

Indiana DOT –TrafficMAP

Performance Measures Development

presented to

Ohio Transportation Engineering Conference

presented by

Kenny Voorhies

Cambridge Systematics, Inc.

October 29, 2008

Transportation leadership you can trust.

INDOT TrafficWise Program

- **Hoosier Helpers**
- **ITS equipment – CCTV, HAR, DMS, Roadside detectors**
- **Traveler information – web site, HAR, DMS**
- **Coverage in three areas of the State**
 - **Central Indiana – Indianapolis area (95 miles)**
 - **Northwest Indiana – Gary area (34 miles)**
 - **Southern Indiana – near Louisville (28 miles)**

TrafficMAP Project Overview

- Under direction of the Traffic Management Business Unit
- Work began in September 2007
- Last task being completed now



TrafficMAP Project Scope

- **Four major subtasks**
 - **Develop performance measures and determine data availability**
 - **Develop data archive concept and architecture**
 - **Develop a benefits calculation process**
 - **Conduct a customer satisfaction survey**

Develop Performance Measures and Determine Data Availability Subtask

- **Define how measures will be used**
 - Show benefits
 - Manage TMC operations and staffing
 - Business Plan input
 - TrafficWise program effectiveness
 - Assess highway conditions
- **Determine functions to be measured**
 - Hoosier Helper
 - Incident duration
 - Speed and Travel Time
 - Use of traveler information
 - Traffic signal systems

Develop Performance Measures and Determine Data Availability Subtask

- **Define current and future data availability**
 - Incident timeline
 - Hoosier Helper statistics
 - Detector speed data
 - DMS usage
- **Define desired measures**
 - **Output measures**
 - Hoosier Helper assists, stops
 - DMS messages posted
 - **Outcome Measures**
 - Travel time reliability
 - Incident duration
 - Customer satisfaction

Develop Performance Measures and Determine Data Availability Subtask

● Conducted TMBU and Partners Interviews

- INDOT Office of Communications;
- INDOT Office of Roadway Safety and Mobility/ Congestion;
- INDOT Traffic Monitoring Section;
- INDOT Business Information Technology Systems;
- FHWA Indiana Regional Office;
- Indianapolis MPO;
- Northwestern Indiana Regional Planning Commission;
- Purdue University;
- Indiana University/ Purdue University at Indianapolis; and
- Indiana State Police;
- Indiana Criminal Justice Institute.

Emerging Themes from Interviews

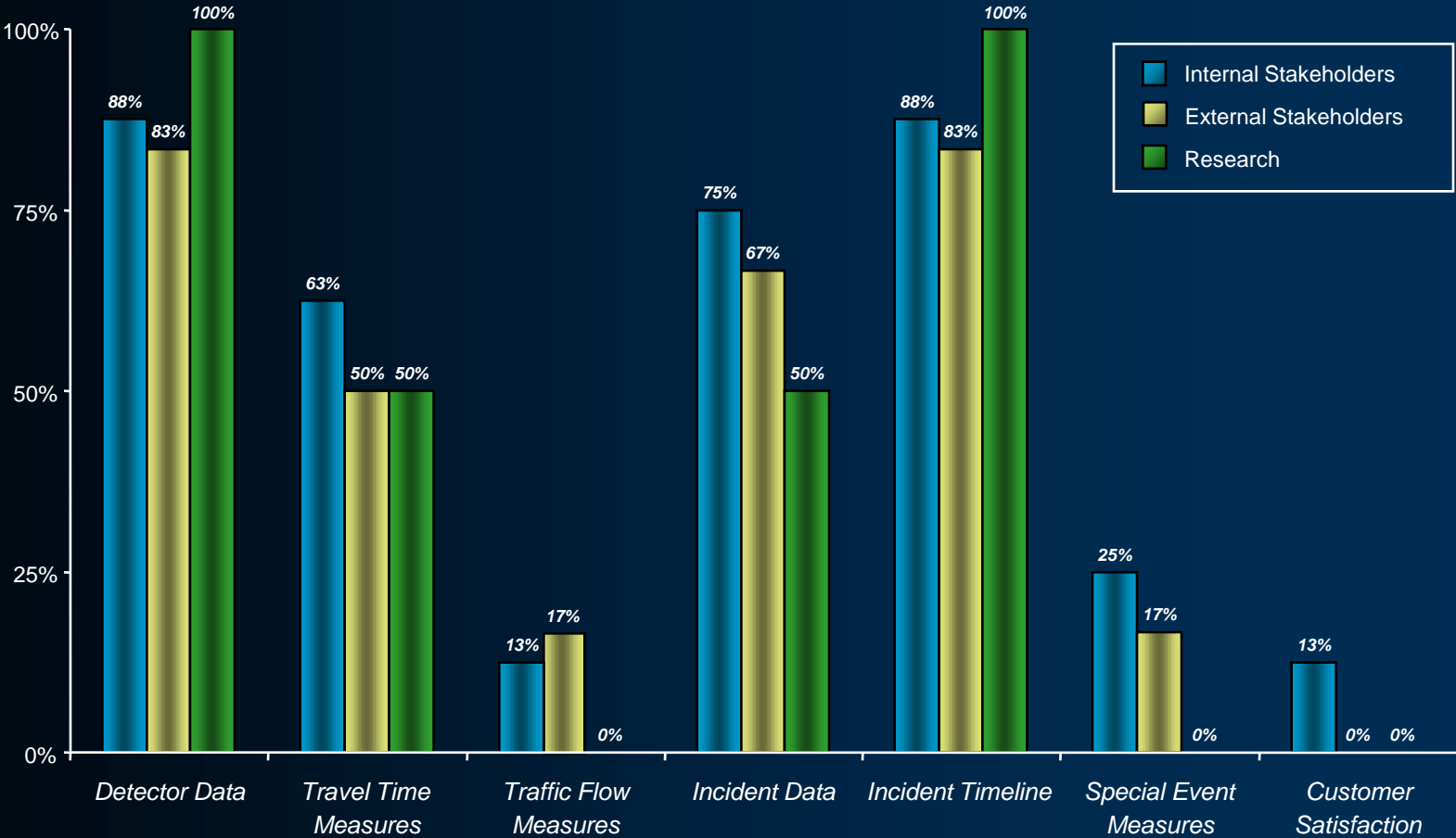
- **Universal interest in traffic data**
 - Volume and Speed/Reliability
 - Primarily summary data
- **Universal interest in incident management data**
 - Incident Duration
- **Interest in Special Event measures**
 - Indianapolis 500
- **Traffic Signal Performance Measures**
 - Outcome measures - Purdue research
- **Limited interest in access to “raw” traffic data**
 - Purdue - exception
- **Need to integrate with overall INDOT Performance Measures efforts**
- **No unusual security or access requirements**



