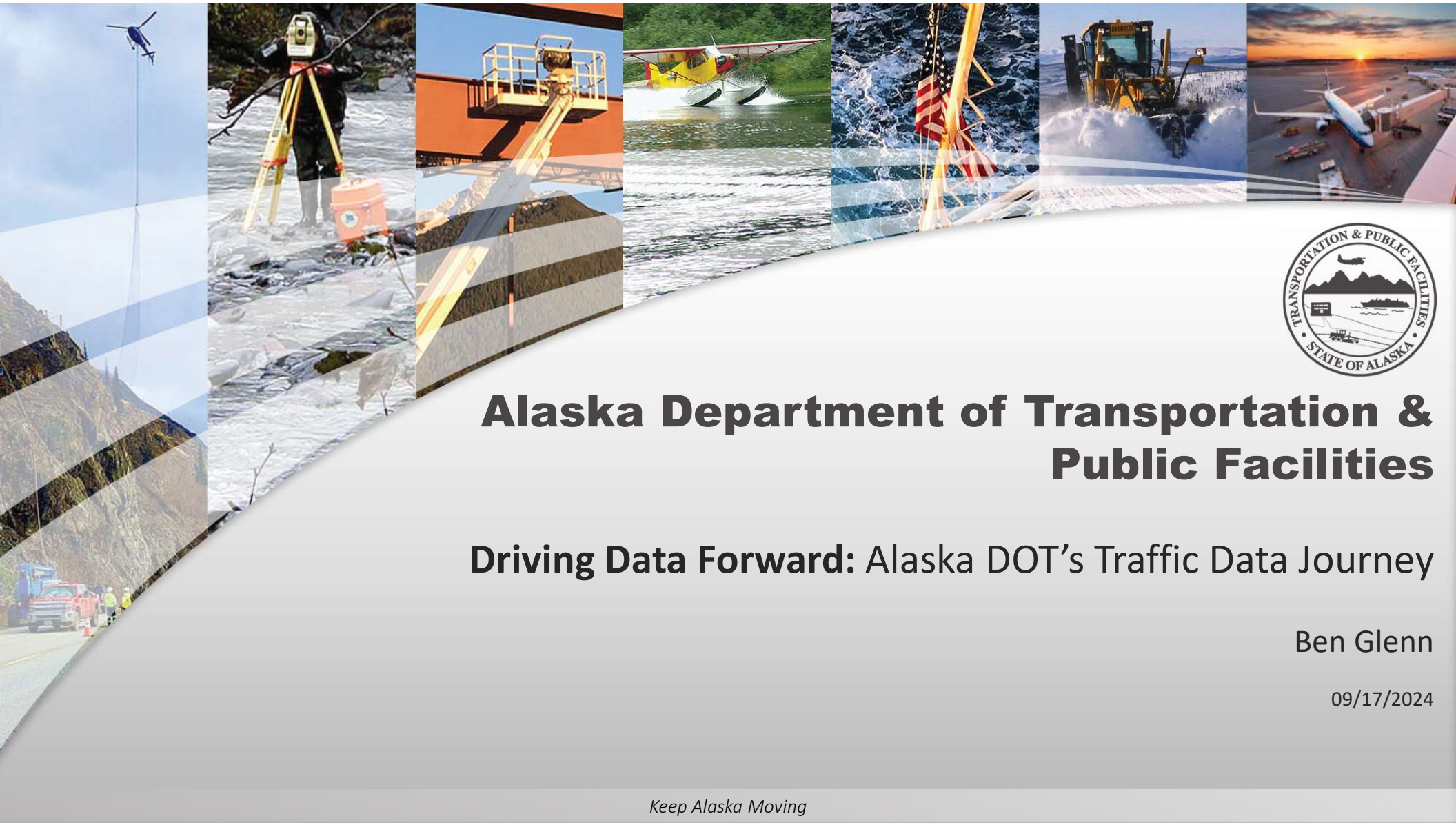


Alaska Department of Transportation & Public Facilities

Driving Data Forward: Alaska DOT's Traffic Data Journey

Ben Glenn

09/17/2024

Driving Data Forward: Alaska DOT's Traffic Data Journey

Purpose of the presentation:

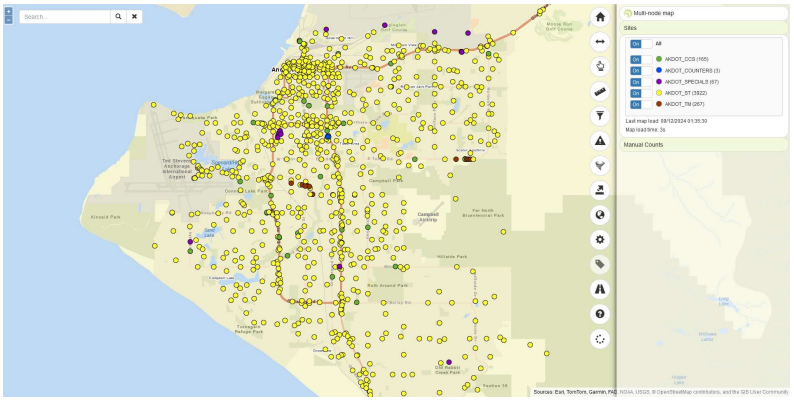
- Discussing Alaska DOT's evolving relationship with traffic-related third-party data and crowdsourced data
- Retrospective Overview of Alaska's SAFETEA-LU Rule 1201 exemption

Driving Data Forward: Alaska DOT's Traffic Data Journey

Historical Context:

- Alaska's unique traffic monitoring challenges: vast geographic landscape, sparse population, severe weather conditions
- Traditional traffic data sources used by Alaska DOT prior to third-party data adoption: Road tubes, inductive loops, piezoelectric strips, limited video capabilities
- Limitations of early data collection efforts: single location, expensive, maintenance life-cycle, availability of utilities and connectivity, lack of real-time data

GoogleMaps Streetview of Johanson Expry CCS



C2-Traffic by Drakewell

Driving Data Forward: Alaska DOT's Traffic Data Journey

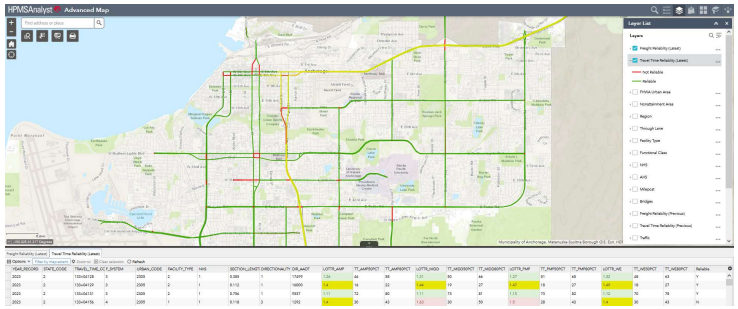
Alaska DOT's Early Encounters with 3rd-Party Data:

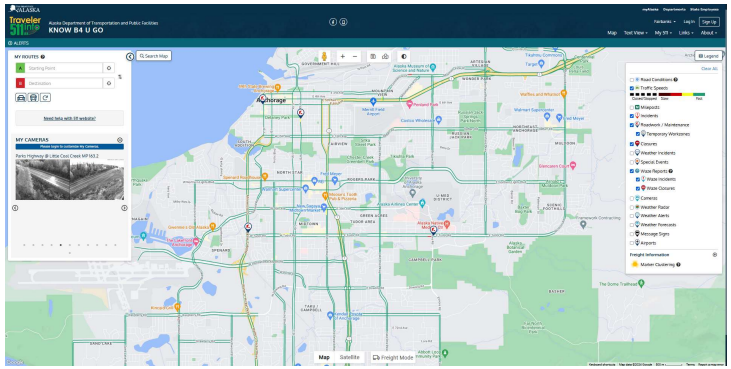
- Initial hesitance and limited use due to concerns about accuracy, relevance to Alaska's unique traffic patterns
- Then essentially our hand was forced:
  - MAP-21, 2012
  - FAST Act, 2015
- PM3 comes out of the performance-based planning and program development framework
- TTR and TTTR indexes specifically became crucial requirements for the Highway Performance Monitoring System (HPMS) reporting to help states and MPOs measure and manage congestion, freight reliability, and travel times across the national highway network.

Driving Data Forward: Alaska DOT's Traffic Data Journey

Crowdsourced Data Integration:

- Vicarious adoption of HEREs and then INRIX data made available through the NPMRDS for TTR and TTTR: pulled into HPMSAnalyst by GeoDecisions





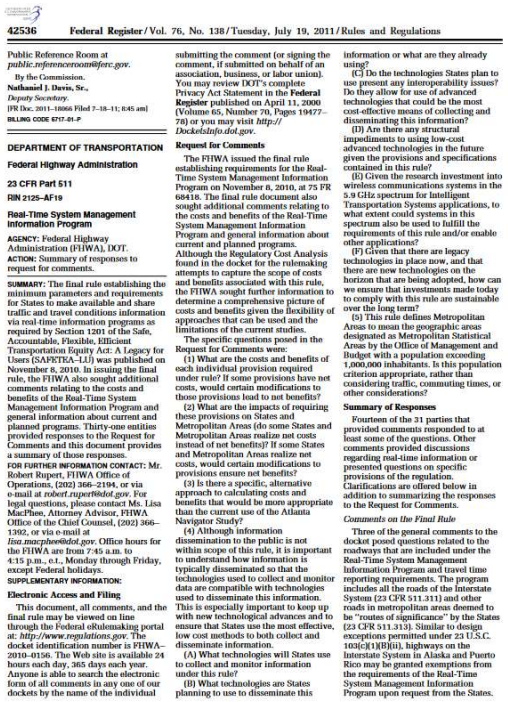
- Alaska DOT begins leveraging crowdsourced traffic data (e.g. Waze, social media inputs)
  - 511 HERE traffic layer

