

# SAFETY PERFORMANCE MEASURES: 2018



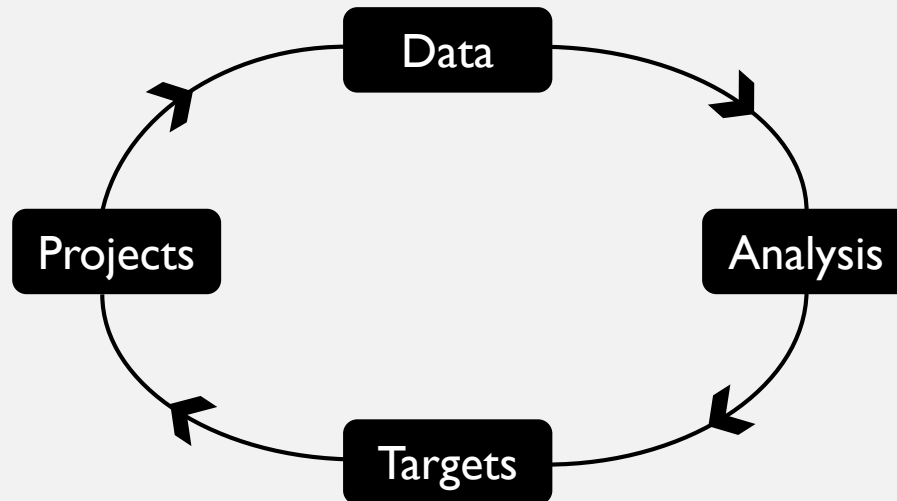
# FHWA'S 5 SAFETY PERFORMANCE MEASURES

## Regional 5-Year Rolling Averages of:

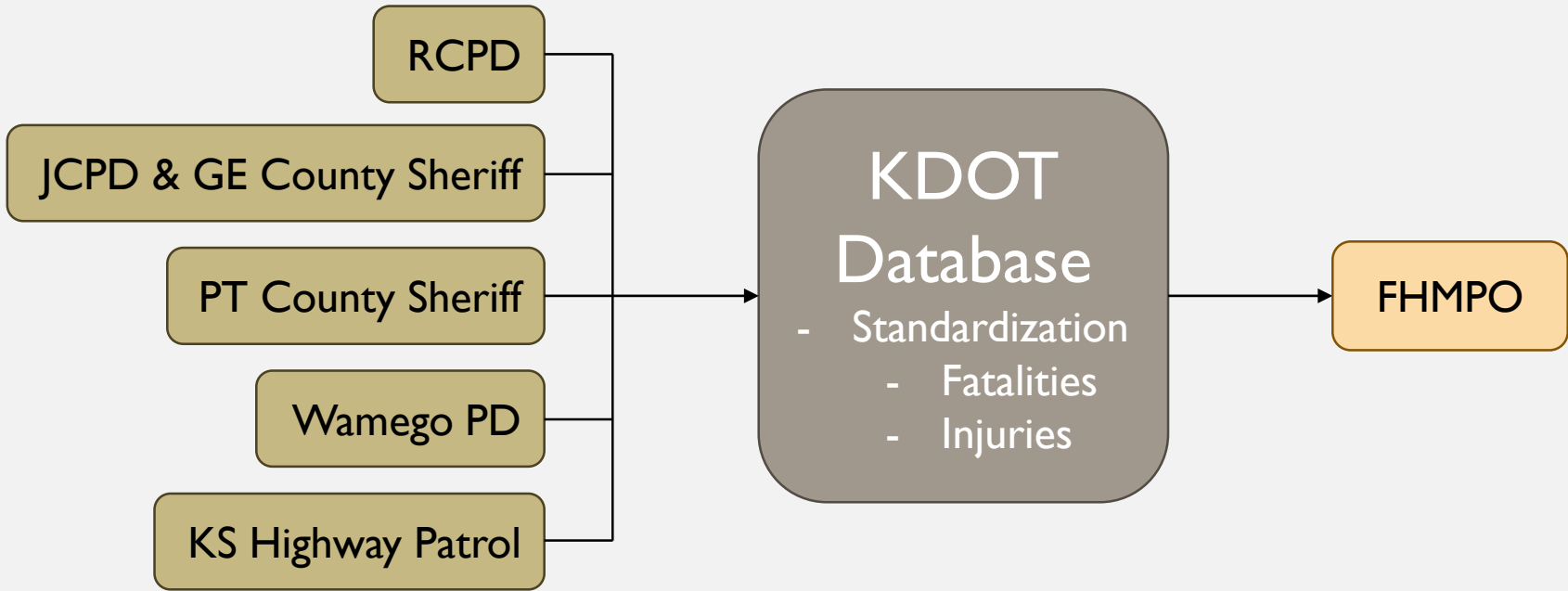
- 1 Number of Fatalities
- 2 Rate of Fatalities per 100 million VMT (Vehicle Miles Traveled)
- 3 Number of Serious Injuries
- 4 Rate of Serious Injuries per 100 million VMT
- 5 Number of Non-motorized Fatalities & Non-motorized Serious Injuries

# DATA DRIVEN

- Based on the 5-Year Avgs, we must set annual Safety Targets for each Performance Measure.
- Data drives >>>> safer transportation system.

