

An aerial perspective rendering of a complex road intersection. The scene shows multiple lanes of asphalt with white lane markings, including a curved ramp. Several vehicles are depicted: a white bus, a red pickup truck, a white sedan, a dark SUV, a blue hatchback, and a white van. Landscaping includes green grass, several trees with reddish-pink foliage, and a utility pole with traffic lights. In the background, there are buildings and a parking lot with a bus stop.

# City of Copperas Cove

## 2016 Intersection and Access Analysis



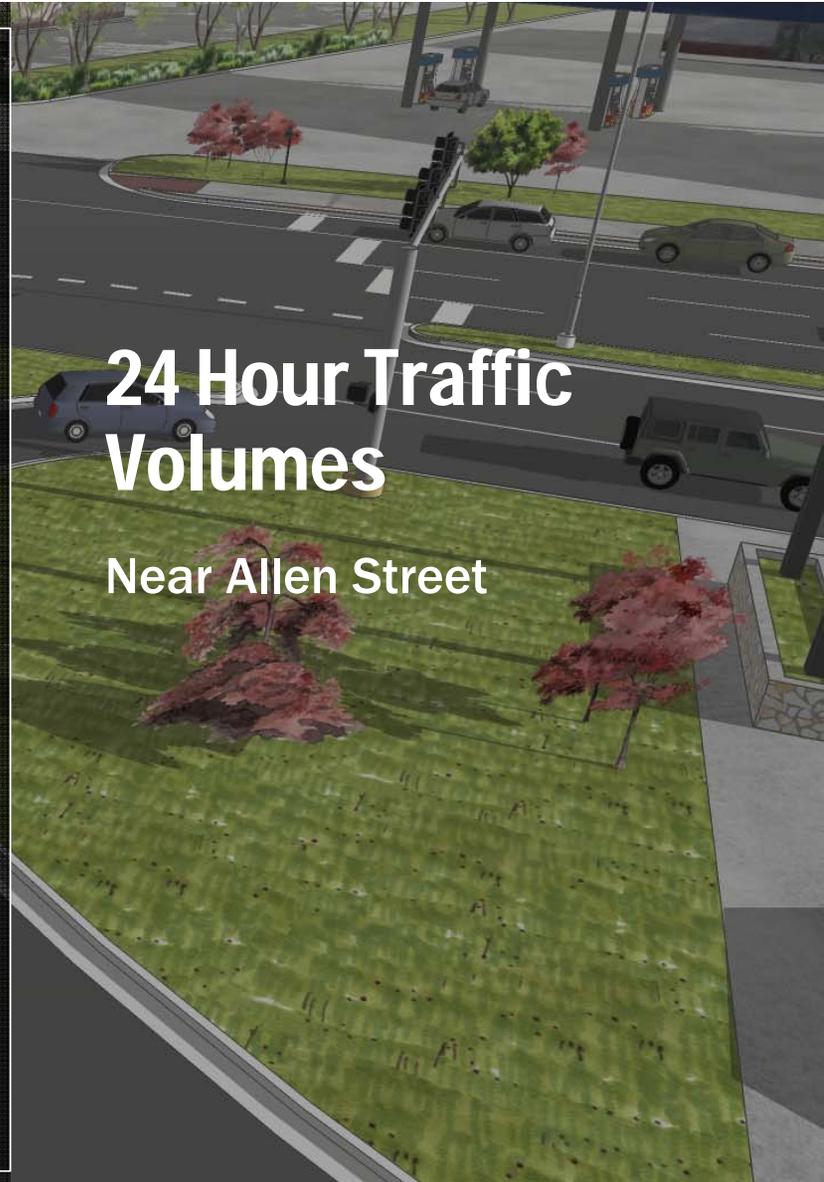
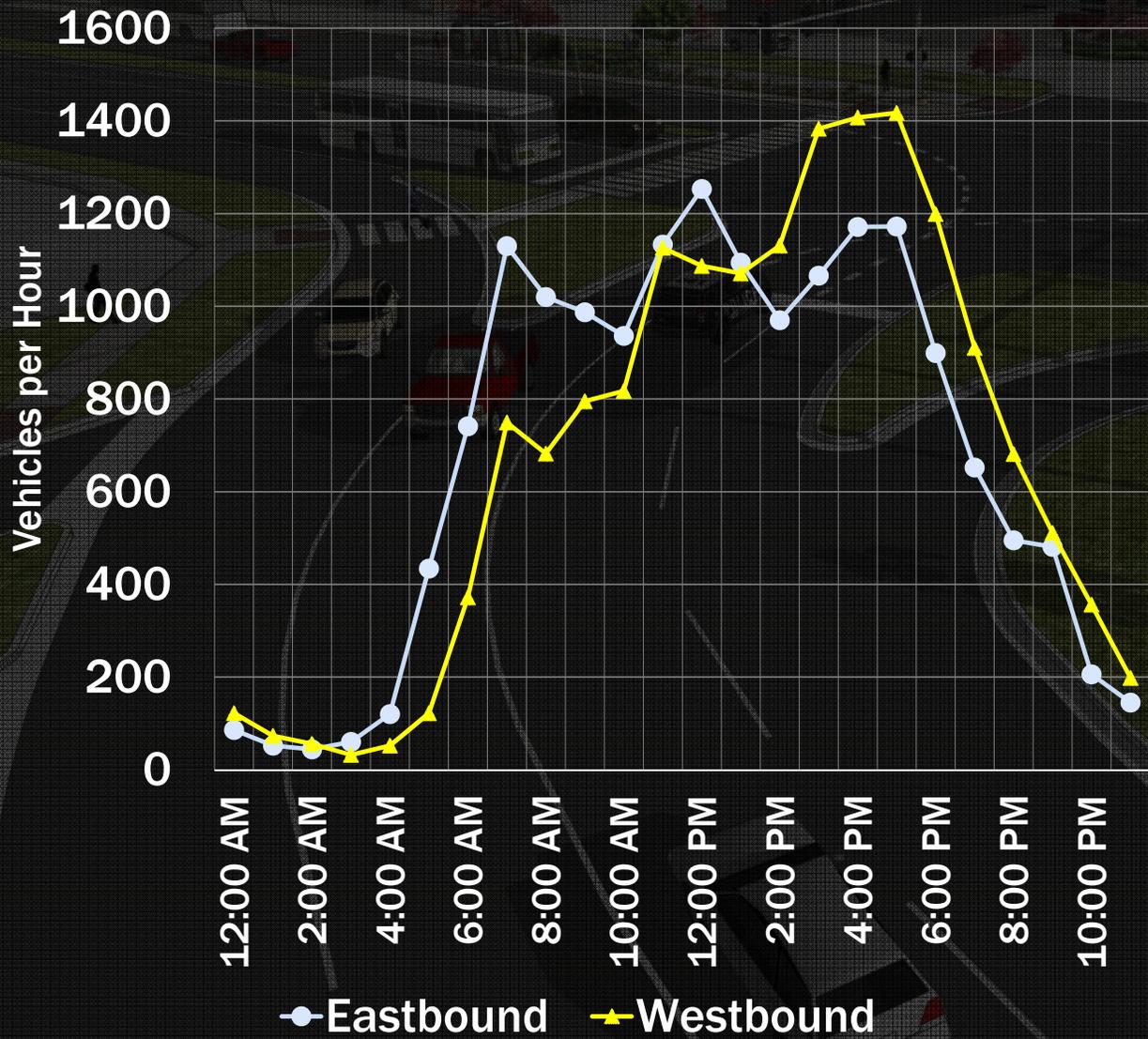
# Outline

