

Continuous Flow Intersections

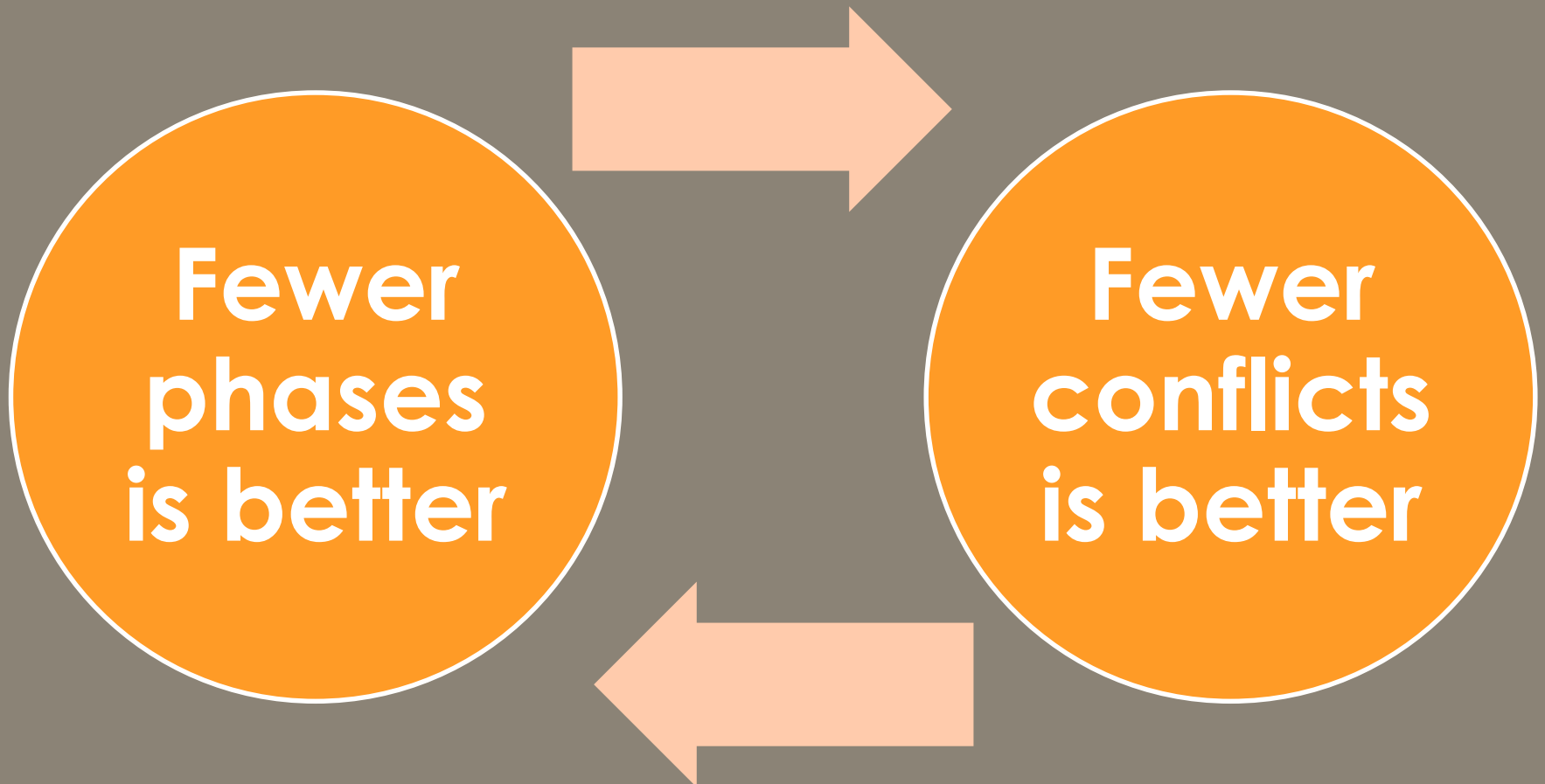
High Capacity Design Alternatives



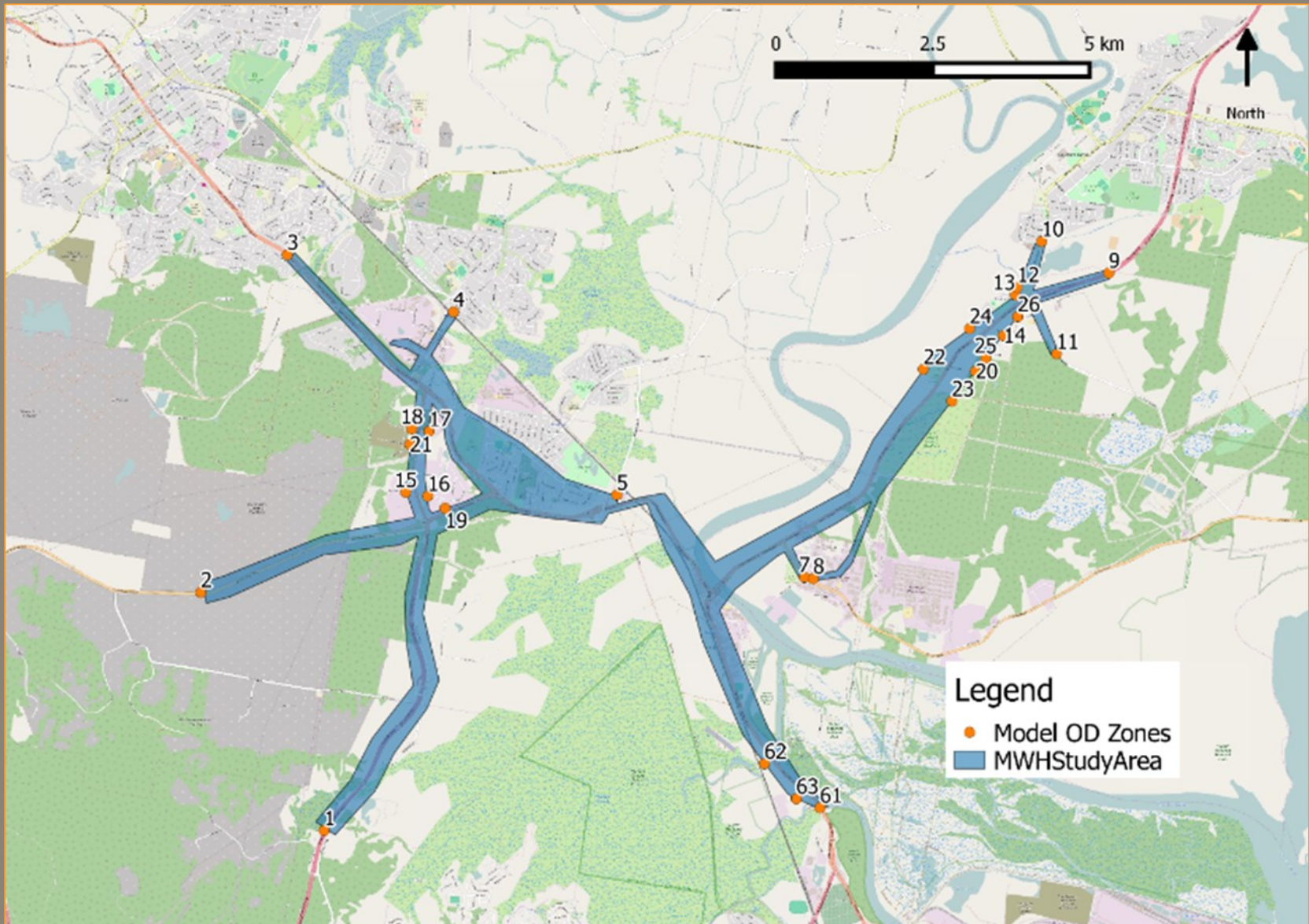
