Annual Traffic Crash Analysis - 2018

The Lake Forest Police Department *Annual Traffic Crash Analysis* highlights yearly comparative city-wide crash statistics with charts, maps and graphs as well as providing separate detailed data on the top five crash intersections within the City.

Cover Photo: Route 41 DUI injury crash

Lake Forest Police Department

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I.   INTRODUCTION AND OVERVIEW

Under the direction of Police Chief Karl Walldorf, a comprehensive analysis was conducted of all traffic crashes occurring in Lake Forest during 2018. A database for all crash reports was created, then statistically examined to extract informational and actionable data. This report seeks to inform and aid patrol operation strategies, as well as provide an overview of crash events for community members, police, city and elected officials. Comparisons to 2017 crash data will be interspersed throughout the analysis.

A two-level inquiry was conducted; the first examines all crash incidents city-wide for overarching patterns and details. This initial city-wide review includes analyses by:

- Total crashes
- Month of occurrence
- Quarter of year
- Patrol Beat
- Day of week
- Hour of day
- Patrol shift
- Collision type
- Contributory cause

A second more detailed analysis reviews intersections identified as our most active locations, with a two-year comparative top ten intersection ranking and a detailed 2018 *Top Five Crash Intersections* (TFCI) review. The TFCI analysis provides intersection photos, traffic volumes, injury types, crash rates and other pertinent data.

II.   COMPARATIVE CITY-WIDE CRASH DATA: 2017 & 2018

A.   TOTAL CRASHES

Annual crash data for 2018 revealed 673 crashes, showing a 3.4% decrease from 2017's total of 697. Reviewing Table 1, which follows, details a 12.4% decrease in roadway crashes and a reduction for all injury crash types of 24.2% for 2018. The legend in Table 1 provides a description of the five injury type codes officers are required to use when completing crash reports. These type codes are mandated state-wide by the Illinois Department of Transportation (IDOT).

There were no fatal crashes during either year. Serious injury crashes, those coded as Type A injuries, declined 70% from 10 to 3 crashes across the two years of data. Reviewing DUI crashes revealed a drop of 53.8% from 13 events to 6 in 2018.

One significant upturn in 2018 revealed a 51% increase in private property crashes as a result of 50 additional events. Interestingly, both years reported the exact same number of property damage only (non-injury) crashes at 598.

TABLE 1.

COMPARATIVE 2017–2018 CRASH TOTALS & SEGMENTS	2017	2018	CHANGE
TOTAL CRASHES	**697**	**673**	**-24**
Roadway	599	525	-74
Private Property	98	148	+50
FATALITY & INJURY SEGMENTS			
Fatality (K)	0	0	0
Serious injury crashes (A)	10	3	-7
Injury crashes (A, B, C)	99	75	-24
Roadway injury crashes (A, B, C)	92	73	-19
Private Property injury crashes (A, B, C)	7	2	-5
Non-Injury/Property damage only crashes (O)	598	598	0
DUI / HIT & RUN SEGMENTS			
DUI Crashes	13	6	-7
Roadway Hit & Run	39	27	-12
Private Property Hit & Run	26	25	-1
PEDESTRIAN / BICYCLIST SEGMENTS			
Vehicle v. Pedestrian	6	5	-1
Vehicle v. Bicyclist	4	4	0

| /	K = Fatality (killed) A = Incapacitating injury (serious)
IDOT INJURY TYPE CODES	B = Non-incapacitating injury
\	C = Reported, not evident O = No indication

B.   CRASHES BY MONTH

The data in Chart 1 following, provides comparative totals for both years showing the monthly incidence of all three types of injury crashes (INJURY) to property damage crashes (PD). The average number of monthly crashes for 2017 totaled 58.1, while 2018 demonstrated 56.1 events.

The greatest number of injury crashes within a month was 13, which occurred during both May 2017 and August 2018. Reviewing non-injury, property damage only crashes reveals September, for both years, as the month with the greatest number of these crashes at 66 and 64 respectively.

The largest disparity by month over the two years was October which reported a difference of 15 crashes, with 64 in 2017 and 49 during 2018. The monthly highest volume of crashes resulted in a tie between May 2017 and September 2017, with 76 total crashes each. Eight months during 2017 reported more crashes than the corresponding 2018 month. Only March, April, August and November 2018 exceeded their equivalent 2017 monthly totals.

CHART 1.

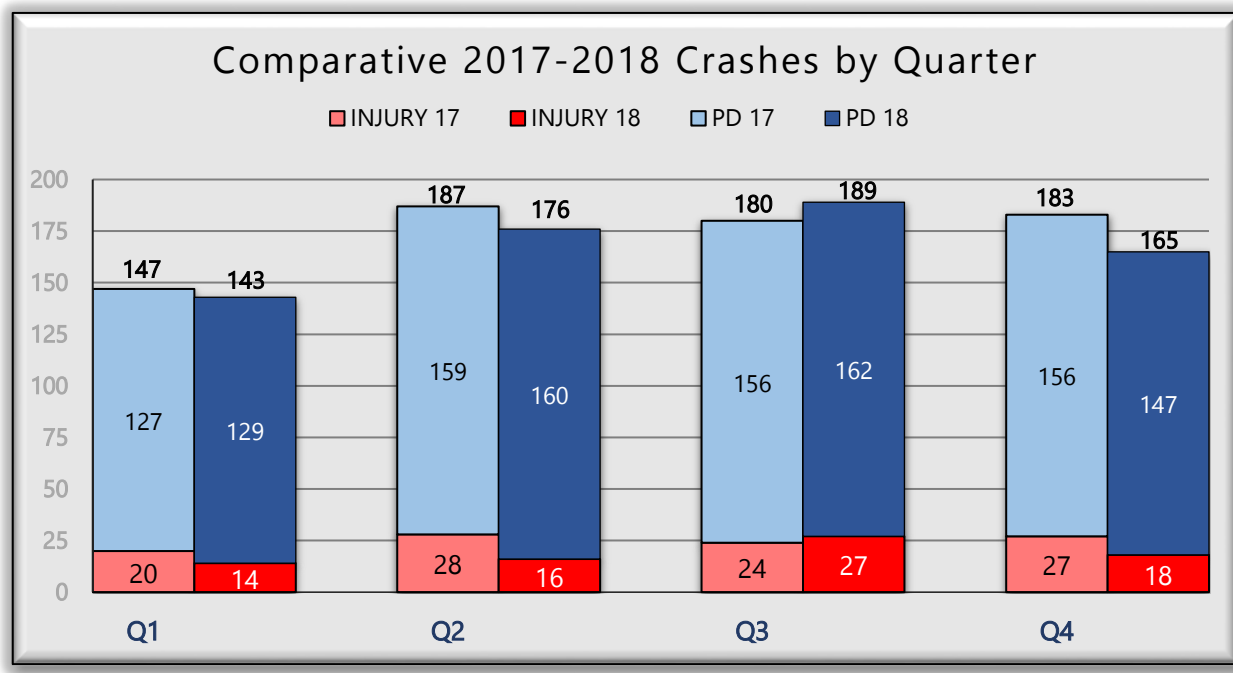Comparative 2017-2018 Crashes by Month
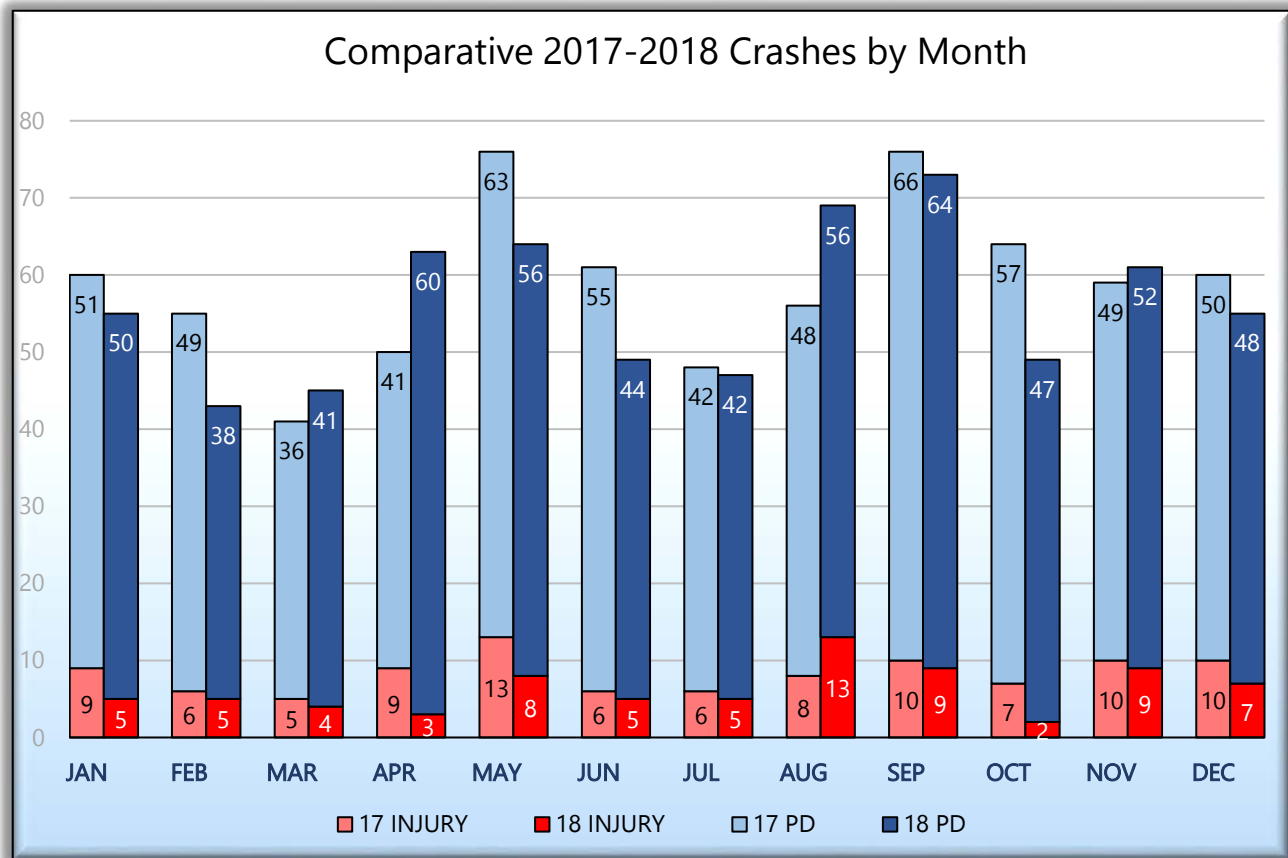
C.   CRASHES BY QUARTER

