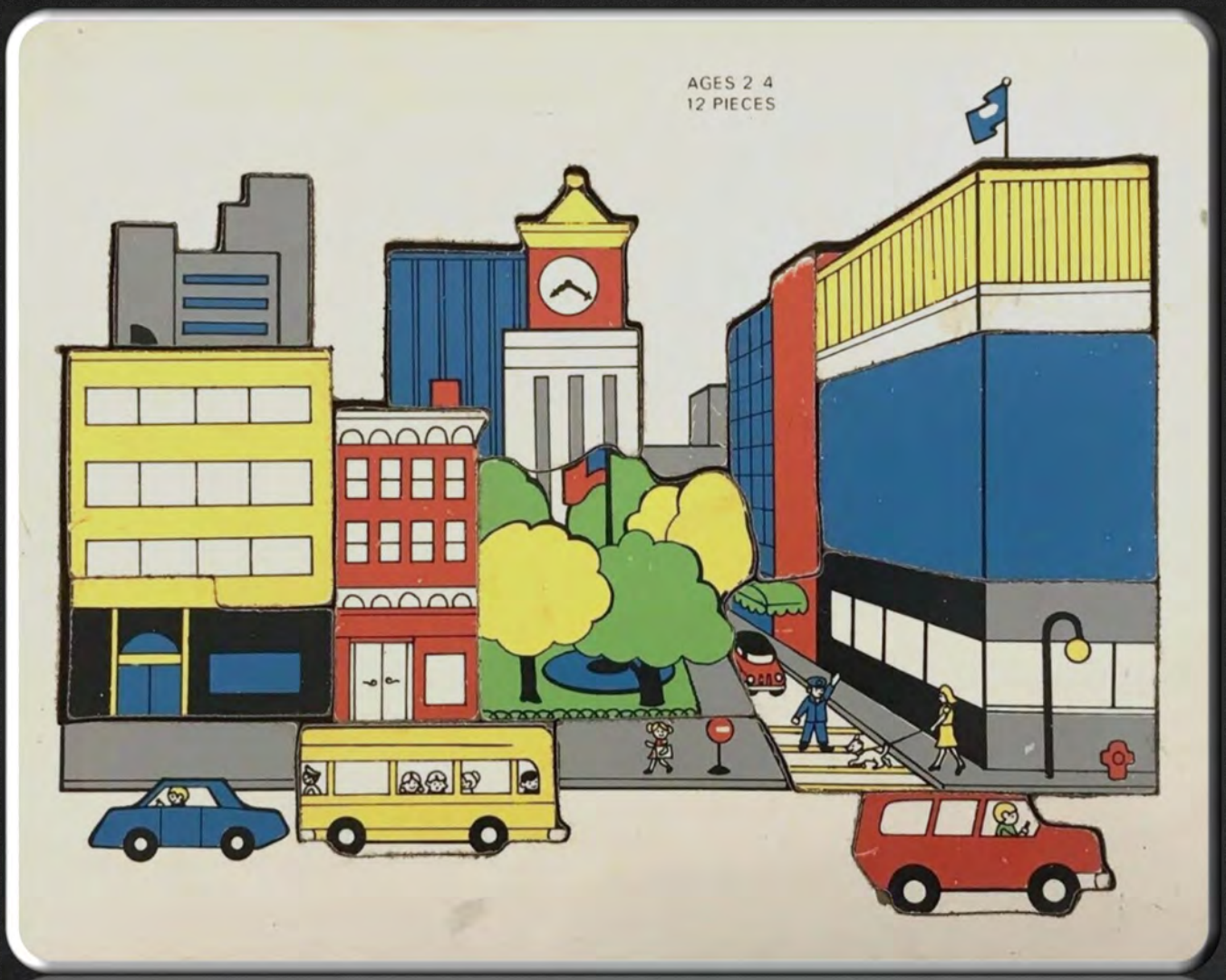
General Information



ABBREVIATIONS & ACRONYMS

AADT - ANNUAL AVERAGE DAILY TRAFFIC
ADT - AVERAGE DAILY TRAFFIC
AMATS - ANCHORAGE METROPOLITAN AREA TRANSPORTATION SOLUTIONS
APS - AUDIBLE PEDESTRIAN SIGNALS
ASD - ANCHORAGE SCHOOL DISTRICT
CDP - COUNT DOWN PEDESTRIAN
CIP - CAPITAL IMPROVEMENT PROGRAM
CLASS - STREET CLASSIFICATION
CNT - COUNT
CNTRL - CONTROL
COL - COLLISION
DMI - DISTANCE MEASURING INSTRUMENT
DOT & PF - DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
DOY - DAYS OF YEAR
EB - EASTBOUND
ER - EAST RAMP
FAT - FATALITY
GPS - GLOBAL POSITIONING SYSTEM
HPP - HIGH PRIORITY PREEMPTION
HSIP - HIGHWAY SAFETY IMPROVEMENT PROGRAM
INJ - INJURY
LT - LEFT TURN
MOA - MUNICIPALITY OF ANCHORAGE
MP - MILEPOINT
MPH - MILES PER HOUR
NB - NORTHBOUND
NO - NUMBER
NR - NORTH RAMP
ORF - OVERHEAD RED FLASH
OTC - OTHER TRAFFIC CONTROL
OUI - OPERATOR UNDER THE INFLUENCE
OYF - OVERHEAD YELLOW FLASH
PD - PROPERTY DAMAGE
PED - PEDESTRIAN
RDB - ROUNDABOUT
RP - RAMP
RT - RIGHT TURN
SB - SOUTHBOUND
SI - SAFETY INDEX
SPC - SPEED CUSHION
SPH - SPEED HUMP
SPT - SPEED TABLE
SR - SOUTH RAMP
SS - STOP SIGN
TFC - TRAFFIC CIRCLE
TS - TRAFFIC SIGNAL
VEH - VEHICLE
VMT - VEHICLE MILES TRAVELED
WB - WESTBOUND
WR - WEST RAMP

GLOSSARY

Annual Average Daily Traffic	Total vehicular volume for a 24 hour period calculated to represent a typical day of the year.
Audible Pedestrian Signal	A pedestrian signal device that also communicates information about pedestrian timing in non-visual format such as audible tones, verbal messages, and / or vibrating surfaces.
Collision Rate	Ratio of traffic collisions per one million entering vehicles for an intersection or road segment.
Count Down Pedestrian Signal	Pedestrian signal devices that also have flashing numbers which count down the number of seconds remaining until the end of the pedestrian interval.
