

2/6/2018



CARSON AREA  
METROPOLITAN  
ORGANIZATION

APPENDIX A: 2040 REGIONAL  
TRANSPORTATION PLAN SAFETY TARGET  
SETTING

Supporting Material

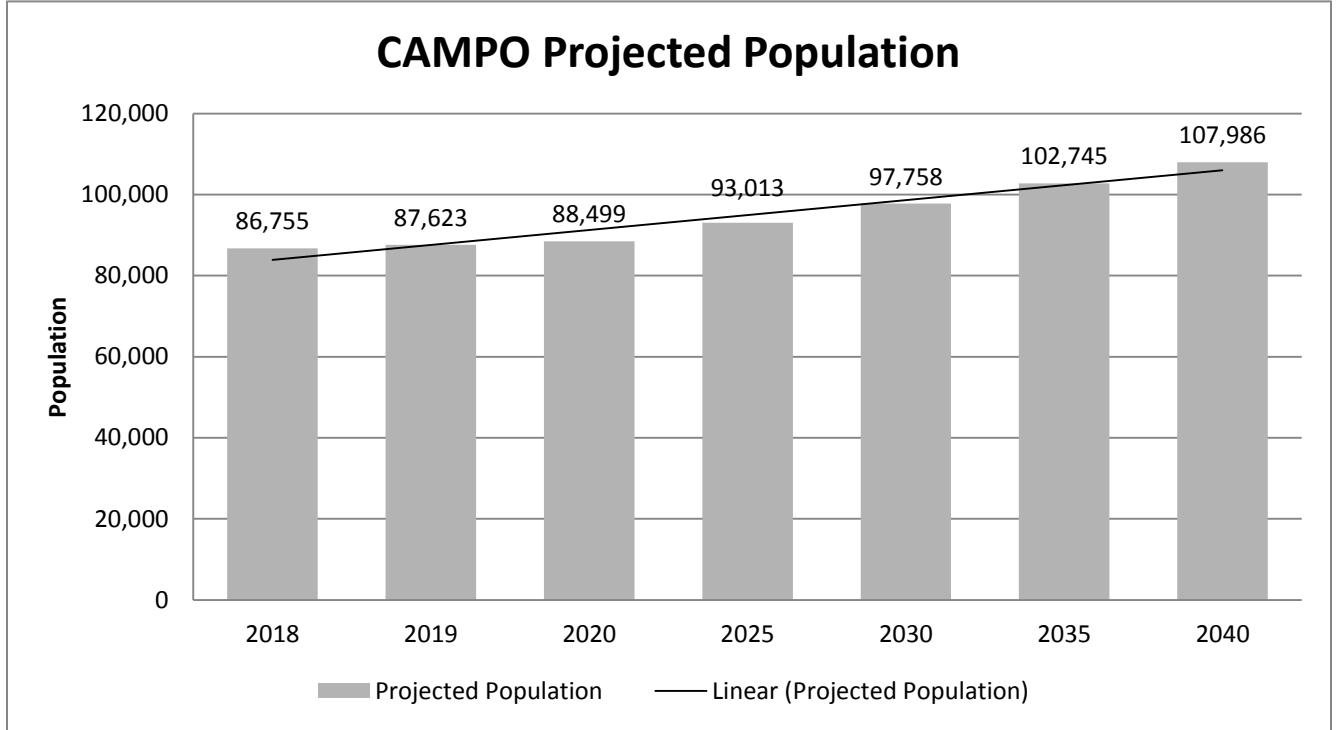
## PURPOSE

Federal Highway Administration (FHWA) defines Transportation Performance Management (TPM) as a strategic approach that uses system information to make investment and policy decisions to achieve national performance goals. Safety Performance Management is part of the overall TPM program. The Safety Performance Measure (PM) Final Rule establishes five safety performance measure requirements as five-year rolling averages to include:

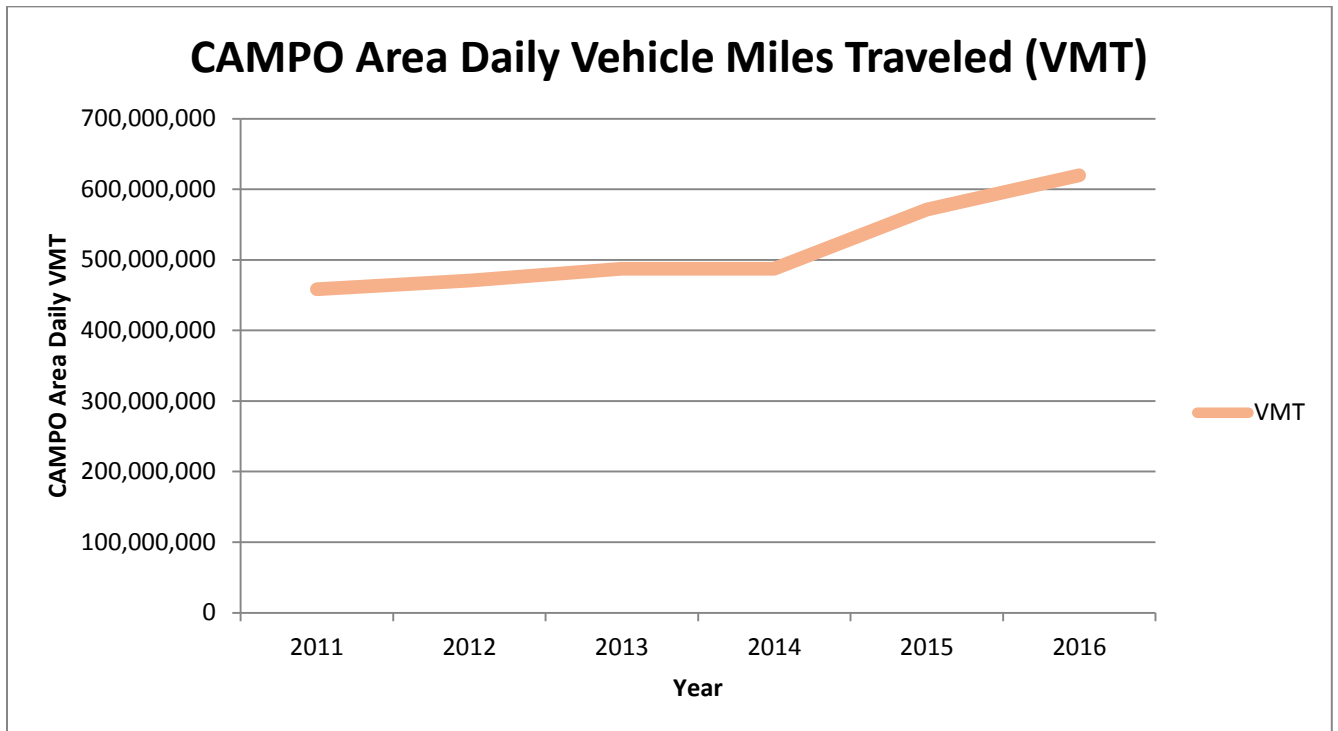
1. Number of Fatalities
  - a. The total number of persons suffering fatal injuries in a motor vehicle crash
2. Rate of Fatalities per 100 million Vehicles Miles Traveled (VMT)
  - a. The ratio of total number of fatalities to the number of VMT
3. Number of Serious Injuries
  - a. The total number of persons suffering at least one serious injury in a motor vehicle crash
4. Rate of Serious Injuries per 100 million VMT
  - a. The ratio of total number of serious injuries to the number of VMT
5. Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries
  - a. The combined total number of non-motorized fatalities and serious injuries involving a motor vehicle