	+2.688
	+5.000
	+1.500
	+1.125
	+1.062

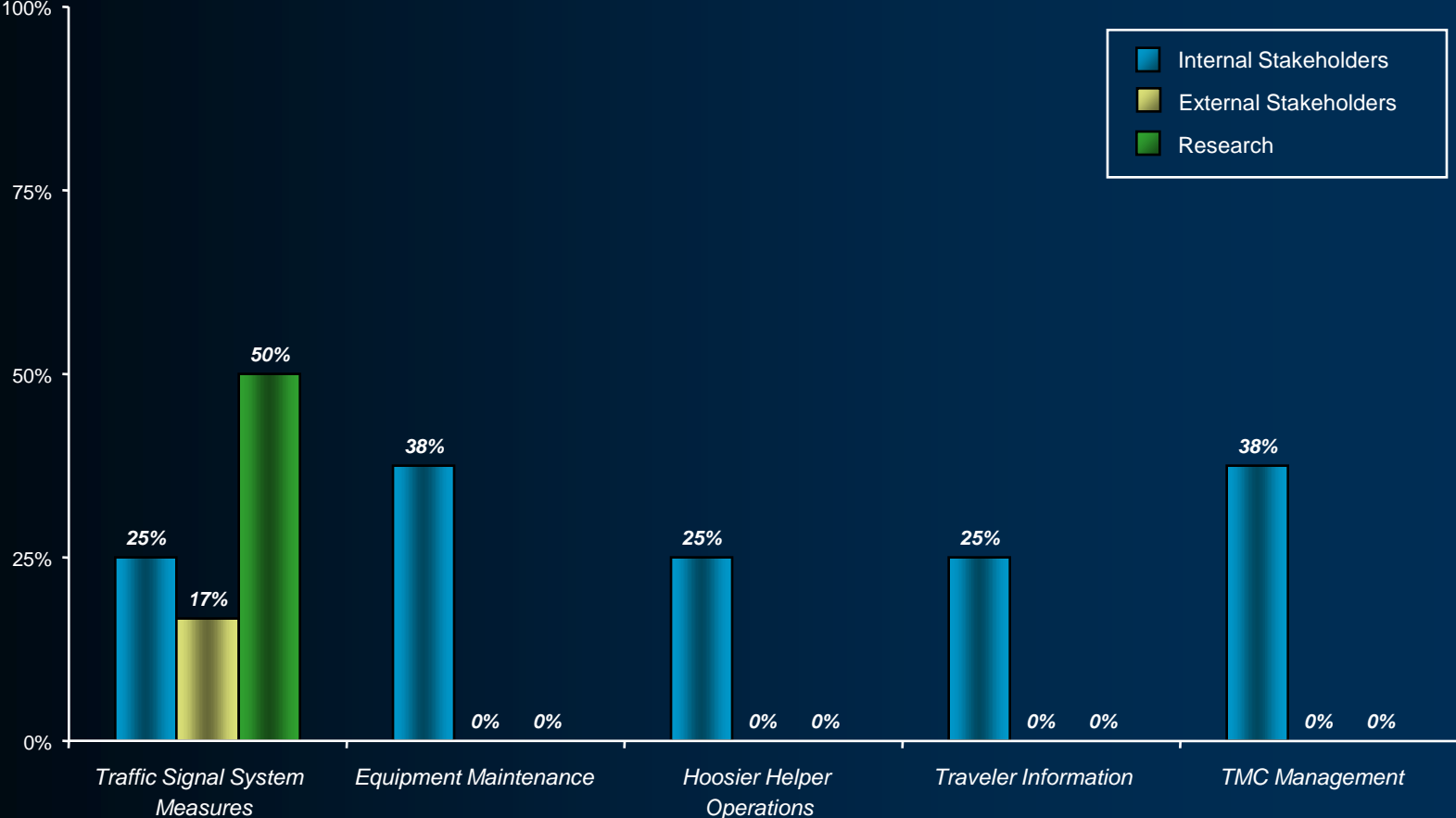
Outcome Measures - Percent by Stakeholder Group