Driving Data Forward: Alaska DOT's Traffic Data Journey

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU):

- Section 1201, https://ops.fhwa.dot.gov/1201/index.htm
- Requests for comments: 2006, 2007, 2009, 2010
- 23 CFR Part 511 Subpart C, Nov. 8, 2010
- Final Rule, 2011
  - Page 42536 of Federal Registry:

"Similar to design exceptions permitted under 23 U.S.C. 103(c)(1)(B)(ii), highways on the Interstate System in Alaska and Puerto Rico may be granted exemptions from the requirements of the Real-Time System Management Information Program upon request from the States."



42536 Federal Register / Vol. 76, No. 138 / Tuesday, July 19, 2011 / Rules and Regulations

Public Reference Room at *public.referenceroom@ferc.gov*.

By the Commission.

Nathaniel J. Davis, Sr.,

Deputy Secretary.

[FR Doc. 2011–18066 Filed 7–18–11; 8:45 am]

BILLING CODE 6717–01–P

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

23 CFR Part 511

RIN 2125–AF19

Real-Time System Management Information Program

AGENCY: Federal Highway Administration (FHWA), DOT.

ACTION: Summary of responses to request for comments.

SUMMARY: The final rule establishing the minimum parameters and requirements for States to make available and share traffic and travel conditions information via real-time information programs as required by Section 1201 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA–LU) was published on November 8, 2010. In issuing the final rule, the FHWA also sought additional comments relating to the costs and benefits of the Real-Time System Management Information Program and general information about current and planned programs. Thirty-one entities provided responses to the Request for Comments and this document provides a summary of those responses.

FOR FURTHER INFORMATION CONTACT: Mr. Robert Rupert, FHWA Office of Operations, (202) 366–2194, or via e-mail at *robert.rupert@dot.gov*. For legal questions, please contact Ms. Lisa MacPhee, Attorney Advisor, FHWA Office of the Chief Counsel, (202) 366–1302, or via e-mail at *lisa.macphee@dot.gov*. Office hours for the FHWA are from 7:45 a.m. to 4:15 p.m., e.t., Monday through Friday, except Federal holidays.

SUPPLEMENTARY INFORMATION:

Electronic Access and Filing

This document, all comments, and the final rule may be viewed on line through the Federal eRulemaking portal at: *http://www.regulations.gov*. The docket identification number is FHWA–2010–0156. The Web site is available 24 hours each day, 365 days each year. Anyone is able to search the electronic form of all comments in any one of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, or labor union). You may review DOT's complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (Volume 65, Number 70, Pages 19477–78) or you may visit *http://DocketsInfo.dot.gov*.

Request for Comments

The FHWA issued the final rule establishing requirements for the Real-Time System Management Information Program on November 8, 2010, at 75 FR 68418. The final rule document also sought additional comments relating to the costs and benefits of the Real-Time System Management Information Program and general information about current and planned programs. Although the Regulatory Cost Analysis found in the docket for the rulemaking attempts to capture the scope of costs and benefits associated with this rule, the FHWA sought further information to determine a comprehensive picture of costs and benefits given the flexibility of approaches that can be used and the limitations of the current studies.

The specific questions posed in the Request for Comments were:

(1) What are the costs and benefits of each individual provision required under rule? If some provisions have net costs, would certain modifications to those provisions lead to net benefits?

(2) What are the impacts of requiring these provisions on States and Metropolitan Areas (do some States and Metropolitan Areas realize net costs instead of net benefits)? If some States and Metropolitan Areas realize net costs, would certain modifications to provisions ensure net benefits?

(3) Is there a specific, alternative approach to calculating costs and benefits that would be more appropriate than the current use of the Atlanta Navigator Study?

(4) Although information dissemination to the public is not within scope of this rule, it is important to understand how information is typically disseminated so that the technologies used to collect and monitor data are compatible with technologies used to disseminate this information. This is especially important to keep up with new technological advances and to ensure that States use the most effective, low cost methods to both collect and disseminate information.

(A) What technologies will States use to collect and monitor information under this rule?

(B) What technologies are States planning to use to disseminate this information or what are they already using?