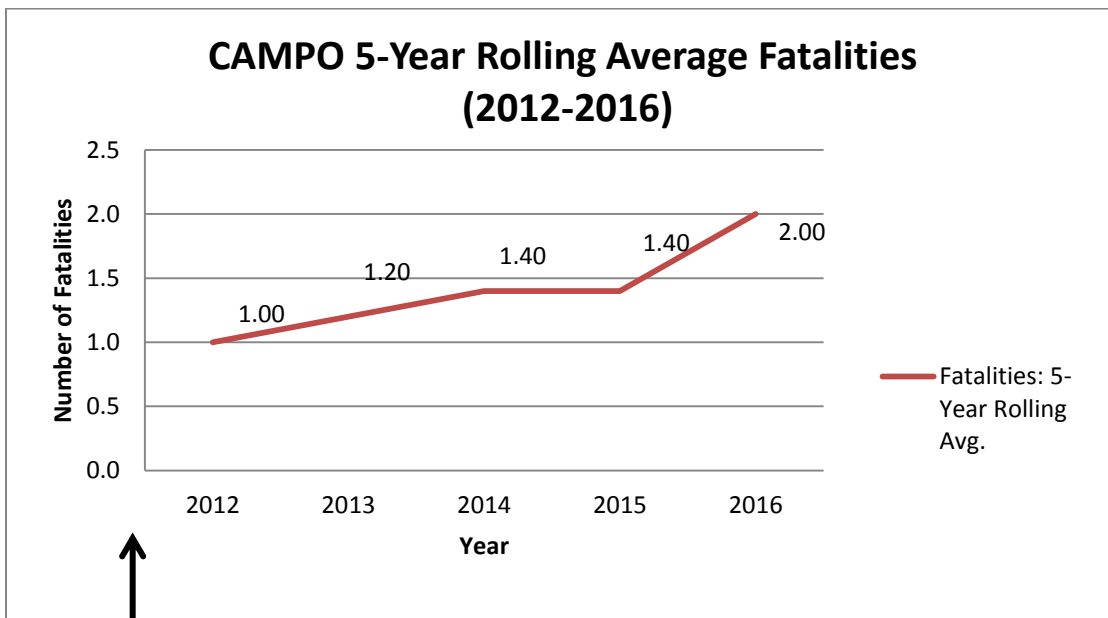
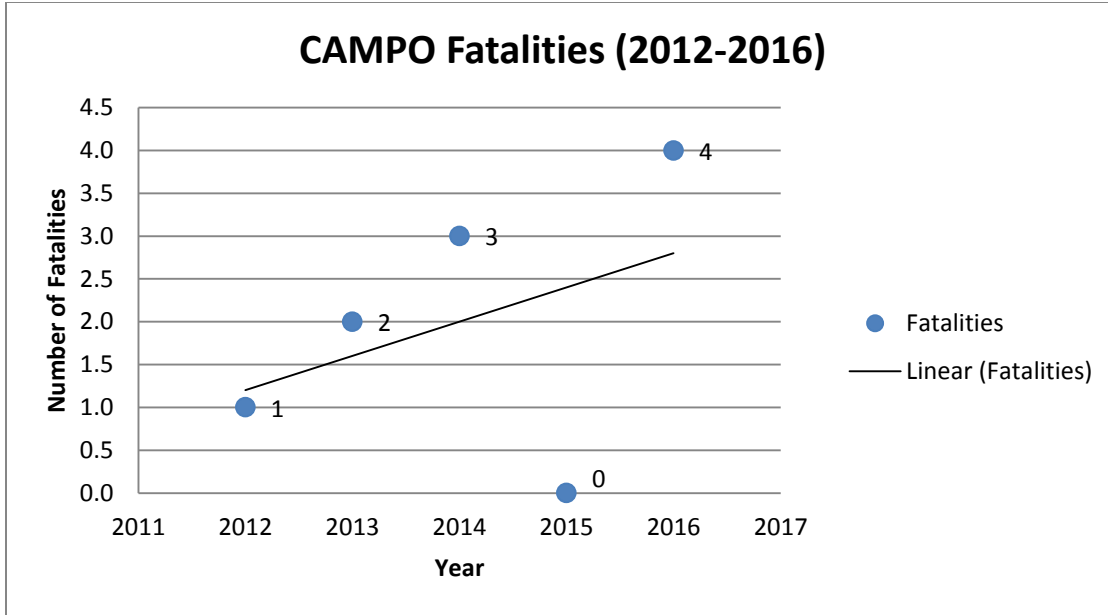
In addition to tracking the above safety measures, MPO's are required to either set their own targets specific to their planning area or agree to support the adopted statewide target. Regional Transportation Plans (RTPs) are required to include safety performance measures and targets and Transportation Improvement Programs (TIPs) must include a description of how the TIP contributes to achieving the performance targets in the RTP on or after May 27, 2018.

