Traffic Impact Study (Draft)

ROMO Reconstruct Housing and Infrastructure Destroyed by Fire Housing Project #2

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Traffic Impact Study (Draft)

ROMO Reconstruct Housing and Infrastructure Destroyed by Fire Housing Project #2 PD-SD and Compliance Services

Prepared for National Park Service

1 Introduction

The National Park Service (NPS) intends to reconstruct housing and infrastructure destroyed by the East Troublesome wildfire in 2020. The proposed development is located across County Road 491 (CR 491) from the existing Colorado River District (CRD) Housing Loop (2) road. This *Traffic Impact Study* has been initiated to advance planning to address future traffic demands on the CR 491 and, subsequently, US 34 as result of the proposed development. Specifically, this study examines the intersections of CR 491 & CRD Housing Loop (2) Road (CRD Loop 2) and the proposed addition, as well as the intersections of CR 491 & CRD Housing Loop (1) Road (CRD Loop 1) and CR 491 & US 34. The purpose of this study is to identify solutions that address potential operational and safety concerns associated with the proposed development.

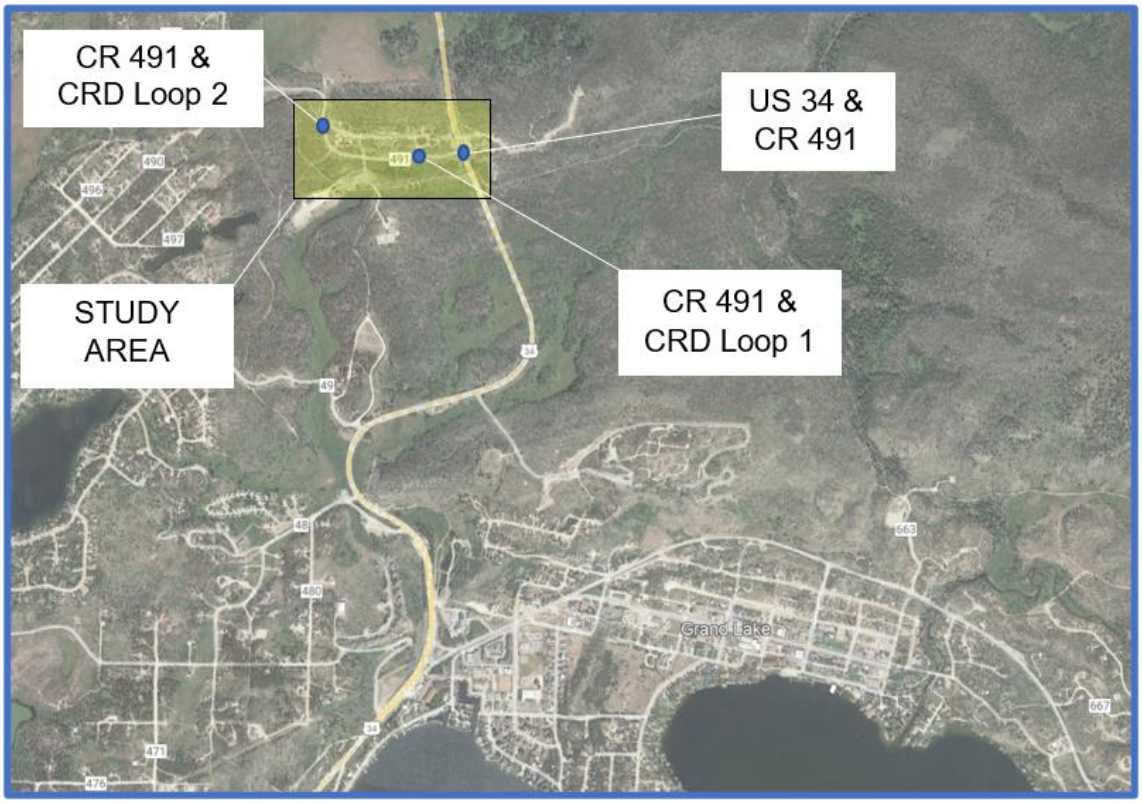
The development includes two phases: an interim phase and an ultimate phase. In the interim phase, the site will include 13 driveways and 35 parking spaces. The ultimate phase will add 13 driveways. The development site plan is attached to this report in **Figure 1**.

This report contains an evaluation of alternatives and presents a basis for identifying preferred intersection improvements to meet safety concerns and projected traffic volume demands.

1.1 Study Area

The study area includes the segment of roadway along CR 491 from the intersection with CRD Loop 2 on the west to the intersection with US 34 on the east. The NPS is proposing a local residential road with internal loop west of CR 491 tying into the present three-leg intersection with CRD Loop 2, creating a four-leg intersection. Additionally, NPS proposes a pedestrian crossing on the south side of the intersection to link existing NPS housing with the new housing development. A vicinity map for the study area is displayed in **Figure 2**.

Figure 2 – Vicinity Map



1.2 Study Goals

Study goals for this traffic study include:

- Determine the impact to existing traffic by the proposed development.
- Develop solutions for potential deficiencies due to the proposed development.
- Develop pedestrian links.

2 Existing Conditions

The existing morning and evening peak hour Level of Service (LOS), and crash history were analyzed and used as a baseline to compare intersection alternatives. Existing traffic volumes were obtained for US 34 from OTIS data. Synchro 11 traffic modeling software was used to analyze traffic conditions and methodology described in the *Highway Capacity Manual, 6th Edition* (HCM) was used to evaluate LOS for the morning and evening peak hours. LOS is described by a letter designation ranging from LOS A to LOS F, with LOS A represents nearly free-flow travel and LOS F represents congested conditions. LOS C is considered acceptable.

2.1 Existing Traffic Operations

Peak hour volumes for US 34 & CR 491, CR 491 & CRD Loop 1 and CR 491 & CRD Loop 2 are displayed in **Figures 3 and 4**.

CR 491 is identified by Grand County as a "primary" roadway with posted speed limit 25 miles per hour (mph). According to Grand County 2020 ADT tally counts from August 14, 2020 to August 22, 2020, the Annual Average Daily Traffic (AADT) for CR 491 is approximately 959 veh/day.

US 34 is classified by CDOT as a R-A Regional Highway, Principal Arterial within the vicinity of its intersection with CR 491. The roadway at the intersection is a two-way highway with a posted speed limit of 40 mph. According to CDOT's Online Transportation Information System (OTIS), existing AADT is around 4,900 veh/day.

Currently, the intersection of CR 491 and US 34 utilizes one-way stop-control with a stop sign for CR 491. The intersection has the following lane configuration and is shown in **Figure 5**.

- The CR 491 eastbound approach consists of one travel lane that serves all movements (left turns, through movements, right turns).
- For northbound US 34, there is one lane that serves all movements with a dedicated right turn lane into the Kawuneeche Visitor Center (Visitor Center) just south of the intersection and an accommodating auxiliary lane for traffic making the westbound right movement from the visitor center onto US 34.
- Southbound US 34 has a through lane that may also serve as a left turn lane into the Visitor Center south of the intersection, and one dedicated right turn lane onto CR 491.

The existing intersection at CR 491 and CRD Loop 2 Road utilizes one-way stop control with a stop sign for CRD Loop 2 traffic. Each approach has one lane of traffic accommodating all movements.

Existing intersection operations exhibit LOS A and B during the morning peak and evening peak periods. Travel time delay is minimal for both intersections in all directions. **Table 1** tabulates the overall existing year LOS of the intersections.

