

I-94 Intelligent Work Zone

Rashmi Brewer, P.E.

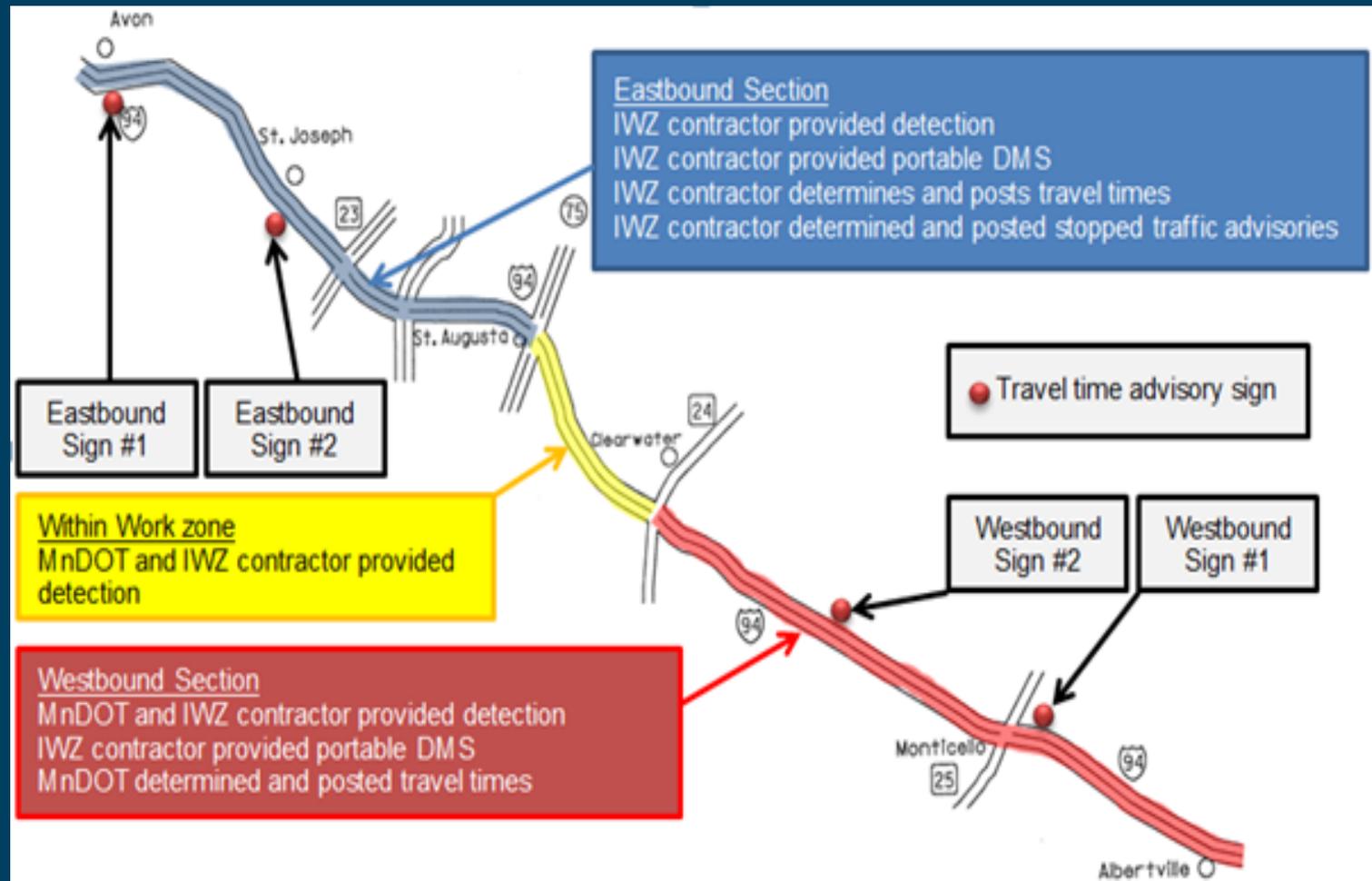
2013 Statewide Work Zone Safety Committee



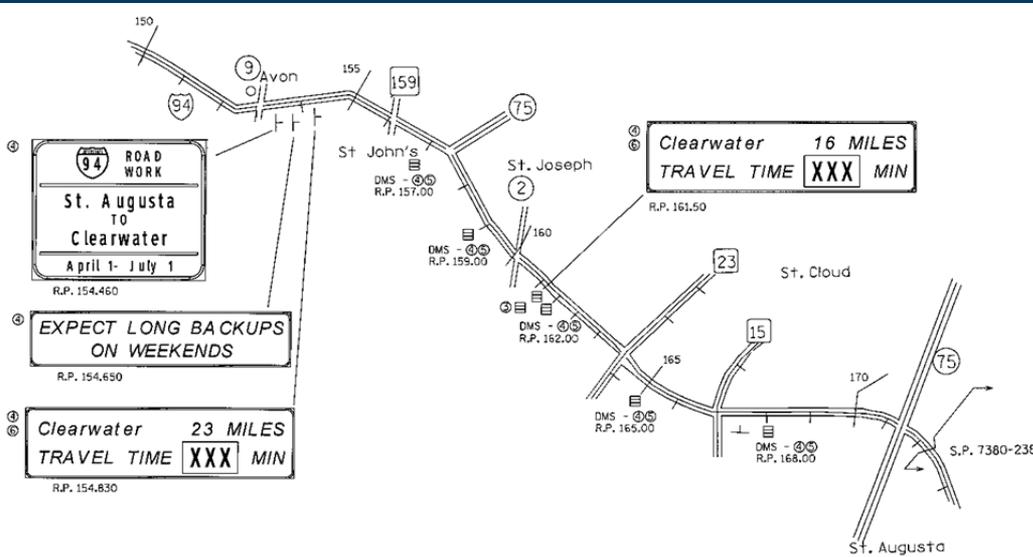
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I-94 EB & WB Detection Responsibilities