Reviewing crashes by quarter across the two years (Chart 2) indicates the highest number of crashes, at 189, took place during Q3 of 2018, barely edging out Q2 in 2017 with 187. As expected, due to weather conditions Q1 for both years provided the fewest number of total crashes.

Q2 in 2018 displayed more property damage crashes by 1 than Q2 2017, but due to a significant reduction in injury crashes of 43% and 12 fewer events, overall 2018 Q2 totals were lower than 2017. This was the most significant change in injury crashes of any of the eight quarters.

Q4 2018 provided the largest comparative quarterly drop of 9.8%, when compared to Q4 2017. Injury crashes decreased across three of the four comparative quarters. Q3 2018 provided the only comparative increase in injury crashes, with 3 more events, over 2017 quarterly totals.

CHART 2.

Comparative 2017-2018 Crashes by Quarter

INJURY 17   INJURY 18   PD 17   PD 18

	Q1	Q2	Q3	Q4
PD (top total)	147 / 143	187 / 176	180 / 189	183 / 165
PD middle	127 / 129	159 / 160	156 / 162	156 / 147
INJURY	20 / 14	28 / 16	24 / 27	27 / 18

D.   CRASHES BY PATROL BEAT

Providing information on the number and types of crashes per patrol beat informs patrol officers, who work rotating patrol beats, of overall beat activity levels. The following map (Map 1) provides a comparative look at crash levels within the four designated patrol beats over the past two years, while Table 2 provides a more in-depth look at the types of crashes occurring within each beat during 2018.

The comparative map overview reveals a decline in crash activity for 2018 in three of the four beats; only Beat 301 experienced an increase. Reviewing Beat 301 data for both years, discloses a 12.5% increase, primarily due to a significant uptick in private property crashes from 24 in 2017 to 52 in 2018. Three locations in Beat 301 provided the majority of this activity; Jewel grocery store parking lot, Lake Forest College lots and Lake Forest High School parking.

Beat 305 exhibited the highest crash volumes for both years, and historically does, due to Route 60, Route 41 and Route 43 (Waukegan Road), all traversing this beat. However, it also showed the greatest percentage of decline in comparative crash activity within the beat, at 8.7% for 2018.

MAP 1.

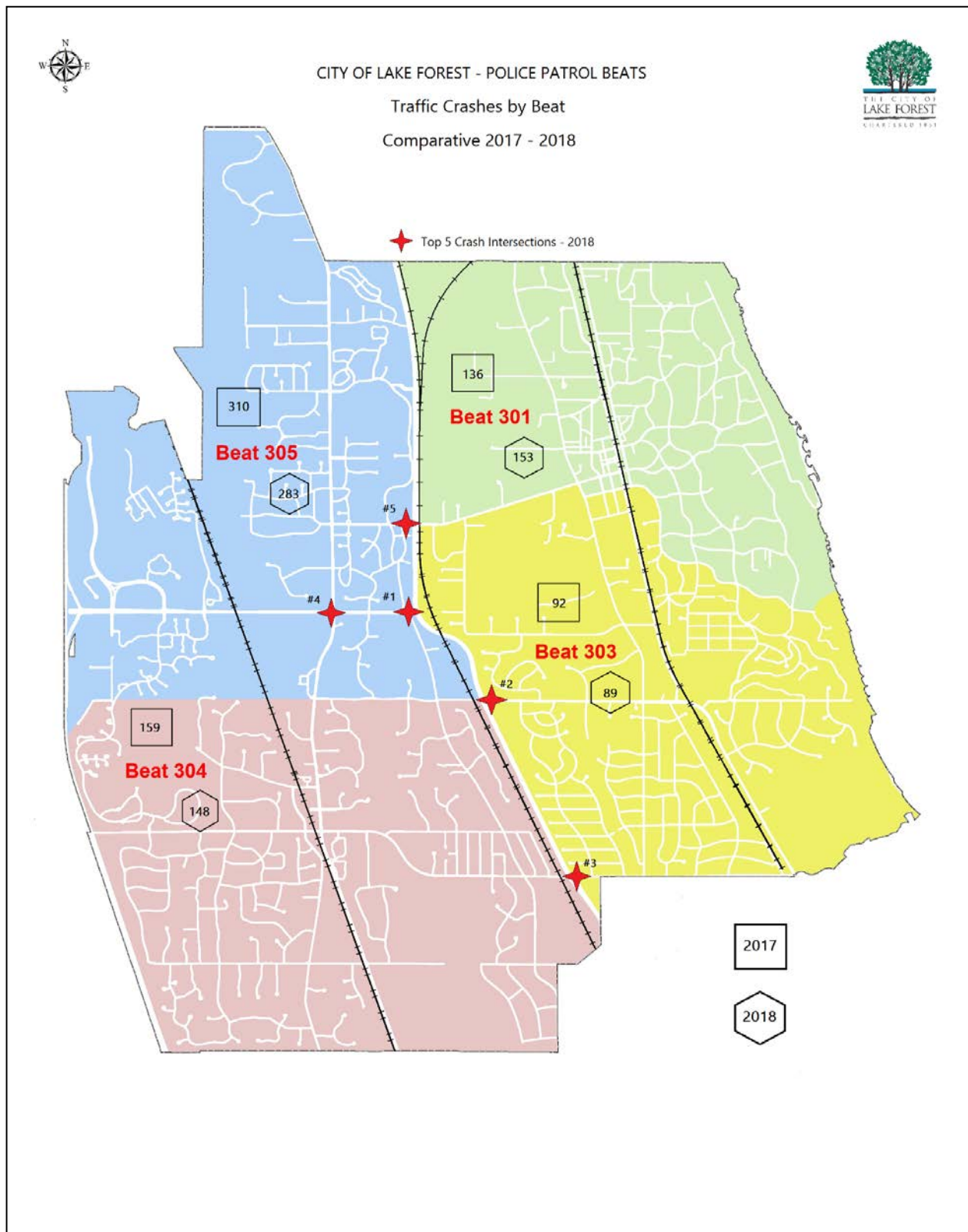CITY OF LAKE FOREST - POLICE PATROL BEATS

Traffic Crashes by Beat

Comparative 2017 - 2018

✦ Top 5 Crash Intersections - 2018

Beat 305

310

283

Beat 301

136

153

#5

#4 #1

92

Beat 303

89

#2

Beat 304

159

148

#3

2017

2018

TABLE 2.

