

BLUETOAD



Kevin Gorder
Fargo District

Background

- ▣ Interstate 94 through Fargo
 - 45th St to the Red River
 - Concrete Pavement Repair Project
 - Pavement is over 20 years old
- ▣ Traffic Volumes
 - 45th to I-29
 - ▣ 53,000 vehicles per day
 - ▣ Two lanes each direction
 - ▣ Ramp volumes – 2,700 to 11,000+

Background

- ▣ I-29 to Red River
 - Almost 70,000 vehicles per day
 - Three lanes each direction
 - Ramp volume – 1,800 to 11,000+
- ▣ Work Zone Traffic Control
 - In areas where existing road is two lanes, one lane was closed
 - In areas where existing road is three lanes, two lanes were closed but an additional lane was provided on the median 10' shoulder

Public Relations

- ▣ Public was updated by multiple methods
 - Press release and typical media coverage
 - ▣ TV
 - ▣ Radio
 - NDDOT Fargo.com website
 - Text Messaging
 - Direct Emails
 - Facebook
 - Twitter



BLUETOAD

BLUEtooth Travel-time Origination And Destination

Special Thanks to Traffic Control Corp

www.trafficcast.com/products/view/blue-toad/



How Does it Work?

- ▣ Uses BlueTooth Technology
 - Scans for BlueTooth signals
 - Bluetoads are paired
 - Waits for match
 - Calculates elapsed time
 - Real time data
- ▣ Solar Powered
- ▣ Cell Phone Data Connections
- ▣ Off Site Servers

TRAFFICCAST™



WWW.TRAFFICCAST.COM

Timer
04:00 min/sec

Servers



BlueTOAD - A



BlueTOAD - B

Mac Address
01:45:CD:89:55

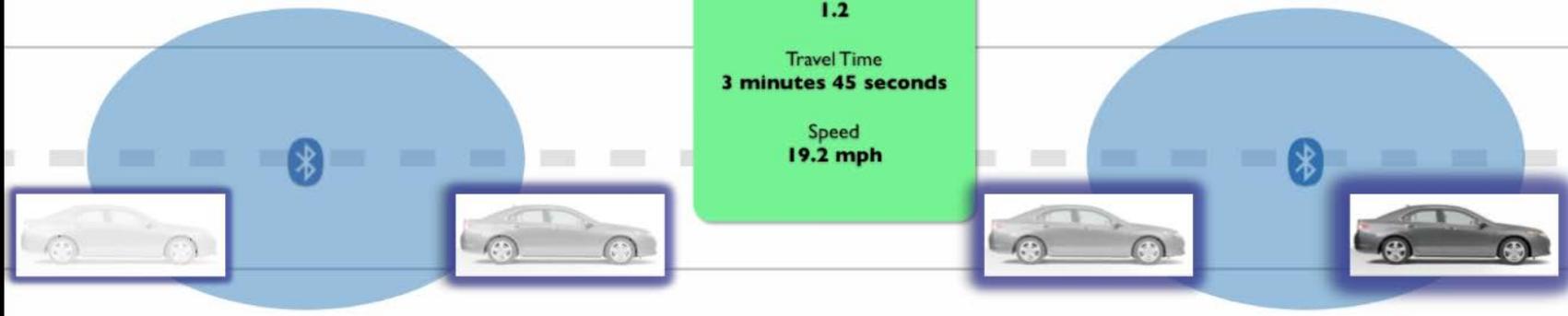
Mac Address
01:45:CD:89:55

Mac Address
01:45:CD:89:55

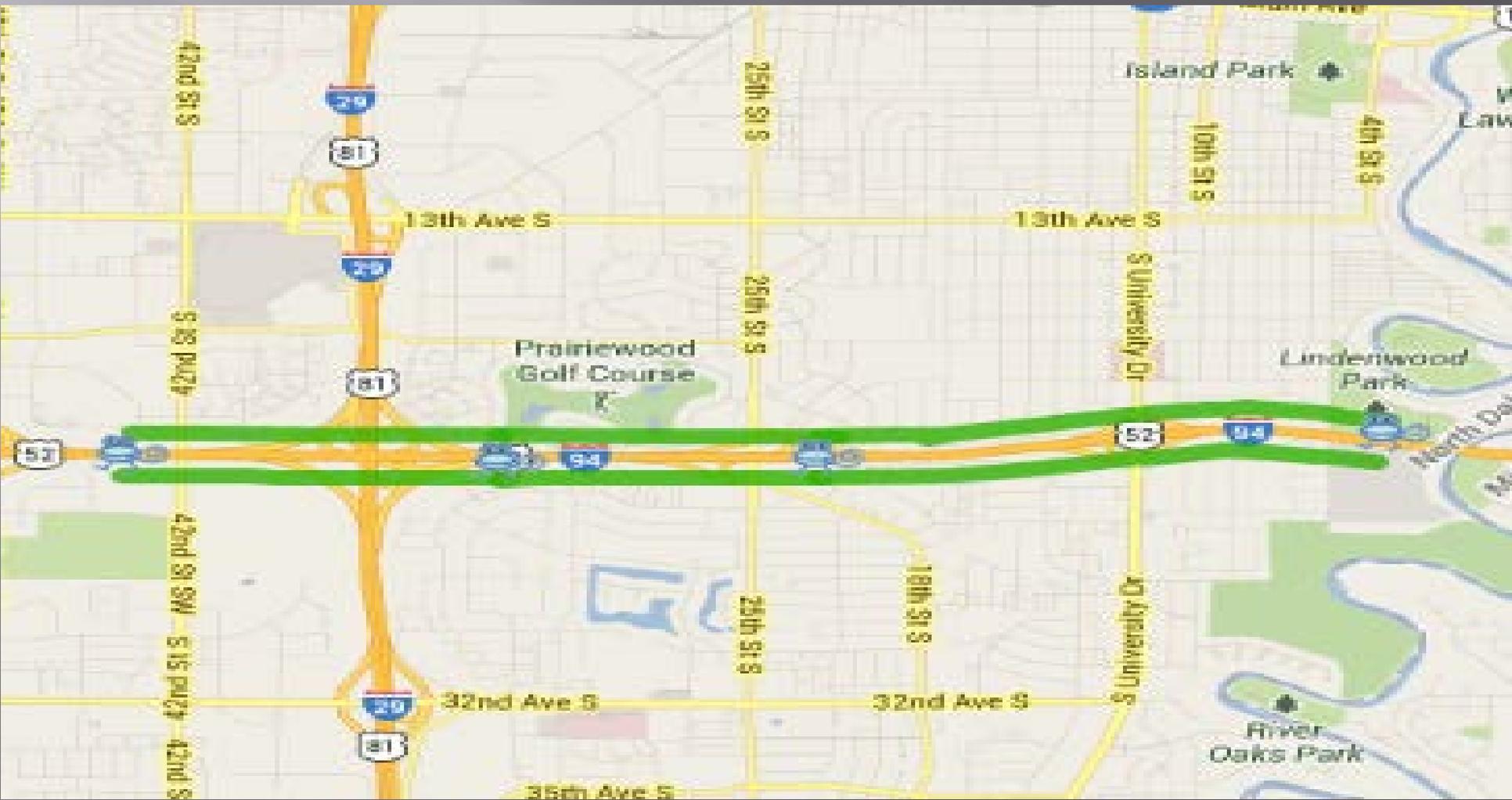
Distance
1.2

Travel Time
3 minutes 45 seconds

Speed
19.2 mph



BLUETOAD LOCATIONS









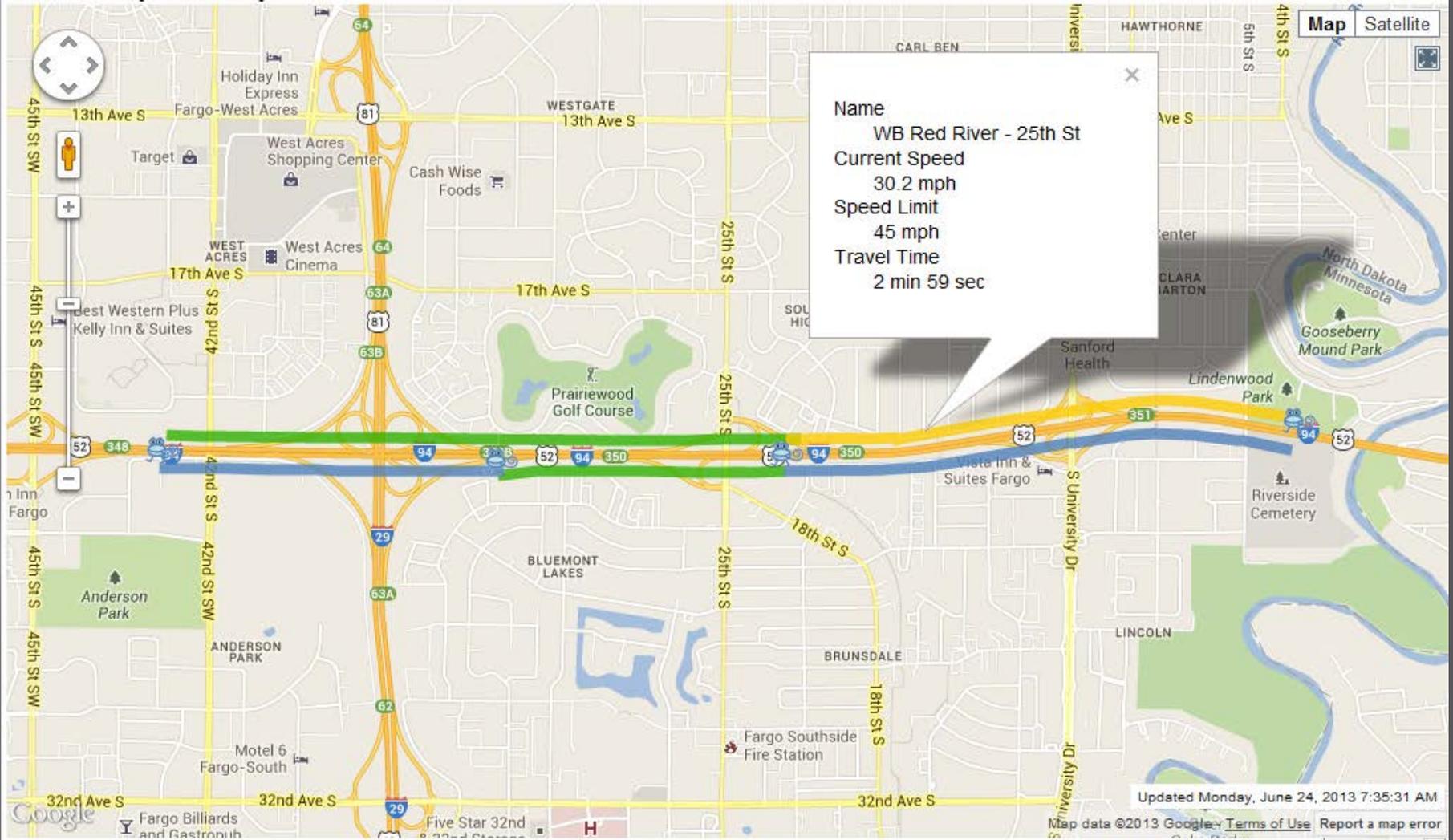
How Did We Use It?