- Traffic Counts
- Speed
- Signalized Intersection/Analysis
- Turn Lane Design
- Access Spacing
- Roundabout Concept
- Schematic Design and Access Exhibits
- 3D Model Reviews



# Traffic Counts

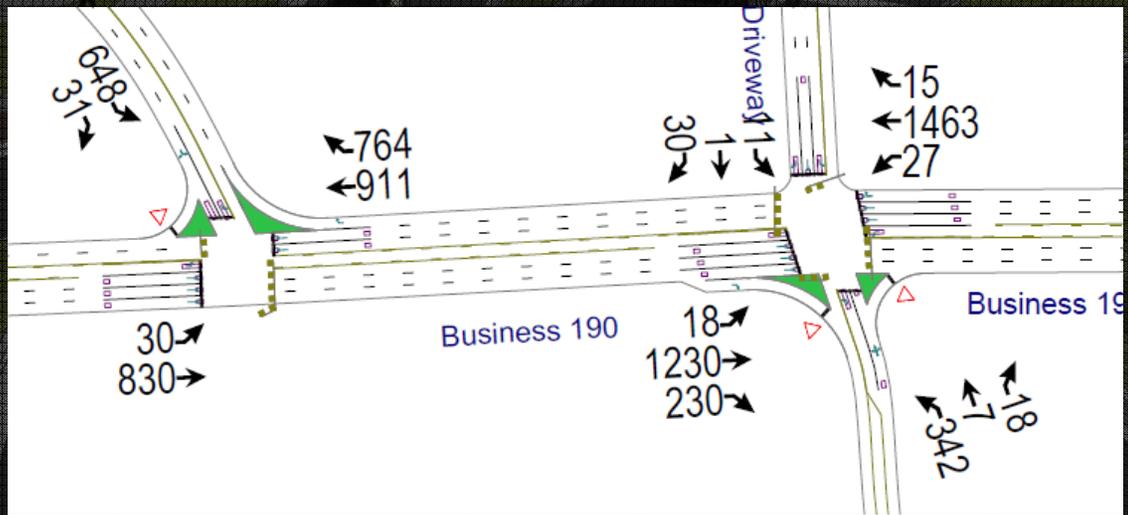
- Counts collected in December 2015
- School was in session
- Collected intersection Turning Movement Counts at the four signalized intersections
- Collected 24 hour volume and classification counts at two locations