2018 TOTAL CRASHES BY BEAT / INJURY / PERCENT				
BEAT/LOC	INJURY CLASS	TOTAL CRASHES	BEAT %	TOTAL %
301		**153**	**100.0%**	**22.7%**
ROAD	B	8	5.2%	1.2%
	C	4	2.6%	0.6%
	O	89	58.2%	13.2%
PRIV	A	1	0.7%	0.1%
	O	51	33.3%	7.6%
303		**89**	**100.0%**	**13.2%**
ROAD	B	6	6.7%	0.9%
	C	7	7.9%	1.0%
	O	55	61.8%	8.2%
PRIV	O	21	23.6%	3.1%
304		**148**	**100.0%**	**22.0%**
ROAD	A	2	1.4%	0.3%
	B	10	6.8%	1.5%
	C	7	4.7%	1.0%
	O	97	65.5%	14.4%
PRIV	O	32	21.6%	4.8%
305		**283**	**100.0%**	**42.1%**
ROAD	B	12	4.2%	1.8%
	C	17	6.0%	2.5%
	O	211	74.6%	31.4%
PRIV	C	1	0.4%	0.1%
	O	42	14.8%	6.2%
Grand Total		673		100.0%

Table 2 provides an in-depth review of the types of crashes occurring within each beat during 2018, and compares percentages across city-wide totals.

The largest number of crashes occurred in Beat 305 which accounted for 42% of all 2018 crashes city-wide, slightly down from 44% in 2017, when it also came in first.

Characterizing injury crashes, Beat 303 with the lowest number of total crashes (89), showed the highest percentage of injury crashes (Types A, B, C) at 14.6%. Beat 304 was second at 12.9%, while also exhibiting two of the three city-wide Type A serious injury crashes.

Reviewing the two injury crash Types A and B in combination, we see Beats 304 and 305 tied with 12 events apiece. Beat 305 revealed a significant injury decline of 68% when compared to 2017 data when 38 Type A and B crashes occurred.

Due to an uptick in private property crashes during 2018, a review was undertaken. Every beat displayed an increase in this crash type ranging from 3 to 28 additional events between 2017 and 2018 data. The greatest growth in 2018 came from Beat 301 with an upsurge of 116%, increasing from 24 to 52 private property crashes.

E.   CRASHES BY DAY OF WEEK

Based on normal traffic patterns across the year, it is no surprise that weekdays provide both the highest number of total and injury crashes as revealed in Chart 3. During 2018 each weekday averaged 112.0 crashes annually, while weekend days averaged 56.5 crashes. This compares to 2017 which averaged 114.8 crashes per weekday and 61.5 per weekend day.

CHART 3.

Comparative 2017-2018 Crashes by Day of Week
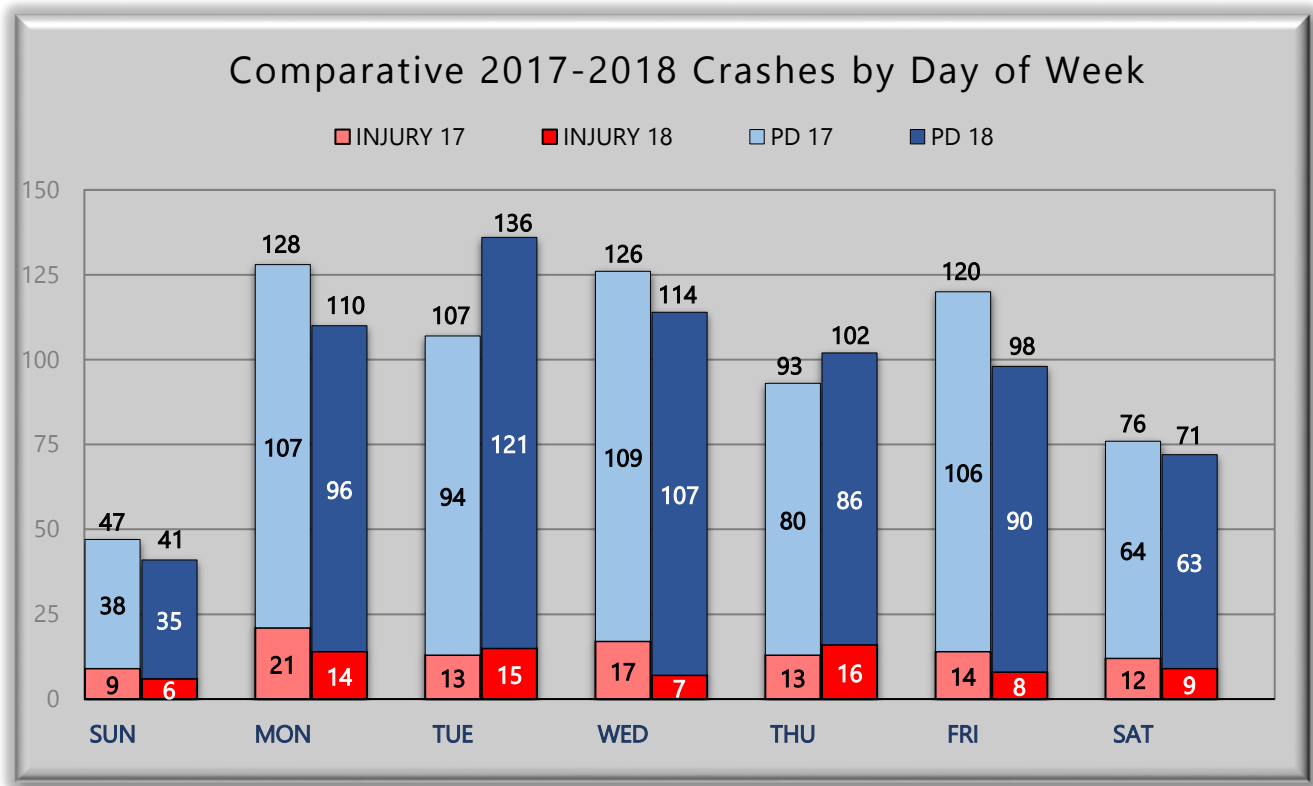
During 2018, Tuesdays, with 20.2% of all crashes was the busiest day of the week, while Mondays with 18.4% was the busiest during 2017. Sundays, at the low end for both years, provided 6.0% of all 2018 crashes and 6.7% in 2017. During 2018 Thursday exhibited the highest percentage of injury crashes (16) at 15.6% relative to total crashes (102). Sundays at 19.1% were the highest during 2017 in this comparative category with 9 injury crashes across 47 events.

F. CRASHES BY HOUR OF DAY

It is not a surprise that morning and evening rush hour times typically exhibit the highest crash numbers; this was the case for both 2017 and 2018. Coincidentally, both years displayed three morning or evening hourly time slots and one lunch time slot as their top four times. Chart 4, depicts the top four 2018 hourly totals in red.

While 4 hours within a 24 hour day accounts for 16.7% of the entire day, the combined top four crash event hours during 2018, provided 36% of the 673 crashes with 245 events. In order of frequency they were 3pm, 4pm, 8am and 1pm

During 2018 the overnight hours of 11pm to 4:59am provide only single digit crash events each hour, except for midnight, with an interesting spike in crashes between 12am and 12:59am revealing 23 events.

CHART 4.