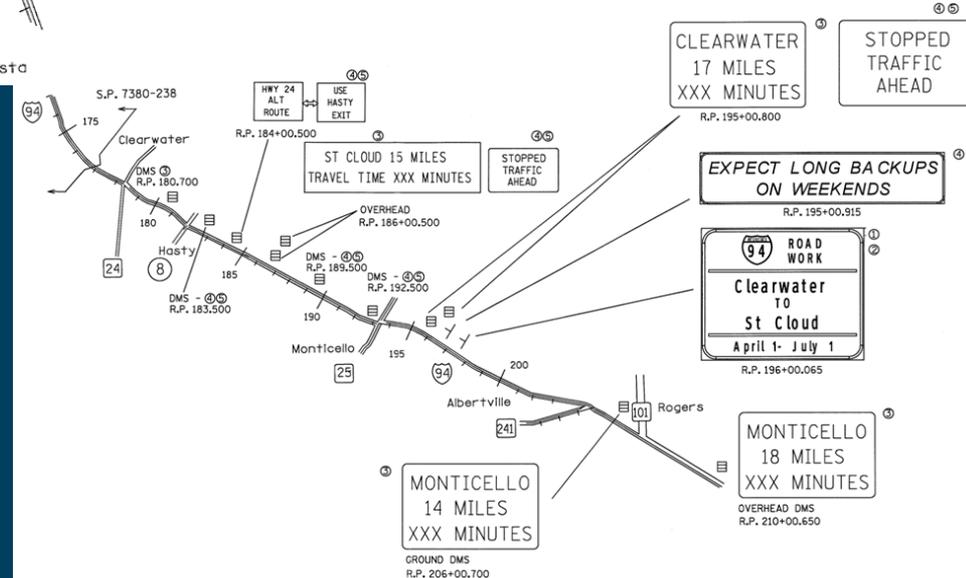


I-94 St. Cloud Intelligent Work Zone



I-94 Westbound

I-94 Eastbound



I-94 Construction Work Zone Travel Information Survey

October 2013

MnDOT

- **District 3**
- **Office of Traffic, Safety & Technology – ITS, and**
- **Office of Customer Relations**

Contact: Donna Koren, Market Research Director, donna.koren@state.mn.us

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Survey Methodology

- MnDOT sent an online survey to 2,212 people who previously signed up to receive email updates for these projects:
 - I-94 and Hwy 29 in Alexandria – 322 people,
 - I-94 Clearwater to St. Cloud – 1,428 people, and
 - I-94 Monticello to St. Michael – 462 people
- 290 people completed the survey – 13 percent response rate.
- Launched: May 28, 2013, and closed on June 13, 2013.
- 40 percent of the respondents live in Stearns (48) or Hennepin (59) county (n=270).
- 47% of the survey respondents were male, 53% were female (n=270).
- Approx. 75 percent of the respondents were 45 years or older (n=271).

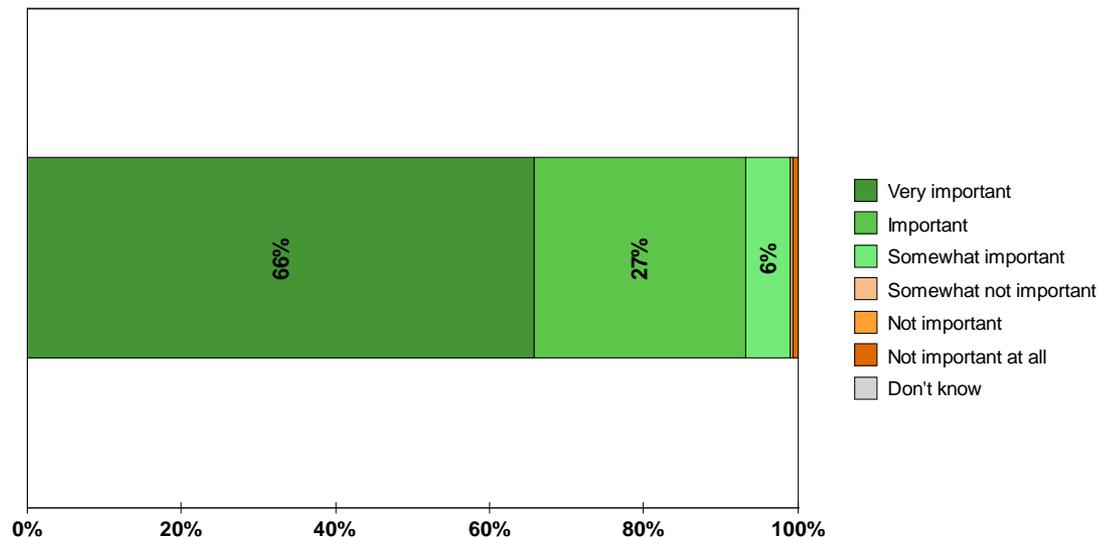
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How *important* is it to include **travel time and alternate route information** signage in construction work zones?

- Almost all of the respondents (93%) think it is **very important** or **important** to include travel time and alternate route information signage in construction work zones.

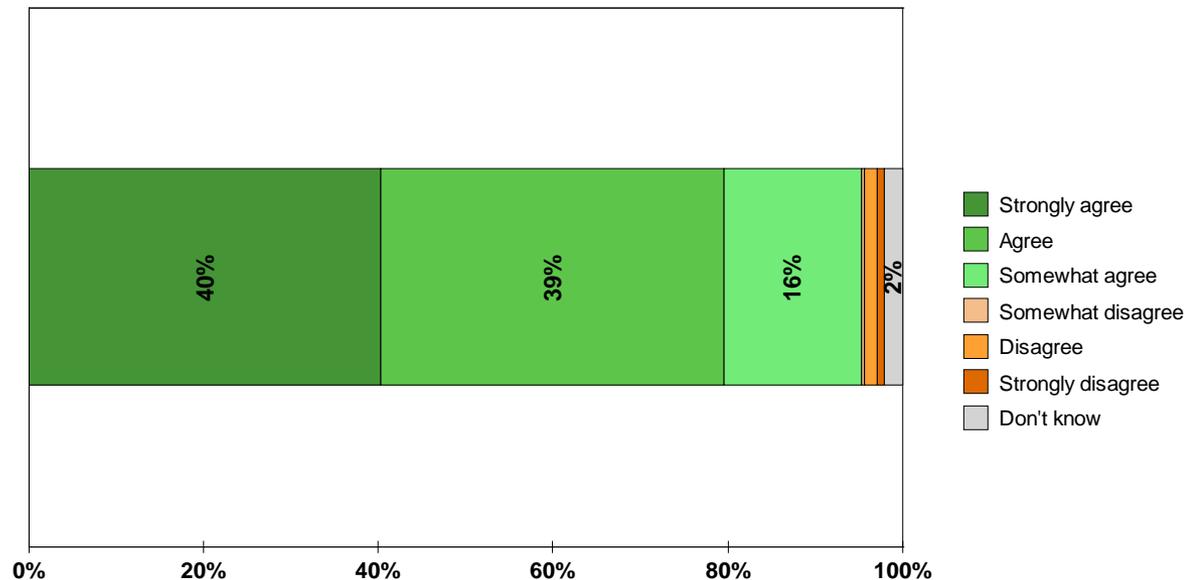
As MnDOT makes resource decisions, how important do you think it is to include travel time and alternate route information signage in construction work zones? (n=278)



Did the posted travel information **enhance roadway safety** in the construction work zone?

- A large majority of respondents (79%) **strongly agreed** or **agreed** that the travel information posted in the construction work zone enhanced roadway safety.

Do you agree or disagree that the posted travel information enhanced roadway safety in the construction work zone? (n=278)



Information eases construction disruption for the public.