Table 1 – Existing Year 2020 LOS and Delay Results

CR 491 & US 34		
Approach	**LOS**	**Delay (Seconds)**
Eastbound (CR 491)	B / B	14.4 / 13.6
Northbound (US 34)	A / A	1 / 4.6
Southbound (US 34)	A / A	0 / 0
CR 491 & CRD Housing Loop (2) Road		
Approach	**LOS**	**Delay (Seconds)**
Westbound (CRD Loop 2)	A / B	9.8 / 10.6
Northbound (CR 491)	A / A	0 / 0
Southbound (CR 491)	A / A	0.4 / 0.7

Tables 6 and 7 attached to the report tabulate the detailed LOS results respectively and contains the HCM 6th LOS worksheets.

2.2 Sight Distance

During a recent site visit it was also noted that snow plowed off the roads was gathered over seven feet high. The snow was within the sight triangles based on CDOT's *Roadway Design Guide* at CR 491 / CRD Loop 2 and obstructed views for the CRD Loop 2 vehicles entering CR 491. Sight distance at the entrance would be improved with removal of vertical obstructions within the intersection sight triangles and is recommended as part of this project. Sight triangle overlays of the intersections and the sight distance for the existing crosswalk located on CR 491 linking the CRD Housing area with the NPS Maintenance building to the south of the road are displayed in **Figure 6, 7** and **8**.

2.3 Crash Data

Crash data from January 1, 2015, through December 31, 2019 was analyzed using CDOT provided crash data. There were zero crashes recorded at the intersection of CR 491 and US 34 during this period according to CDOT's Statewide Crash Data Listing. Crash Data from Grand County for CR 491 has not been acquired at this time but will be included in the updated version of this study as data becomes available.

3 Trip Generation & Analysis

There are two proposed phases for the CRD Housing Loop Road development. The first phase includes 10 single family housing units, two dormitories with four units each, and three RV spaces and a pedestrian crosswalk on the south side of the proposed CR 491 four-way intersection linking the CRD Housing Area to the new housing area. This was analyzed as an interim phase to determine what, if any development required improvements are needed as a result of those improvements. The second phase of the development includes an additional four single family housing units and nine additional RV spaces for seasonal employees, this was analyzed as the development's ultimate condition.

3.1 Interim Phase Analysis

3.1.1 Trip Generation

Proposed interim land use and associated trip rates contained in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition* were used to determine the projected trip generation. Trip generation for Single Family Housing (ITE code #210), Multi-Family Housing (ITE code #220) and Mobile Home Park (ITE code #240) were used. Based on the ITE trip generation, there will be 12 trips during the AM peak hour, and 15 trips during the PM peak hour. In the AM peak hour 3 trips in and 9 out, and in the PM peak hour 10 trips in and 5 trips out. **Figures 9** and **10** display trip distributions for the interim phase. **Table 2** below shows the trip generation for the interim development.

Table 2 – Interim Trip Generation

Land Use	ITE Code	Existing Size	Unit	Morning Peak Hour Traffic Volume				Evening Peak Hour Traffic Volume			
				Rate	Total	In	Out	Rate	Total	In	Out
Single Family Housing	210	10.0	Dwelling Unit	0.74	7	2	5	0.99	10	6	4
Multi-Family Housing	220	8.0	Dwelling Unit	0.46	4	1	3	0.56	4	3	1
Mobile Home Park	240	3.0	Dwelling Unit	0.26	1	0	1	0.46	1	1	0
Total Trips					**12**	**3**	**9**		**15**	**10**	**5**

3.1.2 Auxiliary Lane Consideration

Primary site impacts are related to the intersection of CR 491 / CRD Loop 2. The additional turning vehicles from CR 491 onto the CRD Loop 2 do not meet the minimum requirements for additional auxiliary lanes according to the S*tate of Colorado: State Highway Access Code – Volume 2, Code of Colorado Regulations 601-1, March 2002* (Access Code).

For this analysis, the incoming vehicles were analyzed for the northbound left turn auxiliary lane determination. The total incoming vehicles are 10 for the PM Peak Hour, the highest hour for the number of vehicles entering. It was determined that the split southbound right turns into the new CRD Loop 2 and northbound left turns in are 20% and 80% respectively. This splits the incoming traffic accordingly:

- Right turns in – 2 trips
- Left turns in – 8 trips

Opposing vehicles account for 18 vehicles current year, and 26 vehicles when using OTIS projection factor for US 34 on the volumes for CR 491 as well. Twenty-year future volumes account for 85 total opposing vehicles over the entire PM Peak Hour trips from CR 491. This is below the 100 DHV threshold outlined in the Access Code; an auxiliary lane is currently not warranted for entering traffic.

The number of exiting vehicles is higher during the AM Peak hour than the PM Peak Hour; therefore, for the purposes of a better needs analysis, the AM Peak Hour was used. The total number of egress vehicles during the peak hour is 9 vehicles. It was determined that the split between right turns out and left turns out are 80% and 20% respectively. This splits the outgoing traffic accordingly:

- Right turns out – 7
- Left turns out – 2

The right turns out account for seven of the total outgoing vehicles over the entire AM Peak Hour trips to CR 491. Adjacent traffic was 59 vph in the present year and projected to be 85 vph in the projected twenty-year scenario. OTIS projection factor for US 34 on the volumes for CR 491 is well below the 120 DHV threshold outlined in the Access Code. No addition of auxiliary lane is required.

3.1.3 Level of Service

A level of service (LOS) analysis at US 34 / CR 491 as well as at CR 491 / CRD Loop 2 has been performed, it appears the site traffic will not impact operations at this intersection. See **Table 3**.

Table 3 – Interim LOS and Delay Results

CR 491 & US 34		
Approach	**LOS**	**Delay (Seconds)**
Eastbound (CR 491)	B / B	14.8 / 13.7
Northbound (US 34)	A / A	1 / 4.6
Southbound (US 34)	A / A	0 / 0
CR 491 & CRD Housing Loop (2) Road		
Approach	**LOS**	**Delay (Seconds)**
Eastbound (CRD Loop 2)	A / A	9.2 / 9.8
Westbound (CRD Loop 2)	B / B	10.4 / 11.3
Northbound (CR 491)	A / A	0.1 / 0.2
Southbound (CR 491)	A / A	0.6 / 0.7

The proposed resident loop interim development will not add significant traffic to CR 491, US 34, or turning movements at US 34 / CR 491 due to the site. **Tables 8 and 9** attached to the report tabulate the detailed LOS results respectively and contains the HCM 6th LOS worksheets.

3.1.4 Crossings

The proposed improvements include a new crosswalk linking the two residential housing loops on the south side of the newly developed 4-leg intersection. The new residential loop road will also create a crossing with the existing snowmobile trail located on the west side of CR 491. To maintain safety for all modes of traffic in this area a proposed signing and striping plan are included in **Figure 11**. The overlay of stopping sight distance lines for the proposed crosswalk are shown in **Figure 12**.

Improvements proposed for these crossings also include the existing crosswalk on CR 491 between the residential looped road and the NPS Maintenance Building. The following improvements are proposed:

- Advanced warning signs
- Warning signs at the crosswalk
- Crosswalk striping

For the interaction between the snowmobile trail and the proposed residential loop, the following improvements are proposed:

- Collapsible Stop Signs (to account for off-season) installed for the snowmobile trail approaching the residential loop road from both directions. During off-season, signs should be folded down.
- Collapsible Snowmobile crossing warning signs for both directions of vehicular traffic at the intersection. During off-season, signs should be folded down.