2018 Crashes by Hour of Day
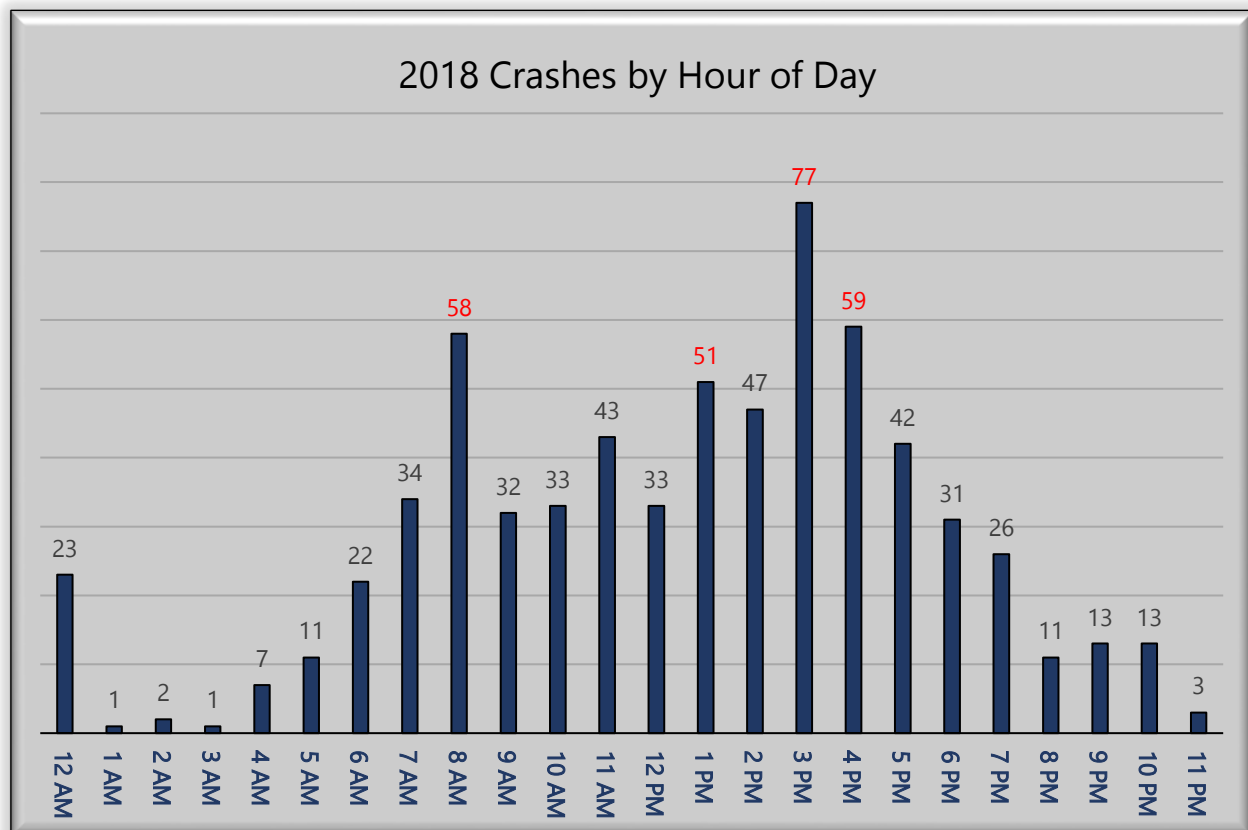
Comparatively, during 2017 the four peak crash times in order were 5pm, 8am, 11am and 4pm, with a combined 247 crashes accounting for 35% of the 697 crashes. No spike in crashes occurred during the overnight hours of 11pm to 4:59am for 2017.

G.   CRASHES BY PATROL SHIFT OF OCCURRENCE

The patrol division is staffed 24 hours per day, every day of the year. Patrol shifts are 8.25 hours in length with 3 shifts each day. Dayshift runs 6:45am to 3pm, with afternoon shift covering 2:45pm to 11pm and midnight shift handling 10:45pm to 7am. The overlap between shifts provides for roll call informational briefings to be conducted while street coverage is maintained.

Table 3 provides a quick comparison of crash event levels among the three shifts, across the last two years. The order of greatest number of crashes (dayshift) to least crash activity (midnight shift) remained the same across both years.

2017 totals revealed dayshift handled 363 crashes with midnight's recording 36. Crashes for 2018 showed a variance from a high of 331 events on dayshift to a low of 70 crashes on midnight shift. Midnight shift revealed the greatest level of change with a 94% activity increase from 2017 to 2018 with 34 additional crashes during 2018.

TABLE 3.	Patrol Shifts	Times	Number of Crashes	Percentage of Crashes
2017 (697)	Midnight shift	22:45 – 07:00	36	5.2%
	Day shift	06:45 – 15:00	363	52.1%
	Afternoon shift	14:45 – 23:00	298	42.8%
2018 (673)	Midnight shift	22:45 – 07:00	70	10.4%
	Day shift	06:45 – 15:00	331	49.2%
	Afternoon shift	14:45 – 23:00	272	40.4%

Reviewing specifically Type A and B injury crashes during 2018, all three Type A crashes took place on Afternoon shift. Of the 36 Type B injury crashes: 15 took place on Day shift, 14 occurred on Afternoons and the remaining 7 were on Midnight shift.

There were 10 total Type A injury crashes during 2017 with 6 occurring on Day shift and 4 on Afternoons. The 48 Type B injury crashes revealed: 28 on Day shift, 18 on Afternoons and 2 on Midnight shift.

H. CRASHES BY COLLISION TYPE

During 2018, 14 of the 15 Illinois Department of Transportation Collision Type codes were utilized to describe crash incidents in Lake Forest; the only code not utilized was *train*. The purpose of the 15 IDOT collision type codes is to identify what type of event caused the first damage or injury in a crash. This code is more easily understood as a factor involving the vehicle or conveyance contact.

Table 4 reveals *rear end* crashes (252) as the most prolific collision type in the city, accounting for 37.4% of all incidents. This is relatively consistent with 2017 statistics when 308 *rear end* crashes, accounting for 44.1% of all city-wide crashes were reported. Data from the National Highway Traffic Safety Administration (NHTSA) indicates 28%-32% of all collisions nationally are rear end crashes.

City-wide the three Type A serious injury crashes were: *head-on, pedestrian* and *rear end* collision.

TABLE 4. COLLISION TYPES 2018

COLLISION TYPE	INJURY TYPE				TOTAL
	A	B	C	O	
Angle		3	6	89	98
Animal		2		8	10
Fixed Object		4	1	58	63
Head on	1	1	1	9	12
Other Non-Collision				9	9
Other Object		1		12	13
Overturned		1		1	2
Parked Motor Vehicle				72	72
Pedalcyclist		3		1	4
Pedestrian	1	3	1		5
Rear End	1	13	20	218	252
Sideswipe opposite dir.		1	1	20	22
Sideswipe same dir.		2	3	56	61
Turning		2	3	45	50
GRAND TOTAL	3	36	36	598	673

Aggregating the most frequently occurring top three collision types (in red) of *rear end, angle* and *parked motor vehicle*, discloses they are responsible for 62.7% of all crashes. When you observe there were zero injuries as a result of *parked motor vehicle* collisions, we see that 57.3% of all injury crashes are a result of the top two collision codes of *rear end* and *angle*.

Overall 2017 top three collision type data mirrors 2018 data, in the same order: *rear end* (308), *angle* (98) and *parked motor vehicle* (71). These three collision types were responsible for 68.4% of all 2017 crashes (697) and 55.6% of all injury crashes (99).

I.   CRASHES BY CONTRIBUTORY CAUSE

The Contributory Cause code table provided by IDOT currently contains 38 codes of which 32 were utilized in Lake Forest crashes. These codes identify which element was most significant in causing the crash as determined by driver and witness statements, officer investigation and evidence. This code is more generally understood as a factor involving driver actions or issues faced.

During 2018 the top three collision types, in red, were: *failure to reduce speed to avoid a crash* (173), *improper backing* (90) and *failure to yield the right-of-way* (70). These three contributory causes accounted for 49.5% of crashes city-wide.

Results from 2017 crash data mirrored the 2018 top three contributory causes in the same order. However, their collective percentage of city-wide crashes came in at 54.5% of the total.

None of the other contributory causes, for either year, reached double digit percentages. *Improper lane use and following too closely* came in fourth and fifth for both years, when the *unable to determine* code was removed.

For 2018, combining the three contributory causes which are vehicle speed related - *exceeding speed limit, failure to reduce speed to avoid a crash* and *too fast for conditions* – shows a 27.6% occurrence rate. This is a drop from 2017 crash data which produced a 32.9% occurrence rate for the same three speeding causes.

