



# 175th Avenue / Kemmer Road Intersection Alternatives Comparison

Comparison Criteria		Alternatives		
		1	2	3
		90° Signalized EB Right Turn	Skewed Signalized EB Right Turn	Roundabout SB Bypass
Safety	Vehicle speed	35-45 MPH	35-45 MPH	15-25 MPH
	Vehicle conflict points	32	32	9
	Predicted crash reduction <sup>1</sup>	-	-	77% (injury) 47% (all crash types)
	Pedestrian conflict points	16	16	9
	Pedestrian crossing	Signal protected movement	Signal protected movement	Non-stop controlled / Two-stage crossing
	Bicycle	Bike lane	Bike lane	Ride in travel lane OR use sidewalk as a pedestrian
	Emergency response	Emergency vehicle preemption	Emergency vehicle preemption	Design allows emergency vehicles room to pass stopped vehicles in roundabout
Capacity (2035 Design Year)	Conformance with mobility standards	YES		
	Truck Mobility	Better	Better	Good
Environmental	New impervious surface area (acres)	2.1	1.8	0.9
	Air quality <sup>2</sup>	-	-	Less stop-and-go, less emissions
	Noise <sup>2</sup>	-	-	Less stop-and-go, less noise
	Energy	-	-	Less stop-and-go, better fuel efficiency
Community	Estimated right-of-way impact (acres)	5.4	3.7	2.7
	Restricted entry driveways	3	3	2
	Community Support	TBD		
Cost	Estimated construction cost <sup>3</sup>	High	Mid	Mid
	Estimated ongoing annual cost <sup>4</sup>	\$5,000 to \$10,000	\$5,000 to \$10,000	\$2,000 to \$5,000

<sup>1</sup> Roundabouts compared to signalized intersections - Roundabouts provide an overall reduction in vehicle speed, and remove some conflict points including angle, left-turn, and head-on crashes. This results in observed safety benefits at U.S. roundabouts of approximately 77% for injury crashes and 47% for all crash types - Exhibit 5-9 of the "Transportation Research Board. 2010. NCHRP Report 672 Roundabouts: An Informational Guide, Second Edition"

<sup>2</sup> Due to lower intersection delays and shorter queue lengths during non-peak periods, a roundabout could reduce the number of stops, therefore reducing noise and emissions associated with stop and go driving.

<sup>3</sup> Ranking of costs are based on 2015 unit prices and include estimates for right-of-way and environmental mitigation. Range for "Low": \$2 to \$3.5 million. "Mid": 3.5 to \$4.5 million. "High": cost range between \$4.5 million plus.

<sup>4</sup> Traffic Signals - Additional power, bulb replacement, detection maintenance, and signal retiming. Roundabout - Maintenance of additional lighting, signing, and landscaping.