5 November 2017

Trishul Palekar, RPEQ (Civil) | CPEng | P.E. | PTOE

Underlying Principle



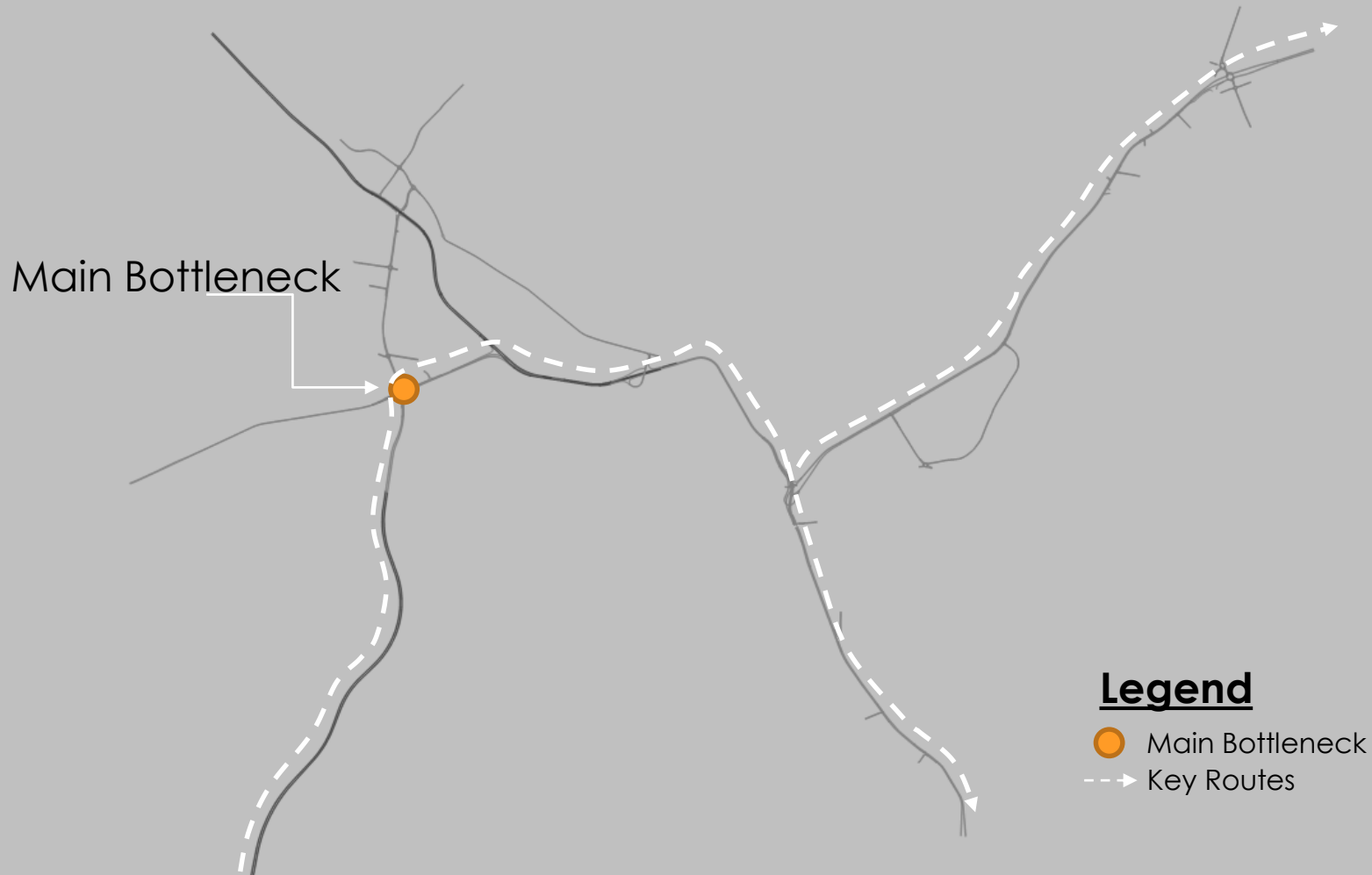