- ▣ Know Before You Go
- ▣ Real Time Data On Our Website
- ▣ www.NDDOTFargo.com
- ▣ 30 Day Trial Period
- ▣ Media Saturation
- ▣ Concerns about privacy
 - Comments received were mostly positive
 - Did not receive negative comments



by TRAFFICAST

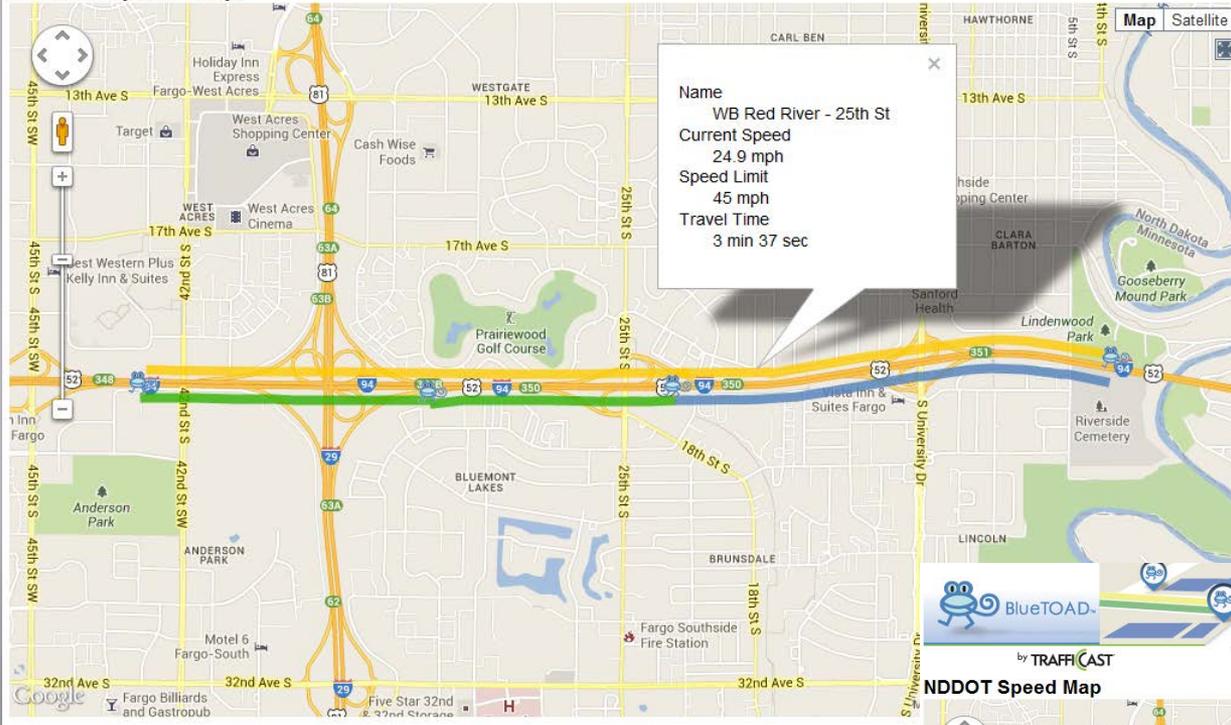
NDDOT Speed Map



Updated Monday, June 24, 2013 7:35:31 AM

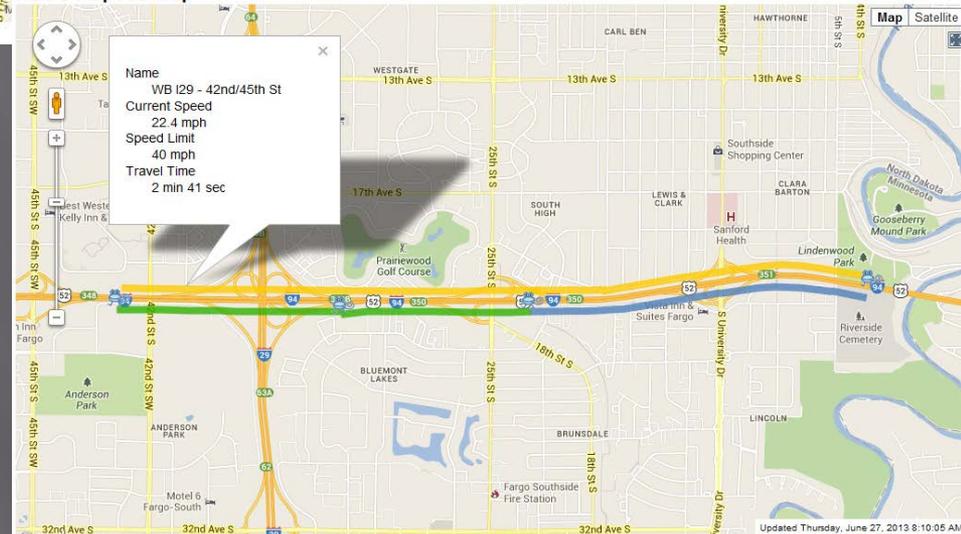
Map data ©2013 Google, Terms of Use Report a map error

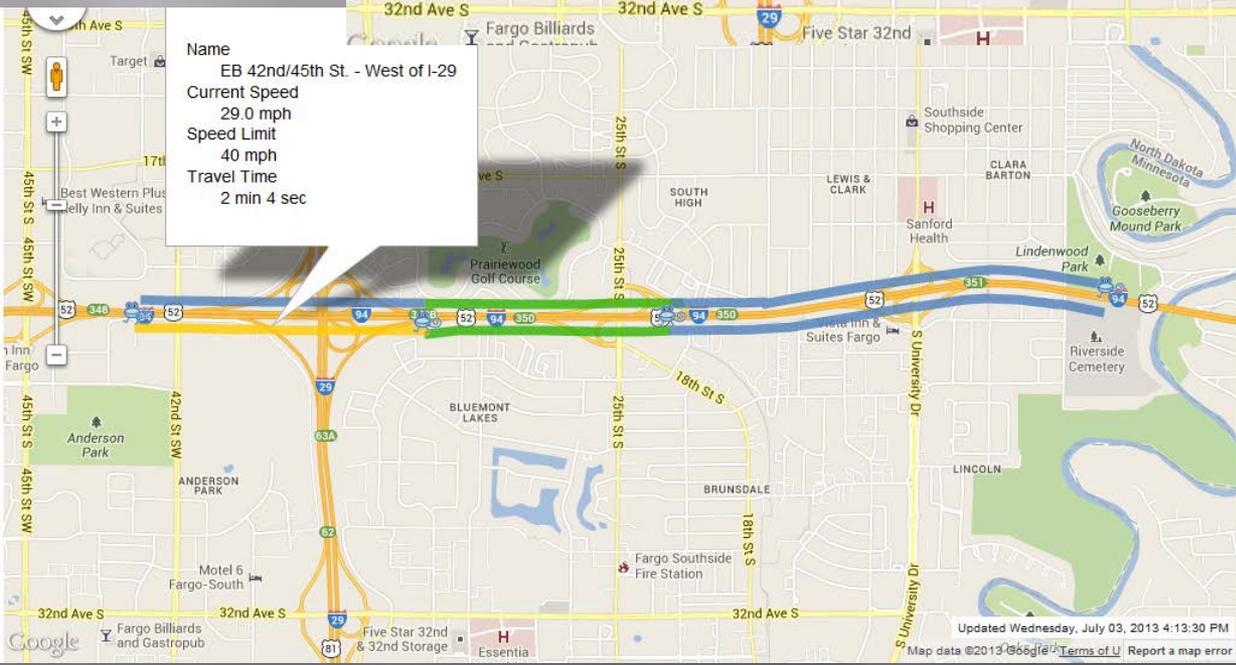
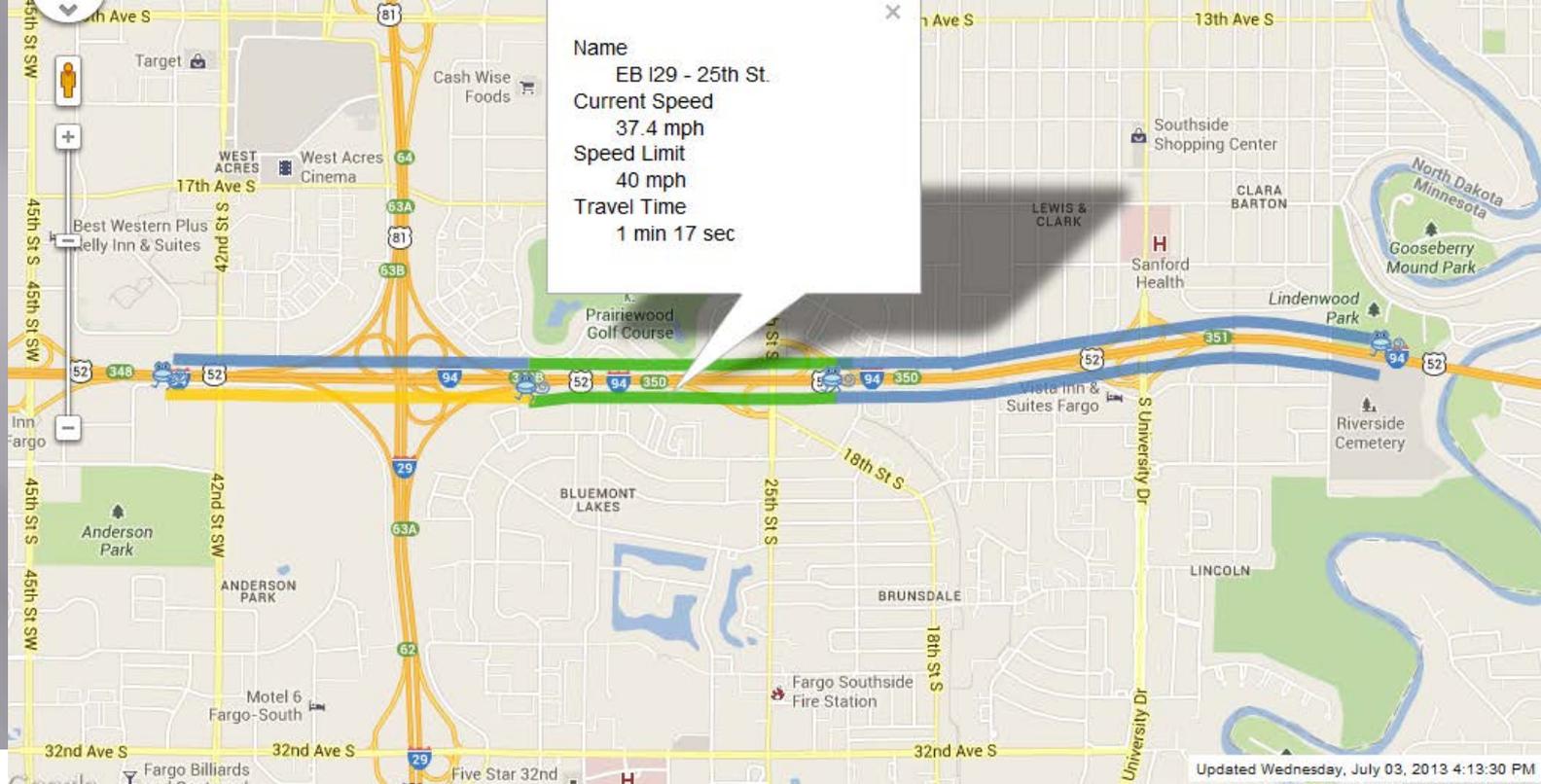
NDDOT Speed Map