3.2 Ultimate Phase Analysis

3.2.1 Trip Generation

To estimate traffic generated by the proposed interim land use, trip rates contained in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition* were applied. Trip generation for Single Family Housing (ITE code #210), Multi-Family Housing (ITE code #220) and Mobile Home Park (ITE code #240) were used. Based on the ITE trip generation, there will be 17 trips during the AM peak hour, and 23 trips during the PM peak hour. In the AM peak hour 2 trips in and 7 out, and in the PM peak hour 10 trips in and 6 trips out. **Figures 13** and **14** display trip distributions for the ultimate phase. **Table 4** below shows the ultimate trip generation.

Table 4 – Ultimate Trip Generation

Land Use	ITE Code	Existing Size	Unit	Morning Peak Hour Traffic Volume				Evening Peak Hour Traffic Volume			
				Rate	Total	In	Out	Rate	Total	In	Out
Interim				-	12	3	9	-	15	10	5
Single Family Housing	210	4.0	Dwelling Unit	0.74	3	1	2	0.99	4	2	1
Multi-Family Housing	220	0.0	Dwelling Unit	0.46	0	0	0	0.56	0	0	1
Mobile Home Park	240	9.0	Dwelling Unit	0.26	2	1	2	0.46	4	2	2
Total Trips					**17**	**4**	**13**		**23**	**14**	**9**

3.2.2 Auxiliary Lane Consideration

Primary site impacts are related to the intersection of CR 491 / CRD Loop 2. The additional turning vehicles from CR 491 onto the resident looped roads do not meet the minimum requirements for additional auxiliary lanes according to the S*tate of Colorado: State Highway Access Code – Volume 2, Code of Colorado Regulations 601-1, March 2002* (Access Code).

For this analysis the incoming vehicles were analyzed for the northbound left turn auxiliary lane determination. The total incoming vehicles are 15 for the PM Peak Hour, the highest hour for the number of vehicles entering. It was determined that the split southbound right turns into the new resident loop and northbound left turns in are 20% and 80% respectively. This splits the incoming traffic accordingly:

- Right turns in – 3 trips
- Left turns in – 12 trips

Opposing vehicles account for 18 vehicles during the current year, and 26 vehicles when using OTIS projection factor for US 34 on the volumes for CR 491. Twenty-year future volumes account for 85 total opposing vehicles over the entire PM Peak Hour trips from CR 491. This is below the 100 DHV threshold outlined in the Access Code; no addition of auxiliary lane is currently necessary for entering traffic.

The number of exiting vehicles is higher during the AM Peak hour than the PM Peak Hour, therefore, for the purposes of a better needs analysis the AM Peak Hour was used. The total number of turning egress vehicles during the peak hour is 5 vehicles. It was determined that the split between right turns out and left turns out are 80% and 20% respectively. This splits the outgoing traffic accordingly:

- Right turns out – 1
- Left turns out – 4

The right turns out account for seven of the total outgoing vehicles over the entire AM Peak Hour trips to CR 491. Adjacent traffic 59 vph in the present year and projected to be 85 vph in the projected twenty-year OTIS projection factor for US 34 on the volumes for CR 491 and well below the 120 DHV threshold outlined in the Access Code. No addition of auxiliary lane is required.

3.2.3 Level of Service

A level of service (LOS) analysis was performed at US 34 / CR 491 as well as at CR 491 / CRD Loop 2. The projected site generated traffic is not expected impact operations at the study intersections. **Table 5** displays the LOS results.

Table 5 – Ultimate LOS and Delay Results

CR 491 & US 34		
Approach	**LOS**	**Delay (Seconds)**
Eastbound (CR 491)	B / B	14.9 / 13.9
Northbound (US 34)	A / A	1 / 4.6
Southbound (US 34)	A / A	0 / 0
CR 491 & CRD Housing Loop (2) Road		
Approach	**LOS**	**Delay (Seconds)**
Eastbound (CRD Loop 2)	A / A	9.2 / 9.5
Westbound (CRD Loop 2)	B / B	10.3 / 11.4
Northbound (CR 491)	A / A	0.2 / 0.3
Southbound (CR 491)	A / A	0.7 / 0.7

The proposed resident loop road ultimate development will not add significant traffic to CR 491, US 34 or turning movements at US 34 / CR 491. While the CR 491 approach to US 34 is not striped as two individual turn lanes, there is sufficient width for vehicles to maneuver into two lanes. **Tables 10** and **11** attached to the report tabulate the detailed LOS results respectively and contains the HCM 6th LOS worksheets.

4 Conclusions

Based on the evaluation of the proposed resident loop development's two phases, the following conclusions and recommendations have been made:

- The increase in traffic generated from the proposed development is not expected to impact intersection LOS and stays well above the minimum acceptable LOS C threshold. Signalized intersections are not necessary at existing CR 491 and US 34 or CR 491 and the proposed housing loop road intersection.
- SEH recommends tree removal as part of sight distance mitigation for the existing intersection with CR 491 & CRD Loop 2 including eliminating vertical sight distance obstructions based on site visits and evaluation.
- SEH recommends snow removal within the sight triangle for each intersection to allow for safe traffic movements.
- No change in roadway classification is proposed per this study.
- No additional auxiliary lanes are warranted for the interim or ultimate condition.
- No additional turn lanes are warranted for the intersection of US 34 & CR 491 due to the proposed development.
- Crosswalk recommendations include advanced warning signs, warning signs and crosswalk striping
- Snowmobile crossing recommendations include collapsible stop signs (18" x 18") for snowmobile traffic at the crossing with the proposed residential loop road. Additionally, signage including a collapsible snowmobile crossing warning sign is recommended for the eastbound resident loop approach. (During the off season, these signs should be folded down.)

Tables

Table 1 – Existing LOS and Delay Results (In Report)

Table 2 – Interim Trip Generation (In Report)

Table 3 – Interim LOS and Delay Results (In Report)

Table 4 – Interim LOS and Delay Results (In Report))

Table 5 – Ultimate Trip Generation (In Report)

Table 6 – Existing Traffic Operations Results Summary US 34 & CR 491

Table 7 – Existing Traffic Operations Results Summary CR 491 & CRD Loop 2

Table 8 – Interim Traffic Operations Results Summary US 34 & CR 491

Table 9 – Interim Traffic Operations Results Summary CR 491 & CRD Loop 2

Table 10 – Ultimate Traffic Operations Results Summary US 34 & CR 491

Table 11 – Ultimate Traffic Operations Results Summary CR 491 & CRD Loop 2

Table 6 – Existing Traffic Operations Results Summary US 34 & CR 491

Intersection												
Int Delay, s/veh	2.1											
Lane Configurations												
Future Vol, veh/h	40			40	78	549	78	78				
Sign Control	Stop			Stop	Free	Free	Free	Free				
Storage Length	0			-	0	-	-	0				
Grade, %	0			-	-	0	0	-				
Heavy Vehicles, %	2			2	2	2	2	2				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	40	40	78	549	78	78
Conflicting Peds, #/hr	0	0	0	0	0	0
RT Channelized	-	None	-	None	-	None
Veh in Median Storage, #	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Mvmt Flow	43	43	85	597	85	85

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	852	85	170	0	-	0
Stage 1	85	-	-	-	-	-
Stage 2	767	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	330	974	1407	-	-	-
Stage 1	938	-	-	-	-	-
Stage 2	458	-	-	-	-	-
Platoon blocked, %				-	-	-