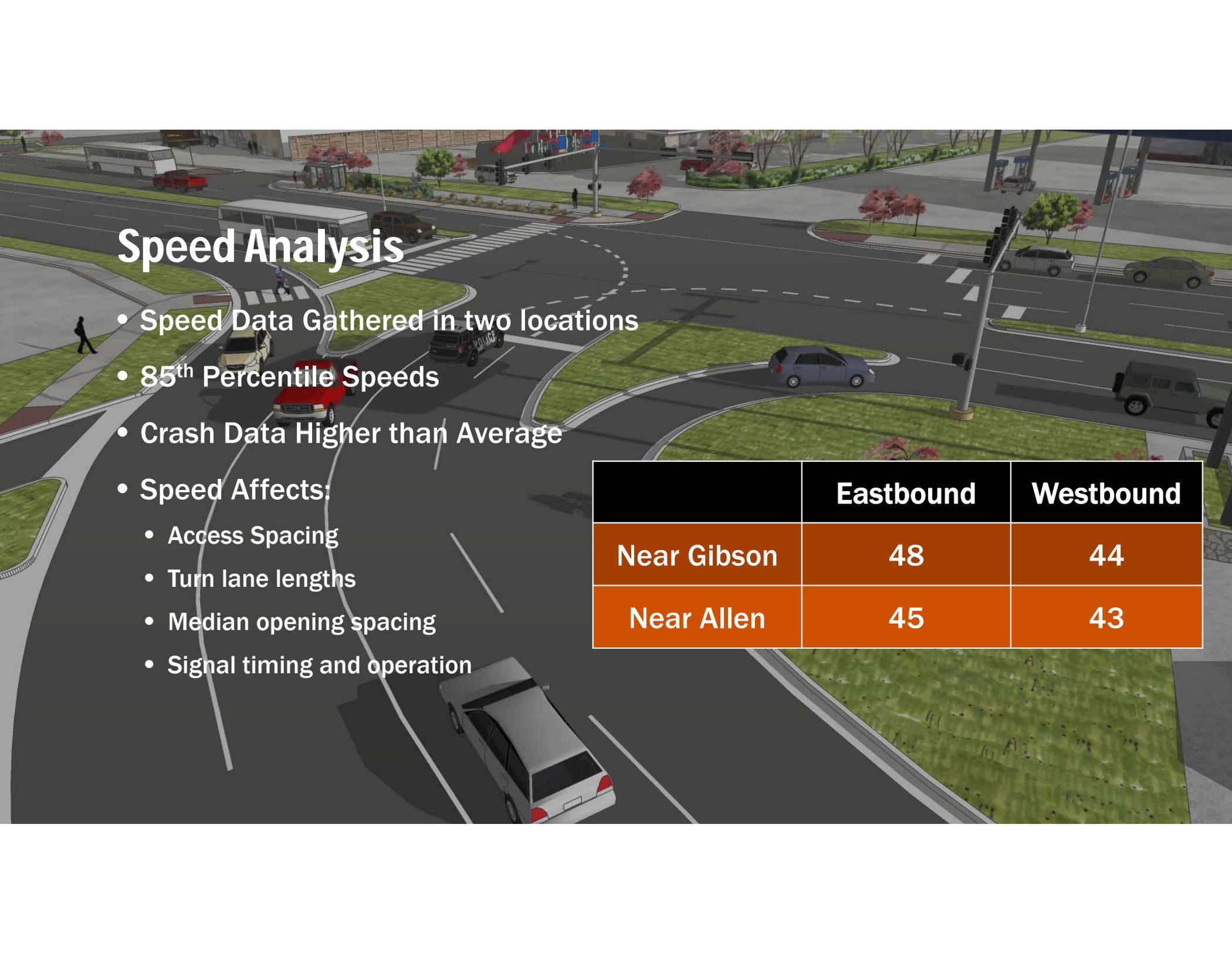


# 24 Hour Traffic Volumes

Near Allen Street

# Intersection Turning Movement Counts





# Speed Analysis

- Speed Data Gathered in two locations
- 85<sup>th</sup> Percentile Speeds
- Crash Data Higher than Average
- Speed Affects:
  - Access Spacing
  - Turn lane lengths
  - Median opening spacing
  - Signal timing and operation