Respondents indicated through several questions that they highly valued the travel time and related information in the construction zone.

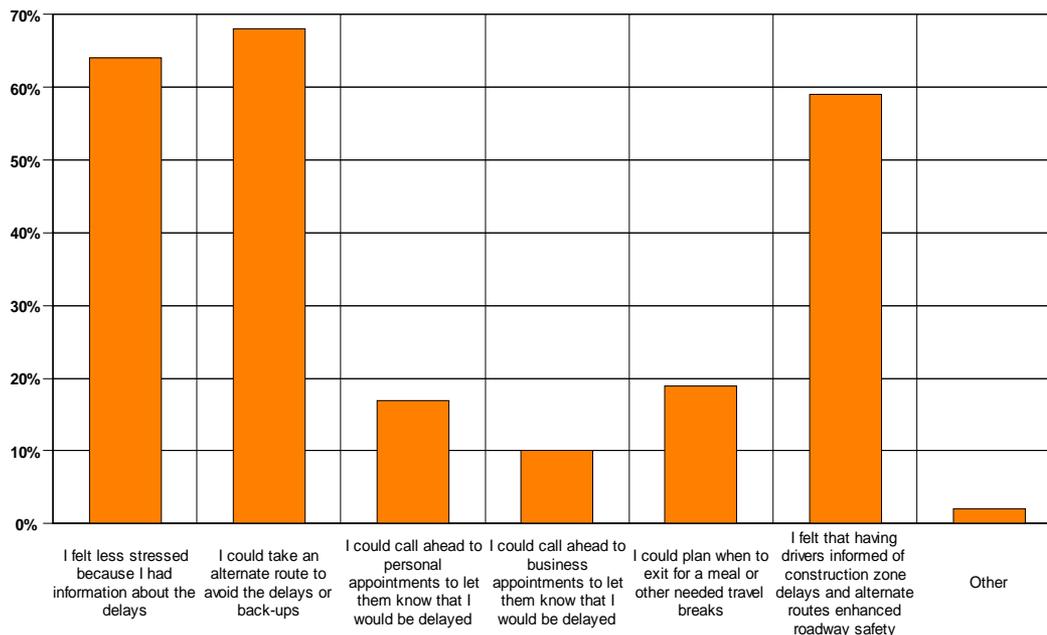
Majorities said that the information

- Allowed them to choose alternative routes,
- Decreased their stress, and
- Enhanced roadway safety.

This is consistent with other construction-project surveys conducted in the past two years. As resources allow, expand travel time signage in future construction projects.

How was the travel time helpful?

How was the travel time information helpful to you, if at all? (n=258)
 Note: Respondents could select multiple responses (percent total does not equal 100%).



- A large majority of respondents (68%) said that travel time information was helpful to them because **they could take an alternate route to avoid delays or back-ups.**
- 64% of respondents indicated that having travel time information made them **feel less stressed** because they had information about delays.
- Nearly 60% of respondents said they felt that **roadway safety was enhanced** by having drivers informed of construction zone delays and alternate routes.

How was travel time helpful?

A few respondents provided a positive open-ended response about how the travel time information was *helpful* to them.

Comments:

- *“Keep signs year round.”*
- *“Best thing MnDOT has done in ages.”*
- *“Useful information I can see without taking my eyes off the road.”*

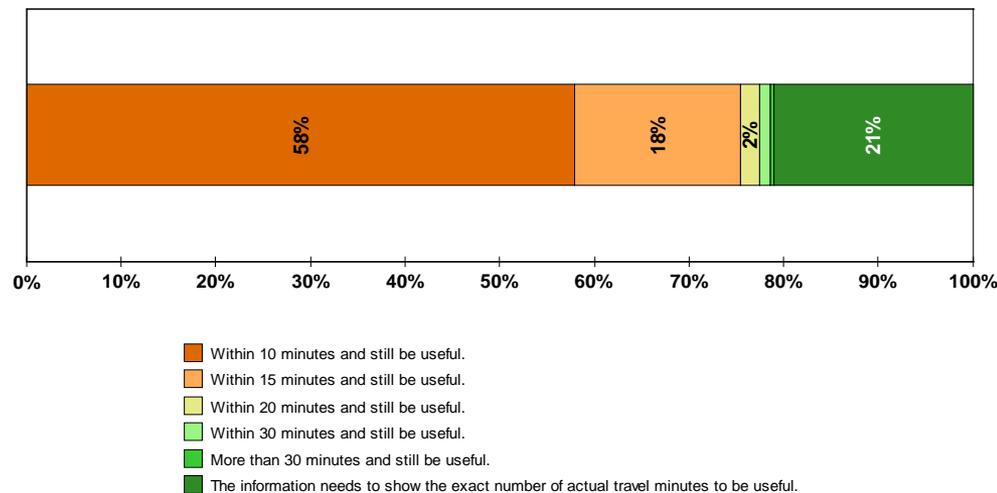
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How *accurate* should the **estimated travel minutes** to a location be for the signs to be useful?

- A majority of respondents (58%) think the estimated travel minutes need to be within **10 minutes** to still be useful.
- One-fifth of the respondents (21%) think the information needs to show the **exact number** of actual travel minutes to be useful.

The travel time sign system provides estimated travel minutes to certain locations. How accurate should the estimated travel minutes to a location be for the signs to be useful?
(n=257)



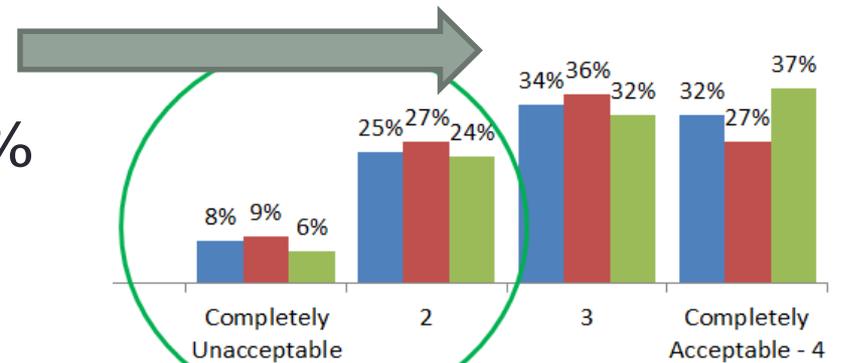
It's possible that travelers who have travel time information view construction delays as more acceptable than travelers who don't.

Over 80% of respondents said that construction-related delays were at least “somewhat acceptable.”

This is in contrast to a similar construction delay/acceptability question asked in **MnDOT's 2012 Omnibus** general population survey, in which 66% of respondents reported that such delays were acceptable.

Q: How acceptable was this level of disruption?