BASELINE DATA



Source: 2014 Nevada State Demographer, Estimates and Projections



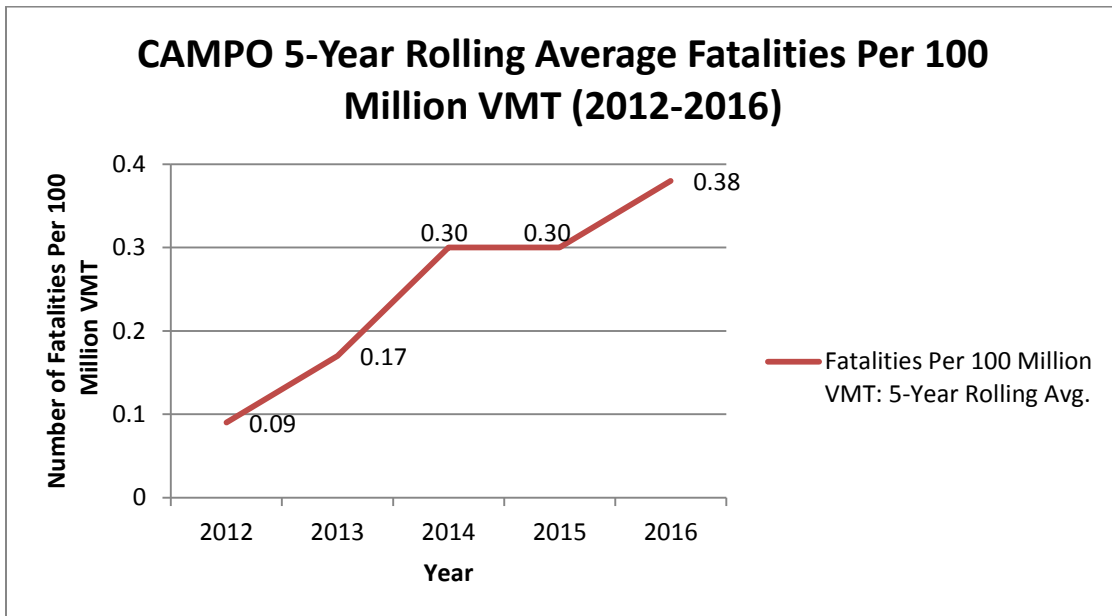
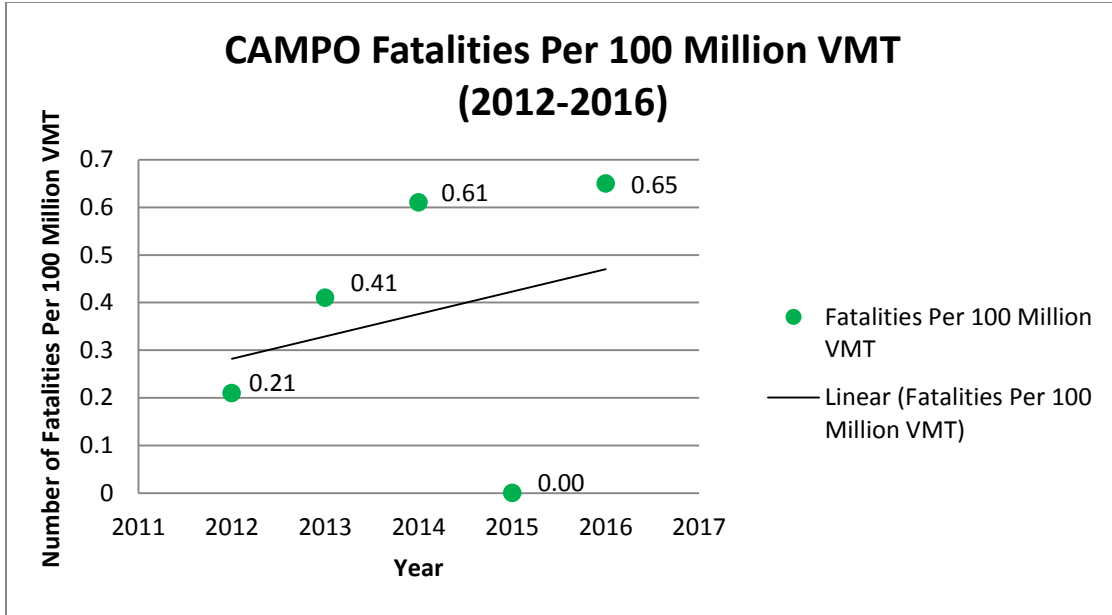


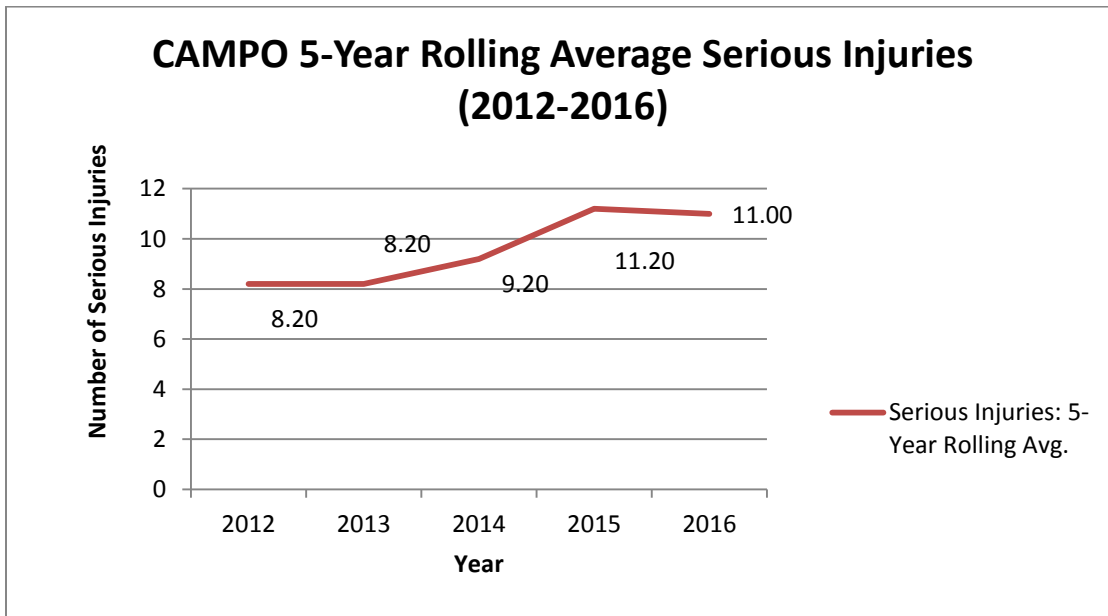
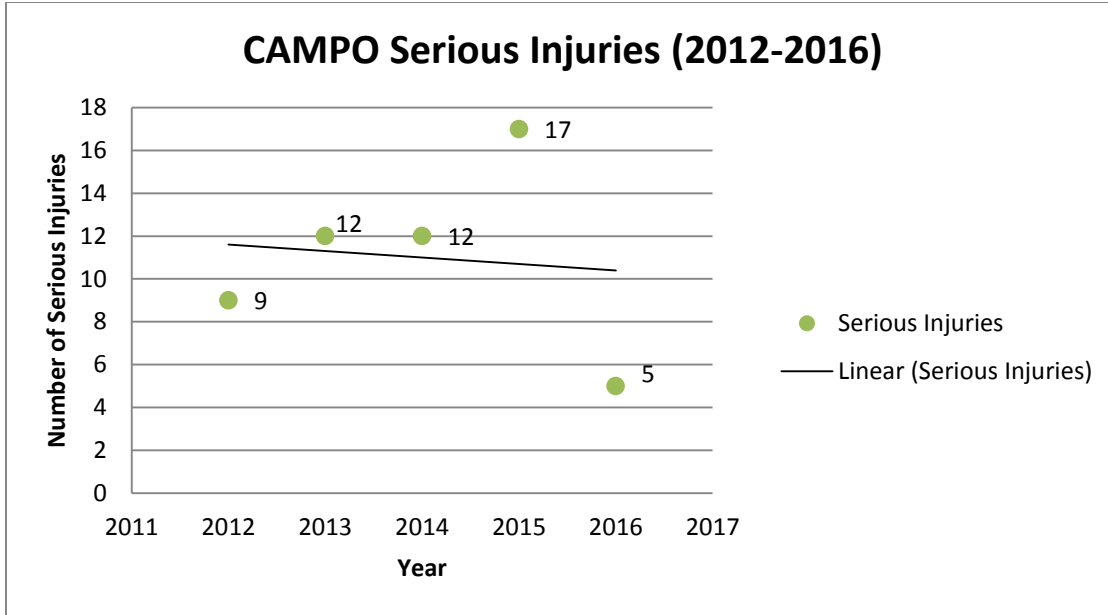
To calculate 5-Year Rolling Average for 2017:

- Add up number of fatalities for 2013-2017
  - $2+3+0+4+3.20=12.20$
- Divide sum of 2013-2017 by 5
  - $12.20/5=2.44$

Year	# of Fatalities	5-Yr Rolling Avg. Fatalities
2012	1.00	1.00 (2008-2012)
2013	2.00	1.20 (2009-2013)
2014	3.00	1.40 (2010-2014)
2015	0.00	1.40 (2011-2015)
2016	4.00	2.00 (2012-2016)
2017*	3.20	2.44 (2013-2017)
2018*	3.60	2.76 (2014-2018)

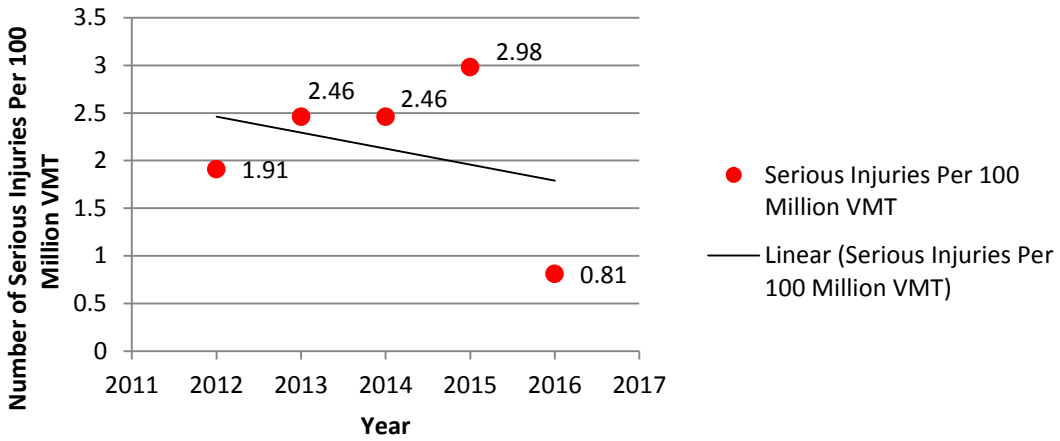
\*Years 2017 and 2018 are projections based on above formula



