






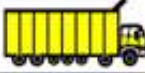








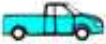



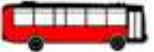






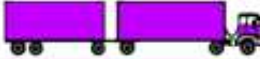

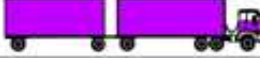








Alaska Department of Transportation & Public Facilities

Highway Data ATR/TDP Overview

Matt Murphy

Transportation Data Programs-Anchorage Field Office

September 2017

| | | | |
|---|---|--|--|
| Class 1 Motorcycles |  | Class 7 Four or more axle, single unit |  |
| Class 2 Passenger cars |  | Class 8 Four or less axle, single trailer |  |
| |  | |  |
| |  | |  |
| |  | |  |
| Class 3 Four tire, single unit |  | Class 9 5-Axle tractor semitrailer |  |
| |  | |  |
| |  | |  |
| Class 4 Buses |  | Class 10 Six or more axle, single trailer |  |
| |  | |  |
| |  | Class 11 Five or less axle, multi trailer |  |
| Class 5 Two axle, six tire, single unit |  | Class 12 Six axle, multi-trailer |  |
| |  | |  |
| |  | Class 13 Seven or more axle, multi-trailer |  |
| Class 6 Three axle, single unit |  | |  |
| |  | |  |
| |  | |  |

- 114 Continous Count Stations Statewide
- 63 with Temperature Data Probes
- Typically located on higher volume highways and roads
- Some have records back to 1960's