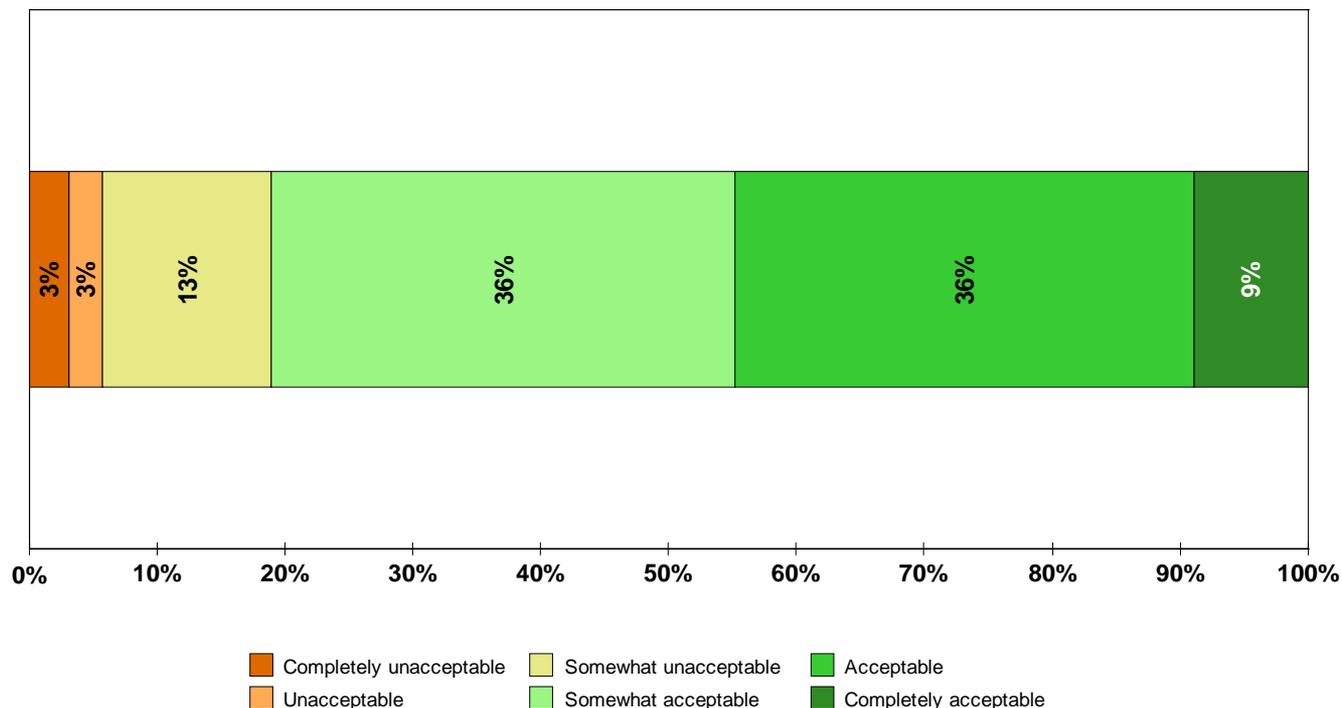
A third of all respondents rated the disruption caused by construction projects on the “unacceptable,” end of the scale, with no significant differences between Greater Minnesota and Metro respondents.



How acceptable or unacceptable were the delays?

- 45% of respondents said the delays were **completely acceptable or acceptable**.
- Very few respondents (6%) said the delays were **completely unacceptable or unacceptable**.

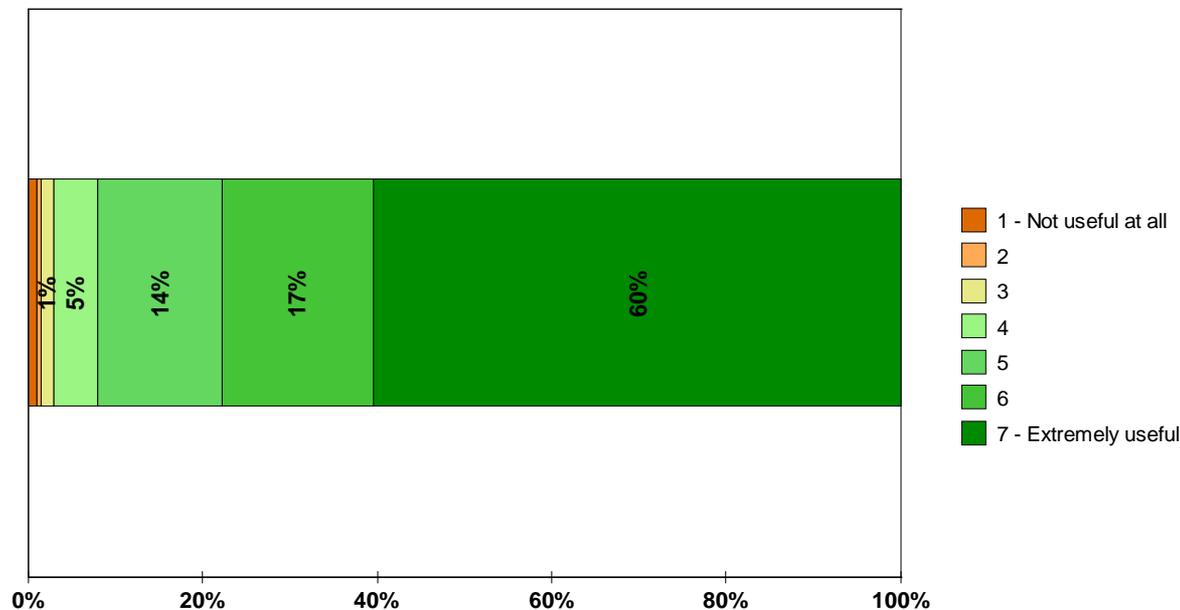
How acceptable or unacceptable was this delay? (n=190)



How *useful* is having **travel time information** posted in the I-94 construction zones?

- A large majority of respondents (77%) rated the usefulness of having the travel time information posted in the I-94 construction zones a 6 or 7 on a seven-point scale, where 7 equals **extremely useful**.