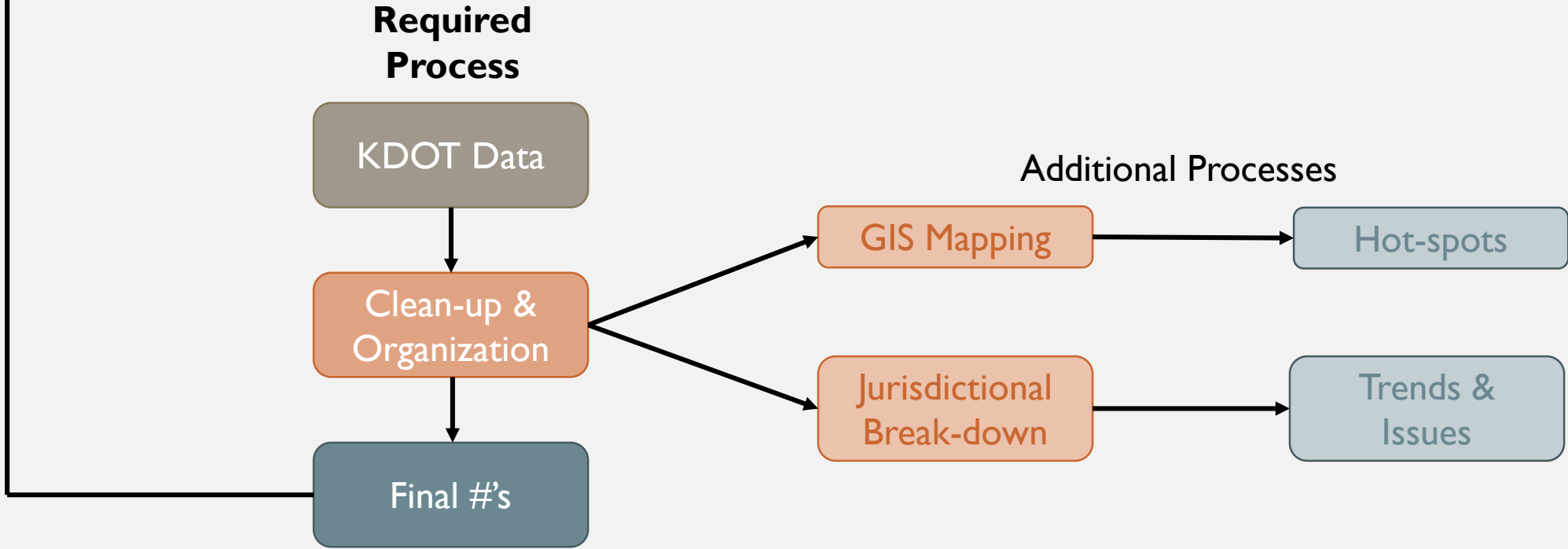


# DATA FLOW



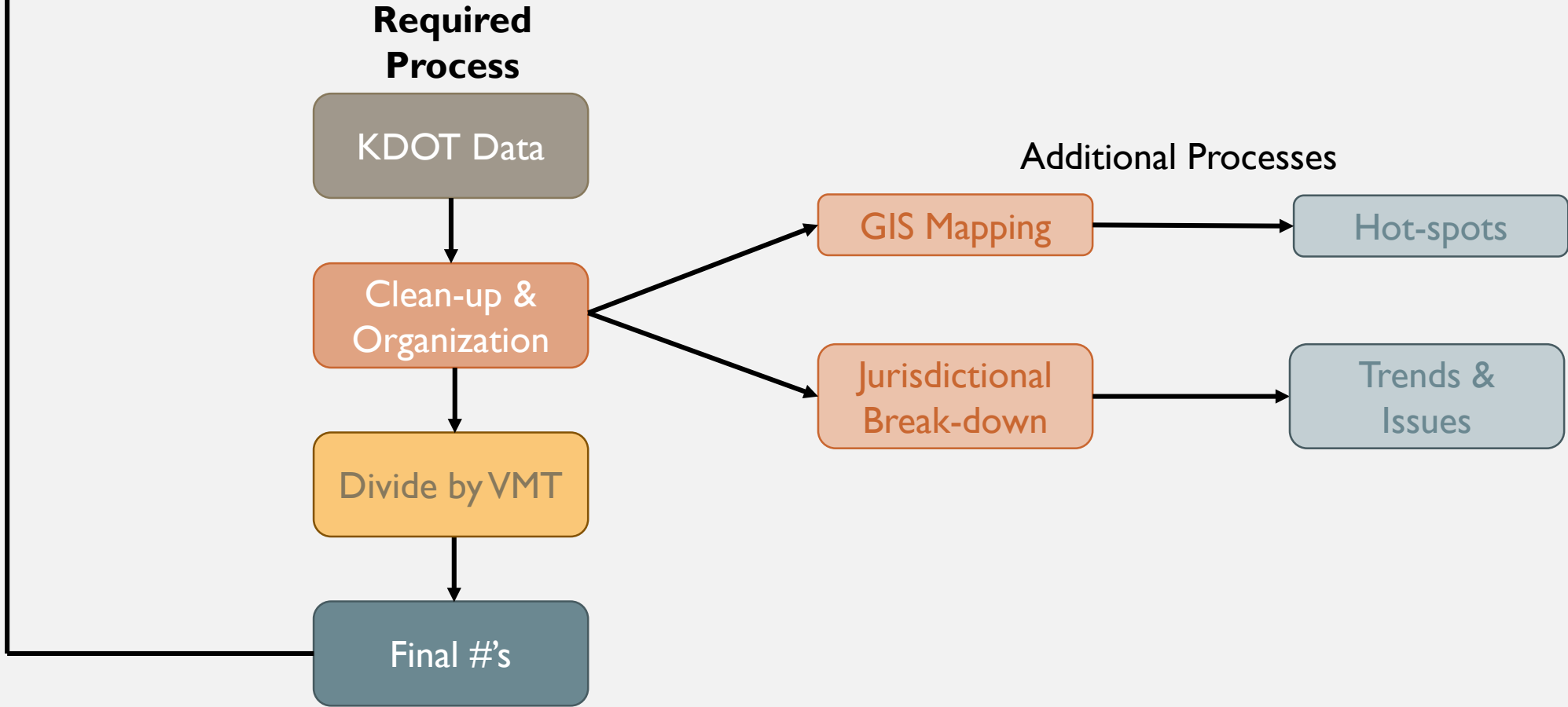
# PROCESS FOR RULES...

- 1. Number of Fatalities
- 3. Number of Serious Injuries
- 5. Number of Non-motorized Fatalities & Non-motorized Serious Injuries



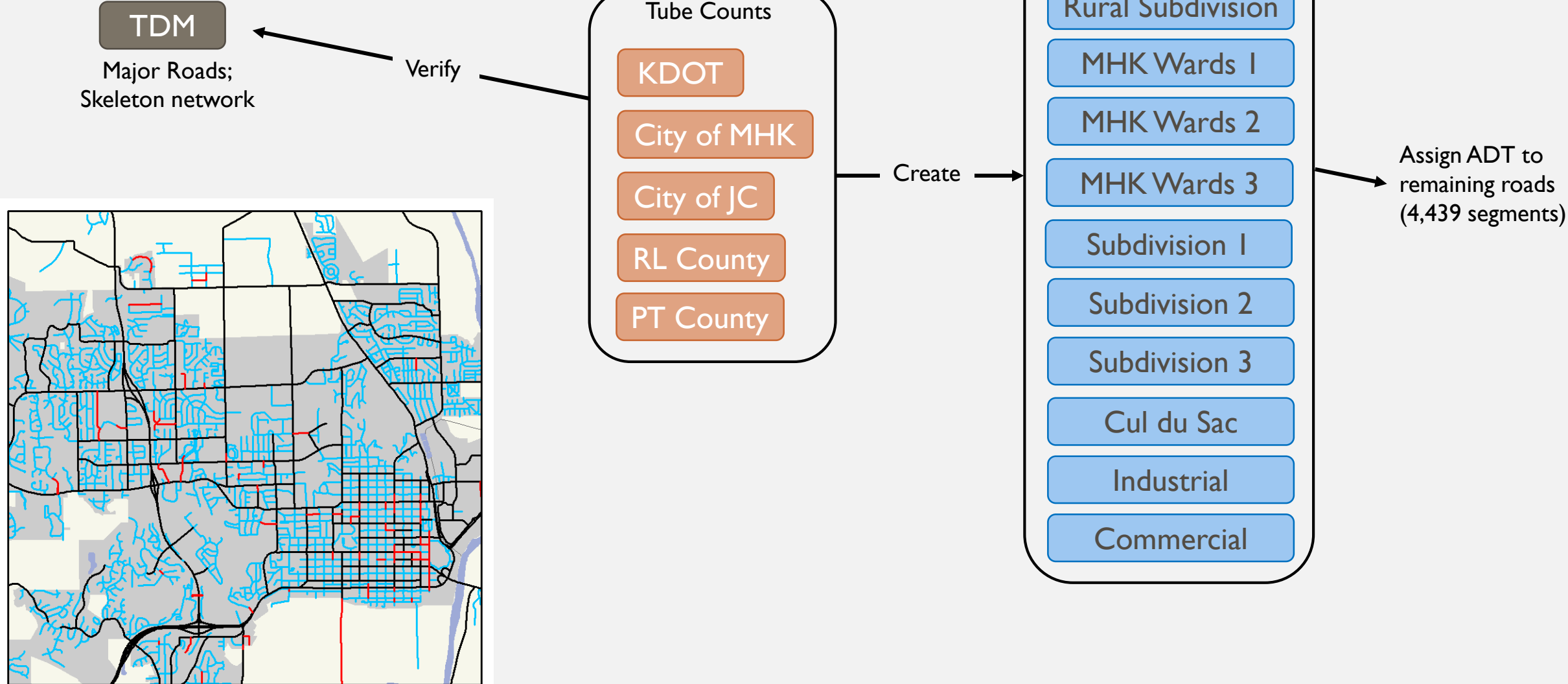
# PROCESS FOR RULES...

