

2017 Travel Time & Delay Study

April 2018



Why signal retiming?



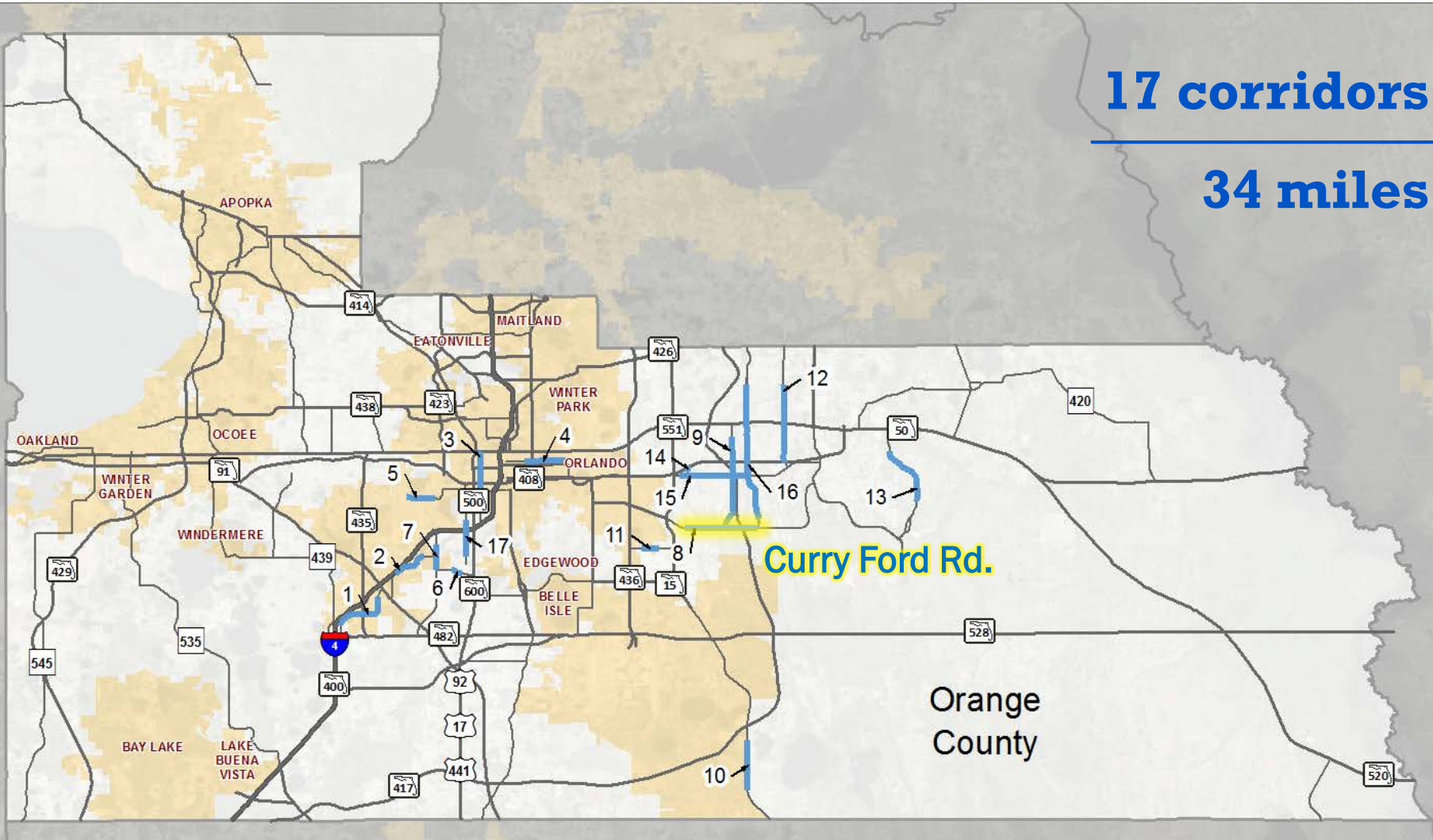
**23
corridors**

**58
miles**

See full list in your
supplemental folders



Orange County

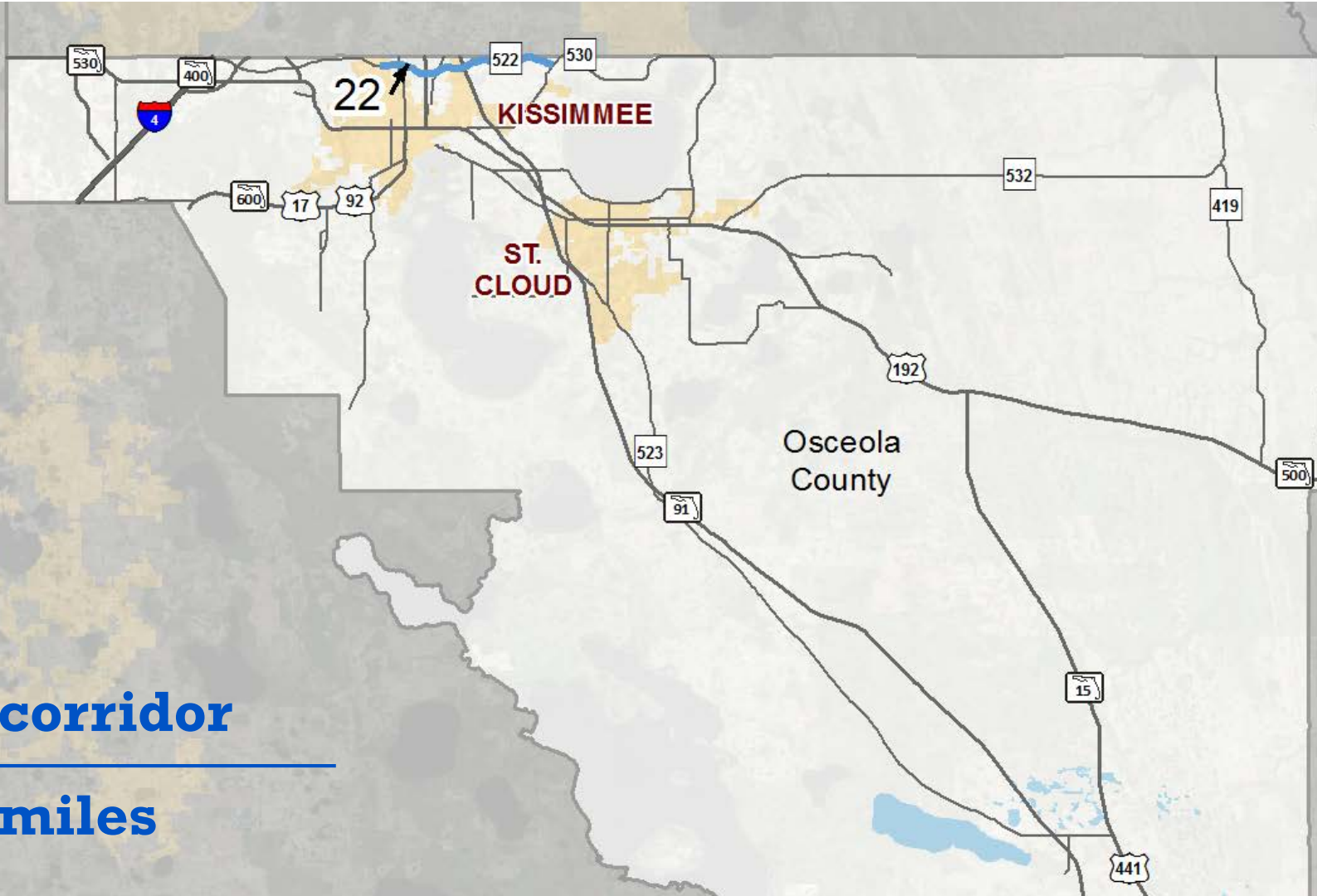


17 corridors

34 miles

Orange
County

Osceola County



1 corridor

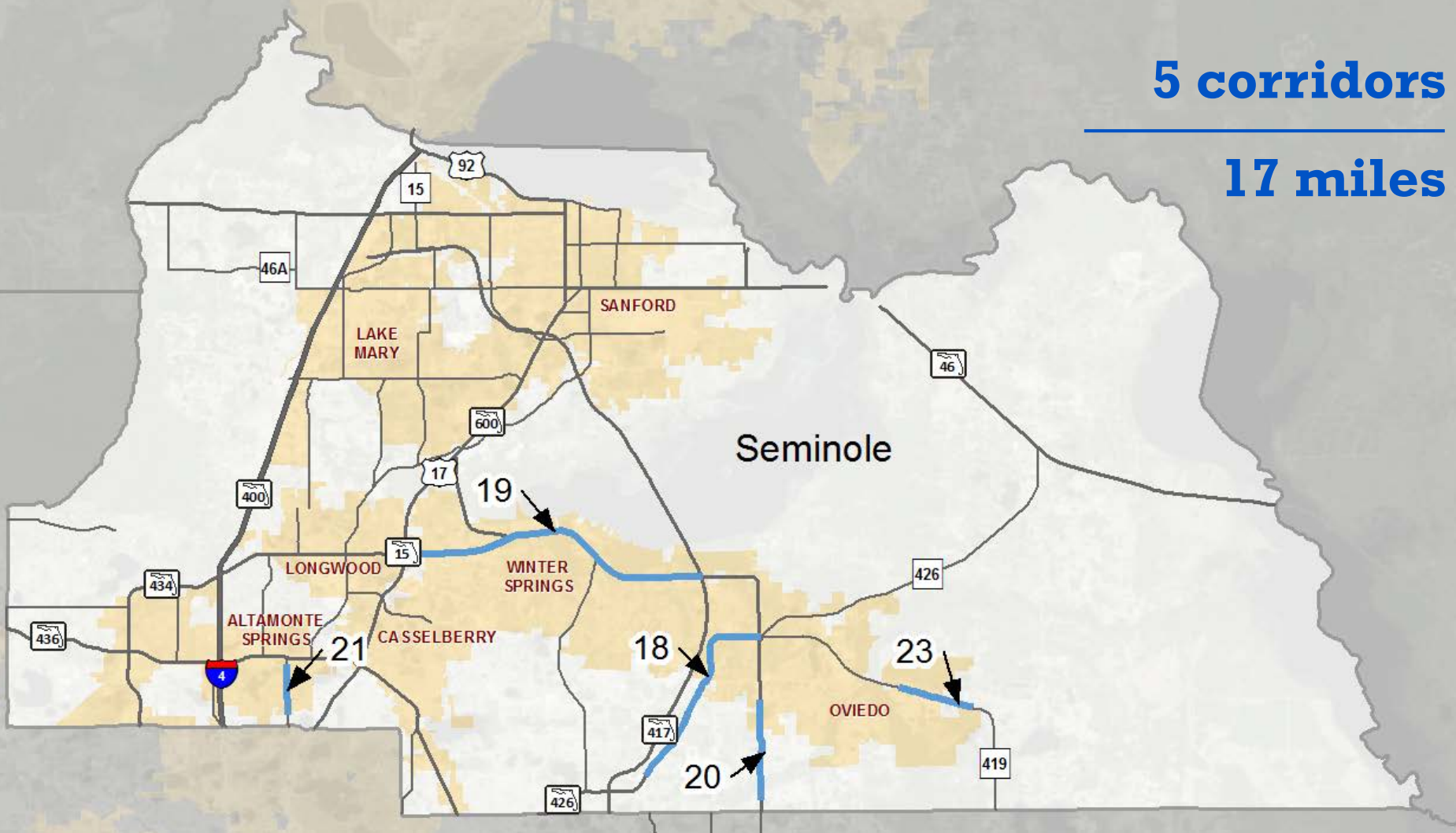
7 miles

Seminole County



5 corridors

17 miles



Corridor Average Travel Times

Road	Peak Period	Peak Period Average Travel Times (sec/veh)					
		EB			WB		
		Before <i>(b)</i>	After <i>(a)</i>	Reduction <i>(t = b - a)</i>	Before <i>(b)</i>	After <i>(a)</i>	Reduction <i>(t = b - a)</i>