Detail Breakout in Table 1 of Handout



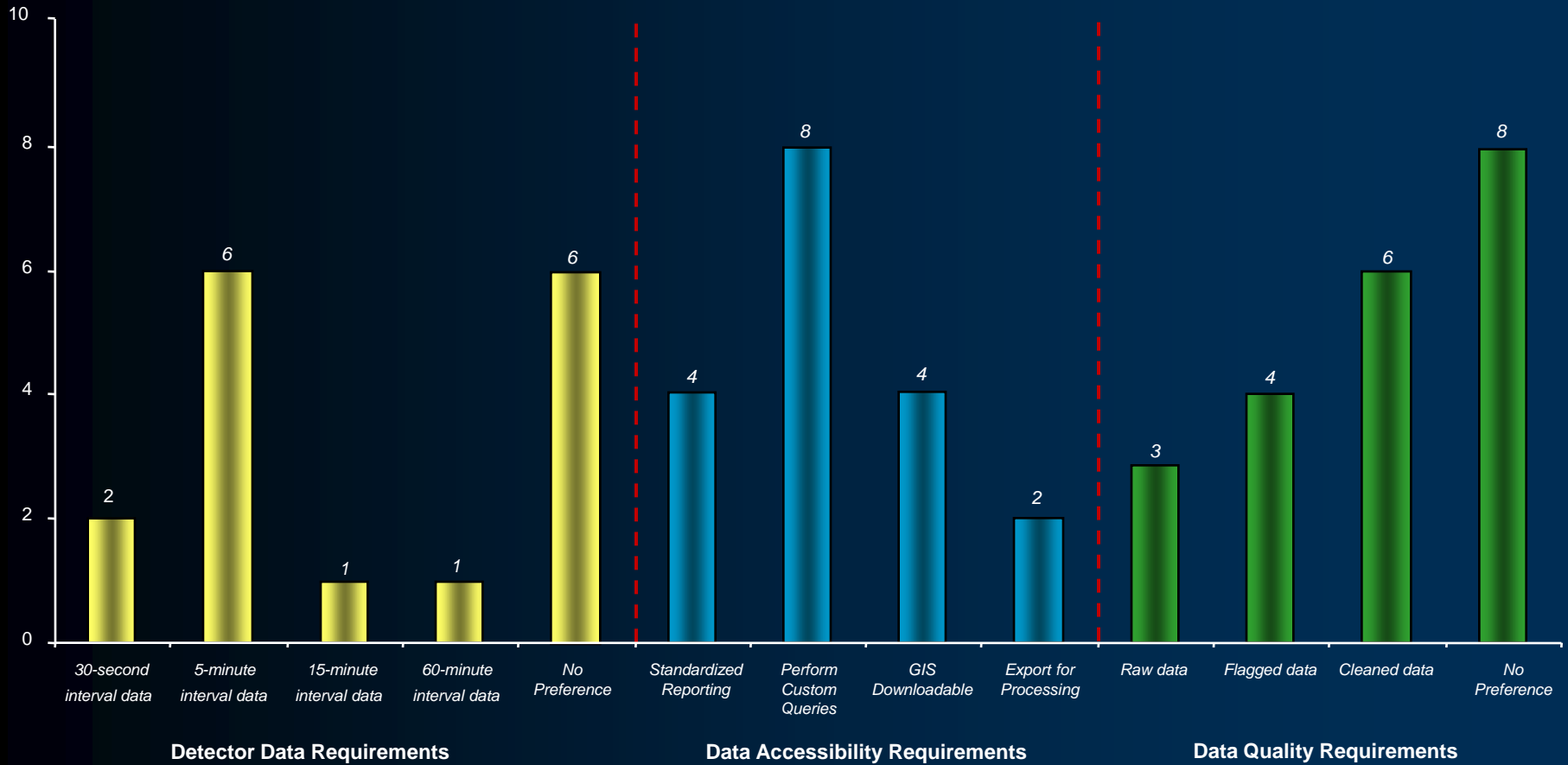
Output Measures - Percent by Stakeholder Group

Detail Breakout in Table 1 of Handout



Emerging Data Requirements

Detail Breakout in Table 2 of Handout



Summary of Interviews

	Data Exists?	INDOT Owned?	Is Data of Acceptable Quality?	Is Data Available?
Outcome Measures				
Detector Data	●	●	◐	●
Travel Time Measures	●	●	◐	●
Traffic Flow Measures	●	●	◐	●
Incident Data	◐	◐	○	◐
Incident Timeline	◐	◐	○	◐
Special Event Measures	●	○	◐	○
Customer Satisfaction	◐	●	◐	◐
Output Measures				
Traffic Signal System Measures	◐	●	◐	○
Equipment Maintenance	●	●	●	◐
Hoosier Helper Operations	●	●	●	○
Traveler Information	○	●	◐	◐
TMC Management	●	●	●	○