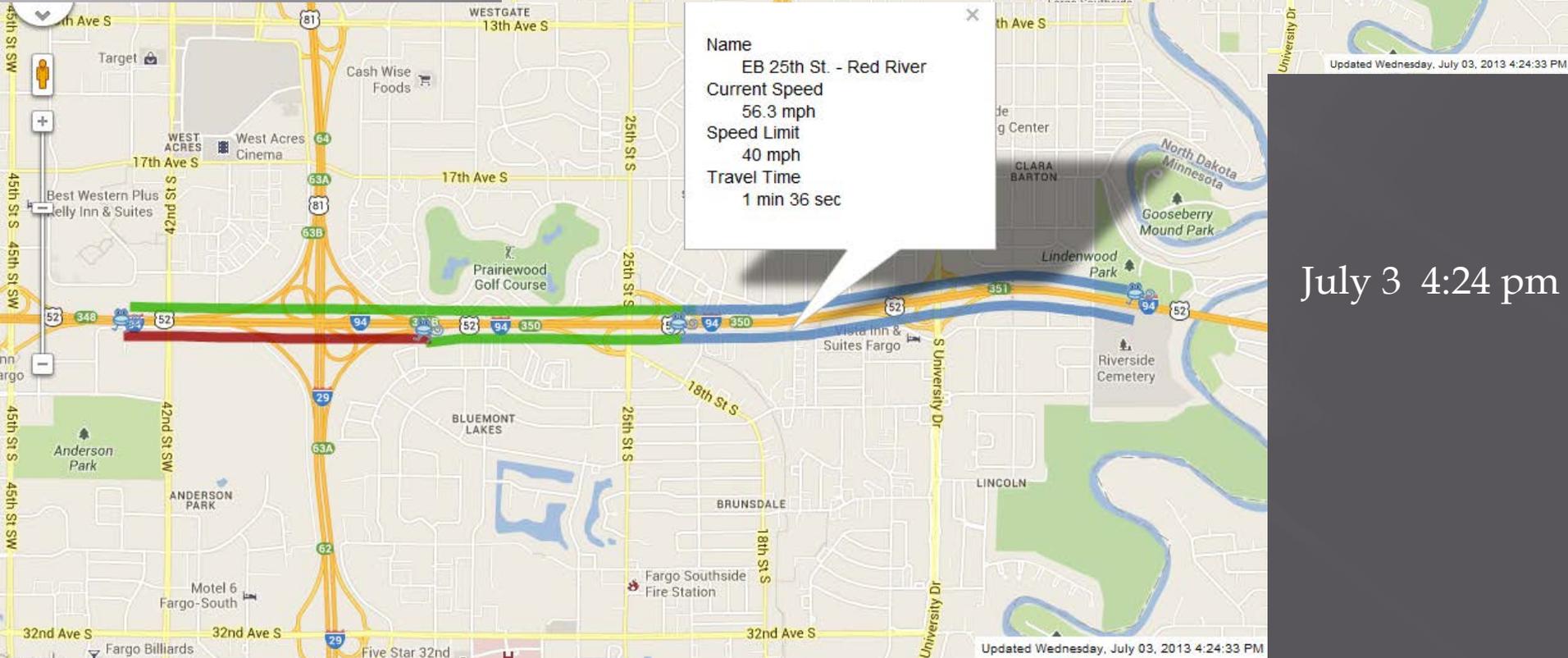
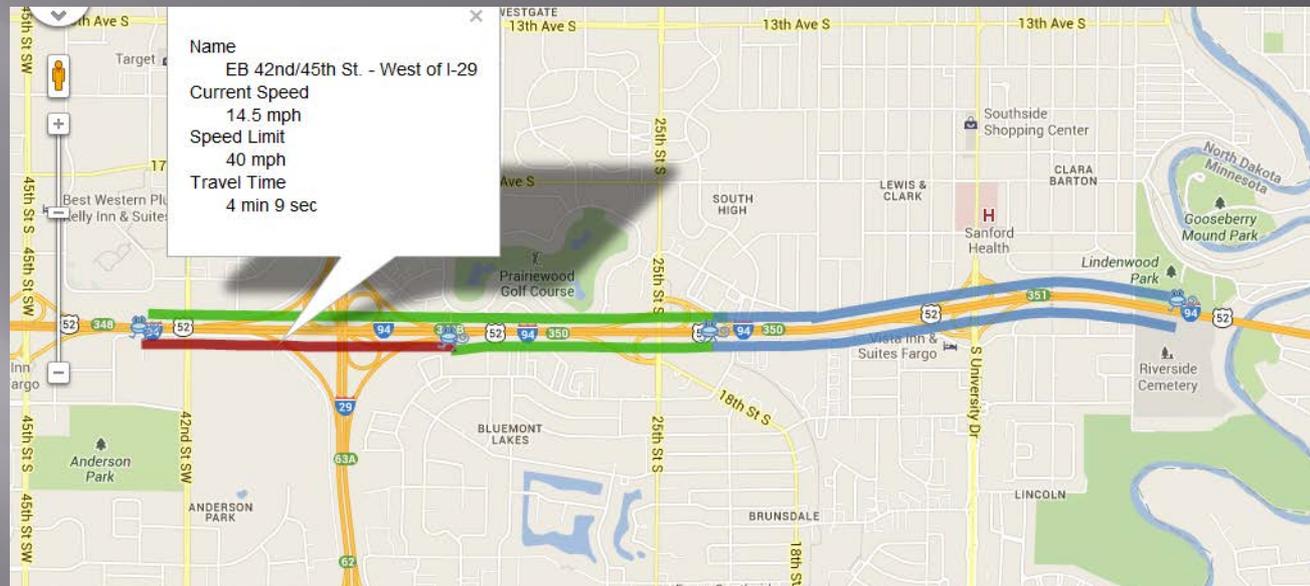
June 27 8:10 am