TABLE 5. CONTRIBUTORY CAUSES 2018

CONTRIBUTORY CAUSE	Number	Percent
Animal	10	1.5%
Cellphone-not texting	4	0.6%
Disregard other traffic signs	2	0.3%
Disregard stop sign	4	0.6%
Disregard traffic signals	16	2.4%
Distraction-inside vehicle	15	2.2%
Distraction-outside vehicle	3	0.4%
Driver skills/knowledge/ability	23	3.4%
Driving wrong side/way	2	0.3%
DUI-alcohol/drugs	7	1.0%
Equipment-veh. condition	13	1.9%
Evasive act-due to animal, etc.	2	0.3%
Exceeding speed limit	2	0.3%
Fail reduce speed avoid crash	173	25.7%
Fail yield right of way	70	10.4%
Follow too closely	30	4.5%
Improper backing	90	13.4%
Improper lane use	48	7.1%
Improper passing	6	0.9%
Improper turn-no signal	29	4.3%
Not applicable	14	2.1%
Operate veh-reckless,careless	3	0.4%
Pass stopped school bus	1	0.1%
Physical condition of driver	7	1.0%
Right turn on red	1	0.1%
Road construct/maintain.	2	0.3%
Road engineering/defects	11	1.6%
Texting	1	0.1%
Too fast for conditions	11	1.6%
Unable to determine	43	6.4%
Vision obscure-signs, limbs, etc	3	0.4%
Weather	27	4.0%
GRAND TOTAL	673	100.0%

III. TOP CRASH LOCATIONS

A. OVERVIEW TOP CRASH LOCATIONS

Traffic data provides a plethora of detail for analysis and discussion, but data that is actionable is highly valuable to the four E's of traffic safety: education, engineering, enforcement and EMS. Knowledge of roadway intersection events provides law enforcement, the motoring public and roadway engineers the opportunity to positively affect outcomes.

Identifying the top ten crash hotspots and providing the ranking changes across two years of data allows officers to focus attention on areas in need of traffic calming and enforcement. Looking more in depth at the data of the top five crash intersections (TFCI) provides more specific direction for interdiction efforts.

B. COMPARATIVE TOP TEN CRASH INTERSECTIONS: 2017 & 2018

Table 6 provides a review and comparison of the top ten crash locations for both 2017 and 2018, ranked by total number of crashes. The number of those crashes that involved any injury (Types A, B, C) are also tabulated.

TABLE 6. COMPARATIVE TOP TEN INTERSECTIONS: 2017-2018

2017 INTERSECTION	Total Crashes	Injury Crashes	RANK	2018 INTERSECTION	Total Crashes	Injury Crashes
RT 41 / RT 60	86	20	1	RT 41 / RT 60	57	4
RT 41 / Old Elm	58	6	2	RT 41 / Westleigh	46	7
RT 60 / RT 43	32	7	3	RT 41 / Old Elm	43	8
RT 41 / Westleigh	29	9	4	RT 60 / RT 43	29	8
RT 41 / Deerpath	28	8	5	RT 41 / Deerpath	26	3
RT 43 / Deerpath	18	5	6	RT 43 / Everett	17	3
RT 60 / Field Dr.	17	2	7	RT 60 / I-94	16	1
RT 41 / Gage Ln.	15	1	8	Deerpath / Western	13	1
RT 43 / Everett	13	2	9	RT 43 / Deerpath	11	0
RT 60 / I-94	11	1	10	Deerpath / Green Bay	10	2
			10	RT 176 / RT 43	10	0
% of ALL crashes	44.0%	61.6%		% of ALL crashes	39.8%	49.3%

Comparing the two years, we see that the top ten crash intersections in 2017 accounted for 44% of the 697 total crashes, while in 2018 they accounted for 39.8% of the 673 events. The top five crash intersections remained the same for both years, however positions changed for the second, third and fourth ranked locations, while one and five remained in the same order. Ranked locations six through ten, changed across the two years by ranking, inclusion or exclusion, although the numerical totals were relatively consistent for each of the ranked locations across the two years.

The number one ranked intersection of Route 41 and Route 60 showed the greatest decline in total crashes (29) and total injuries (16). The greatest increase was observed at Route 41 and Westleigh which climbed (17) in total crashes, but decreased (2) in injury crashes.

C.   DETAILED TOP FIVE CRASH INTERSECTIONS (TFCI): 2018

A useful intersection evaluation tool is to look at the volume of traffic traversing it on a daily basis. "Intersection counts are used for timing traffic signals, designing channelization, planning turn prohibitions, computing capacity, analyzing high crash intersections and evaluating congestion" (Homburger, et. al. 1996. Volume Studies and Characteristics: In Fundamentals of Traffic Engineering. Berkeley: Institute of Transportation Studies, University of California, Berkeley). Regionally, the Illinois Department of Transportation provides on-line *Average Daily Traffic Count* maps on their website for these purposes.

The *Detailed Top Five Crash Intersections* (TFCI) analysis reviews data from all crash reports taken during 2018, then compiles those five intersections with the highest number of crashes. The data is then aggregated with additional sources to produce the below listed data sets and rankings for each intersection. Each of the five intersections will display the following data sets:

- Google maps intersection photo
- IDOT average daily traffic volume
- Total intersection crashes
- Crash rate per million vehicles*
- Property damage crashes (Type O)

- All injury crashes (Types A, B, C)
- Serious injury crashes (Type A)
- Serious injury crash rate per million vehicles*
- Crash direction
- Collision type

[Crash rate per million entering vehicles is a statistical tool utilized by the U.S. Department of Transportation, Federal Highway Administration. It provides a national numeric baseline comparison for crashes among various locations expressed as a common unit of exposure (i.e., crash rate per million vehicles)].
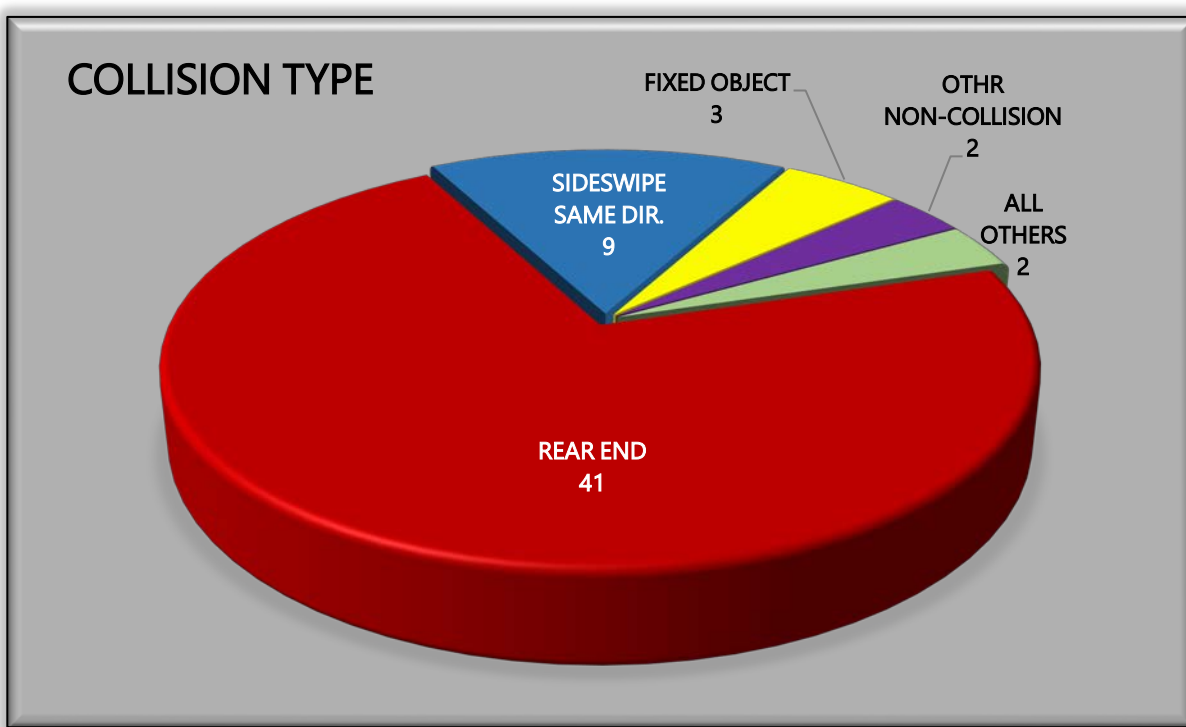
TOP CRASH INTERSECTION (#1)	ROUTE 41 / ROUTE 60

ACTIVITY	2018 DATA	TFCI RANK*
IDOT Average Daily Traffic Volume	49,700 vehicles	3
12 Month Traffic Volume	18,140,500 vehicles	3
2018 TOTAL CRASHES	57	1
Crash Rate per million vehicles	3.14	1
Property Damage Only Crashes (Type O)	53	1
Property Damage Crash Percentage	93%	1
All Injury Crashes (Type A, B, C)	4	4
All Injuries Crash Percentage	7%	5
Serious Injury Crashes (Type A)	0	-
Serious Injury Crash Percentage	0%	-
Serious Injury Crash Rate per million vehicles	0.00	-

(*TFCI Rank: 1-5 ranking, with 1 being highest number or percentage of events and 5 being the lowest. T indicates ties.)