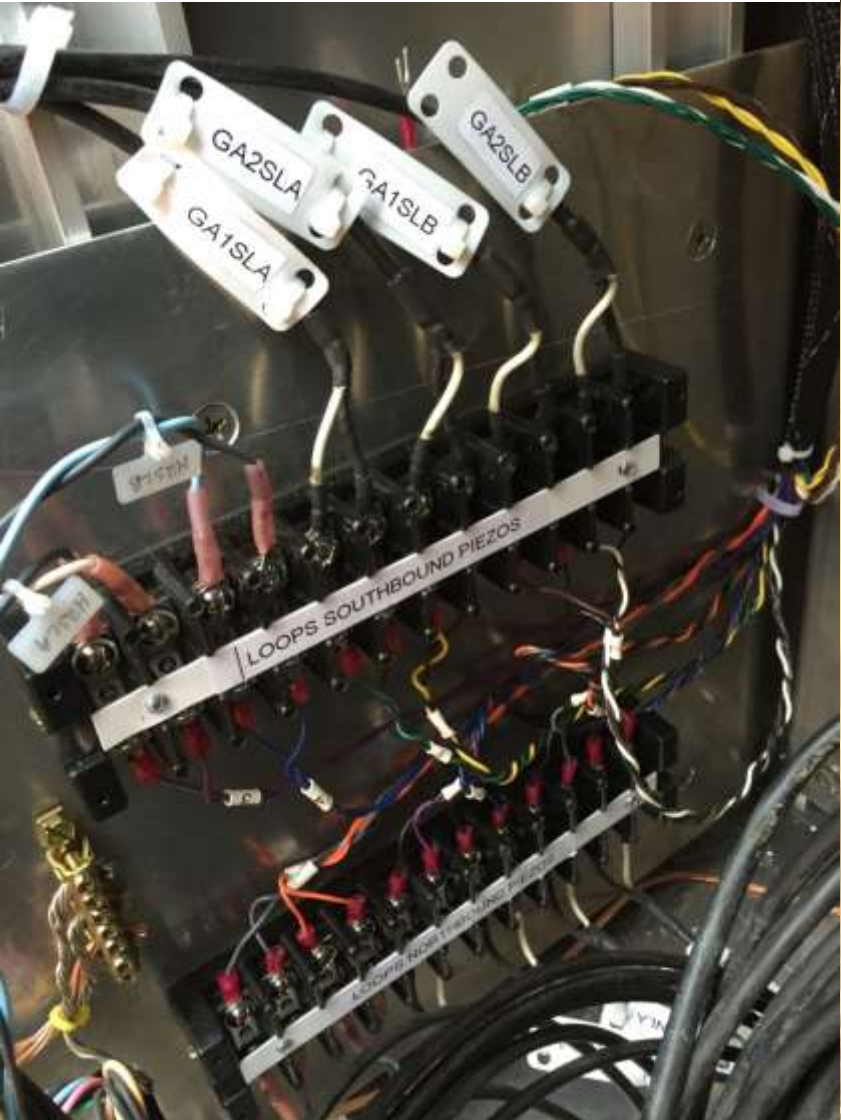


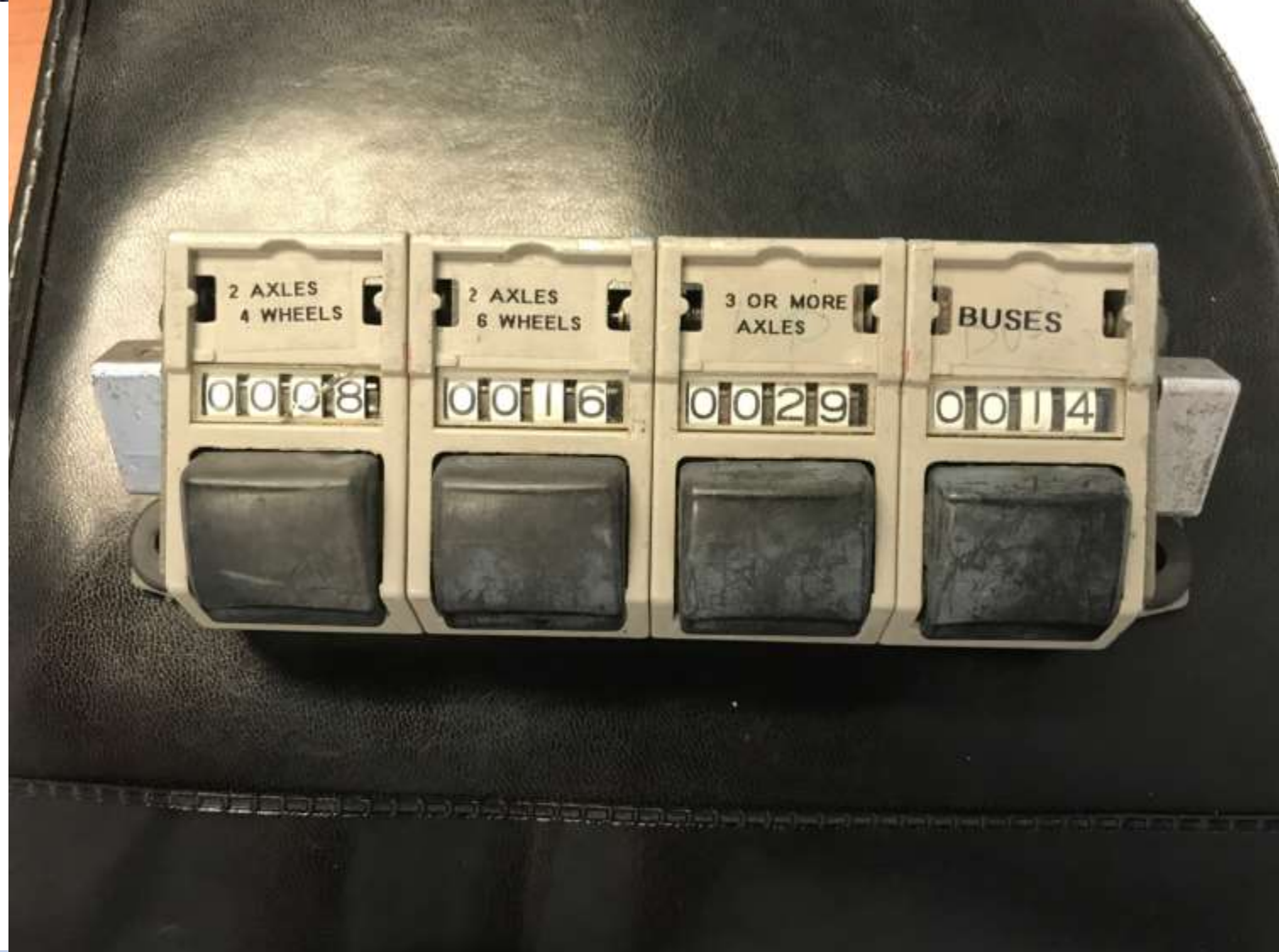
Automatic Traffic Recorders

