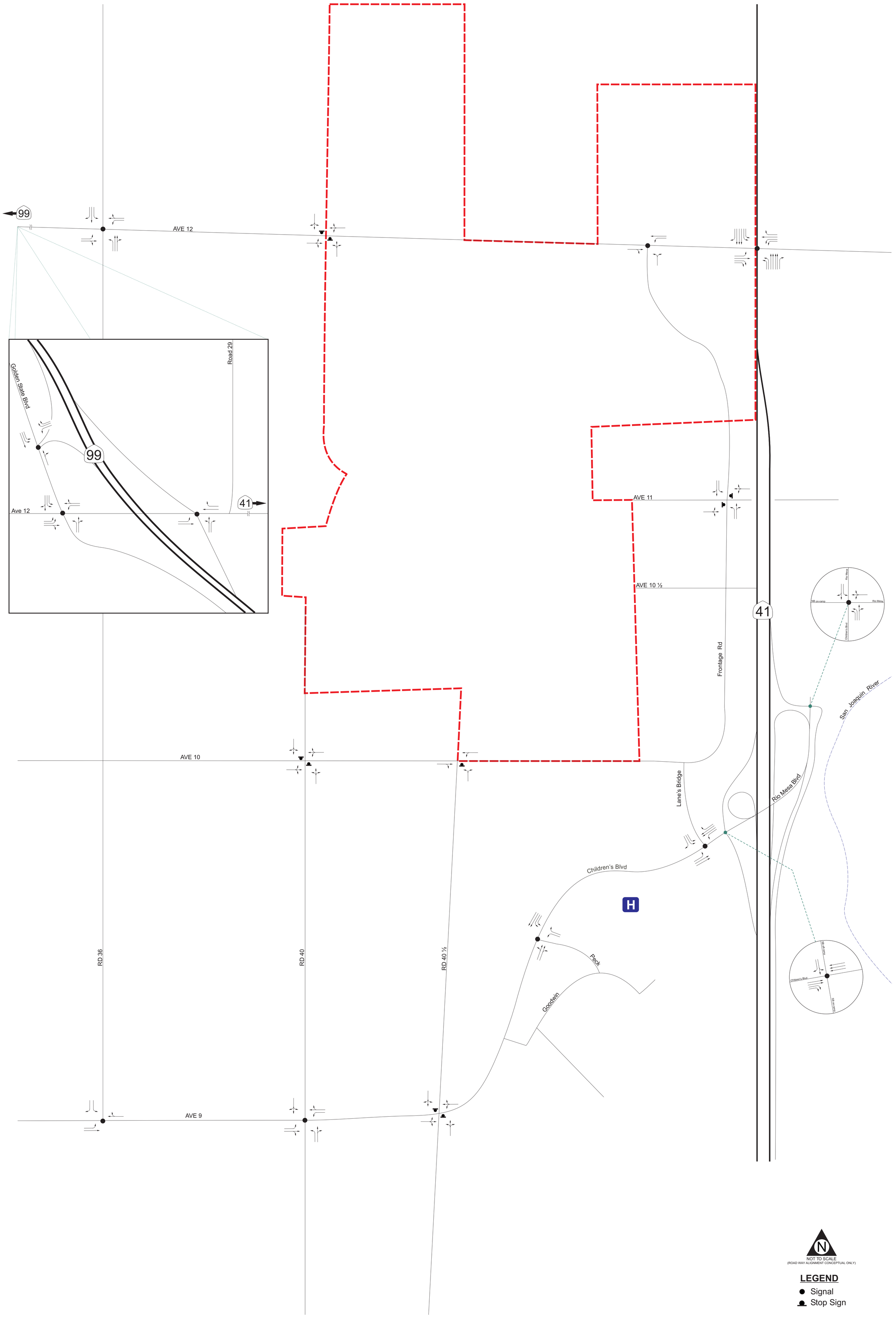
- SR 99 SB ramps at Golden State Boulevard - Caltrans/County/GRW/RM
    - Signalize the intersection
    - Restripe/widen the SB approach, north leg, from a shared left-through lane to dual (2) left-turn lanes and one (1) through lane
    - Restripe/widen the WB approach, east leg, from a shared left-right lane to one(1) left-turn lane and dual (2) right-turn lanes

- Rio Mesa Boulevard at SR 41 NB ramps – Caltrans/RM
    - Restripe/widen the NB approach, south leg, from dual (2) left-turn lanes and one (1) right-turn lane to dual (2) left-turn lanes, one (1) through lane, and one (1) right-turn lane

The Mitigated 2013 No Project intersection lane configurations and intersection controls are shown on Figure 18. Using the lane configurations shown on Figure 18 and the volumes shown on Figures 15 and 16, the segments and intersections were analyzed for Mitigated 2013 No Project levels of service. Figure 19 and Tables 15 and 16 show the Mitigated 2013 No Project levels of service for the study segments and intersections. The TWSC levels of service shown on Figure 19 are the levels of service for the worst operating movement at that intersection. The signalized and AWSC intersection levels of service shown in Figure 19 and Table 16 are representative of the whole intersection. Individual intersection movements or approaches may operate above or below the signalized and AWSC level of service or delay shown in Figure 19 and Table 16. The Mitigated 2013 No Project intersection levels of service calculations are included in Appendix G.

Segment Analysis

Table 15 shows the Mitigated 2013 No Project conditions segment levels of service.



TPG Consulting incorporated

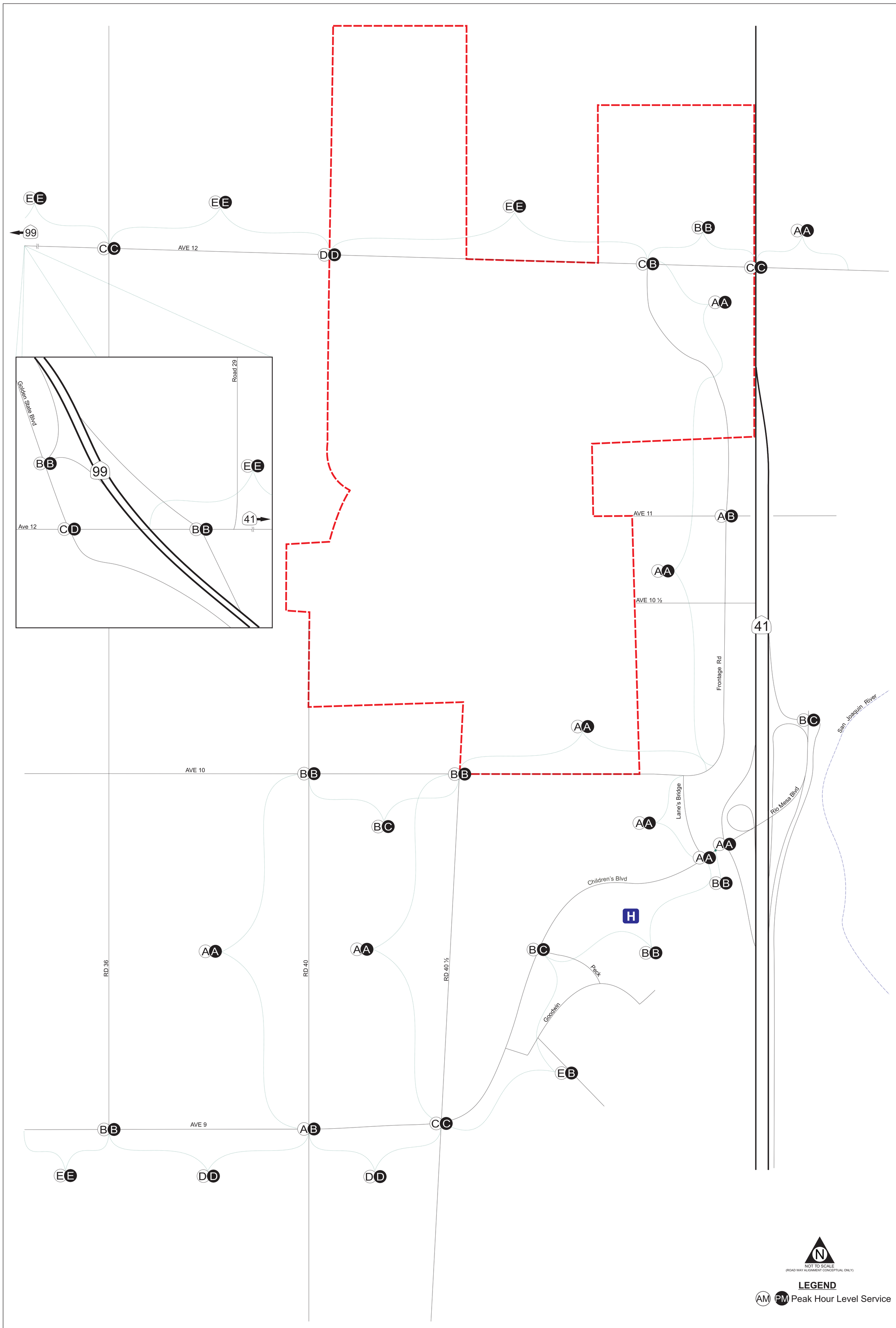
LANE CONFIGURATION AND INTERSECTION CONTROL

Mitigated 2013 No Project

Gateway Village
Madera County

Figure 18

95-250.4



TPG Consulting Incorporated

LEVELS OF SERVICE

Mitigated 2013 No Project

Gateway Village
Madera County

Figure 19

95-250.4

TABLE 15:
MITIGATED 2013 NO PROJECT CONDITIONS ANALYSIS
SEGMENT WEEKDAY LEVEL OF SERVICE

Segment	Number of Lanes[1]	Median	Facility Type	Capacity[2,3]	AM Peak Hour			PM Peak Hour		
					Volume[4]	LOS	D/C	Volume[4]	LOS	D/C
Road 40 – Avenue 9 to Avenue 10	2	Undivided	Arterial	750	3	A	0.002	1	A	0.000
Road 40 ½ - Avenue 9 to Avenue 10	2	Undivided	Arterial	750	62	A	0.041	66	A	0.044
SR 41 West Frontage Road – Avenue 10 to Root Creek Greenbelt	2	Undivided	Collector	500	286	A	0.286	325	A	0.325
SR 41 West Frontage Road – Root Creek Greenbelt to Avenue 12	2	Undivided	Collector	500	308	A	0.308	383	A	0.383
Avenue 9 – SR 99 to Road 36	**2** *(4)*	**Undivided**	**County Road**	**900**	**1,263**	**E** *(B)*	**0.702** *(0..351)*	**1,241**	**E** *(B)*	**0.689** *(0.345)*
Avenue 9 – Road 36 to Road 40	2	Undivided	County Road	900	966	D	0.537	942	D	0.523
Avenue 9 – Road 40 to Road 40 ½	2	Undivided	County Road	900	1,041	D	0.578	1,038	D	0.577
Childrens Boulevard – Road 40 ½ to Peck Boulevard	**2** *(4)*	**Undivided**	**County Road**	**900**	**1,099**	**E** *(B)*	**0.610** *(0.350)*	**1,024**	D *(B)*	0.569 *(0.284)*
Childrens Boulevard – Peck Boulevard to Lanes Bridge Drive	4	Undivided	County Road	1,400	2,807	B	0.501	2,688	B	0.480
Childrens Boulevard – Lanes Bridge Drive to SR 41 SB ramps	6	Undivided	County Road	1,400	3,441	B	0.307	3,447	B	0.308
Lanes Bridge Drive – Avenue 10 to Childrens Boulevard	4	Undivided	County Road	1,400	850	A	0.152	919	A	0.164
Avenue 10 – Road 40 to Road 40 ½	2	Undivided	County Road	900	386	B	0.214	415	C	0.231
Avenue 10 – Road 40 ½ to SR 41 West Frontage Road	2	Undivided	County Road	900	389	A	0.216	412	A	0.229
Avenue 12 – SR 99 to Road 36	**2** *(4)*	**Undivided**	**County Road**	**900**	**1,485**	**E** *(B)*	**0.825** *(0.412)*	**1,593**	**E** *(B)*	**0.885** *(0.443)*
Avenue 12 – Road 36 to Road 40	**2** *(4)*	**Undivided**	**County Road**	**900**	**1,243**	**E** *(B)*	**0.691** *(0.345)*	**1,226**	**E** *(B)*	**0.681** *(0.340)*
Avenue 12 – Road 40 to SR 41 West Frontage Road	**2** *(4)*	**Undivided**	**County Road**	**900**	**1,348**	**E** *(B)*	**0.749** *(0.374)*	**1,299**	**E** *(B)*	**0.722** *(0.361)*
Avenue 12 – SR 41 West Frontage Road to SR 41	4	Undivided	County Road	900	1,462	B	0.406	1,497	B	0.416
Avenue 12 – SR 41 to Rio Mesa Boulevard	6	Undivided	County Road	900	1,431	A	0.265	1,463	B	0.271

[1] = Number of lanes shown are 2-directional *[2] = Capacities taken from Madera County Travel Forecasting Model Documentation, Table 9* *[3] = Capacity shown is vehicles per lane per hour*
[4] = Volume shown is total 2-directional volume for the segment *D/C = demand to capacity ratio* *n/a = not applicable* *SR = State Route*
E/F = segment LOS shown bold and italicized in Mitigated 2013 Project and Mitigated 2025 Project scenarios include mitigations that are required based on intersection control
() = segment LOS shown in parentheses and italicized in Mitigated 2013 Project and Mitigated 2025 Project scenarios include mitigations that are required based on MCTC Capacity Table

Segments projected to operate below the Madera County adopted levels of service standard are shown in bold in Table 15. As stated previously, mitigations needed to make these segments function at or above the adopted level of service standard based on the MCTC Capacity Table generally exceed the mitigations required for these road segments at the study intersections. Typically the most important factors in determining an arterial's level of service is signal coordination and spacing, which ultimately affects the segment operating speed. Therefore, if fewer through lanes are required for the study intersections bracketing the study segment, then two (2) mitigations are shown for the segments of which one shows the MCTC Capacity Table recommended improvements and the other shows the intersection controlled recommended improvements. Likewise, the mitigated segment levels of service derived from the MCTC Capacity Table and the mitigated segment levels of service derived from the intersection analyses are shown in the level of service tables. Per County direction, the required intersection improvements will control the segment mitigations. Therefore, the signals will need to be fully coordinated and optimized in order for the segments to operate at an acceptable level of service. As shown in Table 15, five (5) of the study segments are still projected to operate below the adopted level of service standard in the Mitigated 2013 No Project scenario if using the intersection controlled mitigations. The remaining study segments are projected to operate at or above the adopted level of service standard in the Mitigated 2013 No Project conditions scenario.

Intersection Analysis

Table 16 shows the Mitigated 2013 No Project conditions intersection levels of service.

TABLE 16:
MITIGATED 2013 NO PROJECT CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

	AM Peak Hour		PM Peak Hour	
Intersection	**LOS**	**Delay[1] (secs)**	**LOS**	**Delay[1] (secs)**
Avenue 9 at Road 36	B	11.9	B	16.5
Avenue 9 at Road 40	A	6.2	B	14.9
Avenue 9 at Road 40 ½				
• EB Left-Through-Right	A	8.6	A	8.7
• WB Left-Through-Right	A	8.6	A	8.4
• NB Approach	C	23.0	C	21.0
• SB Approach	C	23.0	B	13.8
Childrens Boulevard at Peck Boulevard	B	14.4	C	34.0
Childrens Boulevard at Lanes Bridge Drive	A	9.1	A	8.5
Childrens Boulevard at SR 99 SB ramps	A	7.8	A	6.0
Rio Mesa Boulevard at SR 41 NB ramps	B	19.6	C	21.0
Avenue 10 at Road 40				
• EB Left-Through-Right	A	7.7	A	7.7
• WB Left-Through-Right	A	7.5	A	7.5
• SB Approach	B	10.7	A	9.0
• NB Approach	A	10.0	B	11.6
Avenue 10 at Road 40 ½				
• WB Left-Through	A	7.6	A	7.7
• NB Approach	B	12.2	B	11.8

TABLE 16:
MITIGATED 2013 NO PROJECT CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

Intersection	AM Peak Hour		PM Peak Hour	
	LOS	Delay[1] (secs)	LOS	Delay[1] (secs)
Avenue 11 at SR 41 West Frontage Road				
• NB Left	A	7.4	A	7.4
• SB Left	A	7.6	A	7.7
• WB Approach	A	9.2	B	11.1
• EB Approach	B	10.1	B	10.9
Avenue 12 at Road 36	C	26.9	C	24.2
Avenue 12 at Road 40				
• EB Left-Through-Right	A	8.3	A	9.1
• WB Left-Through-Right	A	9.9	A	8.7
• NB Approach	D	32.1	C	22.6
• SB Approach	D	27.6	D	27.6
Avenue 12 at SR 41 West Frontage Road	C	24.0	B	12.4
Avenue 12 at SR 41	C	26.2	C	34.1
Avenue 12 at Golden State Boulevard	C	30.0	D	46.2
SR 99 SB ramps at Golden State Boulevard	B	14.8	B	16.8
Avenue 12 at SR 99 NB ramps	B	12.6	B	15.3

[1] *Delay per vehicle* *secs = seconds* *WB = westbound* *NB = northbound*
SB = southbound *EB = eastbound*

As shown in Table 16, with the recommended intersection improvements, all the study intersections are projected to operate at or above the adopted level of service standard in the Mitigated 2013 No Project conditions scenario.

PROJECT

As stated previously, the proposed Project will be located in southeast Madera County north of Avenue 10, south of Avenues 12, 12 ½, and 13, east of Road 40, and west of SR 41 and the Rolling Hills community. Figure 1 shows the Project location.

The Project will consist of the following land uses (approximate):

- 1,326 acres (4,978 dwelling units (DU)) of Single Family Residential
- 128 acres (1,600 DU) of Multi-family of which 48 acres is mixed use with Community Commercial
- 88 acres of Community Commercial of which 48 acres is mixed use with Multi-family
- 32 acres of Neighborhood Commercial/Village Core
- 102 acres of Office
- 2 acres of Government Uses
- 3 Elementary Schools (36 acres)
- 225 acres of Park/Open Space

Currently, the Project site is primarily agricultural in use with some industrial and commercial uses. Construction and occupation of the Project for purposes of this study is expected to be completed by 2025.

The trip generation data used in the various Project analyses are described and quantified in the Methodology section. A copy of the proposed Gateway Village Specific Plan Circulation Plan is shown in Figure 3.

2013 PROJECT TRAFFIC CONDITIONS

As stated previously, the 2013 Project scenario is an interim scenario that was prepared to identify and mitigate any impacts resulting from the Project prior to its connection south across Root Creek Parkway to Avenue 10.

Roadways

The 2013 Project lane configurations were developed based on planned improvements shown in the following:

- Gateway Village Specific Plan Circulation Plan,
- the Existing conditions scenario,
- the 2013 No Project conditions scenario,
- the Mitigated 2013 No Project conditions scenario,

Intersection control was based on signal warrants prepared for all unsignalized study intersections in the various scenarios. The proposed Gateway Village Circulation Plan is shown in Figure 3. If a study intersection met the rural/urban peak hour volume warrant in the 2013 Project scenario, it was assumed that the intersection would be signalized in the 2013 Project analyses.

Signal Warrant Analysis

Rural and urban peak hour volume signal warrants were prepared for the following eleven (11) unsignalized intersections:

- Avenue 9 at Road 40 ½ - Urban
- Avenue 10 at Road 40 - Urban
- Avenue 10 at Road 40 ½ - Urban
- Avenue 11 at SR 41 West Frontage Road - Urban
- Avenue 12 at Road 40 - Rural
- Avenue 12 at Root Creek Parkway West - Rural
- Avenue 12 at N-S Secondary #1 - Rural
- Avenue 12 at Root Creek Parkway East - Rural
- Avenue 12 at N-S Secondary #2 - Rural
- Main Street at SR 41 West Frontage Road - Urban
- E-W Secondary #3 at SR 41 West Frontage Road - Urban

Based on the rural/urban peak hour volume signal warrant, the warrant is met at the following four (4) unsignalized study intersections in the 2013 Project conditions scenario:

- Avenue 12 at Root Creek Parkway West - Rural
- Avenue 12 at N-S Secondary #1 - Rural

- Avenue 12 at Root Creek Parkway East - Rural
- Avenue 12 at N-S Secondary #2 - Rural

If an intersection met the rural or urban peak hour volume warrant in a previous analysis year it is expected to continue to meet the warrant in all future scenarios due to growth in background volumes. Therefore, the following intersections and warrant type, by scenario, are projected to continue to meet the either the rural or urban peak hour volume signal warrant in the 2013 Project conditions scenario:

- Avenue 9 at Road 36 – Rural – 2013 No Project
- Avenue 9 at Road 40 – Rural – 2013 No Project
- Childrens Boulevard at Peck Boulevard – Rural - Existing
- Childrens Boulevard at Lanes Bridge Drive – Rural - Existing
- Avenue 12 at Road 36 – Rural - Existing
- Avenue 12 at SR 41SR 41 West Frontage Road – Rural - Existing
- Avenue 12 at Golden State Boulevard – Urban - Existing
- SR 99 SB ramps at Golden State Boulevard – Urban – 2013 No Project
- Avenue 12 at SR 99 NB ramps – Urban - Existing

This warrant analysis is limited to the peak hour volume warrant only and other conditions may exist which meet other traffic signal warrants. As stated previously, if an intersection was projected to meet the peak hour volume warrant, that intersection was analyzed as signalized in the 2013 Project conditions scenario. Copies of the warrant analyses are included in Appendix H.

Roadway and Intersection Improvements

In addition to the roadway and intersection improvements identified in the Existing scenario, the 2013 No Project scenario, and the Mitigated 2013 No Project scenario, and the 2013 Project peak hour volume signal warrant analyses, the following improvements are assumed to be in place per the Gateway Village Plan Circulation Plan in the 2013 Project scenario:

Segments

- Avenue 12 – Project (Circulation Plan)
    - Widen from two (2) lanes to six (6) lanes from Root Creek Parkway East to SR 41
    - Widen from two (2) lanes to four (4) lanes from Root Creek Parkway West to Root Creek Parkway East
    - Widen from two (2) lanes to four (4) lanes from Road 40 to Root Creek Parkway West
- SR 41 West Frontage Road – Project (Circulation Plan)
    - Widen from two (2) lanes to four (4) lanes from Root Creek Greenbelt/E-W Secondary #3 to northern Project boundary
- Root Creek Parkway West – Project (Circulation Plan)
    - Construct a four (4) lane roadway from Root Creek Greenbelt/E-W Secondary #5 to north of Avenue 12
- Root Creek Parkway East – Project (Circulation Plan)
    - Construct a four (4) lane roadway from Root Creek Greenbelt/E-W Secondary #3 to Avenue 12
- Road 40 – Project (Circulation Plan)
    - Construct a two (2) lane roadway from Avenue 12 to Root Creek Parkway West
- N-S Secondary #1 – Project (Circulation Plan)
    - Construct a two (2) lane roadway from E-W Secondary #5 to Avenue 12

- N-S Secondary #2 – Project (Circulation Plan)
  - Construct a two (2) lane roadway from E-W Secondary #3 to Avenue 12
- E-W Secondary #3 – Project (Circulation Plan)
  - Construct a two (2) lane roadway from Root Creek Parkway West to SR 41 West Frontage Road
- E-W Secondary #4 – Project (Circulation Plan)
  - Construct a two (2) lane roadway from Root Creek Parkway West to E-W Secondary #5
- E-W Secondary #5 – Project (Circulation Plan)
  - Construct a two (2) lane roadway from Root Creek Parkway West to E-W Secondary #3
- Main Street – Project (Circulation Plan)
  - Construct a two (2) lane roadway from Road 40 to SR 41 West Frontage Road

Intersections

- Avenue 12 at Root Creek Parkway West – Project (Circulation Plan)
  - Signalize the intersection
  - Construct the NB approach, south leg, to provide one (1) left-turn lane, and a shared through-right lane
  - Construct the SB approach, north leg to provide two (2) left-turn lanes, and a shared through-right lane
- Avenue 12 at Root Creek Parkway East – Project (Circulation Plan)
  - Signalize the intersection
  - Construct the NB approach, south leg, to provide one (1) left-turn lane, and two (2) right-turn lanes
- Avenue 12 at SR 41 – Project (Offsite Mitigation)
  - Restripe/widen the NB approach, south leg, from a separate left-turn lane, one (1) through lane, and a separate right-turn lane to dual (2) left-turn lanes to a depth of approximately 1,000 feet on SR 41 S of Avenue 12, one (1) through lane, and a separate right-turn lane
  - Restripe/widen the WB departure, west leg, from one (1) through lane to two (2) through lanes for approximately 1,000 feet west of SR 41
- Root Creek Parkway West at Main Street – Project (Circulation Plan)
  - Construct a roundabout
- Root Creek Parkway West at E-W Secondary # 3 – Project (Circulation Plan)
  - Construct a roundabout
- Root Creek Parkway West at Road 40/E-W Secondary # 4 – Project (Circulation Plan)
  - Construct a roundabout
- Root Creek Parkway West at E-W Secondary #5 – Project (Circulation Plan)
  - Construct a roundabout
- Root Creek Parkway East at E-W Secondary #3 – Project (Circulation Plan)
  - Construct a roundabout
- Root Creek Parkway East at Main Street – Project (Circulation Plan)
  - Construct a roundabout

All signalized intersections are shown with separate or dual left-turn lanes and separate right-turn lanes as warranted. All Gateway Village secondary/collector roadways are constructed as shown on the proposed Circulation Plan.

Because of the high volume of NB left-turns and EB right-turns at the SR 41 at Avenue 12 intersection, coordination for the signalized intersections along Avenue 12 from Root Creek Parkway West to SR 41 was projected to result in cycle lengths of greater than 120 seconds or unreasonable lane additions to several of the Avenue 12 study intersections. To maintain maximum cycle lengths at 120 seconds and to not generate unreasonable lane mitigations for the Avenue 12 intersections from Root Creek Parkway West to SR 41, the Avenue 12 at SR 41 intersection was analyzed as uncoordinated with the remaining intersections along this section of Avenue 12 analyzed as coordinated. Both levels of service are shown in the LOS tables as appropriate.

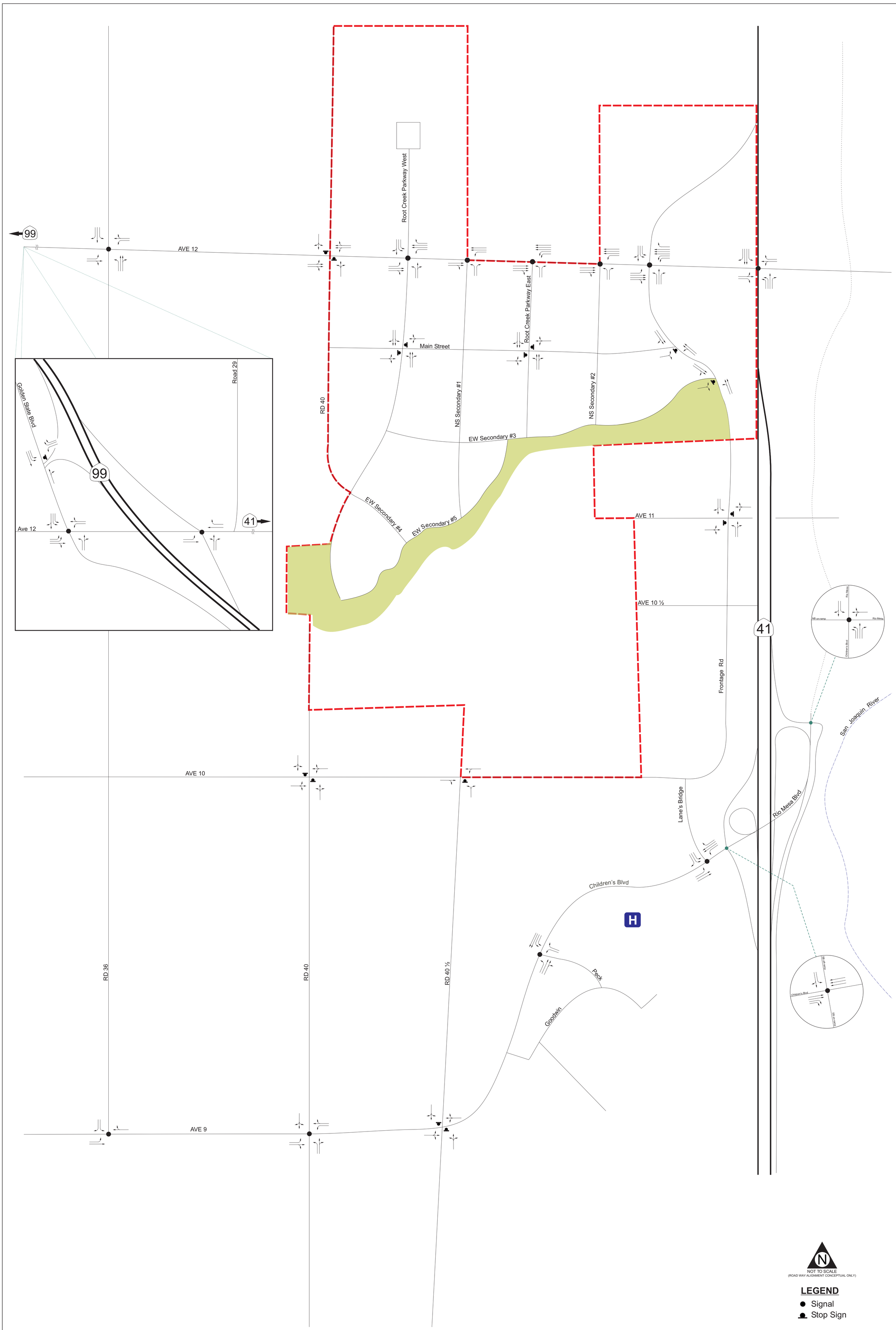
2013 Project Analyses

The 2013 Project lane configurations and intersection controls are shown on Figure 20. The 2013 Project segment peak hour traffic volumes are shown on Figure 21 and the 2013 Project intersection peak hour traffic volumes are shown on Figure 22. Using the lane configurations shown on Figure 20 and the volumes shown on Figures 21 and 22, the segments and intersections were analyzed for 2013 Project levels of service. Figure 23 and Tables 17 and 18 show the 2013 Project levels of service for the study segments and intersections. The TWSC levels of service shown on Figure 23 are the levels of service for the worst operating movement at that intersection. The signalized and roundabout intersection levels of service shown in Figure 23 and Table 18 are representative of the whole intersection. Individual intersection movements or approaches may operate above or below the signalized and roundabout level of service or delay shown in Figure 23 and Table 18. The 2013 Project intersection levels of service calculations are included in Appendix I.

As stated previously Avenue 12 from Root Creek Parkway West to the SR 41 West Frontage Road was analyzed as a coordinated system with the Avenue 12 at SR 41 intersection analyzed as part of the coordinated system and also as uncoordinated. The LOS and associated delay for this coordinated/uncoordinated analysis is shown in Figure 23 and Table 18. Also shown in Table 18, for informational purposes only, is the LOS and associated delay resulting from the analysis of this Avenue 12 segment from Root Creek Parkway West to and including SR 41with all intersections coordinated.

Segment Analysis

Table 17 shows the 2013 Project condition segment levels of service.