Curry Ford Road	AM	357.6	328.2	29.4	367.9	313.5	54.4
	PM	364.8	359.3	5.5	431.0	363.2	67.8

*Shading depicts peak direction within AM and PM peak hours

Travel Time Savings

Road	Peak Period	EB			WB			Travel Time Savings	
		Volume (veh/hr) <i>(v)</i>	Δ Travel Time (sec/veh) <i>(t)</i>	Total Savings (veh-hr) <i>(S)</i>	Volume (veh/hr) <i>(v)</i>	Δ Travel Time (sec/veh) <i>(t)</i>	Total Savings (veh-hr) <i>(S)</i>	Total (veh-hr) <i>(S_T)</i>	Percentage (%) <i>(P_T)</i>
Curry Ford Road	AM	1,136	29.4	9.3	1,692	54.4	25.6	60.4	10%
	PM	1,802	5.5	2.8	1,213	67.8	22.8		

$$S = \frac{v \times t}{3,600}$$

$$S_T = S_1 + S_2 + S_3 + S_4$$

$$P_T = \frac{S_T}{\sum(b_i \times v_i)}$$

*Shading depicts peak direction within AM and PM peak hours

Benefit-Cost Analysis



- Signal Retiming Costs for 2017: \$923,231
- Travel Time Cost Savings: \$17.67/hour for Orlando
(Source: TTI Urban Mobility Report)
- Present value of benefits assuming 3-year project life

Road	Daily Travel Time Savings (veh-hr)	Benefit (\$)		Project Cost (\$)	B/C Ratio
		Annual	Present Value over 3 yrs		
Curry Ford Road	60.4	\$320,410	\$889,166	\$36,808	24.2