Study Area



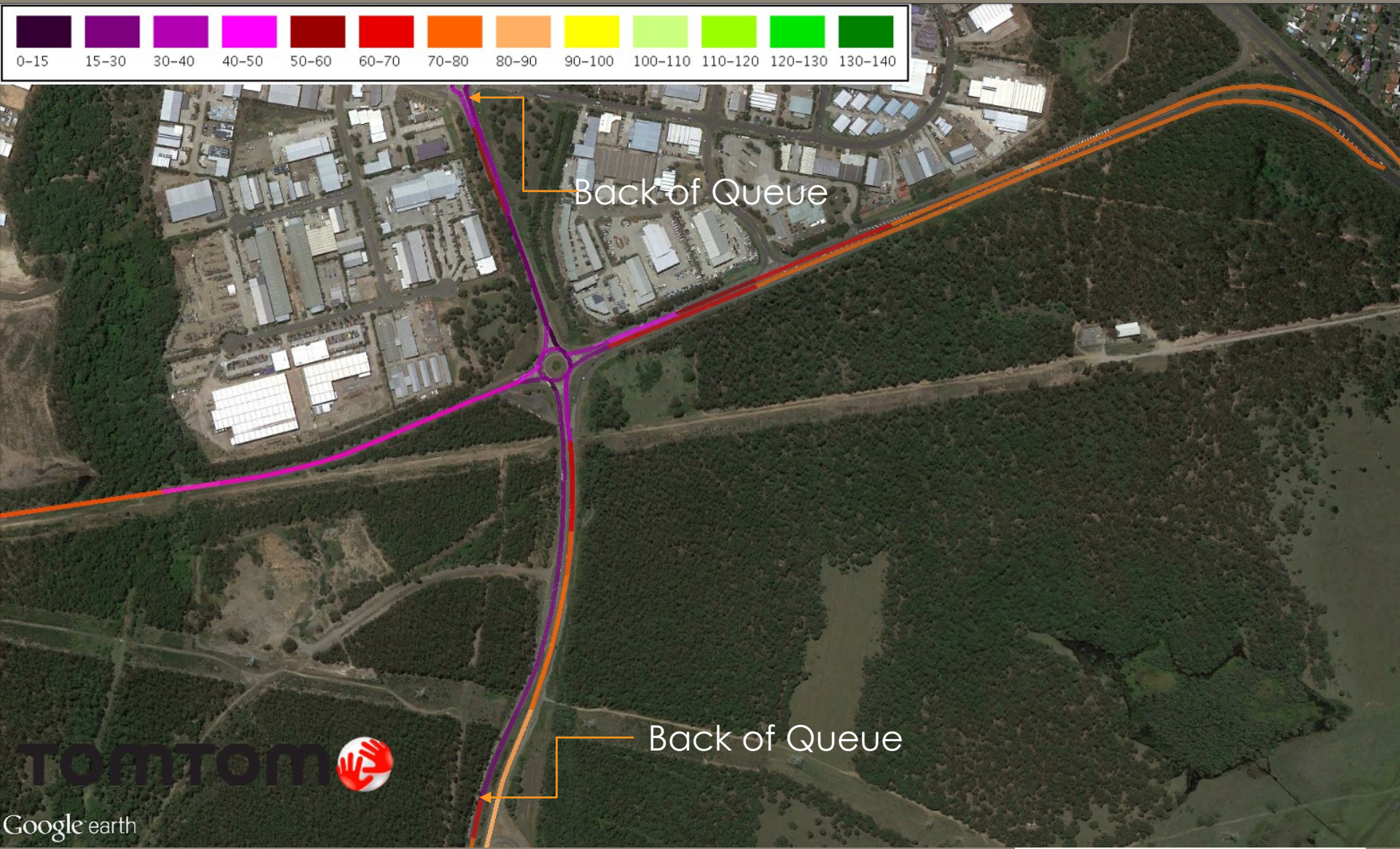
The Network



The Main Bottleneck



2016 Traffic Conditions



2016 Traffic Conditions