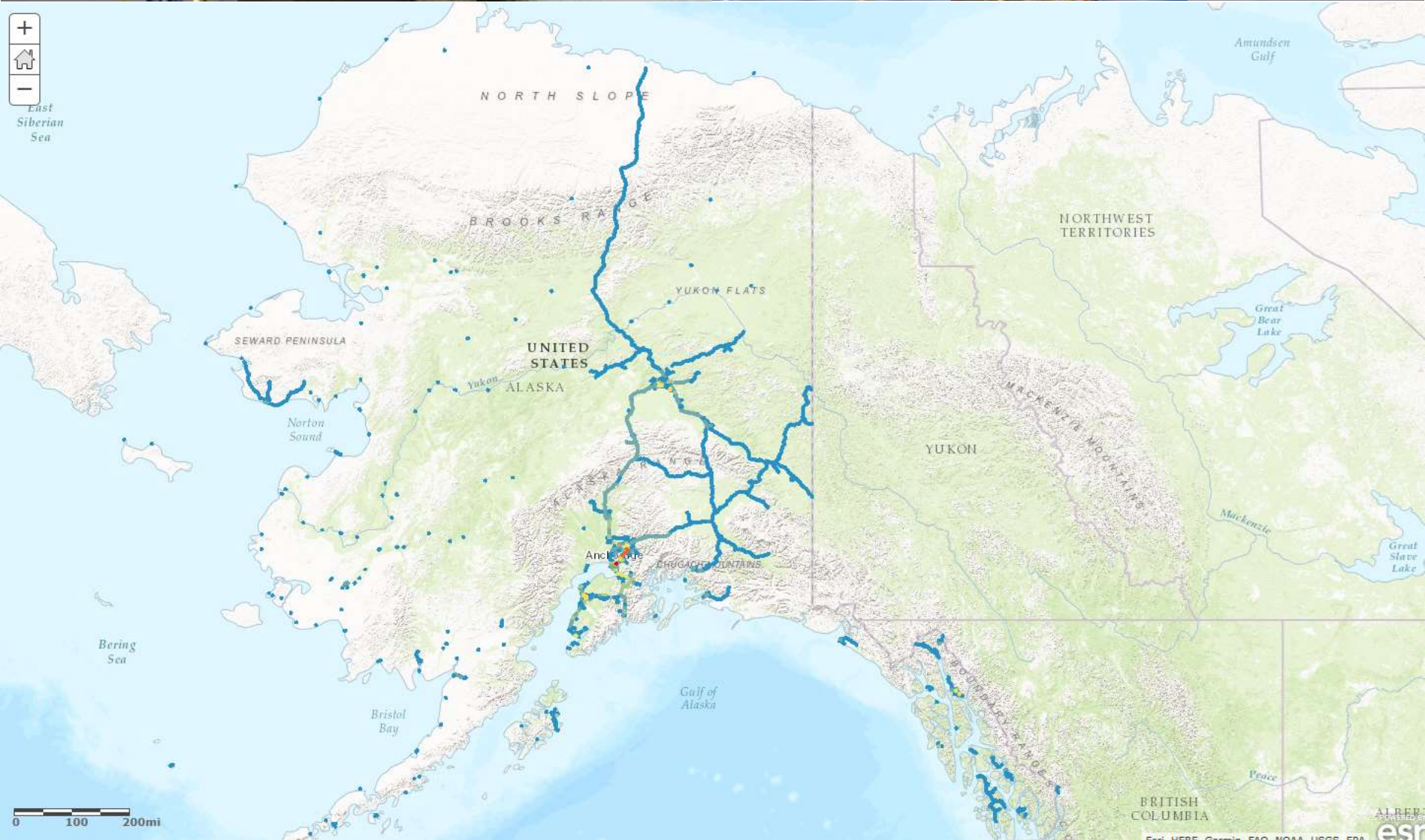
Automatic Traffic Recorder ATR Basic Functions