OBSERVATIONS: Based on traffic volumes compared to the number of crashes, the 2018 crash rate per million vehicles (3.14) and serious injury crash rate per million vehicles (0.00) were significantly lower than the 2017 data of 4.86 and 0.62 respectively. This intersection remained the top crash location in volume for both 2017 and 2018, but displayed a drop of 33.7% in total crashes, down from 86 to 57 incidents. All injury crashes were down 80.0% falling from 20 to 4 across the two years. Serious injury (Type A) events went from two in 2017 to zero in 2018.

CRASH DIRECTION	CRASHES	PERCENTAGE
EB RT 60	24	42%
SB RT 41	19	33%
NB RT 41	13	23%
WB RT 60	1	2%

This is the only T-intersection in the TFCI group. Combining eastbound Route 60 with southbound Route 41 accounts for 75.4% of all crashes at this location.

Rear end collisions accounted for 71.9% of all crashes, with *sideswipe same direction* a distant second at 15.8% of crashes. These two collision codes mirrored the top two events at this intersection from 2017 crash data.
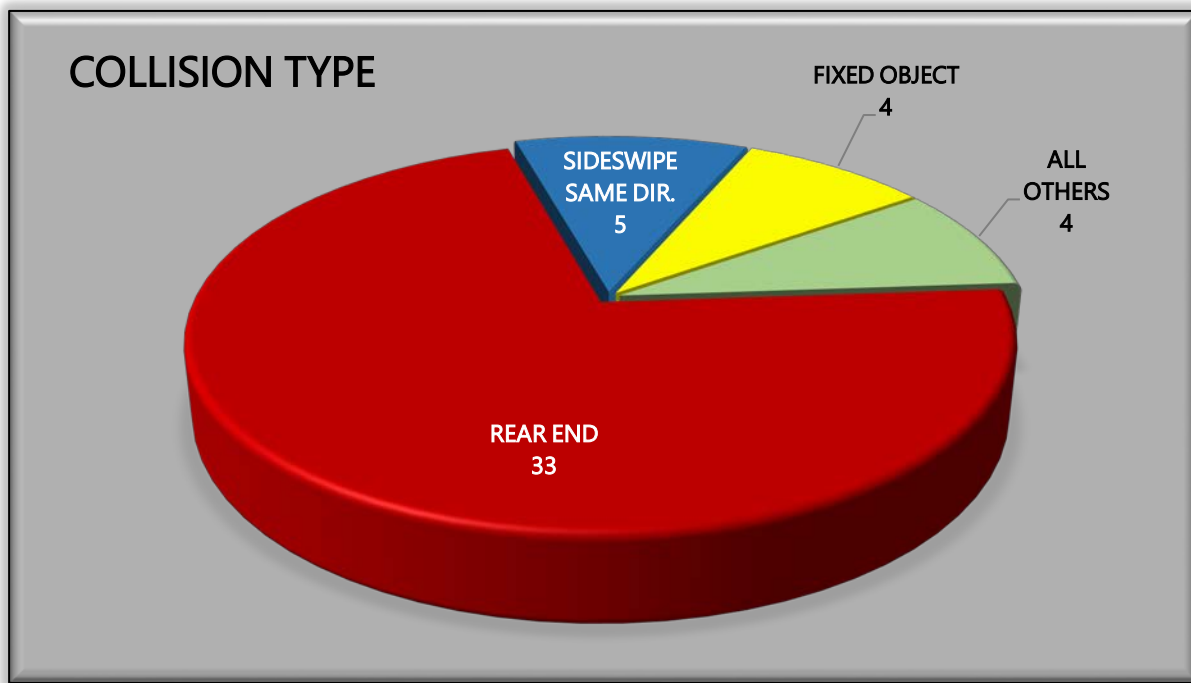
TOP CRASH INTERSECTION (#2)	ROUTE 41 / WESTLEIGH

ACTIVITY	2018 DATA	TFCI RANK*
IDOT Average Daily Traffic Volume	46,925 vehicles	4
12 Month Traffic Volume	17,127,625 vehicles	4
2018 TOTAL CRASHES	46	2
Crash Rate per million vehicles	2.69	2
Property Damage Only Crashes (Type O)	39	2
Property Damage Crash Percentage	85%	3
All Injury Crashes (Type A, B, C)	7	3
All Injuries Crash Percentage	15%	3
Serious Injury Crashes (Type A)	0	-
Serious Injury Crash Percentage	0%	-
Serious Injury Crash Rate per million vehicles	0.00	-

(*TFCI Rank: 1-5 ranking, with 1 being highest number or percentage of events and 5 being the lowest. T indicates ties.)

OBSERVATIONS: This location is a more complex four-way intersection which adds a bicycle path and railroad grade crossing at the west quadrant. This location was ranked fourth during 2017, moving up two spots in 2018 with 17 additional crashes. However, there were two fewer injury crashes overall, and no reported serious injury crashes with the increased activity levels.

CRASH DIRECTION	CRASHES	PERCENTAGE
NB RT 41	28	61%
SB RT 41	8	17%
WB WESTLEIGH	8	17%
EB WESTLEIGH	2	4%

Northbound Route 41 surpassed the other three quadrants combined in crash volume.

COLLISION TYPE

FIXED OBJECT
4

SIDESWIPE
SAME DIR.
5

ALL
OTHERS
4

REAR END
33

As with all of our TFCI locations, *rear end* crashes were the prevalent event accounting for 71.7% of collisions. *Sideswipe same direction* was the second most prolific action, but again was a very distant second with 10.9% of activity.
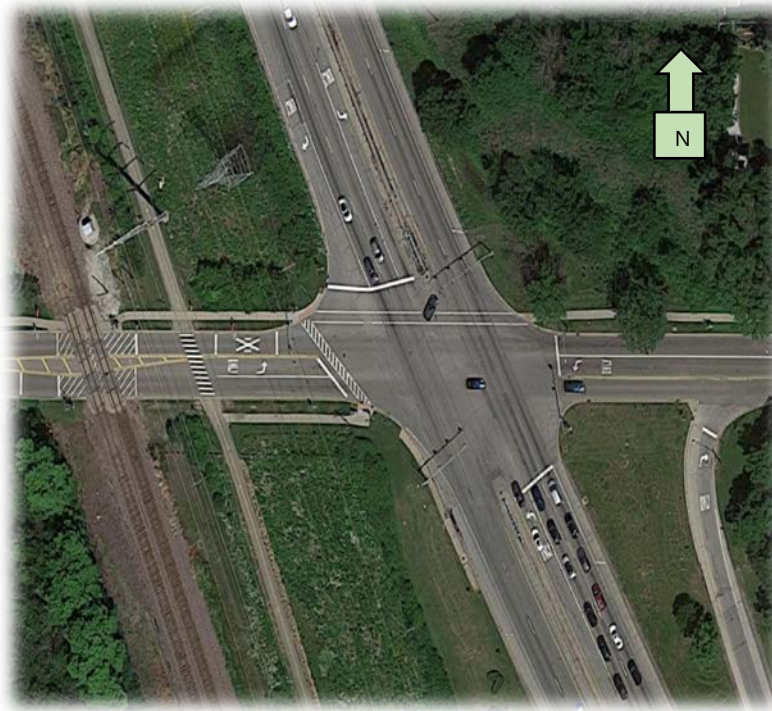
ACTIVITY	2018 DATA	TFCI RANK*
IDOT Average Daily Traffic Volume	50,250 vehicles	2
12 Month Traffic Volume	18,341,250 vehicles	2
2018 TOTAL CRASHES	43	3
Crash Rate per million vehicles	2.34	3
Property Damage Only Crashes (Type O)	35	3
Property Damage Crash Percentage	81%	4
All Injury Crashes (Type A, B, C)	8	T1
All Injuries Crash Percentage	19%	2
Serious Injury Crashes (Type A)	1	1
Serious Injury Crash Percentage	2%	1
Serious Injury Crash Rate per million vehicles	0.05	1

(*TFCI Rank: 1-5 ranking, with 1 being highest number or percentage of events and 5 being the lowest. T indicates ties.)

