

Travel Time on the ITS Corridors – Real Time Weather Impacts

ITS Alaska Annual Meeting

Fairbanks, Alaska

October 7, 2010

Outline

- SAFETEA-LU Section 1201, Real Time System Management Information Program
- DOT&PF Real-Time Plan
- ITS Corridor deployment plans:
 - Seward Highway
 - Glenn Highway – includes Parks Highway to Houston
- Real Time prototype deployment - demonstration

SAFETEA-LU Section 1201

- Emphasis – establish a management system capable of monitoring, in real-time, traffic and travel conditions on all major highways
- Goal - to share real-time information to address congestion
- Target Elements
 - Construction activities – implementing or removing lane closures
 - Roadway or lane blocking incidents
 - Roadway weather observations
 - Travel time along highway segments

SAFETEA-LU Section 1201

● Requirements

- Updated regional ITS architectures to explicitly address real-time highway information needs
- DOT to establish department plan within two years of final rule.

● Timing

- Final rule expected late this year
- DOT&PF to:
 - Complete real-time plan Sep 2011
 - Develop deployment plans for ITS corridors

DOT&PF Real-Time Plan

- Kick-off meeting Jan 2010
- Key focus areas:
 - Road weather information – including nighttime camera views
 - Temperature data probes – seasonal weight restrictions
 - Traffic signalization
 - Traffic speed, volume, weight
 - Segment travel time
- Waiting on final rule before completing DOT plan

ITS Corridor Deployment Plans

1st generation

Based on

- Alaska *I*ways Architecture
- DOT&PF ITS Corridor Implementation Plans
- USDOT/FHWA initiatives
- Strategic Highway Safety Plan (SHSP)
- M&O user needs

Sensors

- **Temperature/Relative Humidity Sensor – dew point calculated**
- **Cameras**
 - Network Infrared capability for nighttime views
 - Pan-tilt-zoom or multiple fixed cameras, depending on view at each site
- **Traffic**
 - Side fire radar Wavetronix
 - Speed, volume, & limited classification capabilities

Seward Highway

ITS Corridor Deployment

Site	Sensors
Portage Communications Site - MP 80.3	Camera(s), Traffic
Peterson Creek – MP 83.5	Camera(s), Wind, Air Temp, RH, Pavement Temp
Kern Creek – MP 86.3	Camera(s), Temperature, RH, Pavement Temp
Traffic Safety Corridor – MP 87	BEGIN
ITS Corridor – MP 89.32	BEGIN
Girdwood Flats – MP 91.8	Camera(s), TDP, Traffic
Bird Creek RWIS – MP 96.3	Camera (fixed), Wind, Air Temp, Humidity, Pavement Temp
MP 97.3	Camera(s), Wind, Air Temp, RH, Pavement Temp, Traffic
Dead Lady – MP 99.4	Camera(s), Wind, Air Temp, RH, Pavement Temp, Traffic

Seward Highway

ITS Corridor Deployment

Site	Sensors
Indian Creek – MP 102.9	Camera(s), Air Temp, RH, Traffic
Indian Road – MP 103.9	Camera(s), Wind, Air Temp, RH, Pavement Temp
Windy Point – MP 106.9	Camera(s), Wind, Air Temp, RH, Pavement Temp
Rainbow Creek – MP 108.1	Camera(s), Air Temp, RH, Pavement Temp, Traffic
Rock Pit – MP 109	Camera(s), Air Temp, RH, Pavement Temp
Weigh Station - MP 97.3	Camera, Air Temp, RH, Pavement Temp, Traffic
Traffic Safety Corridor – MP 117	END
Potters Marsh – MP 117.2	Wind, Air Temp, Pavement Temp, Traffic
ITS Corridor – MP 126.3	END

Glenn Highway

ITS Corridor Deployment

Site	Sensors
ITS Corridor – MP 0.0	BEGIN
Bragaw Home Depot – MP 1.42	Camera(s), Traffic
DMS – MP 6.685	Camera(s), Traffic
RWIS @ S Curves – MP 9.6	Camera(s), Traffic
RIWS @ Eagle River – MP 12.89	Camera(s), Traffic
North Eagle River – MP 13.88	Camera(s), Air Temp, RH, Pavement Temp
South Birchwood - MP 16.626	Camera, Traffic
North Birchwood – 17.718	Camera(s), TDP, Traffic
North Peters Creek – MP 22.629	Camera(s), Traffic
RWIS @ Thunderbird Falls – MP 24.541	No change