- Loops resonate at constant frequency until a metal object (vehicle) moves over the loop and changes the frequency
- Piezos measure axle hits by producing voltage and current when an axle/tire comes in contact with sensor















PROJECT LOCATION

ANCHORAGE

| ROADWAY SECTION | WIDTH | LENGTH |
|-----------------------------------|------------|-----------|
| SEWARD HIGHWAY | 2 x 56 FT | 1.9 MILES |
| HOMER DRIVE | 17 - 28 FT | 1.3 MILES |
| BRAYTON DRIVE | 17 - 28 FT | 1.3 MILES |
| RAMPS: DI-1, SS-1, SS-4, D-1, D-2 | 24 FT | 1.3 MILES |
| RAMPS: DI-4, D-3 | 36 FT | 0.8 MILES |
| SANDLEWOOD PLACE | 34 FT | 0.5 MILES |
| 76TH AVENUE LORE ROAD | 34 FT | 0.3 MILES |

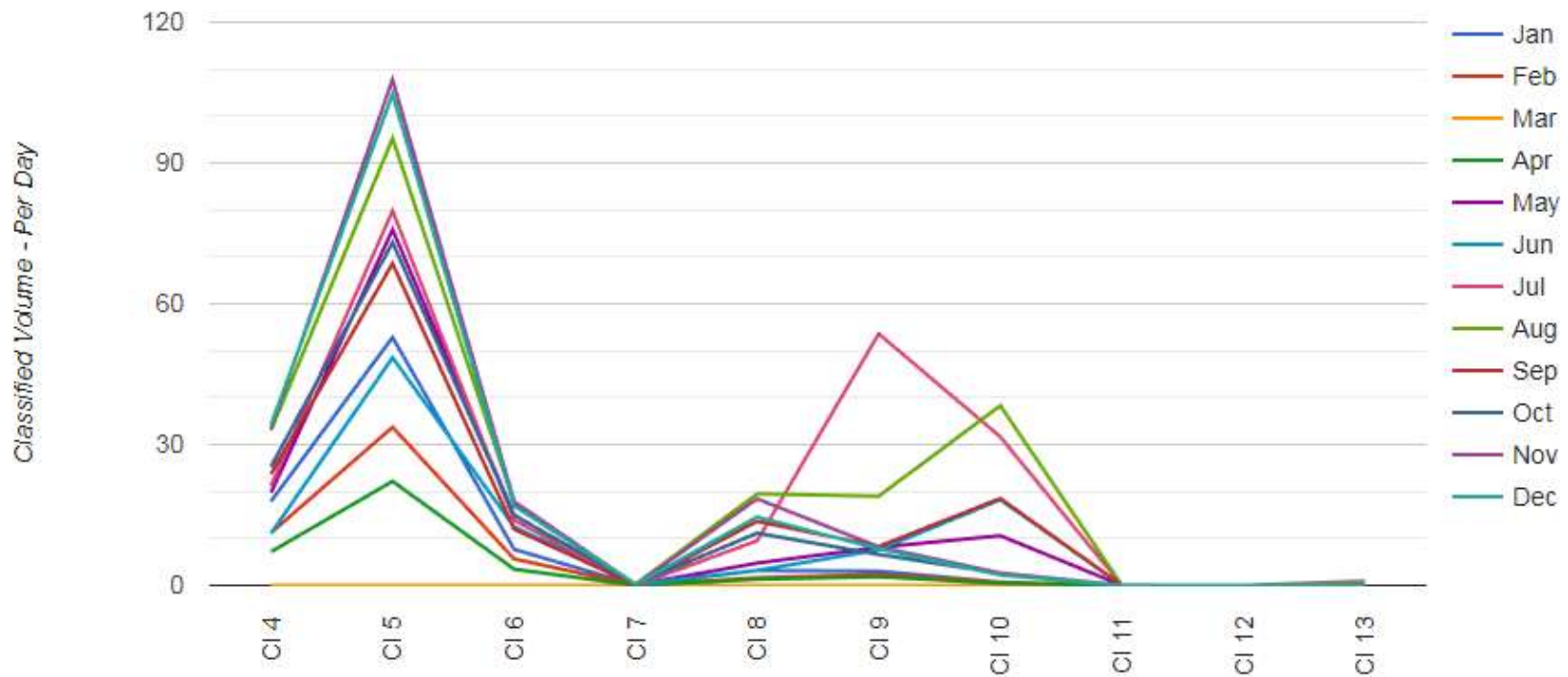
| BRIDGE NO. | WIDTH | LENGTH |
|------------|----------|--------|
| 2253 | 140.5 FT | 133 FT |

AD

CAPING

R 3 W

| DESIGN DESIGNATIONS | | | | | | |
|-------------------------|------------------|------------------|----------------|-----------------|----|-------|
| ROADWAY SECTION | A.A.D.T. 2007 | A.A.D.T. 2035 | D.H.V. 2035 | DESIGN SPEED | T | D |
| SEWARD HIGHWAY | | | | | | |
| DIMOND BLVD TO 76TH AVE | 39,000 | 68,670 | 8.9% | 70 MPH | 5% | 53/47 |
| 76TH AVE TO DOWLING RD | 54,800 | 106,900 | 8.7% | 70 MPH | 5% | 49/51 |
| HOMER DRIVE | | | | | | |
| DIMOND BLVD TO 76TH AVE | 4,500 | 6,700 | 9.1% | 45 MPH | 2% | 100 |
| 76TH AVE TO DOWLING RD | 3,500 | 3,150 | 9.0% | 45 MPH | 2% | 100 |
| BRAYTON DRIVE | | | | | | |
| DIMOND BLVD TO 76TH AVE | 8,000 | 2,500 | 9.1% | 45 MPH | 2% | 100 |
| 76TH AVE TO DOWLING RD | 4,200 | 3,750 | 7.6% | 45 MPH | 2% | 100 |
| RAMP DI-1 | -- | 12,900 | 8.5% | 20-60 MPH | 5% | 100 |
| RAMP DI-4 | 13,300 | 18,100 | 9.0% | 35-60 MPH | 5% | 100 |
| RAMP SS-1 | 6,800 | 9,400 | 8.5% | 20-60 MPH | 5% | 100 |
| RAMP SS-4 | 2,600 | 5,300 | 8.1% | 20-60 MPH | 5% | 100 |
| RAMP D-1 | 3,300 | 7,300 | 8.8% | 20-60 MPH | 5% | 100 |
| RAMP D-2 | 3,300 | 8,500 | 9.8% | 20-60 MPH | 5% | 100 |
| RAMP D-3 | 4,600 | 9,900 | 9.2% | 20-60 MPH | 5% | 100 |
| SANDLEWOOD PLACE | 960 | 1,200 | 12.0% | 25 MPH | 2% | 55/45 |
| 76TH AVENUE LORE ROAD | 7,300 4,500 | 13,400 | 8.8% | 25 30 MPH | 2% | 40/60 |





