CARS-Mayday:
Integrating Probability of Injury (PoI) Algorithms into Idaho’s EMS Facility

2012 National Rural ITS Conference

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Idaho’s “State Comms” Center

• Jointly operated by
  • Department of Health and Welfare
  • Idaho Transportation Department

• Responsibilities include
  • Incident / emergency response
  • Traffic management
  • 511 updating
Idaho’s 511 System

Welcome to 511 Travel Information — Call 511 or 1-888-432-7623

Click on your map preference. Traffic report display may differ on the Broadband / Dial-up / Mobile web sites, but the information is the same.

Streamlined
Good for broadband or dial-up
Works with any web browser
Good with new and older computers
Fastest loading site

Highways
Winter Driving
Road Reports
Cameras
Weather Stations
Mountain Passes

Truckers
Truck Restrictions
Spring Breakup

Mobile Phone
Road Reports
Cameras
Weather Stations

Full Feature
Requires broadband internet
Best on recent browsers
Suitable for faster computers
May be slow on busy days

Highways
Road Reports
Winter Driving
Cameras
Weather Stations
Mountain Passes

Truckers
Truck Restrictions
Spring Breakup

Transit
Routes
Schedules
Cancellations
Disruptions

Personalize your 511 experience with email and text alerts. Learn More

County and Statewide alerts now on Twitter! Follow Us
Event Editing

Major: I-84

Exit 173: US 93
Exit 182: ID 50

Categories:

Alternating Lane Closures
Paving operations

Start Date: 1-31
Start Time: 5
End Date: 
End Time: 

I-84 between Exit 173, US 93 and Exit 182, ID 50. There are alternating lane closures. For the next two hours.

ID: IDCARS4-xxx.1
Priority: 5 (Normal)

Author: ksmith
Updated: 2:45 pm, 4/17/12

Cancel Create
AMBER Alerts

**AMBER Banner Preview:**
AMBER Alert for Craig Smith. White Ford Bronco. BSN 07N

**Photo:**
- Craig Smith, the abducted child -

**AMBER Alert Preview:**
An AMBER Alert has been issued for the state of Idaho. An investigation is in progress for an abducted child. The child is Craig Matthew Smith. The suspect is Unknown. The suspect vehicle is a White Ford Bronco License: BSN 07N
Personalized 511

Peter's Routes & Alerts

- Home to Work
- Work to Home
- Home to School
- Work to School
- Work to Mom's
- Home to Mom's
- Work to Gym
- Home to Gym
- Home to Airport
- Work to Airport
- Near Airport
- Around Meridian

To reorder your trips, click and drag one of the route or area names.

Add another route or area
Change my password or account settings
“Crowd-Sourced” Updates

Post updates on winter driving conditions?

You can send us driving reports for any route you save. Click Post an update in Peter’s Routes.

⚠️ Boise Airport (BOI) - Rigby

Send us an update

Edit | Delete

We may post some updates on our public web pages. To request that your reports be posted automatically, click the box below and save changes.

☑️ I’d like my updates to be posted automatically to 511.

Look out for an email with more details.

Save Changes

Need help?

Cancel
How was your drive?
Displaying crowd-sourced info

Idaho Transportation Department Highway Info

Most Popular: I-15 ID 55 ID 75 I-84 I-86 I-90 US 93
Route Number: Search

I-84

--- Driver Update ---
I-84: Ice
between Exit 168: Jerome/Lincoln Street and Exit 173: US 93 (4 miles east of the Jerome area). A driver reported ice on the roadway. It was snowing.

Posted by CitizenReporter at 4:31pm MST
CitizenReporter: Abandoned car on off-ramp to US 93 South.

Want to post more updates? Sign up or Sign in.

Tell us more

Done

I-84: Wet pavement.
between Exit 168: Benwood Avenue (near Glenns Ferry) and Exit 182: ID 50 (4 miles east of the Jerome area). The road is wet. Expect rain.

Last updated today at 11:42AM MST by IDT.

Twin Falls to I-86 (511 section 3) 2 reports
I-86 to Utah (511 section 4) 1 report

511 Info Streamlined Version Mobile Version Truckers' Info Transit Info Tourist Info Links
“Can you tell us more?”

--- Driver Update ---

US 20: Ice.

between Ellis Road (2 miles east of the Rigby area) and Exit 346: Bridge Street (near St. Anthony). A driver reported ice on the roadway. It was snowing.

Posted by CitizenReporter at 2:15pm MST

CitizenReporter: Conditions are quickly worsening. Get home as soon as you can!

Can you tell us more?
Crash Imports (Sacramento)
Idaho CARS Imports
Operator Alerts
Initial aim: 511 Crash Reporting
Incoming Reports

Past Hour

A 3:29 PM  6/16/08  At (41.43, -88.32)  OnStar

At (41.43, -88.32). Crash. Until 5:30 PM, June 16, 2008

ID: OnStar-1715.1  Author: unknown
Status: Accepted  Updated: 3:29 PM, 6/16/08

E 3:29 PM  6/16/08  At (44.43, -88.99)  OnStar

At (44.43, -88.99). Stalled Vehicle. Until 5:30 PM, June 16, 2008

ID: OnStar-138.1  Author: unknown
Status: Edited  Updated: 3:29 PM, 6/16/08

! 3:29 PM  6/16/08  At (42.39, -88.27)  OnStar

At (42.39, -88.27). Crash. Until 5:30 PM, June 16, 2008

ID: OnStar-139.1  Author: unknown
Status: Awaiting review  Updated: 3:29 PM, 6/16/08
Sorting and filtering