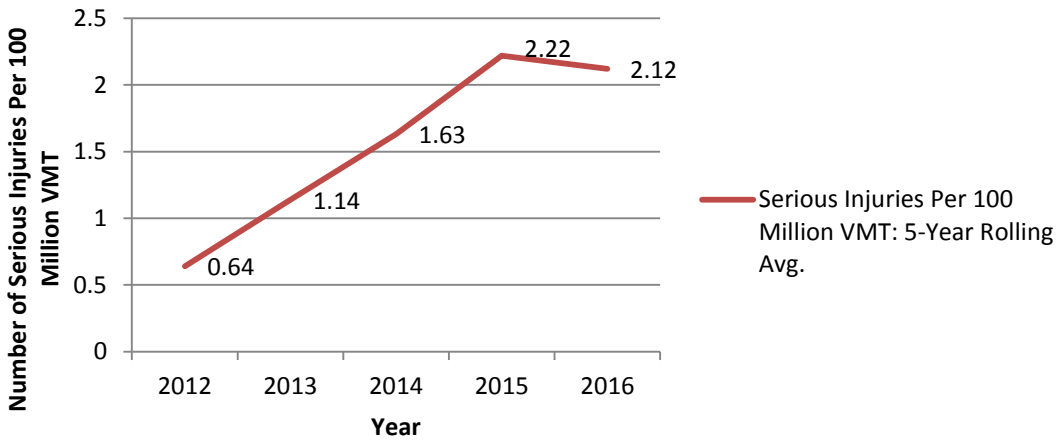


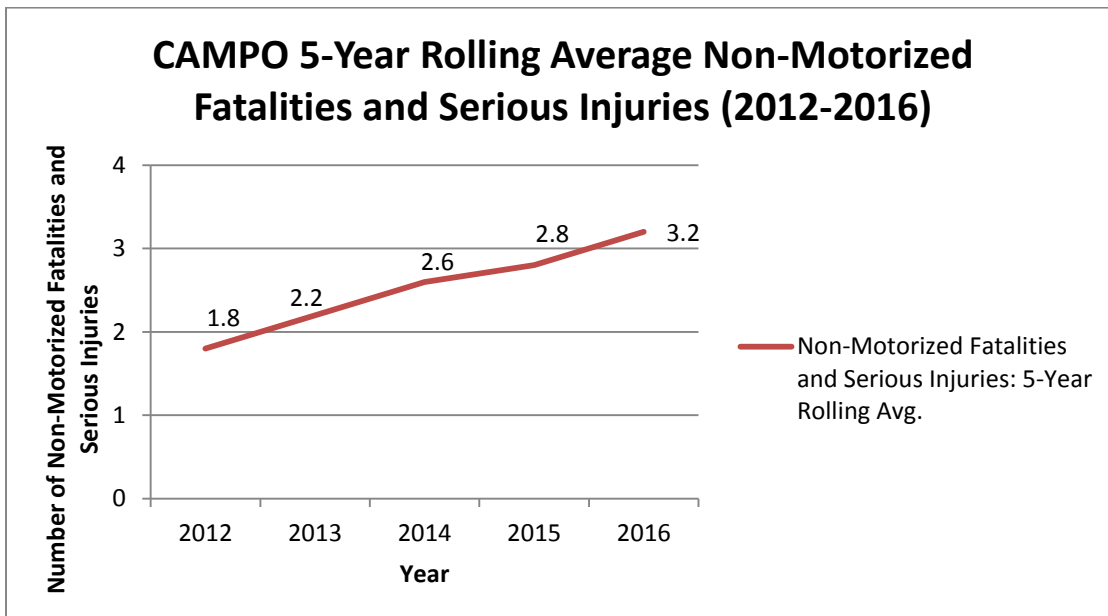
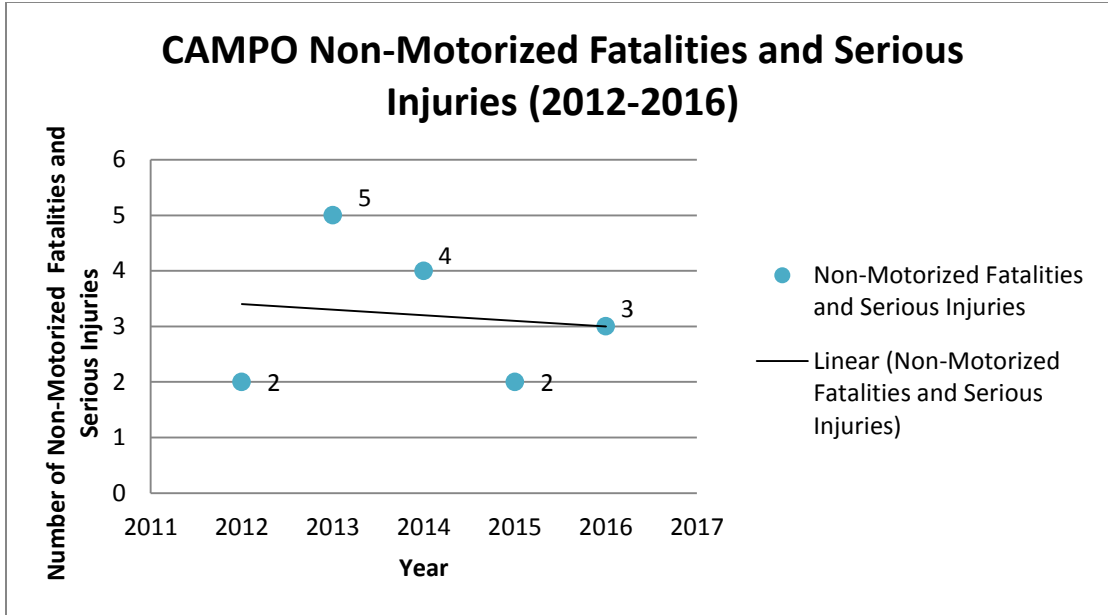
Year	Number of Serious Injuries	5-Yr Rolling Avg. Serious Injuries
2012	9.0	8.2 (2008-2012)
2013	12.0	8.2 (2009-2013)
2014	12.0	9.2 (2010-2014)
2015	17.0	11.2 (2011-2015)
2016	5.0	11.0 (2012-2016)
2017	10.1	11.2 (2013-2017)
2018	9.8	10.7 (2014-2018)

### CAMPO Serious Injuries Per 100 Million VMT (2012-2016)



### CAMPO 5-Year Rolling Average Serious Injuries Per 100 Million VMT (2012-2016)





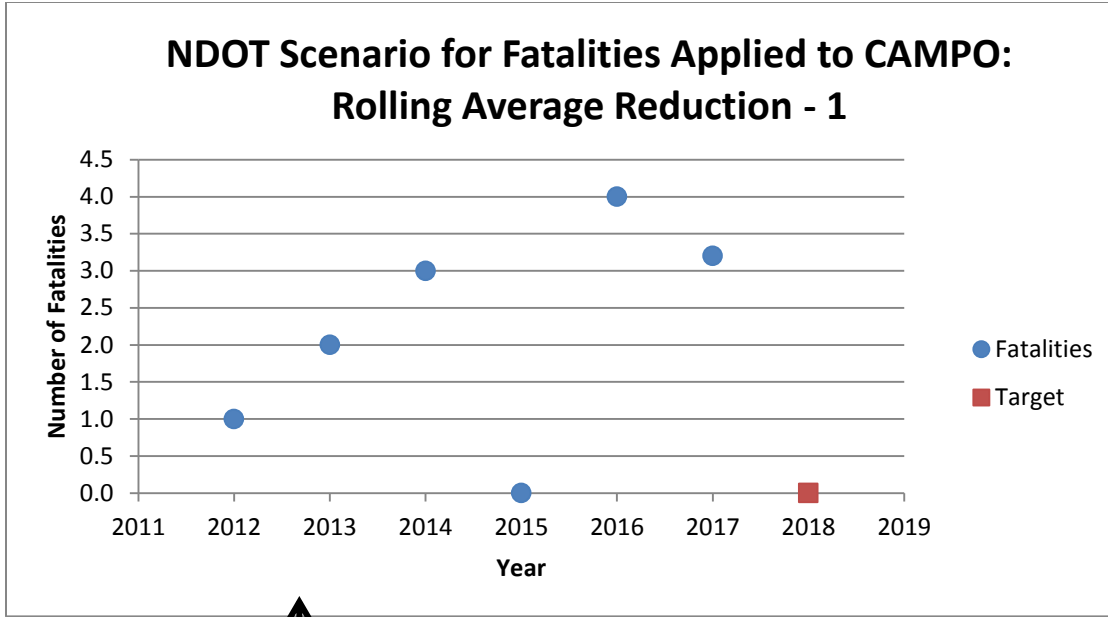
Year	Number of Non-Motorized Fatalities and Serious Injuries	5-Yr Rolling Avg. Non-Motorized Fatalities and Serious Injuries
2012	2.0	1.8 (2008-2012)
2013	5.0	2.2 (2009-2013)
2014	4.0	2.6 (2010-2014)
2015	2.0	2.8 (2011-2015)
2016	3.0	3.2 (2012-2016)
2017	2.9	3.3 (2013-2017)
2018	2.8	2.9 (2014-2018)