Summary of Interviews

	Data Exists?	INDOT Owned?	Is Data of Acceptable Quality?	Is Data Available?
Input Measures				
Detector Data	●	●	◐	●
Travel Time Measures	●	●	◐	●
Traffic Flow Measures	●	●	◐	●
Incident Data	◐	◐	○	◐
Incident Timeline	◐	◐	○	◐
Special Event Measures	●	○	◐	○
Customer Satisfaction	◐	●	◐	◐
Output Measures				
Traffic Signal System Measures	◐	●	◐	○
Equipment Maintenance	●	●	●	◐
Hoosier Helper Operations	●	●	●	○
Traveler Information	○	●	◐	◐
TMC Management	●	●	●	○

Stakeholder Input Analysis

- **What we expected to hear and didn't**
 - Air quality
 - Fuel savings
 - Specific freight measures
 - Desire for raw data
- **What we didn't expect to hear and did**
 - Level of interest in traffic signal system performance

Who?
When?
What?
Why?
Where?

Stakeholder Input Analysis

- **What we recommend including even though we didn't hear it**
 - **Air Quality Measures**
 - Fuel Savings, Emissions
 - **Incident Timeline**
 - Issue involving capture of all incidents and timeline data points (INDOT and ISP)
 - **Freight Measures**
 - HazMat Cargo Loads & Incidents, Commodity Flow, Violations, Freight Travel Times, At-Grade Rail Crossing Crashes
 - **Integrate ITS detector data with WIM and ATR**

Develop Data Archive Concept and Architecture

● System Users

- TMBU managers
 - Managers and/or analysts from eight planning and operations divisions in INDOT
 - Staff from other government agencies in Indiana at both the statewide and regional level, as well as FHWA Indiana staff
 - Researchers conducting work on behalf of government agencies, including staff of Purdue University and IUPUI
 - System administrators
-
- Each user group will be assigned different rights
 - System access on-line through password

Develop Data Archive Concept and Architecture

- **TrafficMAP will support these activities**
 - Enter and maintain data;
 - Query data;
 - Extract data into files to support other systems;
 - Run and print reports;
 - Display the Performance Measure Dashboard; and
 - Provide administrative functions.
- Software vendor coding work underway

Develop a Benefits Calculation Process

- **Develop benefits analysis for all three areas of ITS coverage**
- **Use local data whenever possible**
- **Based on IDAS**
- **Document a process for INDOT use**
- **Task underway – completed in November**

Customer Satisfaction Survey Results

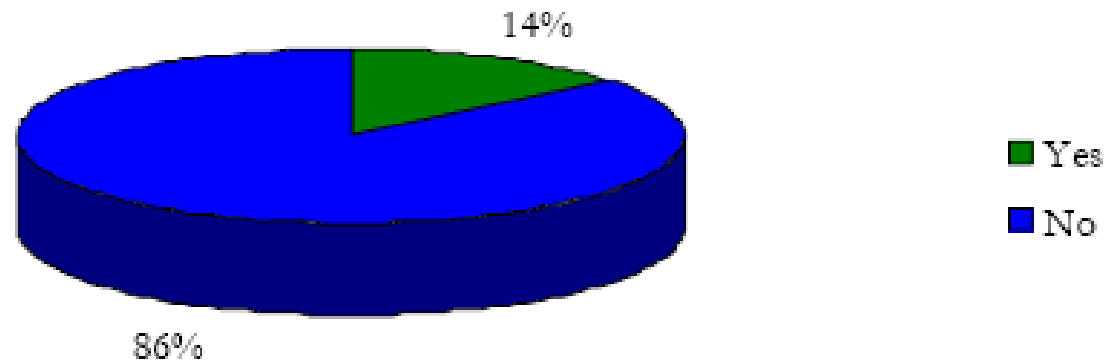
- Scientific poll of 1,200 drivers in the 3 Indiana coverage areas
- Drivers who know about INDOT's ITS services believe they are useful and trust the information they provide
- Only a relatively small percentage of drivers are aware of INDOT's ITS services
- Drivers are ready for 511. Half say they would be likely to try a free call-in traffic information service.

Customer Satisfaction Survey Results

- Younger drivers are especially eager for a different kind of traffic information
- There are several opportunities for INDOT to provide ITS services that meet the needs of the trucking industry
- Drivers are interested in having INDOT expand ITS coverage to rural areas and arterials
- Drivers are most interested in saving gas and time and believe that ITS can help