Glenn Highway

ITS Corridor Deployment

Site	Sensors
Eklutna PTR – MP 25.74	Camera(s), Traffic
Old Glenn @ Palmer PTR – MP 28.885	Camera, Traffic
RWIS 2 nd Knik Bridge – MP 31.005	Camera(s), Traffic
Matanuska Flats – MP 32.75	Camera(s), Traffic
RWIS Glenn/Parks Interchange Parks Ramp Underpass – MP 35.00 Parks Hwy Overpass – MP 35.14 Glenn Ramp to Parks - MP 35.20	Camera(s), Wind, Air Temp, RH, Pavement Temp, Traffic
Kepler PTR – MP 38.316	Camera, TDP, Traffic
Trunk Road – 35.785	Camera(s), Traffic
Gershmel Loop – MP 36.97	Camera(s), Traffic
Seward-Meridian – MP 39.91	Camera(s), Traffic

Glenn Highway

ITS Corridor Deployment

Site	Sensors
Crusey Street – MP 41.485	Camera(s), TDP, Traffic
Church Road – MP 44.247	Camera(s), TDP, Traffic
Traffic Safety Corridor – MP 44.5	BEGIN
Lamont Highway – MP 45.94	Camera(s), Traffic
Vine Road – MP 48.005	Camera(s), Traffic
Scheel Road – MP 50.33	Camera, Traffic
Johnson Road – 51.425	Camera(s), Traffic
Traffic Safety Corridor – MP 53	END
RWIS @ Hawk Lane – MP 53.075	Camera(s), Traffic
Horizon Blvd – MP 55.742	Camera(s), Traffic
ITS Corridor – 58.000	END

Highway Data Port (HDP)

Real Time Traffic Data Reports

- Site Configuration – site diagram show sensor location on the HAS road network
- Tabular Reports – in 15 minute time bins with comma separated value (csv) output option
 - Volume
 - Speed
 - Occupancy – % time radar beam in lane is occupied
- Graphs
 - Daily speed and volume - by lane, for user selected day
 - Comparison speed and volume - by lane, compares traffic data for two user selected days

Real-Time Traffic

Eagle River Road Site Configuration



Detector Site Configuration Report



Site: Eagle River Road @ Caribou

Latitude: 61.310662

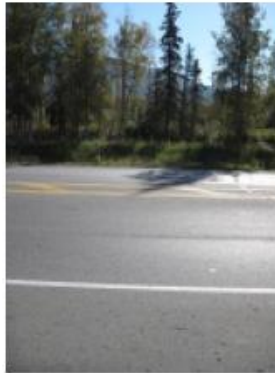
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CDS Route Number: 135225