TPG Consulting Incorporated

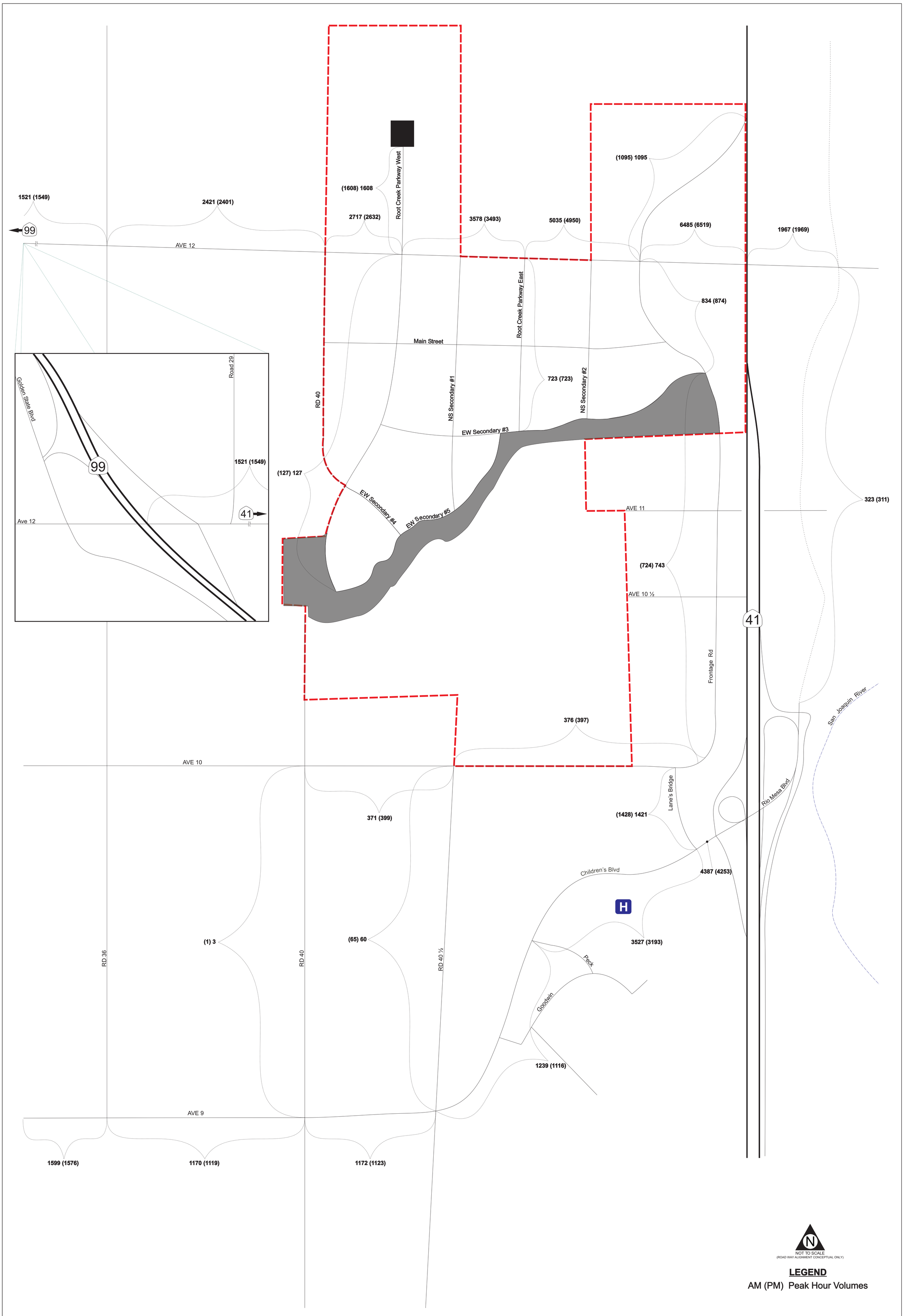
LANE CONFIGURATION AND INTERSECTION CONTROL

2013 Project

Gateway Village
Madera County

Figure 20

95-250.4



TPG Consulting Incorporated

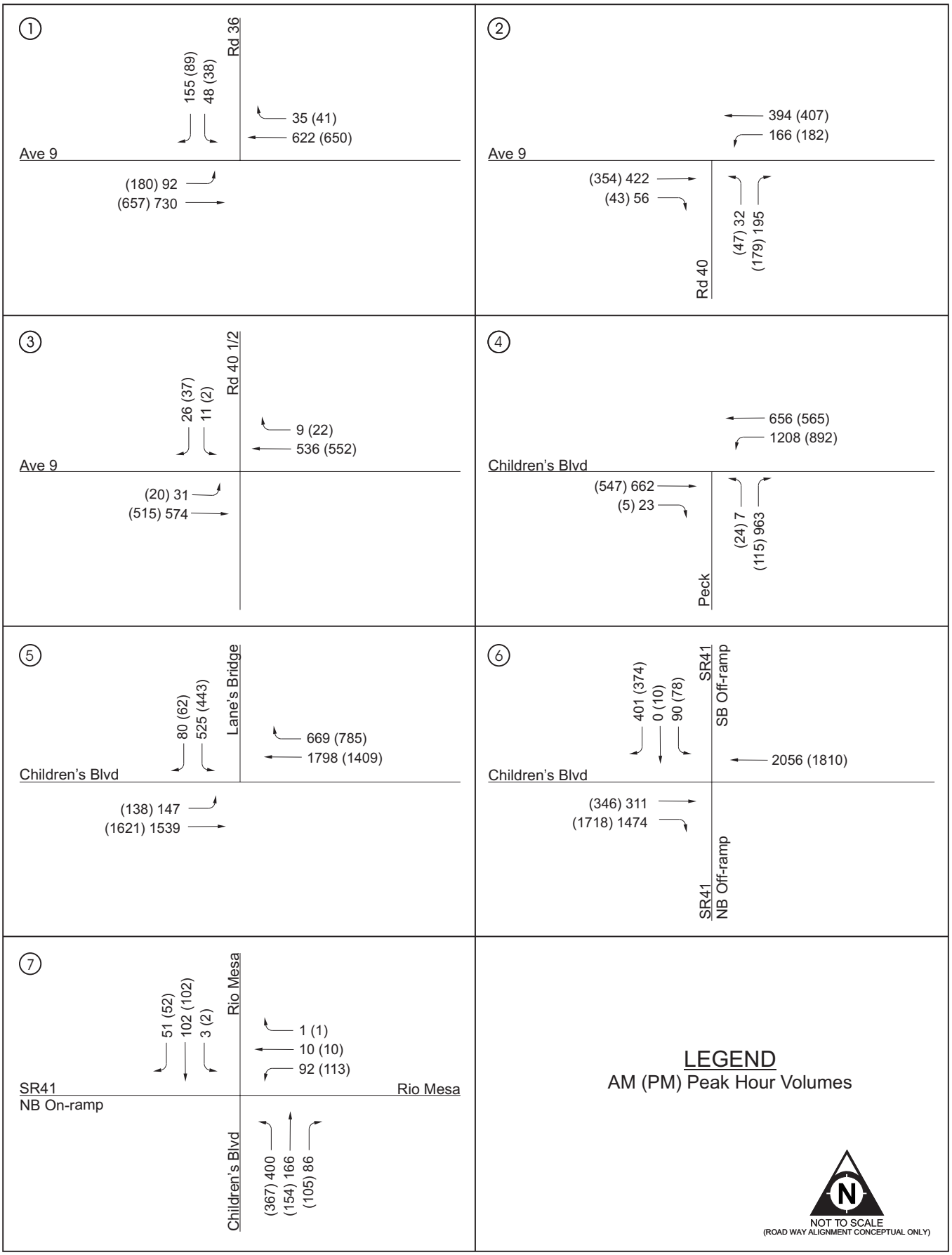
SEGMENT VOLUMES

2013 Project

Gateway Village
Madera County

Figure 21

95-250.4



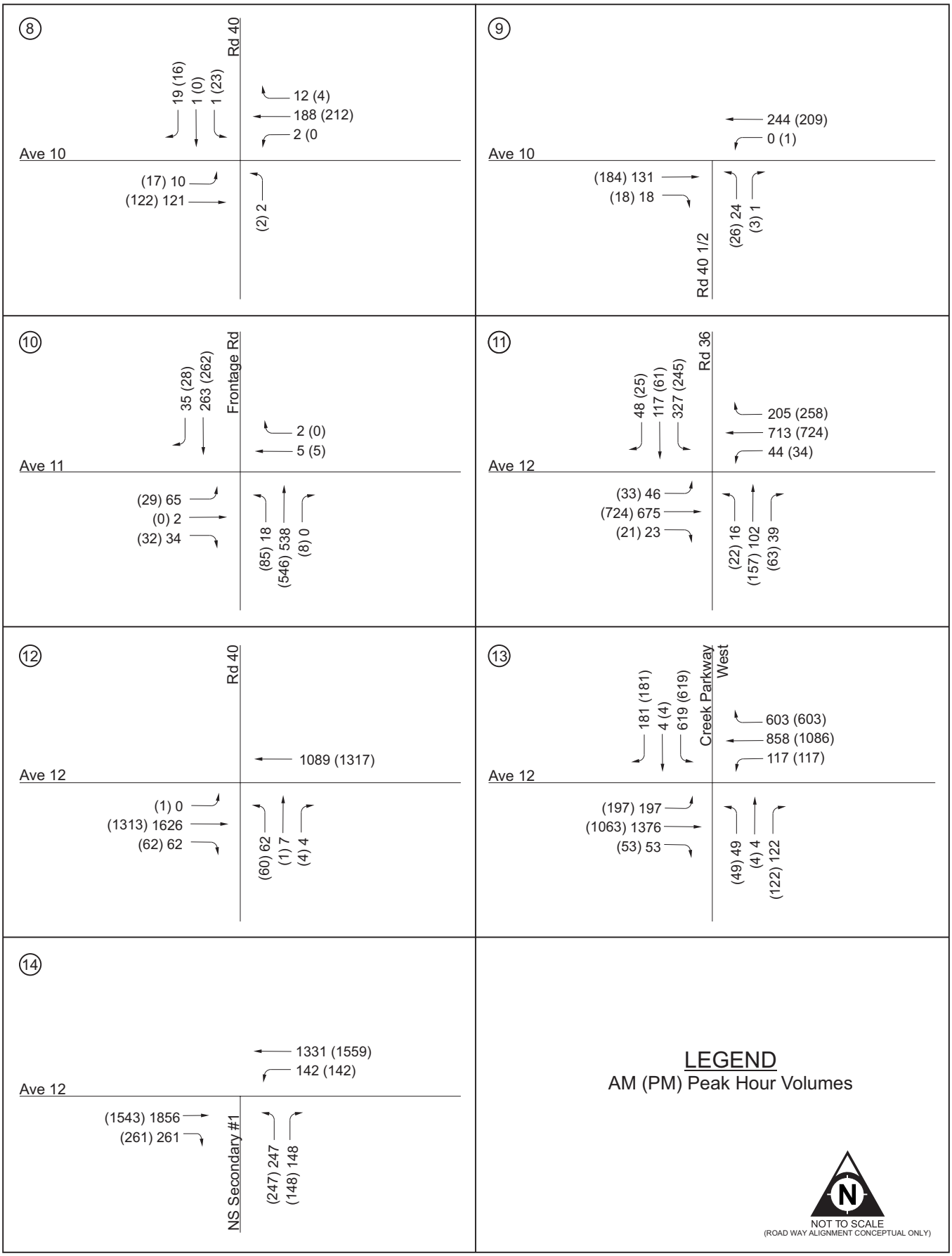
TPG Consulting Incorporated

INTERSECTION VOLUMES
2013 Project

Gateway Village
Madera County

Figure 22A

95-250.4



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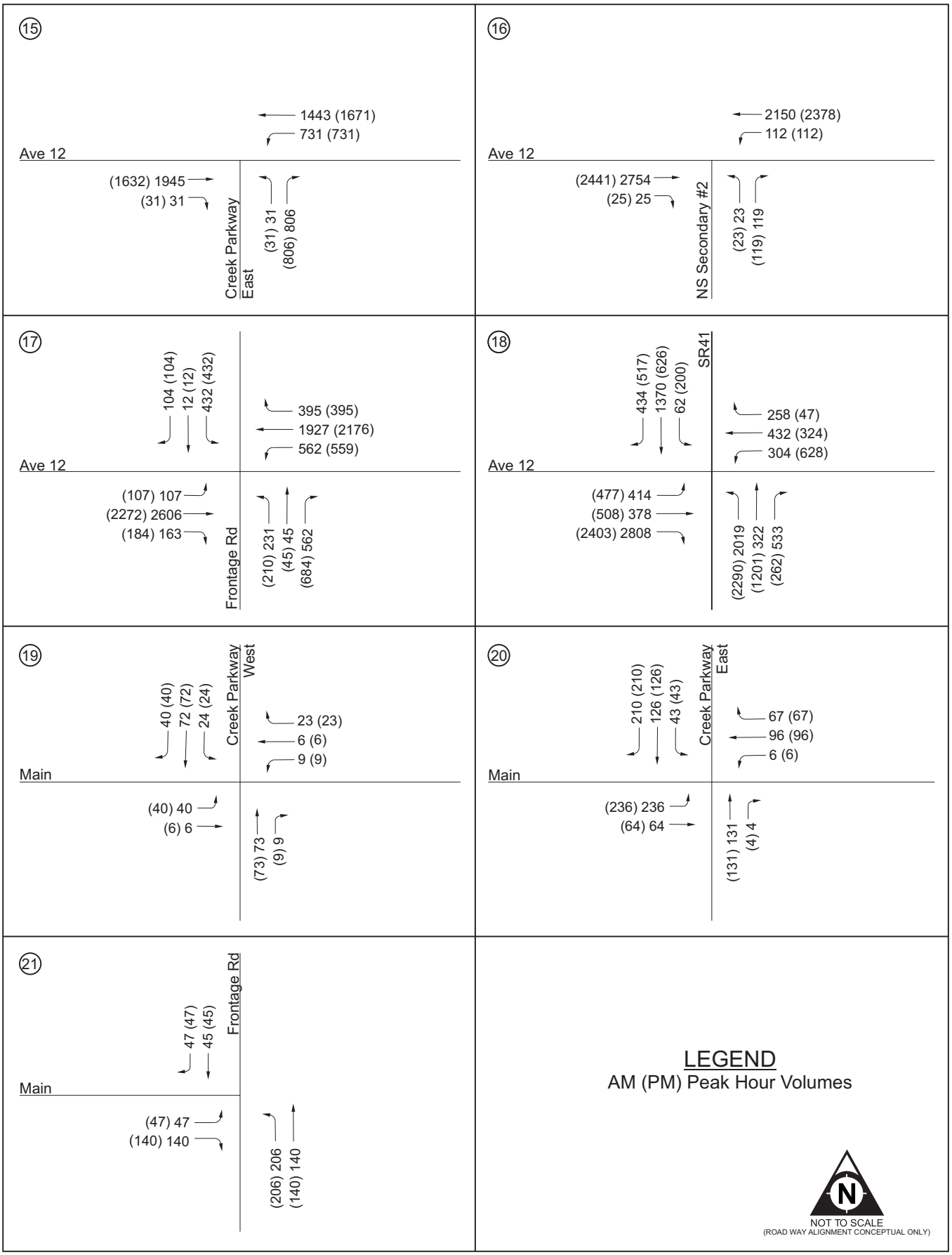
INTERSECTION VOLUMES
2013 Project

Gateway Village
Madera County

Figure 22B

95-250.4



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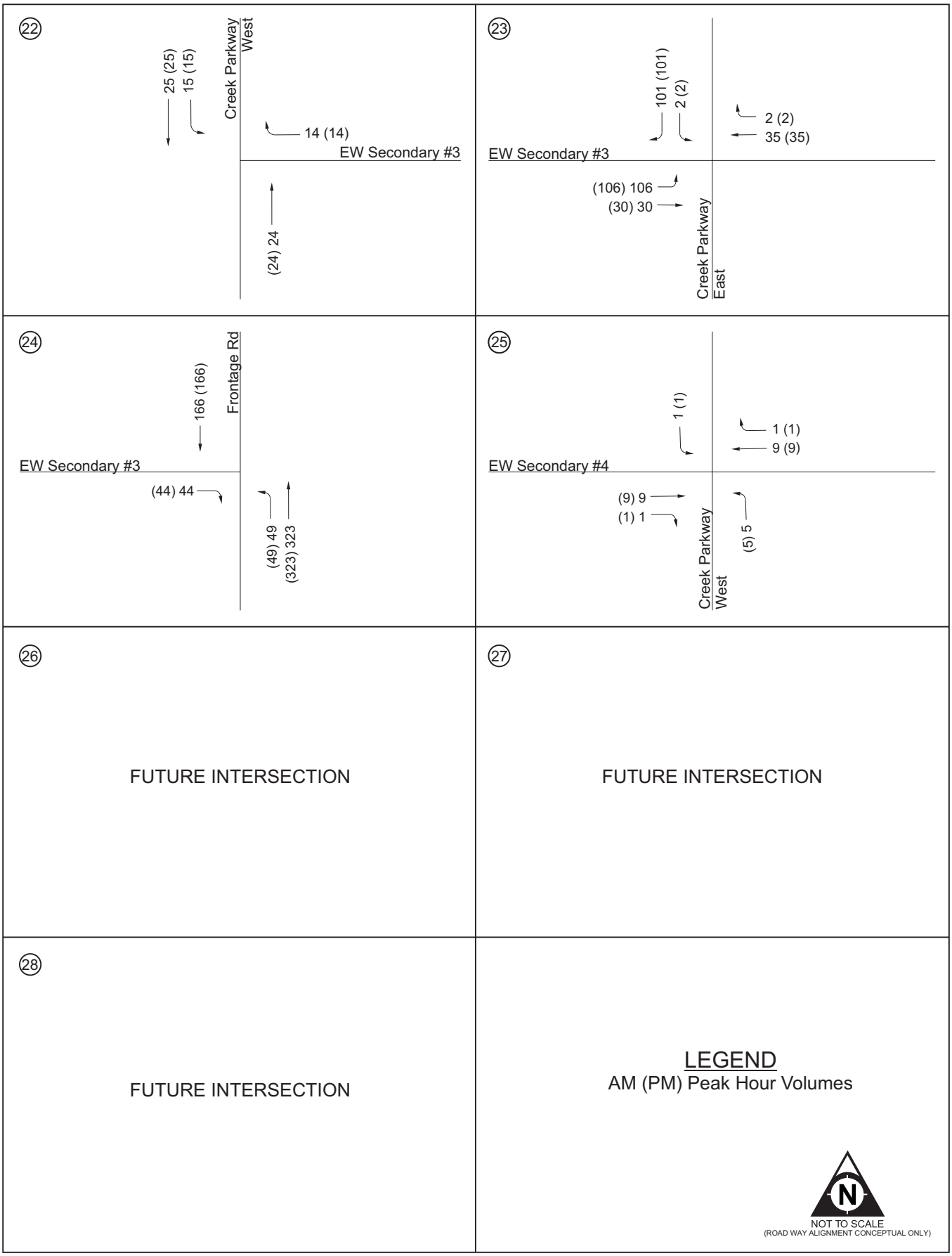
INTERSECTION VOLUMES
2013 Project

Gateway Village
Madera County

Figure 22C

95-250.4



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INTERSECTION VOLUMES
2013 Project

Gateway Village
Madera County

Figure 22D

95-250.4

(29)

FUTURE INTERSECTION

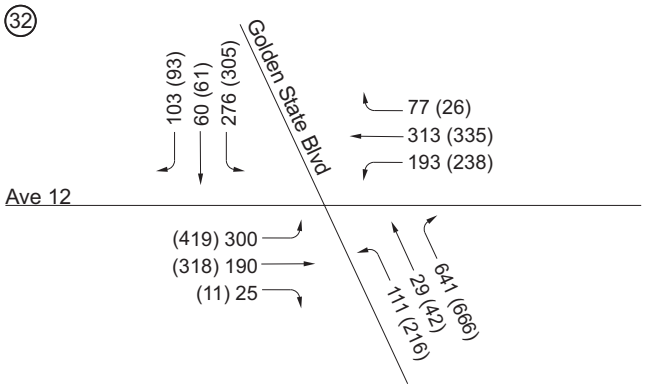
(30)

FUTURE INTERSECTION

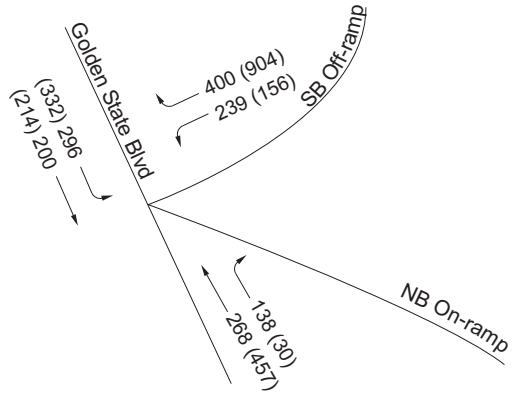
(31)

FUTURE INTERSECTION

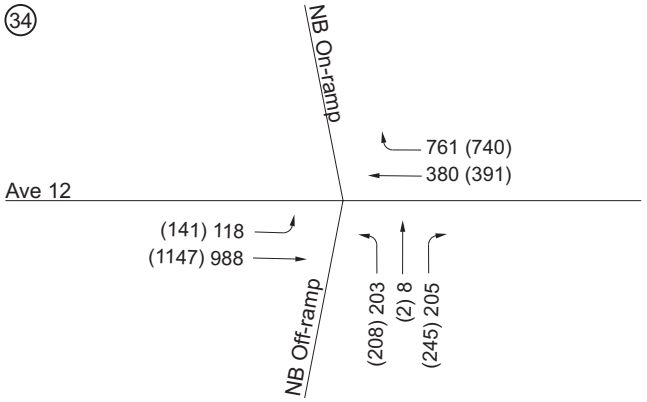
(32)



(33)



(34)



LEGEND

AM (PM) Peak Hour Volumes

N

NOT TO SCALE

(ROAD WAY ALIGNMENT CONCEPTUAL ONLY)

TPG Consulting Incorporated

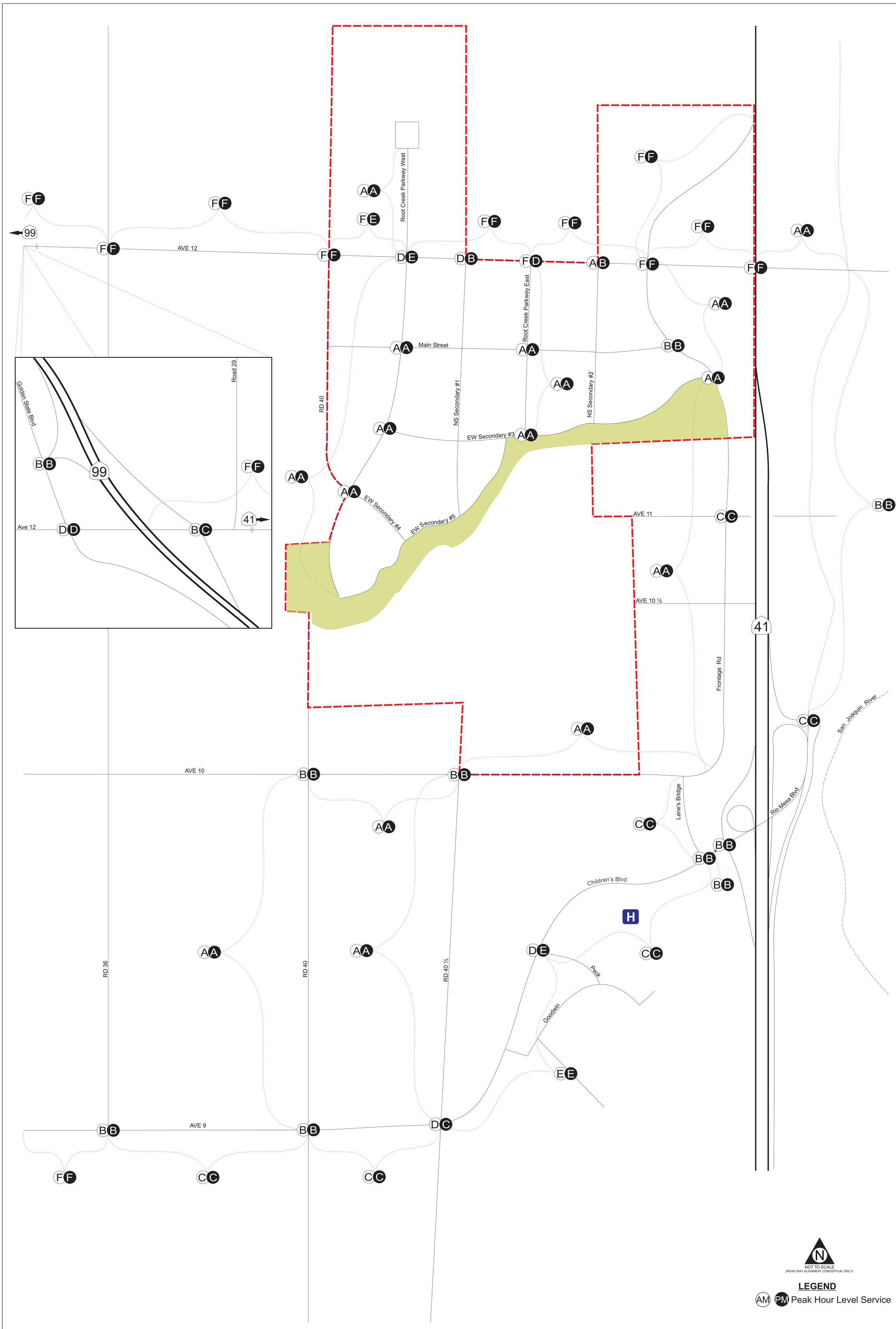
INTERSECTION VOLUMES

2013 Project

Gateway Village
Madera County

Figure 22E

95-250.4



TPG Consulting Incorporated

LEVELS OF SERVICE
2013 Project

Gateway Village
Madera County

Figure 23

95-250.4

TABLE 17:
2013 PROJECT CONDITIONS ANALYSIS
SEGMENT WEEKDAY LEVEL OF SERVICE

Segment	Number of Lanes[1]	Median	Facility Type	Capacity[2,3]	AM Peak Hour			PM Peak Hour		
					Volume[4]	LOS	D/C	Volume[4]	LOS	D/C
Road 40 – Avenue 9 to Avenue 10	2	Undivided	Arterial	750	3	A	0.004	1	A	0.002
Root Creek Pkwy West – Root Creek Greenbelt to Avenue 12	4	Divided	Arterial	750	127	A	0.044	127	A	0.044
Root Creek Pkwy West – Avenue 12 to northern Project boundary	4	Divided	Arterial	750	1,608	A	0.536	1,608	A	0.536
Road 40 ½ - Avenue 9 to Avenue 10	4	Undivided	Arterial	750	60	A	0.023	65	A	0.023
Root Creek Pkwy East – Root Creek Greenbelt to Avenue 12	4	Divided	Arterial	750	723	A	0.227	723	A	0.227
SR 41 West Frontage Road – Avenue 10 to Root Creek Greenbelt	4	Undivided	Collector	500	743	A	0.371	724	A	0.362
SR 41 West Frontage Road – Root Creek Greenbelt to Avenue 12	4	Undivided	Collector	500	834	A	0.417	874	A	0.437
SR 41 West Frontage Road – Avenue 12 to northern Project boundary	4	Undivided	Collector	500	1,095	A	0.548	1,095	A	0.548
Rio Mesa Boulevard – Avenue 10 to Avenue 12	2	Undivided	County Road	900	323	B	0.180	311	B	0.173
Avenue 9 – SR 99 to Road 36	**2**	**Undivided**	**Arterial**	**750**	**1,599**	**F**	**1.067**	**1,576**	**F**	**1.051**
Avenue 9 – Road 36 to Road 40	2	Undivided	Arterial	750	1,170	C	0.786	1,119	C	0.746
Avenue 9 – Road 40 to Road 40 ½	2	Undivided	Arterial	750	1,172	C	0.791	1,123	C	0.749
Childrens Boulevard – Road 40 ½ to Peck Boulevard	**2**	**Undivided**	**County Road**	**900**	**1,239**	**E**	0.699	**1,116**	**E**	**0.628**
Childrens Boulevard – Peck Boulevard to Lanes Bridge Drive	4	Undivided	County Road	1,400	3,527	C	0.636	3,193	C	0.577
Childrens Boulevard – Lanes Bridge Drive to SR 41 SB ramps	6	Undivided	County Road	1,400	4,387	B	0.405	4,253	B	0.380
Lanes Bridge Drive – Avenue 10 to Childrens Boulevard	4	Undivided	County Road	1,400	1,421	C	0.711	1,428	C	0.714
Avenue 10 – Road 40 to Road 40 ½	2	Undivided	Arterial	750	371	A	0.259	399	A	0.277
Avenue 10 – Road 40 ½ to SR 41 West Frontage Road	2	Undivided	Arterial	750	376	A	0.259	397	A	0.275
Avenue 12 – SR 99 to Road 36	**2**	**Undivided**	**Arterial**	**750**	**1,521**	**F**	**1.014**	**1,549**	**F**	**1.033**
Avenue 12 – Road 36 to Road 40	**2**	**Undivided**	**Arterial**	**750**	**2,421**	**F**	**1.614**	**2,401**	**F**	**1.601**
Avenue 12 – Road 40 to Root Creek Pkwy West	**4**	**Divided**	**Arterial**	**750**	**2,717**	**F**	**0.906**	**2,632**	**E**	**0.877**
Avenue 12 – Root Creek Pkwy West to Root Creek Pkwy East	**4**	**Divided**	**Arterial**	**750**	**3,578**	**F**	**1.196**	**3,493**	**F**	**1.168**
Avenue 12 – Root Creek Pkwy East to SR 41 West Frontage Road	**6**	**Divided**	**Arterial**	**750**	**5,035**	**1.121**	**1.119**	**4,950**	**F**	**1.102**
Avenue 12 – SR 41 West Frontage Road to SR 41	**6**	**Divided**	**Arterial**	**750**	**6,485**	**F**	**1.441**	**6,519**	**F**	**1.449**
Avenue 12 – SR 41 to Rio Mesa Boulevard	6	Undivided	Arterial	750	1,967	A	0.438	1,969	A	0.438

[1] = Number of lanes shown are 2-directional *[2] = Capacities taken from Madera County Travel Forecasting Model Documentation, Table 9* *[3] = Capacity shown is vehicles per lane per hour*
[4] = Volume shown is total 2-directional volume for the segment *D/C = demand to capacity ratio* *SR = State Route*

Segments projected to operate below the Madera County adopted levels of service standard are shown in bold in Table 17. As shown in Table 17, eight (8) segments are projected to operate below the adopted level of service standard in the 2013 Project scenario based on the MCTC Table. The Avenue 9 from SR 99 to Road 36 segment is projected to operate at a LOS "F" in both the AM and PM peak hours. The Childrens Boulevard from Road 40 ½ to Peck Boulevard segment is projected to operate at a LOS "E" in both the AM and PM peak hours. The Avenue 12 segments from SR 99 to Road 36, Road 36 to Road 40, Root Creek Parkway West to Root Creek Parkway East, Root Creek Parkway East to the SR 41 West Frontage Road, and the SR 41 West Frontage Road to SR 41 are projected to operate at a LOS "F" in both the AM and PM peak hours. The Avenue 12 from Road 40 to Root Creek Parkway West segment is projected to operate at a LOS "F" in the AM peak hour and a LOS "E" in the PM peak hour. The remaining segments are projected to operate at or above the Madera County adopted level of service standard in the 2013 Project conditions scenario.

All Gateway Village internal secondary/collector roadways are projected to operate at or above the Madera County adopted level of service standard.

Intersection Analysis

Table 18 shows the 2013 Project condition intersection levels of service. As stated previously, for the Avenue 12 segment from Root Creek Parkway West to SR 41 two (2) sets of LOS and associated delay are provided in Table 18. The LOS and delay not shown in parentheses assumes coordination of the study intersections from Root Creek Parkway West to the SR 41 West Frontage Road with the Avenue 12 at SR 41 intersection shown as uncoordinated. The LOS and associated delay shown in parentheses assumes coordination of all study intersections from Root Creek Parkway West to and including the Avenue 12 at SR 41 intersection.

TABLE 18:
2013 PROJECT CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

	AM Peak Hour		PM Peak Hour	
Intersection	**LOS**	**Delay[1] (secs)**	**LOS**	**Delay[1] (secs)**
Avenue 9 at Road 36	B	13.7	B	16.8
Avenue 9 at Road 40	B	14.4	B	16.0
Avenue 9 at Road 40 ½				
• EB Left-Through-Right	A	8.8	A	8.8
• WB Left-Through-Right	A	8.8	A	8.6
• NB Approach	D	25.9	C	23.4
• SB Approach	C	24.7	B	14.7
Childrens Boulevard at Peck Boulevard	D	54.2	**E**	**78.6**
Childrens Boulevard at Lanes Bridge Drive	B	14.8	B	12.7
Childrens Boulevard at SR 41 SB ramps	B	14.9	B	14.2
Rio Mesa Boulevard at SR 41 NB ramps	C	21.3	C	22.9
Avenue 10 at Road 40				
• EB Left-Through-Right	A	7.7	A	7.8
• WB Left-Through-Right	A	7.5	A	7.5
• SB Approach	B	11.7	B	10.9
• NB Approach	A	10.0	B	11.5

TABLE 18:
2013 PROJECT CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

Intersection	AM Peak Hour LOS	AM Peak Hour Delay[1] (secs)	PM Peak Hour LOS	PM Peak Hour Delay[1] (secs)
Avenue 10 at Road 40 ½				
• WB Left-Through	A	7.6	A	7.7
• NB Approach	B	12.3	B	11.8
Avenue 11 at SR 41 West Frontage Road				
• NB Left	A	8.0	A	8.1
• SB Left	A	8.6	A	8.7
• WB Approach	C	17.2	C	23.7
• EB Approach	C	22.0	C	20.4
Avenue 12 at Road 36	**F**	**96.1**	**F**	**96.5**
Avenue 12 at Road 40				
• EB Left-Through-Right	B	11.1	B	12.6
• WB Left-Through-Right	C	15.8	B	13.0
• **NB Approach**	**F**	**---**	**F**	**5077**
• **SB Approach**	**F**	**---**	**F**	**351.2**
Avenue 12 at Root Creek Pkwy West	D **(E)**	44.8 **(66.4)**	D **(E)**	35.5 **(66.6)**
Avenue 12 at N-S Secondary #1	C (D)	23.1 (38.9)	B (B)	15.4 (13.6)
Avenue 12 at Root Creek Pkwy East	**E** **(F)**	**73.2** **(84.1)**	D (D)	44.5 (53.1)
Avenue 12 at N-S Secondary #2	A (A)	5.2 (5.8)	A (B)	6.2 (11.2)
Avenue 12 at SR 41 West Frontage Road	**F** **(F)**	**133.0** **(214.0)**	**F** **(F)**	**155.7** **(281.6)**
Avenue 12 at SR 41	**F** **(F)**	**1409.5** **(1561.5)**	**F** **(F)**	**1681.3** **(1796.1)**
Main Street at Root Creek Pkwy West	A	1.9	A	1.9
Main Street at Root Creek Pkwy East	A	2.6	A	2.6
Main Street at SR 41 West Frontage Road				
• NB Left-Through	A	7.8	A	7.8
• EB Approach	B	12.2	B	12.2
Root Creek Pkwy West at E-W Secondary #3	A	1.7	A	1.7
Root Creek Pkwy East at E-W Secondary #3	A	2.3	A	2.3
E-W Secondary #3 at SR 41 West Frontage Road				
• NB Left-Through	A	7.8	A	7.8
• EB Approach	A	9.2	A	9.2

TABLE 18:
2013 PROJECT CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

Intersection	AM Peak Hour		PM Peak Hour	
	LOS	Delay[1] (secs)	LOS	Delay[1] (secs)
Root Creek Pkwy West at E-W Secondary #4	A	2.4	A	2.4
Avenue 12 at Golden State Boulevard	D	38.4	D	45.6
SR 99 SB ramps at Golden State Boulevard	B	18.4	B	19.2
Avenue 12 at SR 99 NB ramps	B	15.7	C	23.9

[1] Delay per vehicle *secs = seconds* *WB = westbound* *NB = northbound*
SB = southbound *EB = eastbound* *Pkwy = Parkway* *E-W = East-West*
N-S = North-South
***F** – Intersection LOS along Avenue 12 is based on the assumption that the Ave 12 signals from Root Creek Pkwy West to the SR 41 West Frontage Road are coordinated and the SR 41 at Ave 12 intersection is not part of this coordination*
***(F)** – Intersection LOS along Avenue 12 shown in parentheses is based on the assumption that the Ave 12 signals from Root Creek Pkwy West to SR 41 are coordinated*

Intersections projected to operate below either the Madera County or Caltrans' adopted levels of service standard are shown in bold in Table 18. As shown in Table 18, six (6) intersections are projected to operate or have movements that are projected to operate below the adopted level of service standard in the 2013 Project scenario. The Childrens Boulevard at Peck Boulevard intersection is projected to operate at a LOS "E" in the PM peak hour. The Avenue 12 at Road 36 intersection is projected to operate at a LOS "F" in both the AM and PM peak hours. The NB and SB approaches of the Avenue 12 and Road 40 intersection are both projected to operate at a LOS "F" in both the AM and PM peak hours. The Avenue 12 at Root Creek Parkway East intersection is projected to operate at a LOS "E" in the AM peak hour. The Avenue 12 at SR 41 West Frontage Road and the Avenue 12 at SR 41 intersections are both projected to operate at a LOS "F" in both the AM and PM peak hours. The remaining study intersections are projected to continue to operate at or above either the Madera County or Caltrans' adopted level of service standard in the 2013 Project conditions scenario.