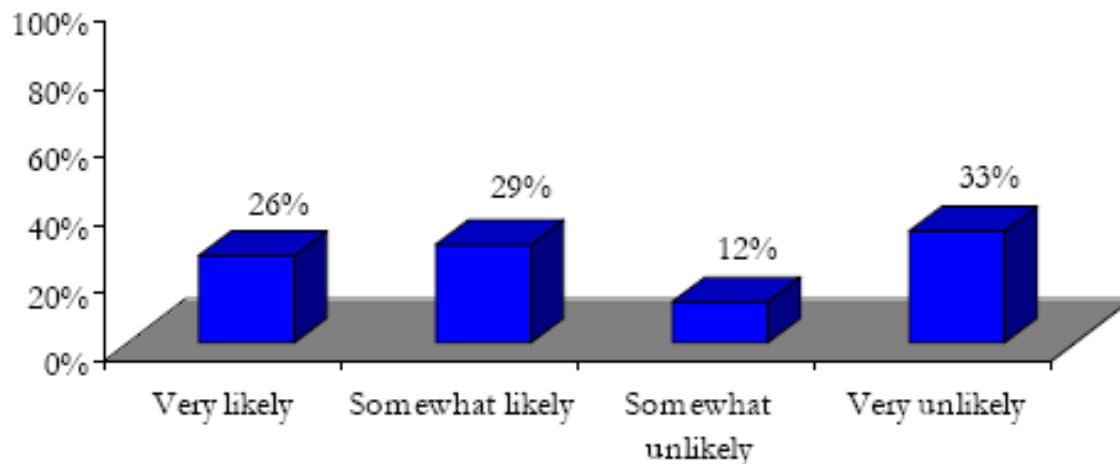
Customer Satisfaction Survey Results

Figure 7: Other than radio and television, do you go anywhere else for traffic information?



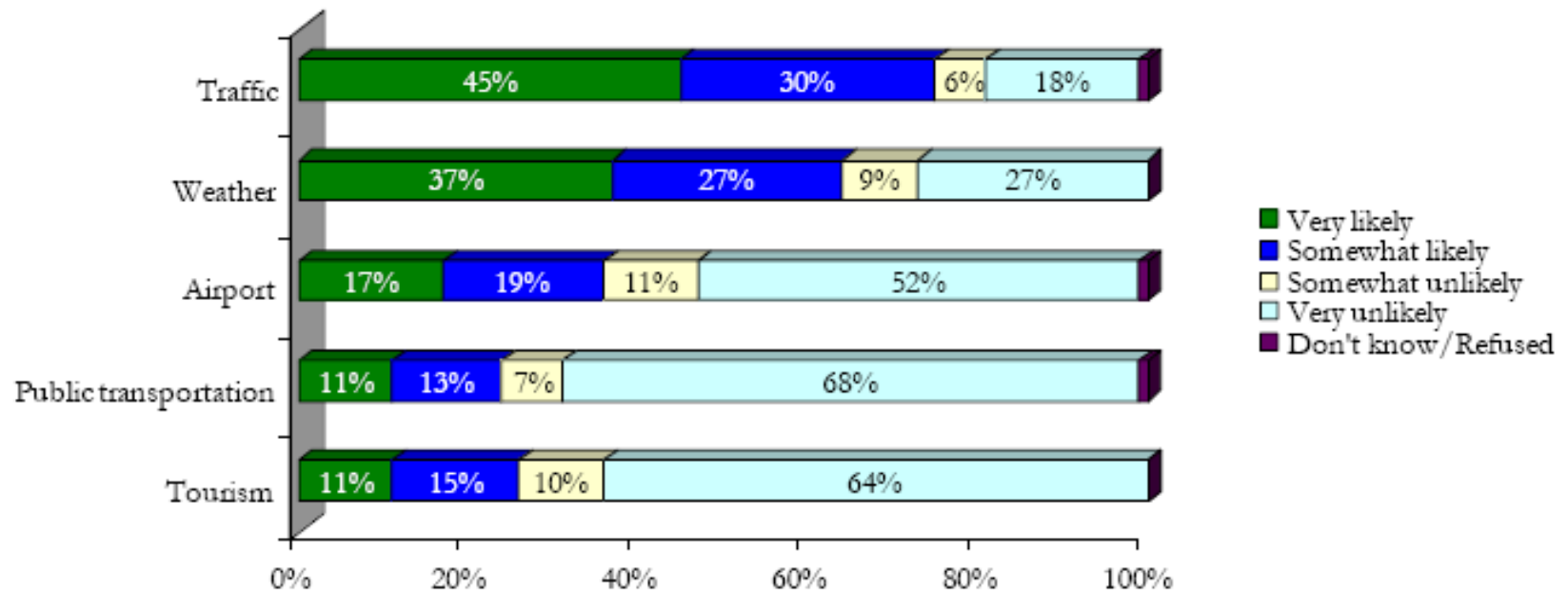
Customer Satisfaction Survey Results

Figure 10: If there were a free call-in service that provided traffic information that you could access through your phone in your car, how likely would you be to use that phone to get traffic information?