(C) Do the technologies States plan to use present any interoperability issues? Do they allow for use of advanced technologies that could be the most cost-effective means of collecting and disseminating this information?

(D) Are there any structural impediments to using low-cost advanced technologies in the future given the provisions and specifications contained in this rule?

(E) Given the research investment into wireless communications systems in the 5.9 GHz spectrum for Intelligent Transportation Systems applications, to what extent could systems in this spectrum also be used to fulfill the requirements of this rule and/or enable other applications?

(F) Given that there are legacy technologies in place now, and that there are new technologies on the horizon that are being adopted, how can we ensure that investments made today to comply with this rule are sustainable over the long term?

(5) This rule defines Metropolitan Areas to mean the geographic areas designated as Metropolitan Statistical Areas by the Office of Management and Budget with a population exceeding 1,000,000 inhabitants. Is this population criterion appropriate, rather than considering traffic, commuting times, or other considerations?

Summary of Responses

Fourteen of the 31 parties that provided comments responded to at least some of the questions. Other comments provided discussions regarding real-time information or presented questions on specific provisions of the regulation. Clarifications are offered below in addition to summarizing the responses to the Request for Comments.

Comments on the Final Rule

Three of the general comments to the docket posed questions related to the roadways that are included under the Real-Time System Management Information Program and travel time reporting requirements. The program includes all the roads of the Interstate System (23 CFR 511.311) and other roads in metropolitan areas deemed to be "routes of significance" by the States (23 CFR 511.313). Similar to design exceptions permitted under 23 U.S.C. 103(c)(1)(B)(ii), highways on the Interstate System in Alaska and Puerto Rico may be granted exemptions from the requirements of the Real-Time System Management Information Program upon request from the States.

Driving Data Forward: Alaska DOT's Traffic Data Journey

Internal deliberations:

Letter to DOT Stakeholders

Real-Time System Management Information Program
23 CFR Part 511

"The final rule establishing the minimum parameters and requirements for States to make available and share traffic and travel conditions information via real-time information programs as required by Section 1201 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA–LU) was published on November 8, 2010."

At the AWP managers meeting, DOT Headquarters was informed that Alaska DOT&PF could choose to be exempt from the Final Rule 1201, Real-Time Systems Management Information Program (RTSMIP).

We would like the regions to participate in voting on whether or not to choose exemption from the final rule.

Alaska DOT&PF has an obligation to the traveling public to improve the incident and hazardous road condition reporting. The 511 Traveler Information System is a one-stop portal for traveler information. Including real-time data only helps further educate the traveling public. In fact, the traveling public have come to expect it with the advent of hand-held technology, web apps, RSS feeds, and social media. So even if we vote to be exempt from the Section 1201, we still have this obligation to keep the traveling public safe and informed on Alaska's highways with the most up-to-date information possible.

As you may know, Headquarters has been working proactively over the past few years to prepare for the implementation of Section 1201. For example, three real-time speed sensors were installed in Central region: Glenn Highway at Debarr Road, Eagle River Road at Caribou Road, and Knik-Goose Bay Road. Headquarters has plans to install more in FY12 along this corridor and the Seward Highway ITS Corridor. Plans also include posting travel times to the 511 as well as updating the roadweather.alaska.gov website to have a user interface more closely tied to the 511.alaska.gov.

The Final Rule would require the Department to consolidate data collection efforts around the state into a single program. This should be strived for as a matter of efficiency within our Department, and not in response to federal compliance. The Commissioner also supports efficiency in his Strategic Plan.

What does Final Rule 1201 require?

Section 1201 requires real-time information programs to report:

1) *Construction activities.* The timeliness for the availability of information about full construction activities that close or reopen roadways or lanes

Much Internal Discussion

. . .

Granting of Exception

U.S.Department of Transportation
Federal Highway Administration

Alaska Division

December 12, 2011

P.O. Box 21648
Juneau, AK 99802-1648
(907) 586-7418
(907) 586-7420
www.fhwa.dot.gov/akdiv

In Reply Refer To:
Real-Time Management Information Program

Mr. Jeffery Ottesen
Division Director
P.O. Box 112500
Juneau, AK 99801

Dear Mr. Ottesen:

Federal Highway Administration issued Final Rule for Real-Time System Management Information Program in 23 CFR 511. According to 23 U.S.C.103(c)(1)(B)(ii), highways on the Interstate System in Alaska may be granted an exemption from the requirements of the Real-Time System Management Information Program upon request from the State.