- 2. Rate of Fatalities per 100 million VMT
- 4. Rate of Serious Injuries per 100 million VMT



# CALCULATING VMT

## 1. Calculate ADT for all Road Segments



## CALCULATING VMT

2. Calculate VMT from ADT for all Road Segments

$$\left( \text{Road Length (ft)} \div 5280 \right) \times \text{ADT} = \text{Daily VMT}$$

$$\begin{array}{c} \times \\ 365 \\ = \end{array}$$

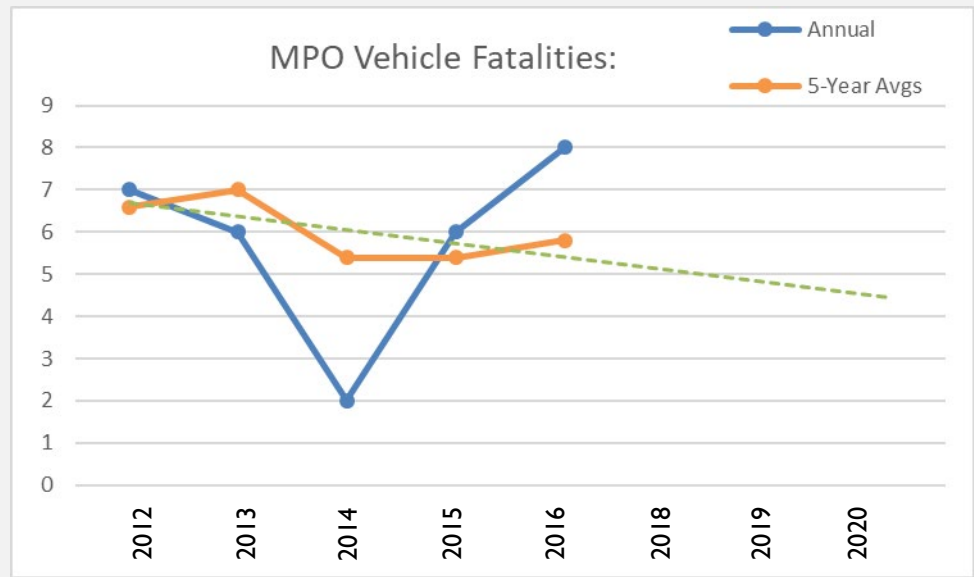
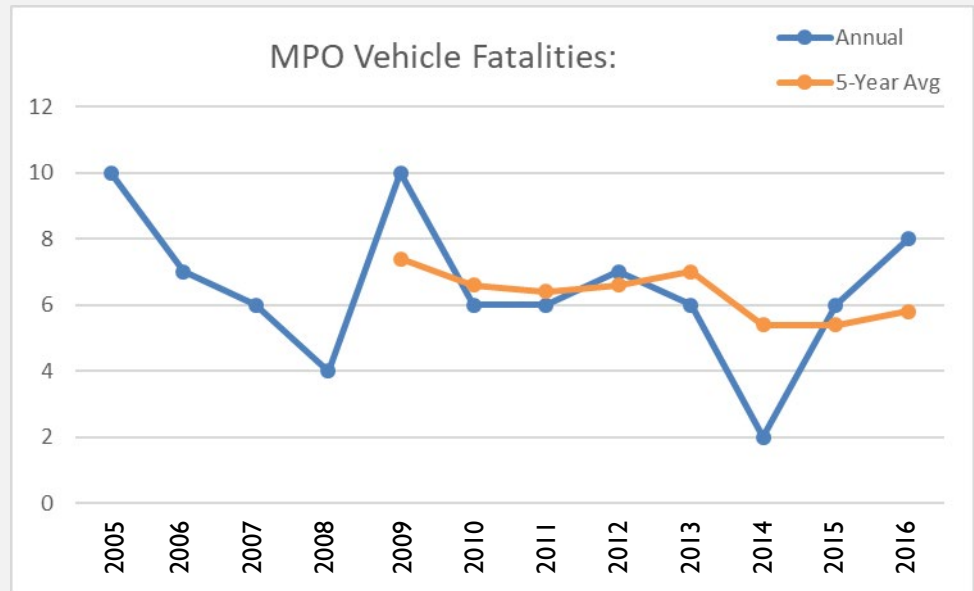
**Annual VMT**

**2016 VMT: 744,949,486.47**



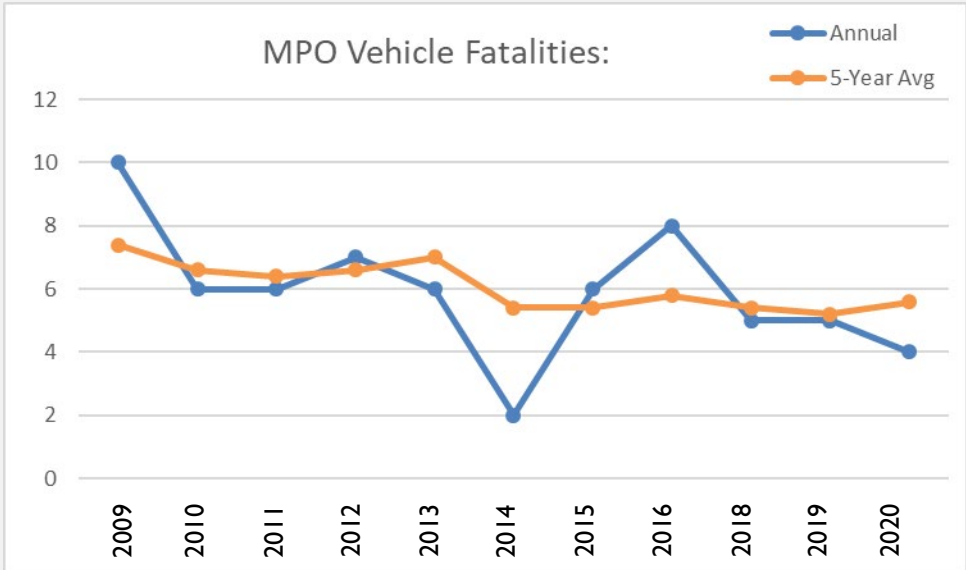
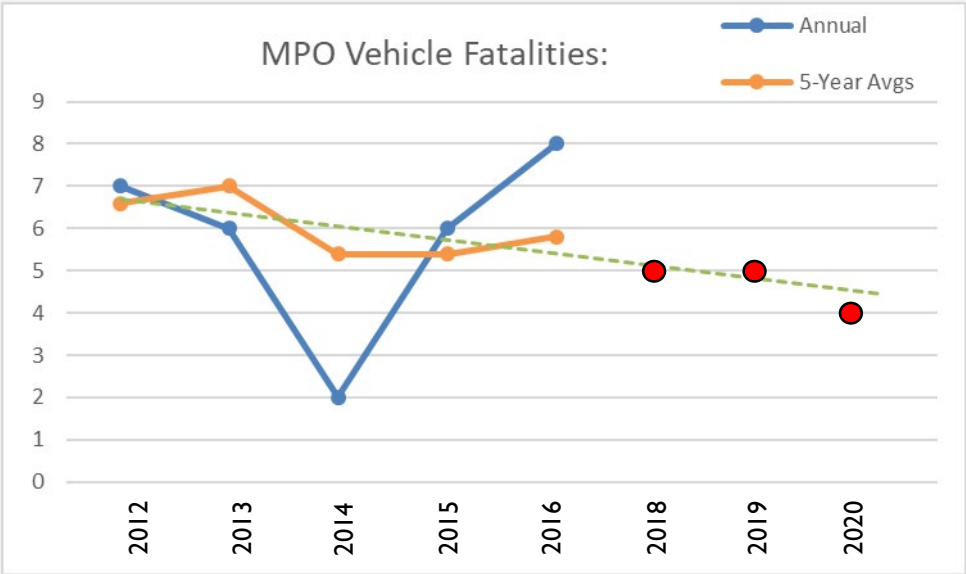
# TARGET 1: # OF VEHICLE FATALITIES

Year	Annual Fatalities	5-Year Avg
2005	10	n/a
2006	7	n/a
2007	6	n/a
2008	4	n/a
2009	10	7.4
2010	6	6.6
2011	6	6.4
2012	7	6.6
2013	6	7
2014	2	5.4
2015	6	5.4
2016	8	5.8
<b>Total</b>	<b>78</b>	<b>n/a</b>