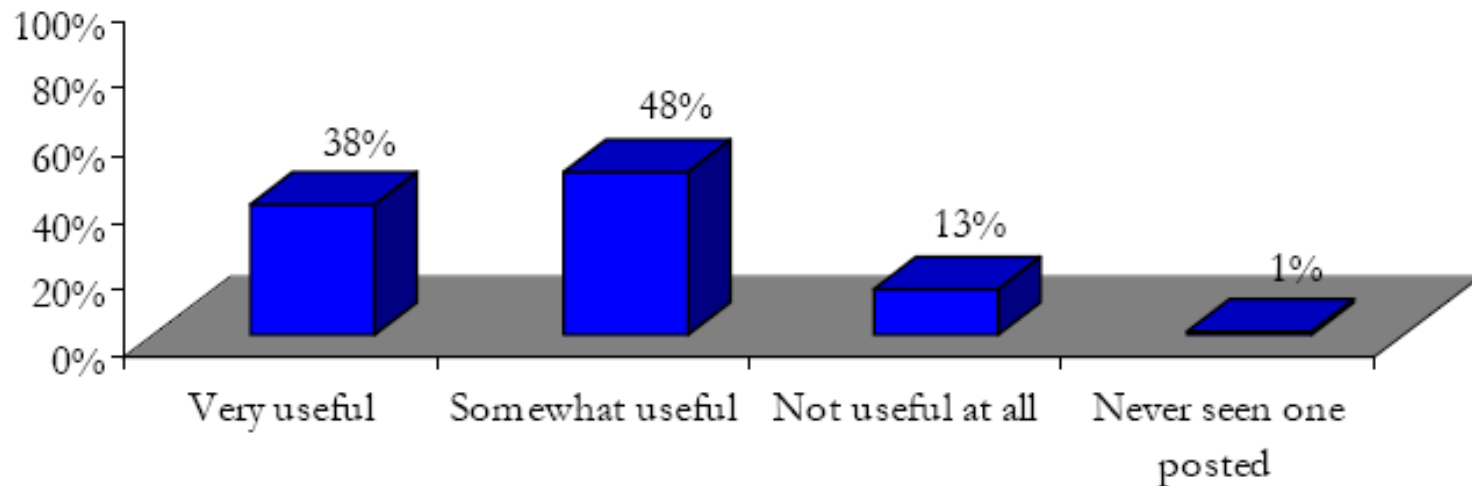
Customer Satisfaction Survey Results

Figure 11: How likely do you think you would be to use 511 to find the following types of information?



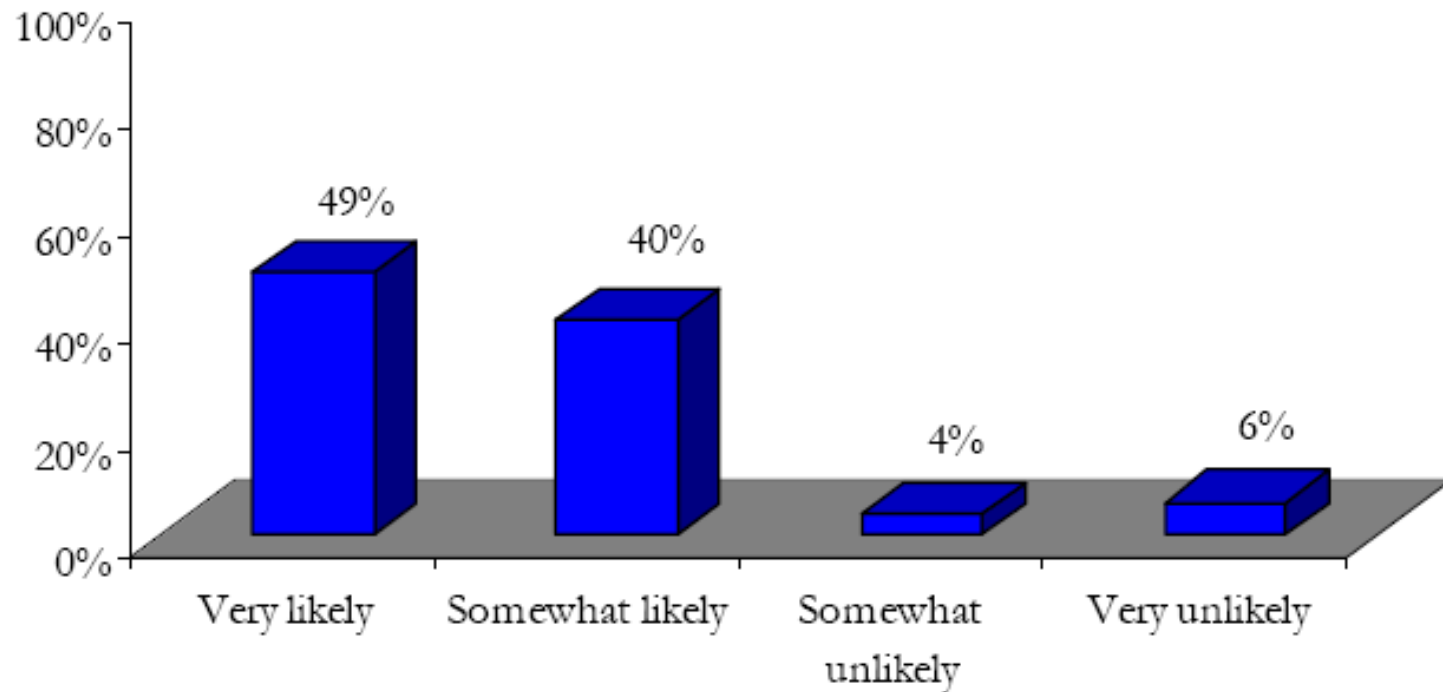
Customer Satisfaction Survey Results

Figure 20: Do you find electronic message signs very useful, somewhat useful, or not useful at all in reducing the amount of time you spend in traffic?