We have received your request for exception from the Real-Time Systems Management Information Systems dated November 22, 2011. Your request for exception is approved. We appreciate your commitment to supplying the travel information to the public expressed in the request. If you have questions or comments, please contact me (907) 586-7413

Sincerely,

Kris Riesenberg
Planning Program Manager

cc: Mike Vigue, DOT&PF, Program Development, Surface Program Chief
Andy Hughes DOT&PF, Southeast Region Planning Chief
Jennifer Witt, DOT&PF, Central Region Planning Chief
Ethan Birkholz, DOT&PF, Northern Region Planning Chief
Jack Stickel, DOT&PF, Transportation Information Group Manager
Jill Sullivan, DOT&PF, Transportation Data Program Manager
Lisa Idell-Sassi, DOT&PF, Real-Time System Coordinator

Driving Data Forward: Alaska DOT's Traffic Data Journey

Internal deliberations:

Letter to DOT Stakeholders

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Granting of Exception

Real-Time System Management Information Program
23 CFR Part 511

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What does Final Rule 1201 require?

Section 1201 requires real-time information programs to report:

1) *Construction activities.* The timeliness for the availability of information about full construction activities that close or reopen roadways or lanes

Hi All,

Thank you for copying me on the request. I am neutral on the discussion because I think it is the State's decision (since the option was given) to strategically pursue the correct tool for delivering its goals. The Final rule could be an instrument to advance the Real-Time Traveler Information Communication, and it could create motivation to advance the program beyond the current status. The State could advance a similar system without the encumbrances of the rules, and do it in a way that would fit AK's needs. The Program could help with the transportation system efficiency, but the benefit to cost discussion is an internal discussion for the State. I think the Concept of Program could be extremely useful, and the details of how it is done and how it could fit the State's strategic goals are your decisions.

Please let me know what decision is made, and how I can give support.

Thanks,

Kris

Alaska Division

December 12, 2011

P.O. Box 21648
Juneau, AK 99802-1648
(907) 586-7418
(907) 586-7420
www.fhwa.dot.gov/akdiv

In Reply Refer To:
Real-Time Management Information Program

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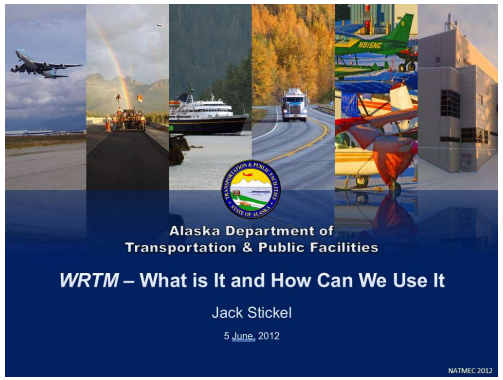
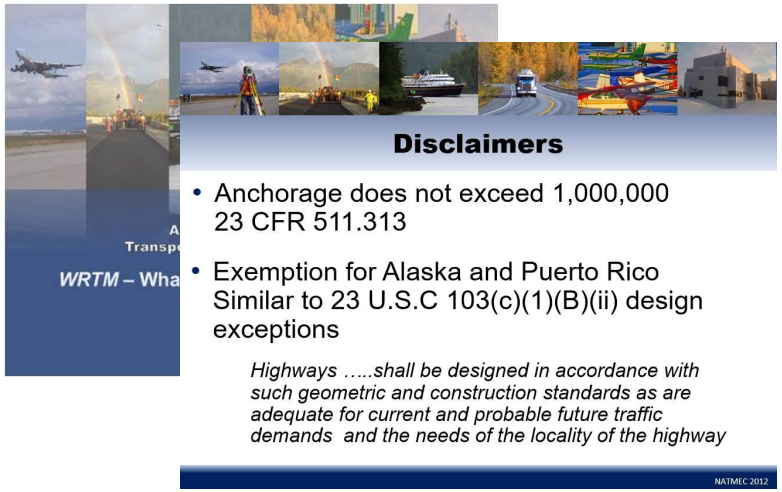
Driving Data Forward: Alaska DOT's Traffic Data Journey