07:54:10

Conventional Upgrade



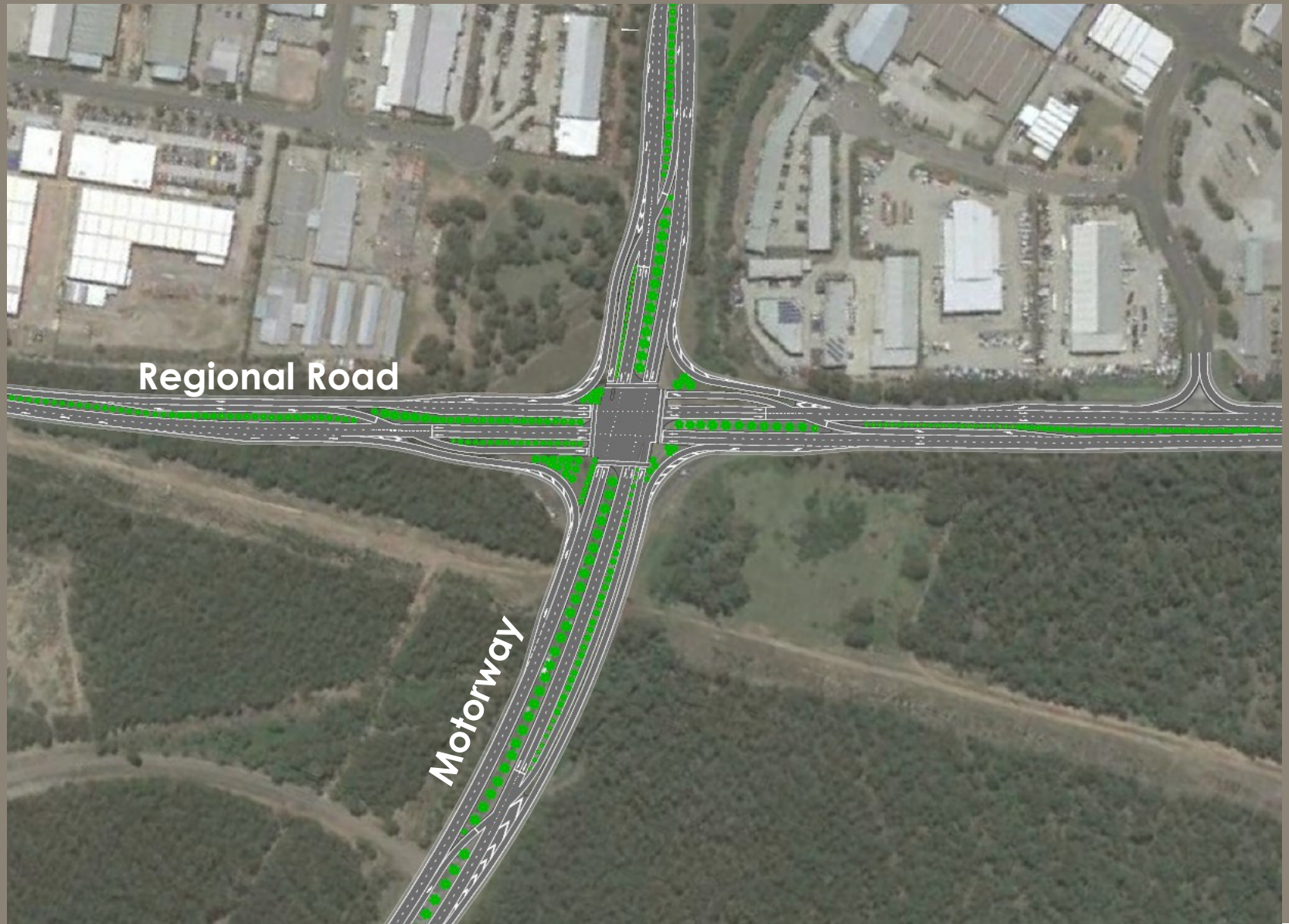
2031 Traffic Conditions

Option 1: Conventional Grade-Separation