Mov Cap-1 Maneuver	310	974	1407	-	-	-
Mov Cap-2 Maneuver	310	-	-	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	458	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.4	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	1407	-470	-	-
HCM Lane V/C Ratio	0.06 - 0.185	-	-	
HCM Control Delay (s)	7.7 - 14.4	-	-	
HCM Lane LOS	A - B	-	-	
HCM 95th %tile Q(veh)	0.2 - 0.7	-	-	

Intersection	
Int Delay, s/veh	2.6

Lane Configurations						
Future Vol, veh/h	18	72	118	118	392	157
Sign Control	Stop	Stop	Free	Free	Free	Free
Storage Length	0	-	0	-	-	0
Grade, %	0	-	-	0	0	-
Heavy Vehicles, %	2	2	2	2	2	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	18	72	118	118	392	157
Conflicting Peds, #/hr	0	0	0	0	0	0

RT Channelized		-	None	-	None	-	None
Veh in Median Storage, #	0	-	-	0	0	-	
Peak Hour Factor	92	92	92	92	92	92	
Mvmt Flow	20	78	128	128	426	171	

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	810	426	597	0	-	0
Stage 1	426	-	-	-	-	-
Stage 2	384	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	349	628	980	-	-	-
Stage 1	659	-	-	-	-	-
Stage 2	688	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	303	628	980	-	-	-
Mov Cap-2 Maneuver	303	-	-	-	-	-
Stage 1	573	-	-	-	-	-
Stage 2	688	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.6	4.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	980	-517	-	-
HCM Lane V/C Ratio	0.131	- 0.189	-	-
HCM Control Delay (s)	9.2	- 13.6	-	-
HCM Lane LOS	A	- B	-	-
HCM 95th %tile Q(veh)	0.5	- 0.7	-	-

Table 7 – Existing Traffic Operations Results Summary CR 491 & CRD Loop 2

Intersection											
Int Delay, s/veh	0.4										
Lane Configurations											
Future Vol, veh/h	5			1	149	4	4	74			
Sign Control	Stop			Stop	Free	Free	Free	Free			
Storage Length	0			-	-	-	-	-			
Grade, %	0			-	0	-	-	0			
Heavy Vehicles, %	2			2	2	2	2	2			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	5	1	149	4	4	74
Conflicting Peds, #/hr	0	0	0	0	0	0
RT Channelized	-	None	-	None	-	None
Veh in Median Storage, #	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Mvmt Flow	5	1	162	4	4	80

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	252	164	0	0	166	0
Stage 1	164	-	-	-	-	-
Stage 2	88	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	737	881	-	-	1412	-
Stage 1	865	-	-	-	-	-
Stage 2	935	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	735	881	-	-	1412	-
Mov Cap-2 Maneuver	735	-	-	-	-	-
Stage 1	865	-	-	-	-	-
Stage 2	932	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	0.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT
Capacity (veh/h)	-	-756		1412	-
HCM Lane V/C Ratio	-	-	0.009	0.003	-
HCM Control Delay (s)	-	-	9.8	7.6	0

HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.3

Lane Configurations						
Future Vol, veh/h	2	1	257	9	9	91
Sign Control	Stop	Stop	Free	Free	Free	Free
Storage Length	0	-	-	-	-	-
Grade, %	0	-	0	-	-	0
Heavy Vehicles, %	2	2	2	2	2	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Traffic Vol, veh/h	2	1	257	9	9	91
Conflicting Peds, #/hr	0	0	0	0	0	0
RT Channelized	-	None	-	None	-	None
Veh in Median Storage, #	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Mvmt Flow	2	1	279	10	10	99

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	403	284	0	0	289	0
Stage 1	284	-	-	-	-	-
Stage 2	119	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	603	755	-	-	1273	-
Stage 1	764	-	-	-	-	-
Stage 2	906	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	598	755	-	-	1273	-
Mov Cap-2 Maneuver	598	-	-	-	-	-
Stage 1	764	-	-	-	-	-
Stage 2	899	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.7

HCM LOS B

Minor Lane/Major Mvmt			NBT		NBRWBLn1	SBL	SBT
Capacity (veh/h)			-		-643	1273	-
HCM Lane V/C Ratio	-	-	0.005	0.008	-		
HCM Control Delay (s)	-	-	10.6	7.8	0		
HCM Lane LOS	-	-	B	A	A		
HCM 95th %tile Q(veh)	-	-	0	0	-		

Table 8 – Interim Traffic Operations Results Summary US 34 & CR 491

Intersection												
Int Delay, s/veh	2.3											
Lane Configurations												
Future Vol, veh/h	47				47	79	550		79	79		
Sign Control	Stop				Stop	Free	Free		Free	Free		
Storage Length	0				-	0	-		-	0		
Grade, %	0				-	-	0		0	-		
Heavy Vehicles, %	2				2	2	2		2	2		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	47	47	79	550	79	79
Conflicting Peds, #/hr	0	0	0	0	0	0
RT Channelized	-	None	-	None	-	None
Veh in Median Storage, #	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Mvmt Flow	51	51	86	598	86	86

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	856	86	172	0	-	0
Stage 1	86	-	-	-	-	-
Stage 2	770	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	328	973	1405	-	-	-
Stage 1	937	-	-	-	-	-
Stage 2	457	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	308	973	1405	-	-	-
Mov Cap-2 Maneuver	308	-	-	-	-	-
Stage 1	880	-	-	-	-	-
Stage 2	457	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.8	1	0

HCM LOS
B

Minor Lane/Major Mvmt		NBL		NBT EBLn1		SBT	SBR
Capacity (veh/h)		1405		-468		-	-
HCM Lane V/C Ratio	0.061	-	0.218	-	-		
HCM Control Delay (s)	7.7	-	14.8	-	-		
HCM Lane LOS	A	-	B	-	-		
HCM 95th %tile Q(veh)	0.2	-	0.8	-	-		

Intersection							
Int Delay, s/veh	2.8						
Lane Configurations							
Future Vol, veh/h	19		79	119	118	392	157
Sign Control	Stop		Stop	Free	Free	Free	Free
Storage Length	0		-	0	-	-	0
Grade, %	0		-	-	0	0	-
Heavy Vehicles, %	2		2	2	2	2	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	19	79	119	118	392	157
Conflicting Peds, #/hr	0	0	0	0	0	0
RT Channelized	-	None	-	None	-	None
Veh in Median Storage, #	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Mvmt Flow	21	86	129	128	426	171

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	812	426	597	0	-	0
Stage 1	426	-	-	-	-	-
Stage 2	386	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	348	628	980	-	-	-
Stage 1	659	-	-	-	-	-
Stage 2	687	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	302	628	980	-	-	-
Mov Cap-2 Maneuver	302	-	-	-	-	-
Stage 1	572	-	-	-	-	-

Stage 2	687	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14	4.6	0
HCM LOS	B		

Minor Lane/Major Mvmt		NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)		980		-519	-	-
HCM Lane V/C Ratio	0.132	-	0.205	-	-	
HCM Control Delay (s)	9.2	-	13.7	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0.5	-	0.8	-	-	

Table 9 – Interim Traffic Operations Results Summary CR 491 & CRD Loop 2

Intersection												
Int Delay, s/veh	0.9											
Lane Configurations												
Future Vol, veh/h	1			1	7	5	1	1	2	145		
Sign Control	Stop			Stop	Stop	Stop	Stop	Stop	Free	Free		
Storage Length	-			-	-	-	-	-	-	-		
Grade, %	-			0	-	-	0	-	-	0		
Heavy Vehicles, %	2			2	2	2	2	2	2	2		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	1	1	7	5	1	1	2	145	8	8	85	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
RT Channelized		-	None		-	None		-	None		-	None
Veh in Median Storage, #	-	0		-	0		-	0		-	0	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Mvmt Flow	1	1	8	5	1	1	2	158	9	9	92	1