Where it went from there: ITS Alaska 2012



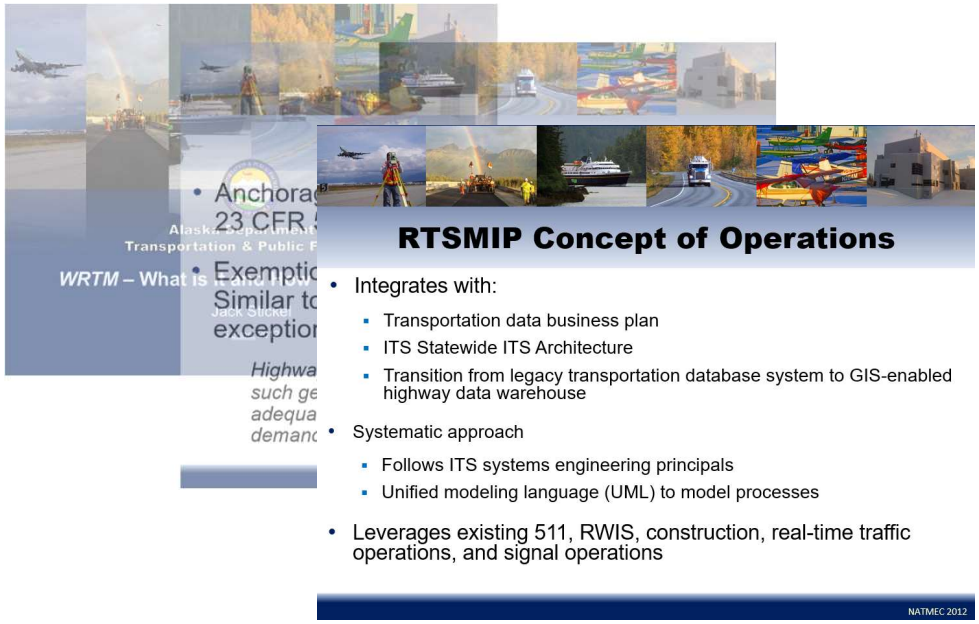
Driving Data Forward: Alaska DOT's Traffic Data Journey

Where it went from there: ITS Alaska 2012



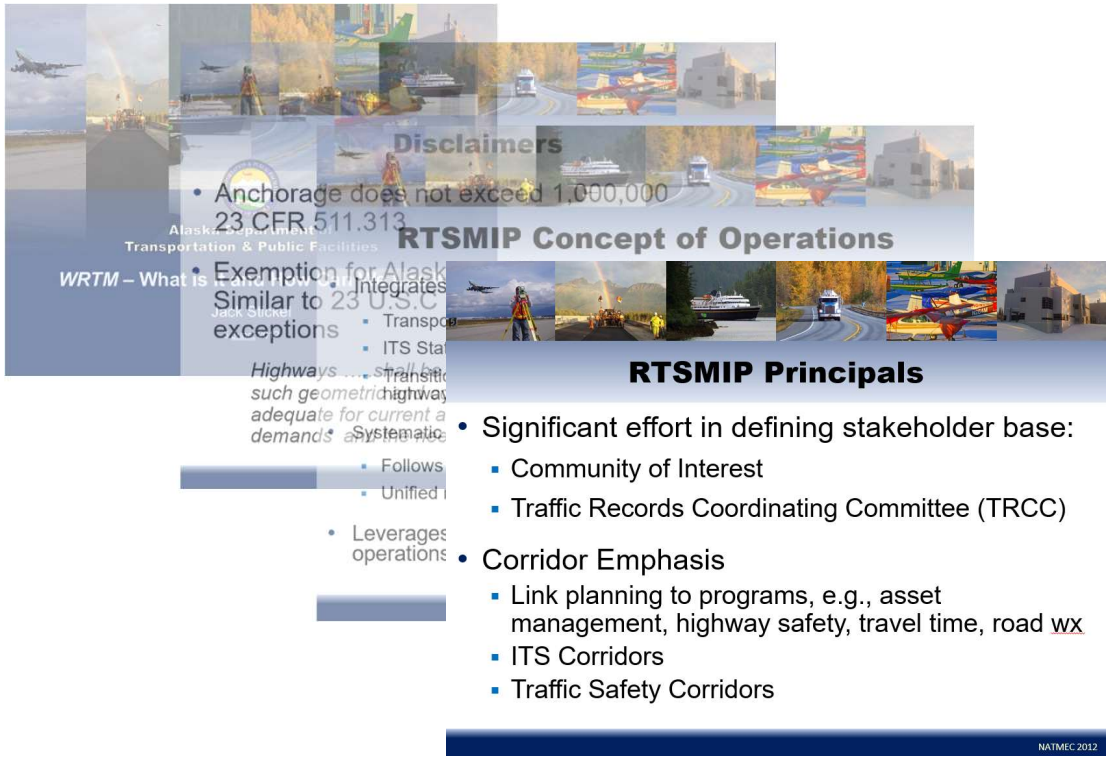
Driving Data Forward: Alaska DOT's Traffic Data Journey