NDDOT Speed Map



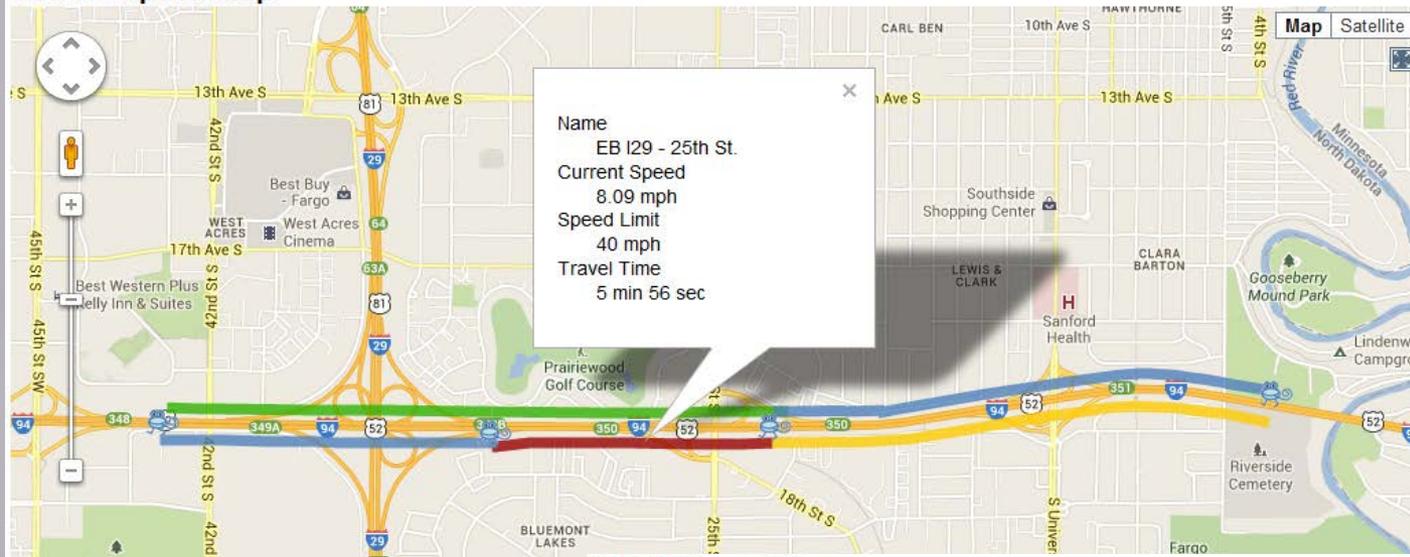


July 3 4:13 pm
Holiday Weekend



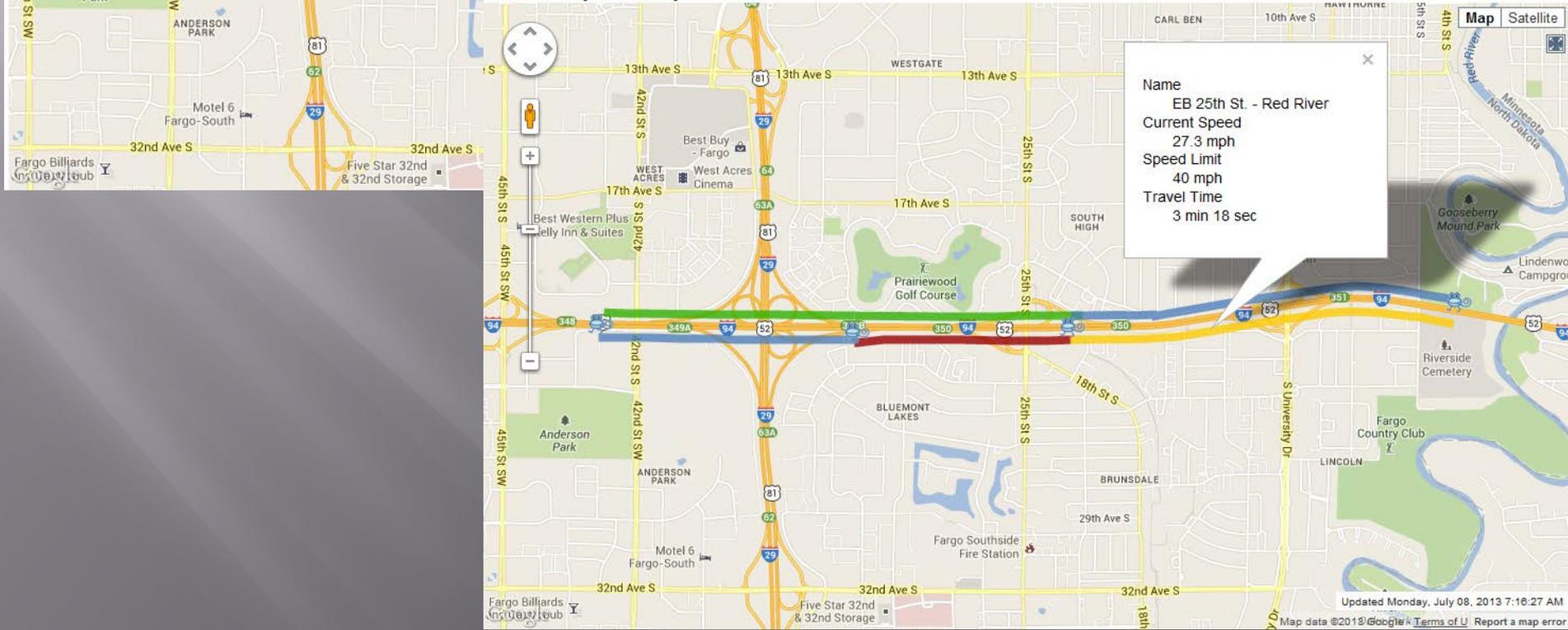
July 3 4:24 pm

NDDOT Speed Map

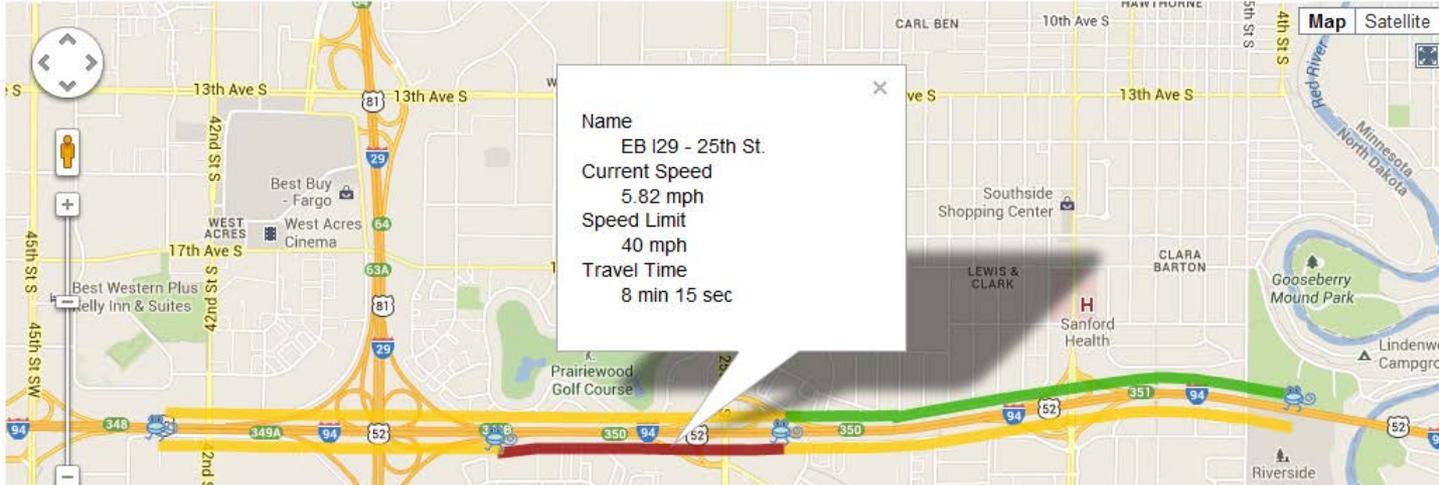


July 8 7:16 am
Barrier Switch
Typical Monday

NDDOT Speed Map

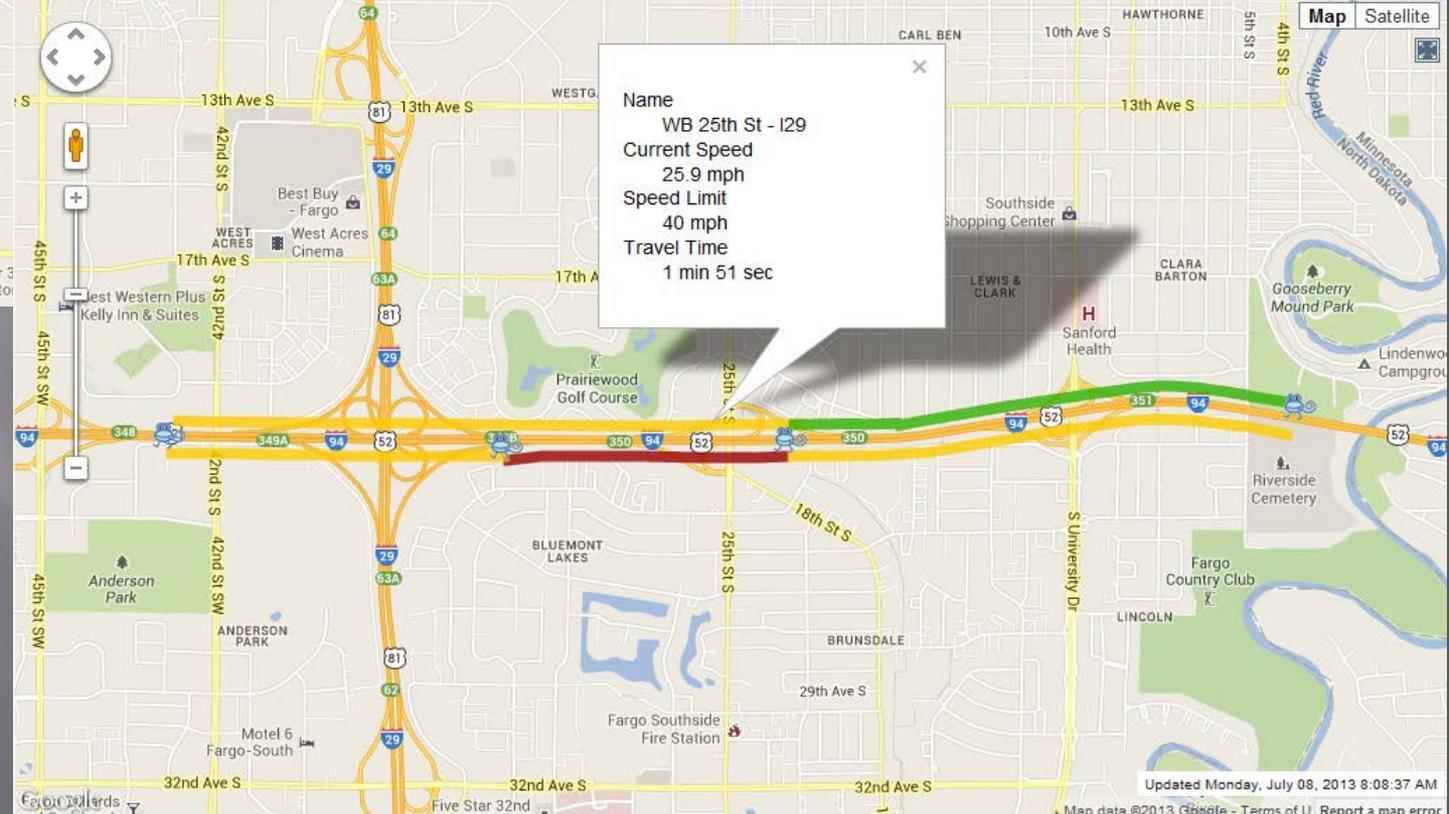


NDDOT Speed Map