## NEVADA DEPARTMENT OF TRANSPORTATION (NDOT) TARGETS

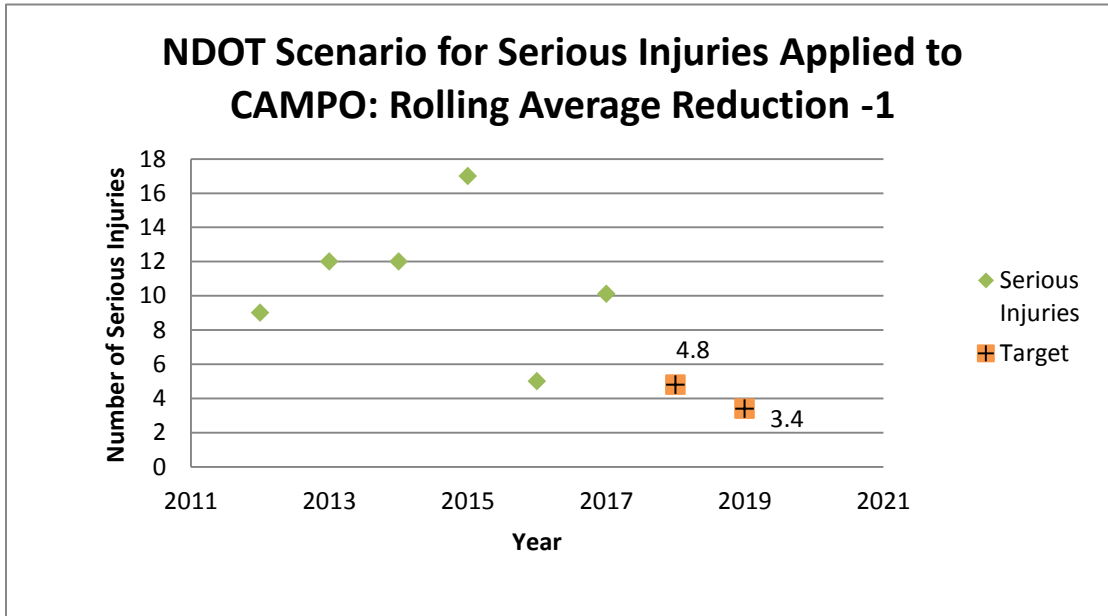
NDOT Safety Targets			
Performance Measure (5-Year Rolling Average)	2016 5-Year Rolling Average	Desired Target	Change
<i>Number of Fatalities</i>	295	294	-1
<i>Rate of Fatalities Per 100 Million VMT</i>	1.243	1.242	-1
<i>Number of Serious Injuries</i>	1,356	1,355	-1
<i>Rate of Serious Injuries Per 100 Million VMT</i>	4.681	4.680	-1
<i>Number of Non-Motorized Fatalities and Serious Injuries</i>	326	324	-1

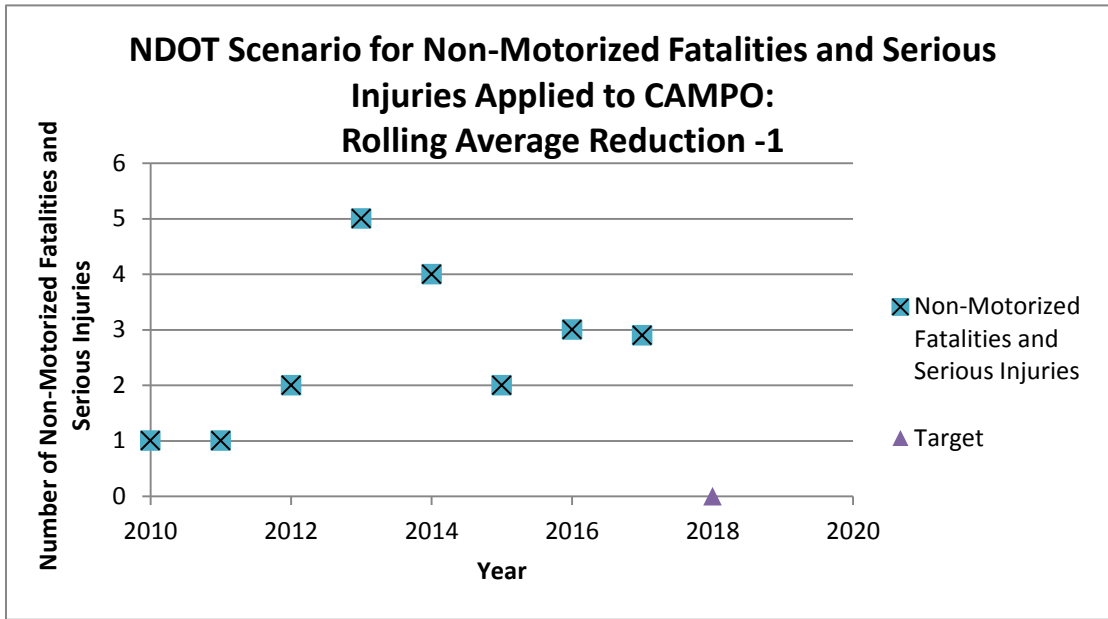
The Nevada Department of Transportation (NDOT) adopted an overall statewide target of a rolling average reduction -1 on August 31, 2017. Due to CAMPO's population size and occurrences of fatalities and serious injuries, staff selected the method of a rolling average reduction of -.50%. Other trends that were considered were rolling average reductions of -.75%, -1%, and -2%.



To calculate Rolling Average Reduction minus 1:

- Use projected rolling average for 2014-2018=2.76
- Your projected rolling average would be  $2.76 - 1 = 1.76$
- Use projected rolling average to calculate the target fatalities
  - $1.76 * 5 = 8.80$  (Sum of 2014-2017 fatalities)
  - $8.80 - 10.20 = -1.40$  (Target Fatalities)





## CAMPO ADOPTED SAFETY PM TARGETS (2017):

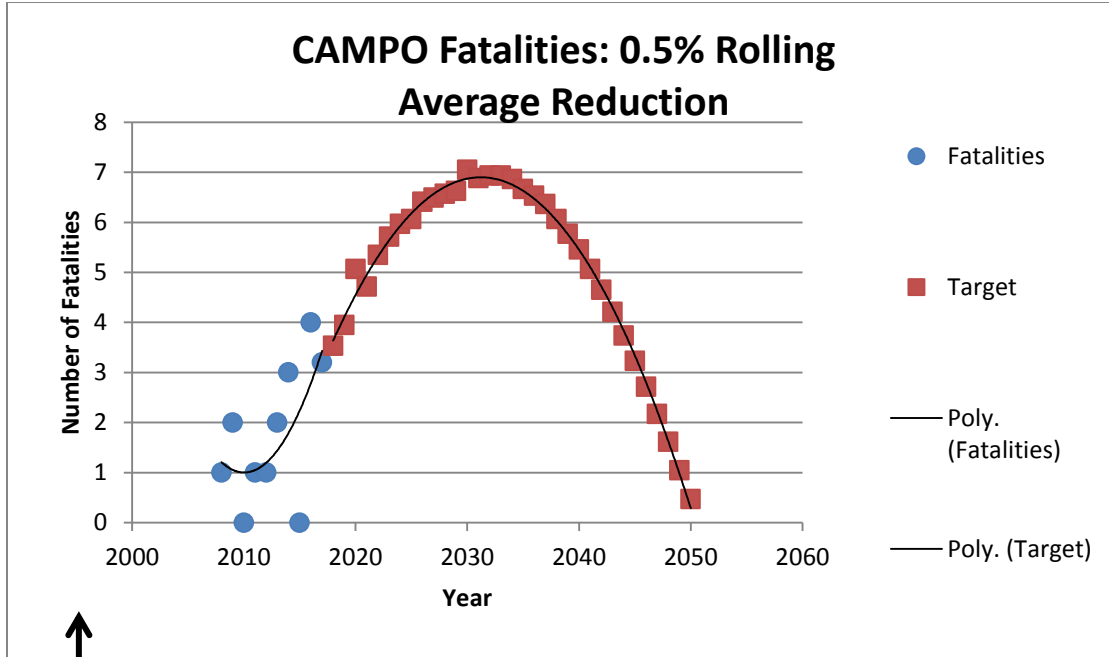
Number of Fatalities: 0.5% Average Reduction