Temperature Data Probes

TDP Station: EBB - Eagle River Loop @ Briggs Bridge
Location: CDS Route 135235 at Milepoint 2.86

Six Hour Averages for 7 Days Beginning 08/29/2017

| | Tue - 08/29/2017 | | | | Wed - 08/30/2017 | | | | Thu - 08/31/2017 | | | | Fri - 09/01/2017 | | | | Sat - 09/02/2017 | | | | Sun - 09/03/2017 | | | | M |
|-----|------------------|------|------|------|------------------|------|------|------|------------------|------|------|------|------------------|------|------|------|------------------|------|------|------|------------------|------|------|------|------|
| | 06 | 12 | 18 | 24 | 06 | 12 | 18 | 24 | 06 | 12 | 18 | 24 | 06 | 12 | 18 | 24 | 06 | 12 | 18 | 24 | 06 | 12 | 18 | 24 | 06 |
| Air | 48.0 | 48.1 | 50.7 | 57.0 | 49.3 | 48.3 | 50.3 | 52.4 | 45.6 | 45.8 | 52.9 | 51.7 | 46.0 | 45.6 | 56.1 | 49.9 | 41.2 | 43.5 | 59.1 | 51.6 | 42.4 | 42.0 | 49.8 | 46.2 | 42.3 |
| Stc | 56.4 | 53.3 | 51.9 | 54.5 | 53.7 | 50.5 | 59.7 | 52.3 | 52.5 | 49.2 | 57.3 | 56.9 | 49.8 | 46.7 | 58.3 | 53.3 | 50.0 | 45.4 | 59.8 | 53.8 | 50.4 | 46.8 | 53.2 | 49.6 | 44.3 |
| Btm | 59.5 | 58.3 | 58.7 | 58.8 | 57.2 | 54.7 | 55.7 | 59.4 | 56.9 | 54.3 | 54.3 | 56.0 | 54.5 | 52.4 | 53.5 | 57.8 | 55.7 | 52.1 | 54.9 | 59.6 | 56.5 | 53.0 | 52.7 | 53.3 | 51.5 |
| 3" | 59.7 | 57.8 | 56.6 | 57.8 | 57.7 | 56.1 | 55.4 | 58.0 | 57.8 | 55.8 | 54.8 | 55.8 | 55.4 | 53.9 | 53.4 | 56.1 | 56.3 | 54.2 | 53.8 | 57.4 | 57.1 | 54.7 | 53.4 | 53.7 | 52.9 |
| 6" | 59.3 | 58.3 | 57.2 | 57.5 | 57.8 | 58.9 | 56.0 | 57.2 | 57.7 | 56.7 | 55.7 | 55.8 | 55.0 | 54.2 | 55.3 | 56.3 | 55.3 | 54.3 | 56.0 | 58.9 | 55.7 | 54.4 | 54.3 | 53.9 | |
| 9" | 58.5 | 58.2 | 57.4 | 57.2 | 57.5 | 57.1 | 56.3 | 56.6 | 57.3 | 56.9 | 56.1 | 55.8 | 55.9 | 55.4 | 54.7 | 55.0 | 55.9 | 55.6 | 54.7 | 55.3 | 56.3 | 55.9 | 54.9 | 54.5 | 54.3 |
| 12" | 57.9 | 58.0 | 57.5 | 57.2 | 57.3 | 57.1 | 56.8 | 56.5 | 57.0 | 56.9 | 56.4 | 56.0 | 56.0 | 55.7 | 55.2 | 55.0 | 55.6 | 55.7 | 55.1 | 55.1 | 55.8 | 55.8 | 55.3 | 54.8 | 54.6 |
| 18" | 57.3 | 57.5 | 57.4 | 57.1 | 57.0 | 57.0 | 56.8 | 56.5 | 56.6 | 56.7 | 56.8 | 56.2 | 56.1 | 55.9 | 55.7 | 55.3 | 56.4 | 55.6 | 55.5 | 55.2 | 55.4 | 55.7 | 55.5 | 55.2 | 54.9 |
| 24" | 56.7 | 56.9 | 56.9 | 56.8 | 56.7 | 56.6 | 56.6 | 56.4 | 56.3 | 56.3 | 56.2 | 56.0 | 55.9 | 55.7 | 55.5 | 55.4 | 55.4 | 55.4 | 55.2 | 55.2 | 55.3 | 55.3 | 55.2 | 55.0 | |
| 30" | 56.3 | 56.3 | 56.3 | 56.3 | 56.2 | 56.2 | 56.1 | 56.0 | 56.0 | 56.0 | 55.9 | 55.8 | 55.7 | 55.6 | 55.4 | 55.3 | 55.2 | 55.2 | 55.1 | 55.0 | 55.0 | 55.1 | 55.0 | 54.9 | |
| 36" | 55.7 | 55.7 | 55.7 | 55.7 | 55.7 | 55.7 | 55.6 | 55.6 | 55.5 | 55.5 | 55.5 | 55.4 | 55.3 | 55.3 | 55.2 | 55.1 | 55.0 | 54.9 | 54.8 | 54.7 | 54.7 | 54.7 | 54.7 | 54.6 | |
| 42" | 55.3 | 55.3 | 55.3 | 55.3 | 55.3 | 55.3 | 55.2 | 55.2 | 55.2 | 55.1 | 55.1 | 55.0 | 55.0 | 54.9 | 54.8 | 54.8 | 54.8 | 54.7 | 54.6 | 54.5 | 54.5 | 54.5 | 54.5 | 54.4 | |
| 48" | 54.9 | 54.9 | 54.9 | 54.9 | 54.9 | 54.9 | 54.8 | 54.8 | 54.8 | 54.8 | 54.7 | 54.7 | 54.7 | 54.6 | 54.6 | 54.6 | 54.5 | 54.4 | 54.4 | 54.3 | 54.3 | 54.2 | 54.2 | 54.2 | |
| 54" | 54.4 | 54.4 | 54.4 | 54.4 | 54.4 | 54.4 | 54.4 | 54.4 | 54.4 | 54.4 | 54.3 | 54.3 | 54.3 | 54.3 | 54.2 | 54.2 | 54.2 | 54.1 | 54.1 | 54.0 | 54.0 | 53.9 | 53.9 | 53.9 | |
| 60" | 53.9 | 53.9 | 53.9 | 53.9 | 53.9 | 53.9 | 53.9 | 53.9 | 53.9 | 53.9 | 53.8 | 53.8 | 53.8 | 53.8 | 53.7 | 53.7 | 53.7 | 53.7 | 53.6 | 53.6 | 53.6 | 53.5 | 53.5 | 53.5 | |
| 66" | 53.4 | 53.4 | 53.3 | 53.3 | 53.3 | 53.3 | 53.3 | 53.3 | 53.3 | 53.3 | 53.3 | 53.3 | 53.3 | 53.3 | 53.2 | 53.2 | 53.2 | 53.2 | 53.1 | 53.1 | 53.1 | 53.0 | 53.0 | 53.0 | |
| 72" | 53.2 | 53.1 | 53.1 | 53.1 | 53.1 | 53.1 | 53.1 | 53.1 | 53.1 | 53.1 | 53.1 | 53.1 | 53.0 | 53.0 | 53.0 | 53.0 | 53.0 | 53.0 | 53.0 | 52.9 | 52.9 | 52.9 | 52.9 | 52.8 | |