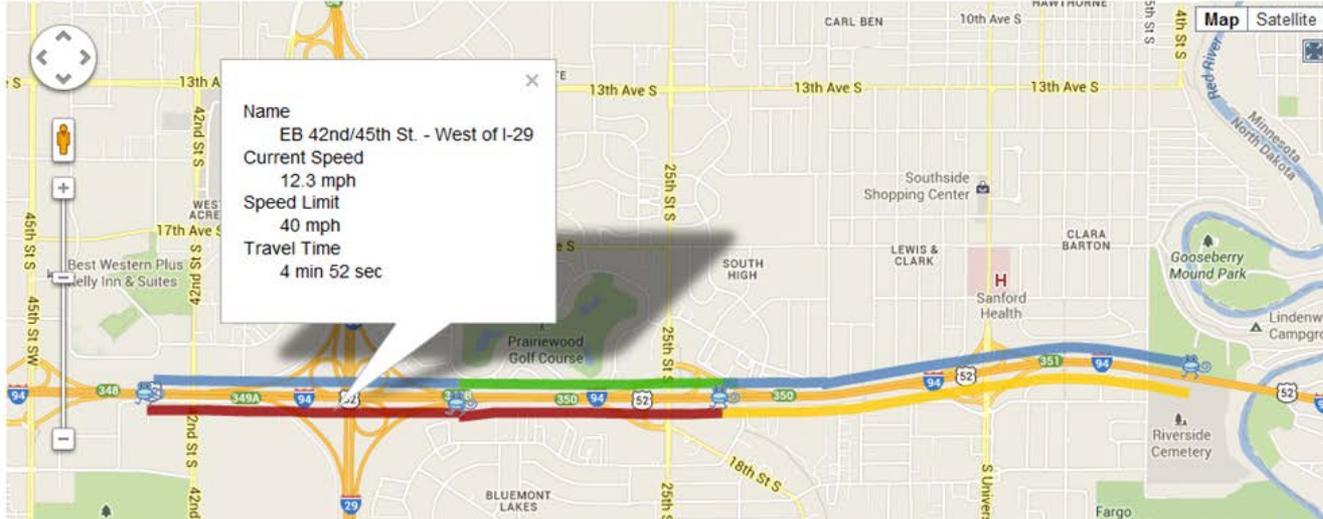


July 8 8:08 am

NDDOT Speed Map

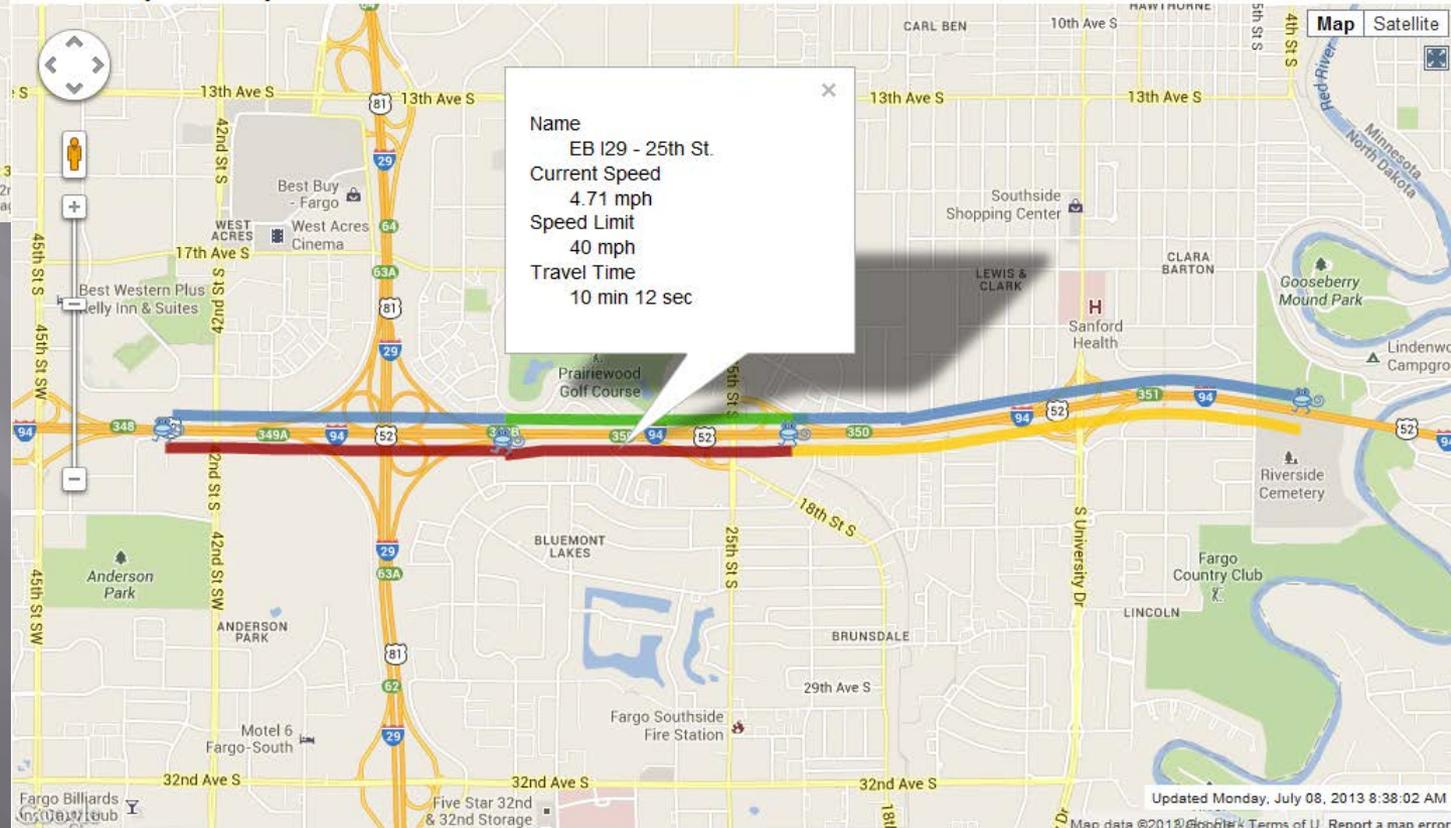


NDDOT Speed Map



July 8 8:38 am

NDDOT Speed Map

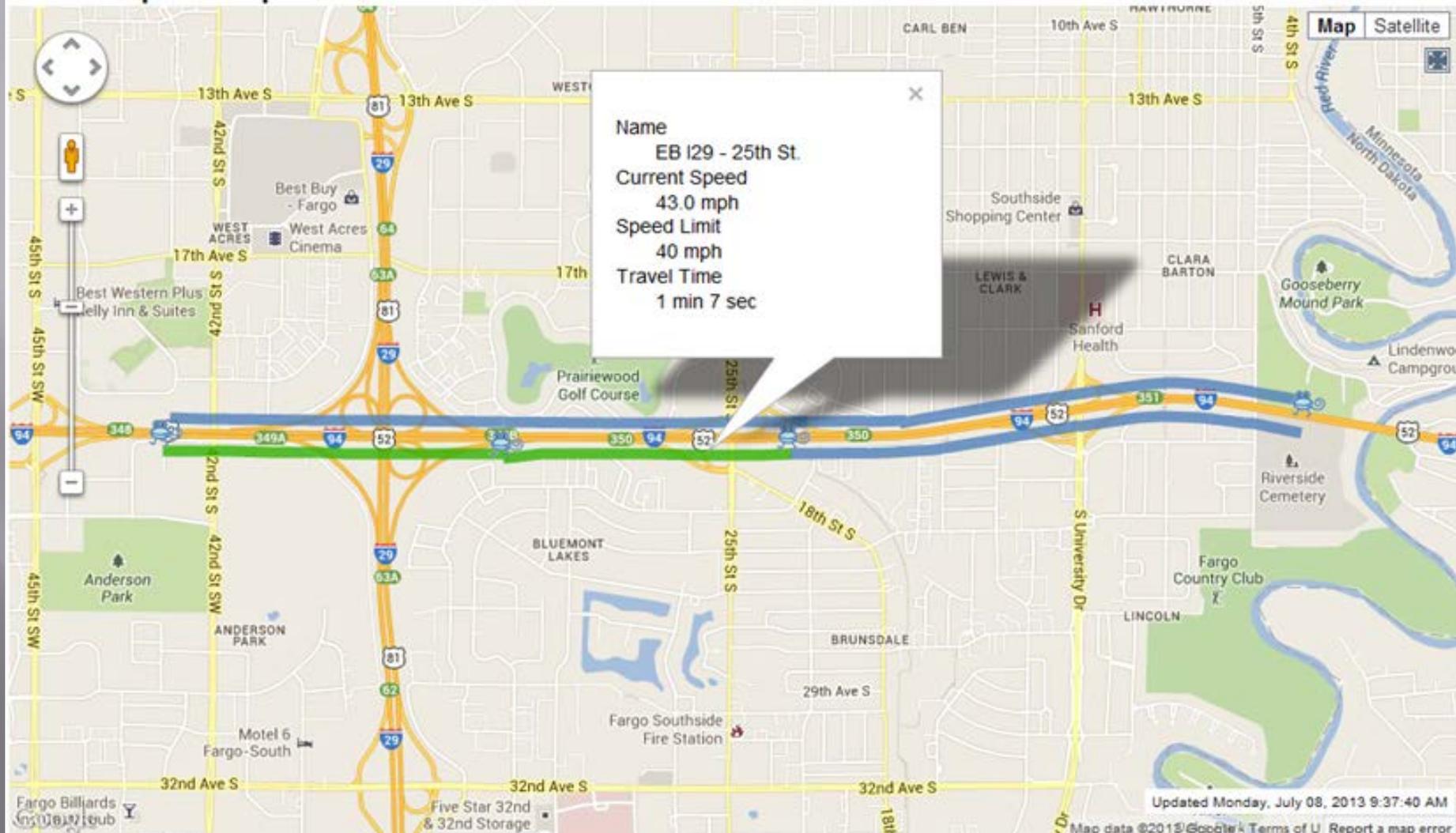


Updated Monday, July 08, 2013 8:38:02 AM

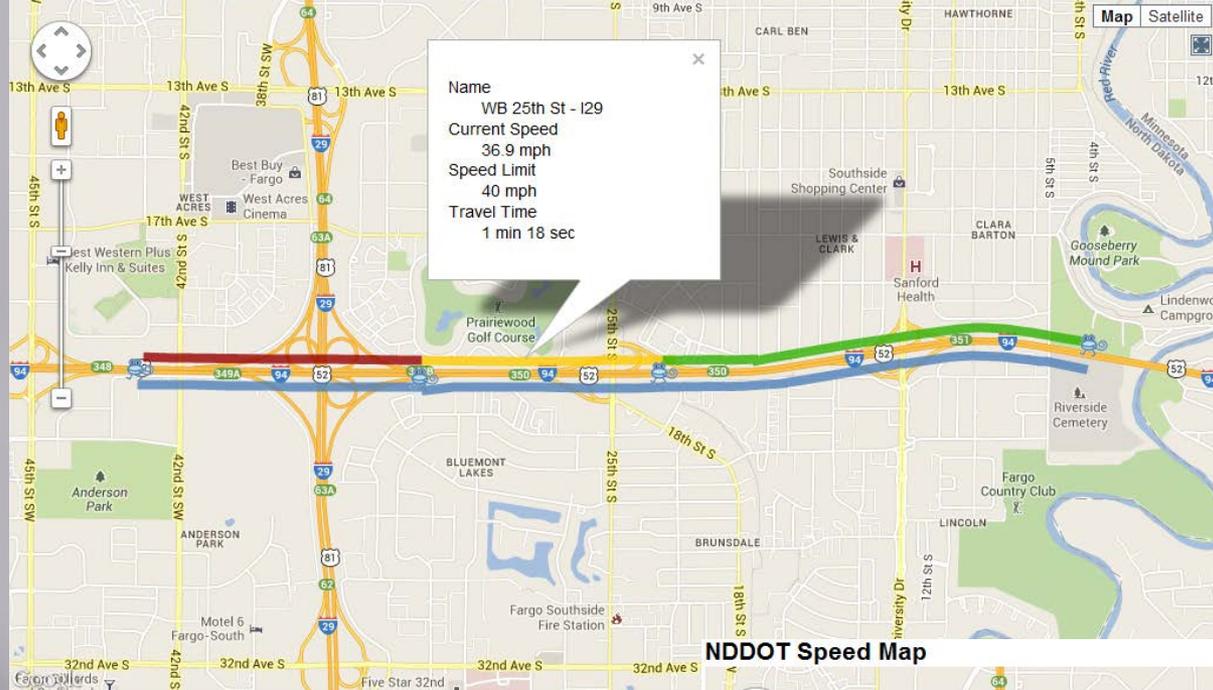
Map data ©2013 Google. Terms of U. Report a map error