MITIGATED 2013 PROJECT TRAFFIC CONDITIONS

Roadways

Based on the information provided in the previous section, the following locations by time period are projected to operate below the adopted level of service in the 2013 Project conditions scenario:

Segments

- Avenue 9 – SR 99 to Road 36 - AM/PM peak hours – LOS "F"
- Childrens Boulevard – Road 40 ½ to Peck Boulevard - AM/PM peak hours – LOS "E"
- Avenue 12 – SR 99 to Road 36 - AM/PM peak hours – LOS "F"
- Avenue 12 – Road 36 to Road 40 - AM/PM peak hours – LOS "F"
- Avenue 12 – Road 40 to Root Creek Parkway West
    - AM peak hour – LOS "F"
    - PM peak hour – LOS "E"
- Avenue 12 – Root Creek Parkway West to Root Creek Parkway East - AM/PM peak hours – LOS "F"

- Avenue 12 – Root Creek Parkway East to SR 41 West Frontage Road - AM/PM peak hours – LOS "F"
- Avenue 12 – SR 41 West Frontage Road to SR 41 - AM/PM peak hours – LOS "F"

Intersections

- Childrens Boulevard at Peck Boulevard – PM peak hour – LOS "E"
- Avenue 12 at Road 36 – AM/PM peak hours – LOS "F"
- Avenue 12 at Road 40
    - NB Approach – AM/PM peak hours – LOS "F"
    - SB Approach – AM/PM peak hours – LOS "F"
- Avenue 12 at Root Creek Parkway East – AM peak hour – LOS "E"
- Avenue 12 at SR 41 West Frontage Road – AM/PM peak hours – LOS "F"
- Avenue 12 at SR 41 – AM/PM peak hours – LOS "F"

Rural and urban peak hour volume signal warrants were also prepared for all unsignalized study intersections. Based on either the rural or urban peak hour volume warrant, the warrant is met for the following locations by time frame:

- Avenue 12 at Root Creek Parkway West - Rural
- Avenue 12 at N-S Secondary #1 - Rural
- Avenue 12 at Root Creek Parkway East - Rural
- Avenue 12 at N-S Secondary #2 - Rural

To mitigate the segments and intersections projected to operate below the level of service standard or meet the rural or urban peak hour volume warrants, the following improvements are recommended in the Mitigated 2013 Project scenario. Implementation of these improvements is projected to occur by the Gateway Village Project. Please note as shown in Table 17 there are several segments projected to operate below the adopted level of service standard based on the MCTC Capacity Table in the 2013 Project scenario. Mitigations needed to make these segments function at or above the adopted level of service standard based on the MCTC Capacity Table generally exceed the mitigations required for these road segments at the study intersections. Typically the most important factors in determining an arterial's level of service is signal coordination and spacing, which ultimately affects the segment operating speed. Therefore if fewer through lanes were required for the study intersections bracketing the study segment, then two (2) mitigations are shown for the segments of which one shows the MCTC Capacity Table recommended improvements and the other showing the intersection controlled recommended improvements. Likewise the mitigated segment levels of service derived from the MCTC Capacity Table and the mitigated segment levels of service derived from the intersection analyses are shown in the level of service tables. Per County direction, the required intersection improvements will control the segment mitigations. Therefore, the signals will need to be fully coordinated and optimized in order for the segments to operate at an acceptable level of service.

Segments

- Avenue 12 – Road 40 to Root Creek Parkway West – Gateway Village Mitigations
    - MCTC Capacity Table
        - Restripe/widen from four (4) lanes to six (6) lanes
    - Intersection Analysis
        - No mitigations needed

- Avenue 12 – Root Creek Parkway West to Root Creek Parkway East – Gateway Village Mitigations
    - MCTC Capacity Table
        - Restripe/widen from four (4) lanes to six (6) lanes
    - Intersection Analysis
        - Root Creek Parkway West to N-S Secondary #1
            - No mitigations needed
        - N-S Secondary #1 to Root Creek Parkway East
            - Restripe/widen from four (4) lanes to six (6) lanes
- Avenue 12 – Root Creek Parkway East to SR 41 West Frontage Road – Gateway Village Mitigations
    - MCTC Capacity Table
        - Restripe/widen from six (6) lanes to eight (8) lanes
    - Intersection Analysis
        - Root Creek Parkway East to N-S Secondary #2
            - No mitigations needed
        - N-S Secondary #2 to SR 41 West Frontage Road
            - Restripe/widen from six (6) lanes to seven (7) lanes [three (3) WB and four (4) EB]
- Avenue 12 – SR 41 West Frontage Road to SR 41 – Gateway Village Mitigations
    - MCTC Capacity Table
        - Restripe/widen from six (6) lanes to ten (10) lanes
    - Intersection Analysis
        - Restripe/widen from six (6) lanes to seven (7) lanes [three (3) WB and four (4) EB]

Intersections

- Childrens Boulevard at Peck Boulevard – Gateway Village Mitigations
    - Restripe/widen the NB approach, south leg, from one (1) left-turn lane and one (1) right-turn lane to one (1) left-turn lane and two (2) right-turn lanes
- Avenue 12 at Road 36 – Gateway Village Mitigations
    - Restripe/widen the EB approach, west leg, from one (1) left-turn lane and a shared through-right to one (1) left-turn lane, one (1) through lane and a shared through-right lane
    - Restripe/widen the WB approach, east leg, from one (1) left-turn lane and a shared through-right to one (1) left-turn lane, one (1) through lane and a shared through-right lane
- Avenue 12 at SR 41 West Frontage Road – Gateway Village Mitigations
    - Restripe/widen the EB approach, west leg, from one (1) left-turn lane, two (2) through lanes and a shared through-right lane to one (1) left-turn lane, four (4) through lanes and one (1) right-turn lane
    - Restripe/widen the NB approach, south leg, from one (1) left-turn lane, one (1) through lane, and one (1) right-turn lane to one (1) left-turn lane, one (1) through lane and two (2) right-turn lanes

Even though the Avenue 12 at Road 40 intersection fails in the 2013 Project scenario it is not shown as being mitigated since it did not meet the rural peak hour volume signal warrant. Three (3) options could be considered that would bring the intersection to levels of service at or above the Madera County level of service standard. These options, along with associated LOS and seconds (sec) of delay by time period (AM/PM) include:

- Signalizing the intersection – LOS A (4.7)/LOS A (5.7)
- Restricting left-turn movements out of the intersection and allowing only left-turning movements in – LOS C (23.4)/LOS C (20.1)
- Restricting all left-turning movements into and out of the intersection – LOS C (18.0)/LOS C (20.1)

Please note that with the use of any of these three (3) options LOS and delay at other intersections in the corridor would potentially be different than those currently reported in this study. It should be noted that restricting movements at the Avenue 12 at Road 40 intersection would cause an increase/shifting in the traffic to the next available intersections thereby possibly decreasing the LOS and increasing the delay at those intersections.

As indicated previously, since the intersection levels of service usually control segment levels of service, the proposed segment widenings required by the MCTC Capacity Table, with the exception of the Avenue 12 from Road 36 to Road 40 segment, are not recommended. The Avenue 12 from Road 36 to Road 40 segment will be widened to four (4) lanes in conjunction with the proposed widening of Avenue 12 at the bracketing intersections with Road 36 and Road 40. Again if the intersection analyses are allowed to control the segment mitigations, then the signals will need to be fully coordinated and optimized in order for the segments to operate at an acceptable level of service.

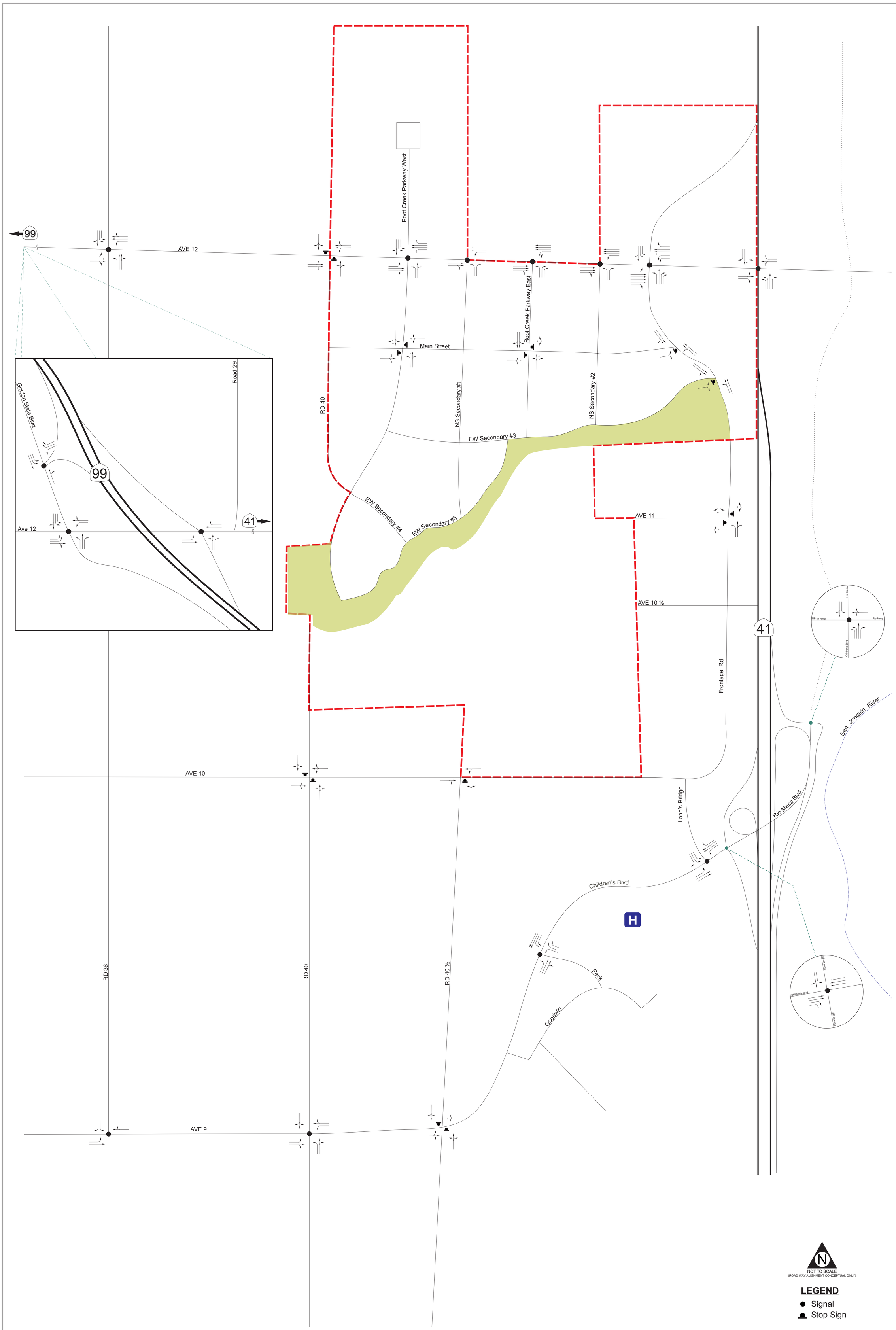
As stated previously no mitigations are proposed for the Avenue 12 at SR 41 intersection in the Mitigated 2013 Project scenario. The Project will be constructing interim intersection improvements prior to the occupancy of the first dwelling unit and ultimate intersection improvements within 12 months of the issuance of the 1,500th building permit. Even with these interim and ultimate intersection improvements the Avenue 12 at SR 41 intersection is projected to operate below the adopted level of service until an interchange is constructed. The interchange construction is planned for 2030 or beyond.

Mitigated 2013 Project Analyses

The Mitigated 2013 Project lane configurations and intersection controls are shown on Figure 24. Using the lane configurations shown on Figure 24 and the volumes shown on Figures 21 and 22, the segments and intersections were analyzed for Mitigated 2013 Project levels of service. Figure 25 and Tables 19 and 20 show the Mitigated 2013 Project levels of service for the study segments and intersections. The TWSC levels of service shown on Figure 25 are the levels of service for the worst operating movement at that intersection. The signalized and roundabout intersection levels of service shown in Figure 25 and Table 20 are representative of the whole intersection. Individual intersection movements or approaches may operate above or below the signalized and roundabout level of service or delay shown in Figure 25 and Table 20. The Mitigated 2013 Project intersection levels of service calculations are included in Appendix J.

Segment Analysis

Table 19 shows the Mitigated 2013 Project condition segment levels of service.



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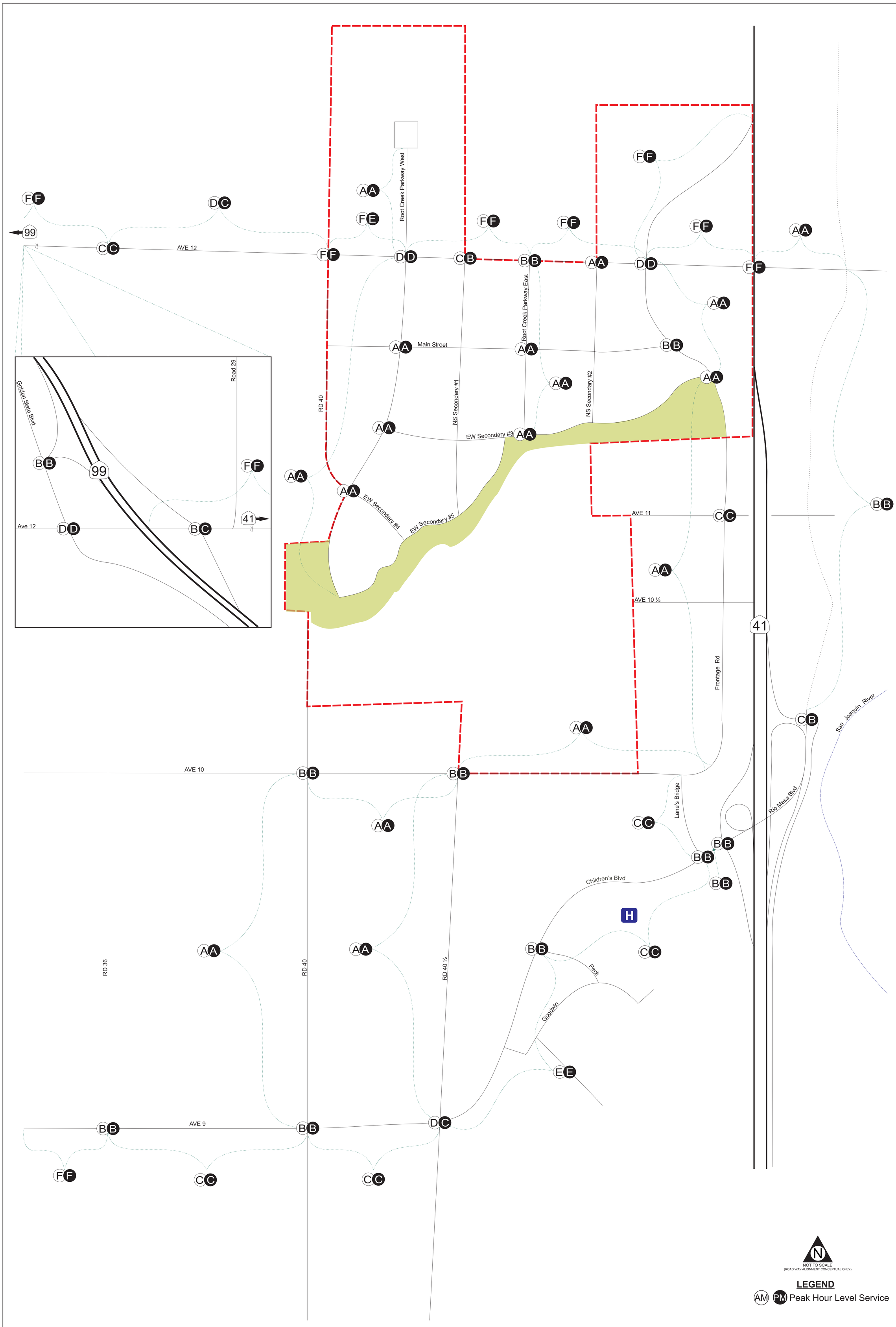
LANE CONFIGURATION AND INTERSECTION CONTROL

Mitigated 2013 Project

Gateway Village
Madera County

Figure 24

95-250.4



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LEVELS OF SERVICE

Mitigated 2013 Project

Gateway Village
Madera County

Figure 25

95-250.4

TABLE 19:
MITIGATED 2013 PROJECT CONDITIONS ANALYSIS
SEGMENT WEEKDAY LEVEL OF SERVICE

Segment	Number of Lanes[1]	Median	Facility Type	Capacity[2,3]	AM Peak Hour			PM Peak Hour		
					Volume[4]	LOS	D/C	Volume[4]	LOS	D/C
Road 40 – Avenue 9 to Avenue 10	2	Undivided	Arterial	750	3	A	0.004	1	A	0.002
Root Creek Pkwy West – Root Creek Greenbelt to Avenue 12	4	Divided	Arterial	750	127	A	0.042	127	A	0.042
Root Creek Pkwy West – Avenue 12 to northern Project boundary	4	Divided	Arterial	750	1,608	A	0.536	1,608	A	0.536
Road 40 ½ - Avenue 9 to Avenue 10	4	Undivided	Arterial	750	60	A	0.023	65	A	0.023
Root Creek Pkwy East – Root Creek Greenbelt to Avenue 12	4	Divided	Arterial	750	723	A	0.241	723	A	0.241
SR 41 West Frontage Road – Avenue 10 to Root Creek Greenbelt	4	Undivided	Collector	500	743	A	0.371	724	A	0.362
SR 41 West Frontage Road – Root Creek Greenbelt to Avenue 12	4	Undivided	Collector	500	834	A	0.417	874	A	0.437
SR 41 West Frontage Road – Avenue 12 to northern Project boundary	4	Undivided	Collector	500	1,095	A	0.548	1,095	A	0.548
Rio Mesa Boulevard – Avenue 10 to Avenue 12	2	Undivided	County Road	900	323	B	0.180	311	B	0.173
Avenue 9 – SR 99 to Road 36	**2** *(4)*	**Undivided**	**Arterial**	**750**	**1,599**	**F** *(A)*	**1.067** *(0.533)*	**1,576**	**F** *(A)*	**1.051** *(0.526)*
Avenue 9 – Road 36 to Road 40	2	Undivided	Arterial	750	1,170	C	0.786	1,119	C	0.746
Avenue 9 – Road 40 to Road 40 ½	2	Undivided	Arterial	750	1,172	C	0.791	1,123	C	0.749
Childrens Boulevard – Road 40 ½ to Peck Boulevard	**2** *(4)*	**Undivided**	**County Road**	**1,400**	**1,239**	**E** *(C)*	**0.699** *(0.349)*	**1,116**	**E** *(C)*	**0.620** *(0.314)*
Childrens Boulevard – Peck Boulevard to Lanes Bridge Drive	4	Undivided	County Road	1,400	3,527	C	0.636	3,193	C	0.577
Childrens Boulevard – Lanes Bridge Drive to SR 41 SB ramps	6	Undivided	County Road	1,400	4,387	B	0.405	4,253	B	0.380
Lanes Bridge Drive – Avenue 10 to Childrens Boulevard	4	Undivided	County Road	1,400	1,421	C	0.711	1,428	C	0.714
Avenue 10 – Road 40 to Road 40 ½	2	Undivided	Arterial	750	371	A	0.259	399	A	0.277
Avenue 10 – Road 40 ½ to SR 41 West Frontage Road	2	Undivided	Arterial	750	376	A	0.259	397	A	0.275
Avenue 12 – SR 99 to Road 36	**2** *(4)*	**Undivided**	**Arterial**	**750**	**1,521**	**F** *(A)*	**1.014** *(0.507)*	**1,549**	**F** *(A)*	**1.033** *(0.516)*
Avenue 12 – Road 36 to Road 40	4	Undivided	Arterial	750	2,421	D	0.807	2,401	C	0.800
Avenue 12 – Road 40 to Root Creek Pkwy West	**4** *(6)*	**Divided**	**Arterial**	**750**	**2,717**	**F** *(A)*	**0.906** *(0.604)*	**2,632**	**E** *(A)*	**0.877** *(0.585)*
Avenue 12 – Root Creek Pkwy West to Root Creek Pkwy East	**4** *(6)*	**Divided**	**Arterial**	**750**	**3,578**	**F** *(C)*	**1.193** *(0.797)*	**3,493**	**F** *(C)*	**1.164** *(0.778)*
Avenue 12 – Root Creek Pkwy East to SR 41 West Frontage Road	**6** *(8)*	**Divided**	**Arterial**	**750**	**5,035**	**F** *(D)*	**1.119** *(0.841)*	**4,950**	**F** *(D)*	**1.100** *(0.827)*
Avenue 12 – SR 41 West Frontage Road to SR 41	**6** *(10)*	**Divided**	**Arterial**	**750**	**6,485**	**F** *(D)*	**1.441** *(0.865)*	**6,519**	**F** *(D)*	**1.449** *(0.869)*
Avenue 12 – SR 41 to Rio Mesa Boulevard	6	Undivided	Arterial	750	1,967	A	0.438	1,969	A	0.438

[1] = Number of lanes shown are 2-directional *[2] = Capacities taken from Madera County Travel Forecasting Model Documentation, Table 9* *[3] = Capacity shown is vehicles per lane per hour*
[4] = Volume shown is total 2-directional volume for the segment *D/C = demand to capacity ratio* *SR = State Route*
E/F = segment LOS shown bold and italicized in Mitigated 2013 Project and Mitigated 2025 Project scenarios include mitigations that are required based on intersection control
() = segment LOS shown in parentheses and italicized in Mitigated 2013 Project and Mitigated 2025 Project scenarios include mitigations that are required based on MCTC Capacity Table

Segments projected to operate below the Madera County adopted levels of service standard are shown in bold in Table 19. As shown in Table 19, seven (7) of the study segments are still projected to operate below the adopted level of service standard in the Mitigated 2013 Project scenario if using the intersection controlled mitigations. The remaining study segments are projected to operate at or above the adopted level of service standard in the Mitigated 2013 Project conditions scenario.

Again all Gateway Village internal secondary/collector roadways are projected to operate at or above the Madera County adopted level of service standard in the Mitigated 2013 Project scenario.

Intersection Analysis

Table 20 shows the Mitigated 2013 Project conditions intersection level of service.

TABLE 20:
MITIGATED 2013 PROJECT CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

	AM Peak Hour		PM Peak Hour	
Intersection	**LOS**	**Delay[1] (secs)**	**LOS**	**Delay[1] (secs)**
Avenue 9 at Road 36	B	13.7	B	16.8
Avenue 9 at Road 40	B	14.4	B	16.0
Avenue 9 at Road 40 ½				
• EB Left-Through-Right	A	8.8	A	8.8
• WB Left-Through-Right	A	8.8	A	8.6
• NB Approach	D	25.9	C	23.4
• SB Approach	C	24.7	B	14.7
Childrens Boulevard at Peck Boulevard	B	13.7	B	11.5
Childrens Boulevard at Lanes Bridge Drive	B	15.7	B	12.0
Childrens Boulevard at SR 99 SB ramps	B	15.0	B	13.3
Rio Mesa Boulevard at SR 41 NB ramps	C	21.4	B	19.7
Avenue 10 at Road 40				
• EB Left-Through-Right	A	7.7	A	7.8
• WB Left-Through-Right	A	7.5	A	7.5
• SB Approach	B	11.7	B	10.9
• NB Approach	A	10.0	B	11.5
Avenue 10 at Road 40 ½				
• WB Left-Through	A	7.6	A	7.7
• NB Approach	B	12.3	B	11.8
Avenue 11 at SR 41 West Frontage Road				
• NB Left	A	8.0	A	8.1
• SB Left	A	8.6	A	8.7
• WB Approach	C	17.2	C	23.7
• EB Approach	C	22.0	C	20.4
Avenue 12 at Road 36	C	30.8	C	29.5

TABLE 20:
MITIGATED 2013 PROJECT CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

Intersection	AM Peak Hour		PM Peak Hour	
	LOS	Delay[1] (secs)	LOS	Delay[1] (secs)
Avenue 12 at Road 40				
• EB Left-Through-Right	B	11.1	B	12.6
• WB Left-Through-Right	C	15.8	B	13.0
• **NB Approach**	**F**	**---**	**F**	**5077**
• **SB Approach**	**F**	**---**	**F**	**351.2**
Avenue 12 at Root Creek Pkwy West	D	45.1	D	36.3
Avenue 12 at N-S Secondary #1	C	23.2	B	14.9
Avenue 12 at Root Creek Pkwy East	B	19.7	B	11.7
Avenue 12 at N-S Secondary #2	A	5.4	A	5.0
Avenue 12 at SR 41 West Frontage Road	D	46.0	D	35.4
Avenue 12 at SR 41	**F**	**1409.5**	**F**	**1681.3**
Main Street at Root Creek Pkwy West	A	1.9	A	1.9
Main Street at Root Creek Pkwy East	A	2.6	A	2.6
Main Street at SR 41 West Frontage Road				
• NB Left-Through	A	7.8	A	7.8
• EB Approach	B	12.2	B	12.2
Root Creek Pkwy West at E-W Secondary #3	A	1.7	A	1.7
Root Creek Pkwy East at E-W Secondary #3	A	2.3	A	2.3
E-W Secondary #3 at SR 41 West Frontage Road				
• NB Left-Through	A	7.8	A	7.8
• EB Approach	A	9.2	A	9.2
Root Creek Pkwy West at E-W Secondary #4	A	2.4	A	2.4
Avenue 12 at Golden State Boulevard	D	38.4	D	45.6
SR 99 SB ramps at Golden State Boulevard	B	18.4	B	19.2
Avenue 12 at SR 99 NB ramps	B	15.7	C	23.9

[1] *Delay per vehicle* *secs = seconds* *WB = westbound* *NB = northbound*
SB = southbound *EB = eastbound* *Pkwy = Parkway* *E-W = East-West*
N-S = North-South

As shown in Table 20, with the recommended intersection improvements, all the study intersections are projected to operate at or above the adopted level of service standard in the Mitigated 2013 Project conditions scenario. Again no mitigations were proposed for the Avenue 12 at SR 41 and the Avenue 12 at Road 40 intersections and as such they are shown as failing in Table 18.

2025 NO PROJECT TRAFFIC CONDITIONS

Roadways

The 2025 No Project lane configurations and intersection controls were developed based on planned improvements shown in the 2004 Madera County Regional Transportation Plan (RTP) and any improvements identified in the Existing, 2013 No Project, and Mitigated 2013 No Project conditions scenario.

Roadway and Intersection Improvements

The following additional improvements are assumed to be in place by the 2025 No Project scenario:

2025 No Project

- Childrens Boulevard - GRW
  - Widen from two (2) lanes to four(4) lanes from Road 40 to Road 40 ½
  - Widen from four (4) lanes to six (6) lanes from Peck Boulevard to Lanes Bridge Drive
- Avenue 12 – RTP (RTIP/CWIF)
  - Widen from two (2) lanes to four (4) lanes from SR 99 to Road 30
  - Widen from two (2) lanes to four (4) lanes from Road 38 to SR 41

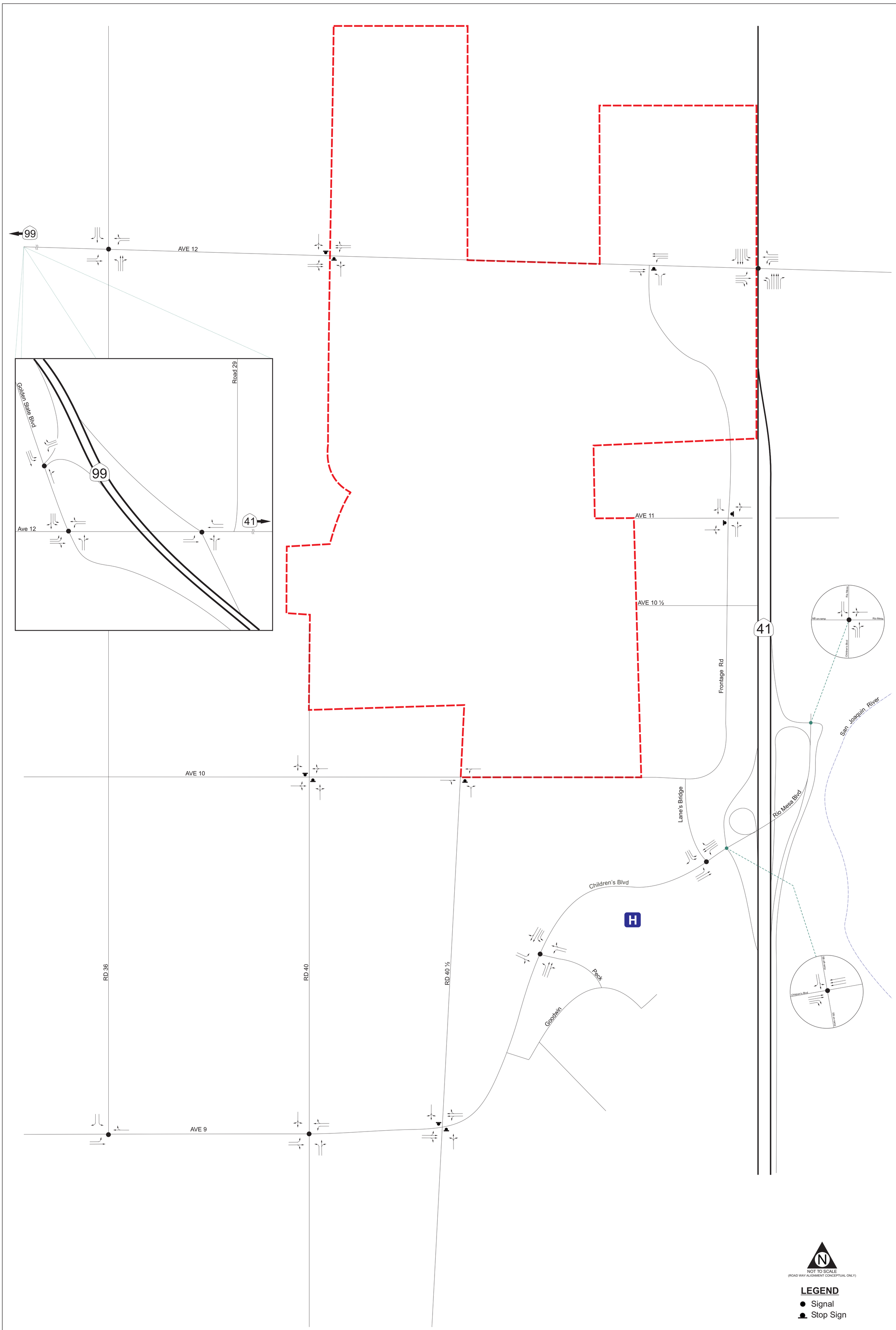
These improvements are in addition to those identified in the Existing, 2013 No Project and Mitigated 2013 No Project scenarios.

2025 No Project Analyses

The 2025 No Project lane configurations and intersection controls are shown on Figure 26. The 2025 No Project segment volumes are shown on Figure 27 and the intersection peak hour traffic volumes are shown on Figure 28. Using the lane configurations shown on Figure 26 and the volumes shown on Figures 27 and 28, the segments and intersections were analyzed for 2025 No Project levels of service. Figure 29 and Tables 21 and 22 show the 2025 No Project levels of service for the study segments and intersections. The TWSC levels of service shown on Figure 29 are the levels of service for the worst operating movement at that intersection. The signalized and AWSC intersection levels of service shown in Figure 29 and Table 22 are representative of the whole intersection. Individual intersection movements or approaches may operate above or below the signalized and AWSC level of service or delay shown in Figure 29 and Table 22. The 2025 No Project intersection levels of service calculations are included in Appendix K.

Segment Analysis

Table 21 shows the 2025 No Project condition segment levels of service.