	Eastbound	Westbound
Near Gibson	48	44
Near Allen	45	43

# Intersection Analysis

Level-of-Service (LOS)	Average Control Delay (seconds/vehicle)
A	$\leq 10.0$
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	$> 80.0$

# Intersection Analysis

## Robert Griffin III Drive

Peak Hour:	AM Peak		Midday Peak		PM Peak	
Lanes:	6	4	6	4	6	4
Intersection LOS:	A	A	C	C	B	B

## Constitution Drive

Peak Hour:	AM Peak		Midday Peak		PM Peak	
Lanes:	6	4	6	4	6	4
Intersection LOS:	B	B	B	C	B	B

## Martin Luther King Jr Drive

Peak Hour:	AM Peak		Midday Peak		PM Peak	
Lanes:	6	4	6	4	6	4
Intersection LOS:	B	C	C	C	C	D

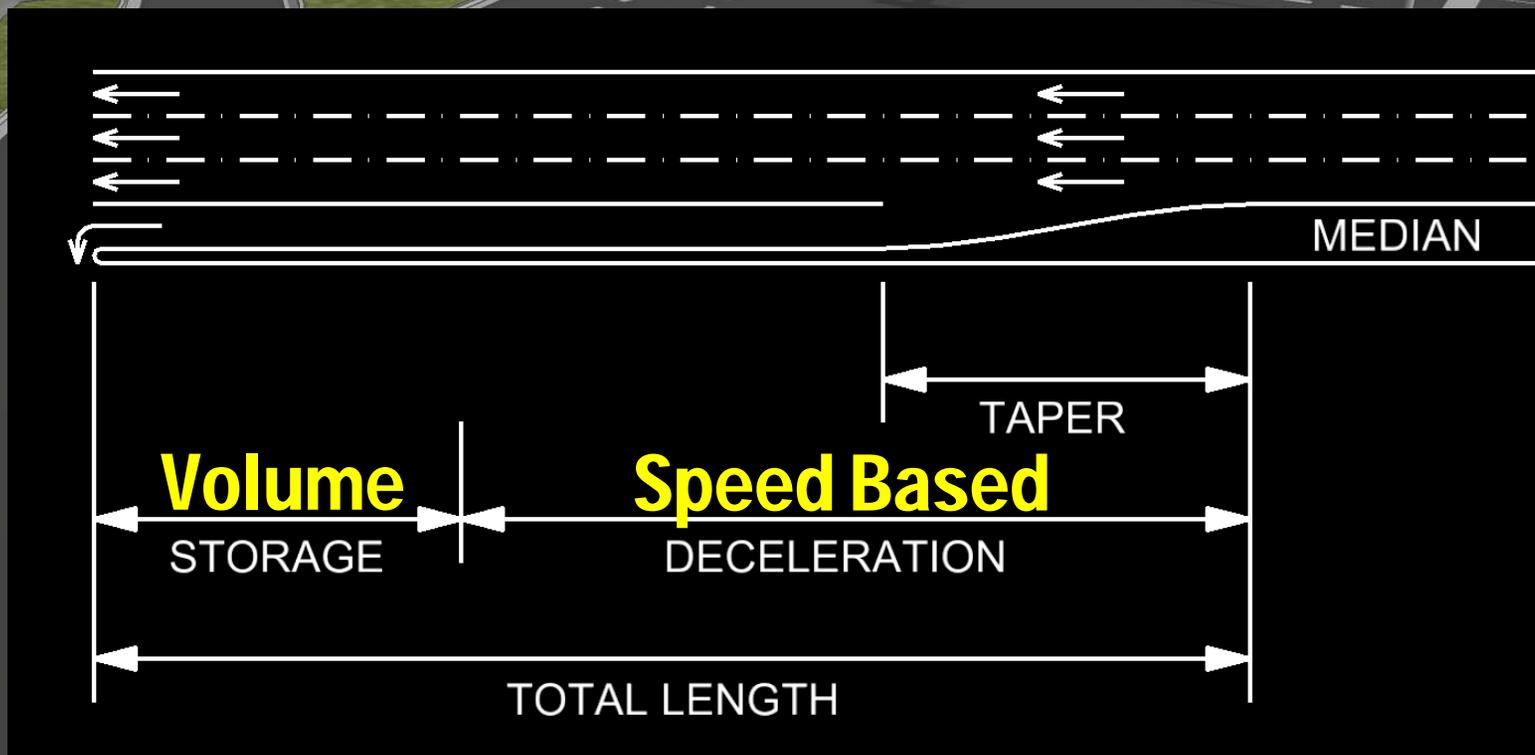
## E Avenue D (FM 1113)