# TARGET 1: # OF VEHICLE FATALITIES

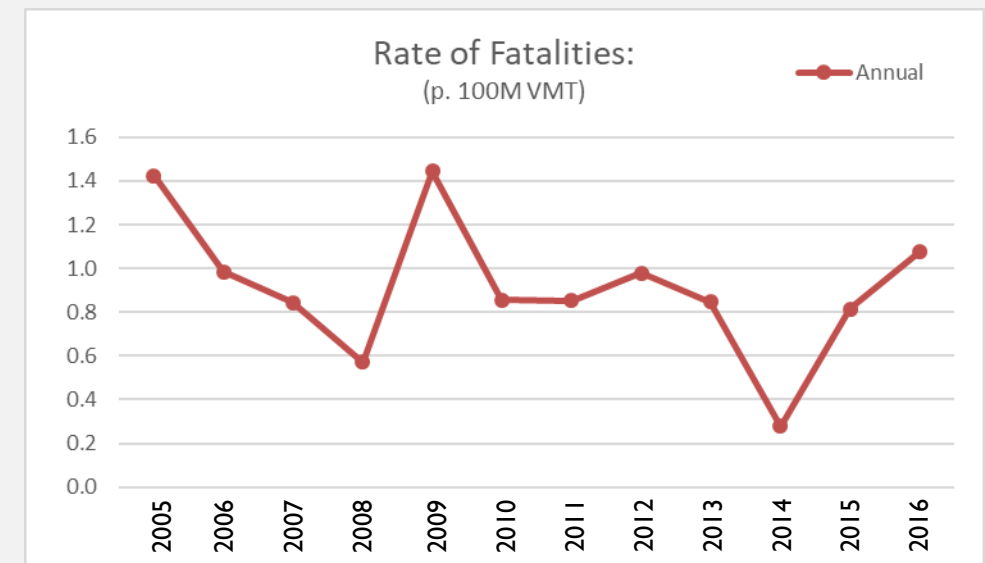
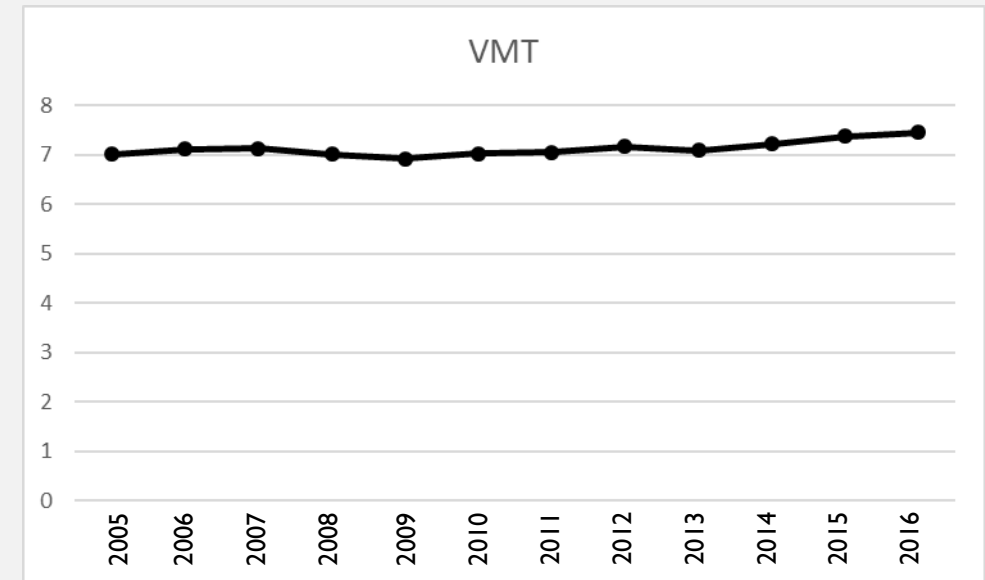
Year	Annual Fatalities	5-Year Avg
2009	10	7.4
2010	6	6.6
2011	6	6.4
2012	7	6.6
2013	6	7
2014	2	5.4
2015	6	5.4
2016	8	5.8
2017	n/a	n/a
2018	5	5.4
2019	5	5
2020	4	5.4




**2018: 5**  
**2019: 5**  
**2020: 4**

# TARGET 2: RATE OF VEHICLE FATALITIES P. 100M VMT

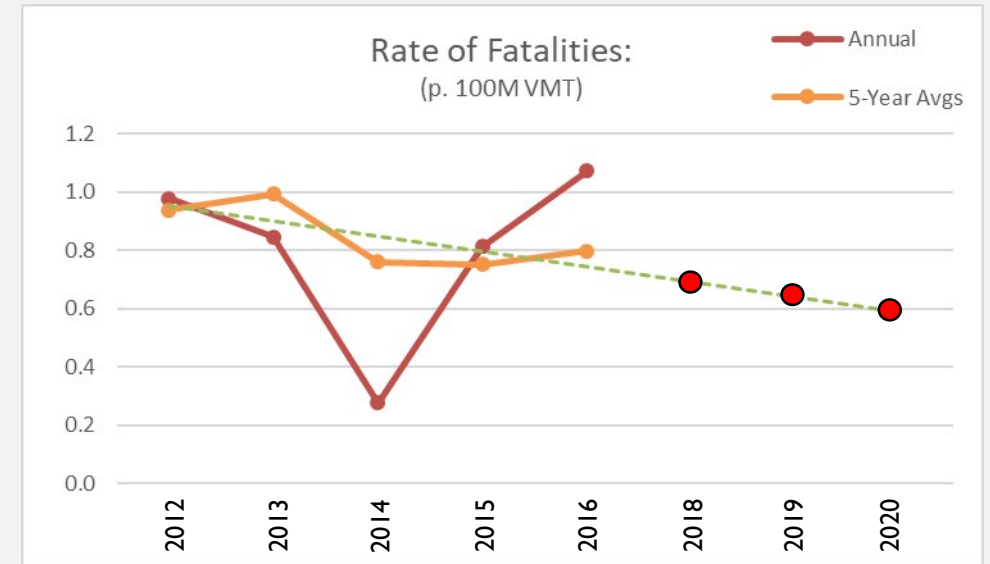
Year	Annual Fatalities	VMT % Change	100M VMT	Fatality Rate p. 100M VMT
2005	10	n/a	7.015	1.426
2006	7	1.45	7.118	0.974
2007	6	0.07	7.123	0.842
2008	4	-1.65	7.007	0.571
2009	10	-1.21	6.924	1.444
2010	6	1.36	7.019	0.855
2011	6	0.4	7.047	0.851
2012	7	1.57	7.160	0.978
2013	6	-0.92	7.094	0.846
2014	2	1.66	7.214	0.277
2015	6	2.18	7.375	0.814
2016	8	1.00*	7.449	1.074



- \* KDOT VMT tables do stop at 2015, an conservative 1% growth for 2015 to 2016 was used to calculate 2016 VMT
- 2005-2015 VMT was calculated with 2016 VMT then KDOT historical VMT tables to establish year-to-year changes.

# TARGET 2: RATE OF VEHICLE FATALITIES P. 100M VMT

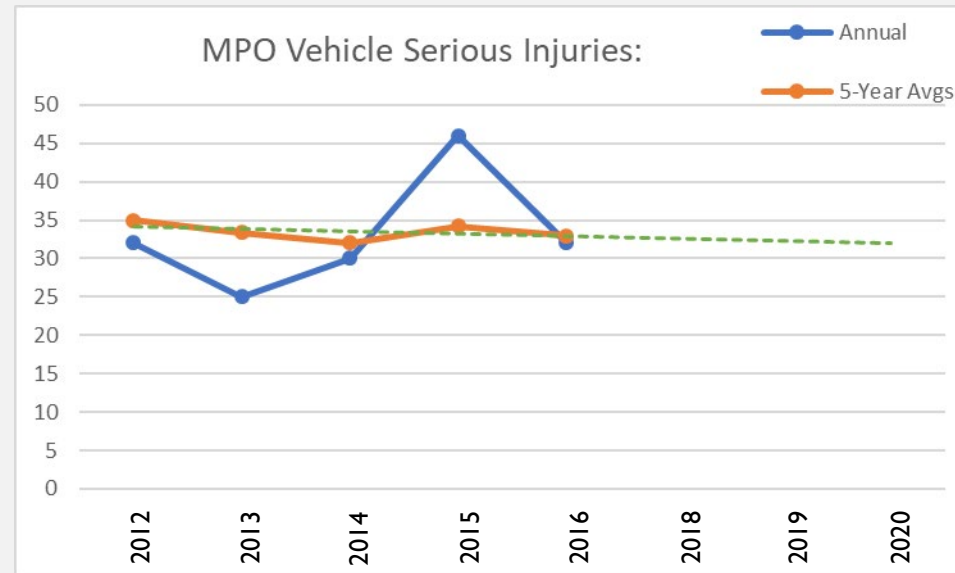
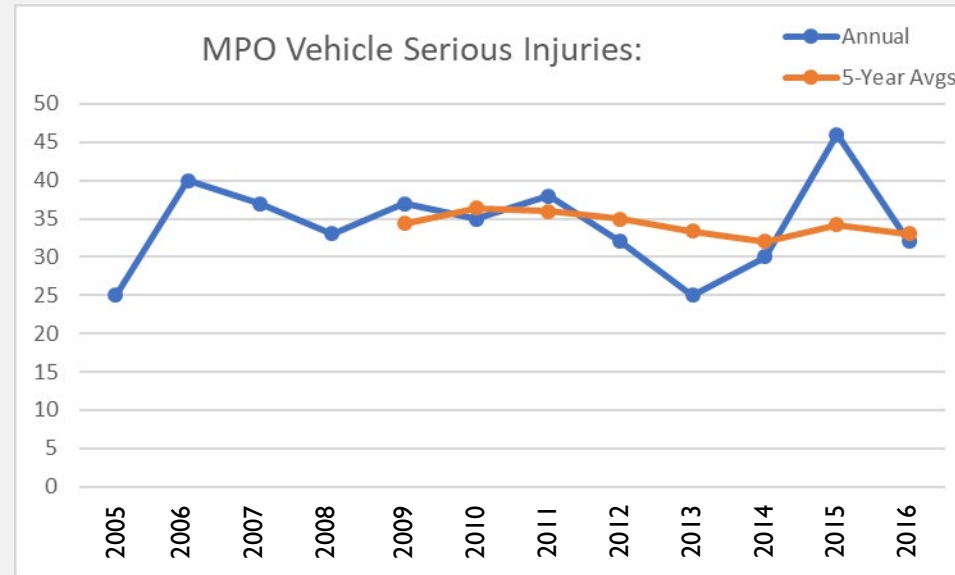
Year	Annual Fatalities	VMT % Change	Fatality Rate p. 100M VMT	5-Year Avg
2012	7	1.57	0.978	.940
2013	6	-0.92	0.846	.995
2014	2	1.66	0.277	.761
2015	6	2.18	0.814	.753
2016	8	1.00*	1.074	.798
2017	n/a	n/a	n/a	n/a
2018	n/a	n/a	.7	n/a
2019	n/a	n/a	.65	n/a
2020	n/a	n/a	.6	n/a