July 8 9:37 am

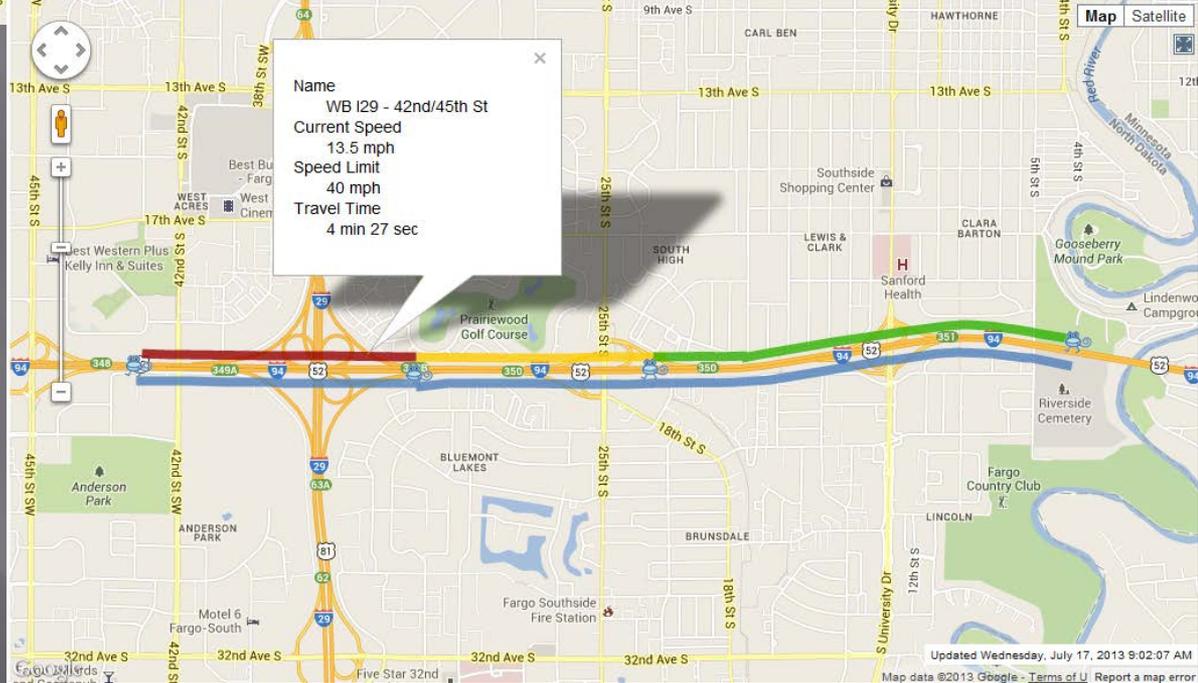
NDDOT Speed Map



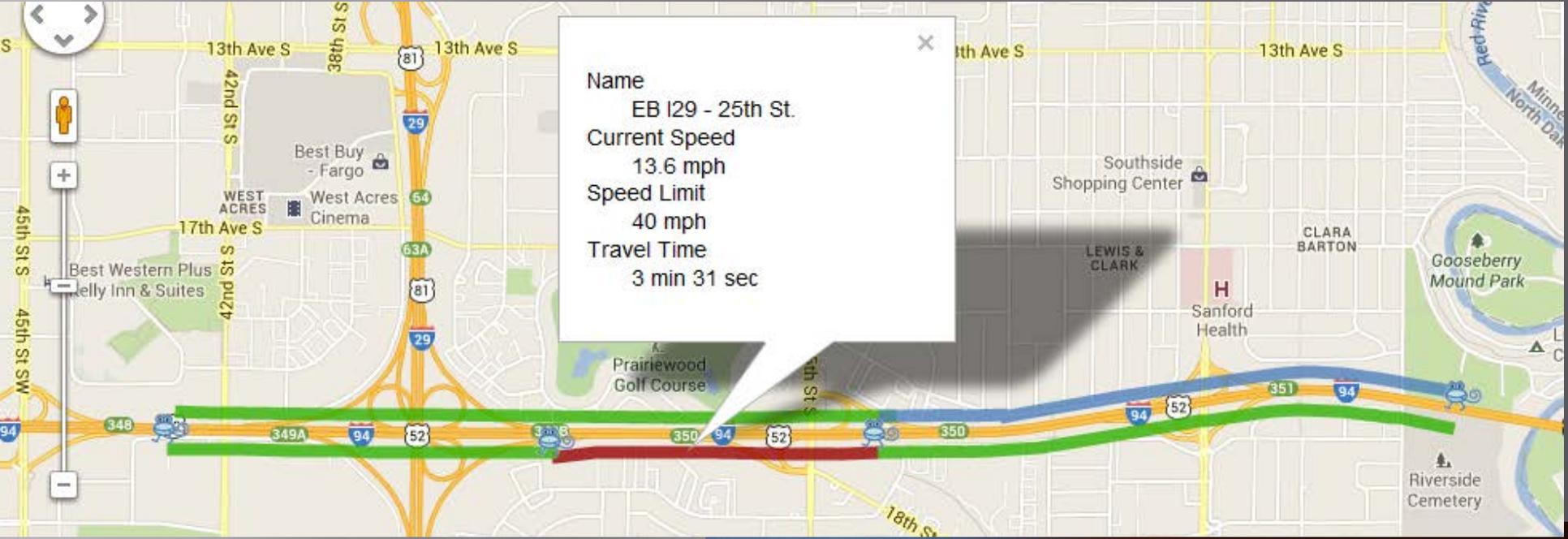
NDDOT Speed Map



NDDOT Speed Map



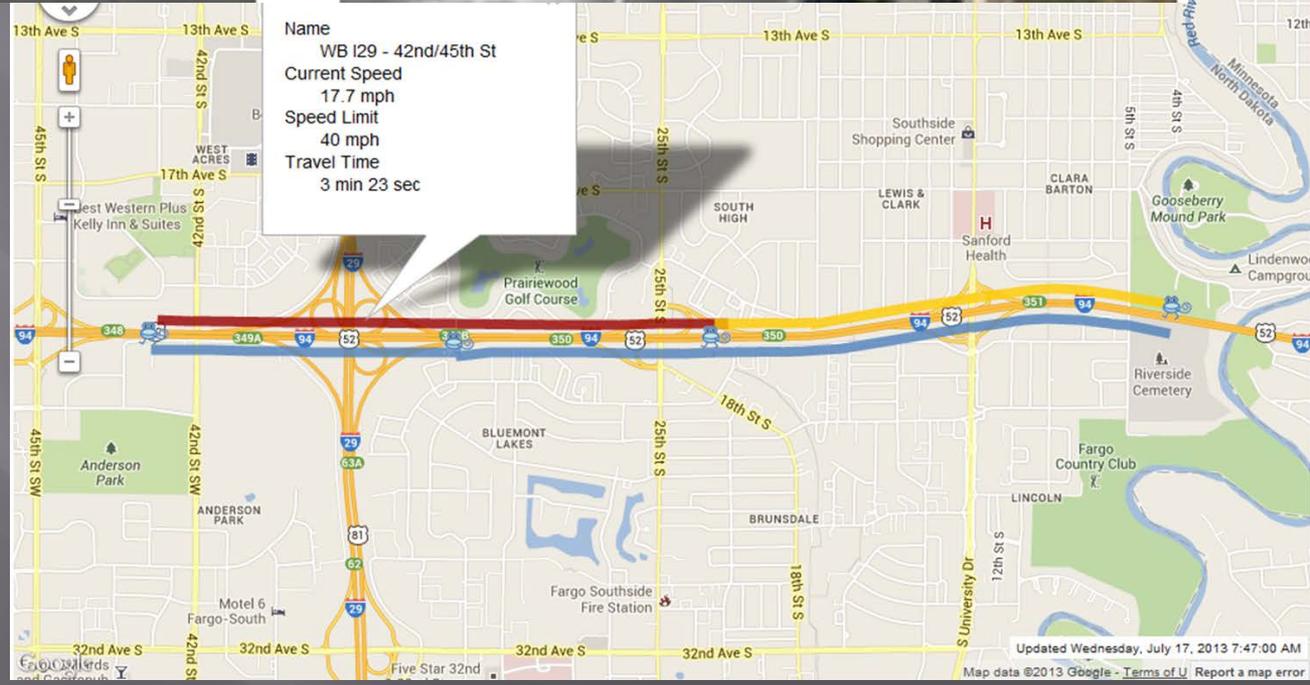
July 17 9:02 am



I-94 Looking East



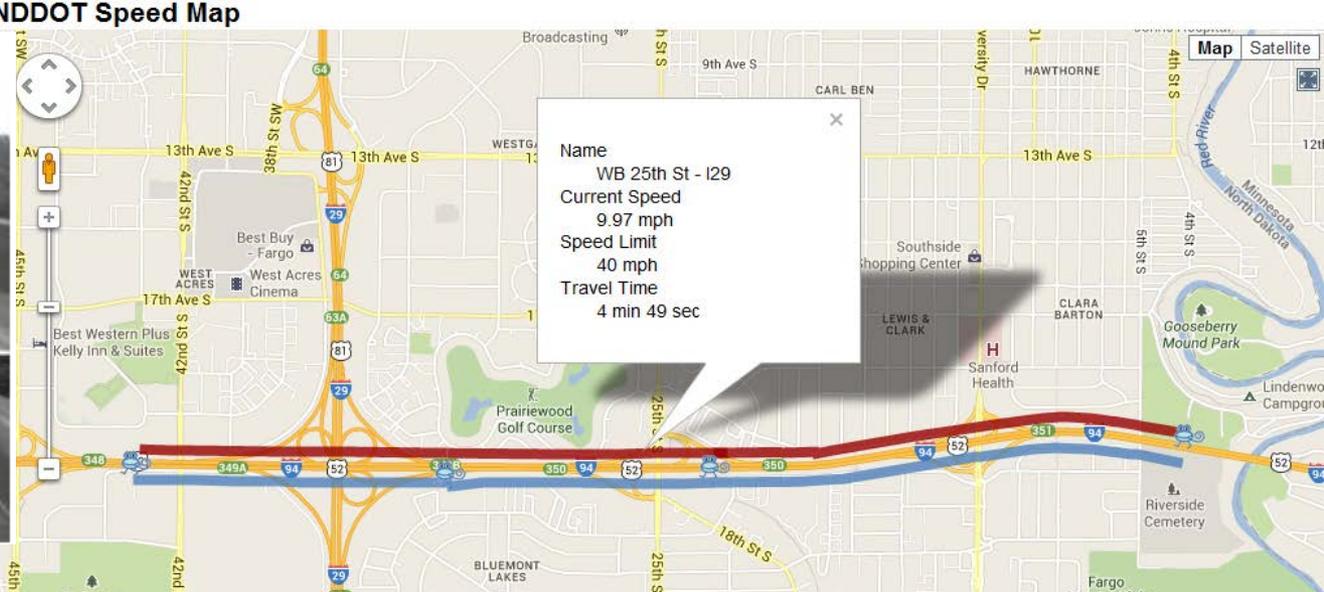
I-94 Looking West



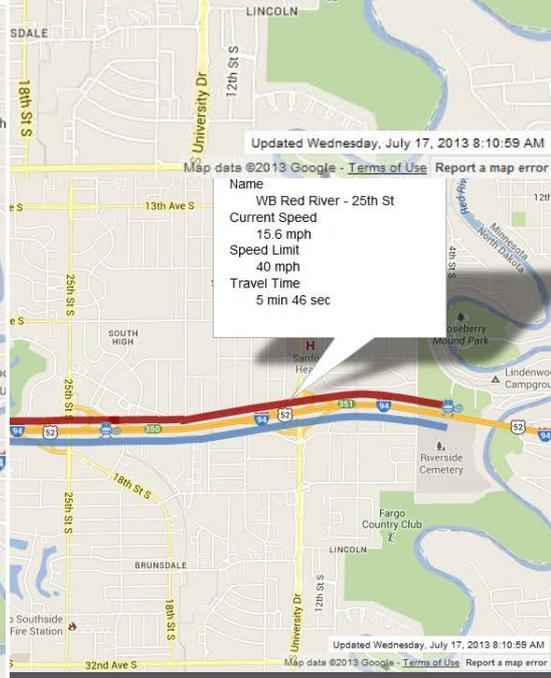
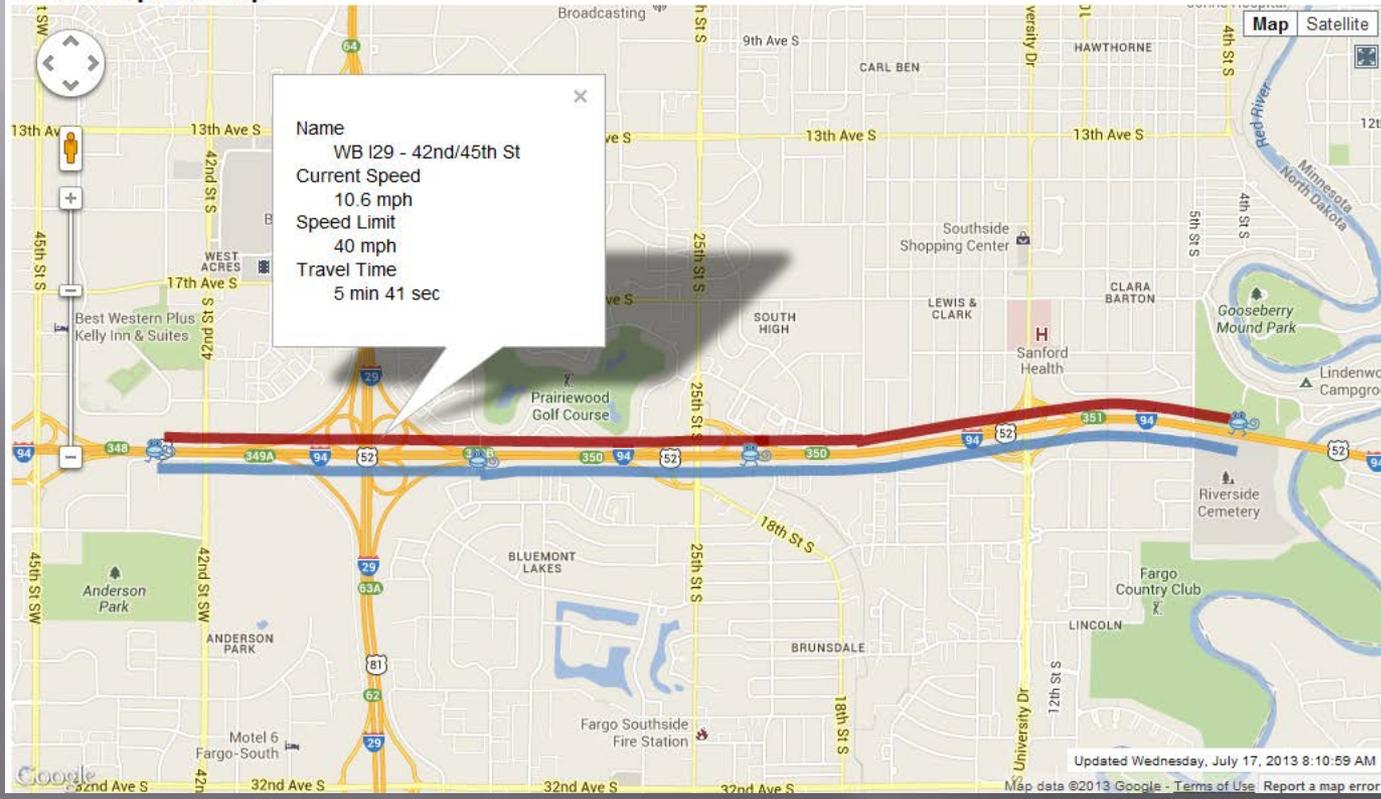
I-94 Looking East