Incoming Reports List

Filter: Status
- All
- Awaiting Review
- Auto-held
- Auto-accepted
- Oper-held
- Oper-accepted
- Oper-edited
- Taken Over

Source
- All
- ITMS
- ISP CAD
- OnStar

Location
- Statewide
- Boise Metro
- Boise Outskirts
- District 1
- District 2
- District 3
- District 4
- District 5
- District 6
- District 7

Sort by:
- Update Time
- Update time
- Create time
- Start time
- End time
- Author
- Route
- Phrase type
- Priority
- Status

I-84 Westbound: Right Lane
ID: ITMS-47.1
Status: New
Received: 9:17 AM, 8/2/07

10:03 AM 8/2/07 ID 20 MP 52.0 to 53.3

ID 20 Eastbound: Roadwork, MP 52.0 to MP 53.3. Priority 5.
ID: ITMS-53.1
Status: New
Received: 10:03 AM, 8/2/07
EMS Crash Response Screen

EMS Response Screen

Crash at 1:30 PM, 8/30/11

Probability of Injury: 42%
Add/Edit Passenger Details

DeltaV: 37 mph

PSAP Contact:
Bannock County
624 East Center
Pocatello, ID 83201
(208) 236-7114

Incident Information:
Incident ID: 1638001627
Event Notification: Vehicle Accelerometer
Event Verified: No
Replier: no
Data Provider: OnStar
Provider Contact: 800-466-7627

Vehicle Information:
Color: Dark Silver
Year: 2007
Manufacturer: General Motors
Make: Chevrolet
Model: Impala

Incoming Report

At A81: Look out for an accident.
ID: ONSTAR-1638001627.1
Status: Awaiting review (new)
Author: unknown
Received: 1:30 PM, 8/30/11

[(Google Maps)](0)
Passenger Data Entry Window

Passenger Details

Passenger 1

Age (Years): 30
Safety Belt Use?: No
Complete Ejection?: No

Passenger 2

Gender: Female

Passenger 3

Entrapment?: Yes

Submit
Cancel
How it works

\[ P(t) = \frac{1}{1 + e^{-t}} \]

<table>
<thead>
<tr>
<th>deltaV</th>
<th>t 2000lbs</th>
<th>t 3000lbs</th>
<th>t 4000lbs</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>-5.818</td>
<td>-6.088</td>
<td>-6.358</td>
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<tr>
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<td>0.742</td>
<td>0.472</td>
<td>0.202</td>
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<td>2.112</td>
<td>1.842</td>
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<td>4.022</td>
<td>3.752</td>
<td>3.482</td>
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<tr>
<td>70</td>
<td>5.662</td>
<td>5.392</td>
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</tr>
<tr>
<td>75</td>
<td>6.482</td>
<td>6.212</td>
<td>5.942</td>
</tr>
</tbody>
</table>
Vehicle Parameters

```java
baseExponent = -6.118;

if( rollover )
    baseExponent = baseExponent + 1.157;

baseExponent = baseExponent + ( 0.164 * deltaV );

if( vehicleHasPassengerSideDamage )
    baseExponent = baseExponent + 0.219;

if( vehicleHasRearDamage )
    baseExponent = baseExponent - 1.793;

baseExponent = baseExponent – ( 0.027 * ( vehicleCurbWeightLbs / 100.0 ) );
```
Passenger Parameters

\[
\text{passengerExponent} = \text{passengerExponent} - 0.65; \\
\text{passengerExponent} = \text{passengerExponent} + (0.042 \times \text{passengerAgeInYears}); \\
\text{if ( passengerGenderIsFemale )} \\
\text{passengerExponent} = \text{passengerExponent} + 0.464; \\
\text{if ( passengerIsEntrapped )} \\
\text{passengerExponent} = \text{passengerExponent} + 2.378; \\
\text{if ( passengerWasEjected )} \\
\text{passengerExponent} = \text{passengerExponent} + 1.859; \\
\text{passengerPOI} = 1.0 / (1.0 + (e^{-\text{passengerExponent}}))
\]
Directs appropriate operator action

Recommended action based on probability of injury calculation:
Provide information to PSAP and suggest vehicle extrication if not already on route.

EMS Response Screen

Probability of Injury: 57%
DeltaV: 37 mph

PSAP Contact:
Bannock County
624 East Center
Pocatello, ID 83201
(208) 236-7114

Incident Information:
Incident ID: 1638001627
Event Notification: Vehicle Accelerometer
Event Verified: Yes
Rollover: No
Data Provider: OnStar
Provider Contact: 800-486-7327

Vehicle Information:
Airbag Deployed
Car Curb Weight (lbs): 1800
Passenger Side Damage?: Yes
Rear Damage?: No

At AB1. Look out for an accident.
ID: ONSTAR-1638001627 1
Status: Awaiting review (new)
Author: unknown
Received: 1:30 PM, 8/30/11
Who to call? PSAP Contact

Bannock County
624 East Center
Pocatello, ID 83201
(208) 236-7114
Alternative / rural algorithms

- Algorithm developed at University of Miami School of Medicine (Augenstein, et al.)
- Other algorithms (e.g., GM’s Injury Severity Score)
- Algorithms need to be refined for rural applications, where they could potentially be the most useful.
After operator processes report

- Crash report published to 511
- Data saved to database
- Linked to patient outcome information / trauma registry
- CDC Follow-on Studies
  - *linking AACN data to patient outcome data; further development of urgency algorithms*
Thank you!

Questions?

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