**2018: 0.7**  
**2019: 0.65**  
**2020: 0.6**

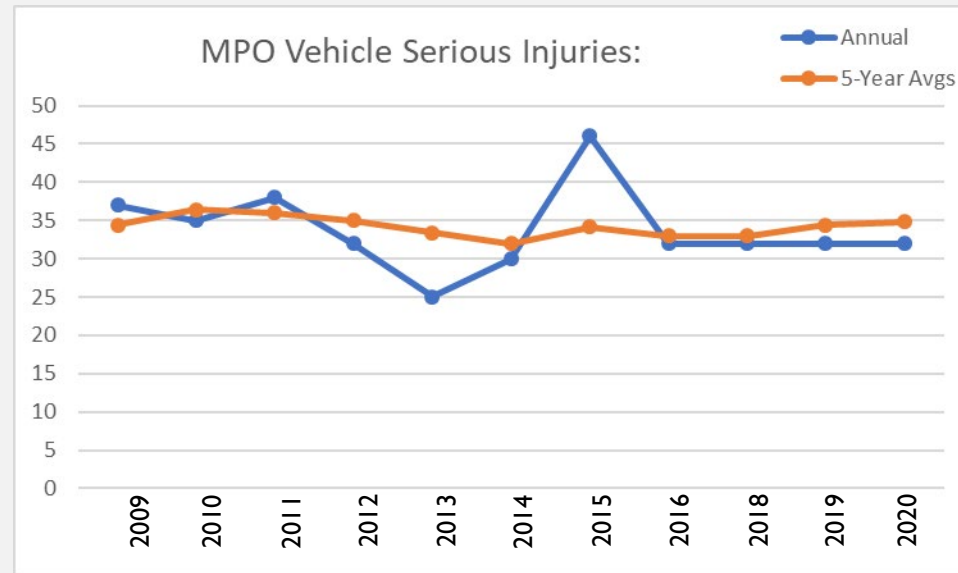
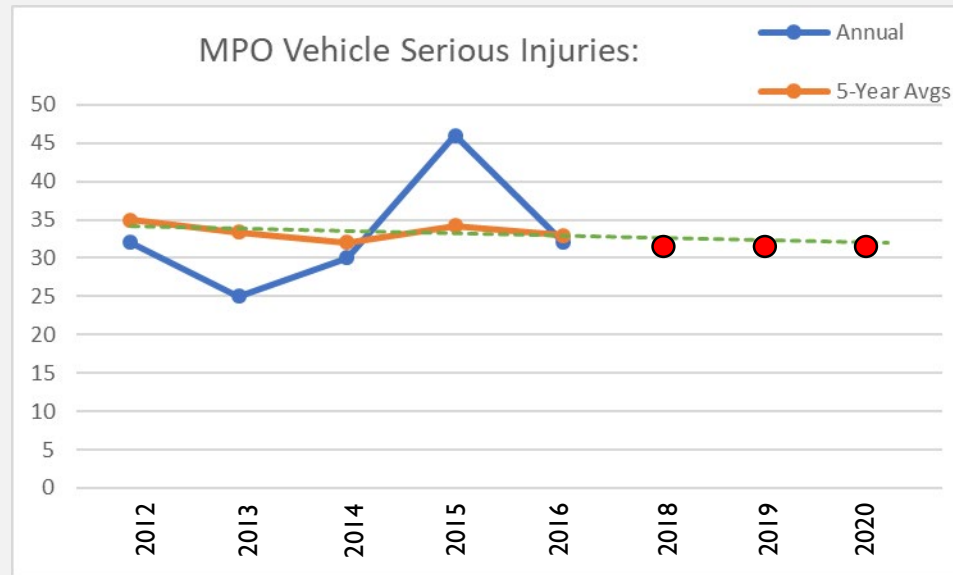
# TARGET **3** : # OF SERIOUS INJURIES

Year	Annual Serious Injuries	5-Year Avg
2005	25	n/a
2006	40	n/a
2007	37	n/a
2008	33	n/a
2009	37	34.4
2010	35	36.4
2011	38	36
2012	32	35
2013	25	33.4
2014	30	32
2015	46	34.2
2016	32	33
<b>Total</b>	<b>410</b>	<b>n/a</b>



# TARGET **3**: # OF SERIOUS INJURIES

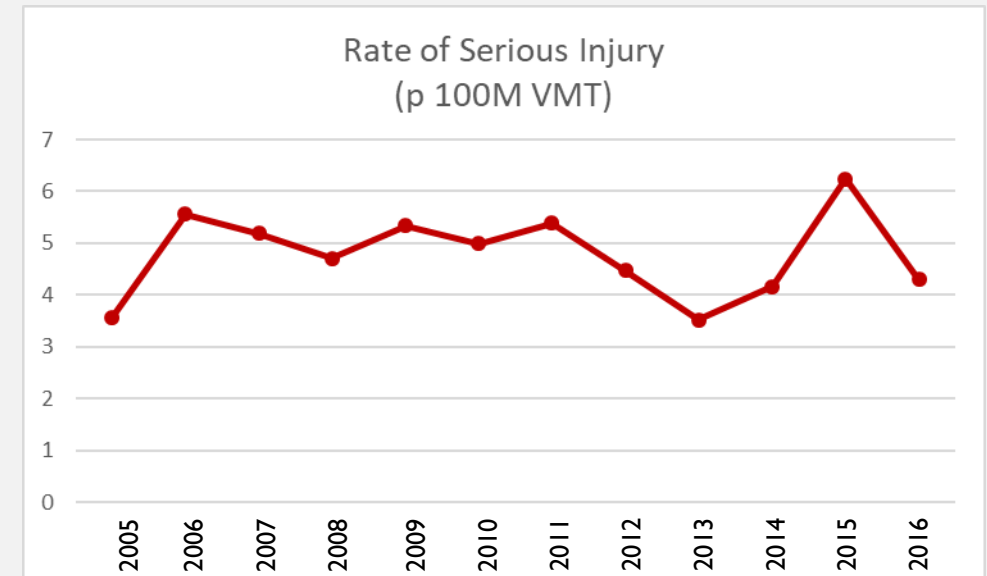
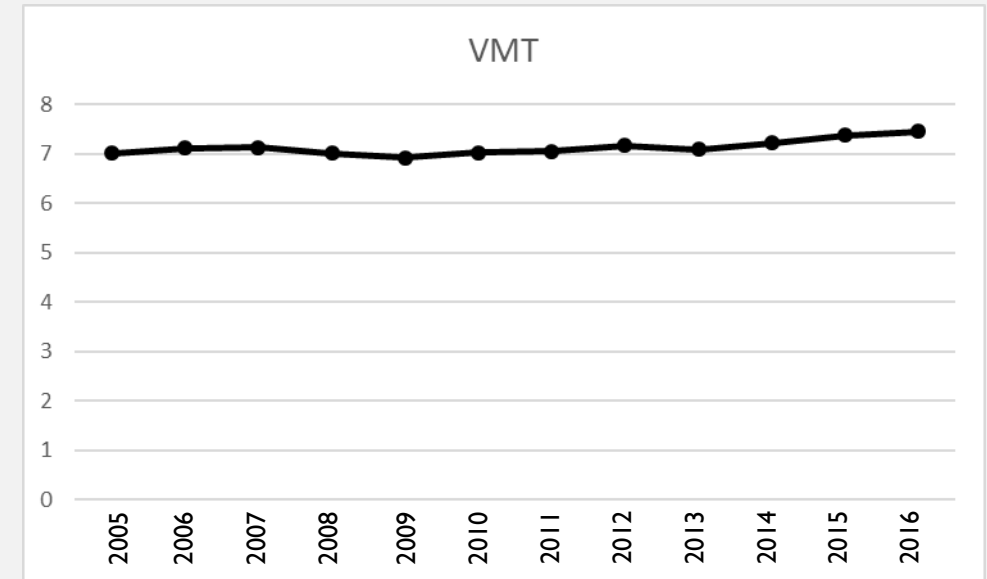
Year	Annual Serious Injuries	5-Year Avg
2009	37	34.4
2010	35	36.4
2011	38	36
2012	32	35
2013	25	33.4
2014	30	32
2015	46	34.2
2016	32	33
2017	n/a	n/a
2018	<b>32</b>	33
2019	<b>32</b>	34.4
2020	<b>32</b>	34.8