Peak Hour:	AM Peak		Midday Peak		PM Peak	
Lanes:	6	4	6	4	6	4
Intersection LOS:	D	D	D	D	D	D

# Left Turn Lane Design

- Accommodate Signal Operations & Queue Lengths
- Deceleration Lengths
- Public Streets

# Turn Lane Components – Speed and Volume Based



# Turn Lane Components – Speed & Volume Components

	<b>Storage Minimum</b>	<b>Taper</b>	<b>Deceleration</b>	<b>Total Length</b>
<b>35</b>	<b>100</b>	<b>50</b>	<b>215</b>	<b>315</b>
<b>45</b>	<b>100</b>	<b>100</b>	<b>345</b>	<b>445</b>
<b>With 20 mph speed differential</b>				
<b>35</b>	<b>100</b>	<b>50</b>	<b>110</b>	<b>210</b>
<b>45</b>	<b>100</b>	<b>100</b>	<b>215</b>	<b>315</b>

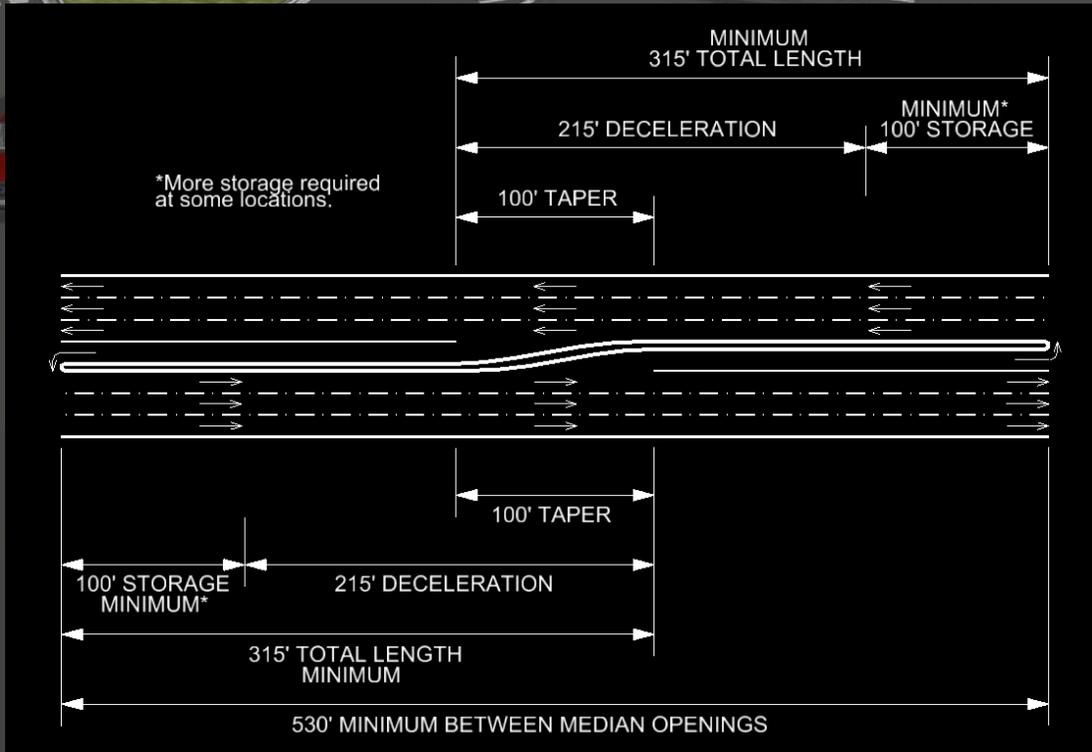
# Turn Lane Components – Speed & Volume Based

	Storage Minimum	Taper	Deceleration	Total Length
35	100	50	215	315
45	100	100	345	445
With 20 mph speed differential				
35	100	50	110	210
45	100	100	215	315

# Left turn queue lengths - Volume Component

Intersection	Left Turn Approach	95 <sup>th</sup> Percentile Queue (2036)
Business 190 at Robert Griffin III Dr	WB	500'
Business 190 at Constitution Dr	EB	99'
	WB	260'
Business 190 at Martin Luther King Jr Dr	EB	74'
	WB	67'
Business 190 at Avenue D	EB	92'
	WB	181'