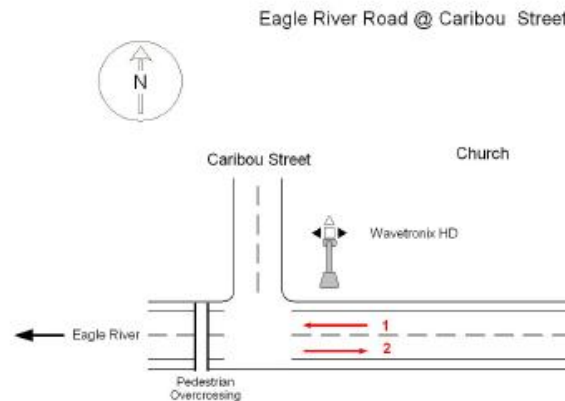
CDS Milepoint: 1.350

Milepost: 1.350

Commission Date: August 23, 2010



To Eagle River



From Eagle River

Real-Time Traffic

Glenn Highway Site Configuration



Detector Site Configuration Report



Site: Glenn Highway @ Bragaw

Latitude: 61.2197051

Longitude: -149.8137154

CDS Route Number: 135000

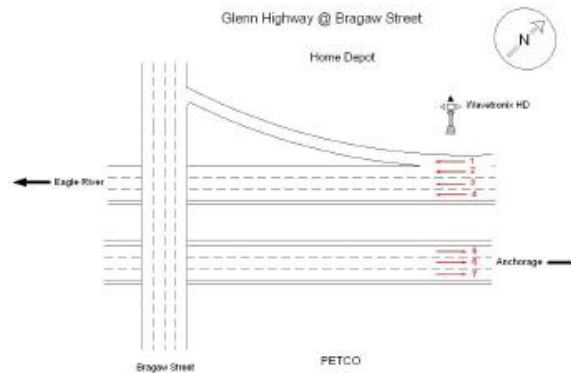
CDS Milepoint: 0.400

Milepost: 1.400

Commission Date: August 23, 2010



To Eagle River



To Anchorage

Real-Time Traffic

Knik-Goose Bay Road Site Configuration



Detector Site Configuration Report



Site: Knik-Goose Bay Road @ Clapp

Latitude: 61.54979

Longitude: -149.54043

CDS Route Number: 170444

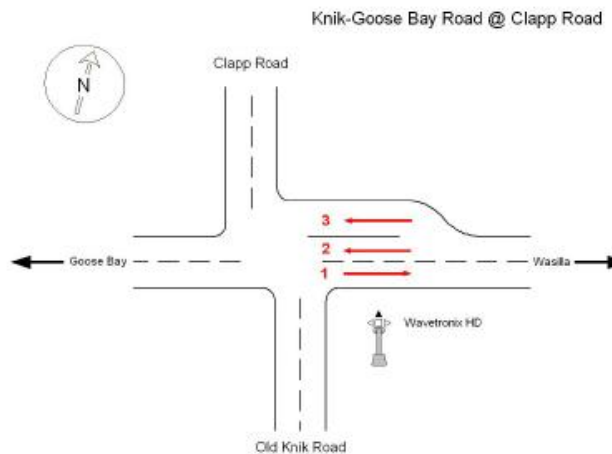
CDS Milepoint: 4.400

Milepost: 4.380

Commission Date: August 23, 2010



To Goose Bay



To Wasilla

Real-Time Traffic

Glenn Highway Speed Report



TRAFFIC SPEED REPORT



15 Minute Average in Miles per Hour

Data Collection Date: Fri 10/15/2010

Site: Glenn Highway @ Bragaw

Interval Ending	To Bragaw Street	To Eagle River			To Anchorage		
	Exit Lane	Right Lane	Center Lane	Left Lane	Left Lane	Center Lane	Right Lane
10:05:00 AM	55	60	58	62	63	61	61
10:20:00 AM	53	59	57	60	62	62	60
10:35:00 AM	52	56	57	59	64	62	60
10:49:30 AM	54	57	59	61	64	62	61
11:05:00 AM	53	56	57	61	64	62	61
11:20:00 AM	55	59	59	60	63	62	60
11:34:30 AM	55	59	58	61	63	62	60
11:50:00 AM	53	58	58	61	63	62	61
12:05:00 PM	54	57	58	60	63	62	61
12:20:00 PM	53	58	58	59	62	62	61
12:34:30 PM	53	58	58	60	64	62	61
12:50:00 PM	55	59	58	60	62	62	60

Real-Time Traffic

Eagle River Road Volume Report



TRAFFIC VOLUME REPORT



At 15 Minute Intervals

Data Collection Date: Fri 10/15/2010

Site: Eagle River Road @ Caribou

Interval Ending	To Eagle River	From Eagle River
	Right Lane	Left Lane
10:05:00 AM	35	33
10:20:00 AM	52	35
10:35:00 AM	55	38
10:49:30 AM	53	59
11:05:00 AM	59	45
11:20:00 AM	47	41
11:34:30 AM	57	49
11:50:00 AM	61	70
12:05:00 PM	72	64
12:20:00 PM	68	70
12:34:30 PM	50	59
12:50:00 PM	62	63
01:05:00 PM	60	52
01:19:30 PM	64	68
01:35:00 PM	65	77
01:50:00 PM	59	52
02:04:30 PM	53	58
02:20:00 PM	56	64

Real-Time Traffic

Glenn Highway Lane Occupancy Report



OCCUPANCY REPORT



At 15 Minute Intervals

Data Collection Date: Fri 10/15/2010

Site: Glenn Highway @ Bragaw

Interval Ending	To Bragaw Street	To Eagle River			To Anchorage		
	Exit Lane	Right Lane	Center Lane	Left Lane	Left Lane	Center Lane	Right Lane
10:05:00 AM	0.9	1.9	2.4	1.7	4.8	5.2	3.2
10:20:00 AM	1	2.3	3.3	2	4.4	4.3	3.2
10:35:00 AM	1.1	3.3	3.9	2.5	4.4	4.3	3.4
10:49:30 AM	1.1	2.6	3.5	2.1	4.5	4.4	4.1
11:05:00 AM	1.6	2.7	3.4	1.8	4.3	5	3.7
11:20:00 AM	1.1	2.6	3.3	2.8	5.2	5	3.7
11:34:30 AM	1.8	2.8	3.9	3	4.7	5.7	3.9
11:50:00 AM	1.7	3	3.8	2.6	5.8	5.6	3.8
12:05:00 PM	1.7	3.1	3.7	2.5	5.6	5.3	3.7
12:20:00 PM	1.1	3.2	3.9	2.9	5.3	5	4.2
12:34:30 PM	2.4	3.3	4.2	3.6	4.6	5	3.1
12:50:00 PM	1.3	3.4	4.2	3.6	5	5.2	4.2
01:05:00 PM	1.3	4.4	5.5	3.8	4.9	5.2	4.1
01:19:30 PM	1.8	3.7	5.1	3.9	4.3	4.6	3.4
01:35:00 PM	1.2	4.2	5.1	4.4	4.2	4.5	3.8
01:50:00 PM	2	3.5	5.6	4.2	3.9	4.5	3.5
02:04:30 PM	1.3	4.2	5.3	4.2	5.6	5.4	3.7
02:20:00 PM	1.2	3.9	5.5	4.2	4.2	4.5	3.7
02:35:00 PM	1.3	4.1	5.6	4.9	4.4	4.2	2.8