**2018: 32**  
**2019: 32**  
**2020: 32**

# TARGET 4: RATE OF SERIOUS INJURIES P. 100M VMT

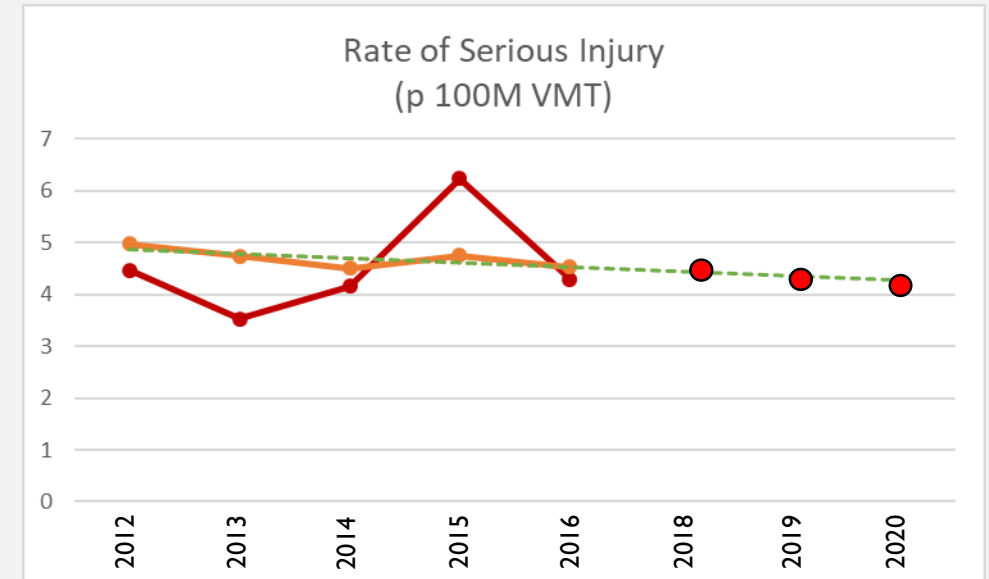
Year	Annual S. Injuries	VMT % Change	100M VMT	S. Injury Rate p. 100M VMT
2005	25	n/a	7.015	3.564
2006	40	1.45	7.118	5.565
2007	37	0.07	7.123	5.194
2008	33	-1.65	7.007	4.710
2009	37	-1.21	6.924	5.344
2010	35	1.36	7.019	4.986
2011	38	0.4	7.047	5.392
2012	32	1.57	7.160	4.469
2013	25	-0.92	7.094	3.524
2014	30	1.66	7.214	4.159
2015	46	2.18	7.375	6.237
2016	32	1.00*	7.449	4.296



\* KDOT VMT tables do stop at 2015, an conservative 1% growth for 2015 to 2016 was used to calculate 2016 VMT  
 • 2005-2015 VMT was calculated with 2016 VMT then KDOT historical VMT tables to establish year-to-year changes.

# TARGET **4**: RATE OF SERIOUS INJURIES P. 100M VMT

Year	Annual S. Injuries	100M VMT	Serious Injury p. 100M VMT	5-Year Avg
2012	32	1.57	5.392	4.980
2013	25	-0.92	4.469	4.743
2014	30	1.66	4.159	4.506
2015	46	2.18	6.237	4.756
2016	32	1.00*	4.296	4.537
2017	n/a	n/a	n/a	n/a
2018	n/a	n/a	<b>4.4</b>	n/a
2019	n/a	n/a	<b>4.3</b>	n/a
2020	n/a	n/a	<b>4.2</b>	n/a

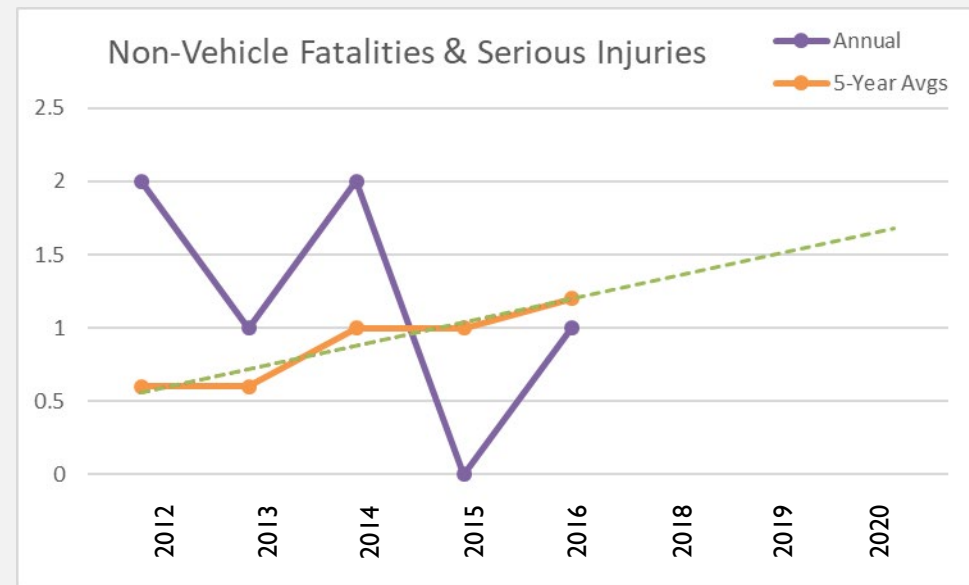
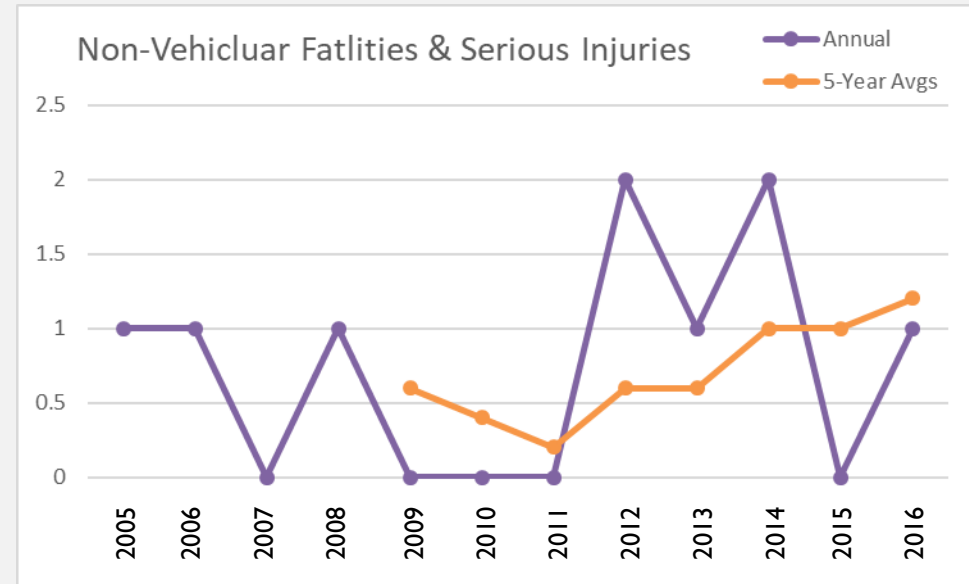