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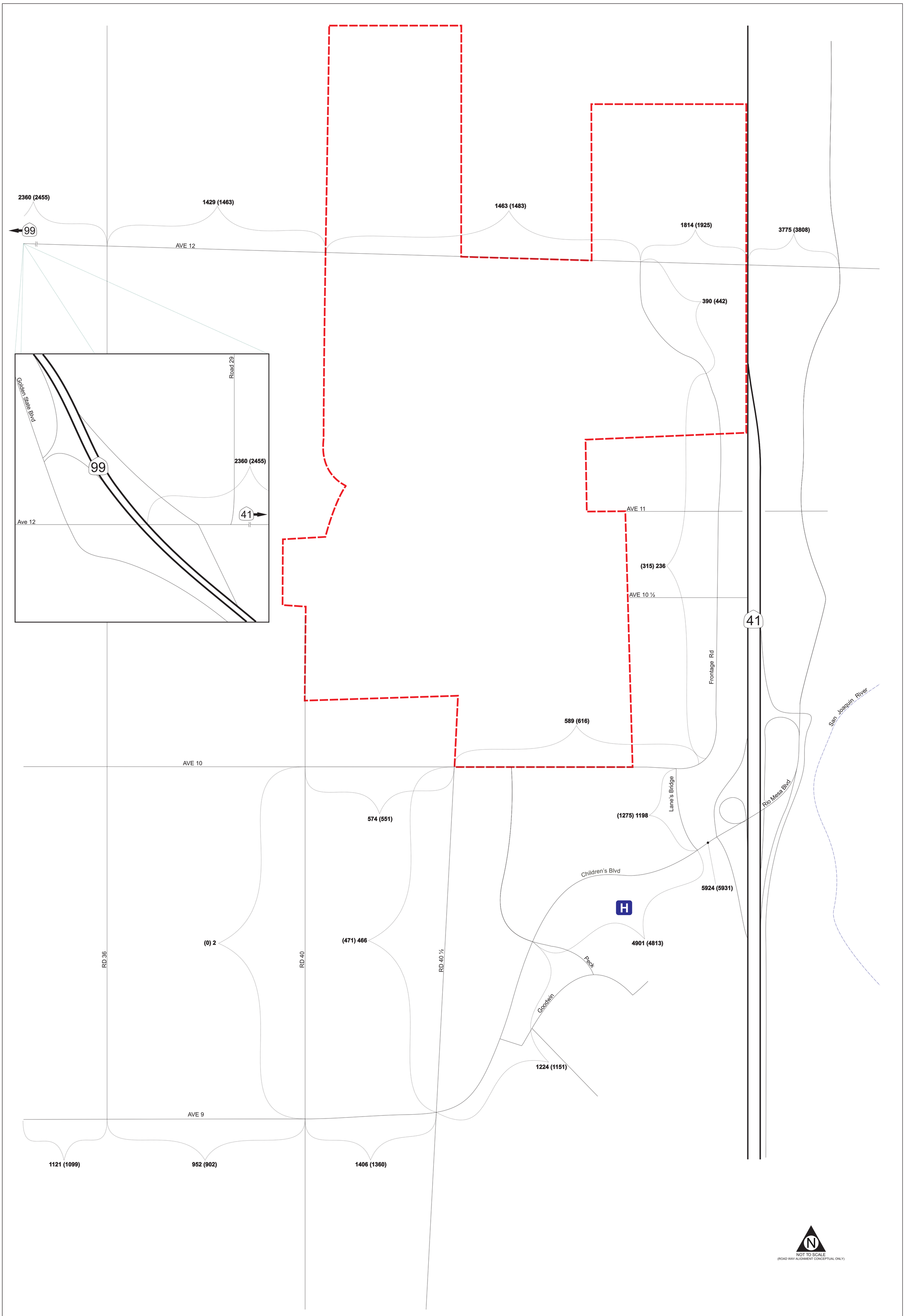
LANE CONFIGURATION AND INTERSECTION CONTROL

2025 No Project

Gateway Village
Madera County

Figure 26

95-250.4



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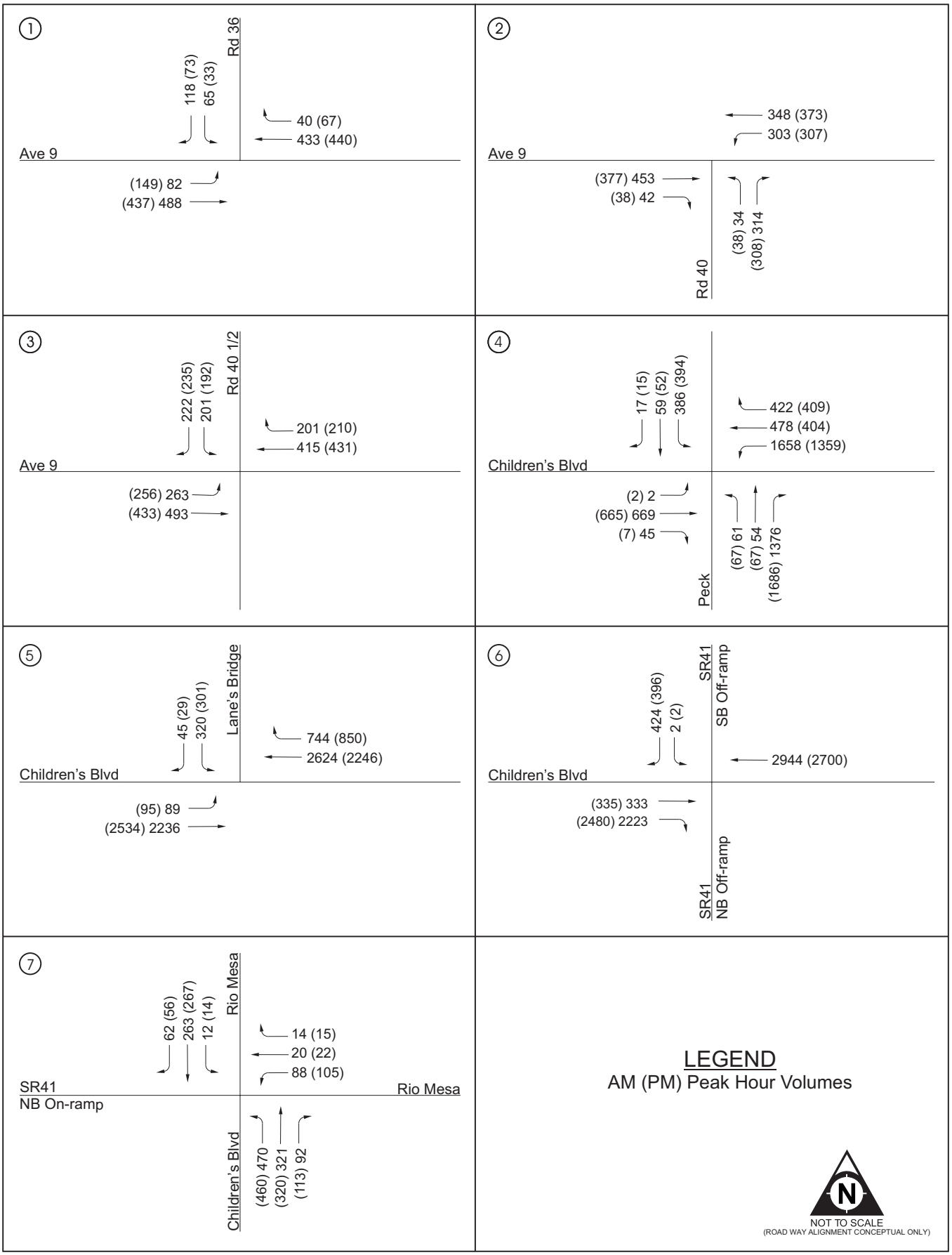
SEGMENT VOLUMES

2025 No Project

Gateway Village
Madera County

Figure 27

95-250.4



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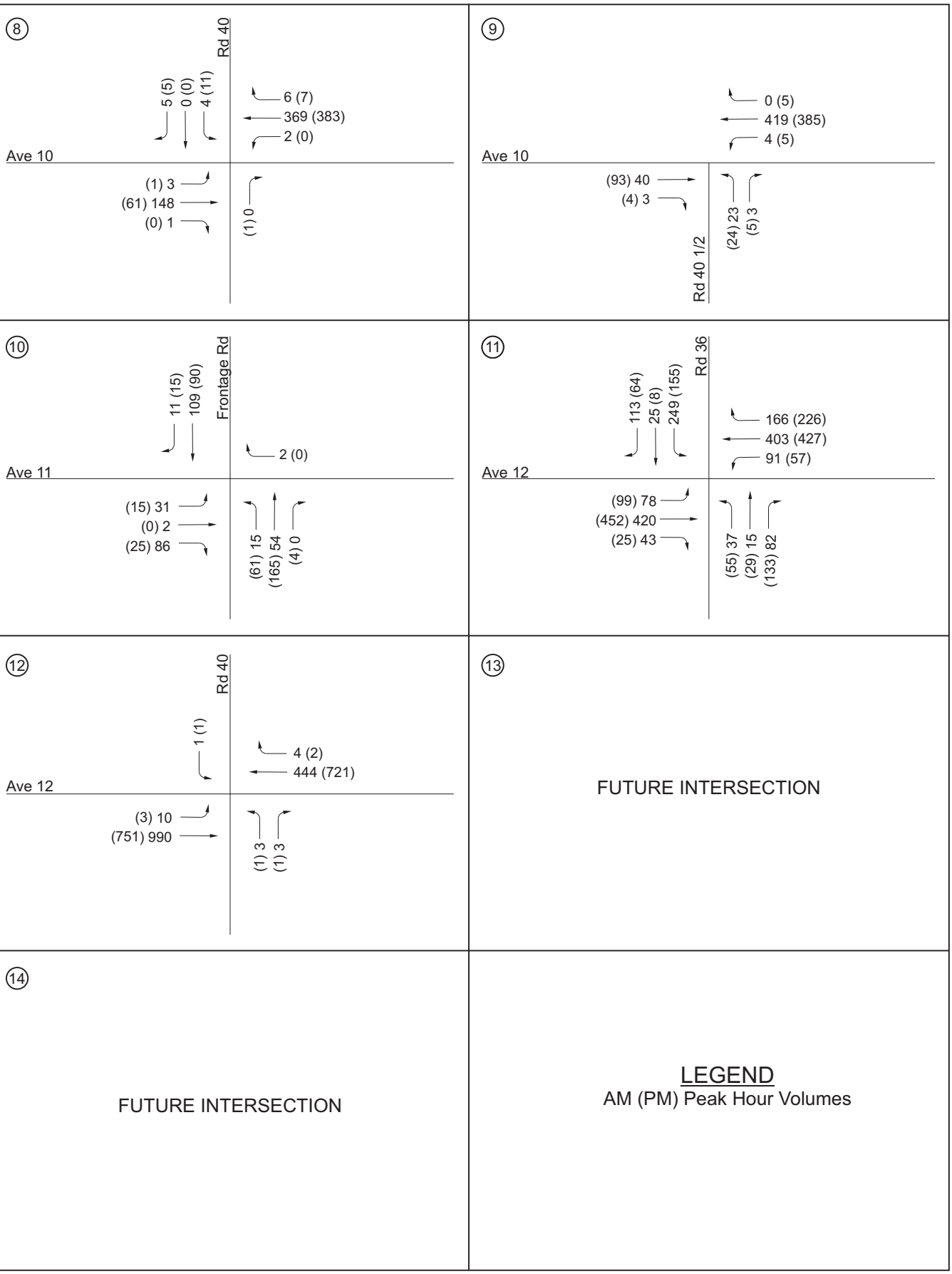
INTERSECTION VOLUMES
2025 No Project

Gateway Village
Madera County

Figure 28A

95-250.4



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INTERSECTION VOLUMES

2025 No Project

Gateway Village
Madera County

Figure 28B

95-250.4

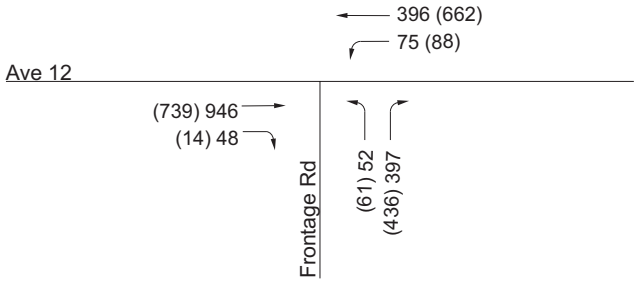
15

FUTURE INTERSECTION

16

FUTURE INTERSECTION

17



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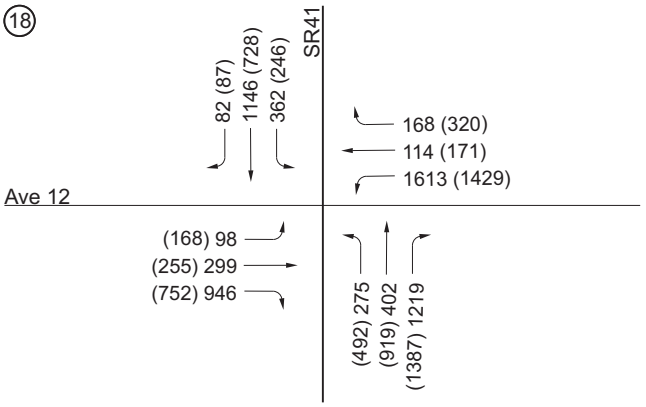


19

FUTURE INTERSECTION

20

FUTURE INTERSECTION

21

FUTURE INTERSECTION

LEGEND

AM (PM) Peak Hour Volumes

TPG Consulting Incorporated

INTERSECTION VOLUMES

2025 No Project

Gateway Village
Madera County

Figure 28C

95-250.4

(22) FUTURE INTERSECTION	(23) FUTURE INTERSECTION
(24) FUTURE INTERSECTION	(25) FUTURE INTERSECTION
(26) FUTURE INTERSECTION	(27) FUTURE INTERSECTION
(28) FUTURE INTERSECTION	LEGEND AM (PM) Peak Hour Volumes

TPG Consulting Incorporated

INTERSECTION VOLUMES
2025 No Project

Gateway Village
Madera County

Figure 28D

95-250.4

29

FUTURE INTERSECTION

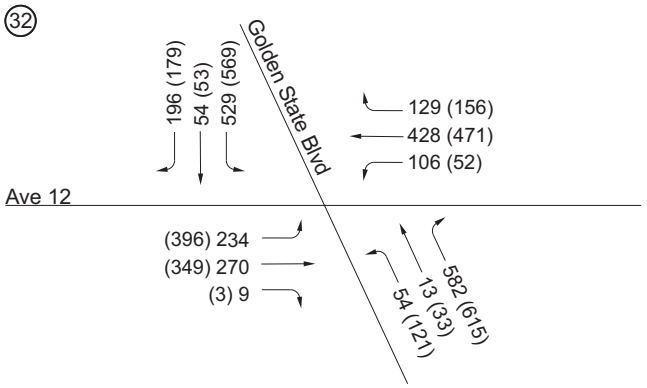
30

FUTURE INTERSECTION

31

FUTURE INTERSECTION

32



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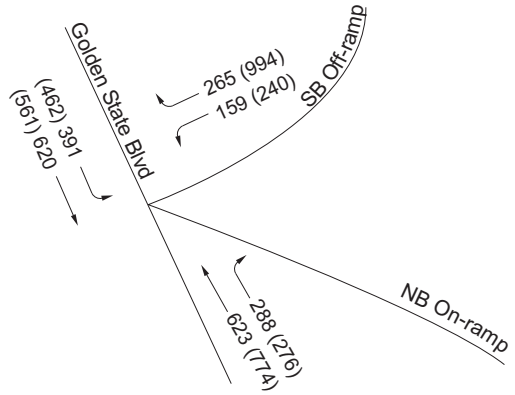

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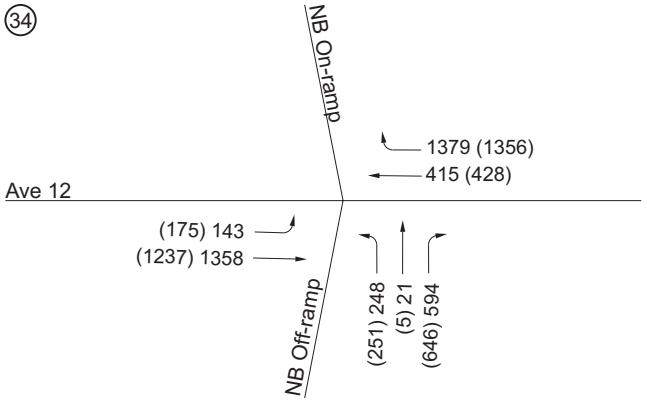

LEGEND

AM (PM) Peak Hour Volumes

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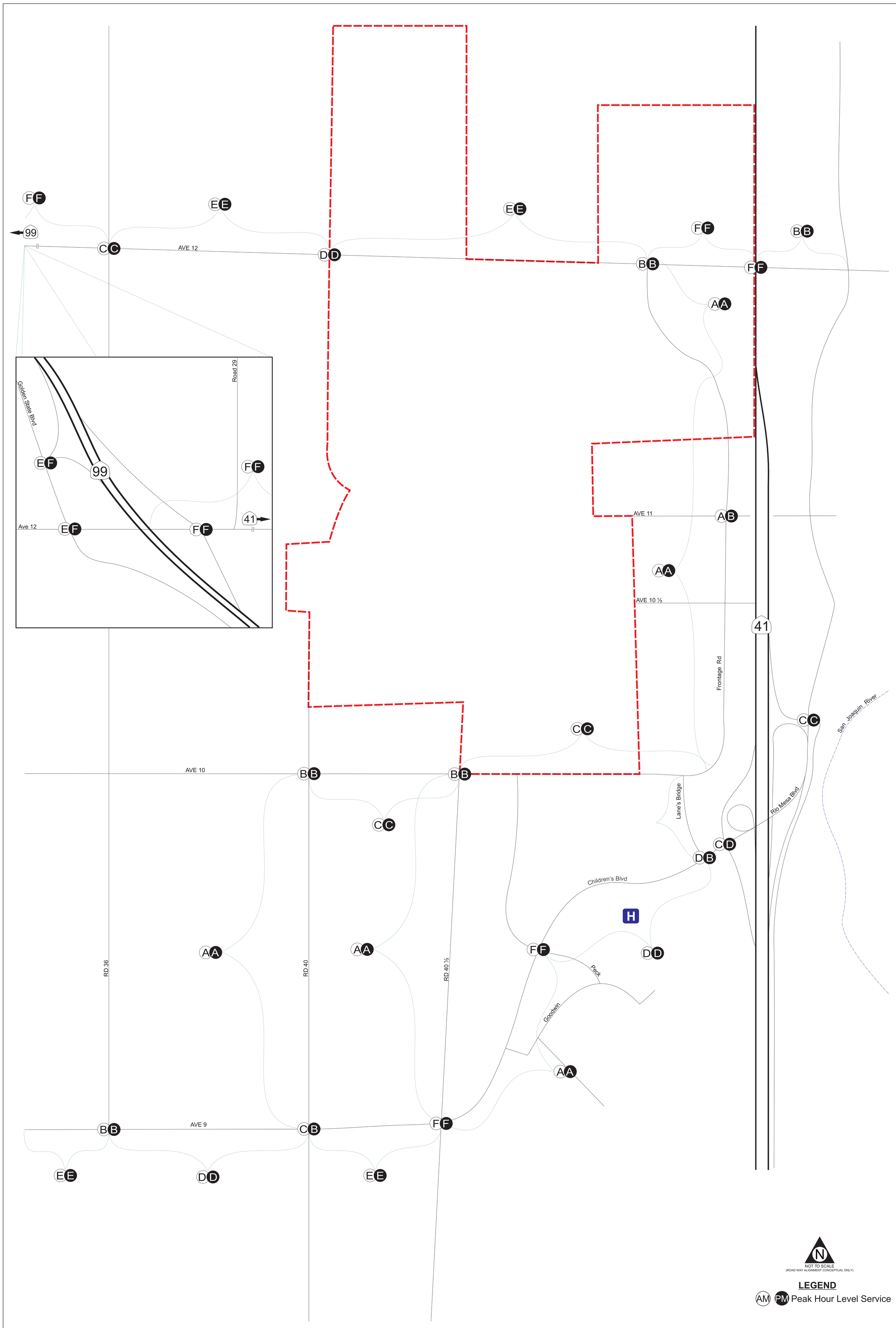
INTERSECTION VOLUMES

2025 No Project

Gateway Village
Madera County

Figure 28E

95-250.4



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LEVELS OF SERVICE

2025 No Project

Gateway Village
Madera County

Figure 29

95-250.4

TABLE 21:
2025 NO PROJECT CONDITIONS ANALYSIS
SEGMENT WEEKDAY LEVEL OF SERVICE

Segment	Number of Lanes[1]	Median	Facility Type	Capacity[2,3]	AM Peak Hour			PM Peak Hour		
					Volume[4]	LOS	D/C	Volume[4]	LOS	D/C
Road 40 – Avenue 9 to Avenue 10	2	Undivided	Arterial	750	2	A	0.001	0	A	0.000
Road 40 ½ - Avenue 9 to Avenue 10	2	Undivided	Arterial	750	466	A	0.311	471	A	0.314
SR 41 West Frontage Road – Avenue 10 to Root Creek Greenbelt	2	Undivided	Collector	500	236	A	0.236	315	A	0.315
SR 41 West Frontage Road – Root Creek Greenbelt to Avenue 12	2	Undivided	Collector	500	390	A	0.390	442	A	0.442
Avenue 9 – SR 99 to Road 36	**2**	**Undivided**	**County Road**	**900**	**1,121**	**E**	**0.623**	**1,099**	**E**	**0.611**
Avenue 9 – Road 36 to Road 40	2	Undivided	County Road	900	952	D	0.529	902	D	0.501
Avenue 9 – Road 40 to Road 40 ½	**2**	**Undivided**	**County Road**	**900**	**1,406**	**E**	**0.781**	**1,360**	**E**	**0.756**
Childrens Boulevard – Road 40 ½ to Peck Boulevard	4	Undivided	County Road	1,400	1,224	A	0.218	1,151	A	0.205
Childrens Boulevard – Peck Boulevard to Lanes Bridge Drive	4	Undivided	County Road	1,400	4,901	D	0.875	4,813	D	0.859
Childrens Boulevard – Lanes Bridge Drive to SR 41 SB ramps	8	Undivided	County Road	1,400	5,924	C	0.529	5,931	C	0.530
Lanes Bridge Drive – Avenue 10 to Childrens Boulevard	4	Undivided	County Road	1,400	1,198	A	0.214	1,275	A	0.228
Avenue 10 – Road 40 to Road 40 ½	2	Undivided	County Road	900	574	C	0.319	551	C	0.306
Avenue 10 – Road 40 ½ to SR 41 West Frontage Road	2	Undivided	County Road	900	589	C	0.327	616	C	0.342
Avenue 12 – SR 99 to Road 36	**2**	**Undivided**	**County Road**	**900**	**2,360**	**F**	**1.311**	**2,455**	**F**	**1.364**
Avenue 12 – Road 36 to Road 40	**2**	**Undivided**	**County Road**	**900**	**1,429**	**E**	**0.794**	**1,463**	**E**	**0.813**
Avenue 12 – Road 40 to SR 41 West Frontage Road	4	Undivided	County Road	900	1,466	A	0.262	1,483	A	0.265
Avenue 12 – SR 41 West Frontage Road to SR 41	4	Undivided	County Road	900	1,814	B	0.324	1,925	B	0.344
Avenue 12 – SR 41 to Rio Mesa Boulevard	6	Undivided	County Road	900	3,775	B	0.449	3,808	B	0.453

[1] = Number of lanes shown are 2-directional *[2] = Capacities taken from Madera County Travel Forecasting Model Documentation, Table 9* *[3] = Capacity shown is vehicles per lane per hour*
[4] = Volume shown is total 2-directional volume for the segment *D/C = demand to capacity ratio* *SR = State Route*

Segments projected to operate below the Madera County adopted levels of service standard are shown in bold in Table 21. As shown in Table 21, four (4) segments are projected to operate below the adopted level of service standard in the 2025 No Project scenario. The Avenue 9 segments from SR 99 to Road 36 and Road 40 to Road 40 ½ are both projected to operate at a LOS "E" in both the AM and PM peak hours. The Avenue 12 segment from SR 99 to Road 36 is projected to operate at a LOS "F" in both the AM and PM peak hours while the Avenue 12 segment from Road 36 to Road 40 is projected to operate at a LOS "E" in both the AM and PM peak hours. Because the failing segments along Avenue 12 fluctuate between two (2) and four (4) lanes for short increments, to show a worse case analysis they were analyzed as two (2) lane roadways. The remaining segments are projected to operate at or above the Madera County adopted level of service standard in the 2025 No Project conditions scenario.

Intersection Analysis

Table 22 shows the 2025 No Project conditions intersection level of service.

TABLE 22:
2025 NO PROJECT CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

	AM Peak Hour		PM Peak Hour	
Intersection	**LOS**	**Delay[1] (secs)**	**LOS**	**Delay[1] (secs)**
Avenue 9 at Road 36	B	11.6	B	13.9
Avenue 9 at Road 40	C	20.1	B	18.6
Avenue 9 at Road 40 ½				
• EB Left-Through-Right	B	10.8	B	10.7
• WB Left-Through-Right	A	8.3	A	8.5
• **NB Approach**	**E**	**48.4**	**F**	**52.4**
• **SB Approach**	**F**	**995.7**	**F**	**1098**
Childrens Boulevard at Peck Boulevard	**F**	**356.8**	**F**	**419.8**
Childrens Boulevard at Lanes Bridge Drive	D	38.9	B	15.7
Childrens Boulevard at SR 99 SB ramps	C	28.0	**D**	**35.6**
Rio Mesa Boulevard at SR 41 NB ramps	C	29.6	C	31.1
Avenue 10 at Road 40				
• EB Left-Through-Right	A	8.2	A	8.2
• WB Left-Through-Right	A	7.6	A	7.4
• SB Approach	B	12.1	B	11.5
• NB Approach	B	12.3	B	12.2
Avenue 10 at Road 40 ½				
• WB Left-Through	A	7.6	A	7.8
• NB Approach	B	14.6	B	13.8
Avenue 11 at SR 41 West Frontage Road				
• NB Left	A	7.5	A	7.6
• SB Left	A	7.3	A	7.6
• WB Approach	A	9.6	B	11.3
• EB Approach	A	9.9	B	10.3
Avenue 12 at Road 36	C	30.3	C	27.2

TABLE 22:
2025 NO PROJECT CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

Intersection	AM Peak Hour		PM Peak Hour	
	LOS	Delay[1] (secs)	LOS	Delay[1] (secs)
Avenue 12 at Road 40				
• EB Left-Through-Right	A	8.4	A	9.2
• WB Left-Through-Right	B	10.6	A	9.2
• NB Approach	D	25.7	C	21.8
• SB Approach	D	25.3	D	31.9
Avenue 12 at SR 41 West Frontage Road	B	18.1	B	14.0
Avenue 12 at SR 41	**F**	**179.2**	**F**	**142.2**
Avenue 12 at Golden State Boulevard	**E**	**56.5**	**F**	**120.3**
SR 99 SB ramps at Golden State Boulevard	**E**	**72.6**	**F**	**157.0**
Avenue 12 at SR 99 NB ramps	**F**	**145.9**	**F**	**176.1**

[1] *Delay per vehicle* *secs = seconds* *WB = westbound* *NB = northbound*
SB = southbound *EB = eastbound* *Pkwy = Parkway* *E-W = East-West*
N-S = North-South

Intersections projected to operate below the adopted level of service standard are shown in bold in Table 22. As shown in Table 22, seven (7) intersections are projected to operate or have movements that are projected to operate below the adopted level of service standard in the 2025 No Project scenario. The NB and SB approaches of the Avenue 9 at Road 40 ½ intersection are both projected to operate at a LOS "F" in both the AM and PM peak hours. The Childrens Boulevard at Peck Boulevard intersection is projected to operate at a LOS "F" in both the AM and PM peak hours. The Childrens Boulevard at SR 99 SB ramps intersection is project to operate at a LOS "D" in the PM peak hour. The Avenue 12 at SR 41 intersection is projected to operate at a LOS "F" in both the AM and PM peak hours. The Avenue 12 at Golden State Boulevard intersection and the SR 99 SB ramps at Golden State Boulevard intersection are both projected to operate at a LOS "E" in the AM peak hour and at a LOS "F" in the PM peak hours. The Avenue 12 at SR 99 NB ramps intersection is projected to operate at a LOS "F" in both the AM and PM peak hours. The remaining intersections are projected to continue to operate at or above the adopted level of service standard in the 2025 No Project conditions scenario.

Signal Warrant Analysis

Rural and urban peak hour volume signal warrants were prepared for the following five (5) unsignalized intersection:

- Avenue 9 at Road 40 ½ - Rural
- Avenue 10 at Road 40 - Rural
- Avenue 10 at Road 40 ½ - Rural
- Avenue 11 at SR 41 West Frontage Road - Rural
- Avenue 12 at Road 40 - Rural

Based on the rural/urban peak hour volume warrant, the warrant is met at the Avenue 9 at Road 40 ½ intersection in the 2025 No Project conditions scenario. The warrant is not met at the remaining unsignalized study intersections in the 2025 No Project conditions scenario. This warrant analysis is

limited to the peak hour volume warrant only and other conditions may exist which meet other traffic signal warrants. Copies of the warrant analyses are included in Appendix L.

MITIGATED 2025 NO PROJECT TRAFFIC CONDITIONS

Based on the information provided in the previous section, the following locations by time period are projected to operate below the adopted level of service in the 2025 No Project scenario:

Segments

- Avenue 9 – SR 99 to Road 36 - AM/PM peak hours – LOS "E"
- Avenue 9 – Road 40 to Road 40 ½ - AM/PM peak hours – LOS "E"
- Avenue 12 – SR 99 to Road 36 - AM/PM peak hours – LOS "F"
- Avenue 12 – Road 36 to Road 40 - AM/PM peak hours – LOS "E"

Intersections

- Avenue 9 at Road 40 ½
    - NB Approach – AM/PM peak hours – LOS "E"/"F"
    - SB Approach – AM/PM peak hours – LOS "F"
- Childrens Boulevard at Peck Boulevard
    - WB Left – AM peak hour – LOS "F"
    - NB Approach – AM/PM peak hours – LOS "F"
- Avenue 12 at SR 41 – AM/PM peak hours – LOS "F"
- Avenue 12 at Golden State Boulevard – AM/PM peak hours – LOS "E"/"F"
- SR 99 SB ramps at Golden State Boulevard – AM/PM peak hours – LOS "E"/"F"
- Avenue 12 at SR 99 NB ramps – AM/PM peak hours – LOS "F"

Based on the rural peak hour volume warrant, the warrant is met at the Avenue 9 at Road 40 ½ intersection in the 2025 No Project scenario.

To mitigate the segments and intersections projected to operate below the level of service standard or meet the rural or urban peak hour volume warrants, the following improvements are recommended in the Mitigated 2025 No Project scenario:

Segments

- Avenue 9 – Road 40 to Road 40 ½ - County/GRW/RM
    - MCTC Capacity Table
        - Restripe/widen from two (2) lanes to four (4) lanes
    - Intersection Analysis
        - No mitigations needed
- Avenue 12 – SR 99 to Road 36- RTP/County/GRW/RM
    - MCTC Capacity Table
        - Restripe/widen from two (2) lanes to four (4) lanes
    - Intersection Analysis
        - No mitigations needed
- Avenue 12 – Road 36 to Road 40- County/GRW/RM
    - MCTC Capacity Table
        - Restripe/widen from two (2) lanes to four (4) lanes
    - Intersection Analysis
        - No mitigations needed

Intersections

- Avenue 9 at Road 40 ½ - County/GRW/RM
  - Signalize the intersection
  - Restripe/widen the NB approach, south leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane
  - Restripe/widen the SB approach, north leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane
  - Restripe/widen the EB approach, west leg, from a shared left-through lane and a shared through-right lane to one (1) left-turn lane, one (1) through lane and a shared through-right lane
  - Restripe/widen the WB approach, east leg, from a shared left-through lane and a shared through-right lane to one (1) left-turn lane, one (1) through lane and a shared through-right lane
- Childrens Boulevard at Peck Boulevard - County/GRW/RM
  - Restripe/widen the NB approach, south leg, from a one (1) left-turn lane and a shared through-right lane to one (1) left-turn lane, one (1) through lane and three (3) right-turn lanes
  - Construct the SB approach, north leg, from one (1) left-turn lane and a shared through-right lane to dual (2) left-turn lanes and a shared through-right lane
  - Restripe/widen the WB approach, east leg, from dual (2) left-turn lanes, one (1) through lane and a shared through-right lane to dual (2) left-turn lanes, two (2) through lanes and one (1) right-turn lane
  - Restripe/widen the EB approach, west leg, from a separate left-turn lane, one (1) through lane and a shared through-right lane to a separate left-turn lane, two (2) through lanes and one (1) right-turn lane
- Avenue 12 at SR 41 - Caltrans/County/GRW/RM
  - Restripe/widen the NB approach, south leg, from dual (2) left-turn lanes, four (4) through lanes and one (1) right-turn lane to dual (2) left-turn lanes, four (4) through lanes and three (3) right-turn lanes
  - Restripe/widen the SB approach, north leg, from dual (2) left-turn lanes, three (3) through lanes and one (1) right-turn lane to dual (2) left-turn lanes, four (4) through lanes and one (1) right-turn lane
  - Restripe/widen the EB approach, west leg, from one (1) left-turn lane, one (1) through lane and dual (2) right-turn lanes to one (1) left-turn lane, one (1) through lane and four (4) right-turn lanes
  - Restripe/widen the WB approach, east leg, from dual (2) left-turn lanes, one (1) through lane and one (1) right-turn lane to four (4) left-turn lanes, one (1) through lane and one (1) right-turn lane

The improvements shown for the Avenue 12 at SR 41 intersection are what would be required in lieu of constructing an interchange. These improvements were utilized in generating the levels of service shown in the Mitigated 2025 No Project scenario tables and figures for this intersection. However Caltrans has determined that the maximum standard intersection improvements that they will construct prior to construction of an interchange will consist of the following:

- Restripe/widen the NB approach, south leg, from one (1) left-turn lane to dual (2) left-turn lanes to a depth of approximately 1,000 feet on SR 41 south of Avenue 12
- Restripe/widen the SB, EB, and WB approaches from one (1) left-turn lane to two (2) left-turn lanes to a depth of 250 to 300 feet
- Restripe/widen the NB, SB, WB, and EB approaches from one (1) through lane to two (2) through lanes to the following depths

  - SB SR 41 through lanes south of Avenue 12 shall be continuous
  - WB Avenue 12 through lanes west of SR 41 shall continue for a distance of approximately 1,350 feet
  - NB SR 41 through lanes north of Avenue 12 shall continue for a distance of approximately 250 to 300 feet
  - EB Avenue 12 through lanes east of SR 41 shall continue for a distance of approximately 250 to 300 feet
- Restripe/widen/lengthen the separate right-turn lanes in all four (4) directions to a depth of 250 to 300 feet

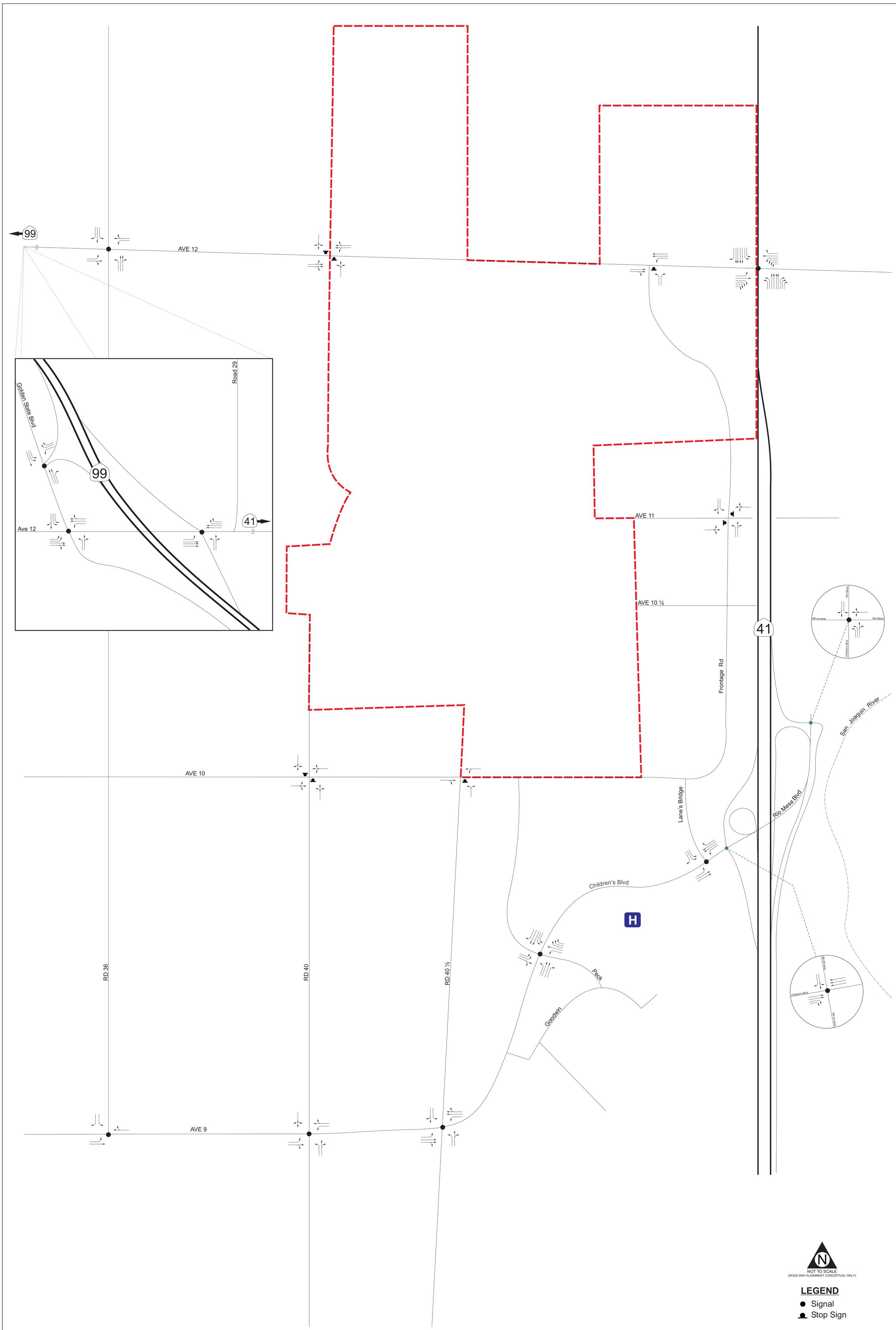
The SR 41 at Avenue 12 ultimate intersection improvements were used in the 2025 Project scenario.