Rate of Fatalities Per 100 Million VMT: 0.5% Average Reduction

Number of Serious Injuries: 0.5% Average Reduction

Rate of Serious Injuries Per 100 Million VMT: 0.5% Average Reduction

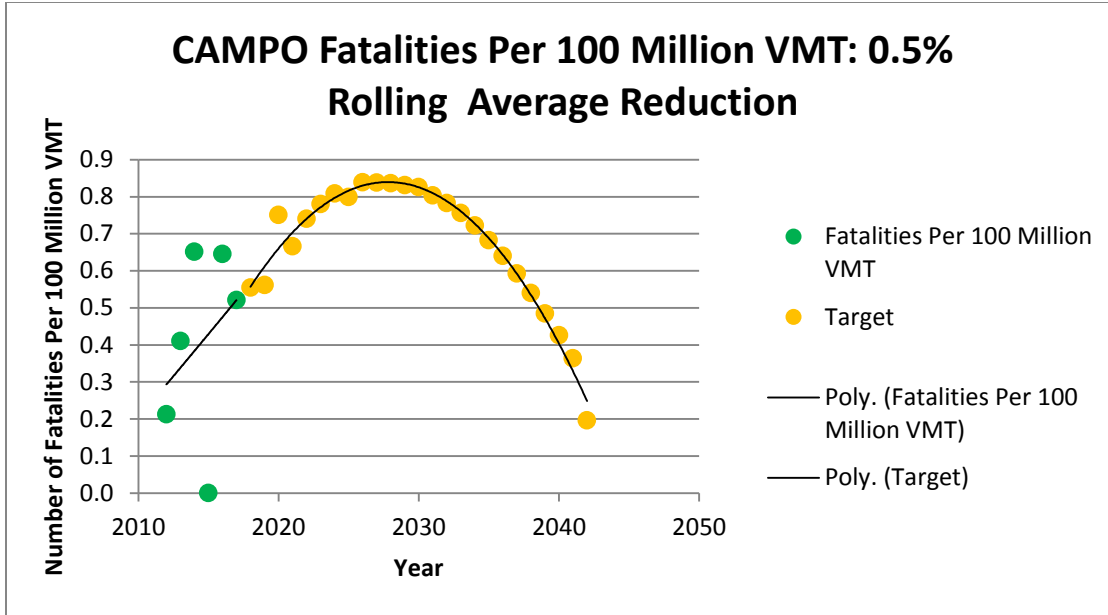
Number of Non-Motorized Fatalities and Serious Injuries: 0.5% Average  
Reduction



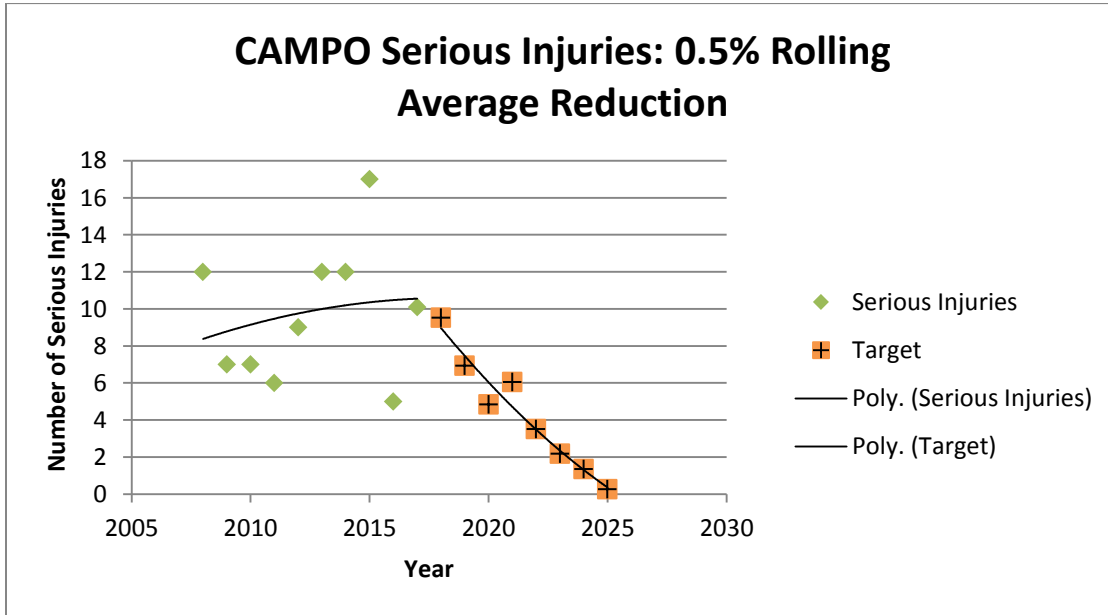
**To calculate projected fatalities with .50% decrease for 2018:**

- Use rolling average for 2014-2018 to calculate Projected Rolling Average
  - $\text{Projected Rolling Average} \times (100\% - .5\%) = \text{Projected Target Rolling Average}$
- Use projected rolling average to calculate the target fatalities
  - $\text{Projected Target Rolling Average} \times 5 - \text{Sum of 2014-2017 fatalities} = \text{Target Fatalities}$

Year	Target Fatalities	Difference	Increase or Decrease (%)
2018	3.5		
2019	4.0	0.4	11.9
2020	5.1	1.1	28.3
2021	4.7	-0.4	-7.0
2022	5.4	0.6	13.5
2023	5.7	0.4	6.9
2024	6.0	0.3	4.4
2025	6.1	0.1	1.6
2026	6.4	0.4	5.7
2027	6.5	0.1	1.3
2028	6.6	0.1	1.2
2029	6.6	0.1	0.9
2030	7.1	0.4	6.3
2031	6.9	-0.2	-2.3
2032	6.9	0.1	0.7
2033	6.9	0.0	0.0
2034	6.9	-0.1	-1.1
2035	6.7	-0.2	-2.9
2036	6.5	-0.1	-2.0
2037	6.4	-0.2	-2.5
2038	6.1	-0.3	-4.7
2039	5.8	-0.3	-4.8
2040	5.5	-0.3	-5.5
2041	5.1	-0.4	-7.0
2042	4.7	-0.4	-8.3
2043	4.2	-0.4	-9.4
2044	3.7	-0.5	-11.2
2045	3.2	-0.5	-13.5
2046	2.7	-0.5	-16.1
2047	2.2	-0.5	-20.0
2048	1.6	-0.6	-25.7
2049	1.0	-0.6	-35.2
2050	0.5	-0.6	-54.8