Major/Minor	Minor2			Minor1			Major1			Major2					
Conflicting Flow All	279						282	93		282			278	163	93	0
Stage 2	168						171	-		115			111	-	-	-

Critical Hdwy Stg 1 6.12	5.52	-	6.12	5.52	-	-	-
Follow-up Hdwy 3.518	4.018	3.318	3.518	4.018	3.318	2.218	-
Stage 1 894	804	-	835	760	-	-	-
Platoon blocked, %							-
Mov Cap-2 Maneuver 667	622	-	660	625	-	-	-
Stage 2 831	756	-	876	798	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	9.2	10.4	0.1

Stage 1	111	111	-	167	167	-	-	-	-	-	-	-	
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-	
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Pot Cap-1 Maneuver	673	627	964	670	630	882	1501	-	-	1411	-	-	
Stage 2	834	757	-	890	804	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	667	622	964	660	625	882	1501	-	-	1411	-	-	
Stage 1	893	798	-	834	759	-	-	-	-	-	-	-	

HCM LOS B	A	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1501	-	-	868	679	1411	-	

HCM Lane V/C Ratio	0.001	-	- 0.011	0.011	0.006	-
HCM Lane LOS	A	A	- A	B	A	A

HCM Control Delay (s)	7.4	0	-	9.2	10.4	7.6	0	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	0.6

Lane Configurations								
Future Vol, veh/h	1	1	4	2	1	1	8	242
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free
Storage Length	-	-	-	-	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0
Heavy Vehicles, %	2	2	2	2	2	2	2	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	1	1	4	2	1	1	8	242	9	9	95	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92

Mvmt Flow	1	1	4	2	1	1	9	263	10	10	103	2
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	411				415			104		413		411
Stage 2	287				291			-		127		125
Critical Hdwy Stg 1	6.12				5.52			-		6.12		5.52
Follow-up Hdwy	3.518				4.018			3.318		3.518		4.018
Stage 1	880				793			-		721		675
Platoon blocked, %												
Mov Cap-2 Maneuver	543				520			-		540		523
Stage 2	713				667			-		865		786

Approach	EB						WB						NB		
HCM Control Delay, s	9.8						11.3						0.2		
Stage 1	124	124	-	286	286	-	-	-	-	-	-	-			
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-			
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-			
Pot Cap-1 Maneuver	551	528	951	549	531	771	1486	-	-	1290	-	-			
Stage 2	720	672	-	877	792	-	-	-	-	-	-	-			

Mov Cap-1 Maneuver	543	520	951	540	523	771	1486	-	-	1290	-	-
Stage 1	874	787	-	716	670	-	-	-	-	-	-	-

HCM LOS A
B

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1486	-	-	753	579	1290		
HCM Lane V/C Ratio	0.006	-	-	0.009	0.008	0.008		
HCM Lane LOS	A	A	-	A	B	A		
HCM Control Delay (s)	7.4	0	-	9.8	11.3	7.8	0	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Table 10 – Ultimate Traffic Operations Results Summary US 34 & CR 491

Intersection												
Int Delay, s/veh	2.3											
Lane Configurations												
Future Vol, veh/h	47				47	79	552		79	79		
Sign Control	Stop				Stop	Free	Free		Free	Free		
Storage Length	0				-	0	-		-	0		
Grade, %	0				-	-	0		0	-		
Heavy Vehicles, %	2				2	2	2		2	2		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	47	47	79	552	79	79
Conflicting Peds, #/hr	0	0	0	0	0	0
RT Channelized	-	None	-	None	-	None
Veh in Median Storage, #	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Mvmt Flow	51	51	86	600	86	86

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	858	86	172	0	-	0
Stage 1	86	-	-	-	-	-
Stage 2	772	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	327	973	1405	-	-	-
Stage 1	937	-	-	-	-	-
Stage 2	456	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	307	973	1405	-	-	-
Mov Cap-2 Maneuver	307	-	-	-	-	-
Stage 1	880	-	-	-	-	-
Stage 2	456	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.9	1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	1405	-467	-	-

HCM Lane V/C Ratio	0.061	-	0.219	-	-
HCM Control Delay (s)	7.7	-	14.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.8	-	-

Intersection	
Int Delay, s/veh	2.8

Lane Configurations						
Future Vol, veh/h	20	79	119	119	398	159
Sign Control	Stop	Stop	Free	Free	Free	Free
Storage Length	0	-	0	-	-	0
Grade, %	0	-	-	0	0	-
Heavy Vehicles, %	2	2	2	2	2	2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	20	79	119	119	398	159
Conflicting Peds, #/hr	0	0	0	0	0	0
RT Channelized	-	None	-	None	-	None
Veh in Median Storage, #	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Mvmt Flow	22	86	129	129	433	173

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	820	433	606	0	-	0
Stage 1	433	-	-	-	-	-
Stage 2	387	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	345	623	972	-	-	-
Stage 1	654	-	-	-	-	-
Stage 2	686	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	299	623	972	-	-	-
Mov Cap-2 Maneuver	299	-	-	-	-	-
Stage 1	567	-	-	-	-	-
Stage 2	686	-	-	-	-	-

Approach	EB	NB	SB

HCM Control Delay, s	13.9	4.6	0
HCM LOS	B		

Minor Lane/Major Mvmt			NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)			972	-511	-	-
HCM Lane V/C Ratio	0.133	-	0.211	-	-	
HCM Control Delay (s)	9.3	-	13.9	-	-	
HCM Lane LOS	A	-	B	-	-	
HCM 95th %tile Q(veh)	0.5	-	0.8	-	-	

Table 11 – Ultimate Traffic Operations Results Summary CR 491 & CRD Loop 2

Intersection																	
Int Delay, s/veh	1.1																
Lane Configurations																	
Future Vol, veh/h	2			1	10	5	1		1	4	143		8	8	78	1	
Sign Control	Stop			Stop	Stop	Stop	Stop		Stop	Free	Free		Free	Free	Free	Free	
Storage Length	-			-	-	-	-		-	-	-		-	-	-	-	
Grade, %	-			0	-	-	0		-	-	0		-	-	0	-	
Heavy Vehicles, %	2			2	2	2	2		2	2	2		2	2	2	2	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	2	1	10	5	1	1	4	143	8	8	78	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None

Veh in Median Storage, # -	-	0	-	-	0	-	-	0	-	-	0
Peak Hour Factor 92	92	92	92	92	92	92	92	92	92	92	92
Mvmt Flow 1	2	1	11	5	1	1	4	155	9	9	85
Major/Minor	Minor2			Minor1			Major1			Major2	
Conflicting Flow All 273	276	86	278	272	160	86	0	0	164	0	0
Stage 2 169	172	-	110	104	-	-	-	-	-	-	-
Critical Hdwy Stg 1 6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy 3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Stage 1 902	809	-	834	759	-	-	-	-	-	-	-
Platoon blocked, %							-	-		-	-
Mov Cap-2 Maneuver 672	626	-	661	629	-	-	-	-	-	-	-
Stage 2 828	754	-	878	803	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB		