- Avenue 12 at Golden State Boulevard - County/GRW/RM
  - Restripe/widen the EB approach, west leg, from dual (2) left-turn lanes and a shared through-right lane to dual (2) left-turn lanes, one (1) through lane and a shared through-right lane
  - Restripe/widen the WB approach, east leg, from one (1) left-turn lane and a shared through-right lane to one (1) left-turn lane, one (1) through lane and a shared through-right lane
- Avenue 12 at SR 99 NB ramps – Caltrans/County/GRW/RM
  - Restripe/widen the EB approach, west leg, from one (1) left-turn lane and one (1) through lane to one (1) left-turn lane and three (3) through lanes
  - Restripe/widen the WB approach, east leg, from one (1) through lane and a separate right-turn lane to two (2) through lanes and two (2) right-turn lanes
- SR 99 SB ramps at Golden State Boulevard – Caltrans/County/GRW/RM
  - Restripe/widen the NB approach, south leg, from a shared through-right lane to two (2) through lanes and one (1) right-turn lane

The Mitigated 2025 No Project intersection lane configurations and intersection controls are shown on Figure 30. Using the lane configurations shown on Figure 30 and the volumes shown on Figures 27 and 28, the segments and intersections were analyzed for Mitigated 2025 No Project levels of service. Figure 31 and Tables 23 and 24 show the Mitigated 2025 No Project levels of service for the study segments and intersections. The TWSC levels of service shown on Figure 31 are the levels of service for the worst operating movement at that intersection. The signalized and AWSC intersection levels of service shown in Figure 31 and Table 24 are representative of the whole intersection. Individual intersection movements or approaches may operate above or below the signalized and AWSC level of service or delay shown in Figure 31 and Table 24. The Mitigated 2025 No Project intersection levels of service calculations are included in Appendix M.

Segment Analysis

Table 23 shows the Mitigated 2025 No Project conditions segment levels of service.



TPG Consulting Incorporated

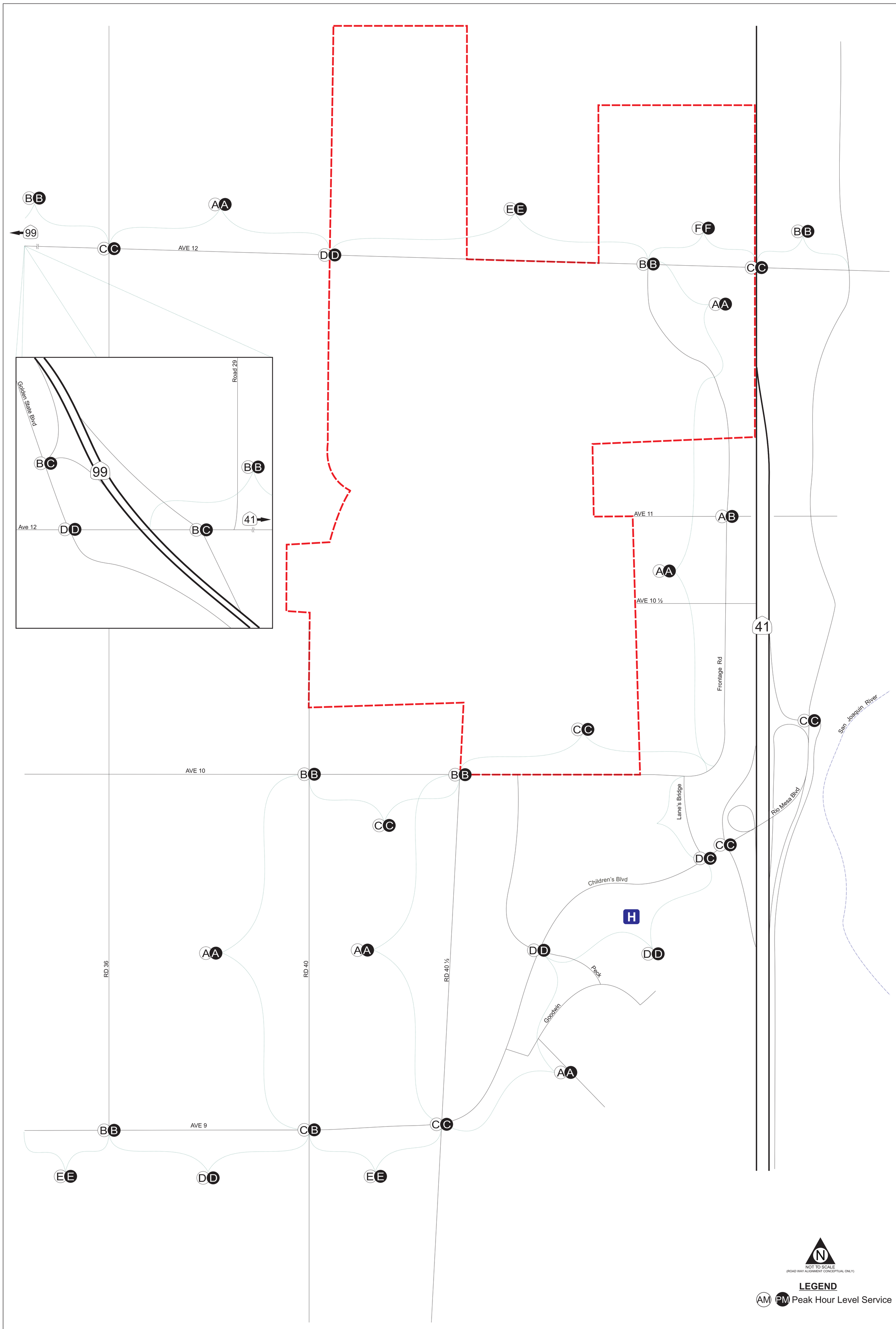
LANE CONFIGURATION AND INTERSECTION CONTROL

Mitigated 2025 No Project

Gateway Village
Madera County

Figure 30

95-250.4



TPG Consulting Incorporated

LEVELS OF SERVICE

Mitigated 2025 No Project

Gateway Village
Madera County

Figure 31

95-250.4

TABLE 23:
MITIGATED 2025 NO PROJECT CONDITIONS ANALYSIS
SEGMENT WEEKDAY LEVEL OF SERVICE

Segment	Number of Lanes[1]	Median	Facility Type	Capacity[2,3]	AM Peak Hour			PM Peak Hour		
					Volume[4]	LOS	D/C	Volume[4]	LOS	D/C
Road 40 – Avenue 9 to Avenue 10	2	Undivided	Arterial	750	2	A	0.001	0	A	0.000
Road 40 ½ - Avenue 9 to Avenue 10	2	Undivided	Arterial	750	466	A	0.311	471	A	0.314
SR 41 West Frontage Road – Avenue 10 to Root Creek Greenbelt	2	Undivided	Collector	500	236	A	0.236	315	A	0.315
SR 41 West Frontage Road – Root Creek Greenbelt to Avenue 12	2	Undivided	Collector	500	390	A	0.390	442	A	0.442
Avenue 9 – SR 99 to Road 36	**2** *(4)*	**Undivided**	**County Road**	**900**	**1,121**	**E** *(A)*	**0.623** *(0.200)*	**1,099**	**E** *(A)*	**0.611** *(0.196)*
Avenue 9 – Road 36 to Road 40	2	Undivided	County Road	900	952	D	0.529	902	D	0.501
Avenue 9 – Road 40 to Road 40 ½	**2** *(4)*	**Undivided**	**County Road**	**900**	**1,406**	**E** *(A)*	**0.781** *(0.251)*	**1,360**	**E** *(A)*	**0.756** *(0.243)*
Childrens Boulevard – Road 40 ½ to Peck Boulevard	4	Undivided	County Road	1,400	1,224	A	0.218	1,151	A	0.205
Childrens Boulevard – Peck Boulevard to Lanes Bridge Drive	4	Undivided	County Road	1,400	4,901	D	0.875	4,813	D	0.859
Childrens Boulevard – Lanes Bridge Drive to SR 41 SB ramps	8	Undivided	County Road	1,400	5,924	C	0.529	5,931	C	0.530
Lanes Bridge Drive – Avenue 10 to Childrens Boulevard	4	Undivided	County Road	1,400	1,198	A	0.214	1,275	A	0.228
Avenue 10 – Road 40 to Road 40 ½	2	Undivided	County Road	900	574	C	0.319	551	C	0.306
Avenue 10 – Road 40 ½ to SR 41 West Frontage Road	2	Undivided	County Road	900	589	C	0.327	616	C	0.342
Avenue 12 – SR 99 to Road 36	4	Undivided	County Road	900	2,360	B	0.421	2,455	B	0.438
Avenue 12 – Road 36 to Road 40	4	Undivided	County Road	900	1,429	A	0.255	1,463	A	0.261
Avenue 12 – Road 40 to SR 41 West Frontage Road	4	Undivided	County Road	900	1,466	A	0.262	1,483	A	0.265
Avenue 12 – SR 41 West Frontage Road to SR 41	4	Undivided	County Road	900	1,814	B	0.324	1,925	B	0.344
Avenue 12 – SR 41 to Rio Mesa Boulevard	6	Undivided	County Road	900	3,775	B	0.449	3,808	B	0.453

[1] = Number of lanes shown are 2-directional *[2] = Capacities taken from Madera County Travel Forecasting Model Documentation, Table 9* *[3] = Capacity shown is vehicles per lane per hour*
[4] = Volume shown is total 2-directional volume for the segment *D/C = demand to capacity ratio* *SR = State Route*
E/F = segment LOS shown bold and italicized in Mitigated 2013 Project and Mitigated 2025 Project scenarios include mitigations that are required based on intersection control
() = segment LOS shown in parentheses and italicized in Mitigated 2013 Project and Mitigated 2025 Project scenarios include mitigations that are required based on MCTC Capacity Table

Segments projected to operate below the Madera County adopted levels of service standard are shown in bold in Table 23. As shown in Table 23, two (2) of the study segments are still projected to operate below the adopted level of service standard in the Mitigated 2025 No Project scenario if using the intersection controlled mitigations. The remaining study segments are projected to operate at or above the adopted level of service standard in the Mitigated 2025 No Project conditions scenario.

Intersection Analysis

Table 24 shows the 2025 No Project conditions intersection level of service.

TABLE 24:
MITIGATED 2025 NO PROJECT CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

Intersection	AM Peak Hour		PM Peak Hour	
	LOS	Delay[1] (secs)	LOS	Delay[1] (secs)
Avenue 9 at Road 36	B	11.6	B	13.9
Avenue 9 at Road 40	C	20.1	B	18.6
Avenue 9 at Road 40 ½	C	21.2	C	21.3
Childrens Boulevard at Peck Boulevard	D	54.8	D	42.4
Childrens Boulevard at Lanes Bridge Drive	D	41.8	C	25.6
Childrens Boulevard at SR 99 SB ramps	C	28.4	C	34.6
Rio Mesa Boulevard at SR 41 NB ramps	C	29.7	C	28.1
Avenue 10 at Road 40				
• EB Left-Through-Right	A	8.2	A	8.2
• WB Left-Through-Right	A	7.6	A	7.4
• SB Approach	B	12.1	B	11.5
• NB Approach	B	12.3	B	12.2
Avenue 10 at Road 40 ½				
• WB Left-Through	A	7.6	A	7.8
• NB Approach	B	14.6	B	13.8
Avenue 11 at SR 41 West Frontage Road				
• NB Left	A	7.5	A	7.6
• SB Left	A	7.3	A	7.6
• WB Approach	A	9.6	B	11.3
• EB Approach	A	9.9	B	10.3
Avenue 12 at Road 36	C	30.3	C	27.2
Avenue 12 at Road 40				
• EB Left-Through-Right	A	8.4	A	9.2
• WB Left-Through-Right	B	10.6	A	9.2
• NB Approach	D	25.7	C	21.8
• SB Approach	D	25.3	D	31.9
Avenue 12 at SR 41 West Frontage Road	B	17.2	B	13.9
Avenue 12 at SR 41	C	32.3	C	28.5
Avenue 12 at Golden State Boulevard	D	38.2	D	41.8

TABLE 24:
MITIGATED 2025 NO PROJECT CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

Intersection	AM Peak Hour		PM Peak Hour	
	LOS	Delay[1] (secs)	LOS	Delay[1] (secs)
SR 99 SB ramps at Golden State Boulevard	B	13.9	C	20.1
Avenue 12 at SR 99 NB ramps	B	19.9	C	21.7

[1] Delay per vehicle *secs = seconds* *WB = westbound* *NB = northbound*
SB = southbound *EB = eastbound* *Pkwy = Parkway* *E-W = East-West*
N-S = North-South

As shown in Table 24, with the recommended intersection improvements, all the study intersections are projected to operate at or above the adopted level of service standard in the Mitigated 2025 No Project conditions scenario.

2025 PROJECT TRAFFIC CONDITIONS

Roadways

The 2025 Project lane configurations were developed based on planned improvements shown in the following:

- Gateway Village Specific Plan Circulation Plan,
- the Existing conditions scenario,
- the 2013 No Project conditions scenario,
- the Mitigated 2013 No Project conditions scenario,
- the Mitigated 2013 Project conditions scenario, and
- the Mitigated 2025 No Project conditions scenario

Intersection control was based on signal warrants prepared for all unsignalized study intersections in the various scenarios. The proposed Gateway Village Circulation Plan is shown in Figure 3. If a study intersection met the rural/urban peak hour volume warrant in the 2025 Project scenario, it was assumed that the intersection would be signalized in the 2025 Project analyses.

Signal Warrant Analysis

Rural and urban peak hour volume signal warrants were prepared for the following six (6) unsignalized intersections:

- Avenue 10 at Road 40 - Urban
- Avenue 10 at Road 40 ½ - Urban
- Avenue 11 at SR 41 West Frontage Road - Urban
- Avenue 12 at Road 40 - Rural
- Main Street at SR 41 West Frontage Road - Urban
- E-W Secondary #3 at SR 41 West Frontage Road - Urban

Based on the rural peak hour volume warrant, the warrant is met at the following unsignalized study intersection in the 2025 Project conditions scenario:

- Avenue 10 at Road 40 ½ - Urban

This warrant analysis is limited to the peak hour volume warrant only and other conditions may exist which meet other traffic signal warrants. As stated previously, if an intersection was projected to meet the peak hour volume warrant, that intersection was analyzed as signalized in the 2025 Project conditions scenario. Copies of the warrant analyses are included in Appendix N.

Roadway and Intersection Improvements

In addition to the roadway and intersection improvements identified in the Existing scenario, the 2013 No Project scenario, the Mitigated 2013 No Project scenario, the 2013 Project scenario, the Mitigated 2013 Project scenario, the 2025 No Project scenario, the Mitigated 2025 No Project scenario, and the 2025 Project peak hour volume signal warrant analyses, the following improvements are assumed to be in place per the Gateway Village Plan Circulation Plan in the 2025 Project scenario:

Segments

- Avenue 10 – Project (Circulation Plan)
  - Widen from two (2) lanes to four (4) lanes from Road 40 to SR 41 West Frontage Road
- SR 41 between Avenues 11 and 12 – Project (Offsite Mitigation)
  - Construct the second three (3) lane bridge structure on SR 41 at Avenue 11
  - Construct two (2) new SB through lanes on SR 41 south from Avenue 12 to south of the newly built Avenue 11 bridge
- SR 41 between the San Joaquin River Bridge and Childrens Boulevard – Project (Offsite Mitigation)
  - Construct a third NB through lane
  - Construct a third SB through lane
- SR 41 between Childrens Boulevard and Avenue 12 – Project (Offsite Mitigation)
  - Construct a third NB through lane
    - The third NB through lane will become a trap NB to WB left-turn lane per the ultimate intersection configuration.
  - Construct a third SB through lane
    - The third SB through lane will become an EB to SB free right-turn lane per the ultimate intersection configuration.
- SR 41 between Friant Road and the San Joaquin River Bridge – Project (Offsite Mitigation)
  - Construct a third NB through lane
  - Construct a third SB through lane
- Root Creek Parkway West – Project (Circulation Plan)
  - Construct a four (4) lane roadway from Root Creek Greenbelt/E-W Secondary #5 to Road 40 1/2/E-W Secondary #7
- Root Creek Parkway East – Project (Circulation Plan)
  - Construct a four (4) lane roadway from Root Creek Greenbelt/E-W Secondary #3 to Road 40 1/2/E-W Secondary #7
- Road 40 ½ – Project (Circulation Plan)
  - Construct a four (4) lane roadway from Root Creek Parkway West/Root Creek Parkway East/E-W Secondary #7 to Avenue 10
- N-S Secondary #1 – Project (Circulation Plan)
  - Construct a two (2) lane roadway from E-W Secondary #5 to E-W Secondary #8
- E-W Secondary #6 – Project (Circulation Plan)
  - Construct a two (2) lane roadway from Root Creek Parkway West to Root Creek Parkway East

- E-W Secondary #7 – Project (Circulation Plan)
    - Construct a two (2) lane roadway from Root Creek Parkway West to Root Creek Parkway East
- E-W Secondary #8 – Project (Circulation Plan)
    - Construct a two (2) lane roadway from E-W Secondary #6 to east of Root Creek Parkway East

Intersections

- Avenue 12 at SR 41 – Project (Offsite Mitigation)
    - Construct dual NB, SB, EB, and WB left turn lanes to a depth of 250 to 300 feet
    - Construct two (2) through lanes in all four (4) directions
        - SB SR 41 through lanes south of Avenue 12 shall be continuous
        - WB Avenue 12 through lanes west of SR 41 shall continue for a distance of approximately 1,350 feet.
        - NB SR 41 through lanes north of Avenue 12 shall continue for a distance of approximately 250 to 300 feet
        - EB Avenue 12 through lanes east of SR 41 shall continue for a distance of approximately 250 to 300 feet
    - Construct separate right turn lanes in all four (4) directions at a depth of 250 to 300 feet
- Root Creek Parkway West at E-W Secondary #6 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway West/East at Road 40 ½ / E-W Secondary #7 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway East at E-W Secondary #8 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway East at E-W Secondary #7 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway East at E-W Secondary #6 – Project (Circulation Plan)
    - Construct a roundabout

All signalized intersections are shown with separate or dual left-turn lanes and separate right-turn lanes as warranted. All Gateway Village secondary/collector roadways are constructed as shown on the proposed Circulation Plan.

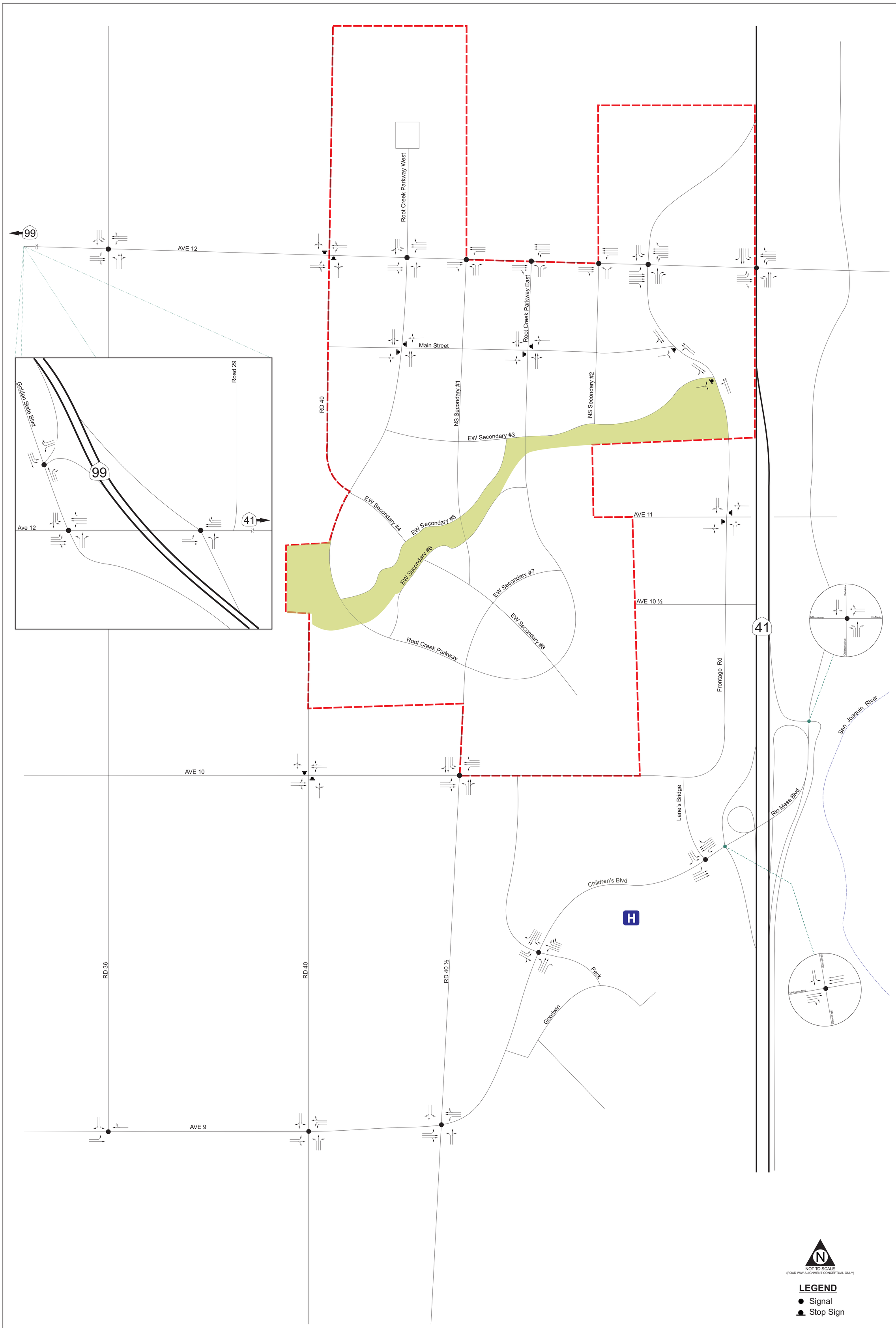
All intersections along Avenue 12 between Root Creek Parkway West and SR 41 and along Childrens Boulevard between Peck Avenue and the Rio Mesa Boulevard at SR 41 NB ramps intersection were analyzed as actuated coordinated.

2025 Project Analyses

The 2025 Project lane configurations and intersection controls are shown on Figure 32. The 2025 Project segment peak hour traffic volumes are shown on Figure 33 and the 2025 Project intersection peak hour traffic volumes are shown on Figure 34. Using the lane configurations shown on Figure 32 and the volumes shown on Figures 33 and 34, the segments and intersections were analyzed for 2025 Project levels of service. Figure 35 and Tables 25 and 26 show the 2025 Project levels of service for the study segments and intersections. The TWSC levels of service shown on Figure 35 are the levels of service for the worst operating movement at that intersection. The signalized and roundabout intersection levels of service shown in Figure 35 and Table 26 are representative of the whole intersection. Individual intersection movements or approaches may operate above or below the signalized and roundabout level of service or delay shown in Figure 35 and Table 26. The 2025 Project intersection levels of service calculations are included in Appendix O.

Segment Analysis

Table 25 shows the 2025 Project condition segment levels of service.



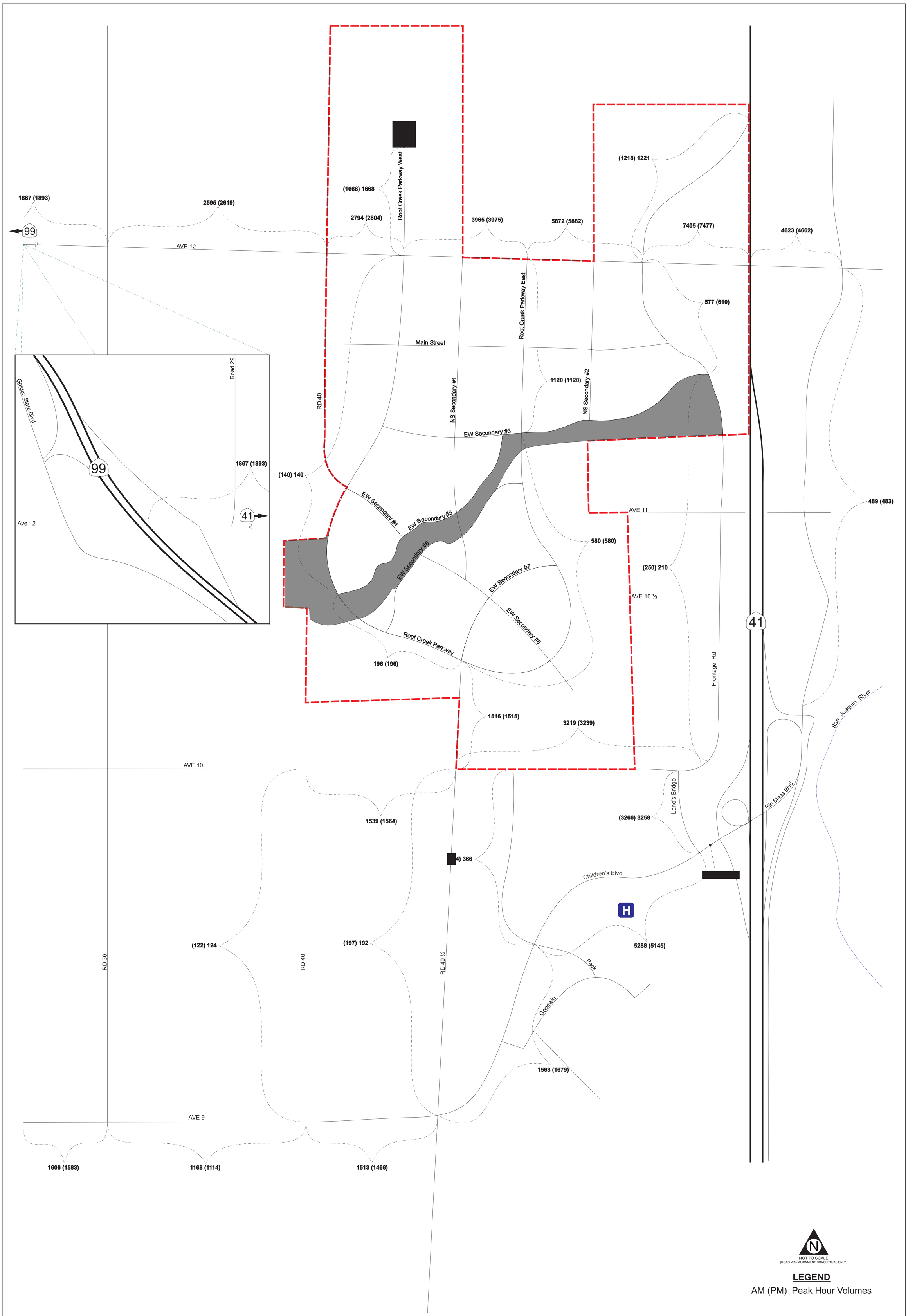
LANE CONFIGURATION AND INTERSECTION CONTROL

2025 Project

Gateway Village
Madera County

Figure 32

95-250.4



NOT TO SCALE
(ROAD WAY ALIGNMENT CONCEPTUAL ONLY)