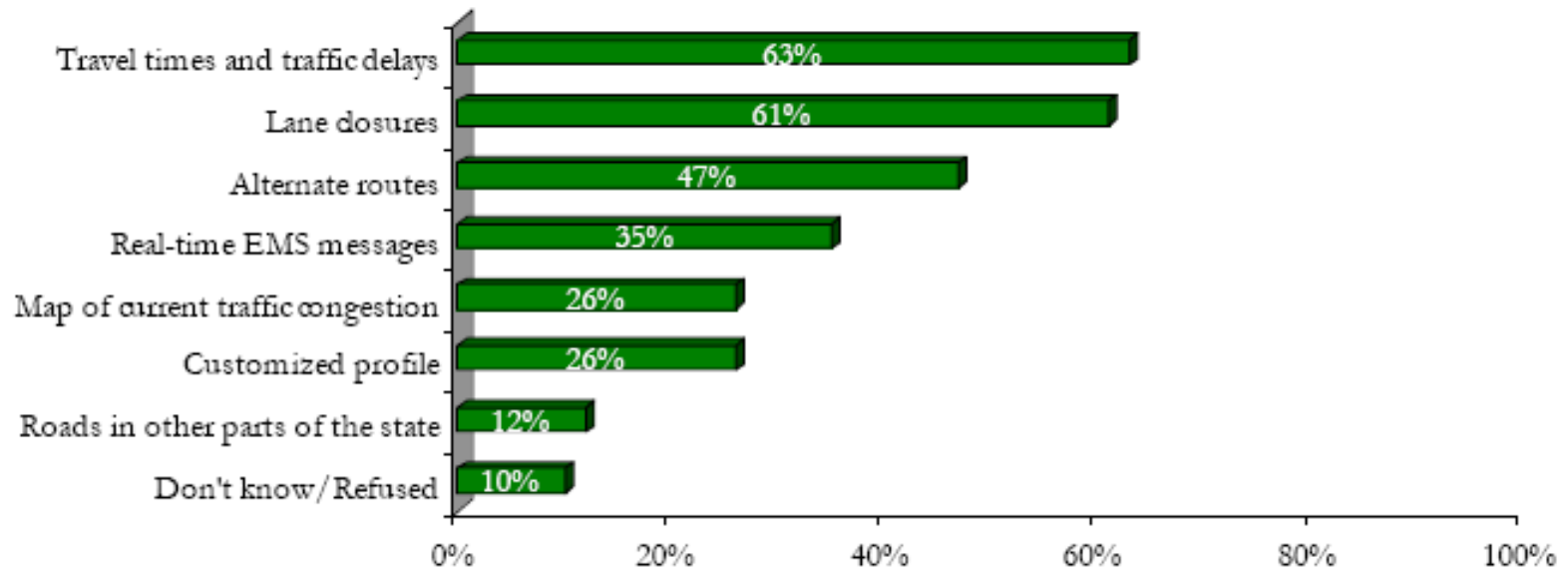
Customer Satisfaction Survey Results

Figure 21: How likely are you to change your route based on the information posted on these electronic message signs?