HCM Control Delay, s	9.2						10.3							0.2				0.7	
Stage 1	104	104	-	168	168	-	-	-	-	-	-	-							
Critical Hdwy		7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-						
Critical Hdwy Stg 2		6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-						
Pot Cap-1 Maneuver		679	632	973	674	635	885	1510	-	-	1414	-	-						
Stage 2	833	756	-	895	809	-	-	-	-	-	-	-							
Mov Cap-1 Maneuver		672	626	973	661	629	885	1510	-	-	1414	-	-						
Stage 1	899	803	-	831	757	-	-	-	-	-	-	-							
HCM LOS		A											B						

Minor Lane/Major Mvmt		NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR										
Capacity (veh/h)	1510				-	-	875			681	1414	-	-						
HCM Lane V/C Ratio		0.003			-	-	0.016			0.011	0.006	-	-						
HCM Lane LOS		A			A	-	A			B	A	A	-						
HCM Control Delay (s)		7.4	0	-	9.2	10.3	7.6			0	-								

HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-				

Intersection

Int Delay, s/veh	0.7

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Future Vol, veh/h	1	1	7	2	1	1	12	248	9	9	93	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	1	1	7	2	1	1	12	248	9	9	93	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0

RT Channelized		-	-	None		-	-	None		-	-	None								
- - None																				
Veh in Median Storage, #		-	0		-	-	0		-	-	0		-	-						
0 -																				
Peak Hour Factor		92	92	92	92	92	92	92	92	92	92	92	92	92	92					
92 92																				
Mvmt Flow		1	1	8	2	1	1	13	270	10	10									
101 3																				
Major/Minor		Minor2			Minor1				Major1											
Major2																				
Conflicting Flow				429	103		42		42			27	10	0			0		28	0	0
All 425							8		5			5	4						0		
Stage 2				306	-		12		12			-	-	-			-		-	-	-
302							7		4												
Critical Hdwy				5.52	-		6.1		5.5			-	-	-			-		-	-	-
Stg 1 6.12							2		2												
Follow-up Hdwy				4.018	3.31		3.5		4.0			3.3	2.2	-			-		2.2	-	-
3.518					8		18		18			18	18						18		
Stage 1				794	-		70		66			-	-	-			-		-	-	-
881							8		5												
Platoon														-			-			-	-
blocked, %																					
Mov Cap-2				509	-		52		51			-	-	-			-		-	-	-
Maneuver 531							5		2												

Stage 2 655 - 86 78 - - - - - - -
698 2 7

Approach	EB		WB		NB	SB
HCM Control Delay, s	9.5		11.4		0.3	0.7

Stage 1	123	123	-	301	301	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Pot Cap-1 Maneuver	540	518	952	537	521	764	1488	-	-	1283	-	-
Stage 2	707	662	-	877	793	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	531	509	952	525	512	764	1488	-	-	1283	-	-
Stage 1	872	788	-	701	658	-	-	-	-	-	-	-

HCM LOS A
B

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1488	-	-	804	566	1283	-	-

HCM Lane V/C Ratio	0.009			-	-	0.012	0.008	0.008		-	-	
HCM Lane LOS	A			A	-	A	B	A		A	-	
HCM Control Delay (s)	7.4	0	-	9.5	11.4	7.8	0	-				
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-				

Figures

Figure 1 – Site Plan

Figure 2 – Vicinity Map (In Report)