* Indicates less than 24 hours of observations.

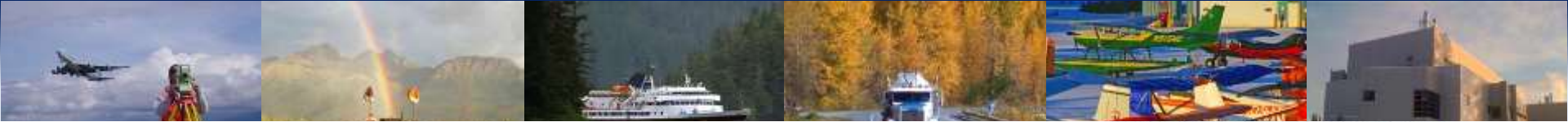
Daily Averages for 31 Days Beginning 08/05/2017

| | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 01 |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Air | 51.9 | 51.0 | 50.3 | 50.8 | 57.0 | 56.9 | 53.3 | 54.0 | 51.9 | 53.7 | 55.4 | 50.8 | 50.3 | 50.6 | 51.1 | 50.0 | 51.7 | 57.6 | 52.1 | 53.5 | 53.4 | 54.8 | 52.2 | 51.6 | 52.9 | 52.7 | 49.0 | 49.4 |
| Stc | 77.1 | 60.2 | 77.0 | 76.2 | 68.4 | 64.2 | 60.4 | 59.4 | 58.0 | 57.0 | 65.4 | 57.0 | 54.8 | 55.6 | 56.7 | 54.1 | 55.1 | 54.7 | 58.2 | 57.5 | 59.8 | 62.3 | 61.3 | 62.3 | 58.0 | 59.0 | 54.0 | 56.5 |
| Btm | 66.7 | 71.9 | 70.7 | 68.8 | 67.5 | 63.4 | 61.3 | 59.3 | 57.9 | 58.2 | 61.2 | 59.1 | 55.4 | 56.1 | 55.8 | 55.7 | 54.9 | 58.1 | 59.0 | 56.8 | 57.1 | 58.8 | 59.3 | 58.7 | 57.8 | 56.8 | 55.4 | 54.9 |
| 3" | 68.9 | 68.2 | 69.6 | 68.3 | 67.8 | 63.9 | 62.1 | 59.9 | 58.4 | 58.2 | 60.4 | 59.8 | 56.2 | 56.4 | 55.8 | 56.2 | 56.0 | 56.9 | 59.0 | 56.8 | 56.8 | 58.0 | 58.9 | 58.5 | 57.9 | 56.8 | 55.9 | 54.7 |
| 6" | 68.5 | 67.7 | 68.5 | 68.0 | 67.4 | 64.4 | 62.7 | 60.3 | 59.1 | 58.5 | 60.1 | 60.1 | 57.1 | 58.8 | 58.2 | 56.8 | 55.4 | 56.4 | 58.8 | 57.1 | 56.9 | 57.7 | 58.8 | 58.3 | 58.1 | 57.0 | 56.5 | 55.1 |
| 9" | 64.3 | 66.2 | 67.3 | 67.0 | 66.7 | 64.4 | 62.8 | 60.8 | 59.5 | 58.8 | 59.6 | 60.8 | 57.5 | 57.0 | 56.4 | 56.6 | 55.6 | 56.0 | 58.2 | 57.0 | 56.7 | 57.2 | 58.1 | 58.0 | 57.8 | 56.9 | 56.5 | 55.2 |
| 12" | 63.3 | 65.1 | 66.2 | 66.2 | 66.1 | 64.3 | 62.8 | 61.0 | 59.8 | 59.8 | 59.4 | 59.8 | 59.0 | 57.2 | 56.6 | 56.7 | 55.8 | 55.9 | 57.7 | 57.0 | 56.7 | 57.0 | 67.7 | 57.7 | 57.4 | 56.9 | 56.5 | 55.5 |
| 18" | 62.0 | 63.4 | 64.6 | 64.9 | 65.0 | 64.0 | 62.7 | 61.3 | 60.1 | 59.1 | 59.5 | 58.4 | 57.5 | 57.0 | 56.7 | 56.1 | 55.9 | 57.0 | 57.0 | 56.8 | 56.7 | 57.2 | 57.3 | 57.3 | 56.8 | 56.5 | 55.7 | |
| 24" | 60.9 | 61.9 | 63.4 | 63.8 | 63.5 | 62.2 | 61.2 | 60.1 | 59.2 | 58.8 | 59.0 | 58.4 | 57.5 | 57.0 | 56.7 | 56.3 | 55.9 | 56.4 | 56.6 | 56.3 | 56.3 | 56.6 | 56.8 | 56.6 | 56.6 | 56.3 | 55.7 | |
| 30" | 59.9 | 59.6 | 61.3 | 61.3 | 62.1 | 61.6 | 60.3 | 59.9 | 59.1 | 58.5 | 58.5 | 58.2 | 57.5 | 57.0 | 56.8 | 56.3 | 55.8 | 56.0 | 56.2 | 56.1 | 56.0 | 56.1 | 56.3 | 56.3 | 56.2 | 56.0 | 55.6 | |
| 36" | 58.8 | 58.2 | 59.8 | 60.3 | 60.6 | 60.7 | 60.4 | 59.9 | 59.3 | 58.8 | 59.1 | 57.9 | 57.7 | 57.2 | 56.7 | 56.3 | 56.0 | 55.8 | 55.5 | 55.7 | 55.6 | 55.5 | 55.8 | 55.7 | 55.8 | 55.5 | 55.2 | |
| 42" | 58.1 | 56.2 | 58.7 | 59.1 | 59.5 | 59.7 | 59.5 | 59.2 | 58.8 | 58.3 | 57.8 | 57.5 | 57.4 | 57.0 | 56.8 | 56.2 | 55.9 | 55.6 | 55.3 | 55.4 | 55.3 | 55.2 | 55.2 | 55.3 | 55.3 | 55.3 | 55.2 | 55.0 |
| 48" | 57.3 | 57.4 | 57.6 | 58.0 | 58.3 | 58.6 | 58.6 | 58.4 | 58.2 | 57.8 | 57.3 | 57.0 | 56.9 | 56.6 | 56.2 | 55.9 | 55.6 | 55.3 | 55.1 | 55.0 | 55.0 | 54.9 | 54.8 | 54.8 | 54.8 | 54.8 | 54.7 | |
| 54" | 56.5 | 56.5 | 56.7 | 56.9 | 57.2 | 57.4 | 57.6 | 57.5 | 57.4 | 57.1 | 56.8 | 56.5 | 56.3 | 56.1 | 55.8 | 55.5 | 55.3 | 55.0 | 54.8 | 54.8 | 54.6 | 54.5 | 54.4 | 54.4 | 54.4 | 54.3 | 54.3 | |
| 60" | 55.6 | 55.6 | 55.7 | 55.9 | 56.1 | 56.4 | 56.5 | 56.5 | 56.5 | 56.3 | 56.1 | 55.9 | 55.7 | 55.5 | 55.3 | 55.0 | 54.8 | 54.6 | 54.4 | 54.2 | 54.1 | 54.0 | 54.0 | 53.9 | 53.9 | 53.8 | 53.8 | |
| 66" | 54.7 | 54.8 | 54.7 | 54.9 | 55.1 | 55.3 | 55.4 | 55.5 | 55.5 | 55.5 | 55.5 | 55.1 | 55.0 | 54.8 | 54.7 | 54.5 | 54.1 | 53.9 | 53.7 | 53.6 | 53.5 | 53.4 | 53.4 | 53.3 | 53.3 | 53.3 | 53.3 | |
| 72" | 54.0 | 54.1 | 54.1 | 54.2 | 54.4 | 54.5 | 54.7 | 54.6 | 54.9 | 54.9 | 54.8 | 54.7 | 54.5 | 54.4 | 54.3 | 54.1 | 54.0 | 53.9 | 53.7 | 53.5 | 53.4 | 53.3 | 53.2 | 53.2 | 53.1 | 53.1 | 53.1 | 53.0 |

* Indicates less than 24 hours of observations.

| Temperature Scale Degrees F | | | | | | | | | | | | | | | |
|-----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--|--|--|--|
| Below 16 | 16 to <20 | 20 to <24 | 24 to <28 | 28 to <32 | 32 to <36 | 36 to <40 | 40 to <44 | 44 to <48 | 48 to <52 | 52 to <56 | 56 to <60 | | | | |





For Current Weight Restrictions click [here](#) or go to:

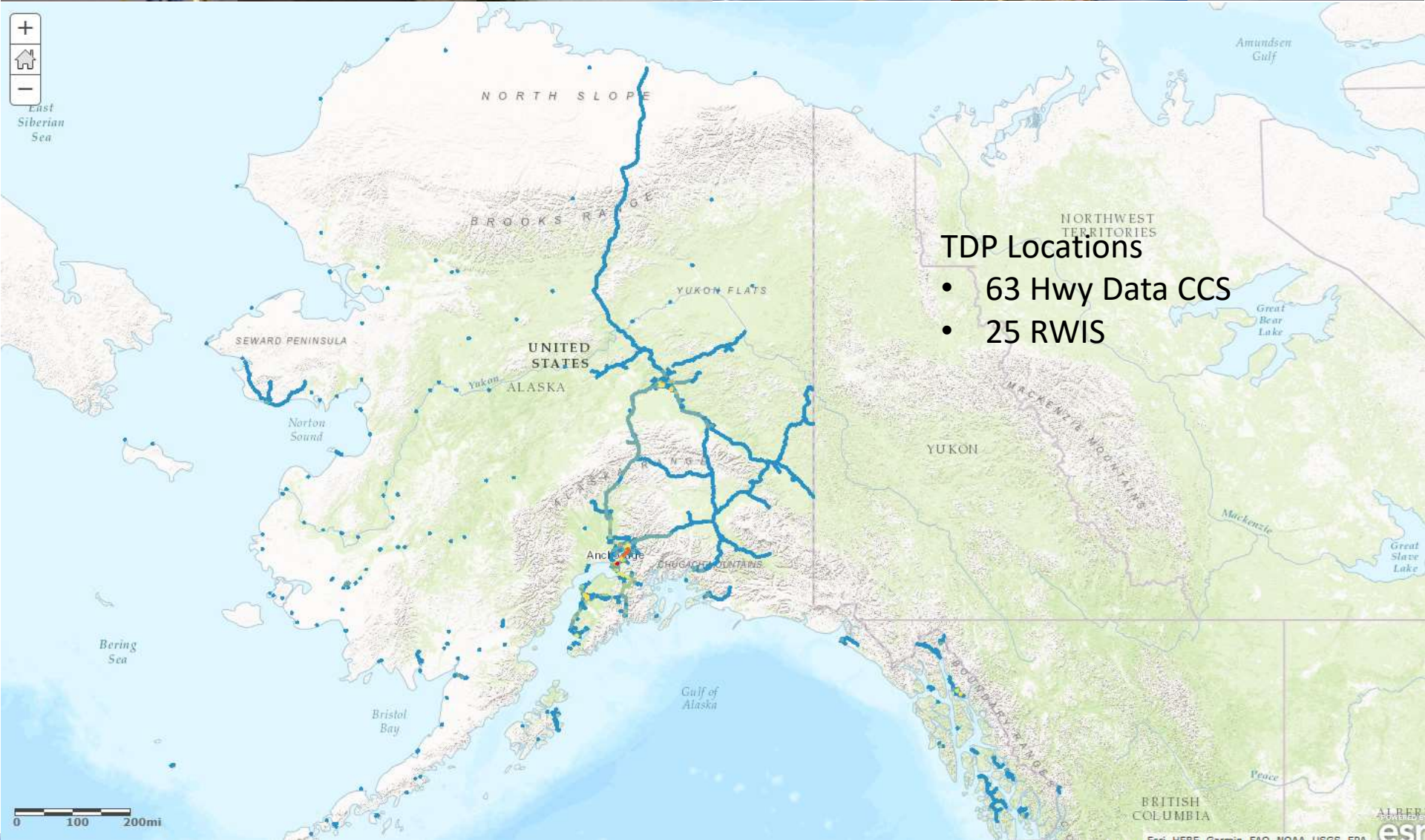


Historical Weight Restrictions in Alaska

Updated June 26, 2017 at



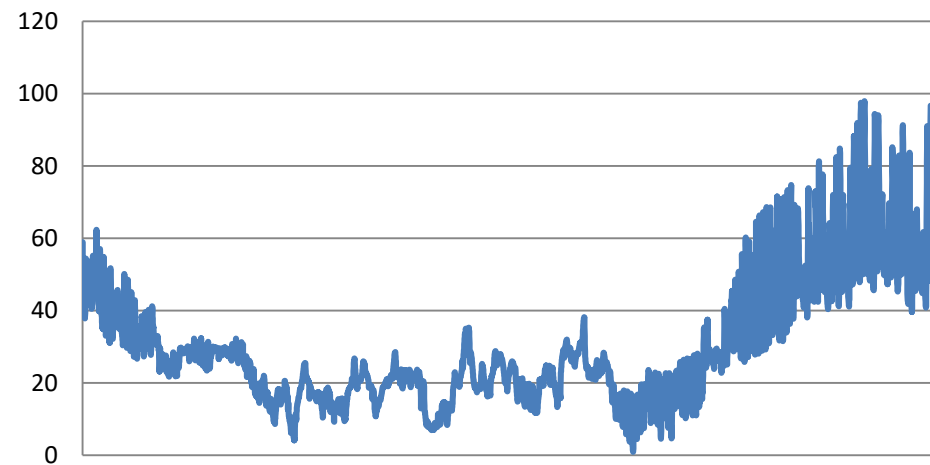
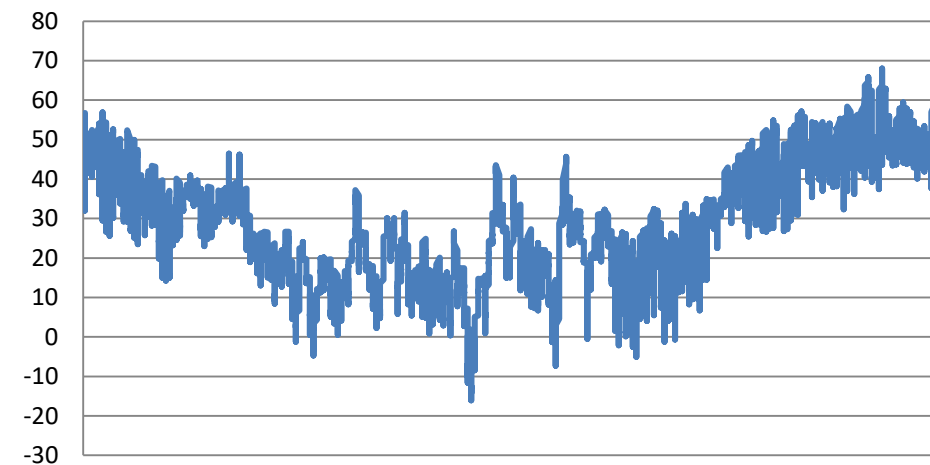