Real-Time Traffic

Glenn Highway Speed & Volume Report



TRAFFIC SPEED & VOLUME GRAPH



Site: Glenn Highway @ Bragaw

Data Collection Date: Fri 10/15/2010

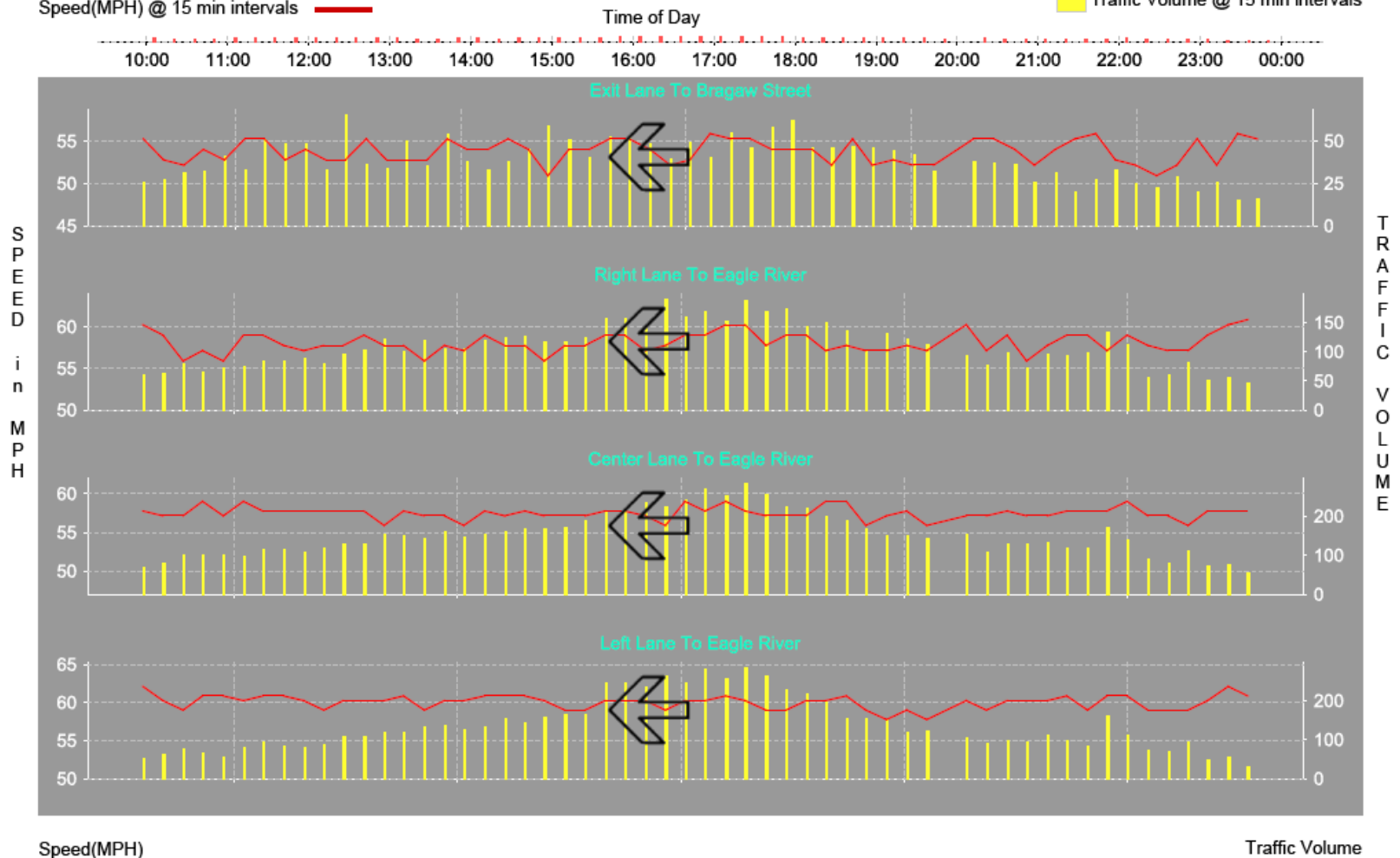
Speed(MPH) @ 15 min intervals



Time of Day



Traffic Volume @ 15 min intervals



Real-Time Traffic

Glenn Highway Speed & Volume Report



TRAFFIC SPEED & VOLUME DAILY COMPARISON



Site: Eagle River Road @ Caribou

Comparing Days:

Wed 09/29/2010

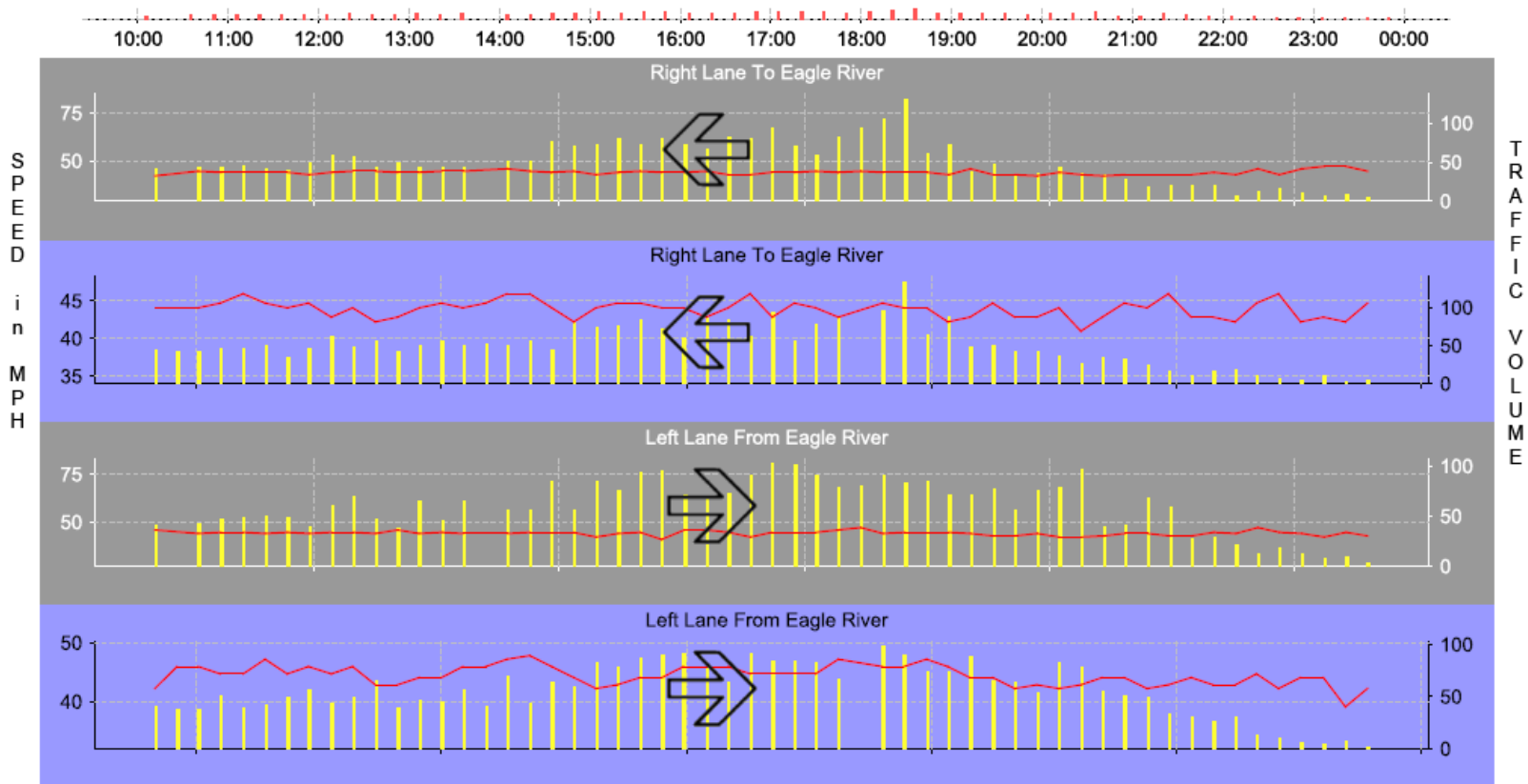
and

Wed 10/06/2010

Speed(MPH) @ 15 min intervals

Time of Day

Traffic Volume @ 15 min intervals



Speed(MPH)

Traffic Volume

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