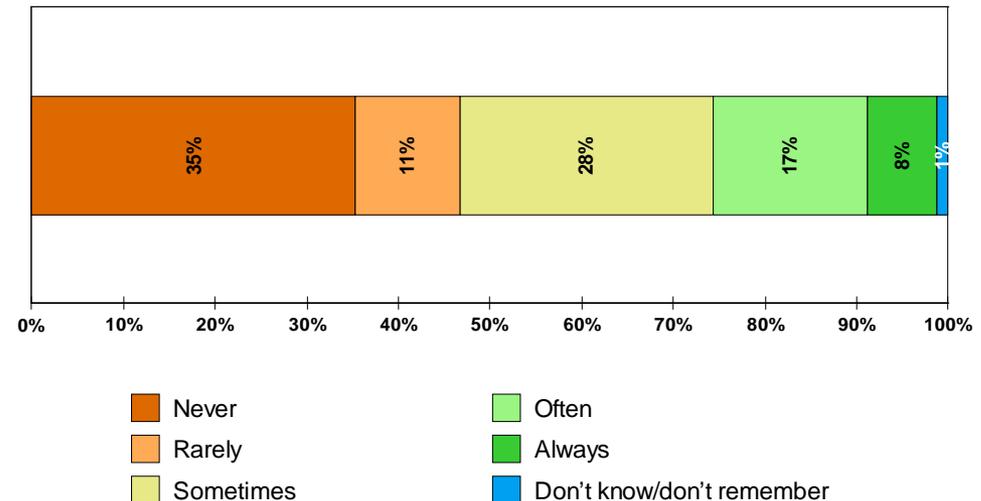
Travel time information in the construction work zone (n=275)



How frequently did people choose an alternative route based on travel times displayed in the signs?

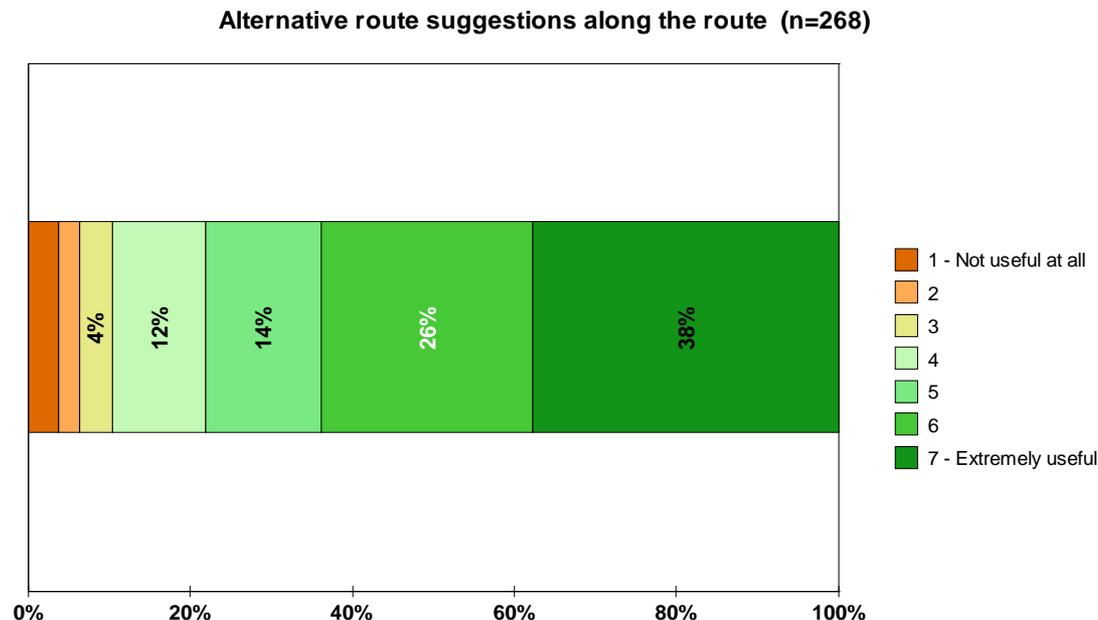
- A small majority of respondents, (53%) indicated that they chose an alternate route based on the travel times displayed.
- A quarter of respondents reported changing their route “often” or “always.”
- 46% of respondents indicated they **never** or **rarely** chose an alternative route to their destination based on travel times displayed on the signs.

How frequently did you choose an alternative route to your destination based on the travel times displayed on these signs? (n=261)



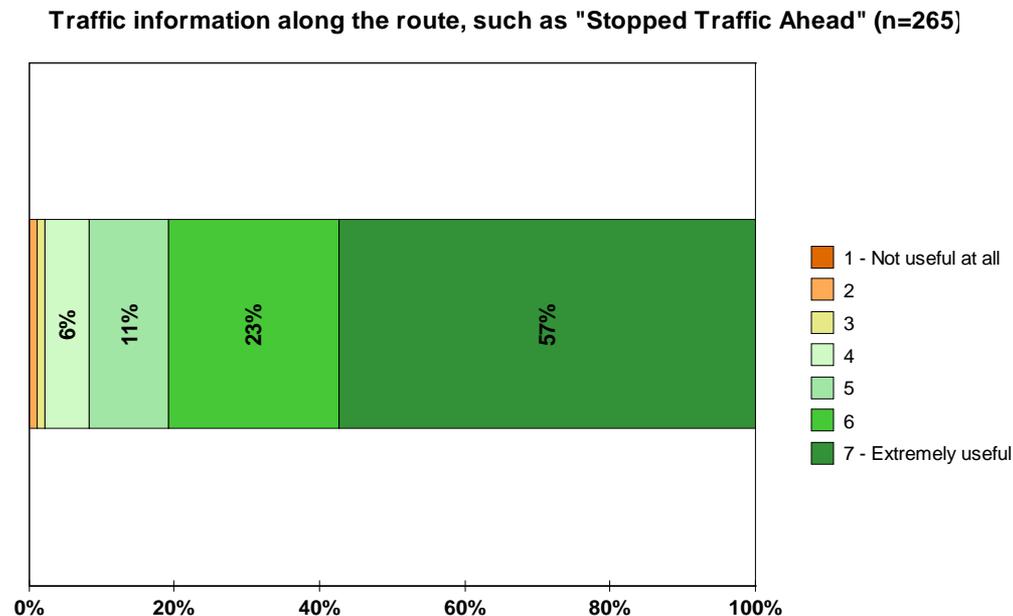
How *useful* was having **alternative route suggestions** posted along the route in the I-94 construction zones?

- A majority of respondents (64%) rated the usefulness of having alternative route suggestions posted along the route in the I-94 construction zones a 6 or 7 on a seven-point scale, where 7 equals **extremely useful**.



How *useful* was **traffic information** such as, “Stopped Traffic Ahead” posted along the route in the I-94 construction zones?

- Over three-fourths of the respondents (80%) rated the usefulness of having information such as, “Stopped Traffic Ahead” posted along the route in the I-94 construction zones a 6 or 7 on a seven-point scale, where 7 equals **extremely useful**.