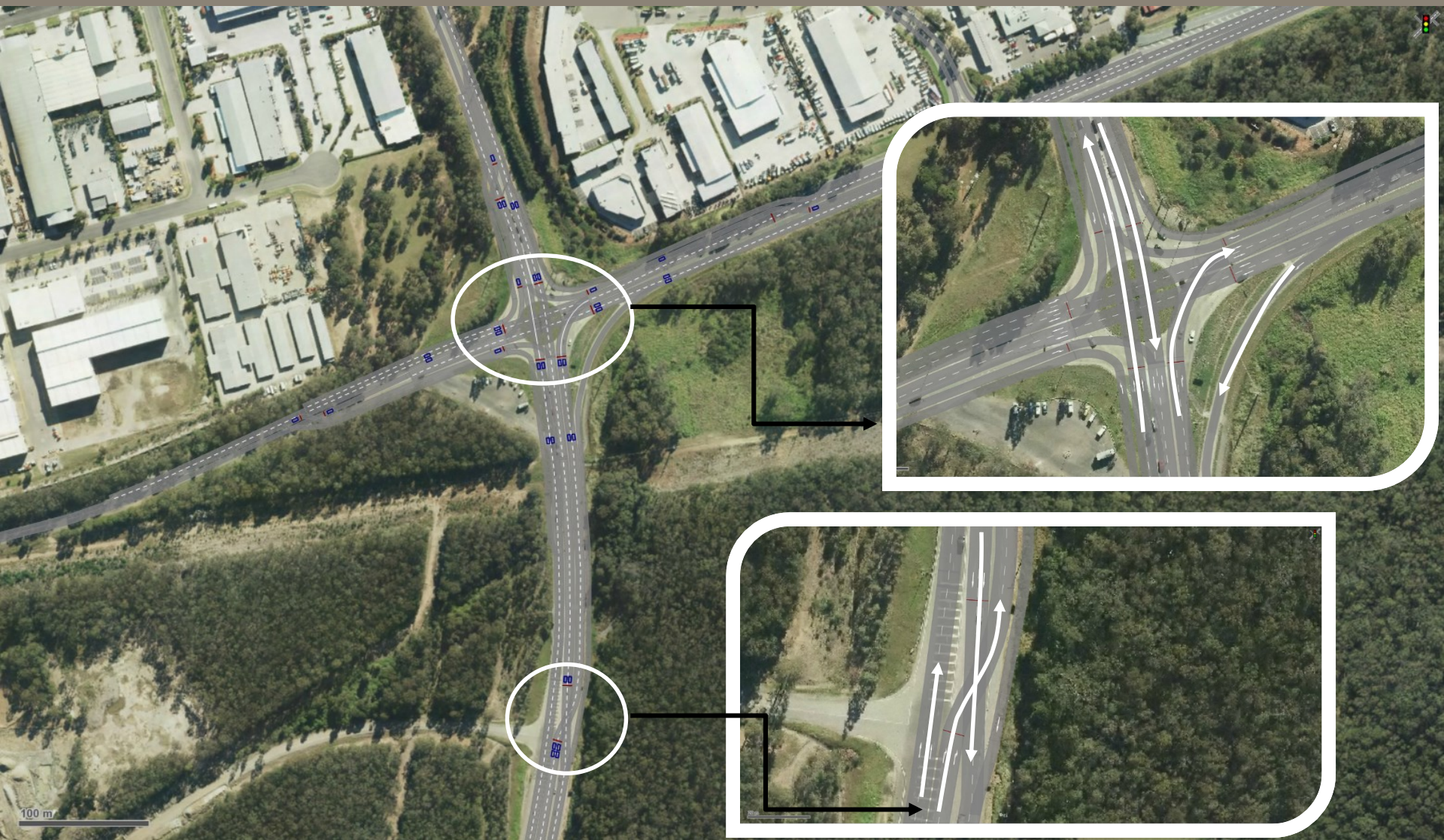


08:09:55

Continuous Flow Intersection



Continuous Flow Intersection



© 1997 by John Wiley & Sons, Inc.