Figure 3 – Existing Peak hour Volumes

Figure 4 – Existing Peak Hour Volumes

Figure 5 – Lane Configuration

Figure 6 – Sight Triangle Overlay CRD Housing Loop Road

Figure 7 – Sight Triangle Overlay CRD Housing Loop Road EB

Figure 8 – Sight Distance Overlay Crosswalk

Figure 9 – Interim Peak Hour Volumes

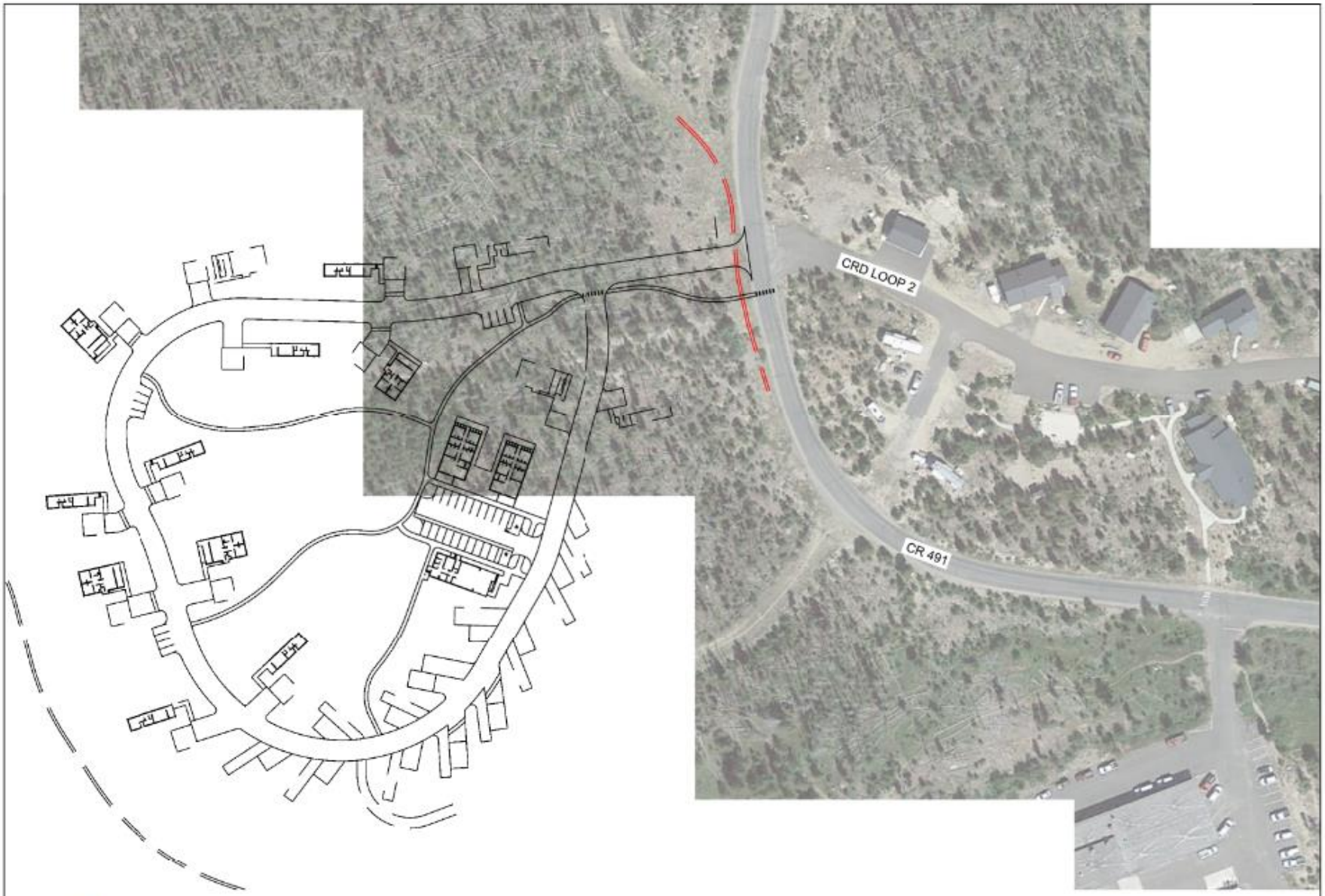
Figure 10 – Interim Peak Hour Volumes

Figure 11 – Signing and Striping Improvements

Figure 12 – Proposed Crosswalk Sight Distance Overlay

Figure 13 – Ultimate Peak Hour Volumes

Figure 14 – Ultimate Peak Hour Volumes



SEH

Traffic Impact Study - ROMO

SITE PLAN

Scale	1" = 100'	Date	4/15/2022	Drawn By	MJW	Job #	AJCAR-164611	Figure	1

SEH

Traffic Impact Study - ROMO

TRIP DISTRIBUTION-EXISTING CONDITION-CRD LOOP 2 & CR 491

Scale	1" = 100'	Date	4/15/2022	Drawn By	MJW	Job #	AJCAR-164611	Figure	3

SEH

Traffic Impact Study - ROMO

TRIP DISTRIBUTION-EXISTING CONDITION-US 34 & CR 491 AND CR 491 & CRD LOOP 1

Scale	1" = 100'	Date	4/15/2022	Drawn By	MJW	Job #	AJCAR-164611	Figure	4

SEH

Traffic Impact Study - ROMO

US 34 LANE CONFIGURATION

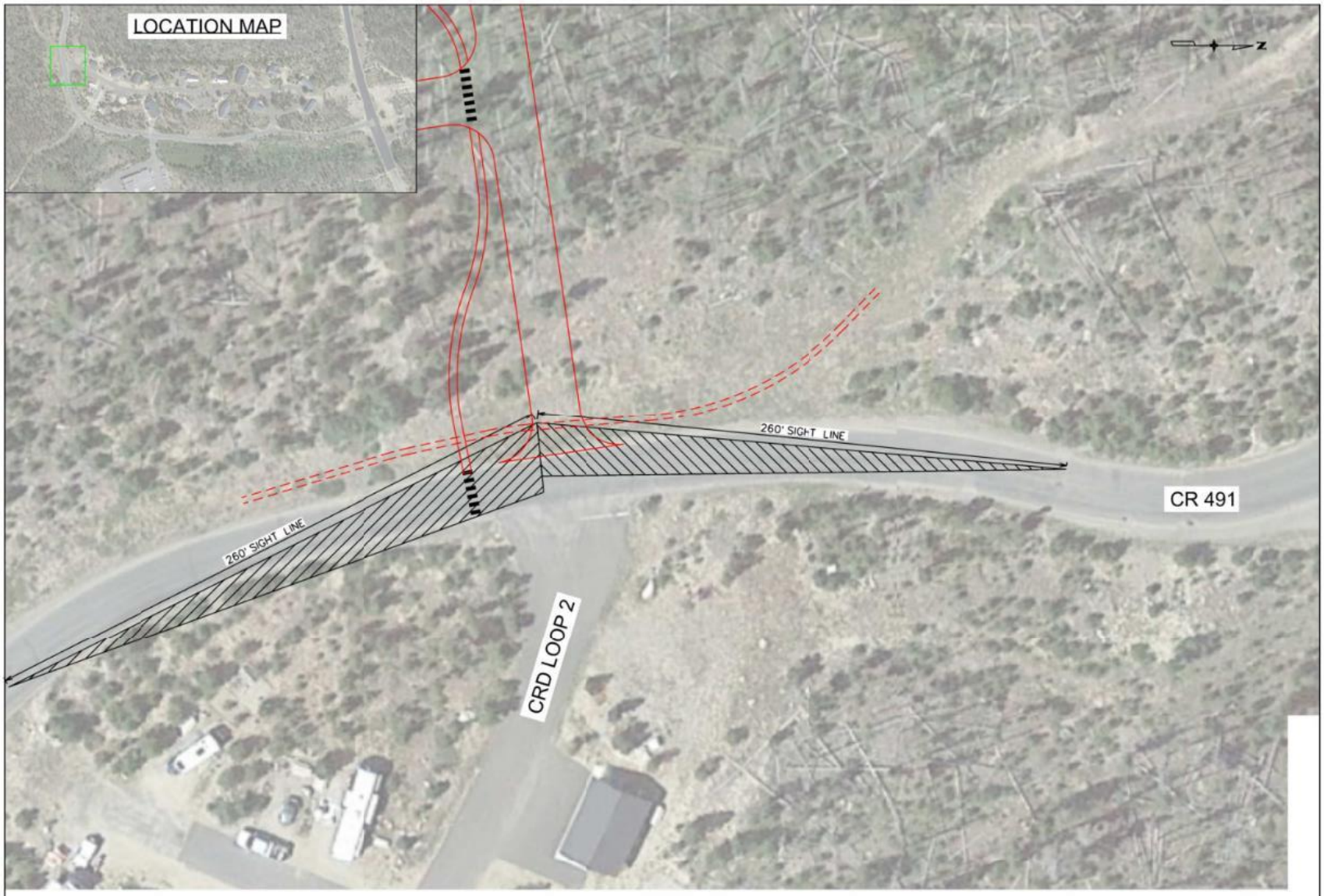
Scale	1" = 100'	Date	4/15/2022	Drawn By	MJW	Job #	AJCAR-164611	Figure	5