# Left Turn Lane Design



**Posted Speed**

**Minimum Spacing**

35

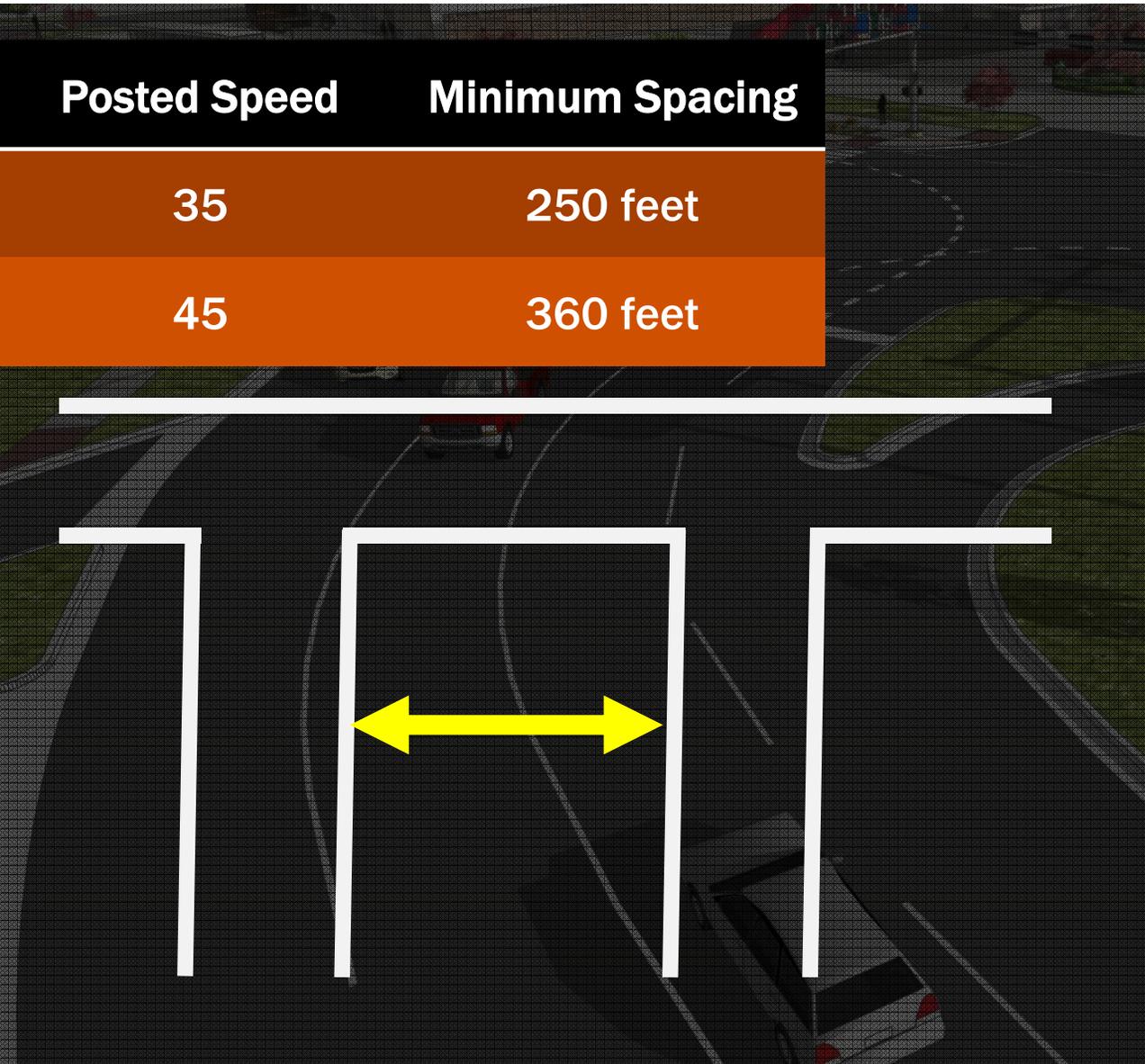
250 feet

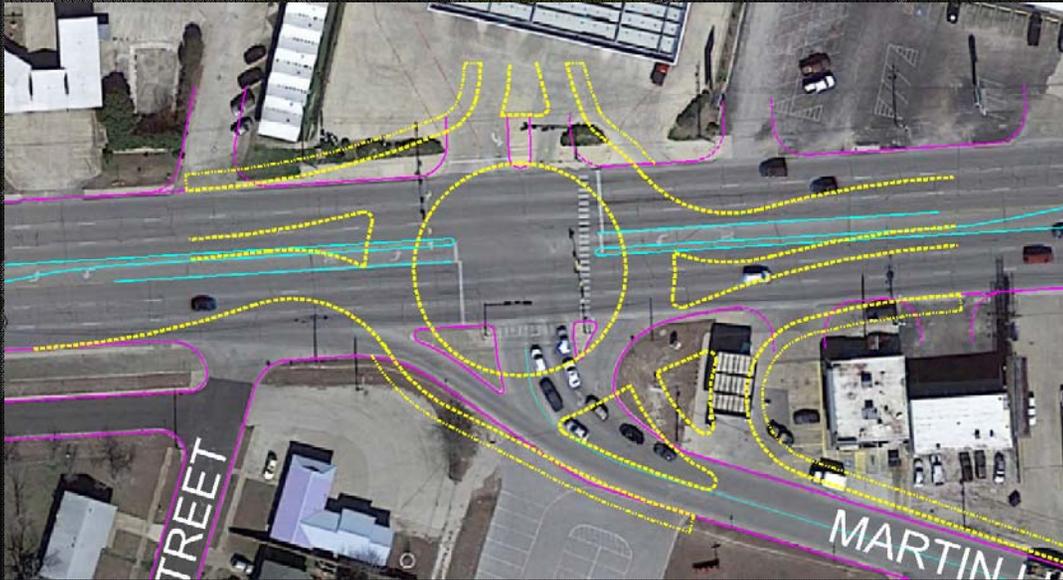
45

360 feet

## Access Analysis

Speed based Spacing  