Where it went from there: ITS Alaska 2012



Driving Data Forward: Alaska DOT's Traffic Data Journey

Where it went from there: ITS Alaska 2012



Driving Data Forward: Alaska DOT's Traffic Data Journey

Where it went from there: ITS Alaska 2012

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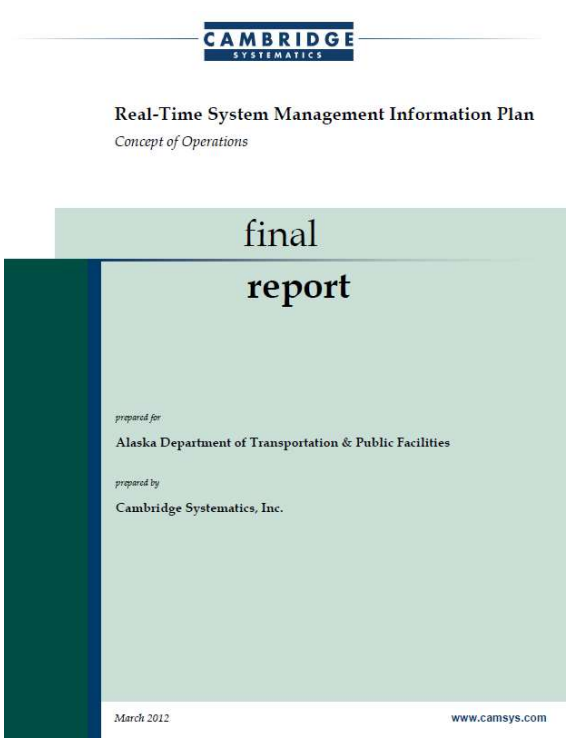
Where it went from there: ITS Alaska 2012

Driving Data Forward: Alaska DOT's Traffic Data Journey

Where it went from there:

ConOps


CAMBRIDGE SYSTEMATICS

Real-Time System Management Information Plan

Concept of Operations

final

report

prepared for

Alaska Department of Transportation & Public Facilities

prepared by

Cambridge Systematics, Inc.

March 2012 www.camsys.com

Although the exemption has been approved, the ADOT&PF Commissioner, in approving the exemption request, stated "…we have an obligation to make our best efforts to implement the spirit and intent of this rule to the areas/roads (NHS) where this is most applicable."

Taken from a slide during ConOps development process

Driving Data Forward: Alaska DOT's Traffic Data Journey

From the "RTSMIP" ConOps:

Figure 6-1 RTSMIP High-Level Timeline

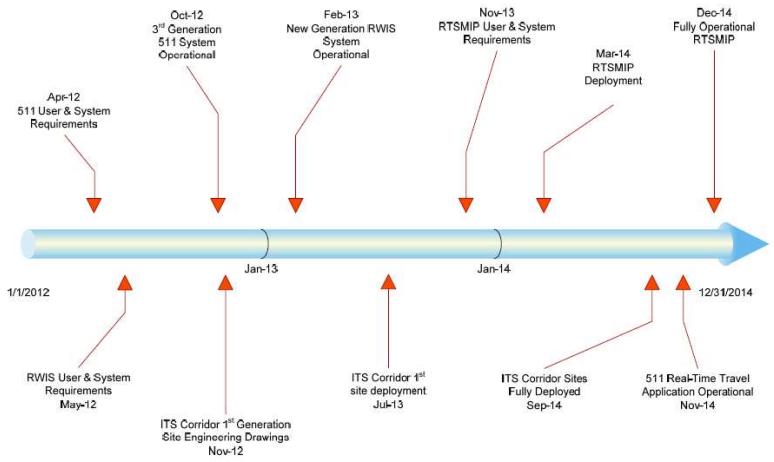
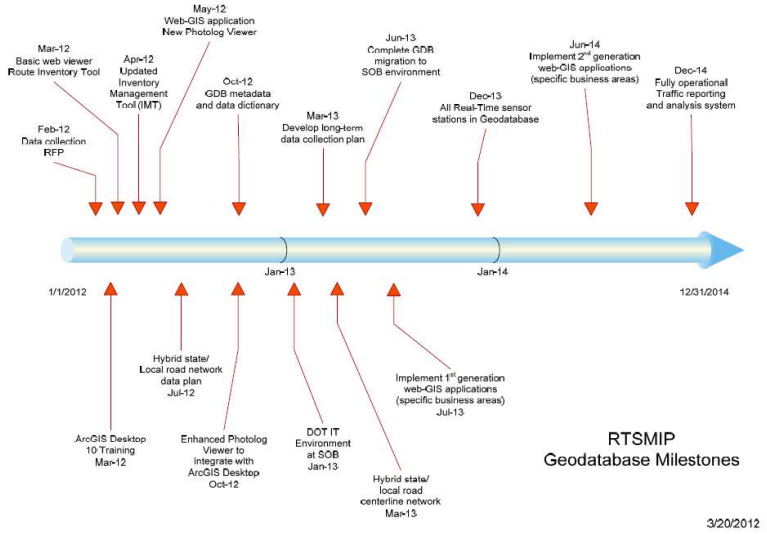


Figure 6-2 RTSMIP Geodatabase Milestones



Driving Data Forward: Alaska DOT's Traffic Data Journey

From the "RTSMIP" ConOps:

Need Separate Transition Plans

Separate transition plans may be needed for the application functionality and the data. Key milestones for the deployment process include:

- Development of a data migration plan;
- Execution of the data migration plan in the test environment;
- Execution of unit and user acceptance testing (UAT) in the test environment;
- Training for administrative and end users;
- Pilot program in which the old and new systems are operated in parallel for some period of time in order to verify that equivalent (or otherwise expected) results are produced by each system;
- Establishment of a go-live date;
- Execution of the data migration plan in the production environment; and
- Go live.