**2018: 4.4**  
**2019: 4.3**  
**2020: 4.2**



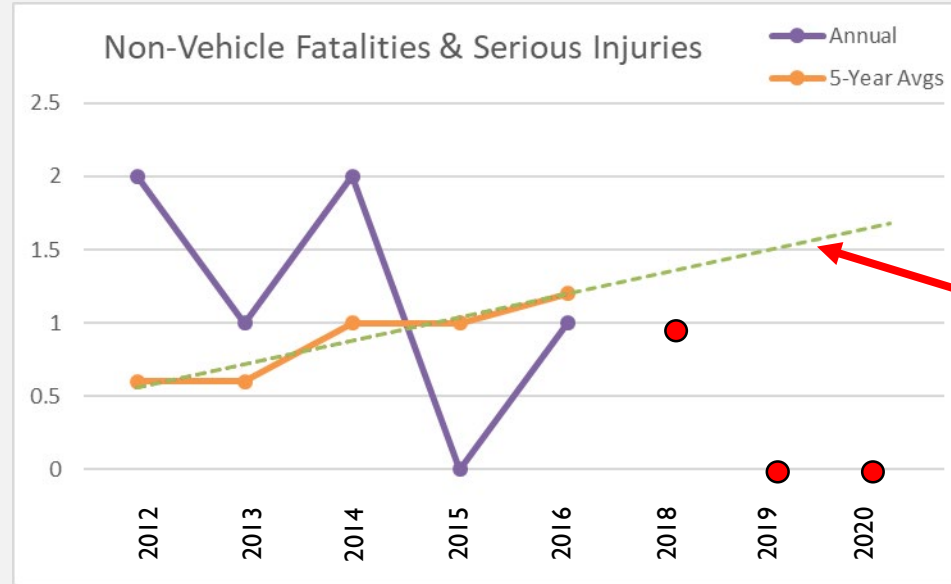
# TARGET 5: # OF NON-VEHICULAR FATALITIES & SERIOUS INJURIES

Year	Annual Fatalities & Serious Injuries	5-Year Avg
2005	1	n/a
2006	1	n/a
2007	0	n/a
2008	1	n/a
2009	0	0.6
2010	0	0.4
2011	0	0.2
2012	2	0.6
2013	1	0.6
2014	2	1
2015	0	1
2016	1	1.2
<b>Total</b>	<b>78</b>	<b>n/a</b>

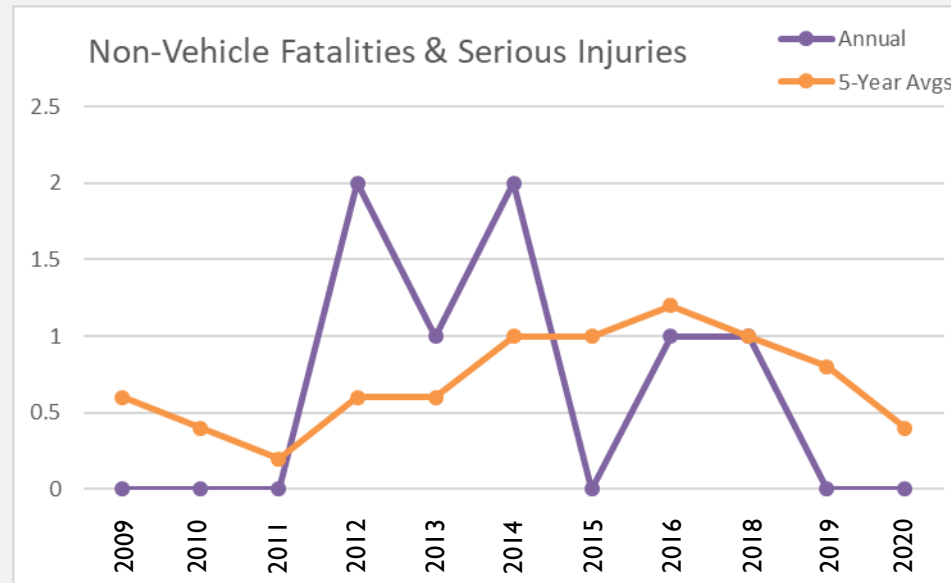


# TARGET 5: # OF NON-VEHICULAR FATALITIES & SERIOUS INJURIES

Year	Annual Fatalities & Serious Injuries	5-Year Avg
2009	0	0.6
2010	0	0.4
2011	0	0.2
2012	2	0.6
2013	1	0.6
2014	2	1
2015	0	1
2016	1	1.2
2017	n/a	n/a
2018	1	1
2019	0	0.8
2020	0	0.4