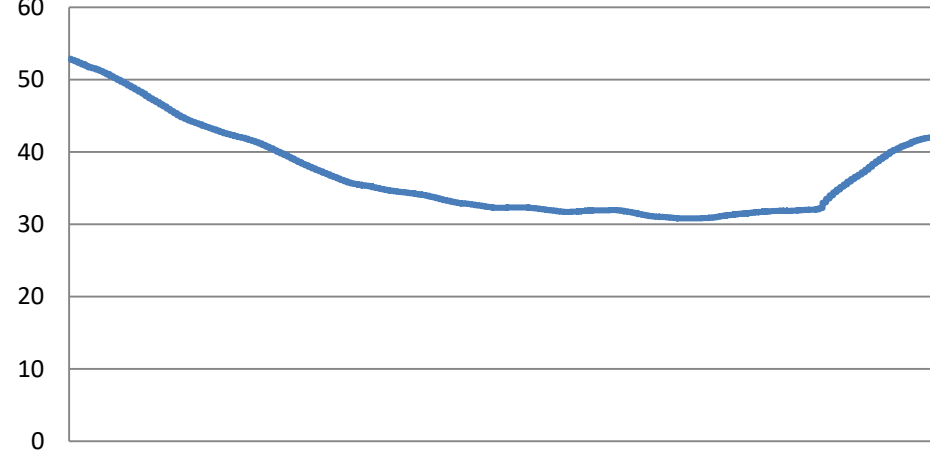
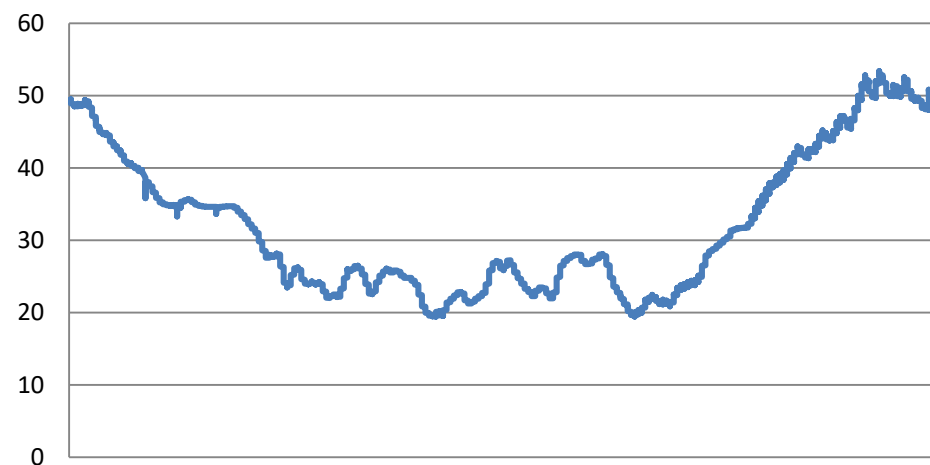
Air Temp

Pavement Temp



12" Depth

72" Depth





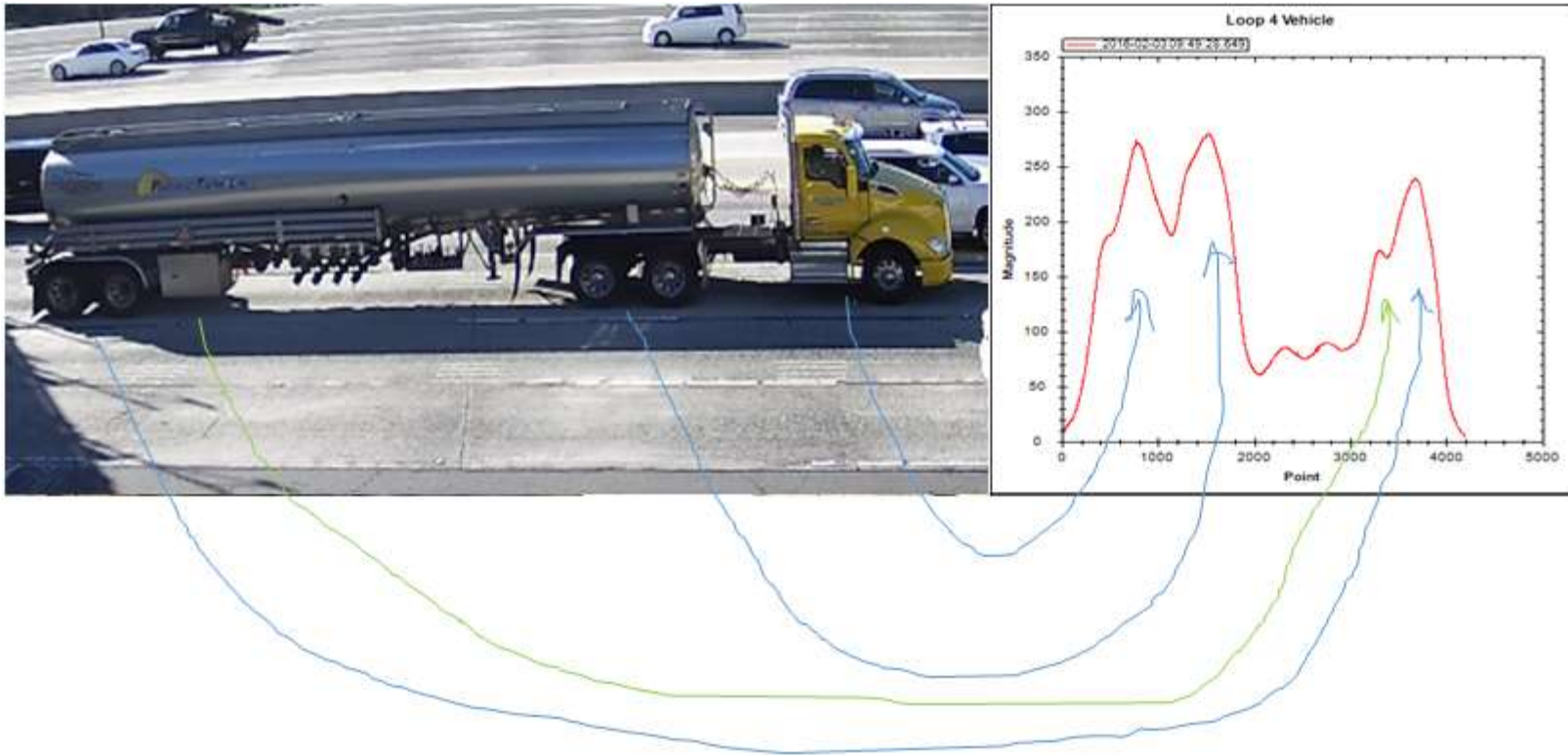
Concrete Test



- Steel Fiber Reinforced Rubberized Concrete SFRRRC
- Very strong correlation with strain to changes in temperature
- Determine real-life properties of SFRRRC in cold regions with actual traffic and harsh environments



Loop Signature







Solar Power







Thank You

Please feel free to contact me with any questions

matt.murphy@alaska.gov

907-269-0876