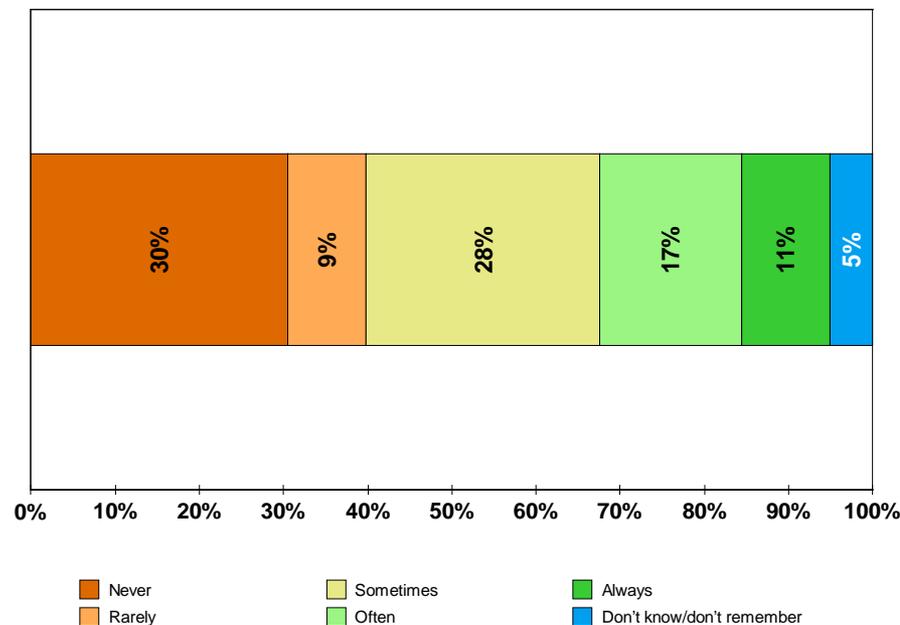


How frequently did people change travel routes after seeing signs with travel advisories, such as "Stopped Traffic Ahead?"

The majority of respondents (56%) changed their travel route at least sometimes, after seeing travel advisory signs, with 28% changing their travel route either **often** or **always**.

Over one-third (39%) of respondents either **never** or **rarely** change their travel route after seeing travel advisory signs.

How frequently did you change your travel route when you saw signs that displayed travel advisories, such as "Stopped Traffic Ahead"? (n=256)



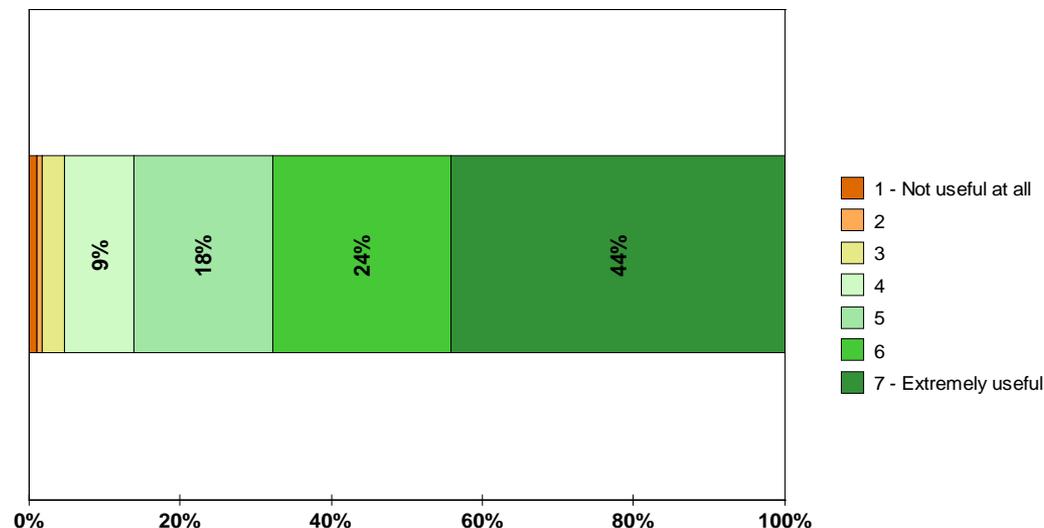
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How *useful* was the **information regarding potential delays** due to construction (posted *in advance of the construction date*) along the route in the I-94 construction zones?

Over two-thirds of the respondents (68%) rated the usefulness of having information regarding potential delays due to construction, such as “Expect Delays” posted along the route in the I-94 construction zones a 6 or 7 on a seven-point scale, where 7 equals **extremely useful**.

Information regarding potential delays due to construction, such as "Expect Delays" posted in advance of the construction start date (n=272)

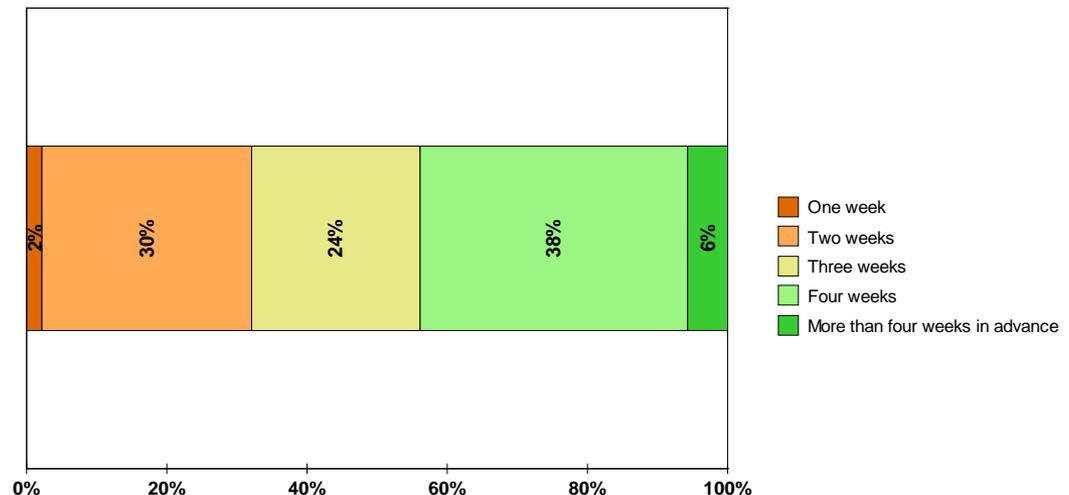


How many weeks in advance should information on construction-related traffic delays, such as the signs below, be posted?



- 44% of respondents would like information posted along the route at least **four weeks** in advance of construction.
- 92% of the respondents would like information on delays posted **two to four weeks in advance**.