Criteria





## Roundabout Alternative

Significant ROW  
necessary

Cuts off public street  
access

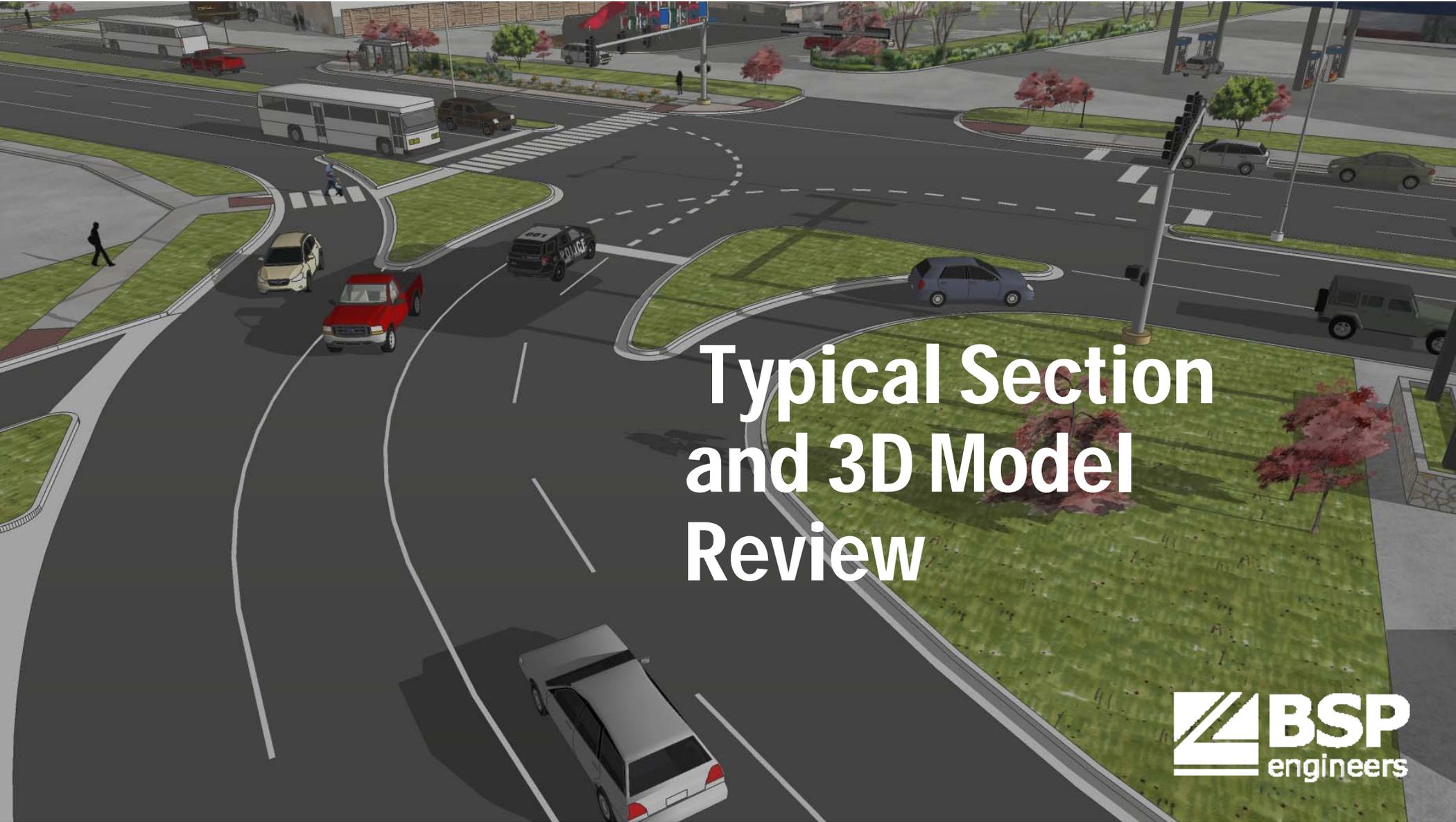
Preliminary analysis  
reveals poor operations