NDDOT Speed Map



NDDOT Speed Map



July 17 10:59 am
16 min 16 sec

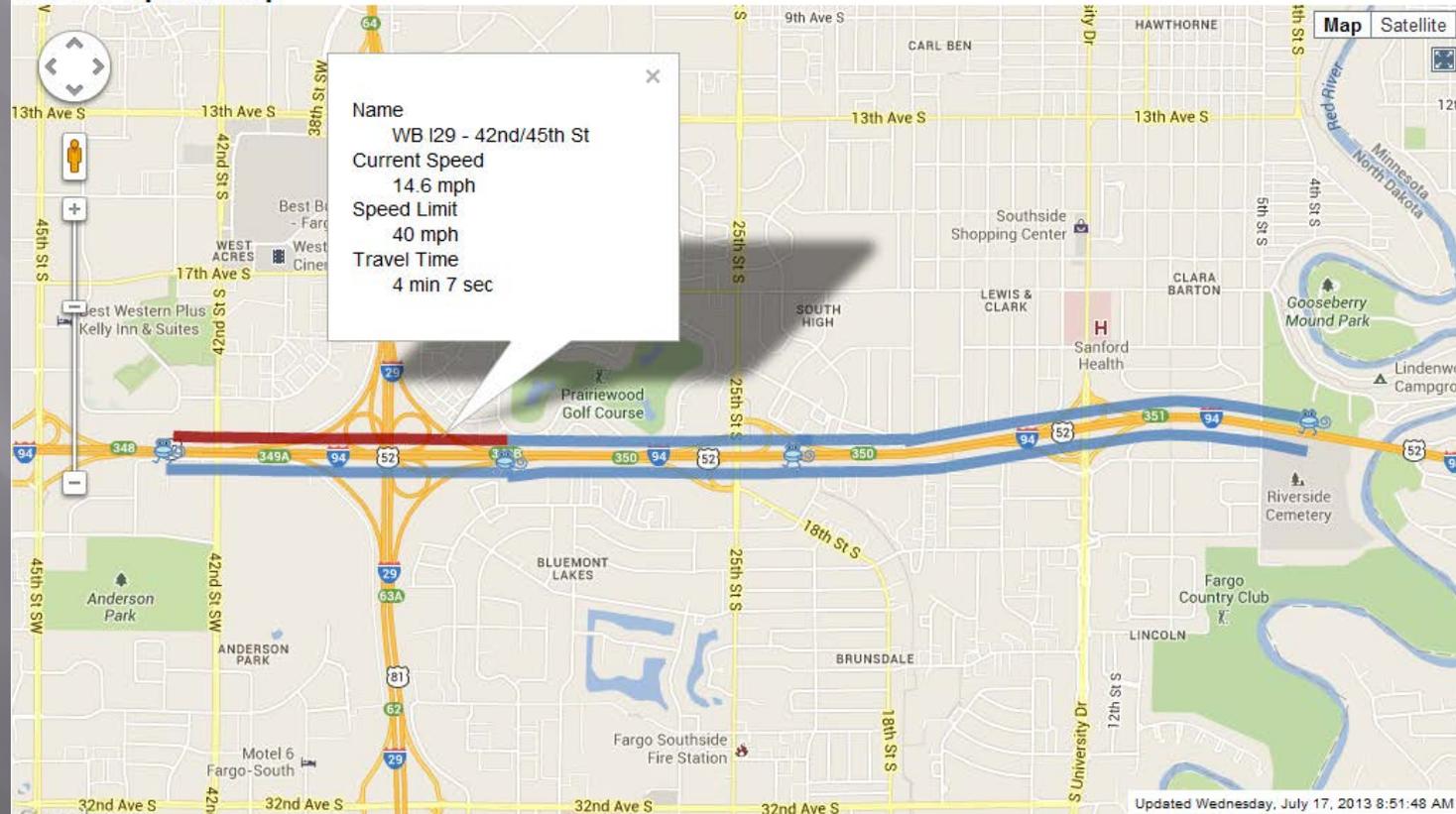
I-94 Looking East



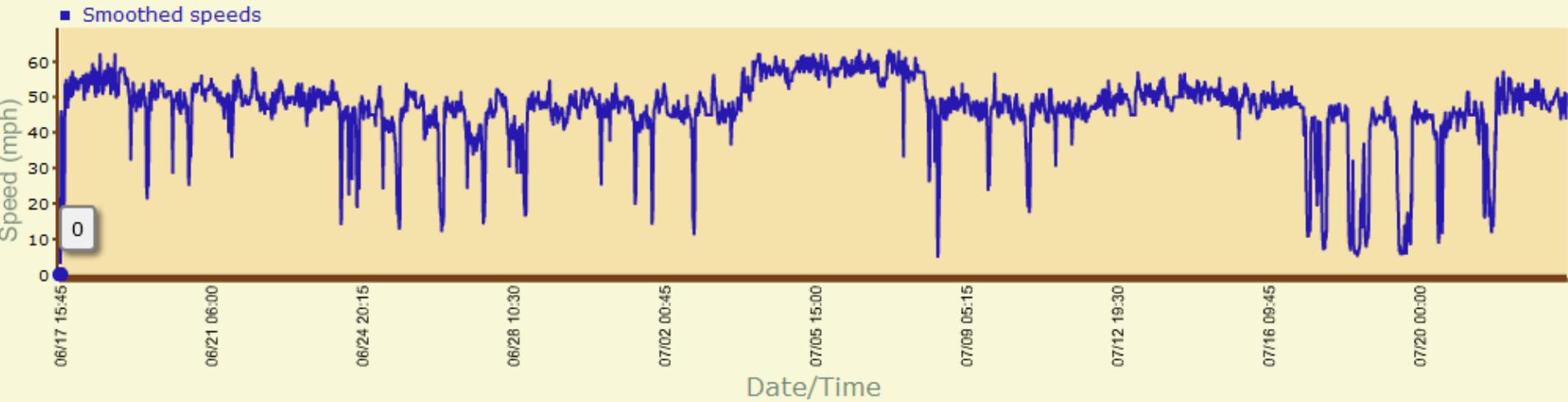
I-94 Looking West



NDDOT Speed Map

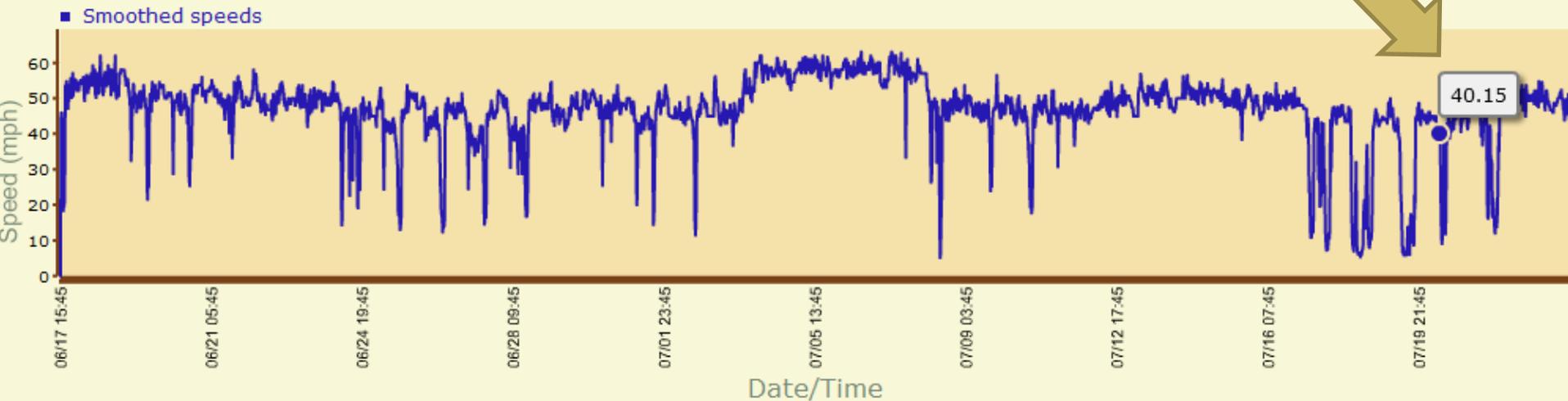


Realtime Smoothed Speeds: 15 min aggregate from 2013-06-16 19:00 to 2013-07-23 11:45

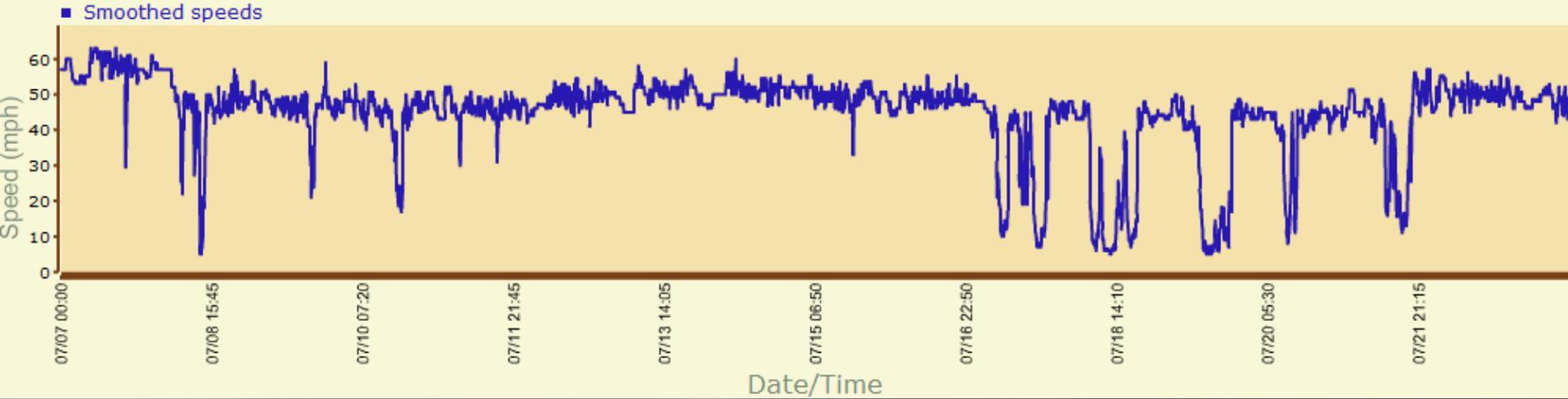


June 17 to July 23

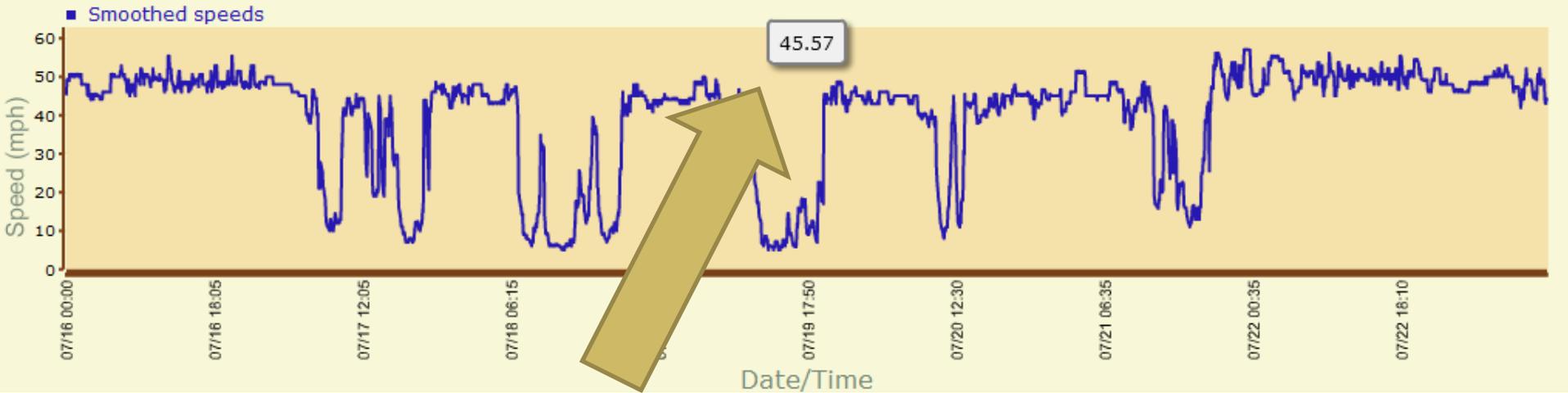
Realtime Smoothed Speeds: 15 min aggregate from 2013-06-16 19:00 to 2013-07-23 11:44