OBSERVATIONS: This location is another complex four-way intersection which adds a bicycle path and railroad grade crossing at the west quadrant, and a northbound off-ramp at the east quadrant. This location was ranked second during 2017, moving down one spot in 2018 with 15 fewer crashes. There were two additional injury crashes overall, tying this location for first in all injury crashes at eight. There was one reported serious injury (Type A) crash.

CRASH DIRECTION	CRASHES	PERCENTAGE
SB RT 41	25	58%
NB RT 41	12	28%
WB OLD ELM	4	9%
EB OLD ELM	2	5%

Route 41 traffic accounted for 86% of the collisions at this intersection.
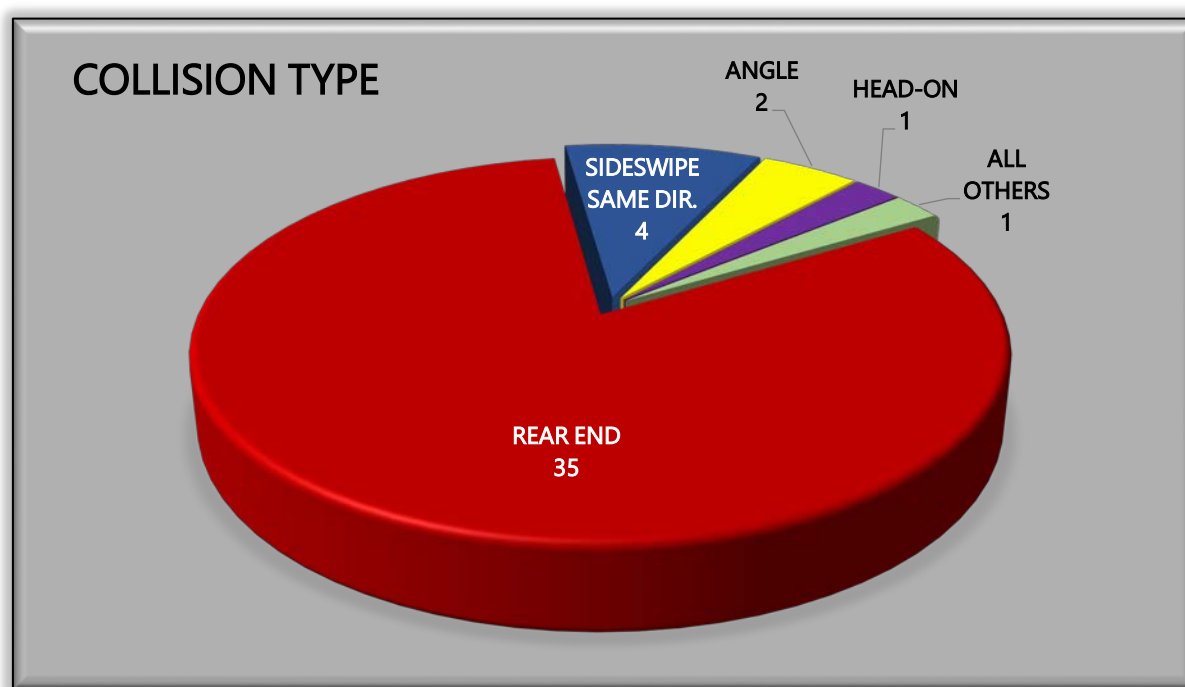
Rear end collisions accounted for 81.4% of the crashes, the highest single collision type code percentage of any of the five top five crash intersections. The singular *head-on* collision occurring at this intersection resulted in a minor (Type C) injury, while the one serious (Type A) injury was the result of a *rear end* crash. *Sideswipe same direction* again came in second with 9.3% of events.

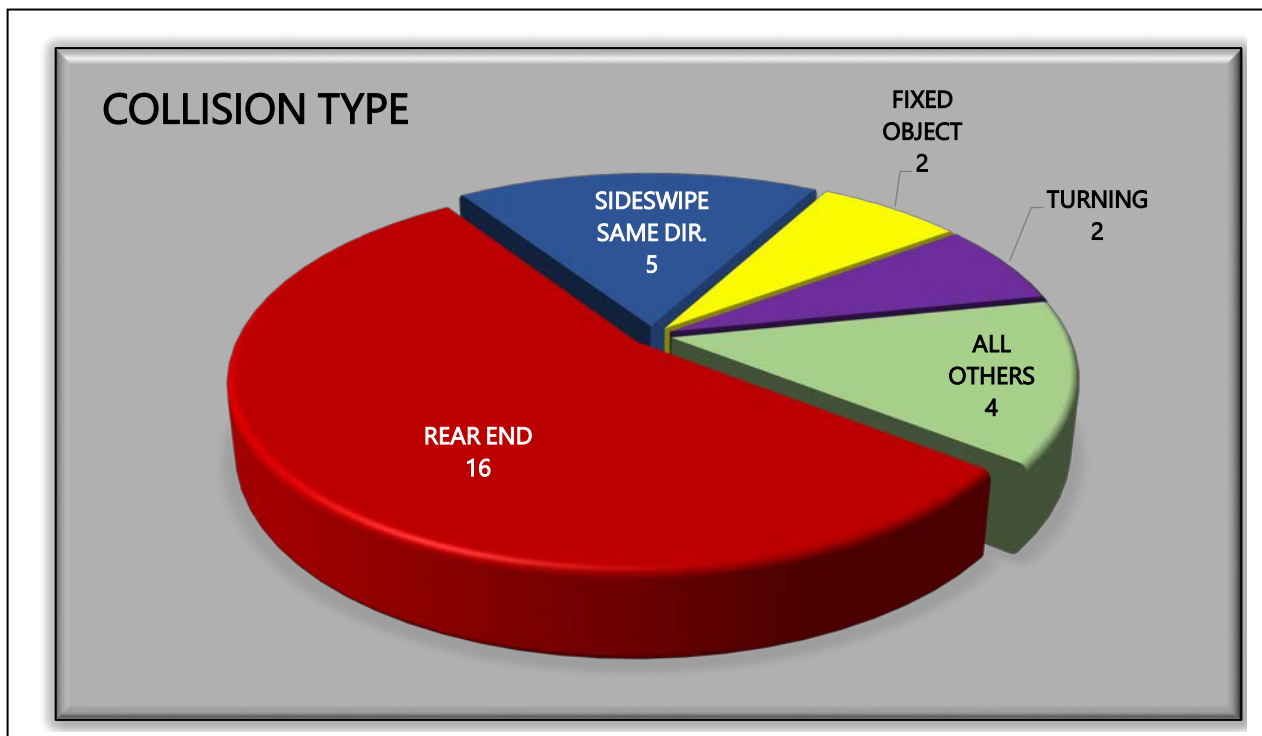| TOP CRASH INTERSECTION (#4)	ROUTE 60 / ROUTE 43 (Waukegan)
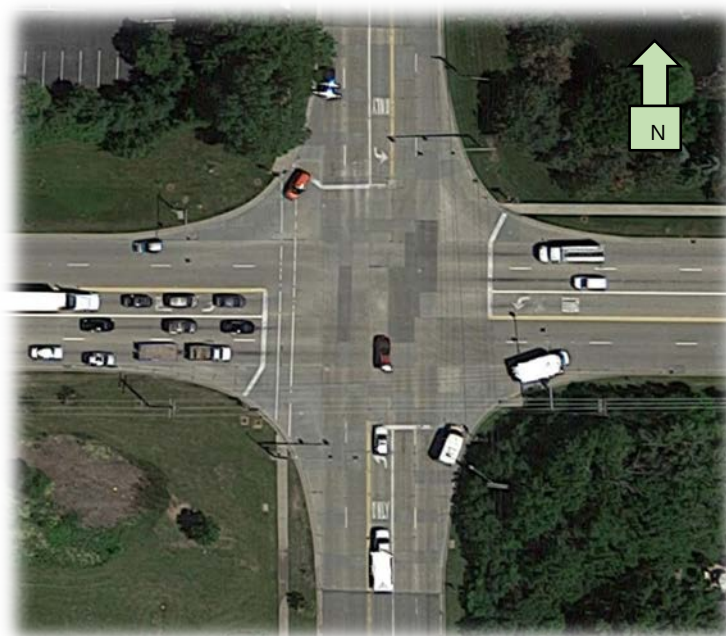
ACTIVITY	2018 DATA	TFCI RANK*
IDOT Average Daily Traffic Volume	38,850 vehicles	5
12 Month Traffic Volume	14,180,250 vehicles	5
2018 TOTAL CRASHES	29	4
Crash Rate per million vehicles	2.04	4
Property Damage Only Crashes (Type O)	21	5
Property Damage Crash Percentage	72%	5
All Injury Crashes (Type A, B, C)	8	T1
All Injuries Crash Percentage	28%	1
Serious Injury Crashes (Type A)	0	-
Serious Injury Crash Percentage	0%	-
Serious Injury Crash Rate per million vehicles	0.00	-