Ring Barrier Controller 01.70.04 (CFI_v1.rbc)

File View Help

Notes Frequency 10

☒ Base Timing

☒ Timing by SG

☒ Basic

☐ Advanced

☐ Patterns / Coordination

☐ Pattern 1

☐ Pattern 2

☐ Pattern 3

☐ Pattern 4

☐ Pattern 5

☐ Pattern 6

☐ Pattern 7

☐ Pattern 8

☐ Pattern Schedule

☐ Sequence

☐ Conflict SGs

☒ Overlaps

☐ Detectors

☐ SC Communication

☐ Preempts

☐ Transit Priority

Pattern 1

CycleLength 60

Global Values

Basic

SG Number	1	2	3	4	5	6	7	8	11								
SG Name	SBR	NBT	WBR	EBT	NBR	SBT	EBR	WBT	SBRD								
Min Green	7	7	7	7	7	7	7	7	5								
Veh Extension	3	3	3	3	3	3	3	3	3								
Max 1	30	30	30	30	30	30	30	30	30								
Yellow	5	5	5	5	5	5	5	5	5								
Red Clearance	2	2	2	2	2	2	2	2	2								
Ped SG Number																	
Walk																	
Ped Clear (FDW)																	
Start Up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Min Recall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Max Recall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ped Recall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soft Recall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NSE Max Recall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dual Entry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Overlaps

Overlap SG	12	23	34	30	50	20											
Delay Green																	
Trail Green																	
Yellow Clearance																	
Red Clearance																	
Parent	1,2,5,6	2,3	3,4,7,8	3,4,7,8,11	1,2,3,4,5,6,7,8	1,2,5,6,11											
Negative Green																	
Delay Enable																	
Trail Enable																	
Negative Vehicle																	