Not Acceptable




**2018: 1**  
**2019: 0**  
**2020: 0**

# TARGET SUMMARY

## 1 Number of Fatalities



**2018: 5**  
**2019: 5**  
**2020: 4**

## 4 Rate of Serious Injuries per 100 million VMT



**2018: 4.4**  
**2019: 4.3**  
**2020: 4.2**

## 2 Rate of Fatalities per 100 million VMT



**2018: 0.7**  
**2019: 0.65**  
**2020: 0.6**

## 5 Number of Non-motorized Fatalities & Non-motorized Serious Injuries



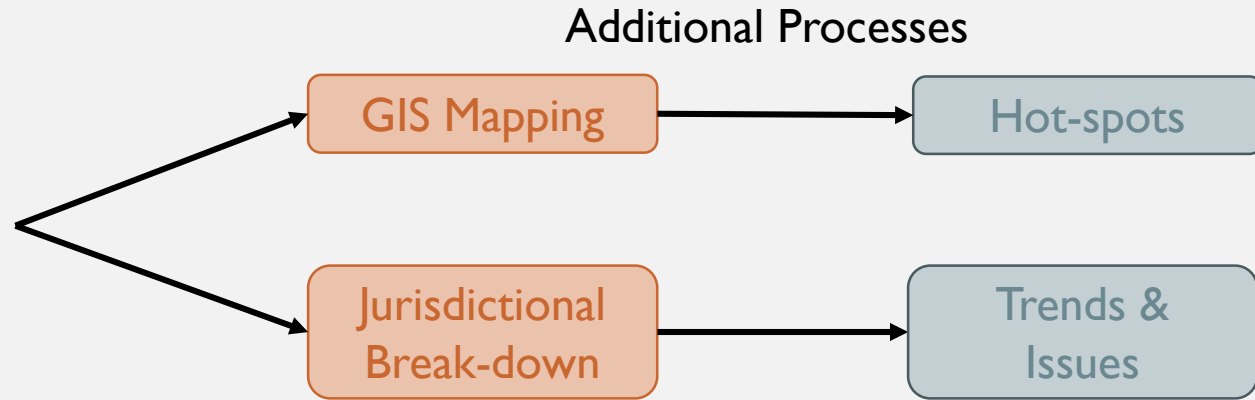
**2018: 1**  
**2019: 0**  
**2020: 0**

## 3 Number of Serious Injuries



**2018: 32**  
**2019: 32**  
**2020: 32**

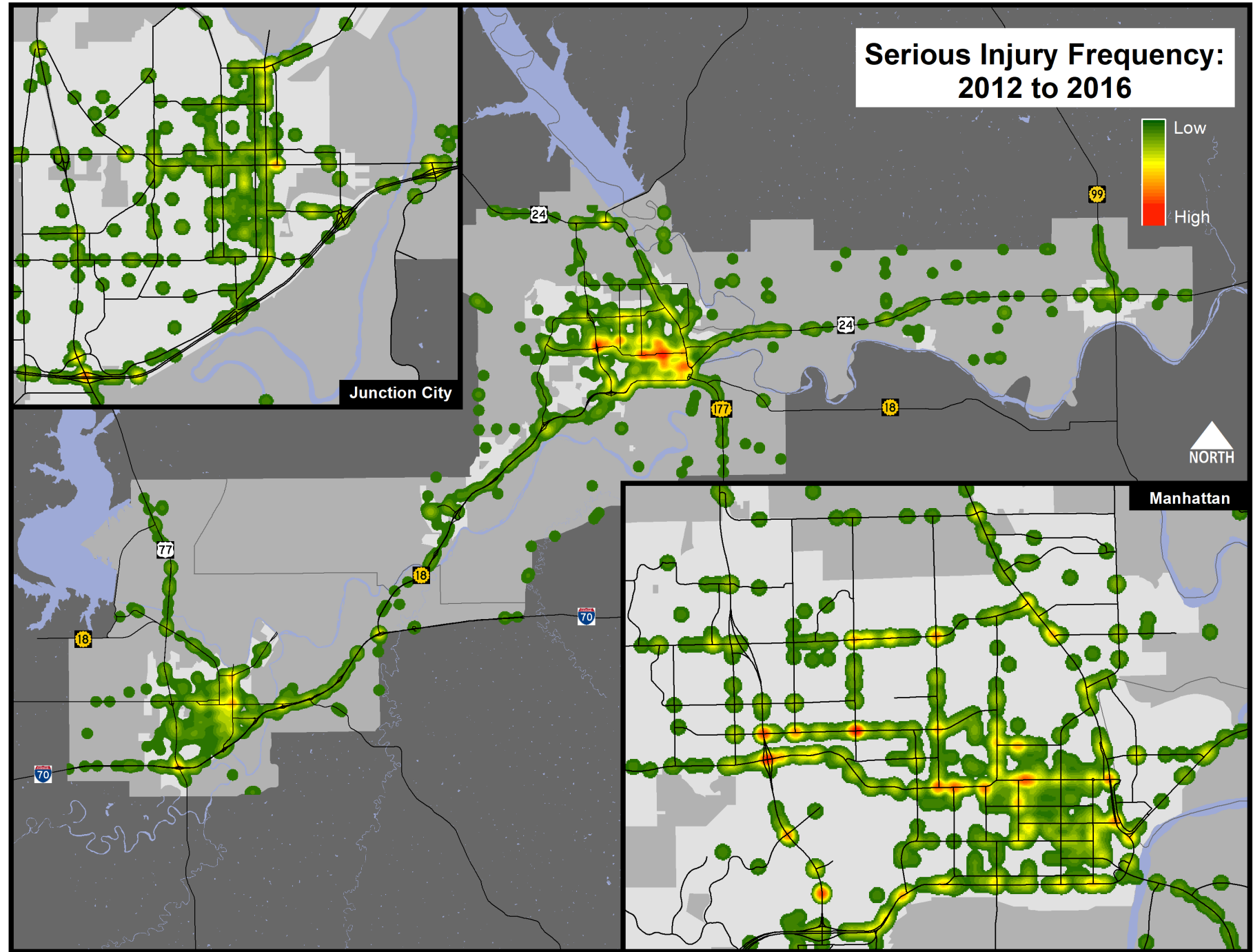
# MOVING FORWARD



1. Find Problem areas
2. Projects as solutions

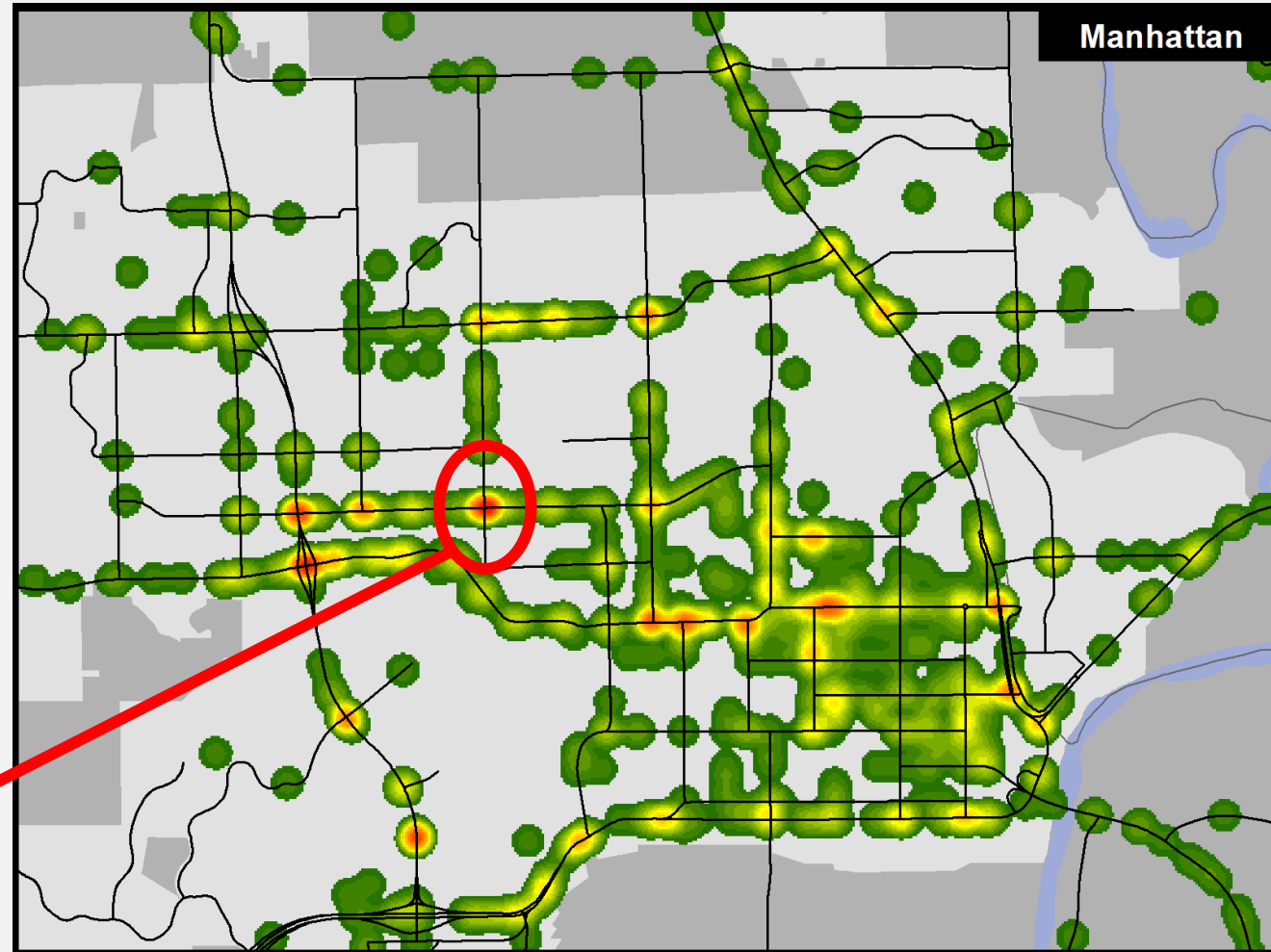
# MOVING FORWARD

## I. Find Problem areas



# MOVING FORWARD

1. Find Problem areas
2. Projects as solutions



College Ave & Claflin Rd:  
New turn lanes & signals

# PRECEDENT

- Bluemont Ave & 4 St:

Years	Intersection Type	Total Crashes	# of Minor Injuries
2004-06	Standard (4 <sup>th</sup> St Stop Signs)	33	6
2010-12	Roundabout	46	0

- K-18 (between KS River and K-113)

Years	Road Type	# of Crashes	Crashes p.Year	# of Fatalities	Fatalities p.Year	# of Serious Injuries	Serious Injuries p.Year	# of Non-Serious Injuries	Non-Serious Injuries p Year
2003-10	2-Lane	741	92.625	9	1.125	45	5.625	220	27.5
2015-16	4-Lane Divided	106	53	0	0	2	1	8	4

43%  
Reduction

82%  
Reduction

85%  
Reduction