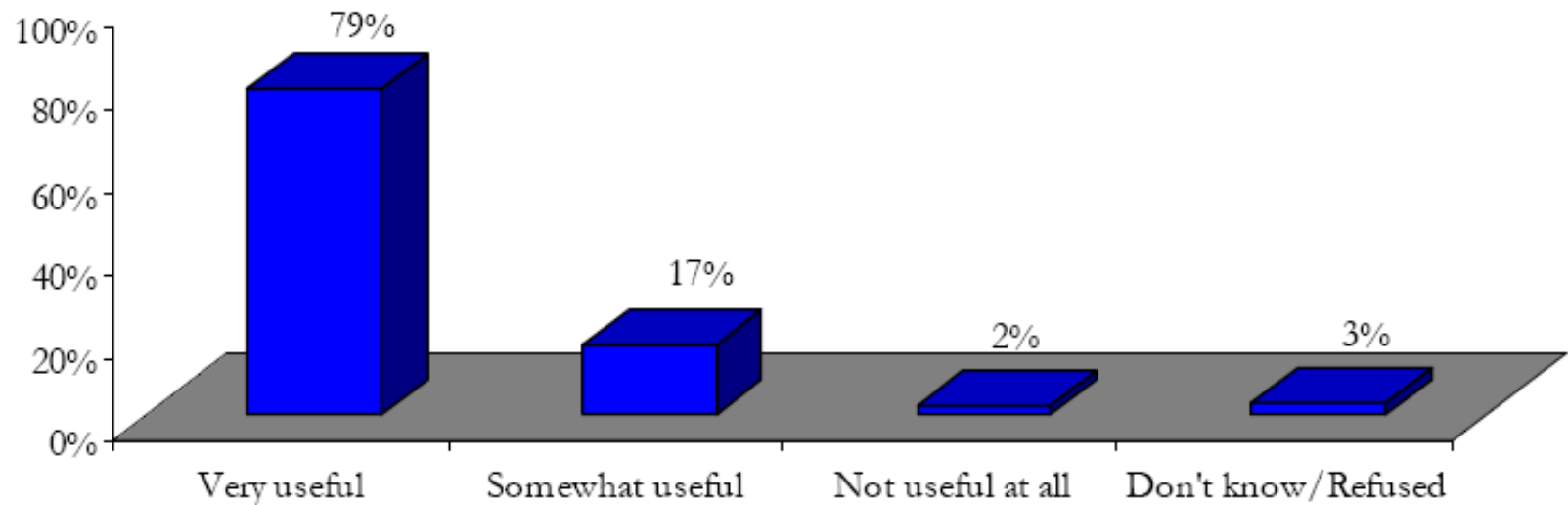
Customer Satisfaction Survey Results

Figure 37: Which type of information would be most useful to add to the TrafficWise website?



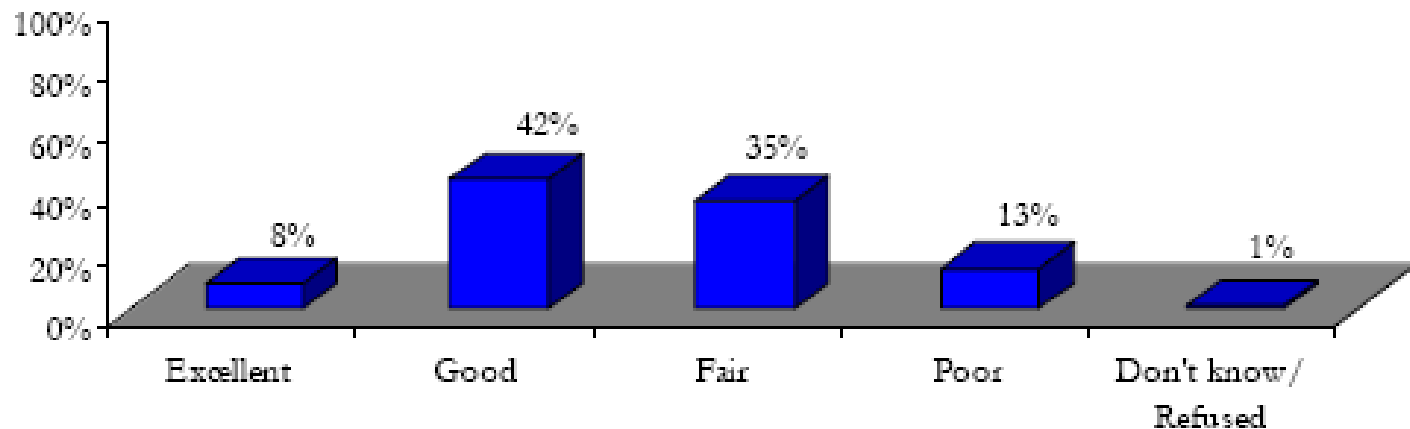
Customer Satisfaction Survey Results

Figure 41: How useful do you think the Hoosier Helpers are?



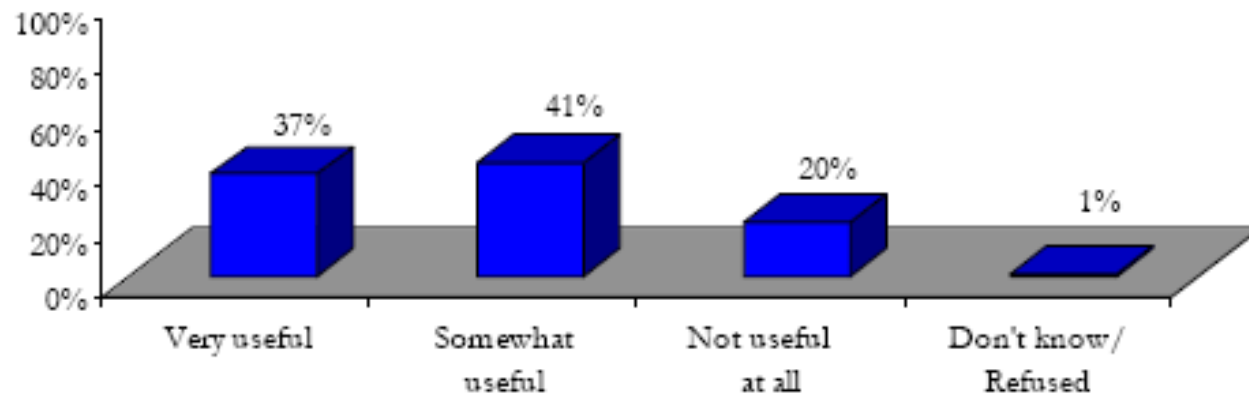
Customer Satisfaction Survey Results

Figure 46: Overall, how good of a job is the Indiana Department of Transportation doing at letting you know about its traffic management services?



Customer Satisfaction Survey Results

Figure 48: Some people have suggested that traffic information should be available on rural roadways and interstates. How useful would this be to you?



Customer Satisfaction Survey Results

Figure 49: Another idea is to have this type of information in urban and suburban areas on roads that aren't major freeways. How useful would this be to you?