SEH

Traffic Impact Study - ROMO

SIGHT LINE - WESTBOUND

Scale	1" = 50'	Date	4/15/2022	Drawn By	JJH	Job #	AJCAR-164611	Figure	6



SEH

Traffic Impact Study - ROMO

SIGHT LINE - EASTBOUND

Scale	1" = 50'	Date	4/15/2022	Drawn By	JJH	Job #	AJCAR-164611	Figure	7

SEH

Traffic Impact Study - ROMO

EXISTING XWALK STOPPING SIGHT DISTANCE

Scale	1" = 50'	Date	4/15/2022	Drawn By	JJH	Job #	AJCAR-164611	Figure	8

SEH

Traffic Impact Study - ROMO

TRIP DISTRIBUTION-INTERIM CONDITION-CRD LOOP 2 & CR 491

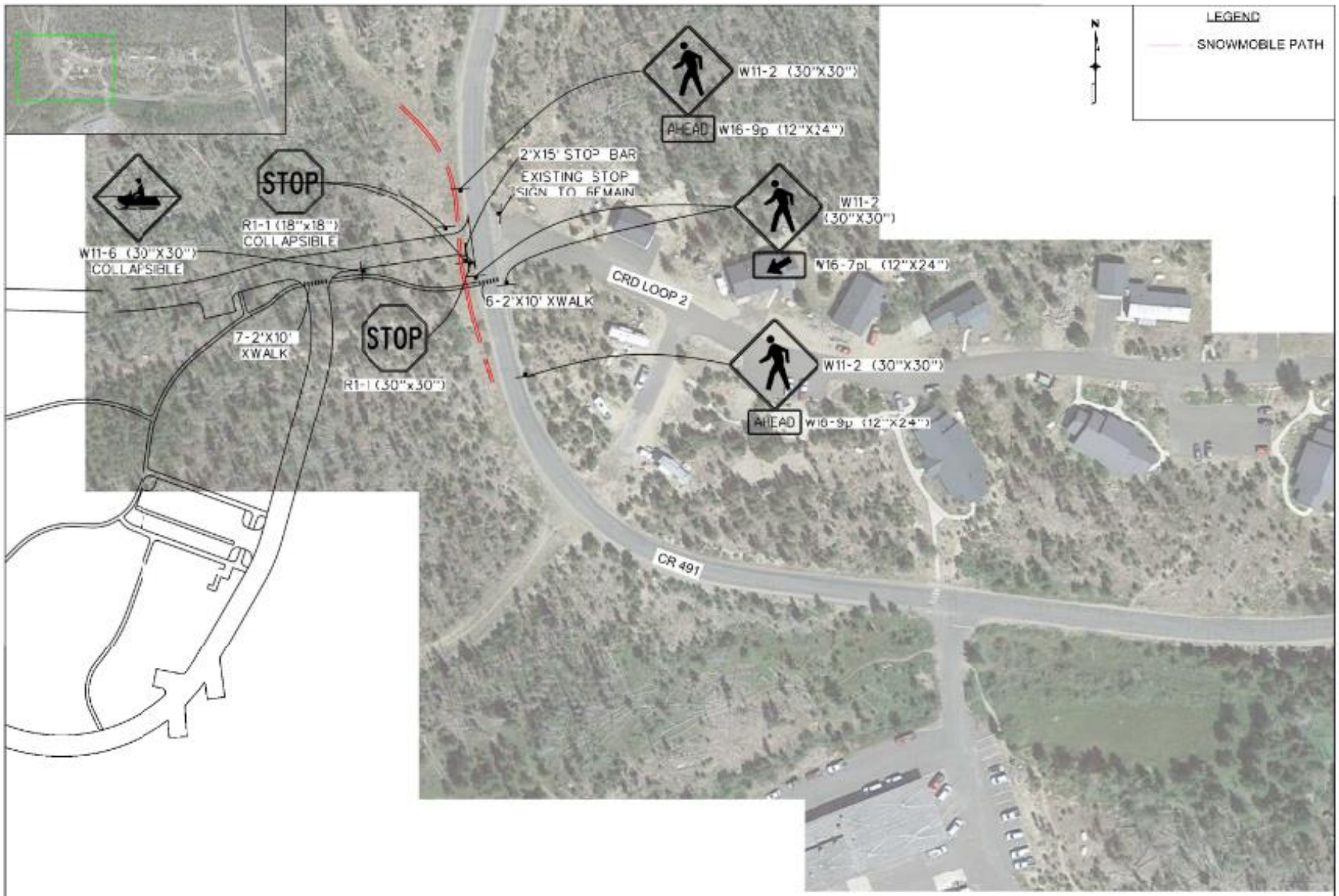
Scale	1" = 100'	Date	4/15/2022	Drawn By	MJW	Job #	AJCAR-164611	Figure	9

SEH

Traffic Impact Study - ROMO

TRIP DISTRIBUTION-INTERIM CONDITION-US 34 & CR 491 AND CR 491 & CRD LOOP 1

Scale	1" = 100'	Date	4/15/2022	Drawn By	MJW	Job #	AJCAR-164611	Figure	10



SEH

Traffic Impact Study - ROMO

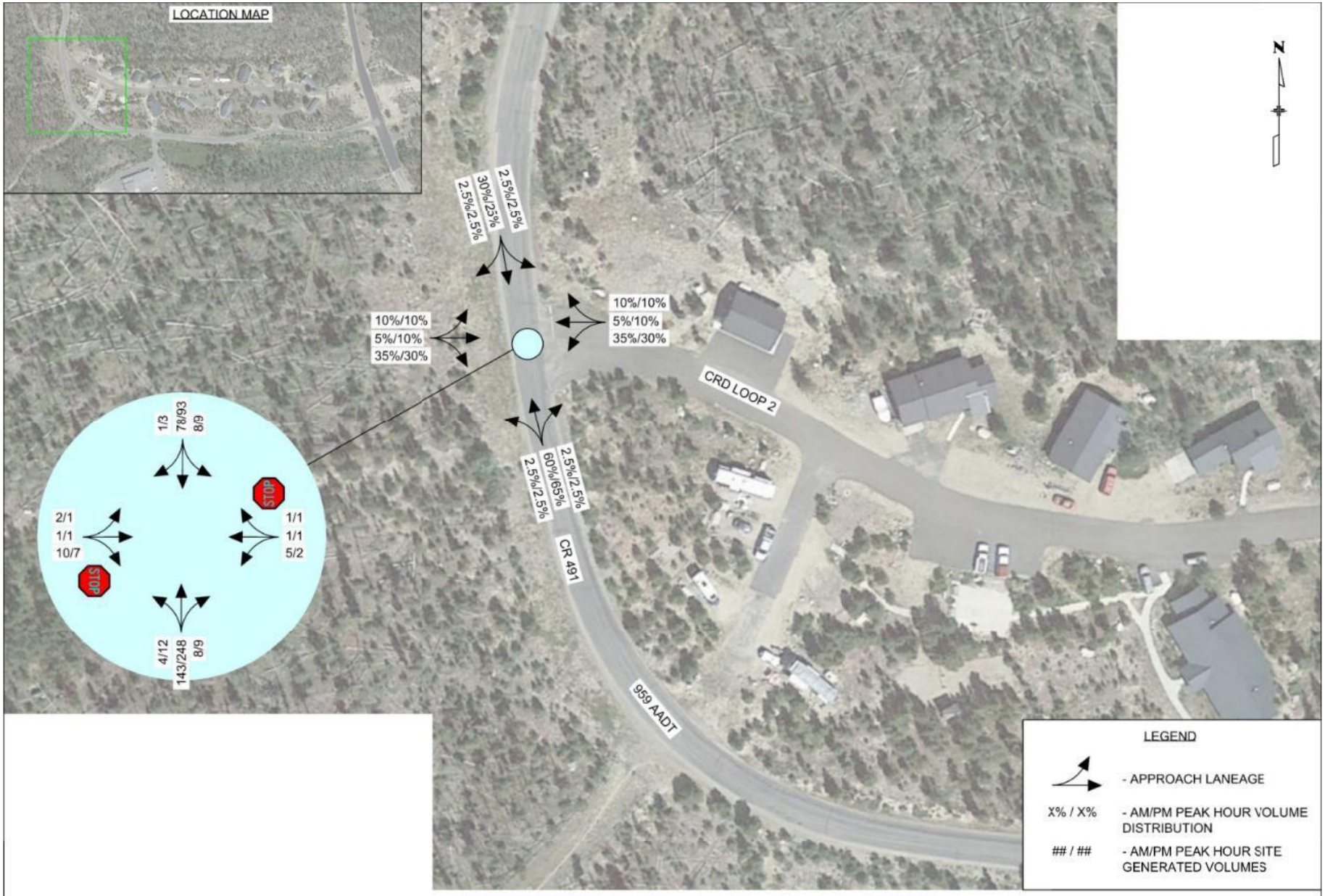
ADVANCE SIGN PLACEMENT

Scale	1" = 150'	Date	4/15/2022	Drawn By	MJW	Job #	AJCAR-164611	Figure	11

Traffic Impact Study - ROMO

PROPOSED CROSSWALK SIGHT DISTANCE OVERLAY

Scale	1" = 20'	Date	4/15/2022	Drawn By	MJW	Job #	AJCAR-164611	Figure	12



SEH

Traffic Impact Study - ROMO

TRIP DISTRIBUTION-ULTIMATE CONDITION-CRD LOOP 2 & CR 491

Scale	1" = 100'	Date	4/15/2022	Drawn By	MJW	Job #	AJCAR-164611	Figure	13

SEH

Traffic Impact Study - ROMO

TRIP DISTRIBUTION-ULTIMATE CONDITION-US 34 & CR 491 AND CR 491 & CRD LOOP 1

Scale	1" = 100'	Date	4/15/2022	Drawn By	MJW	Job #	AJCAR-164611	Figure	14

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