



*TECHNICAL MEMORANDUM #1
ATTACHMENT A
Description and Query Definitions for Crash Characteristics*

CENTRAL ARIZONA GOVERNMENTS
STRATEGIC TRANSPORTATION SAFETY PLAN

February 5, 2015

CAG STRATEGIC TRANSPORTATION SAFETY PLAN

Characteristic	Description	Data required	Queries	Steps required
<i>Geographic Location</i>				
Urban	Count of fatalities and serious injuries from crashes within an urban boundary	Incident location and Urban area file	Urban	Urbanized boundary is based on the 2010 U.S. Census designation of urbanized areas. Select incident locations within the Urbanized boundary. Sum victim counts from selected Incidents.
Rural	Count of fatalities and serious injuries from crashes not within an urban boundary	Incident location and Urban area file	Not Urban	Urbanized boundary is based on the 2010 U.S. Census designation of urbanized areas. Select victims from incident locations not within the Urbanized boundary. Sum victim counts from selected Incidents.
State Road	Count of fatalities and serious injuries from crashes on state managed roads. These include all Interstate, U.S. Highways, and State Routes.	Incident location and State routes file	Intersect 100 ft. buffer of the State Roadway (definition query on State roads SUBTYPEFIE <> 73 AND SUBTYPEFIE <> 75)	Extract a state route network from ADOT HPMS network based on road type (Interstate, State route etc.). Select all incidents within 100 ft. buffer of State Roadway network file. Sum victim counts from selected Incidents.
Other Road	Count of fatalities and serious injuries from crashes on a road other than the state highway system (city, tribal)	Incident location and State routes file	Select victims from incident locations not within 100 ft. buffer of the State Roadway network file.	Select all incidents that are not part of state routes. Sum victim counts from selected Incidents.
Tribal Land	Count of fatalities and serious injuries from crashes on Tribal Lands	Incident location and Tribal Lands file	Tribal Lands	Select victims from all incidents within Tribal Lands. Sum victim counts from selected Incidents.

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Characteristic	Description	Data required	Queries	Steps required
<i>Roadway Location or Geometric Type</i>				
Intersection Related	Count of fatalities and serious injuries from crashes involving an intersection location	Incident data	[JunctionRelation]=1 or [JunctionRelation]=2 or (([JunctionRelation]=11 or [JunctionRelation]=12) and ((([IntersectionType]>1 and [IntersectionType]<8) or [IntersectionType]=98))	Selected all incidents that were described as being at an intersection or intersection related that was not an interchange, or being at or related to an interchange intersection if the intersection was; a four way intersection, T intersection, Y intersection, intersection as part of an interchange, traffic circle, roundabout, five point or more, or related to a legacy intersection prior to 2009. Sum victim counts from selected Incidents.
Lane Departure Related	Count of fatalities and serious injuries from crashes involving a vehicle Lane Departure	Incident data	([CollisionManner]=5 or [CollisionManner]=6 or [CollisionManner]=7) or [FirstHarmfulEvent]=1 or ([FirstHarmfulEvent]>=11 and [FirstHarmfulEvent]<=14) or ([FirstHarmfulEvent]>=29 and [FirstHarmfulEvent]<=49)	Selected all incidents in which the collision manner was a head on collision, or a sideswipe. Also selected all incidents where the first harmful event was, an overturn or rollover, vehicle ran off the road, crossed the median or centerline, or first harmful event was collision with a number of fixed objects. Sum victim counts from selected Incidents.
Work Zone Related	Count of fatalities and serious injuries from crashes involving a Work Zone	Unit data	([RoadCondition1]>49 and [RoadCondition1]<56) or ([RoadCondition2]>49 and [RoadCondition2]<56)	Selected all units that experienced a lane closure, work on shoulder or median, intermittent or moving work, a work zone, or workers present at the time of the accident. Sum victim counts from selected Incidents.

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Characteristic	Description	Data required	Queries	Steps required
<i>Person Type</i>				
Young Driver (13-24)	Count of fatalities and serious injuries from crashes involving at least one Younger Drive	Person data	PersonType =1 and (Age >=13 and Age <=24)	Select all incidents where drivers are 24 or younger. Sum victim counts from selected Incidents.
65 Plus	Count of fatalities and serious injuries from crashes involving at least one Senior Driver or Senior Pedestrian or Cyclist	Person data	(PersonType =1 or PersonType =2 or PersonType =3) and AGE >=65 and AGE <=99	Select all incidents where drivers, pedestrians, or bicyclists 65 and over. Sum victim counts from selected Incidents.
Pedalcyclist Involved	Count of fatalities and serious injuries from crashes involving a Bicycle or other Pedalcyclist	Person data	PersonType =3	Select all incidents that involved people who were bicyclists. Sum victim counts from selected Incidents.
Pedestrian Involved	Count of fatalities and serious injuries from crashes involving a Pedestrian	Person data	PersonType =2	Select all incidents that involved people who were pedestrians. Sum victim counts from selected Incidents.