# Schematic Design and Access Exhibits





# Typical Section and 3D Model Review



Before





After



Before

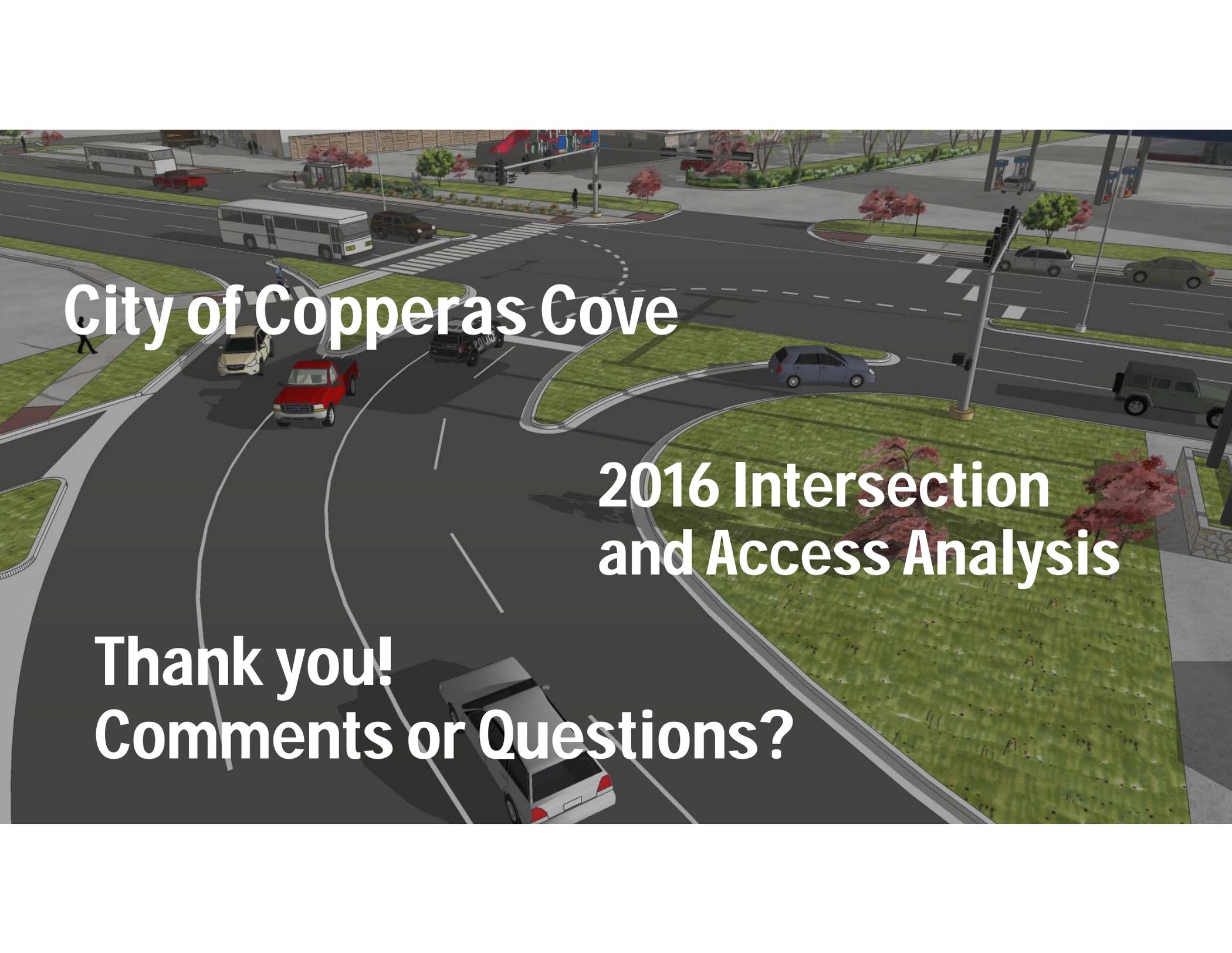


After



After





# City of Copperas Cove

## 2016 Intersection and Access Analysis

**Thank you!**  
**Comments or Questions?**