Traffic Circle Safety Evaluation
May 2018

A formal evaluation of the Euclid/Parker intersection as well as at the Euclid/Palm intersection (an all-way stop controlled intersection) has recently been completed, and is summarized below.

Methodology

Video footage has been collected at both intersections (February 13, 2018 at Euclid/Parker and March 8, 2018 at Euclid/Palm).   Two cameras were installed at each of the two locations in order to ensure that all movements through the intersection were captured and visible.

The purpose of the evaluation was to determine:

- whether issues and concerns that have been raised are unique to the intersection with the traffic circle or typical to Euclid Avenue
- what design modifications to the traffic circle might be needed to address specific issues that are identified through the evaluation

More specifically, the evaluation effort has considered the following metrics:

1. Vehicle compliance at stop signs
2. Driver yielding behavior to pedestrians in crosswalks
3. Driver yielding behavior to cyclists in the traffic circle
4. Vehicle encroachment into the crosswalks while navigating around the traffic circle
5. Traffic circle operations – drivers driving clockwise rather than counterclockwise through intersection

More information on the methodology used in the evaluation can be found here.

The video capture at **Euclid/Parker** can be viewed via the following links:
- AM Peak – NW corner: https://youtu.be/SBUBNxN3kDo
- AM Peak – SE corner: https://youtu.be/P77ah78lrCU
- PM Peak – NW corner: https://youtu.be/KwsjGTTT-_E
- PM Peak – SE corner: https://youtu.be/2vsrm1q69to

The video capture at **Euclid/Palm** can be viewed via the following links:
- AM Peak – NW corner: https://youtu.be/h2DHAZgGCFE
- AM Peak – NE corner: https://youtu.be/ztDl_Gvouqc
- PM Peak – NW corner: https://youtu.be/Jy4V5YGNRAk
- PM Peak – NE corner: https://youtu.be/qgNsg_xZk8A

The results of the evaluation are as follows:

Vehicle Compliance at Stop Signs
- The Euclid/Parker intersection results in higher 'full' and 'no' compliance rates with the stop signs than the Euclid/Palm intersection, which saw higher 'partial' stop sign compliance rates

- Definitions:
    - **Full stop-sign compliance** occurs when a driver comes to a complete stop outside the crosswalk and/or crossing area before proceeding
    - **Partial stop-sign compliance** occurs when a driver comes to a complete stop, but encroaches onto the crosswalk and/or stop bar
    - **No compliance** occurs when a driver fails to come to a complete stop at a stop-controlled intersection. If a vehicle slows down at the stop by fails to come to a complete stop, this occurrence should be deemed as non-compliant.
- Stop sign compliance is significantly higher in the PM peak period than the AM peak period at Euclid/Parker (83% full and partial compliance in the afternoon peak versus 63% in the morning peak period). The PM peak period also experiences higher traffic volumes at this intersection.
- This trend also holds at Euclid/Palm, but is less pronounced.

Vehicle Compliance at Stop Signs							
	AM Peak Period (7-9am)				PM Peak Period (4-6pm)		
		Compliance				Compliance		
Intersection	Total # Vehicles	Full	Partial	None	Total # Vehicles	Full	Partial	None
Euclid/Parker	1,850	47%	16%	37%	2,184	46%	37%	17%
Euclid/Palm	1,451	34%	53%	13%	1,474	29%	65%	6%

Driver Yielding to Pedestrians in Crosswalk

- About a quarter of drivers did not comply with the pedestrian right-of-way (i.e., yielding to pedestrians in the crosswalk) at Euclid/Parker during each of the peak periods.
- Definitions:
    - Driver yielding occurs when a driver stops in advance of a crosswalk and waits until the pedestrian has cleared the travel lanes on the drivers' side of the street
    - A pedestrian attempt to cross occurs when a pedestrian is within five feet of the edge of the street, is either stopped or walking towards the crossing, and is looking for a gap in traffic to cross
    - A person standing on the curb ramp without a clear intention of crossing the street should not be recorded as a pedestrian attempt to cross.
- Drivers yielded to pedestrians at nearly 100% of the vehicle/pedestrian interactions

Driver Yielding to Pedestrians in Crosswalk						
	AM Peak Period (7-9am)			PM Peak Period (4-6pm)		
Intersection	Total # of Vehicle/ Pedestrian Interactions	Driver Yield	Driver Does Not Yield	Total # of Vehicle/ Pedestrian Interactions	Driver Yield	Driver Does Not Yield
Euclid/Parker	131	73%	27%	164	73%	27%
Euclid/Palm	52	100%	0%	52	98%	2%

Driver Yielding to Cyclists in Traffic Circle/Intersection

- Although the numbers of vehicle and bicycle interactions are relatively low, driver yielding rates to cyclists are 85% and 71%, respectively, during the morning and afternoon peak periods at Euclid/Parker. This is compared to 100% compliance at Euclid/Palm.
- That said, bicycles and vehicles are supposed to merge in advance of the traffic circle and this behavior is not always happening.

Driver Yielding to Cyclists and Traffic Circle/ Intersection						
	AM Peak Period (7-9am)			PM Peak Period (4-6pm)		
	Total # of Vehicle/ Bicycle Interactions	Driver Yield	Driver Does Not Yield	Total # of Vehicle/ Bicycle Interactions	Driver Yield	Driver Does Not Yield
Euclid/Parker	27	85%	15%	24	71%	29%
Euclid/Palm	4	100%	0%	3	67%	33%

Vehicle Turning Path into the Crosswalks Around the Traffic Circle

- Drivers are generally able to make turns around the traffic circle without encroaching into the crosswalks.
- The movement that is the most difficult for drivers to make without encroaching into the crosswalk is westbound Euclid to southbound Parker.

Driver Encroachment into Crosswalk while in Traffic Circle		
	AM Peak Period (7-9am)	PM Peak Period (4-6pm)
Euclid/Parker	0.6%	0.9%
Euclid/Palm	N/A	N/A

Wrong Way Drivers

- There were no recorded instances of drivers erroneously navigating around the traffic circle in a clockwise, versus counter-clockwise, manner.

Wrong Way Drivers		
	AM Peak Period (7-9am)	PM Peak Period (4-6pm)
Euclid/Parker	0%	0%
Euclid/Palm	N/A	N/A