LEGEND

AM (PM) Peak Hour Volumes

TPG Consulting Incorporated

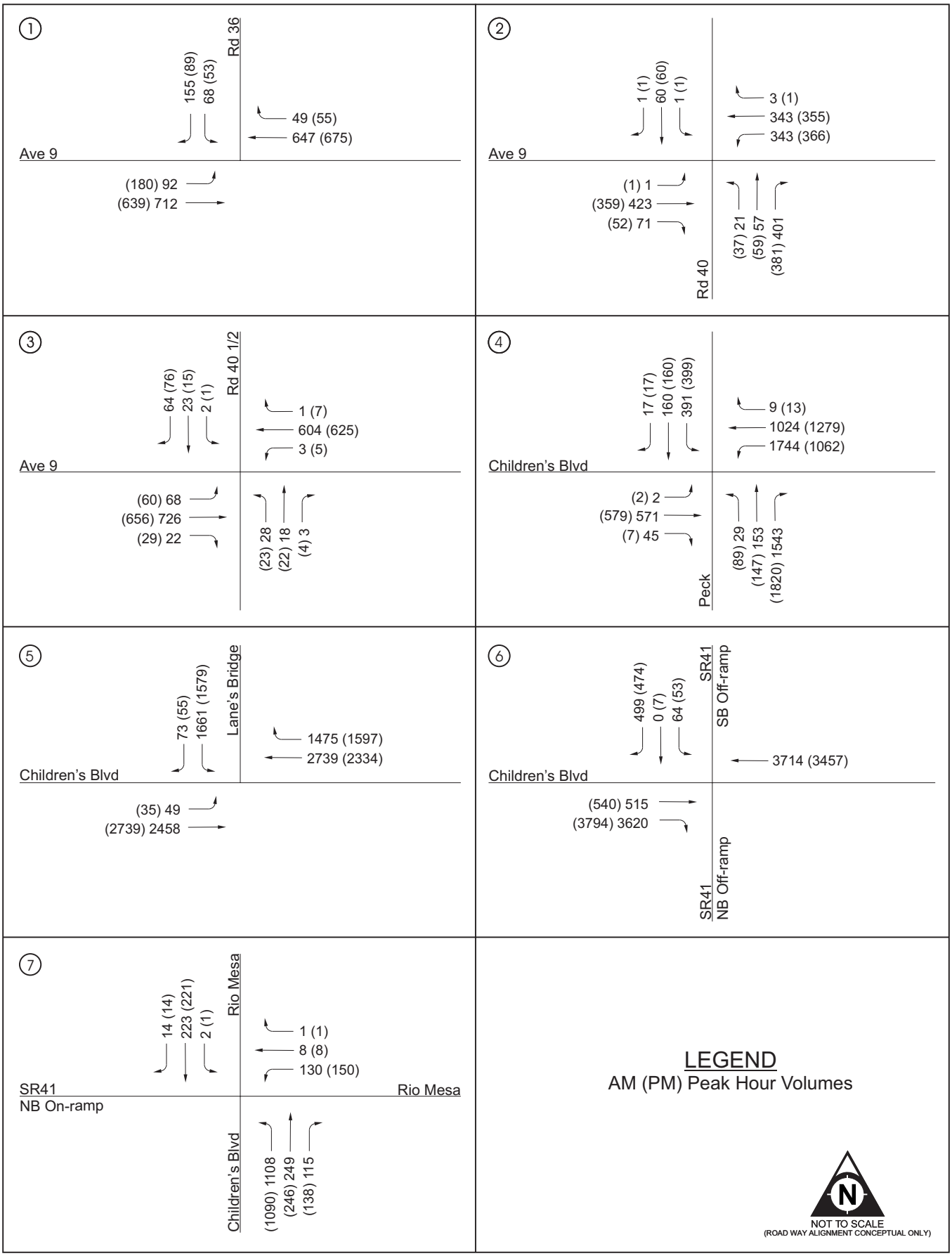
SEGMENT VOLUMES

2025 Project

Gateway Village
Madera County

Figure 33

95-250.4



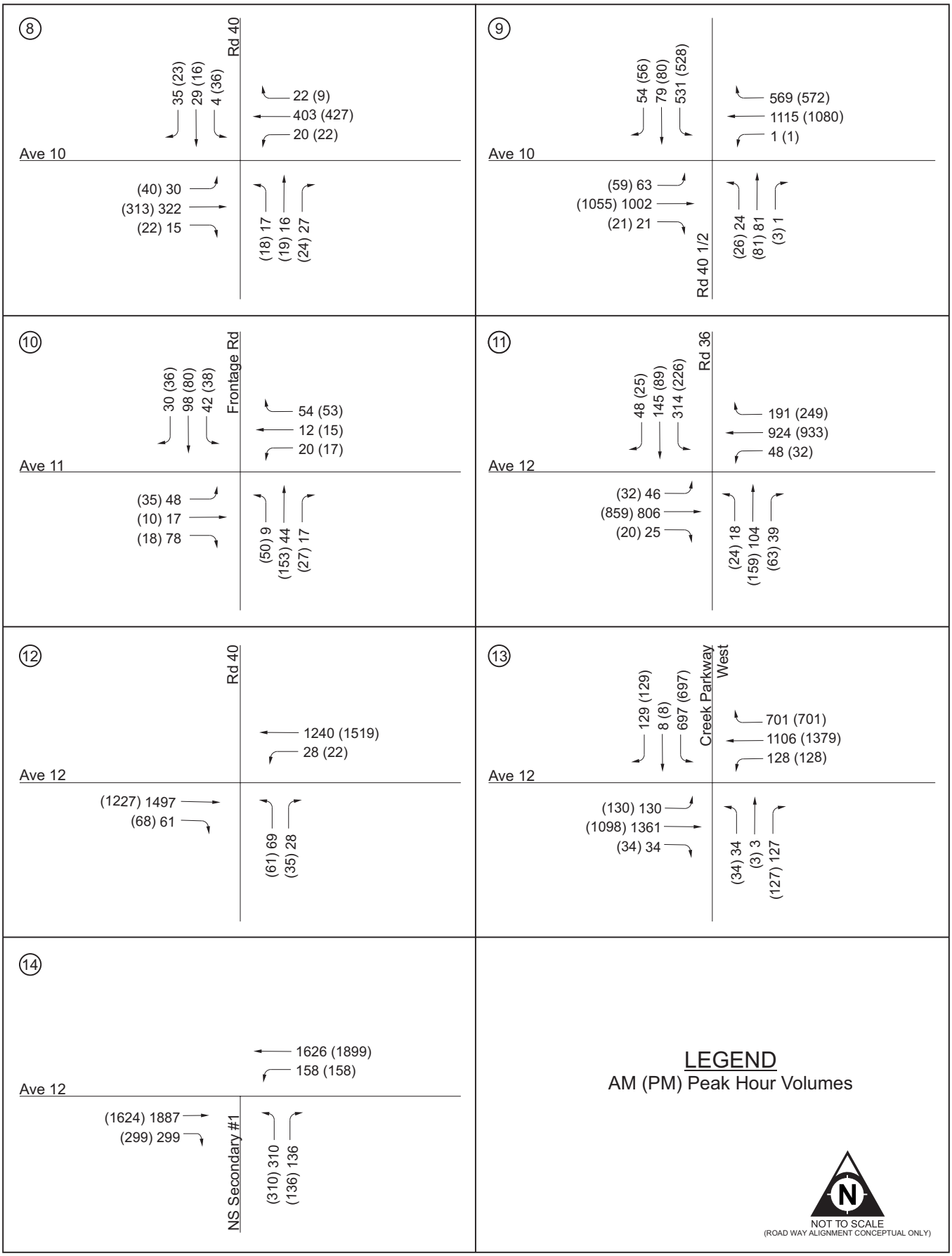
TPG Consulting Incorporated

INTERSECTION VOLUMES
2025 Project

Gateway Village
Madera County

Figure 34A

95-250.4



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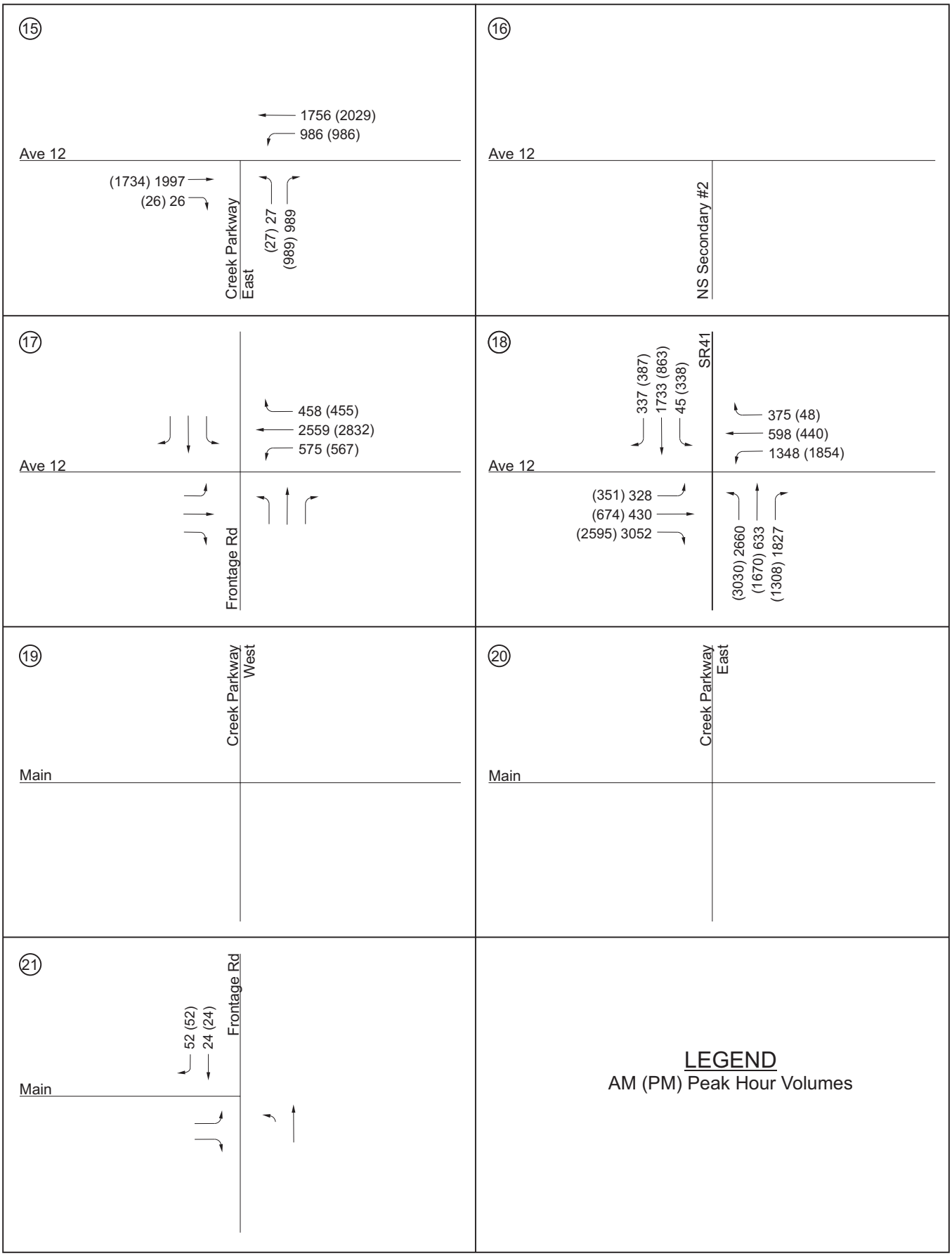
INTERSECTION VOLUMES
2025 Project

Gateway Village
Madera County

Figure 34B

95-250.4



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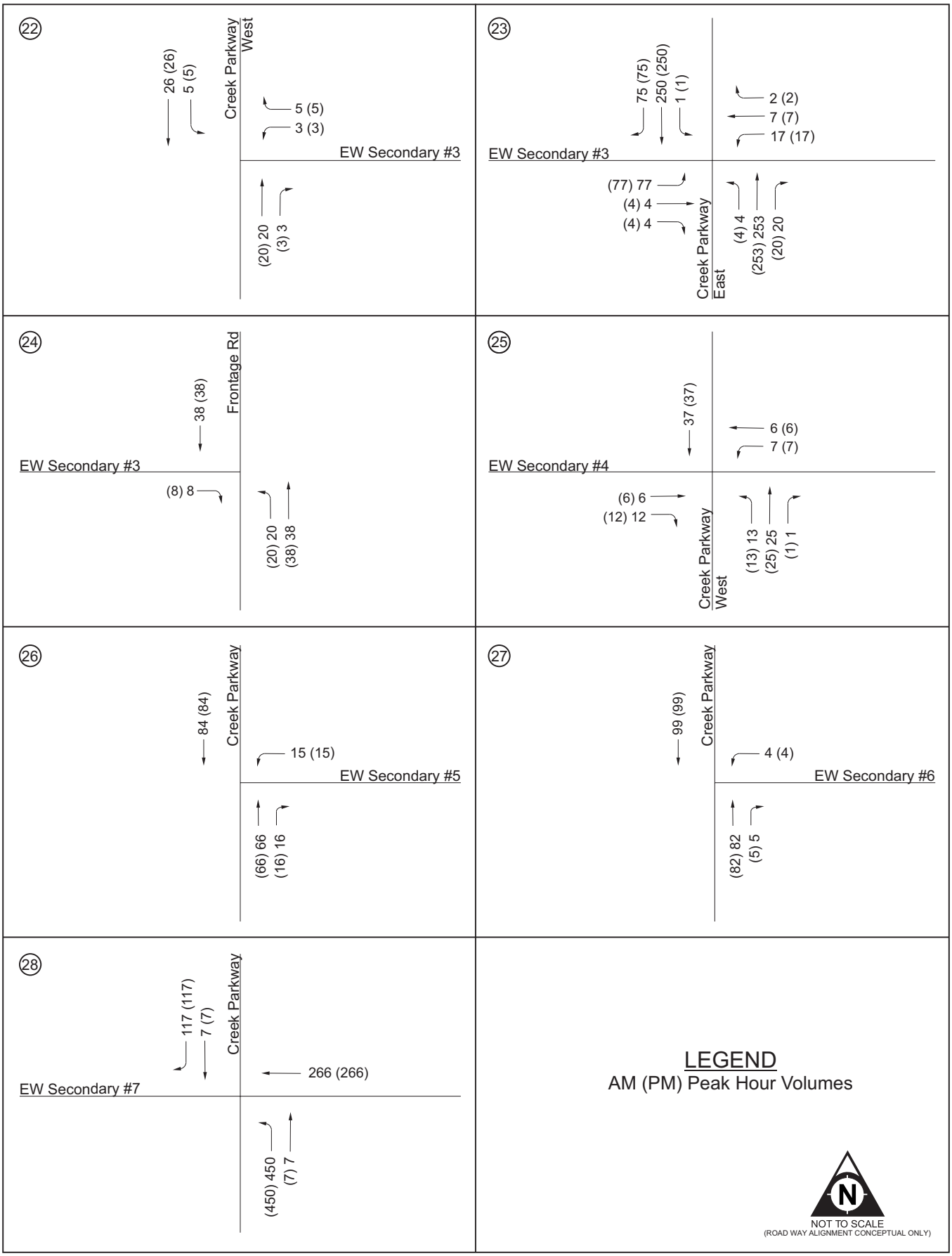
INTERSECTION VOLUMES
2025 Project

Gateway Village
Madera County

Figure 34C

95-250.4



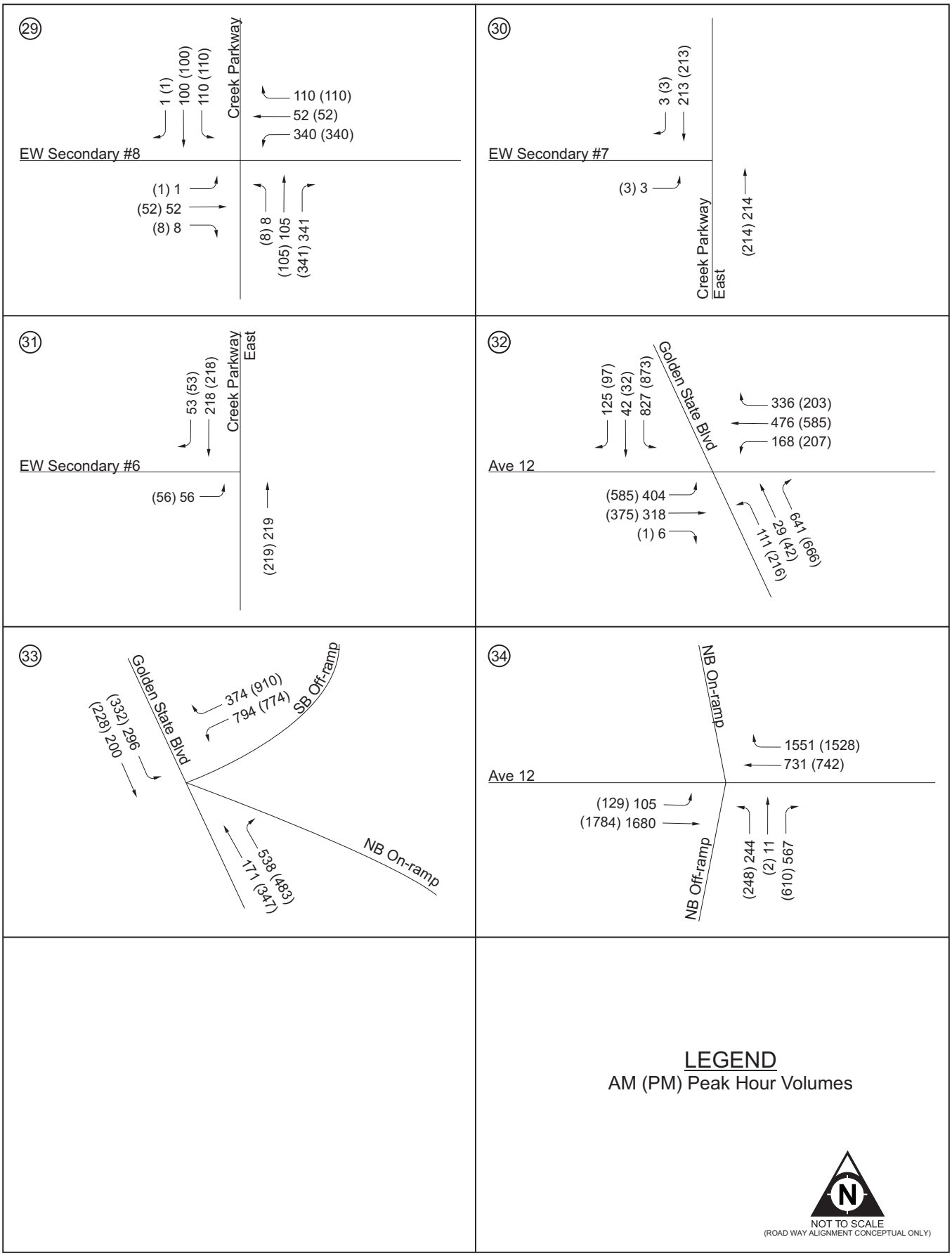
TPG Consulting Incorporated

INTERSECTION VOLUMES
2025 Project

Gateway Village
Madera County

Figure 34D

95-250.4



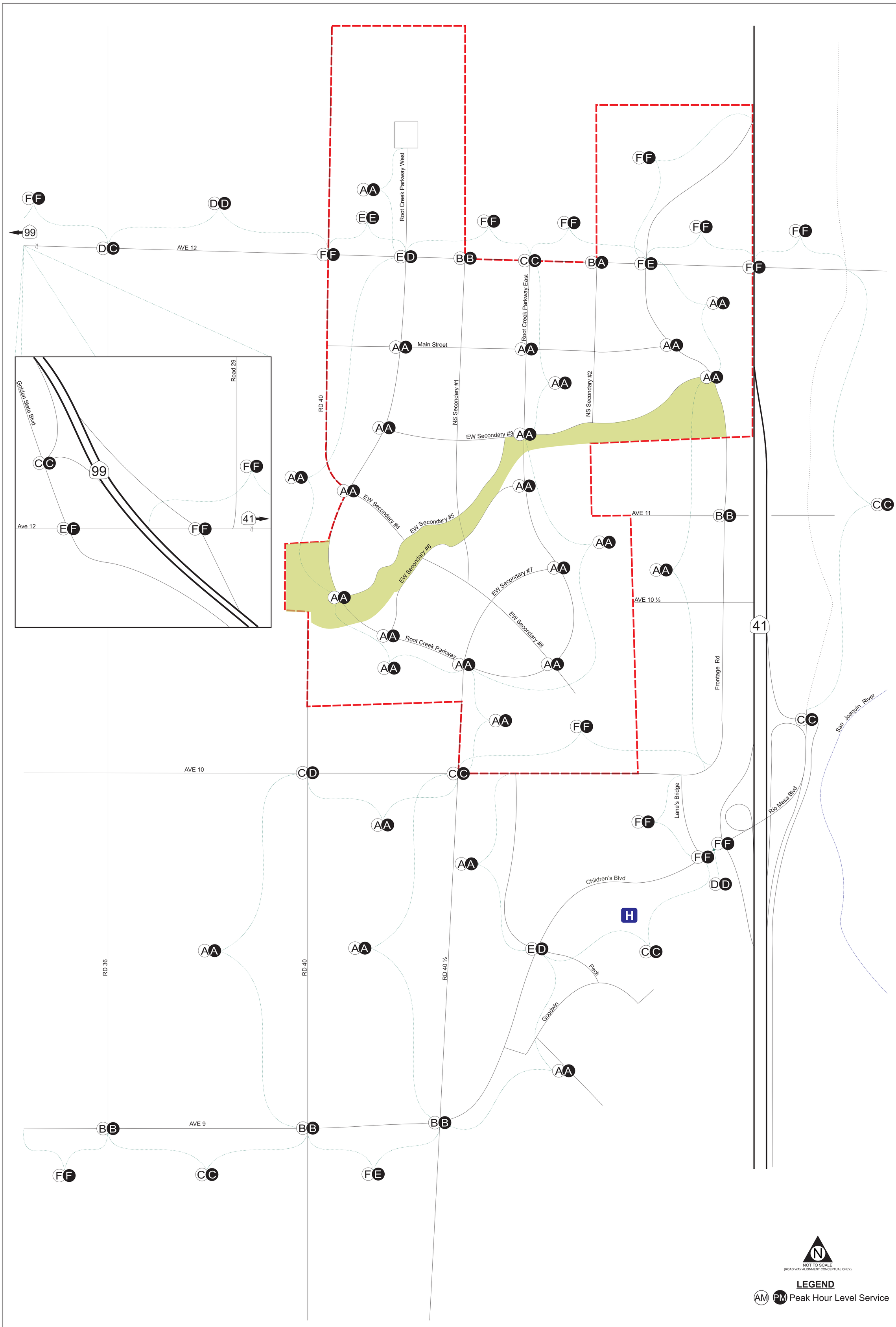
TPG Consulting Incorporated

INTERSECTION VOLUMES
2025 Project

Gateway Village
Madera County

Figure 34E

95-250.4



TPG Consulting Incorporated

LEVELS OF SERVICE

2025 Project

Gateway Village
Madera County

Figure 35

95-250.4

TABLE 25:
2025 PROJECT CONDITIONS ANALYSIS
SEGMENT WEEKDAY LEVEL OF SERVICE

Segment	Number of Lanes[1]	Median	Facility Type	Capacity[2,3]	AM Peak Hour			PM Peak Hour		
					Volume[4]	LOS	D/C	Volume[3]	LOS	D/C
Road 40 – Avenue 9 to Avenue 10	2	Undivided	Collector	500	124	A	0.124	122	A	0.122
Root Creek Pkwy West – Road 40 ½ to Root Creek Greenbelt	4	Divided	Arterial	750	108	A	0.036	108	A	0.036
Root Creek Pkwy West – Root Creek Greenbelt to Avenue 12	4	Divided	Arterial	750	125	A	0.042	125	A	0.042
Root Creek Pkwy West – Avenue 12 to northern Project boundary	4	Divided	Arterial	750	1,668	A	0.556	1,668	A	0.556
Road 40 ½ - Avenue 9 to Avenue 10	4	Undivided	Arterial	750	192	A	0.064	197	A	0.066
Road 40 ½ - Avenue 10 to Root Creek Pkwy West/East	4	Undivided	Arterial	750	1,516	A	0.505	1,515	A	0.505
Root Creek Pkwy East – Road 40 ½ to Root Creek Greenbelt	4	Divided	Arterial	750	370	A	0.123	370	A	0.123
Root Creek Pkwy East – Root Creek Greenbelt to Avenue 12	4	Divided	Arterial	750	825	A	0.275	825	A	0.275
SR 41 West Frontage Road – Avenue 10 to Root Creek Greenbelt	4	Undivided	Collector	500	210	A	0.105	250	A	0.125
SR 41 West Frontage Road – Root Creek Greenbelt to Avenue 12	4	Undivided	Collector	500	577	A	0.288	610	A	0.305
SR 41 West Frontage Road – Avenue 12 to northern Project boundary	4	Undivided	Collector	500	1,221	B	0.611	1,218	B	0.609
Rio Mesa Boulevard – Avenue 10 to Avenue 12	2	Undivided	County Road	900	489	C	0.272	483	C	0.268
Avenue 9 – SR 99 to Road 36	**2**	**Undivided**	**Arterial**	**750**	**1,606**	**F**	**1.071**	**1,583**	**F**	**1.055**
Avenue 9 – Road 36 to Road 40	2	Undivided	Arterial	750	1,168	C	0.779	1,114	C	0.742
Avenue 9 – Road 40 to Road 40 ½	**2**	**Undivided**	**Arterial**	**750**	**1,513**	**F**	**1.009**	**1,466**	**F**	**0.977**
Childrens Boulevard – Road 40 ½ to Peck Boulevard	6	Undivided	County Road	1,400	1,514	A	0.180	1,636	A	0.195
Childrens Boulevard – Peck Boulevard to Lanes Bridge Drive	6	Undivided	County Road	1,400	5,301	C	0.631	5,158	C	0.614
Childrens Boulevard – Lanes Bridge Drive to SR 41 SB ramps	8	Undivided	County Road	1,400	8,341	D	0.745	8,257	D	0.737
Peck Boulevard – Avenue 10 to Childrens Boulevard	2	Undivided	Arterial	750	732	A	0.488	738	A	0.492
Lanes Bridge Drive – Avenue 10 to Childrens Boulevard	**6**	**Undivided**	**Collector**	**500**	**3,258**	**F**	**1.086**	**3,266**	**F**	**1.089**
Avenue 10 – Road 40 to Road 40 ½	4	Undivided	Arterial	750	1,539	A	0.513	1,564	A	0.521
Avenue 10 – Road 40 ½ to SR 41 West Frontage Road	**4**	**Undivided**	**Arterial**	**750**	**3,219**	**F**	**1.073**	**3,239**	**F**	**1.080**
Avenue 12 – SR 99 to Road 36	**2**	**Undivided**	**Arterial**	**750**	**1,867**	**F**	**1.245**	**1,893**	**F**	**1.262**
Avenue 12 – Road 36 to Road 40	4	Undivided	Arterial	750	2,600	D	0.867	2,620	D	0.873
Avenue 12 – Road 40 to Root Creek Pkwy West	**4**	**Divided**	**Arterial**	**750**	**2,794**	**E**	**0.932**	**2,804**	**E**	**0.935**
Avenue 12 – Root Creek Pkwy West to Root Creek Pkwy East	**4**	**Divided**	**Arterial**	**750**	**3,965**	**F**	**1.322**	**3,975**	**F**	**1.325**
Avenue 12 – Root Creek Pkwy East to SR 41 West Frontage Road	**6**	**Divided**	**Arterial**	**750**	**5,872**	**F**	**1.305**	**5,882**	**F**	**1.307**
Avenue 12 – SR 41 West Frontage Road to SR 41	**6**	**Divided**	**Arterial**	**750**	**7,405**	**F**	**1.646**	**7,477**	**F**	**1.662**
Avenue 12 – SR 41 to Rio Mesa Boulevard	**6**	**Undivided**	**Arterial**	**750**	**4,623**	**F**	**1.027**	**4,662**	**F**	**1.036**

[1] = Number of lanes shown are 2-directional *[2] = Capacities taken from Madera County Travel Forecasting Model Documentation, Table 9* *[3] = Capacity shown is vehicles per lane per hour*
[4] = Volume shown is total 2-directional volume for the segment *D/C = demand to capacity ratio* *SR = State Route*

Segments projected to operate below the Madera County adopted levels of service standard are shown in bold in Table 25. As shown in Table 25, ten (10) segments are projected to operate below the adopted level of service standard in the 2025 Project scenario. The Avenue 9 segments from SR 99 to Road 36 and from Road 40 to Road 40 ½ are both projected to operate at a LOS "F" in both the AM and PM peak hours. The Lanes Bridge Drive from Avenue 10 to Childrens Boulevard segment is projected to operate at a LOS "F" in both the AM and PM peak hours. The Avenue 10 from Road 40 ½ to SR 41 West Frontage Road segment is projected to operate at a LOS "F" in both the AM and PM peak hours. The Avenue 12 segments from SR 99 to Road 36, Root Creek Parkway West to Root Creek Parkway East, Root Creek Parkway East to SR 41 West Frontage Road, SR 41 West Frontage Road to SR 41, and SR 41 to Rio Mesa Boulevard are all projected to operate at a LOS "F" in both the AM and PM peak hours. The Avenue 12 from Road 40 to Root Creek Parkway West segment is projected to operate at a LOS "E" in both the AM and PM peak hours. The remaining segments are projected to operate at or above the Madera County adopted level of service standard in the 2025 Project conditions scenario.

All Gateway Village internal secondary/collector roadways are projected to operate at or above the Madera County adopted level of service standard in the 2025 Project scenario.

Intersection Analysis

Table 26 shows the 2025 Project condition intersection levels of service.

TABLE 26:
2025 PROJECT CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

	AM Peak Hour		PM Peak Hour	
Intersection	**LOS**	**Delay[1] (secs)**	**LOS**	**Delay[1] (secs)**
Avenue 9 at Road 36	B	14.4	B	18.1
Avenue 9 at Road 40	B	19.7	B	18.4
Avenue 9 at Road 40 ½	B	12.2	B	10.6
Childrens Boulevard at Peck Boulevard	**E**	**62.6**	D	41.1
Childrens Boulevard at Lanes Bridge Drive	**F**	**175.1**	**F**	**150.6**
Childrens Boulevard at SR 41 SB ramps	**F**	**246.3**	**F**	**212.2**
Rio Mesa Boulevard at SR 41 NB ramps	C	30.2	C	31.3
Avenue 10 at Road 40				
• EB Left-Through-Right	A	8.4	A	8.5
• WB Left-Through-Right	A	8.1	A	8.1
• SB Approach	C	19.2	C	20.4
• NB Approach	C	18.1	D	26.4
Avenue 10 at Road 40 ½	C	22.3	C	22.0
Avenue 11 at SR 41 West Frontage Road				
• NB Left	A	7.5	A	7.6
• SB Left	A	7.4	A	7.7
• WB Approach	B	10.3	B	11.7
• EB Approach	B	11.3	B	13.7
Avenue 12 at Road 36	D	36.6	C	34.4

TABLE 26:
2025 PROJECT CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

Intersection	AM Peak Hour		PM Peak Hour	
	LOS	Delay[1] (secs)	LOS	Delay[1] (secs)
Avenue 12 at Road 40				
• EB Left-Through-Right	B	12.3	B	14.4
• WB Left-Through-Right	C	15.5	B	12.9
• **NB Approach**	**F**	**2033**	**F**	**1740**
• **SB Approach**	**F**	**216.5**	**F**	**362.7**
Avenue 12 at Root Creek Pkwy West	**E**	**55.6**	D	50.1
Avenue 12 at N-S Secondary #1	B	10.2	B	12.6
Avenue 12 at Root Creek Pkwy East	C	29.3	C	22.7
Avenue 12 at N-S Secondary #2	B	12.1	A	9.0
Avenue 12 at SR 41 West Frontage Road	**F**	**83.4**	**E**	**64.6**
Avenue 12 at SR 41	**F**	**1007.8**	**F**	**831.5**
Main Street at Root Creek Pkwy West	A	1.9	A	1.9
Main Street at Root Creek Pkwy East	A	2.5	A	2.5
Main Street at SR 41 West Frontage Road				
• NB Left-Through	A	7.4	A	7.4
• EB Approach	A	9.4	A	9.4
Root Creek Pkwy West at E-W Secondary #3	A	1.6	A	1.6
Root Creek Pkwy East at E-W Secondary #3	A	1.9	A	1.9
E-W Secondary #3 at SR 41 West Frontage Road				
• NB Left-Through	A	7.3	A	7.3
• EB Approach	A	8.4	A	8.4
Root Creek Pkwy West at E-W Secondary #4	A	1.8	A	1.8
Root Creek Pkwy West at E-W Secondary #5	A	1.6	A	1.6
Root Creek Pkwy West at E-W Secondary #6	A	1.5	A	1.5
Road 40 ½/E-W Secondary #7 at Root Creek Pkwy West/East	A	2.5	A	2.5
Root Creek Pkwy East at E-W Secondary #8	A	3.0	A	3.0
Root Creek Pkwy East at E-W Secondary #7	A	1.6	A	1.6
Root Creek Pkwy East at E-W Secondary #6	A	1.8	A	1.8
Avenue 12 at Golden State Boulevard	**E**	**75.0**	**F**	**96.3**
SR 99 SB ramps at Golden State Boulevard	C	26.3	C	20.9
Avenue 12 at SR 99 NB ramps	**F**	**105.3**	**F**	**105.4**

[1] Delay per vehicle *secs = seconds* *WB = westbound* *NB = northbound*
SB = southbound *EB = eastbound* *Pkwy = Parkway* *E-W = East-West*
N-S = North-South

Intersections projected to operate below appropriate adopted levels of service standard are shown in bold in Table 26. As shown in Table 26, nine (9) intersections are projected to operate or have movements that are projected to operate below the adopted level of service standard in the 2025 Project scenario. The Childrens Boulevard at Peck Boulevard intersection is projected to operate at a LOS "E" in the AM peak hour. The Childrens Boulevard at Lanes Bridge Drive and Childrens Boulevard at SR 41 SB ramps intersections are both projected to operate at a LOS "F" in both the AM and PM peak hours. The NB and SB approaches of the Avenue 12 at Road 40 intersection are both projected to operate at a LOS "F" in both the AM and PM peak hours. The Avenue 12 at Root Creek

Parkway West intersection is projected to operate at a LOS "E" in the AM peak hour. The Avenue 12 at SR 41 West Frontage Road is projected to operate at a LOS "F" in the AM peak hour and at a LOS "E in the PM peak hour. The Avenue 12 at SR 41 intersection is projected to operate at a LOS "F" in both the AM and PM peak hours. The Avenue 12 at Golden State Boulevard intersection is projected to operate at a LOS "E" in the AM peak hour and at a LOS "F" in the PM peak hour while the Avenue 12 at SR 99 NB ramps intersections is projected to operate at a LOS "F" in both the AM and PM peak hours. The remaining intersections are projected to continue to operate at or above the appropriate adopted level of service standard in the 2025 Project conditions scenario.

MITIGATED 2025 PROJECT TRAFFIC CONDITIONS

Roadways

Based on the information provided in the previous sections, the following locations by time period are projected to operate below the adopted level of service in the 2025 Project scenarios:

Segments

- Avenue 9 – SR 99 to Road 36 - AM/PM peak hours – LOS "F"
- Avenue 9 – Road 40 to Road 40 ½ - AM/PM peak hours – LOS "F"
- Lanes Bridge Drive – Avenue 10 to Childrens Boulevard - AM/PM peak hours – LOS "F"
- Avenue 10 – Road 40 ½ to SR 41 West Frontage Road - – AM/PM peak hours – LOS "F"
- Avenue 12 – SR 99 to Road 36 - AM/PM peak hours – LOS "F"
- Avenue 12 – Road 40 to Root Creek Parkway West - AM/PM peak hours – LOS "E"
- Avenue 12 – Root Creek Parkway West to Root Creek Parkway East - AM/PM peak hours – LOS "F"
- Avenue 12 – Root Creek Parkway East to SR 41 West Frontage Road - AM/PM peak hours – LOS "F"
- Avenue 12 –SR 41 West Frontage Road to SR 41 - AM/PM peak hours – LOS "F"
- Avenue 12 – SR 41 to Rio Mesa Boulevard - AM/PM peak hours – LOS "F"

Intersections

- Childrens Boulevard at Peck Boulevard – AM peak hour – LOS "E"
- Childrens Boulevard at Lanes Bridge Drive – AM/PM peak hours – LOS "F"
- Childrens Boulevard at SR 99 SB ramps – AM/PM peak hours – LOS "F"
- Avenue 12 at Road 40
    - NB Approach – AM/PM peak hours – LOS "F"
    - SB Approach – AM/PM peak hours – LOS "F"
- Avenue 12 at SR 41 West Frontage Road – AM/PM peak hours – LOS "F"/"E"
- Avenue 12 at SR 41 – AM/PM peak hours – LOS "F"
- Avenue 12 at Golden State Boulevard – AM/PM peak hours – LOS "E"/"F"
- Avenue 12 at SR 99 NB ramps – AM/PM peak hours – LOS "F"

Based on the rural peak hour volume warrant, the warrant is met at the following unsignalized study intersection in the 2025 Project conditions scenario:

- Avenue 10 at Road 40 ½ - Urban

To mitigate the segments and intersections projected to operate below the level of service standard, the following improvements are recommended in the Mitigated 2025 Project scenario. Please note as

shown in Table 25 there are several segments projected to operate below the adopted level of service standard based on the MCTC Capacity Table in the 2025 Project scenario. Mitigations needed to make these segments function at or above the adopted level of service standard based on the MCTC Capacity Table generally exceed the mitigations required for these road segments at the study intersections. Typically the most important factors in determining an arterial's level of service is signal coordination and spacing, which ultimately affects the segment operating speed. Therefore if fewer through lanes were required for the study intersections bracketing the study segment, then two (2) mitigations are shown for the segments of which one shows the MCTC Capacity Table recommended improvements and the other showing the intersection controlled recommended improvements. Likewise the mitigated segment levels of service derived from the MCTC Capacity Table and the mitigated segment levels of service derived from the intersection analyses are shown in the level of service tables. Per County direction, the required intersection improvements will control the segment mitigations. Therefore, the signals will need to be fully coordinated and optimized in order for the segments to operate at an acceptable level of service.