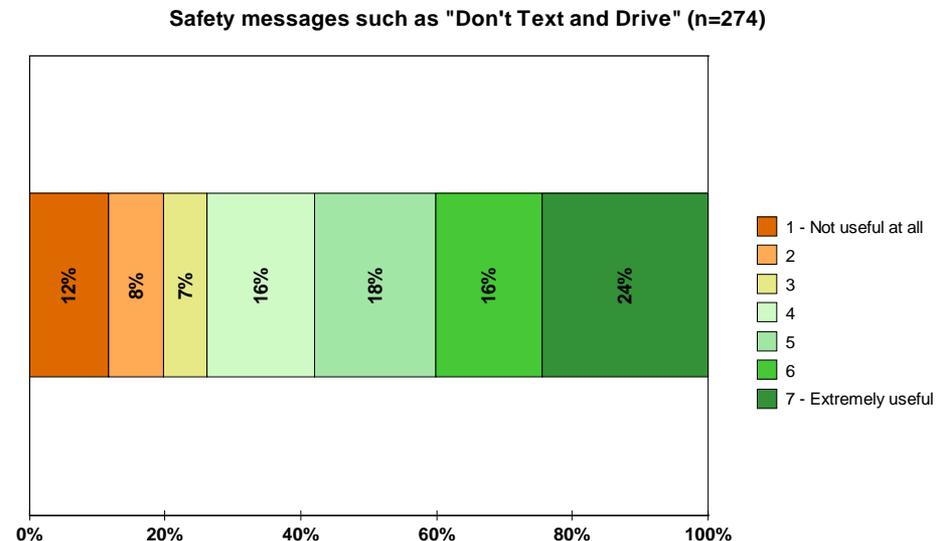
How many weeks in advance should information on construction-related traffic delays be posted along the route? (n=272)



How *useful* was the **safety messages** such as “Don’t Text and Drive” posted in the I-94 construction zones?

- In comparison to the other travel information, fewer of the respondents (40%) rated the safety message such as “Don’t Text and Drive” posted in the I-94 construction zones as extremely useful (*or a 6 or 7 on a seven-point scale, where 7 equals **extremely useful***).
- 20% of the respondents rated the usefulness of the safety messages a 1 or 2, where 1 equals **not useful at all**.

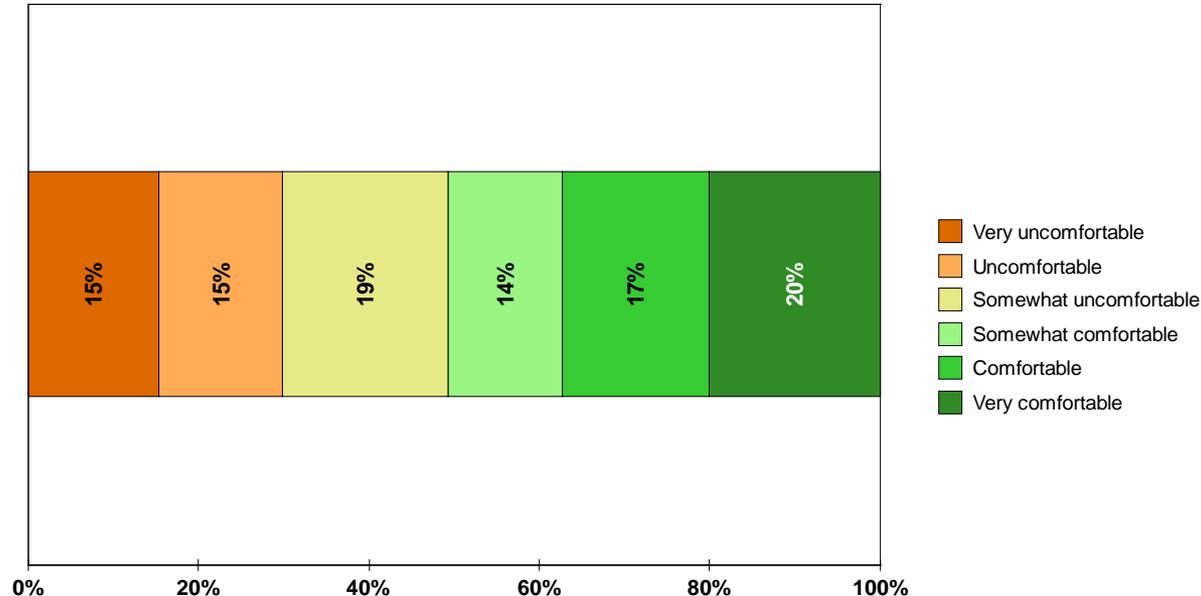
• Respondents aged 35 to 44 years rated the usefulness of the texting and driving information a “1” or “2” more than any other age group (Note: not a statistically significant finding.)



Comfort level with zipper merging

- Respondents were evenly split on their comfort level with zipper merging: **51%** are **somewhat comfortable** to **very comfortable** with zipper merging, and **49%** of the respondents are **somewhat uncomfortable** to **very uncomfortable** with zipper merging.

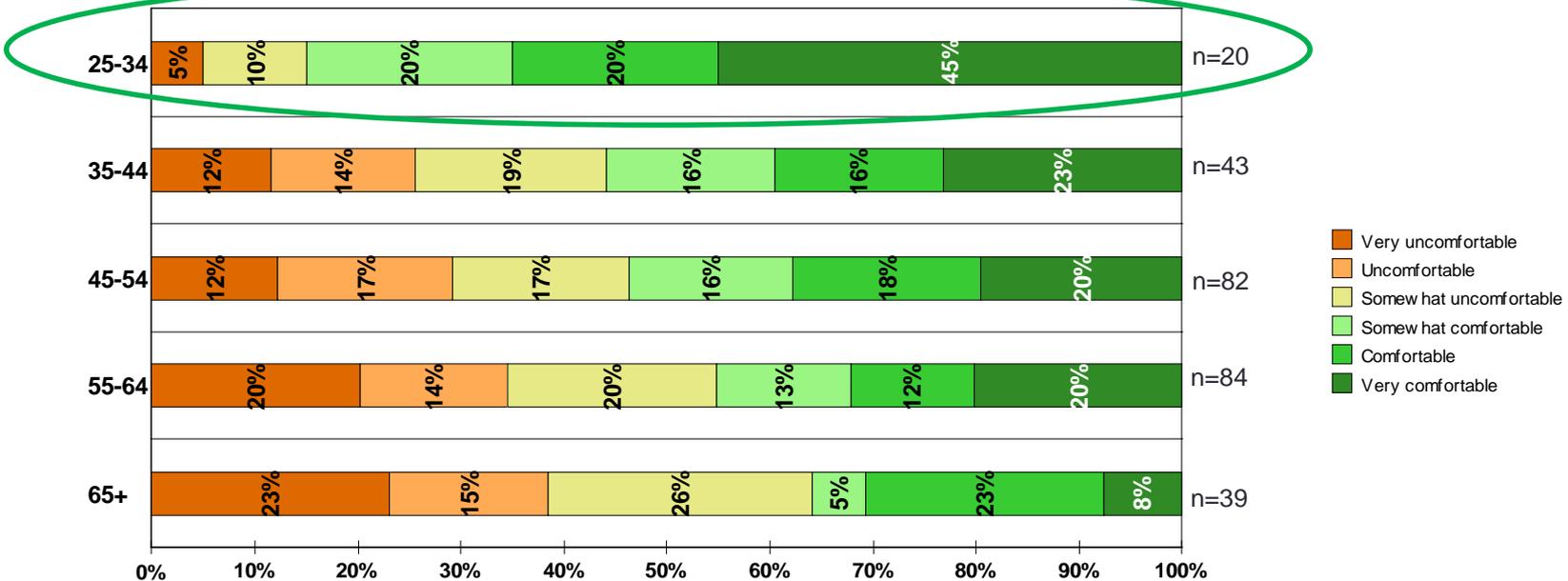
How comfortable are you fully using a lane until it ends, and then merging at that point? (n=274)



Comfort level with zipper merging (Cont.)