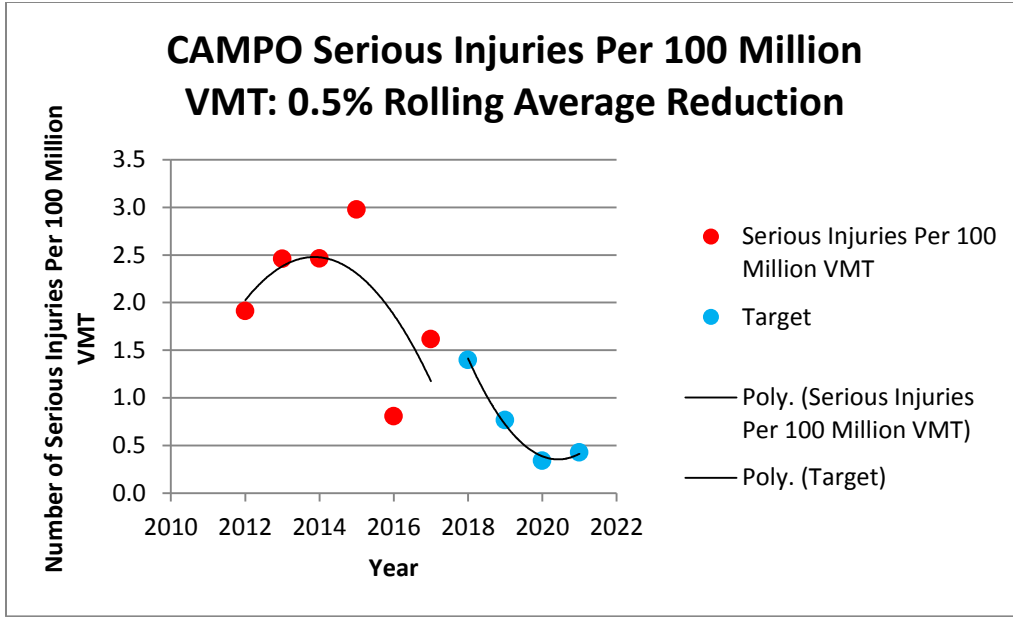


Year	Target Fatalities Per 100 Million VMT	Difference	Increase or Decrease (%)
2018	0.6		
2019	0.6	0.0	1.2
2020	0.8	0.2	33.8
2021	0.7	-0.1	-11.2
2022	0.7	0.1	11.1
2023	0.8	0.0	5.4
2024	0.8	0.0	3.7
2025	0.8	0.0	-1.2
2026	0.8	0.0	5.0
2027	0.8	0.0	-0.1
2028	0.8	0.0	-0.3
2029	0.8	0.0	-0.6
2030	0.8	0.0	-0.6
2031	0.8	0.0	-2.7
2032	0.8	0.0	-2.6
2033	0.8	0.0	-3.5
2034	0.7	0.0	-4.4
2035	0.7	0.0	-5.5
2036	0.6	0.0	-6.1
2037	0.6	-0.1	-7.5
2038	0.5	-0.1	-8.8
2039	0.5	-0.1	-10.3
2040	0.4	-0.1	-12.1
2041	0.4	-0.1	-14.6
2042	0.2	-0.2	-46.0

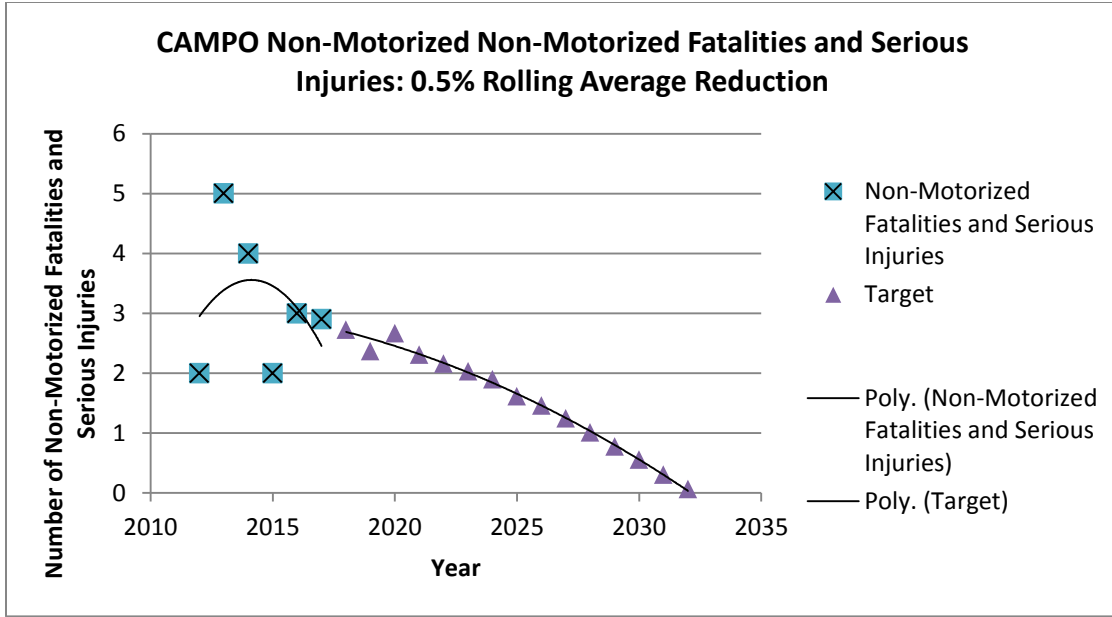


Year	Target Serious Injuries	Difference	Increase or Decrease (%)
2018	3.5		
2019	3.9	0.4	11.2
2020	5.0	1.1	27.4
2021	4.5	-0.4	-8.5
2022	5.1	0.6	12.2
2023	5.4	0.3	5.4
2024	5.5	0.1	2.5
2025	5.5	0.0	-0.6





Year	Target Serious Injuries Per 100 Million VMT	Difference	Increase or Decrease (%)
2018	1.4		
2019	0.8	-0.6	-45.2
2020	0.3	-0.4	-55.7
2021	0.4	0.1	26.0



Year	Target Non-Motorized Fatalities and Serious Injuries	Difference	Increase or Decrease (%)
2018	2.7		
2019	2.4	-0.4	-13.2
2020	2.7	0.3	12.7
2021	2.3	-0.4	-13.5
2022	2.2	-0.2	-6.4
2023	2.0	-0.1	-6.0
2024	1.9	-0.1	-6.6
2025	1.6	-0.3	-14.8
2026	1.5	-0.2	-9.6
2027	1.2	-0.2	-14.7
2028	1.0	-0.2	-18.8
2029	0.8	-0.2	-23.5
2030	0.6	-0.2	-28.0
2031	0.3	-0.3	-45.0