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Characteristic	Description	Data required	Queries	Steps required
<i>Behavioral Condition</i>				
Aggressive Driver	Count of fatalities and serious injuries from crashes involving an Aggressive Driver	Person data	PersonType = 1 and (Violation1 = 2 or Violation1 = 3 or Violation2 = 2 or Violation2 = 3) and (Violation1 = 4 or Violation1 = 6 or Violation1 = 8 or Violation1 = 11 or Violation1 = 12 or Violation1 = 15 or Violation1 =106 or Violation2 =4 or Violation2 =6 or Violation2 =8 or Violation2 =11 or Violation2 =12 or Violation2 =15 or Violation2 =106)	Select all drivers where a violation was marked for speeding AND one other of the following: Following too Closely [4], Disregarded Traffic Signal [6], Drove/Rode in Opposing Traffic Lane [8], Passed in No Passing Zone [11], Unsafe Lane Change [12], Other Unsafe Passing [15], Failed to Stop for Red Signal [106]. Sum victim counts from selected Incidents.
Alcohol Involved	Count of fatalities and serious injuries from crashes involving Alcohol impaired driver, pedestrian, or bicyclist	Person data	PersonType <> 4 and Physical4 = 4	Select all persons who were not passengers and were described as having alcohol affecting them. Sum victim counts from selected Incidents.
Distracted Driver	Count of fatalities and serious injuries from crashes involving a Distracted Driver	Person data	PersonType =1 and (Violation1 =16 or Violation2 =16)	Selected all drivers who were written a violation for inattention or distraction. Sum victim counts from selected Incidents.
Drug Involved	Count of fatalities and serious injuries from crashes involving a Drug impaired driver, pedestrian, or bicyclist	Person data	PersonType <> 4 and Physical5 = 5	Selected all people who were not passengers and were described as having drugs affecting them. Sum victim counts from selected Incidents.

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Characteristic	Description	Data required	Queries	Steps required
<i>Behavioral Condition continued</i>				
Impaired Driver	Count of fatalities and serious injuries from crashes involving an Impaired Driver	Person data	PersonType = 1 and (Physical1 = 1 or Physical2 = 2 or Physical3 = 3 or Physical4 = 4 or Physical5 = 5 or Physical6 = 6)	Select all drivers who were described as ill, physically impaired, had fallen asleep or were fatigued, were affected by alcohol, were affected by drugs, or were affected by medication. Sum victim counts from selected Incidents.
Unhelmeted Motorcyclist	Count of fatalities and serious injuries from crashes involving an Unhelmeted Motorcyclist	Person and Unit data	SafetyDevice = 1 and PersonType = 1 and (BodyStyle = 121 or BodyStyle = 122 or BodyStyle = 123 or BodyStyle = 124 or BodyStyle = 125 or BodyStyle = 126 or BodyStyle = 127 or BodyStyle = 128)	Select all drivers not using restraint (aka no helmet) where the vehicle type from the Unit file is a motorcycle. Sum victim counts from selected Incidents.
Restraint Usage	Count of fatalities and serious injuries from crashes involving at least one unrestrained motorist	Person data	(PersonType = 1 or PersonType = 4) and SafetyDevice = 1	Select all drivers and passengers that were not wearing any type of safety device. Sum victim counts from selected Incidents.
Sleepy or Fatigued	Count of fatalities and serious injuries from crashes involving a Sleepy or Fatigued driver, pedestrian, or bicyclist	Person data	PersonType <> 4 and Physical3 = 3	Select all people who were not passengers who were described as having fallen asleep or being fatigued. Sum victim counts from selected Incidents.
Speeding	Count of fatalities and serious injuries from crashes involving Speeding	Person data	PersonType = 1 and (Violation1 = 2 or Violation1 = 3 or Violation2 = 2 or Violation2 = 3)	Select drivers that were marked on the violation/behavior portion of the crash record for speed to fast for conditions or exceeding lawful speed. Sum victim counts from selected Incidents.

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Characteristic	Description	Data required	Queries	Steps required
<i>Vehicle Type</i>				
Motorcycle Involved	Count of fatalities and serious injuries from crashes involving a Motorcycle	unit data	BodyStyle =121 or BodyStyle =122 or BodyStyle =123 or BodyStyle =124 or BodyStyle =125 or BodyStyle =126 or BodyStyle =127 or BodyStyle =128	Selected all units that were motorcycles. Sum victim counts from selected Incidents.
Train Involved	Count of fatalities and serious injuries from crashes involving a railway or light rail Train	Incident data	FirstHarmfulEvent =9 or FirstHarmfulEvent =20	Select all incidents where the first harmful event was a collision with a train, be it standard or light rail. Sum victim counts from selected Incidents.
Truck Involved	Count of fatalities and serious injuries from crashes involving at least on Truck	unit data	BodyStyle >=54 and BodyStyle <=88	Select all units that were heavy vehicles including various truck types and buses. Sum victim counts from selected Incidents.
Multiple Vehicles	Count from crashes involving two or more vehicles	Incident data	UnitNumber >1	Select all incidents with more than one party involved. Sum victim counts from selected Incidents.

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Characteristic	Description	Data required	Queries	Steps required
<i>Environmental Condition</i>				
Dust Related (Windy)	Count of fatalities and serious injuries from crashes involving Dusty or Windy conditions	Incident data	Weather =6 or Weather =7	Select all incidents where the weather was described as severe crosswinds, or blowing sand, soil or dirt. Sum victim counts from selected Incidents.
Wildlife/Animal Involved	Count of fatalities and serious injuries from crashes involving wildlife, livestock, or other animals	Incident data	FirstHarmfulEvent =21 or FirstHarmfulEvent =22 or FirstHarmfulEvent =23 or FirstHarmfulEvent =24	Select all incidents where the first harmful event was a collision with an animal. Sum victim counts from selected Incidents.
Wet Weather	Count of fatalities and serious injuries from crashes involving wet weather conditions	Incident data	Weather =3 or Weather =4 or Weather =5	Select all incidents that occurred during any form of precipitation. Sum victim counts from selected Incidents.
Dusk/Dawn	Count of fatalities and serious injuries from crashes during dusk or dawn light conditions	Incident data	LightCondition =2 or LightCondition =3	Selected all incidents that occurred at dusk or dawn. Sum victim counts from selected Incidents.
Dark - No light	Count of fatalities and serious injuries from crashes during night at unlit locations	Incident data	LightCondition =5	Select all incidents that were listed to have occurred when it was dark out with no lighting. Sum victim counts from selected Incidents.