- Although not statistically significant, the respondents ages 25-34 were generally more comfortable with zipper merging than the other age groups.

How comfortable are you fully using a lane until it ends, and then merging at that point? (n=268)



Why is zipper merging uncomfortable?

111 people responded to the question: “***What makes you uncomfortable with merging at the point of lane closure?***”

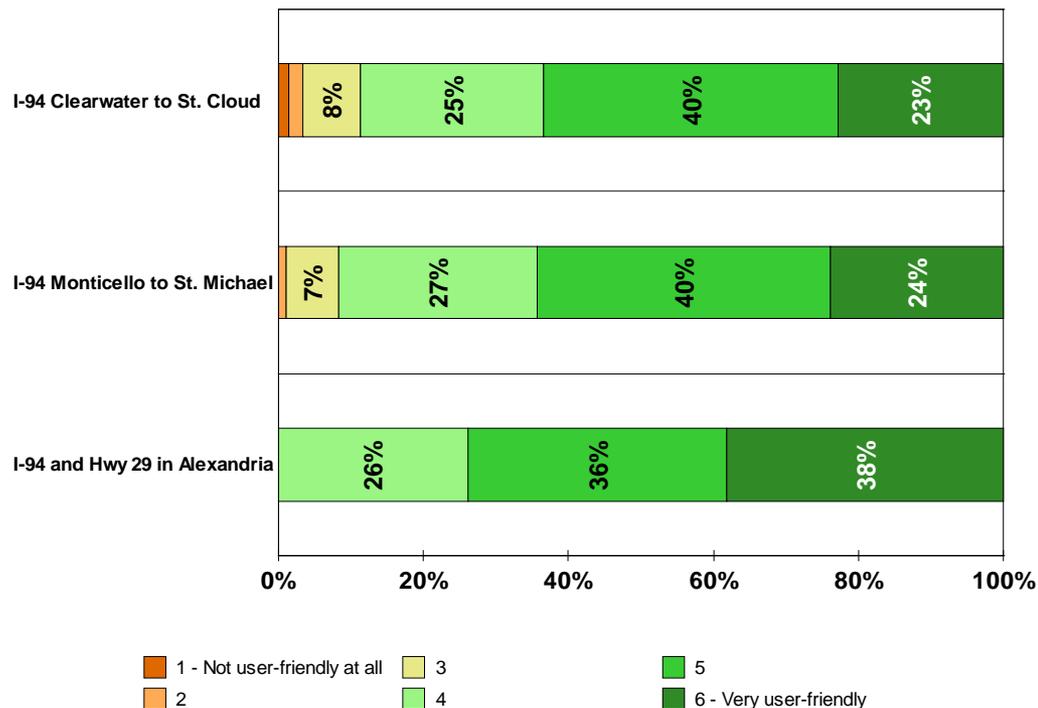
- Over half (58%) of the respondents to this question indicated they **worry other drivers will not let them in and/or get mad at them for zipper merging.**
- 13% said they are uncomfortable with the zipper merge because they **do not want to be seen as cheating.**

Respondent's comments included:

- *“Drivers are rude and don't understand the concept of the zipper merge including semi truck drivers that block the left lane well before the zipper merge needs to take place.”*
- *“The state highway patrol needs to enforce these rules in order for it to work. Some drivers will also be in the right lane and jump into the left lane just to get ahead by a few cars leading to unsafe conditions in some cases.”*
- *“How does a vehicle easily merge in at the last minute? The drivers in the right lane may not allow that and could get real angry since they obeyed the earlier sign to merge.”*
- *“Many drivers seem to be very competitive so I'm not comfortable that someone will let me in as they think you are trying to get ahead instead of merging sooner. I hope the zipper merge idea catches on, but the long term fact of people racing up in the left lane to get ahead will make that a challenge.”*

How user-friendly was the information on the websites?

On a scale of 1-6, how user-friendly was the information on the website(s)?



The majority of respondents (between 63-74%) rated the user-friendliness of the information on each of the three project websites as either a 5 or a 6 on a six-point scale, where 6 equals **very user-friendly**.

Which type of sign is easier to read?

- Over half of the respondents (55%) said that **sign B** with the electronic insert **is easier to read**.
- Only 20% of respondents said that sign A is easier to read.
- 26% of respondents think there is no difference between the two signs.
- 91% of the survey respondents saw one or both of the signs during their travels on I-94.

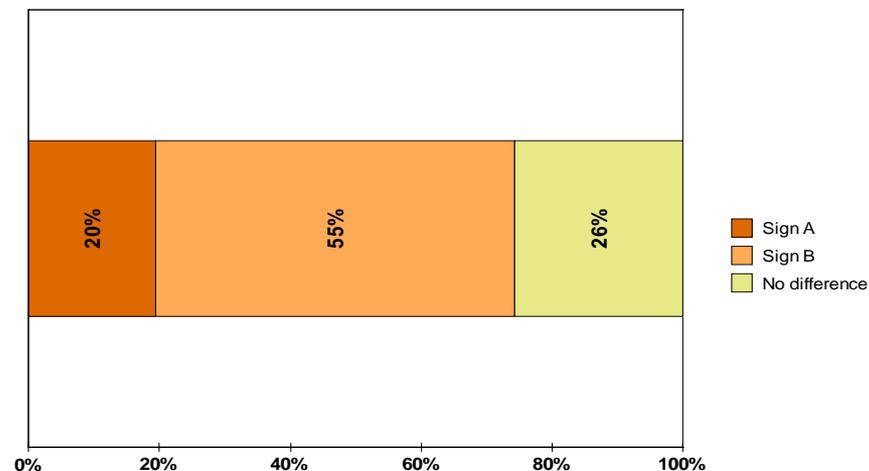
Sign A



Sign B



When you are driving in a construction work zone, which type of sign shown below, all electronic (Sign A) or electronic insert (Sign B), is easier for you to read? (n=287)



Additional Recommendations: Signage and Website

- Post signs farther back on the roadways; allow for more decision time.
- Post information at least a month in advance to allow for more planning time.
- Include more information on roadway signs (names of towns, exit numbers, miles of construction work, etc.).
- Post suggested alternative routes with maps on MnDOT's website, 511mn app.
- Provide project status updates and additional project details on 511 and project websites.

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