Segments

- Lanes Bridge Drive – Avenue 10 to Childrens Boulevard – Gateway Village Mitigations
  - Restripe/widen from six (6) lanes to eight (8) lanes
- Avenue 10 – Road 40 ½ to SR 41 West Frontage Road – Gateway Village Mitigations
  - MCTC Capacity Table
    - Restripe/widen from four (4) lanes to six (6) lanes
  - Intersection Analysis
    - No mitigations needed
- Avenue 12 – Root Creek Parkway East to SR 41 West Frontage Road – Gateway Village Mitigations
  - MCTC Capacity Table
    - Restripe/widen from six (6) lanes to ten (10) lanes
  - Intersection Analysis
    - Root Creek Parkway East to N-S Secondary #2
      - No mitigations needed
    - N-S Secondary #2 to SR 41 West Frontage Road
      - No mitigations needed
- Avenue 12 – SR 41 West Frontage Road to SR 41 – Gateway Village Mitigations
  - MCTC Capacity Table
    - Restripe/widen from ten (10) lanes to twelve (12) lanes
  - Intersection Analysis
    - No mitigations needed based on ultimate intersection configuration
- Avenue 12 – SR 41 to Rio Mesa Boulevard – Gateway Village Mitigations
  - Restripe/widen from six (6) lanes to eight (8) lanes

Intersections

- Childrens Boulevard at Peck Boulevard – Gateway Village Mitigations
  - Recoordinate/reoptimize the intersection
- Childrens Boulevard at Lanes Bridge Drive – Gateway Village Mitigations
  - Restripe/widen the WB approach, east leg, from one (1) left-turn lane, three (3) through lanes and one (1) right-turn lane to one (1) left-turn lane, four (4) through lanes and two (2) right-turn lanes
  - Restripe/widen the SB approach, north leg, from dual (2) left-turn lanes and one (1) right-turn lane to three (3) left-turn lanes and one (1) right-turn lane

- Childrens Boulevard at SR 41 SB ramps – Caltrans/ Gateway Village Mitigations
    - Restripe/widen the EB approach, west leg, from two (2) through lanes and two (2) right-turn lanes to one (1) through lane, one through-right lane and three (3) right-turn lanes
    - Restripe/widen the WB approach, east leg, from three (3) through lanes to five (5) through lanes
- Avenue 12 at SR 41 West Frontage Road – Gateway Village Mitigations
    - Restripe/widen the WB approach, east leg, from dual (2) left-turn lanes, three (3) through lanes and one (1) right-turn lane to dual (2) left-turn lanes, four (4) through lanes and one (1) right-turn lane
- Avenue 12 at Golden State Boulevard – Gateway Village Mitigations
    - Restripe/widen the NB approach, south leg, from one (1) left-turn lane, one (1) through lane and one (1) right-turn lane to one (1) left-turn lane, one (1) through lane and two (2) right-turn lanes
- Avenue 12 at SR 99 NB ramps – Caltrans/ Gateway Village Mitigations
    - Restripe/widen the EB approach, west leg, from one (1) left-turn lane and two (2) through lanes to one (1) left-turn lane and three (3) through lanes
    - Restripe/widen the WB approach, east leg, from two (2) through lanes and one (1) right-turn lane to two (2) through lanes and three (3) right-turn lanes

As shown in the following tables all study intersections, with the exception of the Avenue 12 at SR 41 and Avenue 12 at Road 40 intersections, are projected to function above the Madera County or Caltrans' levels of service standard with the recommended intersection improvements.

Even though the Avenue 12 at Road 40 intersection fails in the 2025 Project scenario it is not shown as being mitigated since it did not meet the rural peak hour volume signal warrant. Three (3) options could be considered that would bring the intersection to levels of service at or above the Madera County level of service standard. These options, along with associated LOS and seconds (sec) of delay by time period (AM/PM) include:

- Signalizing the intersection – LOS A (7.6)/LOS A (6.3)
- Restricting left-turn movements out of the intersection and allowing only left-turning movements in – LOS C (22.9)/LOS C (20.8)
- Restricting all left-turning movements into and out of the intersection – LOS C (23.7)/LOS C (21.3)

Please note that with the use of any of these three (3) options LOS and delay at other intersections in the corridor would potentially be different than those currently reported in this study. It should be noted that restricting movements at the Avenue 12 at Road 40 intersection would cause an increase/shifting in the traffic to the next available intersections thereby possibly decreasing the LOS and increasing the delay at those intersections.

As indicated previously since the intersection levels of service usually control segment levels of service, the proposed segment widenings required by the MCTC Capacity Table, with the exception of the Avenue 9 from Road 40 to Road 40 ½ segment, are not recommended. The Avenue 9 from Road 40 to Road 40 ½ segment will be widened to four (4) lanes in conjunction with the proposed widening of Avenue 9 at Road 40 ½. Again if the intersection analyses are allowed to control the segment mitigations, then the signals will need to be fully coordinated and optimized in order for the segments to operate at an acceptable level of service.

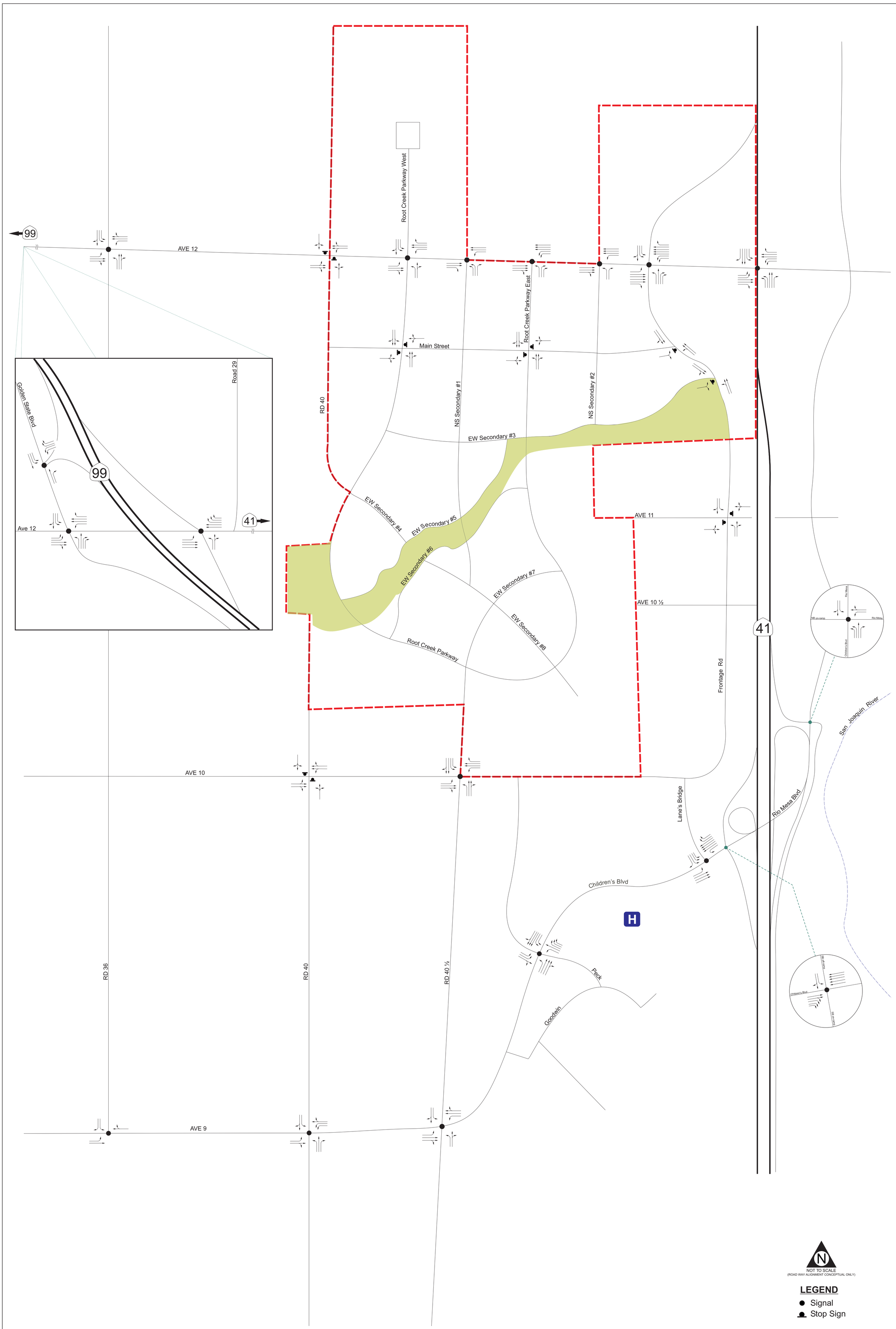
As stated previously no mitigations are proposed for the Avenue 12 at SR 41 intersection in the Mitigated 2025 Project scenario. The Project will be constructing interim intersection improvements prior to the occupancy of the first dwelling unit and ultimate intersection improvements within 12 months of the issuance of the 1,500th building permit. Even with these interim and ultimate improvements the Avenue 12 at SR 41 is projected to operate below the adopted level of service until an interchange is constructed. The interchange construction is planned for 2030 or beyond.

Mitigated 2025 Project Analyses

The Mitigated 2025 Project lane configurations and intersection controls are shown on Figure 36. Using the lane configurations shown on Figure 36 and the volumes shown on Figures 33 and 34, the segments and intersections were analyzed for Mitigated 2025 Project levels of service. Figure 37 and Tables 27 and 28 show the Mitigated 2025 Project levels of service for the study segments and intersections. The TWSC levels of service shown on Figure 37 are the levels of service for the worst operating movement at that intersection. The signalized and roundabout intersection levels of service shown in Figure 37 and Table 28 are representative of the whole intersection. Individual intersection movements or approaches may operate above or below the signalized and roundabout level of service or delay shown in Figure 37 and Table 28. The Mitigated 2025 Project intersection levels of service calculations are included in Appendix P.

Segment Analysis

Table 27 shows the Mitigated 2025 Project conditions segment levels of service.



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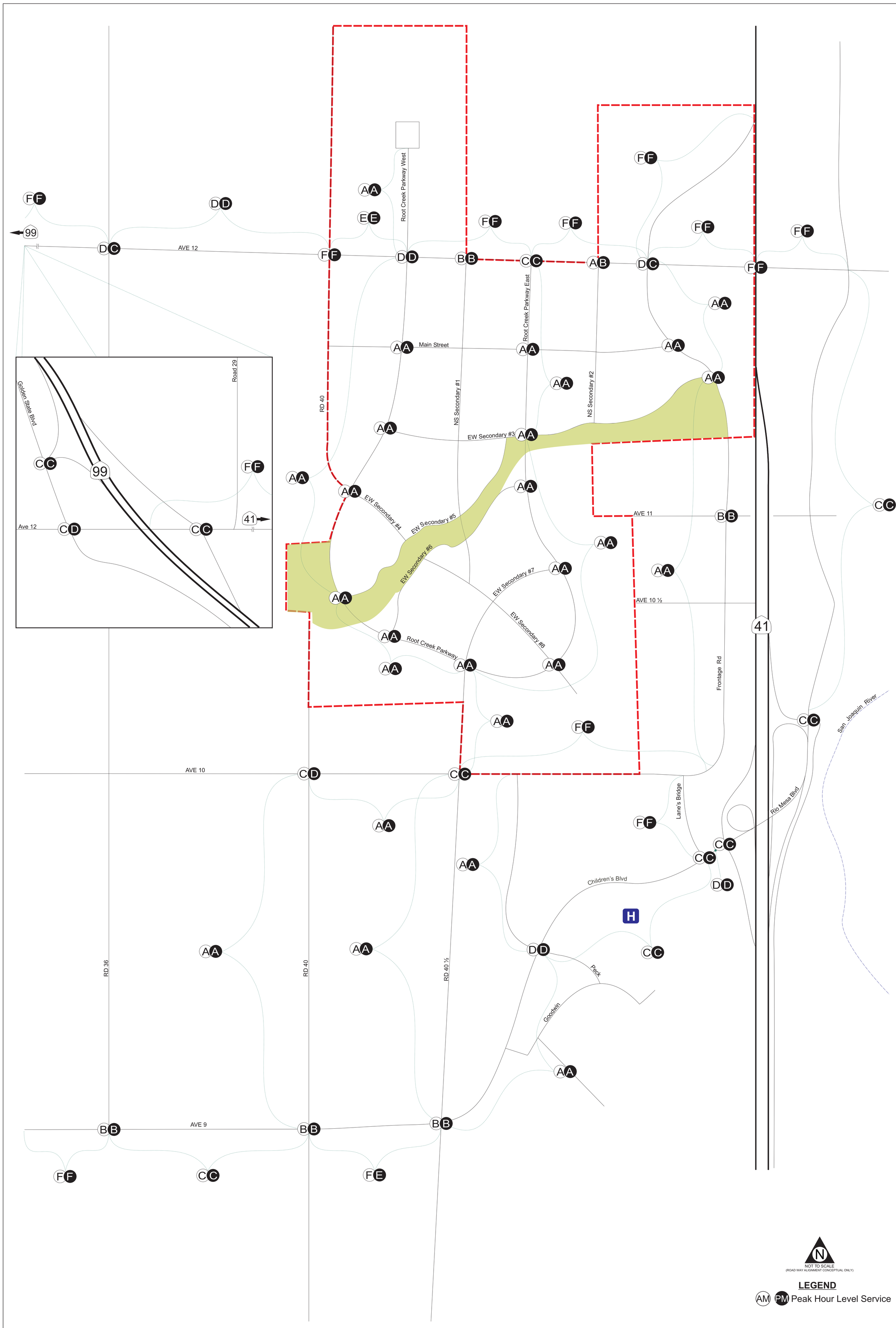
LANE CONFIGURATION AND INTERSECTION CONTROL

Mitigated 2025 Project

Gateway Village
Madera County

Figure 36

95-250.4



TPG Consulting Incorporated

LEVELS OF SERVICE

Mitigated 2025 Project

Gateway Village
Madera County

Figure 37

95-250.4

TABLE 27:
MITIGATED 2025 PROJECT CONDITIONS ANALYSIS
SEGMENT WEEKDAY LEVEL OF SERVICE

Segment	Number of Lanes[1]	Median	Facility Type	Capacity[2,3]	AM Peak Hour			PM Peak Hour		
					Volume[4]	LOS	D/C	Volume[4]	LOS	D/C
Road 40 – Avenue 9 to Avenue 10	2	Undivided	Collector	500	124	A	0.124	122	A	0.122
Root Creek Pkwy West – Road 40 ½ to Root Creek Greenbelt	4	Divided	Arterial	750	108	A	0.036	108	A	0.036
Root Creek Pkwy West – Root Creek Greenbelt to Avenue 12	4	Divided	Arterial	750	125	A	0.042	125	A	0.042
Root Creek Pkwy West – Avenue 12 to northern Project boundary	4	Divided	Arterial	750	1,668	A	0.556	1,668	A	0.556
Road 40 ½ - Avenue 9 to Avenue 10	4	Undivided	Arterial	750	192	A	0.064	197	A	0.066
Road 40 ½ - Avenue 10 to Root Creek Pkwy West/East	4	Undivided	Arterial	750	1,516	A	0.505	1,515	A	0.505
Root Creek Pkwy East – Road 40 ½ to Root Creek Greenbelt	4	Divided	Arterial	750	370	A	0.123	370	A	0.123
Root Creek Pkwy East – Root Creek Greenbelt to Avenue 12	4	Divided	Arterial	750	825	A	0.275	825	A	0.275
SR 41 West Frontage Road – Avenue 10 to Root Creek Greenbelt	4	Undivided	Collector	500	210	A	0.105	250	A	0.125
SR 41 West Frontage Road – Root Creek Greenbelt to Avenue 12	4	Undivided	Collector	500	577	A	0.288	610	A	0.305
SR 41 West Frontage Road – Avenue 12 to northern Project boundary	4	Undivided	Collector	500	1,221	B	0.611	1,218	B	0.609
Rio Mesa Boulevard – Avenue 10 to Avenue 12	2	Undivided	County Road	900	489	C	0.272	483	C	0.268
Avenue 9 – SR 99 to Road 36	**2** *(4)*	**Undivided**	**Arterial**	**750**	**1,606**	**F** *(A)*	**1.071** *(0.535)*	**1,583**	**F** *(A)*	**1.055** *(0.528)*
Avenue 9 – Road 36 to Road 40	2	Undivided	Arterial	750	1,168	C	0.779	1,114	C	0.742
Avenue 9 – Road 40 to Road 40 ½	4	Undivided	Arterial	750	1,513	A	0.504	1,466	A	0.489
Childrens Boulevard – Road 40 ½ to Peck Boulevard	6	Undivided	County Road	1,400	1,514	A	0.180	1,636	A	0.195
Childrens Boulevard – Peck Boulevard to Lanes Bridge Drive	6	Undivided	County Road	1,400	5,301	C	0.631	5,158	C	0.614
Childrens Boulevard – Lanes Bridge Drive to SR 41 SB ramps	8	Undivided	County Road	1,400	8,341	D	0.745	8,257	D	0.737
Peck Boulevard – Avenue 10 to Childrens Boulevard	2	Undivided	Arterial	750	732	A	0.488	738	A	0.492
Lanes Bridge Drive – Avenue 10 to Childrens Boulevard	**6** *(8)*	**Undivided**	**Collector**	**500**	**3,258**	**F** *(D)*	**1.086** *(0.815)*	**3,266**	**F** *(D)*	**1.089** *(0.817)*
Avenue 10 – Road 40 to Road 40 ½	4	Undivided	Arterial	750	1,539	A	0.513	1,564	A	0.521
Avenue 10 – Road 40 ½ to SR 41 West Frontage Road	**4** *(6)*	**Undivided**	**Arterial**	**750**	**3,219**	**F** *(C)*	**1.073** *(0.715)*	**3,239**	**F** *(C)*	**1.080** *(0.720)*
Avenue 12 – SR 99 to Road 36	4	Undivided	Arterial	750	1,867	B	0.622	1,893	B	0.631
Avenue 12 – Road 36 to Road 40	4	Undivided	Arterial	750	2,600	D	0.865	2,620	D	0.873
Avenue 12 – Road 40 to Root Creek Pkwy West	**4** *(6)*	**Divided**	**Arterial**	**750**	**2,794**	**E** *(B)*	**0.931** *(0.621)*	**2,804**	**E** *(B)*	**0.935** *(0.623)*
Avenue 12 – Root Creek Pkwy West to Root Creek Pkwy East	**4** *(6)*	**Divided**	**Arterial**	**750**	**3,965**	**F** *(D)*	**1.322** *(0.881)*	**3,975**	**F** *(D)*	**1.325** *(0.883)*
Avenue 12 – Root Creek Pkwy East to SR 41 West Frontage Road	**6** *(10)*	**Divided**	**Arterial**	**750**	**5,872**	**F** *(C)*	**1.305** *(0.783)*	**5,882**	**F** *(C)*	**1.307** *(0.784)*
Avenue 12 – SR 41 West Frontage Road to SR 41	**10** *(12)*	**Divided**	**Arterial**	**750**	**7,405**	**F** *(D)*	**1.646** *(0.823)*	**7,477**	**F** *(D)*	**1.662** *(0.831)*
Avenue 12 – SR 41 to Rio Mesa Boulevard	8	Undivided	Arterial	750	4,623	C	0.771	4,662	C	0.777

[1] = Number of lanes shown are 2-directional *[2] = Capacities taken from Madera County Travel Forecasting Model Documentation, Table 9* *[3] = Capacity shown is vehicles per lane per hour*
[4] = Volume shown is total 2-directional volume for the segment *D/C = demand to capacity ratio*
E/F = segment LOS shown bold and italicized in Mitigated 2013 Project and Mitigated 2025 Project scenarios include mitigations that are required based on intersection control
() = segment LOS shown in parentheses and italicized in Mitigated 2013 Project and Mitigated 2025 Project scenarios include mitigations that are required based on MCTC Capacity Table

Segments projected to operate below Madera County adopted levels of service standard are shown in bold in Table 27. As shown in Table 27, seven (7) of the study segments are still projected to operate below the adopted level of service standard in the Mitigated 2025 Project scenario if using the intersection controlled mitigations. The remaining study segments are projected to operate at or above the adopted level of service standard in the Mitigated 2025 Project conditions scenario.

Again all Gateway Village internal secondary/collector roadways are projected to operate at or above the Madera County adopted level of service standard in the Mitigated 2025 Project scenario.

Intersection Analysis

Table 28 shows the Mitigated 2025 Project conditions intersection level of service.

TABLE 28:
MITIGATED 2025 PROJECT CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

	AM Peak Hour		PM Peak Hour	
Intersection	**LOS**	**Delay[1] (secs)**	**LOS**	**Delay[1] (secs)**
Avenue 9 at Road 36	B	14.4	B	18.1
Avenue 9 at Road 40	B	19.7	B	18.4
Avenue 9 at Road 40 ½	B	12.2	B	10.6
Childrens Boulevard at Peck Boulevard	D	52.2	D	35.6
Childrens Boulevard at Lanes Bridge Drive	C	25.9	C	26.0
Childrens Boulevard at SR 41 SB ramps	C	23.6	C	21.0
Rio Mesa Boulevard at SR 41 NB ramps	C	30.8	C	33.4
Avenue 10 at Road 40				
• EB Left-Through-Right	A	8.4	A	8.5
• WB Left-Through-Right	A	8.1	A	8.1
• SB Approach	C	19.2	C	20.4
• NB Approach	C	18.1	D	26.4
Avenue 10 at Road 40 ½	C	22.3	C	22.0
Avenue 11 at SR 41 West Frontage Road				
• NB Left	A	7.5	A	7.6
• SB Left	A	7.4	A	7.7
• WB Approach	B	10.3	B	11.7
• EB Approach	B	11.3	B	13.7
Avenue 12 at Road 36	D	36.6	C	34.4
Avenue 12 at Road 40				
• EB Left-Through-Right	B	12.3	B	14.4
• WB Left-Through-Right	C	15.5	B	12.9
• **NB Approach**	**F**	**2033**	**F**	**1740**
• **SB Approach**	**F**	**216.5**	**F**	**362.7**
Avenue 12 at Root Creek Pkwy West	D	49.5	D	50.1
Avenue 12 at N-S Secondary #1	B	12.3	B	12.7
Avenue 12 at Root Creek Pkwy East	C	29.3	C	22.6
Avenue 12 at N-S Secondary #2	A	9.9	B	10.2
Avenue 12 at SR 41 West Frontage Road	D	51.0	C	32.9

TABLE 28:
MITIGATED 2025 PROJECT CONDITIONS ANALYSIS
INTERSECTION WEEKDAY LEVEL OF SERVICE

Intersection	AM Peak Hour		PM Peak Hour	
	LOS	Delay[1] (secs)	LOS	Delay[1] (secs)
Avenue 12 at SR 41	**F**	**964.2**	**F**	**831.4**
Main Street at Root Creek Pkwy West	A	1.9	A	1.9
Main Street at Root Creek Pkwy East	A	2.5	A	2.5
Main at SR 41 West Frontage Road				
• NB Left-Through	A	7.4	A	7.4
• EB Approach	A	9.4/	A	9.4
Root Creek Pkwy West at E-W Secondary #3	A	1.6	A	1.6
Root Creek Pkwy East at E-W Secondary #3	A	1.9	A	1.9
E-W Secondary #3 at SR 41 West Frontage Road				
• NB Left-Through	A	7.3	A	7.3
• EB Approach	A	8.4	A	8.4
Root Creek Pkwy West at E-W Secondary #4	A	1.8	A	1.8
Root Creek Pkwy West at E-W Secondary #5	A	1.6	A	1.6
Root Creek Pkwy West at E-W Secondary #6	A	1.5	A	1.5
Road 40 ½/E-W Secondary #7 at Root Creek Pkwy West/East	A	2.5	A	2.5
Root Creek Pkwy East at E-W Secondary #8	A	3.0	A	3.0
Root Creek Pkwy East at E-W Secondary #7	A	1.6	A	1.6
Root Creek Pkwy East at E-W Secondary #6	A	1.8	A	1.8
Avenue 12 at Golden State Boulevard	C	26.2	D	35.9
SR 99 SB ramps at Golden State Boulevard	C	20.7	C	20.2
Avenue 12 at SR 99 NB ramps	C	20.6	C	26.8

[1] *Delay per vehicle* *secs = seconds* *WB = westbound* *NB = northbound*
SB = southbound *EB = eastbound* *Pkwy = Parkway* *E-W = East-West*
N-S = North-South

As shown in Table 28, with the improvements recommended previously, the majority of the study intersections are projected to operate at or above the appropriate adopted level of service standard. Again no mitigations were proposed for the Avenue 12 at SR 41 or Avenue 12 at Road 40 intersections and as such they are shown as failing in Table 28.

CONCLUSIONS AND RECOMMENDATIONS

As shown in the previous sections, the following locations by scenario and timeframe operate or are projected to operate below the appropriate adopted level of service standards:

Existing (Without the Project)

Segments

- Avenue 12 – Road 40 to SR 41 West Frontage Road - AM/PM peak hours – LOS "E"
- Avenue 12 – SR 41 West Frontage Road to SR 41 - PM peak hour – LOS "E"

Intersections

- Childrens Boulevard at Lanes Bridge Drive
  - SB Approach – AM/PM peak hours – LOS "F"
- Avenue 12 at Road 36 – AM/PM peak hours – LOS "E"
- Avenue 12 at Golden State Boulevard
  - NB Approach –PM peak hour – LOS "F"
  - SB Approach – PM peak hour – LOS "F"
- SR 99 SB ramps at Golden State Boulevard
  - WB Approach – PM peak hour – LOS "E"
- Avenue 12 at SR 99 NB ramps
  - NB Approach – AM/PM peak hours – LOS "E"/"F"

2013 No Project (Without the Project)

Segments

- Avenue 9 – SR 99 to Road 36 - AM/PM peak hours – LOS "E"
- Childrens Boulevard – Road 40 ½ to Peck Boulevard - AM peak hour – LOS "E"
- Avenue 12 – SR 99 to Road 36 - AM/PM peak hours – LOS "E"
- Avenue 12 – Road 36 to Road 40 - AM/PM peak hours – LOS "E"
- Avenue 12 – Road 40 to SR 41 West Frontage Road - AM/PM peak hours – LOS "E"
- Avenue 12 – SR 41 West Frontage Road to SR 41 - AM/PM peak hours – LOS "E"

Intersections

- Childrens Boulevard at Peck Boulevard
  - WB Left – AM peak hour – LOS "F"
  - NB Approach – AM/PM peak hours – LOS "F"
- Childrens Boulevard at Lanes Bridge Drive
  - SB Approach – AM/PM peak hours – LOS "F"
- Avenue 12 at Road 36 – AM/PM peak hours – LOS "F"
- Avenue 12 at SR 41 West Frontage Road
  - NB Approach – AM/PM peak hours – LOS "F"
- Avenue 12 at SR 41 – AM/PM peak hours – LOS "E"/"F"
- Avenue 12 at Golden State Boulevard – PM peak hour – LOS "E"
- SR 99 SB ramps at Golden State Boulevard
  - WB Approach – AM/PM peak hours – LOS "F"

2013 Project (With the Project)

Segments

- Avenue 9 – SR 99 to Road 36 - AM/PM peak hours – LOS "F"
- Childrens Boulevard – Road 40 ½ to Peck Boulevard - AM/PM peak hours – LOS "E"
- Avenue 12 – SR 99 to Road 36 - AM/PM peak hours – LOS "F"
- Avenue 12 – Road 36 to Road 40 - AM/PM peak hours – LOS "F"
- Avenue 12 – Road 40 to Root Creek Parkway West - AM peak hour – LOS "F"; PM peak hour – LOS "E"
- Avenue 12 – Root Creek Parkway West to Root Creek Parkway East - AM/PM peak hours – LOS "F"
- Avenue 12 – Root Creek Parkway East to SR 41 West Frontage Road - AM/PM peak hours – LOS "F"

- Avenue 12 – SR 41 West Frontage Road to SR 41 - AM/PM peak hours – LOS "F"

Intersections

- Childrens Boulevard at Peck Boulevard – PM peak hour – LOS "E"
- Avenue 12 at Road 36 – AM/PM peak hours – LOS "F"
- Avenue 12 at Road 40
    - NB Approach – AM/PM peak hours – LOS "F"
    - SB Approach – AM/PM peak hours – LOS "F"
- Avenue 12 at Root Creek Parkway East – AM peak hour – LOS "E"
- Avenue 12 at SR 41 West Frontage Road – AM/PM peak hours – LOS "F"
- Avenue 12 at SR 41 – AM/PM peak hours – LOS "F"

2025 No Project (Without the Project)

Segments

- Avenue 9 – SR 99 to Road 36 - AM/PM peak hours – LOS "E"
- Avenue 9 – Road 40 to Road 40 ½ - AM/PM peak hours – LOS "E"
- Avenue 12 – SR 99 to Road 36 - AM/PM peak hours – LOS "F"
- Avenue 12 – Road 36 to Road 40 - AM/PM peak hours – LOS "E"

Intersections

- Avenue 9 at Road 40 ½
    - NB Approach – AM/PM peak hours – LOS "E"/"F"
    - SB Approach – AM/PM peak hours – LOS "F"
- Childrens Boulevard at Peck Boulevard
    - WB Left – AM peak hour – LOS "F"
    - NB Approach – AM/PM peak hours – LOS "F"
- Avenue 12 at SR 41 – AM/PM peak hours – LOS "F"
- Avenue 12 at Golden State Boulevard – AM/PM peak hours – LOS "E"/"F"
- SR 99 SB ramps at Golden State Boulevard – AM/PM peak hours – LOS "E"/"F"
- Avenue 12 at SR 99 NB ramps – AM/PM peak hours – LOS "F"

2025 Project (With the Project)

Segments

- Avenue 9 – SR 99 to Road 36 - AM/PM peak hours – LOS "F"
- Avenue 9 – Road 40 to Road 40 ½ - AM/PM peak hours – LOS "F"
- Lanes Bridge Drive – Avenue 10 to Childrens Boulevard - AM/PM peak hours – LOS "F"
- Avenue 10 – Road 40 ½ to SR 41 West Frontage Road – AM/PM peak hours – LOS "F"
- Avenue 12 – SR 99 to Road 36 - AM/PM peak hours – LOS "F"
- Avenue 12 – Road 40 to Root Creek Parkway West - AM/PM peak hours – LOS "E"
- Avenue 12 – Root Creek Parkway West to Root Creek Parkway East - AM/PM peak hours – LOS "F"
- Avenue 12 – Root Creek Parkway East to SR 41 West Frontage Road - AM/PM peak hours – LOS "F"
- Avenue 12 –SR 41 West Frontage Road to SR 41 - AM/PM peak hours – LOS "F"
- Avenue 12 – SR 41 to Rio Mesa Boulevard - AM/PM peak hours – LOS "F"

Intersections

- Childrens Boulevard at Peck Boulevard – AM peak hour – LOS "E"

- Childrens Boulevard at Lanes Bridge Drive – AM/PM peak hours – LOS "F"
- Childrens Boulevard at SR 99 SB ramps – AM/PM peak hours – LOS "F"
- Avenue 12 at Road 40
    - NB Approach – AM/PM peak hours – LOS "F"
    - SB Approach – AM/PM peak hours – LOS "F"
- Avenue 12 at SR 41 West Frontage Road – AM/PM peak hours – LOS "F"/"E"
- Avenue 12 at SR 41 – AM/PM peak hours – LOS "F"
- Avenue 12 at Golden State Boulevard – AM/PM peak hours – LOS "E"/"F"
- Avenue 12 at SR 99 NB ramps – AM/PM peak hours – LOS "F"

The following intersections, by scenario, either meet or are projected to meet the rural or urban peak hour volume warrant:

Existing (Without the Project)

- Childrens Boulevard at Peck Boulevard - Rural
- Childrens Boulevard at Lanes Bridge Drive - Rural
- Avenue 12 at Road 36 - Rural
- Avenue 12 at SR 41 West Frontage Road - Rural
- Avenue 12 at Golden State Boulevard – Urban
- Avenue 12 at SR 99 NB ramps – Urban

2013 No Project (Without the Project)

- Avenue 9 at Road 36 – Rural
- Avenue 9 at Road 40 – Rural
- Childrens Boulevard at Peck Boulevard - Rural
- Childrens Boulevard at Lanes Bridge Drive - Rural
- Avenue 12 at Road 36 - Rural
- Avenue 12 at SR 41 West Frontage Road - Rural
- Avenue 12 at Golden State Boulevard – Urban
- SR 99 SB ramps at Golden State Boulevard – Urban
- Avenue 12 at SR 99 NB ramps – Urban

2013 Project (With the Project)

- Avenue 12 at Root Creek Parkway West - Rural
- Avenue 12 at N-S Secondary #1 - Rural
- Avenue 12 at Root Creek Parkway East - Rural
- Avenue 12 at N-S Secondary #2 - Rural

2025 No Project (Without the Project)

- Avenue 9 at Road 40 ½

2025 Project (With the Project)

- Avenue 10 at Road 40 ½ - Urban

To mitigate the segments and intersections that are projected to operate below the adopted level of service standards, or meet the rural/urban peak hour volume signal warrants, the following improvements by scenario, with projected implementing party/mechanism, are recommended. Implementing party/mechanisms for these various improvements include:

- 2004 RTP (RTP) including Regional Transportation Improvement Program (RTIP), Mitigation Fees from Rio Mesa Area Plan and Gunner Ranch West Area Plan, and County Wide Impact Fee (CWIF) funding;
- County of Madera (County) including other background developer sponsored improvement fees not associated with the Rio Mesa Area Plan, Gunner Ranch West Area Plan, and Gateway Village;
- Caltrans;
- Gunner Ranch West Area Plan (GRW);
- Rio Mesa Area Plan (RM);
- Gateway Village Specific Plan Circulation Plan (Project – Circulation Plan) [internal to the Project]; and,
- Gateway Village Project mitigations (Project – Offsite Mitigation) [external to the Project – previously determined]
- Gateway Village Project mitigations (Project – mitigations determined in this TIS)

Please note as shown in the tables throughout the document there are several segments projected to operate below the adopted level of service standard based on the MCTC Capacity Table in the various scenarios. Mitigations needed to make these segments function at or above the adopted level of service standard based on the MCTC Capacity Table generally exceed the mitigations required for these road segments at the study intersections. Typically the most important factors in determining an arterial's level of service is signal coordination and spacing, which ultimately affects the segment operating speed. Therefore, if fewer through lanes are required for the study intersections bracketing the study segment, then two (2) mitigations are shown for the segments of which one shows the MCTC Capacity Table recommended improvements and the other shows the intersection controlled recommended improvements. Likewise, the mitigated segment levels of service derived from the MCTC Capacity Table and the mitigated segment levels of service derived from the intersection analyses are shown in the level of service tables. Per County direction, the required intersection improvements will control the segment mitigations. Therefore, the signals will need to be fully coordinated and optimized in order for the segments to operate at an acceptable level of service.