*(*TFCI Rank: 1-5 ranking, with 1 being highest number or percentage of events and 5 being the lowest. T indicates ties.)*

OBSERVATIONS: Ranking last in traffic volume, this is the only TFCI with a standard four way intersection configuration and no Route 41 component. It dropped one ranking from third to fourth for 2018, while also showing a decrease of 3 crashes. Although this location tied for first in the all injury crashes classification for number of injury crashes, with Route 41 and Old Elm, the eight injury crashes revealed two Type B and six minor Type C events. The percentage of injury crashes at 28% was the highest of the TFCI locations.

| CRASH DIRECTION	CRASHES	PERCENTAGE
WB RT 60	9	31%
SB RT 43	9	31%
EB RT 60	7	24%
NB RT 43	4	14%

The near equity of crashes at three of the four intersection quadrants is not duplicated at any of the other TFCI locations.

COLLISION TYPE

FIXED OBJECT 2

TURNING 2

SIDESWIPE SAME DIR. 5

ALL OTHERS 4

REAR END 16

The main collision type of *rear end* exhibited a 55.2% occurrence. For the fourth time in a row, *sideswipe same direction* came in second, with 17.2% of crashes. Of the eight reported injury crashes, six were minor (Type C) injuries and two were Type B collisions. The collision types of *head-on* and *rear end* were involved in the Type B injury incidents.

TOP CRASH INTERSECTION (#5)	ROUTE 41 / DEERPATH
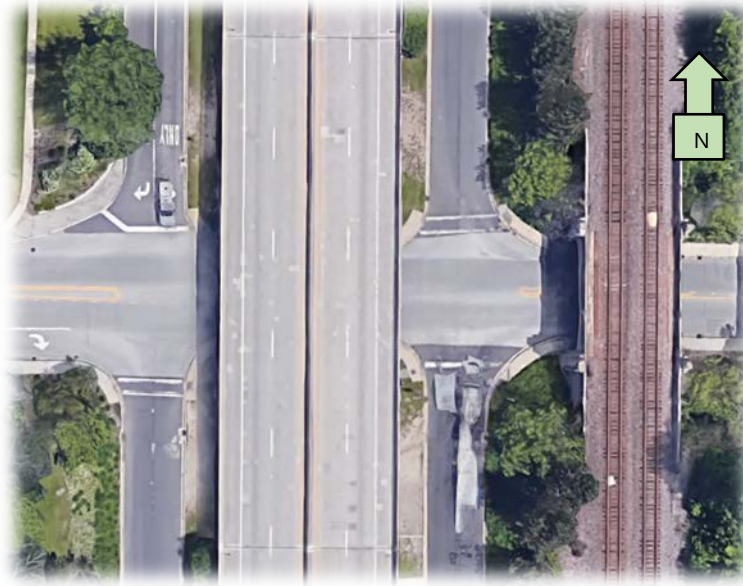
ACTIVITY	2018 DATA	TFCI RANK*
IDOT Average Daily Traffic Volume	54,300 vehicles	1
12 Month Traffic Volume	19,819,500 vehicles	1
2018 TOTAL CRASHES	**26**	**5**
Crash Rate per million vehicles	1.31	5
Property Damage Only Crashes (Type O)	23	4
Property Damage Crash Percentage	88%	2
All Injury Crashes (Type A, B, C)	3	5
All Injuries Crash Percentage	12%	4
Serious Injury Crashes (Type A)	0	-
Serious Injury Crash Percentage	0%	-
Serious Injury Crash Rate per million vehicles	0.00	-

*(*TFCI Rank: 1-5 ranking, with 1 being highest number or percentage of events and 5 being the lowest. T indicates ties.)*

OBSERVATIONS: Ranking first in traffic volume, this is the only TFCI with multiple surface and elevated intersection segments, a parallel elevated railroad section and multiple on and off ramps. It maintained its ranking at five for both years, while exhibiting a decrease of two events from 2017 totals. This location also ranked last in TFCI injury crashes, however all three were Type B injury collisions.

CRASH DIRECTION	CRASHES	PERCENTAGE
NB RT 41	10	38%
SB RT 41	7	27%
WB DEERPATH	5	19%
EB DEERPATH	4	15%

Route 41 accounted for 65% of all crashes and all three Type B injury collisions.

COLLISION TYPE

FIXED OBJECT 8
SIDESWIPE SAME DIR. 3
ANGLE 2
REAR END 10
ALL OTHERS 3
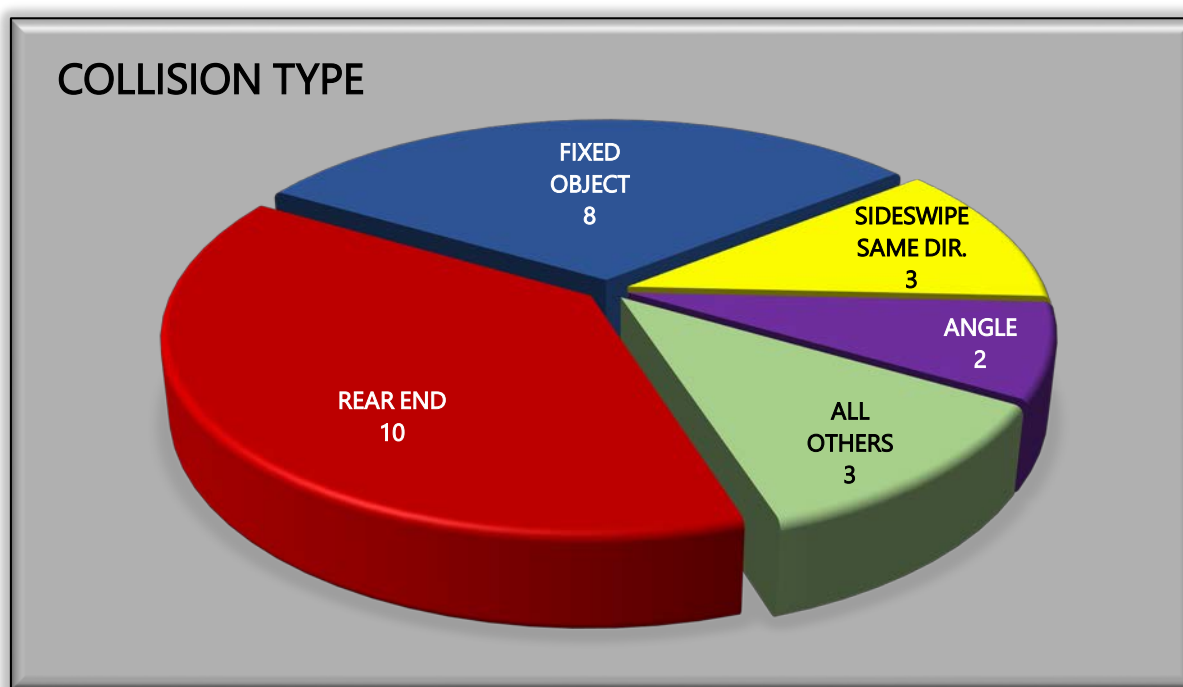
Rear end collisions accounted for 38.5% of crashes, the lowest primary collision type code percentage of any of the TFCI locations. This is the only TFCI where a different collision type ranked second, *fixed object,* instead of *sideswipe same direction*. *Fixed object* crashes accounted for 30.8% of crashes at this TFCI.

The top three collision types each accounted for one of the three Type B injury incidents; *rear end, fixed object* and *sideswipe same direction*.