01 30sec SBR

01 30sec NBT

06 30sec NBR

06 30sec SBT

03 18sec WBR

04 18sec EBT

07 18sec EBR

08 18sec WBT

011 12sec SBRD

☐ Lock Diagram

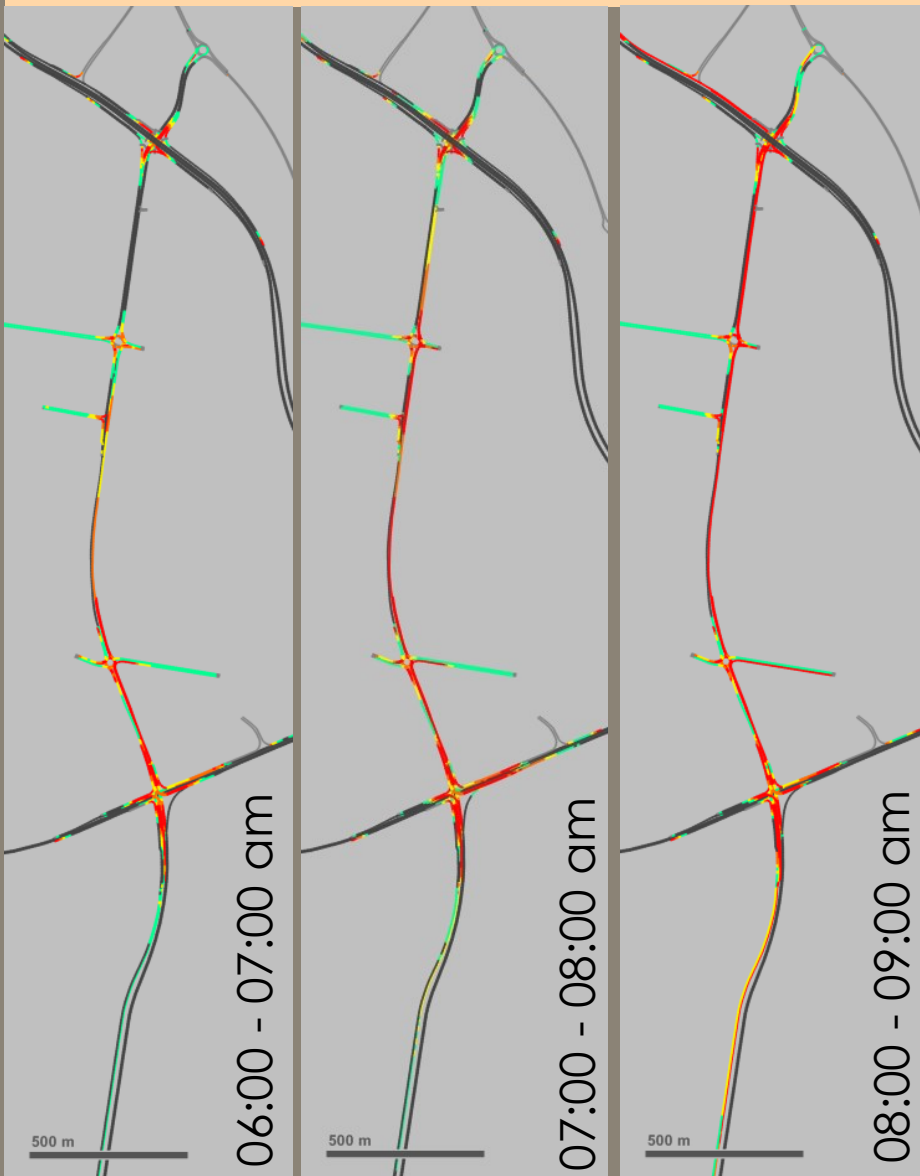
2031 Traffic Conditions

Option 2: Continuous Flow Intersection

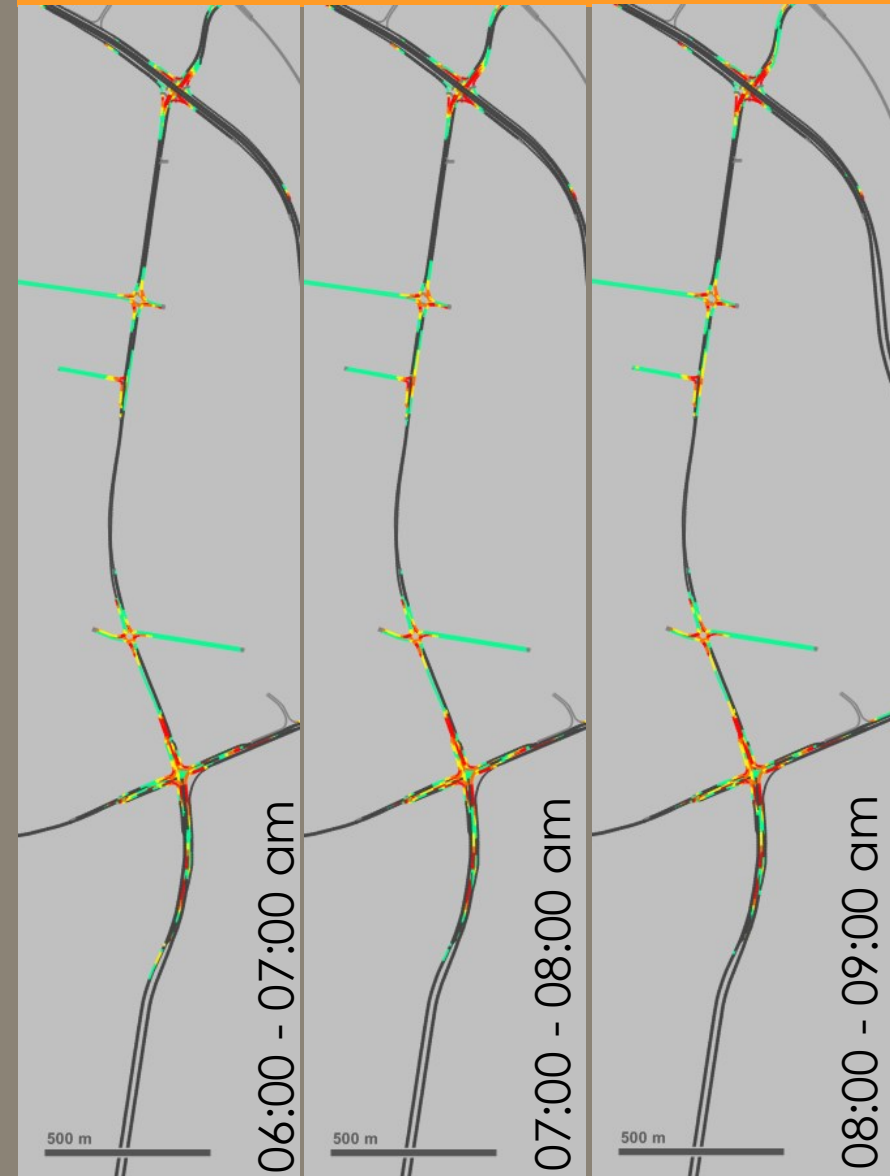


Congestion Heat Map

Conventional



CFI



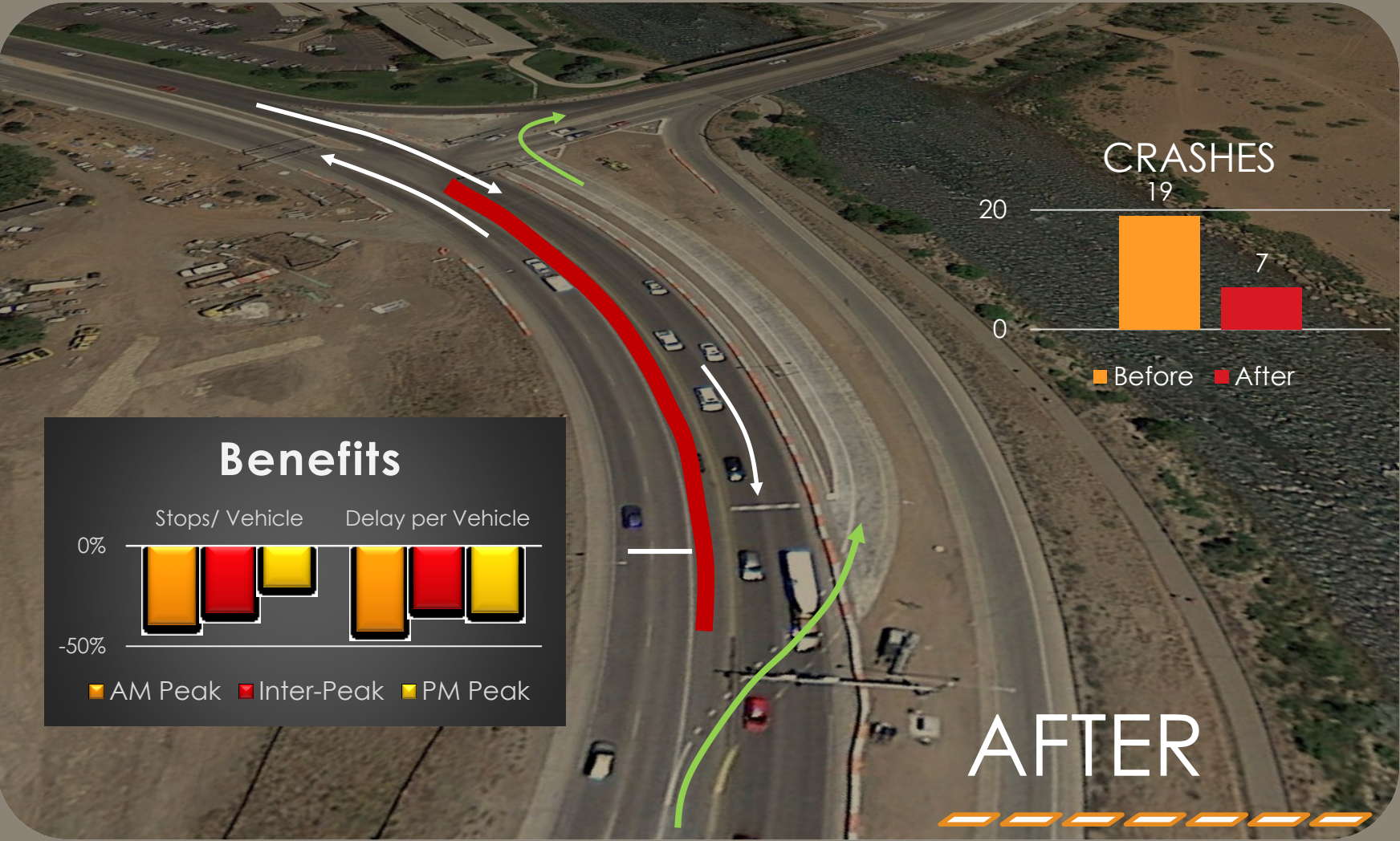
Benefits

Category	Option 1 (Conventional)	Option 2 (CFI)
Intersection Demand (vph)	5,082	5,141
Intersection Delay and LoS	88.41 F	37.36 D
Travel Time - NB	05:08	03:47
Travel Time - SB	15:50	2:41
Average Speed - NB	62 Km/h	84 Km/h
Average Speed - SB	8 Km/h	47 Km/h

US 550 CFI, Durango, Colorado



US 550 CFI, Durango, Colorado



US 550 CFI, Durango, Colorado



Questions?