Existing (Without the Project)

Intersections

- Childrens Boulevard at Lane's Bridge Drive – County/GRW/RM
    - Signalize the intersection
    - Restripe/widen the SB approach, north leg, from a one (1) left-turn lane and one (1) right-turn lane to dual (2) left-turn lanes and one (1) right-turn lane
- Avenue 12 at Road 36 – County/GRW/RM
    - Signalize the intersection
- Avenue 12 at SR 41 West Frontage Road – County/GRW/RM
    - Signalize the intersection
    - Restripe/widen the NB approach, south leg, from a shared left-right lane to one (1) left-turn lane and one (1) right-turn lane
- Avenue 12 at Golden State Boulevard
    - Signalize the intersection – Caltrans/County
    - Restripe the NB approach, south leg from a shared left-through and separate right-turn to a separate left-turn and a shared through-right-turn lane – Caltrans/County
    - Restripe/widen the SB approach, north leg from a shared left-through and separate right-turn to a separate left-turn, one (1) through lane and one (1)right-turn lane – Caltrans/County

Additional improvements beyond Caltrans scheduled improvements

- Restripe/widen the NB approach, south leg, from a separate left-turn and a shared through-right-turn lane to one (1) left-turn lane, one (1) through lane and one (1) right-turn lane – Caltrans/County/GRW/RM
- Restripe/widen the SB approach, north leg, from a separate left-turn, one (1) through lane and one (1)right-turn lane to dual (2) left-turn lanes and a shared through-right lane – Caltrans/County/GRW/RM
- Restripe/widen the eastbound (EB) approach, west leg, from one (1) left-turn lane, one (1) through lane and one (1) right-turn lane to dual (2) left-turn lanes and a shared through-right lane – Caltrans/County/GRW/RM

- Avenue 12 at SR 99 NB ramps
  - Signalize the intersection – Caltrans
  - Restripe/widen the EB approach, west leg, from a shared left-through lane to one (1) left-turn lane and one (1) through lane – Caltrans

  Additional improvements beyond Caltrans scheduled improvements
  - Restripe/widen the WB approach, east leg, from a shared through-right lane to one (1) through lane and one (1) right-turn lane - Caltrans/County/GRW/RM

2013 No Project (Without the Project)

Segments

- Avenue 9 – SR 99 to Road 36 - County/GRW/RM
  - MCTC Capacity Table
    - Restripe/widen from two (2) lanes to four (4) lanes
  - Intersection Analysis
    - No mitigations needed
- Avenue 12 – SR 99 to Road 36 – County/GRW/RM
  - MCTC Capacity Table
    - Restripe/widen from two (2) lanes to four (4) lanes
  - Intersection Analysis
    - No mitigations needed
- Avenue 12 – Road 36 to Road 40 – County/GRW/RM
  - MCTC Capacity Table
    - Restripe/widen from two (2) lanes to four (4) lanes
  - Intersection Analysis
    - No mitigations needed
- Avenue 12 – Road 40 to SR 41 West Frontage Road - County/GRW/RM
  - MCTC Capacity Table
    - Restripe/widen from two (2) lanes to four (4) lanes
  - Intersection Analysis
    - No mitigations needed
- Avenue 12 – SR 41 West Frontage Road to SR 41 - County/GRW/RM
  - MCTC Capacity Table
    - Restripe/widen from two (2) lanes to four (4) lanes
  - Intersection Analysis
    - No mitigations needed
- Avenue 12 – SR 41 to Rio Mesa Boulevard – RTP (Mitigation Funds/RM)
  - Widen from two (2) lanes to six (6) lanes

- Childrens Boulevard – Road 40 ½ to Peck Boulevard – RTP (Mitigation Funds/GRW)
    - Widen from two (2) lanes to four (4) lanes
- Childrens Boulevard – Lanes Bridge Drive to SR 41 SB ramps – RTP (Mitigation Funds/GRW)
    - Widen from six (6) lanes to eight (8) lanes

Intersections

- Avenue 9 at Road 36 - County/GRW/RM
    - Signalize the intersection
    - Restripe/widen the SB approach, north leg, from a shared left-right lane to one (1) left-turn lane and one (1) right-turn lane
    - Restripe/widen the EB approach, west leg, from a shared left-through lane to one (1) left-turn lane and one (1) through lane
- Avenue 9 at Road 40 – County/GRW/RM
    - Signalize the intersection
    - Restripe/widen the NB approach, south leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane
    - Restripe/widen the EB approach, west leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane
    - Restripe/widen the WB approach, east leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane
- Childrens Boulevard at Peck Boulevard - County/GRW/RM
    - Signalize the intersection
    - Restripe/widen the WB approach, east leg, from one (1) left-turn lane and two (2) through lanes to dual (2) left-turn lanes and two (2) through lanes
- Avenue 12 at SR 41 – Caltrans/County/GRW/RM
    - Restripe/widen the NB approach, south leg, from one (1) left-turn lane, one (1) through lane and one (1) right-turn lane to dual (2) left-turn lanes, four (4) through lanes and one (1) right-turn lane
    - Restripe/widen the SB approach, north leg, from one (1) left-turn lane, two (2) through lanes and one (1) right-turn lane to dual (2) left-turn lanes, three (3) through lanes and one (1) right-turn lane
    - Restripe/widen the EB approach, west leg, from a shared left-through lane and one (1) right-turn lane to one (1) left-turn lane, one (1) through lane and dual (2) right-turn lanes
    - Restripe/widen the WB approach, east leg, from a shared left-through lane and one (1) right-turn lane to dual (2) left-turn lanes, one (1) through lane and one (1) right-turn lane

The improvements shown for the Avenue 12 at SR 41 intersection are what would be required in lieu of constructing an interchange. These improvements were utilized in generating the levels of service shown in the Mitigated 2013 No Project scenario tables and figures for this intersection. However Caltrans has determined that the maximum standard intersection improvements that they will construct prior to construction of an interchange will consist of the following:

- Restripe/widen the NB approach, south leg, from one (1) left-turn lane to dual (2) left-turn lanes to a depth of approximately 1,000 feet on SR 41 south of Avenue 12
- Restripe/widen the SB, EB, and WB approaches from one (1) left-turn lane to two (2) left-turn lanes to a depth of 250 to 300 feet
- Restripe/widen the NB, SB, WB, and EB approaches from one (1) through lane to two (2) through lanes to the following depths

  - SB SR 41 through lanes south of Avenue 12 shall be continuous
  - WB Avenue 12 through lanes west of SR 41 shall continue for a distance of approximately 1,350 feet
  - NB SR 41 through lanes north of Avenue 12 shall continue for a distance of approximately 250 to 300 feet
  - EB Avenue 12 through lanes east of SR 41 shall continue for a distance of approximately 250 to 300 feet
- Restripe/widen/lengthen the separate right-turn lanes in all four (4) directions to a depth of 250 to 300 feet

The SR 41 at Avenue 12 ultimate intersection improvements were used in the 2025 Project scenario.

- SR 99 SB ramps at Golden State Boulevard - Caltrans/County/GRW/RM
  - Signalize the intersection
  - Restripe/widen the SB approach, north leg, from a shared left-through lane to dual (2) left-turn lanes and one (1) through lane
  - Restripe/widen the WB approach, east leg, from a shared left-right lane to one(1) left-turn lane and dual (2) right-turn lanes
- Rio Mesa Boulevard at SR 41 NB ramps – Caltrans/RM
  - Restripe/widen the NB approach, south leg, from dual (2) left-turn lanes and one (1) right-turn lane to dual (2) left-turn lanes, one (1) through lane, and one (1) right-turn lane
  - Construct the SB approach, north leg to one (1) left-turn lane and a shared through-right lane

2013 Project

Segments

- Avenue 12 – Road 40 to Root Creek Parkway West – Project (Circulation Plan)
  - Widen from two (2) lanes to four (4) lanes
- Avenue 12 – Road 40 to Root Creek Parkway West – Gateway Village Mitigations
  - MCTC Capacity Table
    - Restripe/widen from four (4) lanes to six (6) lanes
  - Intersection Analysis
    - No mitigations needed
- Avenue 12 – Root Creek Parkway West to Root Creek Parkway East – Project (Circulation Plan)
  - Widen from two (2) lanes to four (4) lanes
- Avenue 12 – Root Creek Parkway West to Root Creek Parkway East – Gateway Village Mitigations
  - MCTC Capacity Table
    - Restripe/widen from four (4) lanes to six (6) lanes
  - Intersection Analysis
    - Root Creek Parkway West to N-S Secondary #1
      - No mitigations needed
    - N-S Secondary #1 to Root Creek Parkway East
      - Restripe/widen from four (4) lanes to six (6) lanes
- Avenue 12 – Root Creek Parkway East to SR 41 West Frontage Road – Gateway Village Mitigations
  - MCTC Capacity Table
    - Restripe/widen from six (6) lanes to eight (8) lanes

    - Intersection Analysis
        - Root Creek Parkway East to N-S Secondary #2
            - No mitigations needed
        - N-S Secondary #2 to SR 41 West Frontage Road
            - Restripe/widen from six (6) lanes to seven (7) lanes [three (3) WB and four (4) EB]
- Avenue 12 – SR 41 West Frontage Road to SR 41 – Project (Circulation Plan)
    - Widen from two (2) lanes to six (6) lanes
- Avenue 12 – SR 41 West Frontage Road to SR 41 – Gateway Village Mitigations
    - MCTC Capacity Table
        - Restripe/widen from six (6) lanes to ten (10) lanes
    - Intersection Analysis
        - Restripe/widen from six (6) lanes to seven (7) lanes [three (3) WB and four (4) EB]
- SR 41 West Frontage Road – Root Creek Greenbelt/E-W Secondary #3 to northern Project boundary – Project (Circulation Plan)
    - Widen from two (2) lanes to four (4) lanes
- Root Creek Parkway West – Root Creek Greenbelt/E-W Secondary #5 to north of Avenue 12 - Project (Circulation Plan)
    - Construct a four (4) lane roadway
- Root Creek Parkway East – Root Creek Greenbelt/E-W Secondary #3 to Avenue 12 - Project (Circulation Plan)
    - Construct a four (4) lane roadway
- Road 40 – Avenue 12 to Root Creek Parkway West - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- N-S Secondary #1 – E-W Secondary #5 to Avenue 12 - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- N-S Secondary #2 – E-W Secondary #3 to Avenue 12 - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- E-W Secondary #3 – Root Creek Parkway West to SR 41 West Frontage Road - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- E-W Secondary #4 – Root Creek Parkway West to E-W Secondary #5 - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- E-W Secondary #5 – Root Creek Parkway West to E-W Secondary #3 - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- Main Street – Road 40 to SR 41 West Frontage Road - Project (Circulation Plan)
    - Construct a two (2) lane roadway

Intersections

- Childrens Boulevard at Peck Boulevard – Gateway Village Mitigations
    - Restripe/widen the NB approach, south leg, from one (1) left-turn lane and one (1) right-turn lane to one (1) left-turn lane and two (2) right-turn lanes
- Avenue 12 at Road 36 – Gateway Village Mitigations
    - Restripe/widen the EB approach, west leg, from one (1) left-turn lane and a shared through-right to one (1) left-turn lane, one (1) through lane and a shared through-right lane

  - Restripe/widen the WB approach, east leg, from one (1) left-turn lane and a shared through-right to one (1) left-turn lane, one (1) through lane and a shared through-right lane
- Avenue 12 at Root Creek Parkway West – Project (Circulation Plan)
  - Signalize the intersection
  - Construct the NB approach, south leg, to provide one (1) left-turn lane, and a shared through-right lane
  - Construct the SB approach, north leg to provide two (2) left-turn lanes, and a shared through-right lane
- Avenue 12 at Root Creek Parkway East – Project (Circulation Plan)
  - Signalize the intersection
  - Construct the NB approach, south leg, to provide one (1) left-turn lane, and two (2) right-turn lanes
- Avenue 12 at SR 41 West Frontage Road – Gateway Village Mitigations
  - Restripe/widen the EB approach, west leg, from one (1) left-turn lane, two (2) through lanes and a shared through-right lane to one (1) left-turn lane, four (4) through lanes and one (1) right-turn lane
  - Restripe/widen the NB approach, south leg, from one (1) left-turn lane, one (1) through lane, and one (1) right-turn lane to one (1) left-turn lane, one (1) through lane and two (2) right-turn lanes
- Avenue 12 at SR 41 – Project (Offsite Mitigation)
  - Restripe/widen the NB approach, south leg, from a separate left-turn lane, one (1) through lane, and a separate right-turn lane to dual (2) left-turn lanes to a depth of approximately 1,000 feet on SR 41 S of Avenue 12, one (1) through lane, and a separate right-turn lane
  - Restripe/widen the WB departure, west leg, from one (1) through lane to two (2) through lanes for approximately 1,000 feet west of SR 41
- Root Creek Parkway West at Main Street – Project (Circulation Plan)
  - Construct a roundabout
- Root Creek Parkway West at E-W Secondary # 3 – Project (Circulation Plan)
  - Construct a roundabout
- Root Creek Parkway West at Road 40/E-W Secondary # 4 – Project (Circulation Plan)
  - Construct a roundabout
- Root Creek Parkway West at E-W Secondary #5 – Project (Circulation Plan)
  - Construct a roundabout
- Root Creek Parkway East at E-W Secondary #3 – Project (Circulation Plan)
  - Construct a roundabout
- Root Creek Parkway East at Main Street – Project (Circulation Plan)
  - Construct a roundabout

Even though the Avenue 12 at Road 40 intersection fails in the 2013 Project scenario it is not shown as being mitigated since it did not meet the rural peak hour volume signal warrant. Three (3) options could be considered that would bring the intersection to levels of service at or above the Madera County level of service standard. These options, along with associated LOS and seconds (sec) of delay by time period (AM/PM) include:

- Signalizing the intersection – LOS A (4.7)/LOS A (5.7)
- Restricting left-turn movements out of the intersection and allowing only left-turning movements in – LOS C (23.4)/LOS C (20.1)

- Restricting all left-turning movements into and out of the intersection – LOS C (18.0)/LOS C (20.1)

Please note that with the use of any of these three (3) options LOS and delay at other intersections in the corridor would potentially be different than those currently reported in this study. It should be noted that restricting movements at the Avenue 12 at Road 40 intersection would cause an increase/shifting in the traffic to the next available intersections thereby possibly decreasing the LOS and increasing the delay at those intersections.

2025 No Project

Segments

- Avenue 9 – Road 40 to Road 40 ½ - County/GRW/RM
    - MCTC Capacity Table
        - Restripe/widen from two (2) lanes to four (4) lanes
    - Intersection Analysis
        - No mitigations needed
- Childrens Boulevard - Road 40 to Road 40 ½ - GRW
    - Widen from two (2) lanes to four(4) lanes
- Childrens Boulevard - Peck Boulevard to Lanes Bridge Drive - GRW
    - Widen from four (4) lanes to six (6) lanes
- Peck Boulevard – Childrens Boulevard to Avenue 10 – GRW
    - Construct a four (4) lane roadway
- Avenue 12 – SR 99 to Road 30 – RTP
    - Restripe/widen from two (2) lanes to four (4) lanes
- Avenue 12 – Road 30 to Road 36- RTP/County/GRW/RM
    - MCTC Capacity Table
        - Restripe/widen from two (2) lanes to four (4) lanes
    - Intersection Analysis
        - No mitigations needed
- Avenue 12 – Road 36 to Road 38- County/GRW/RM
    - MCTC Capacity Table
        - Restripe/widen from two (2) lanes to four (4) lanes
    - Intersection Analysis
        - No mitigations needed
- Avenue 12 – Road 38 to SR 41- RTP
    - Restripe/widen from two (2) lanes to four (4) lanes

Intersections

- Avenue 9 at Road 40 ½ - County/GRW/RM
    - Signalize the intersection
    - Restripe/widen the NB approach, south leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane
    - Restripe/widen the SB approach, north leg, from a shared left-through-right lane to one (1) left-turn lane and a shared through-right lane
    - Restripe/widen the EB approach, west leg, from a shared left-through lane and a shared through-right lane to one (1) left-turn lane, one (1) through lane and a shared through-right lane

  - Restripe/widen the WB approach, east leg, from a shared left-through lane and a shared through-right lane to one (1) left-turn lane, one (1) through lane and a shared through-right lane
- Childrens Boulevard at Peck Boulevard - County/GRW/RM
  - Restripe/widen the NB approach, south leg, from a one (1) left-turn lane and a shared through-right lane to one (1) left-turn lane, one (1) through lane and three (3) right-turn lanes
  - Construct the SB approach, north leg, from one (1) left-turn lane and a shared through-right lane to dual (2) left-turn lanes and a shared through-right lane
  - Restripe/widen the WB approach, east leg, from dual (2) left-turn lanes, one (1) through lane and a shared through-right lane to dual (2) left-turn lanes, two (2) through lanes and one (1) right-turn lane
  - Restripe/widen the EB approach, west leg, from a separate left-turn lane, one (1) through lane and a shared through-right lane to a separate left-turn lane, two (2) through lanes and one (1) right-turn lane
- Avenue 12 at SR 41 - Caltrans/County/GRW/RM
  - Restripe/widen the NB approach, south leg, from dual (2) left-turn lanes, four (4) through lanes and one (1) right-turn lane to dual (2) left-turn lanes, four (4) through lanes and three (3) right-turn lanes
  - Restripe/widen the SB approach, north leg, from dual (2) left-turn lanes, three (3) through lanes and one (1) right-turn lane to dual (2) left-turn lanes, four (4) through lanes and one (1) right-turn lane
  - Restripe/widen the EB approach, west leg, from one (1) left-turn lane, one (1) through lane and dual (2) right-turn lanes to one (1) left-turn lane, one (1) through lane and four (4) right-turn lanes
  - Restripe/widen the WB approach, east leg, from dual (2) left-turn lanes, one (1) through lane and one (1) right-turn lane to four (4) left-turn lanes, one (1) through lane and one (1) right-turn lane

The improvements shown for the Avenue 12 at SR 41 intersection are what would be required in lieu of constructing an interchange. These improvements were utilized in generating the levels of service shown in the Mitigated 2025 No Project scenario tables and figures for this intersection. However Caltrans has determined that the maximum standard intersection improvements that they will construct prior to construction of an interchange will consist of the following:

- Restripe/widen the NB approach, south leg, from one (1) left-turn lane to dual (2) left-turn lanes to a depth of approximately 1,000 feet on SR 41 south of Avenue 12
- Restripe/widen the SB, EB, and WB approaches from one (1) left-turn lane to two (2) left-turn lanes to a depth of 250 to 300 feet
- Restripe/widen the NB, SB, WB, and EB approaches from one (1) through lane to two (2) through lanes to the following depths
  - SB SR 41 through lanes south of Avenue 12 shall be continuous
  - WB Avenue 12 through lanes west of SR 41 shall continue for a distance of approximately 1,350 feet
  - NB SR 41 through lanes north of Avenue 12 shall continue for a distance of approximately 250 to 300 feet
  - EB Avenue 12 through lanes east of SR 41 shall continue for a distance of approximately 250 to 300 feet
- Restripe/widen/lengthen the separate right-turn lanes in all four (4) directions to a depth of 250 to 300 feet

The SR 41 at Avenue 12 ultimate intersection improvements were used in the 2025 Project scenario.

- Avenue 12 at Golden State Boulevard - County/GRW/RM
    - Restripe/widen the EB approach, west leg, from dual (2) left-turn lanes and a shared through-right lane to dual (2) left-turn lanes, one (1) through lane and a shared through-right lane
    - Restripe/widen the WB approach, east leg, from one (1) left-turn lane and a shared through-right lane to one (1) left-turn lane, one (1) through lane and a shared through-right lane
- Avenue 12 at SR 99 NB ramps – Caltrans/County/GRW/RM
    - Restripe/widen the EB approach, west leg, from one (1) left-turn lane and one (1) through lane to one (1) left-turn lane and three (3) through lanes
    - Restripe/widen the WB approach, east leg, from one (1) through lane and a separate right-turn lane to two (2) through lanes and two (2) right-turn lanes
- SR 99 SB ramps at Golden State Boulevard – Caltrans/County/GRW/RM
    - Restripe/widen the NB approach, south leg, from a shared through-right lane to two (2) through lanes and one (1) right-turn lane

2025 Project

Segments

- Lanes Bridge Drive – Avenue 10 to Childrens Boulevard – Gateway Village Mitigations
    - Restripe/widen from six (6) lanes to eight (8) lanes
- Avenue 10 – Road 40 to SR 41 West Frontage Road - Project (Circulation Plan)
    - Widen from two (2) lanes to four (4) lanes
- Avenue 10 – Road 40 ½ to SR 41 West Frontage Road – Gateway Village Mitigations
    - MCTC Capacity Table
        - Restripe/widen from four (4) lanes to six (6) lanes
    - Intersection Analysis
        - No mitigations needed
- Avenue 12 – Root Creek Parkway East to SR 41 West Frontage Road – Gateway Village Mitigations
    - MCTC Capacity Table
        - Restripe/widen from six (6) lanes to ten (10) lanes
    - Intersection Analysis
        - Root Creek Parkway East to N-S Secondary #2
            - No mitigations needed
        - N-S Secondary #2 to SR 41 West Frontage Road
            - No mitigations needed
- Avenue 12 – SR 41 West Frontage Road to SR 41 – Gateway Village Mitigations
    - MCTC Capacity Table
        - Restripe/widen from ten (10) lanes to twelve (12) lanes
    - Intersection Analysis
        - No mitigations needed based on ultimate intersection configuration
- Avenue 12 – SR 41 to Rio Mesa Boulevard – Gateway Village Mitigations
    - Restripe/widen from six (6) lanes to eight (8) lanes
- Root Creek Parkway West – Root Creek Greenbelt/E-W Secondary #5 to Road 40 1/2/E-W Secondary #7 - Project (Circulation Plan)
    - Construct a four (4) lane roadway
- Root Creek Parkway East – Root Creek Greenbelt/E-W Secondary #3 to Road 40 1/2/E-W Secondary #7 - Project (Circulation Plan)
    - Construct a four (4) lane roadway

- Road 40 ½ – Root Creek Parkway West/Root Creek Parkway East/E-W Secondary #7 to Avenue 10 - Project (Circulation Plan)
    - Construct a four (4) lane roadway
- N-S Secondary #1 – E-W Secondary #5 to E-W Secondary #8 - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- E-W Secondary #6 – Root Creek Parkway West to Root Creek Parkway East - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- E-W Secondary #7 – Root Creek Parkway West to Root Creek Parkway East - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- E-W Secondary #8 – E-W Secondary #6 to east of Root Creek Parkway East - Project (Circulation Plan)
    - Construct a two (2) lane roadway
- SR 41 between Avenues 11 and 12 – Project (Offsite Mitigation)
    - Construct the second three (3) lane bridge structure on SR 41 at Avenue 11
    - Construct two (2) new SB through lanes on SR 41 south from Avenue 12 to south of the newly built Avenue 11 bridge
- SR 41 between the San Joaquin River bridge and Childrens Boulevard – Project (Offsite Mitigation)
    - Construct a third NB through lane
    - Construct a third SB through lane
- SR 41 between Childrens Boulevard and Avenue 12 – Project (Offsite Mitigation)
    - Construct a third NB through lane
        - The third NB through lane will become a trap NB to WB left-turn lane per the ultimate intersection configuration.
    - Construct a third SB through lane
        - The third SB through lane will become an EB to SB free right-turn lane per the ultimate intersection configuration.
- SR 41 between Friant Road and the San Joaquin River Bridge – Project (Offsite Mitigation)
    - Construct a third NB through lane
    - Construct a third SB through lane

Intersections

- Childrens Boulevard at Peck Boulevard – Gateway Village Mitigations
    - Recoordinate/reoptimize the intersection
- Childrens Boulevard at Lanes Bridge Drive – Gateway Village Mitigations
    - Restripe/widen the WB approach, east leg, from one (1) left-turn lane, three (3) through lanes and one (1) right-turn lane to one (1) left-turn lane, four (4) through lanes and two (2) right-turn lanes
    - Restripe/widen the SB approach, north leg, from dual (2) left-turn lanes and one (1) right-turn lane to three (3) left-turn lanes and one (1) right-turn lane
- Childrens Boulevard at SR 41 SB ramps – Caltrans/ Gateway Village Mitigations
    - Restripe/widen the EB approach, west leg, from two (2) through lanes and two (2) right-turn lanes to one (1) through lane, one through-right lane and three (3) right-turn lanes
    - Restripe/widen the WB approach, east leg, from three (3) through lanes to five (5) through lanes

- Avenue 12 signalized intersections – Root Creek Parkway West to SR 41 – Gateway Village Mitigations
    - Recoordinate/reoptimize all signalized intersections
- Avenue 12 at SR 41 West Frontage Road – Gateway Village Mitigations
    - Restripe/widen the WB approach, east leg, from dual (2) left-turn lanes, three (3) through lanes and one (1) right-turn lane to dual (2) left-turn lanes, four (4) through lanes and one (1) right-turn lane
- Avenue 12 at SR 41 – Project (Offsite Mitigation)
    - Construct dual NB, SB, EB, and WB left turn lanes to a depth of 250 to 300 feet
    - Construct two (2) through lanes in all four (4) directions
        - SB SR 41 through lanes south of Avenue 12 shall be continuous
        - WB Avenue 12 through lanes west of SR 41 shall continue for a distance of approximately 1,350 feet.
        - NB SR 41 through lanes north of Avenue 12 shall continue for a distance of approximately 250 to 300 feet
        - EB Avenue 12 through lanes east of SR 41 shall continue for a distance of approximately 250 to 300 feet
    - Construct separate right turn lanes in all four (4) directions at a depth of 250 to 300 feet
- Root Creek Parkway West at E-W Secondary #6 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway West/East at Road 40 ½ / E-W Secondary #7 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway East at E-W Secondary #8 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway East at E-W Secondary #7 – Project (Circulation Plan)
    - Construct a roundabout
- Root Creek Parkway East at E-W Secondary #6 – Project (Circulation Plan)
    - Construct a roundabout
- Avenue 12 at Golden State Boulevard – Gateway Village Mitigations
    - Restripe/widen the NB approach, south leg, from one (1) left-turn lane, one (1) through lane and one (1) right-turn lane to one (1) left-turn lane, one (1) through lane and two (2) right-turn lanes
- Avenue 12 at SR 99 NB ramps – Caltrans/ Gateway Village Mitigations
    - Restripe/widen the EB approach, west leg, from one (1) left-turn lane and two (2) through lanes to one (1) left-turn lane and three (3) through lanes
    - Restripe/widen the WB approach, east leg, from two (2) through lanes and one (1) right-turn lane to two (2) through lanes and three (3) right-turn lanes

Even though the Avenue 12 at Road 40 intersection fails in the 2025 Project scenario it is not shown as being mitigated since it did not meet the rural peak hour volume signal warrant. Three (3) options could be considered that would bring the intersection to levels of service at or above the Madera County level of service standard. These options, along with associated LOS and seconds (sec) of delay by time period (AM/PM) include:

- Signalizing the intersection – LOS A (7.6)/LOS A (6.3)
- Restricting left-turn movements out of the intersection and allowing only left-turning movements in – LOS C (22.9)/LOS C (20.8)
- Restricting all left-turning movements into and out of the intersection – LOS C (23.7)/LOS C (21.3)

Please note that with the use of any of these three (3) options LOS and delay at other intersections in the corridor would potentially be different than those currently reported in this study. It should be noted that restricting movements at the Avenue 12 at Road 40 intersection would cause an increase/shifting in the traffic to the next available intersections thereby possibly decreasing the LOS and increasing the delay at those intersections.

Please note that roadway widenings listed in the RTP did not specifically include intersection improvements such as signalization and turn lanes. Therefore any signalization or turn lane improvements associated with RTP widenings are shown as mitigations in the 2013 No Project and the 2025 No Project scenarios.

The Proportionate Share Percentages for the proposed mitigation measures including signals were calculated by taking the Project trips and dividing by the total 2025 Project volumes minus the Existing volumes for the given study location. The formula used in calculating the Proportionate Share Percentages is:

Proportionate Share Percentage = Project only trips / (2025 Project volume – Existing Volume)

The following Proportionate Share Percentages were developed using the time period projected to cause the highest impact:

Segments

- Avenue 9 – SR 99 to Road 36 – 36.44%
- Avenue 9 – Road 40 to Road 40½ - 11.45%
- Childrens Boulevard – Road 40 ½ to Peck Boulevard – 1.98%
- Lanes Bridge Drive – Avenue 10 to Childrens Boulevard – 91.96%
- Avenue 10 – Road 40 ½ to SR 41 West Frontage Road – 91.20%
- Avenue 12 – SR 99 to Road 36 – 67.12%
- Avenue 12 – Road 36 to Road 40 – 62.09%
- Avenue 12 – Road 40 to Root Creek Parkway West – 61.18%
- Avenue 12 – Root Creek Parkway West to Root Creek Parkway East – 77.21%
- Avenue 12 – Root Creek Parkway East to SR 41 West Frontage Road – 86.36%
- Avenue 12 – SR 41 West Frontage Road to SR 41 – 90.17%
- Avenue 12 – SR 41 to Rio Mesa Boulevard – 17.74%
- SR 41- Avenue 11 to Avenue 12
    - 2nd three (3) lane bridge structure – 100%
    - Two (2) SB through lanes – 100%
- SR 41 – San Joaquin River bridge to Childrens Boulevard
    - One (1) NB and one (1) SB through lanes – 100%
- SR 41 – Childrens Boulevard and Avenue 12
    - One (1) NB and one (1) SB through lanes – 100%
- SR 41 – Friant Road and San Joaquin River Bridge
    - One (1) NB and one (1) SB through lanes – 100%
- SR 41 – Avenue 12 to Avenue 15 – Pay the County of Madera SR 41 Road Impact Fee for widening from two (2) to four (4) lanes

As shown the Project would typically be responsible for paying the County of Madera SR 41 Road Impact Fee for its impacts on SR 41. However, in order to avoid duplication of mitigation costs, the Caltrans agreement for SR 41 improvements to be constructed by the Project, detailed previously, is intended to provide full mitigation for the Project's SR 41 traffic impacts. These agreed to

improvements would supersede and replace the Project's requirement to pay the County of Madera SR 41 Road Impact Fee.

Intersections

- Avenue 9 at Road 36 - 36.32%
- Avenue 9 at Road 40 – 11.34%
- Avenue 9 at Road 40½ - 11.02%
- Childrens Boulevard at Peck Boulevard – 10.63%
- Childrens Boulevard at Lanes Bridge Drive – 40.36%
- Childrens Boulevard at SR 41 SB ramps – 40.10%
- Rio Mesa at SR 41 NB ramps – 47.83%
- Avenue 12 at Road 36 – 56.97%
- Avenue 12 at Road 40 – 62.16%
- Avenue 12 at Root Creek Pkwy West (Project only) – 60.30%
- Avenue 12 at N-S Secondary #1 (Project only) – 59.92%
- Avenue 12 at Root Creek Pkwy East (Project only) – 69.38%
- Avenue 12 at N-S Secondary #2 (Project only) – 70.75%
- Avenue 12 at SR 41 West Frontage Road – 89.19%
- Avenue 12 at SR 41 – 100% (Interim and Ultimate Intersection Improvements Only)
- Avenue 10 at Road 40 – 54.76%
- Avenue 10 at Road 40 ½ - 89.01%
- Main Street at Root Creek Parkway West (Project only) (Roundabout Only) – 100%
- Main Street at Root Creek Parkway East (Project only) (Roundabout Only) – 100%
- Main Street at SR 41 West Frontage Road (Project only) – 100%
- East-West (E-W) Secondary #3 at Root Creek Parkway West (Project only) (Roundabout Only) – 100%
- E-W Secondary #3 at Root Creek Parkway East (Project only) (Roundabout Only) – 100%
- E-W Secondary #3 at SR 41 West Frontage Road (Project only) – 100%
- E-W Secondary #4 at Root Creek Parkway West (Project only) (Roundabout Only) – 100%
- E-W Secondary #5 at Root Creek Parkway West (Project only) (Roundabout Only) – 100%
- E-W Secondary #6 at Root Creek Parkway West (Project only) (Roundabout Only) – 100%
- Road 40½/E-W Secondary #7 at Root Creek Parkway West/East (Project only) (Roundabout Only) – 100%
- E-W Secondary #8 at Root Creek Parkway East (Project only) (Roundabout Only) – 100%
- E-W Secondary #7 at Root Creek Parkway East (Project only) (Roundabout Only) – 100%
- E-W Secondary #6 at Root Creek Parkway East (Project only) (Roundabout Only) – 100%
- Avenue 12 at Golden State Boulevard – 8.24%
- SR 99 SB ramps at Golden State Boulevard – 9.80%
- Avenue 12 at SR 99 NB ramps – 9.94%