**Realtime Smoothed Speeds: 5 min sample
from 2013-07-07 00:00 to 2013-07-23 11:43**



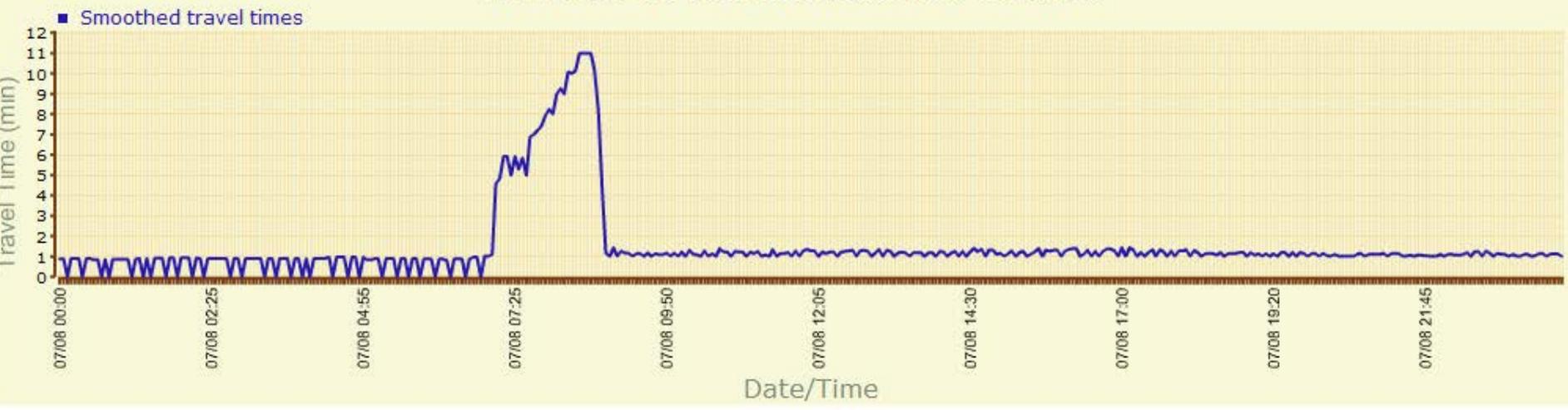
**Realtime Smoothed Speeds: 5 min sample
from 2013-07-16 00:00 to 2013-07-23 11:43**



**Realtime Smoothed Speeds: 5 min sample
from 2013-07-08 00:00 to 2013-07-08 23:59**



**Realtime Smoothed Speeds: 5 min sample
from 2013-07-08 00:00 to 2013-07-08 23:59**



Other Uses

- ▣ Post on message boards before traffic reaches work zone
- ▣ Origin - Destination type studies
- ▣ System can send out text or email warnings
- ▣ Traffic Operation Center



Bluetooth readers track I-35 travel times

Story Comments

Print Font Size: - +

Recommend 6 Tweet 1 +1 0 Pin it 0 Share 0



Michael Miller | FME News Service

Posted: Monday, January 6, 2014 4:30 am

By Geoff West | FME News Service | 0 comments

BELTON — The large electronic signs stationed on the side of Interstate 35 that report travel times are more than estimates, according to the Texas Department of Transportation, which installed the Bluetooth readers as a means of providing the most accurate real-time data.

About 30 of the so-called "portable changeable message signs" in the Central Texas region are part of TxDOT's goal of providing useful information to drivers during the multiyear I-35 construction project, TxDOT spokeswoman Jodi Wheatley said.

I-35 travel times

Traffic passes an electronic sign indicating expected travel times

BlueTOAD systems deployed in two Georgia counties



TrafficCast has announced the successful implementation of two vital traffic signal optimization projects in the state of Georgia. Cobb and Fulton counties in the Atlanta metropolitan area are both realizing the benefits of the company's BlueTOAD travel-time system on major arterial roads in their regions. Motivated to improve key arterial roadway efficiencies, both counties used the BlueTOAD online suite of travel-time data management tools to mitigate congestion and reduce travel delays. The BlueTOAD (Bluetooth Travel-time Origination And Destination) system cost-effectively and non-intrusively detects the anonymous open wireless signal information, which is used to connect Bluetooth-equipped devices, such as hands-free headsets, cellular phones, navigation units and in-vehicle infotainment systems. The BlueTOAD technology calculates highly accurate travel times through analysis of timestamps of the unique Bluetooth 'identifiers' on these devices as vehicles pass, and can identify route behaviors based on vehicle movements.

Cobb County's traffic signal systems manager, Brook Martin, commented, "Used as a performance-based measurement tool, BlueTOAD provides us with a traffic data system to help support the efficient operation of our adaptive corridor management initiative. For example, our new Traffic Management Center (TMC) utilizes the BlueTOAD real-time speed map and associated data as an incident management and monitoring resource to determine the effects of heavy traffic from I-75 spilling onto Cobb Parkway." Fulton County traffic operations manager, Wyvern Budram, noted, "Using BlueTOAD for reporting historical data gathered from an archived travel-time database, we are able to analyze valuable information to effectively manage our newly-installed adaptive signal system. As a result, we use BlueTOAD data to determine modifications to signal timing splits and offsets to actively manage and maintain our key arterial traffic signals."

11 July 2012

Contracted by TxDOT, the Texas Transportation Institute at Texas A&M University in College Station 2011 installed the first of a planned series of signs

Illinois DOT Selects BlueTOAD by TrafficCast to Monitor Travel Times For Eisenhower Resurfacing

Published on May 5, 2010

MADISON, Wis.—(CHICAGO PRESS RELEASE.COM)—The State of Illinois Department of Transportation (IDOT) will deploy BlueTOAD™ by TrafficCast to serve as the temporary system to monitor travel times and road speeds during the resurfacing of the Eisenhower Expressway (Interstate 290) through the Fall of 2010.

BlueTOAD combines advanced wireless technology with sophisticated data processing to directly measure travel times and route behaviors. The roadside BlueTOAD device detects anonymous identifications used to connect Bluetooth technologies such as "hands-free" headsets and audio syncing. The related BlueTOAD operating system calculates travel times by analysis of timestamps on subsequent detections in passing vehicles. The BlueTOAD name is an acronym for Bluetooth Travel-time Origination And Destination.

IDOT will integrate BlueTOAD data into its traffic information systems for internal management as well as communications to drivers, including postings on overhead message signs. Normally, road speeds and travel times are derived from inductive loop sensors embedded in Chicago-area expressways. These will be disabled by the resurfacing project. With its independent operation on the cellular network and flexibility in installation, BlueTOAD will enable IDOT to maintain the communication of vital driver information throughout the project, when extensive congestion and delays are likely.

Traffic Control Corporation, a leading distributor of advanced transportation technology in the Midwest and a sales partner of TrafficCast for BlueTOAD, facilitated the deployment.

"The Illinois DOT is always looking for innovative ways to enhance the reliability and safety of its roads for Illinois drivers," commented Joe Spedale, Director of Sales and Marketing for Traffic Control Corporation. "The Eisenhower resurfacing project is a necessary endeavor for the agency and our objective was to support them with the most advanced technology to help those drivers deal with the expected congestion this summer and fall."

"We greatly appreciate the opportunity to work with Traffic Control and IDOT in the critical Eisenhower rehabilitation, and deploy BlueTOAD to deliver accurate travel times in difficult travel conditions," said Neal Campbell, CEO of TrafficCast. "Bluetooth detection is proving to deliver the value of probe detection like cameras and toll tag readers without the complications of cost, privacy and infrastructure impact."

The Eisenhower project consists of resurfacing 27 miles along I-290 from Thorndale to the Circle Interchange (90-94) near downtown Chicago, and from I-355 from Army Trail Road to I-290, located within both Cook and DuPage counties. The work includes repairs to 37 bridge structures. The project will be completed in one construction season, weather permitting in the Fall of 2010. Major traffic impacts to the traveling public are anticipated.

For more information, see www.trafficcast.com.

Issue: 07/08/2013

Traffic Technology Gets Driving Data Through Construction Zones Using Bluetooth

07/02/2013

By Luke Abaffy



Photo Courtesy N.J. DOT

Text size: A A

A traffic monitoring system that reads Bluetooth signals from mobile devices inside cars is being implemented around Boston and other cities to predict highway travel times through construction zones and on highways.

The BlueTOAD traffic-monitoring system was created by TrafficCast, Madison, Wis. "It's very, very accurate," says Taylor Stukes, senior engineer of information technology services with KCUS Consulting, Boston. "We're covering roads from Boston to Cape Cod with it, and MassDOT has aggressive expansion planned for the program."

When a vehicle with any Bluetooth device inside drives by a BlueTOAD sensor, the media-access-control (MAC) address of the device is read and time- and location-stamped, says Stukes, whose firm already covers half the state of Massachusetts with the technology. A MAC address is an anonymous, unique identifier used to connect Bluetooth devices to one another. From sensor to sensor, BlueTOAD reads the MAC address and then measures the vehicle's travel time, giving point-to-point data. After the drive-time data goes to a server and a median travel time is computed, MassDOT delivers the data to commuters through a mobile app, says Stukes. Philadelphia also is implementing the system on 21 major roadways for real-time and archival data.

"We need three signals in a 15-minute period, and we need 36 matched pairs in an hour to compute the data," says Karen Jehanian, president of KMJ Consulting, a transportation consulting firm in Ardmore, Pa.

"Like every other state, we used to visually manage traffic with cameras," says Dennis Motiani, assistant commissioner of transportation systems management, NJDOT. He says he is very happy to have real data now. "We get data from E-ZPass readers, from fleets like UPS and now from the Bluetooth sensors," he says. That data is pulled into a data fusion engine that gives an accurate prediction of drive times. Bluetooth sensors fill in the gaps where there are no E-ZPass readers.

"That's the difference between BlueTOAD and E-ZPass," says Jehanian. "This is anonymous, and it is five to 10 times less expensive to deploy but provides the same amount of data." Beyond real-time traffic monitoring, construction decisions. "Every time there is a work zone I see a lot crew close a certain lane at a certain hour," he notes.

th; E-ZPass

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Engineering Flowchart