Driving Data Forward: Alaska DOT's Traffic Data Journey

From the "RTSMIP" ConOps:

Separate transition plans may be need
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- Go live.

Need Schedule and Budget

Developing a firm schedule and budget for the RTSMIP activities and the associated Geodatabase cannot occur until certain fundamental decisions are made. These decisions include but are not limited to:

- Should Alaska deploy the 511, RWIS, and RTSMIP data manager or contract for hosting?
- Will new hardware and/or software be required to support the system? If maintained by the state, what will be the server configuration that best supports the new crash system, i.e., separating the real-time transaction from database archive and isolating the TIG applications on their own servers, e.g., WIM, RWIS, Crash, or Traffic?
- What will the system performance be? Will a new engineered IT infrastructure such as described in the Traffic and CRASH ConOps be required?
- What are the required performance characteristics of the service level agreement with ADOT&PF IT for the system?
- Must the system deployment be phased to accommodate budget, staffing or other constraints such as the development of other systems or interfaces?
- What resources will be required to maintain the new 511, RWIS, and data management systems?
- What will be the annual maintenance and operations costs, as determined by the deployment choices made?
- Will additional programmer training be required for technologies that are new to TIG?

Driving Data Forward: Alaska DOT's Traffic Data Journey

From the "RTSMIP" ConOps:

Separate transition plans may be needed for the migration and processing of data. Key milestones for the deployment process include:

- Development of a data migration plan;
- Execution of the data migration plan in the test environment;
- Execution of unit and user acceptance testing of the migration plan;
- Training for administrative and end users;
- Pilot program in which the old and new systems are operated in parallel some period of time in order to verify that equivalent or otherwise expected results are produced by each system;
- Establishment of a go-live date;
- Execution of the data migration plan in the production environment; and
- Go live.

Developing a firm schedule and budget for the RTSMIP associated Geodatabase cannot occur until certain fundamental decisions are made. These decisions include but are not limited to:

- Should Alaska deploy the 511, RWIS, and RTSMIP data for hosting?
- Will new hardware and/or software be required to support maintained by the state, what will be the server configuration supports the new crash system, i.e., separating the real-time database archive and isolating the TIG applications on WIM, RWIS, Crash, or Traffic?
- What will the system performance be? Will a new infrastructure such as described in the Traffic and Geodatabase required?
- What are the required performance characteristics in the agreement with ADOT&PF IT for the system?
- Must the system deployment be phased to accommodate other constraints such as the development of other systems?
- What resources will be required to maintain the new data management systems?
- What will be the annual maintenance and operations costs for the deployment choices made?
- Will additional programmer training be required for staff new to TIG?

Identified Risks to ConOps

A variety of general risk factors must be addressed as part of deployment planning. Table 3-1 presents an excellent gap analysis for the existing systems which must be addressed. Each one of these gaps presents unique risks. High level risks include, but are not limited to:

- Will the system and user requirements fully describe the new systems?
- Will the Central Region accept the Navigator being molded into the 511 and participate in the deployment process? Will the executive leadership be there to support the new identity?
- Will system and unit testing be rigorous enough? And does existing staff have the skill set to develop and/or strong test plans?
- Will the existing IT infrastructure support an adequate level of service and system performance?
- If new IT hardware/software is required for an engineered IT solution, will funding be available?
- Can existing ADOT&PF IT staff support the new systems?
- Can the key stakeholders be trained motivated and trained to input situations into the systems?

Risks associated with specific implementation solutions cannot be identified until ADOT&PF selects a particular solution. Even without identifying the specific risks, however, two activities can help mitigate some of these risks once the project reaches the transition phase. These activities are:

- Establishing gate criteria for moving from the current step to the next step; and
- Preparing rollback and contingency plans in the event that unexpected or insurmountable problems are encountered at any given step.


12 YEARS LATER...

Now let’s talk TSMO …

Thank You

Ben Glenn

DMIO, Emerging Technologies Coordinator

benjamin.glenn@alaska.gov

W: 907.451.2257

C: 907.347.9171