Critical Collision Rate	A rate calculated per location utilizing statewide collision trends for intersection and / or roadway geometry types.
Fatal Collision	A traffic collision involving a moving vehicle, which results in at least one human fatality within 30 days of the date of the collision.
Fatality Rate	Ratio of fatal traffic collisions per one million vehicles entering a specified location.
High Priority Preemption	An operational system that helps emergency vehicles quickly reach their destination through safe disruption of normal traffic signal operation.
Highway Safety Improvement Program	A federally mandated program for reducing collisions that result in injuries or fatalities. Initially locations are reviewed for: emerging patterns, numbers of incidents, severity of injuries, types of collisions, and locations with a safety index above 0.9. Corrective action is then determined based on all available traffic information.
Incident	A numerical value representing applicable traffic collisions.
Injury	Physical harm or damage to a person.
Injury Rate	Ratio of injury traffic collisions per one million vehicles entering a specified location.
Injury Collision	A traffic collision in which at least one driver, passenger or non-occupant receives an injury, but no fatalities have resulted within 30 days of the collision.

GLOSSARY

Major Injury Collision — A traffic collision in which at least one driver, passenger or non-occupant receives an incapacitating injury, but no fatalities have resulted within 30 days of the collision.

Minor Injury Collision — A traffic collision in which at least one driver, passenger or non-occupant receives an non-incapacitating injury, but no fatalities have resulted within 30 days of the collision.

Non-injury Collision — A traffic collision which doesn't involve any injuries or fatalities as a direct result of the collision.

Property Damage Collision — A non-injury collision resulting in property damage.