Benefit-Cost Summary

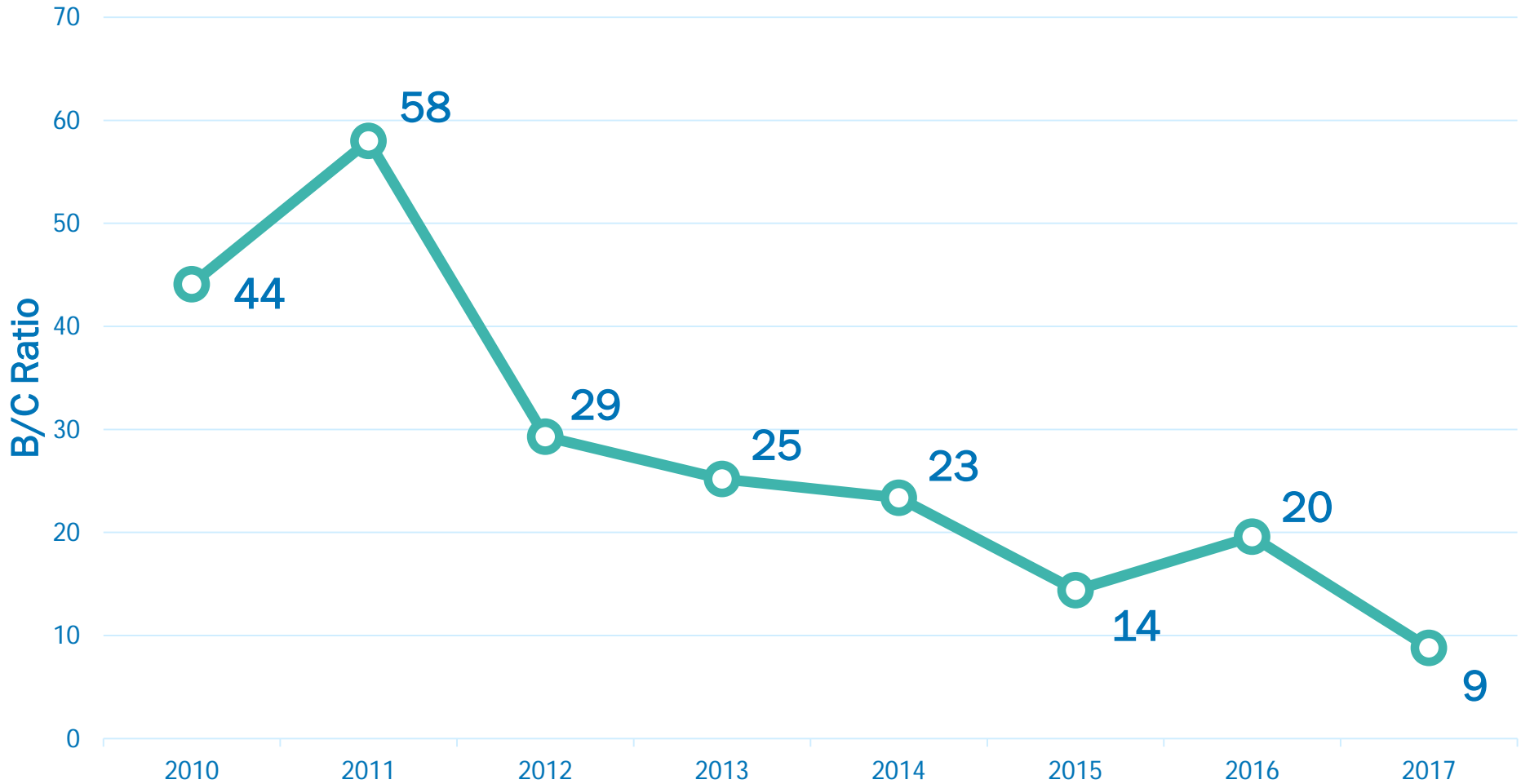
Annual Travel
Time Savings:
165,000 hours

Present Value of
3-Year Benefit:
\$8.2 Million

Total Project
Cost: \$920,000

2017 Program
B/C Ratio:
8.8

Signal Retiming Benefit-Cost Ratio

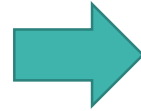


Other Measures



Measure

Travel time reliability



Conformance to posted speed



Intersection Delay



Evaluation Strategy

Standard deviation of travel time

Average travel speed vs. posted speed

Avg. delay for targeted movements (Synchro)

SR 434: SR 419 - Tuskawilla Rd.

	Before	After
Avg. Delay for Targeted Movements (sec. / veh.)	50	42

Other Measures



Fuel Savings



145,000
gal/yr

Reduced Vehicle Emissions



1,400
tons CO₂/yr

Key Observations



- Corridors with a **longer beginning travel time** tend to have a **greater reduction** in travel time
- Corridors with **higher volumes** tend to have a **higher B/C ratio**
- Corridors with **more than one lane** in each direction tend to have a **higher B/C ratio**
- Travel time **reduced by 5%** on corridors after retiming

Thank You

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