Safety Index — Ratio of collision rate to critical collision rate used for the HSIP collision location screening process. This calculated SI factor uses: severe collision occurrences, number of traveling vehicles, and state wide collision trends based on location type. A location type refers to: kind of travel usage (intersection or roadway), roadway category (urban or rural), traffic control, and number of approach lanes.

Speed Study (85th Percentile) — The most frequently used measure of operating speed. It is based on the distribution of the collected speeds at a specified location and represents the speed that 85% of the free flowing motorists drive at or below.

Street Classification — Classification given to streets located within the Municipality of Anchorage. For more detailed information, see the Official Streets & Highways Plan.

STREET CLASS	FACILITY TYPE
V	FREEWAY
IV	EXPRESSWAY
III	MAJOR ARTERIAL
II	MINOR ARTERIAL
I	COLLECTOR

Traffic Collision — Traffic crashes or accidents which occur on roadways. This does not include those that occur in parking lots or on private property.

Traffic Control — Any manual, electronic or mechanical device which directs traffic movements. *(i.e. TS-traffic signal, SS-stop sign, etc.).*

Traffic Data Management System — An online and publicly accessible system housing traffic information.

FORMULAS

$$\textbf{RATE} = \frac{\text{(NUMBER COLLISIONS * 1,000,000)}}{\text{(AADT * 365)}}$$

$$\textbf{INJURY RATE} = \frac{\text{(NUMBER INJURY COLLISIONS * 1,000,000)}}{\text{(AADT * 365)}}$$

$$\textbf{FATALITY RATE} = \frac{\text{(NUMBER FATALITY COLLISIONS * 1,000,000)}}{\text{(AADT * 365)}}$$

HSIP Intersection Ranking Factors

Alaska DOT/PF
Highway Safety Improvement Program

High Accident Location Screening Process

Formulas and Factors

For the FFY '18 HSIP

Statewide Average Intersection Accident Rates

Type No	*Intersection Type*		*Rate*
1	Signalized	2 Approach*	1.18
2		3 Approach*	1.02
3	2/1/2017	4 Approach*	1.57
4	All Way STOP	All	0.73
5	Two Way STOP	2 Approach*	0.57
6		3 Approach*	0.52
7		4 Approach*	0.55

Statewide Average Segment Accident Rates

Type No	*Segment Type*		*Rate*
1	Urban	2 Lane	1.60
2		4 or more undivided	1.90
3		4 or more divided	1.30
4		Freeway	0.90
5	Rural	2 Lane	2.3
6		4 or more undivided	2.0
7		4 or more divided	2.0
8		Freeway	1.1

***Approach:** A leg of an intersection that carries traffic approaching the intersection. For example, a 4-legged intersection of 2 one-way roads has 2 approaches as defined here.

SOURCE OF DATA:
AVERAGE ACCIDENT RATES: Intersection: AK Statewide HAS data 2008-12 for all intersection types. Segment: Urban - AK Statewide HAS data 2008-2012; Rural - NY State averages 2012-15

ACCIDENT COSTS: Based on 2009 federal Value of Statistical Life (VSL) cost data inflated to current year. Accident Costs are weighted and proportioned using Alaska accident experience to smooth costs (see Accident Cost Derivation Spreadsheet).

FORMULA FOR CRITICAL ACCIDENT RATES:

Rc = Ra + k * (square root(Ra/M)) + 1/(2M)

Where Rc = The critical accident rate
Ra = The statewide average accident rate for the intersection or segment type
k = A probability constant (see table below)
M = Millions of entering vehicles (intersections) or Millions of vehicle-miles (segments).

Source: NorthWestern University Traffic Institute Workbook for the "Identification and Treatment of High Hazard Locations" Course given in Anchorage 2/24 - 2/26/98. Page 8 of Section 3442 RV (Tab 5). Originally from NCHRP 162.

"k" Factors

Confidence	*k*
90.0%	1.282
95.0%	1.645
99.5%	2.576
99.9%	3.090

Accident Costs (AK 2008-2012 Acc. Data)

Property Damage Only:	$20,000
Minor Injury:	$200,000
Major Injury:	$1,001,000
Fatality:	$2,003,000