

# **Traffic Incident Management (TIM) Self-Assessment**

## **Analysis of 2004 TIM Self-Assessments**

**Prepared for  
Federal Highway Administration**

**by  
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## 1. Background and Methodology

In 2003, the Federal Highway Administration (FHWA) initiated the very first Traffic Incident Management (TIM) Self Assessment (SA). The TIM SA is designed as a tool by which state and regional program managers can assess achievement of a successful multi-agency program to manage traffic incidents effectively and safely. It also provides a method to assess gaps and needs in existing multi-agency regional and statewide efforts to mitigate congestion caused by traffic incidents.

The TIM SA consists of a series of questions designed to allow those with traffic incident management responsibilities to rate their performance in specific organizational and procedural categories. Conducted as a group exercise, the TIM SA allows for discussion among the group members with the resulting ratings being consensus values. This process provides a medium for enhanced communication between TIM stakeholders to identify specific areas or activities by which the multi-agency management of traffic incidents can be improved.

The ratings are then tallied to provide an overall TIM score for the program. Areas for possible improvement can be identified via individual question ratings. While the score provides a metric for measurement, the most important information will be derived from the discussion of the assessment among the participants. This discussion will provide local agencies valuable information to form or improve a multi-agency program for traffic incident management.

The inaugural round of assessments in 2003 yielded scores from 70 separate TIM SAs. The assessments were representative of Consolidated Metropolitan Statistical Areas (CMSAs), as defined by the U.S. Bureau of the Census, including many of which are multi-state areas containing more than one major city. The FHWA Division Offices, in cooperation with state and local partners, were responsible for determining how to identify logical operational boundaries for assessment purposes. A total of 82 separate assessment areas were identified, from which 70 completed assessments were submitted and included in the 2003 results analysis.

The 2003 TIM SA was designed to establish a baseline for the 75 top CMSAs, represented by 82 separate assessment areas. For the 2004 assessments, the 82 areas were consolidated into 80. For this analysis and in subsequent years, assessments will be conducted in one-half (40) of the assessment areas each year, so that over the course of two years, all 80 areas will have the opportunity to repeat the TIM SA and determine TIM progress.

### 1.1 Assessment Process and Structure

The TIM Self-Assessment consists of 34 questions in three program areas:

1. Program and Institutional Issues

2. Operational Issues
3. Communication and Technology Issues

Accompanying the questions is a TIM Self-Assessment Guide that details the assessment process and the questions. Participants are asked to follow a suggested protocol for the conduct of the assessment:

- 1) Assemble a team of traffic incident management stakeholders.
- 2) Include representatives of all agencies participating in TIM for the corridor, region or state.
- 3) Involve at least one key leader or TIM program manager.
- 4) Provide participants with the Guide and score sheet in advance so that each can complete the assessment based on their individual understanding of the level of success in each area.
- 5) Ask the participants to return the completed score sheets in advance of the exercise so average scores can be tallied.
- 6) Have a designated facilitator for the conduct of the assessment.
- 7) Review each question and its average score to obtain consensus on the score for each question.
- 8) Record the discussion and note any strong dissent to the majority opinion on any particular question.

The Guide also explains the scoring process for the assessment. Participants are asked to score the assessment according to the following criteria:

*Score each question from 0 to 4, based on your program's level of progress in each area as detailed below.*

**Table 1  
Scoring Scheme**

<b>Score</b>	<b>Description</b>
<b>0</b>	No progress in this area. <ul style="list-style-type: none"> <li>• Has never been discussed</li> <li>• Has been discussed informally but no action has been taken</li> </ul>
<b>1</b>	Very little being done in this area. <ul style="list-style-type: none"> <li>• Minimal activity, primarily in one agency</li> <li>• Issue has been acknowledged and is being investigated</li> </ul>
<b>2</b>	Efforts in this area are moderate. Some good processes exist, but they may not be well integrated/coordinate – results are mixed. <ul style="list-style-type: none"> <li>• Has been put into practice on a limited or experimental basis.</li> <li>• Some multi-agency agreement and cooperation</li> </ul>
<b>3</b>	Efforts in this area are strong and results are promising. However, there is still room for improvement. <ul style="list-style-type: none"> <li>• Has become a generally accepted practice but refinements or changes are being discussed or pursued</li> <li>• Good multi-agency cooperation but not yet integrated in operations of all agencies as “standard procedure”</li> </ul>
<b>4</b>	Efforts in this area are outstanding. There is good integration/coordination with good to excellent results. <ul style="list-style-type: none"> <li>• Excellent coordination and cooperation among agencies</li> <li>• Policies and procedures are well integrated in operations of all agencies as “standard procedure”</li> </ul>

In addition to scoring the assessment, participants are asked to record the discussion and resulting scores as further detail for their particular assessment.

Prior to the 2004 TIM SAs, a Facilitator Guide was developed to better prepare assessment facilitators. The Facilitator Guide provides the TIM SA facilitator or facilitating agency with enough background and instruction to prepare for the conduct of the assessment, and to assure its successful completion. Among the issues addressed are:

- Pre-Meeting Preparations
- Meeting Facilitation Strategies
- Post-Meeting Actions

## 2. 2003 TIM Self-Assessment Results

The results of the 2003 TIM SA (n=70) showed the highest scores (indicating the greatest amount of/most successful TIM activity) in Operational Issues, which represent 40 percent of the score on the assessment. The overall mean score was 46.5 percent out of a possible 100 percent.

**Table 2**  
**Mean Score for Each Section (2003)**

<b>Section</b>	<b>Number of Questions</b>	<b>Mean Score (n=70)</b>	<b>Highest Possible Score</b>
Program and Institutional Issues	12	11.0%	30%
Operational Issues	14	22.9%	40%
Communication and Technology Issues	8	12.5%	30%
<b>Overall Total</b>	<b>34</b>	<b>46.5%</b>	<b>100%</b>

## 3. 2004 TIM Self-Assessment Results

A total of 29 assessments were completed in 2004. The 29 include 24 areas where the assessment was previously conducted in 2003 and five where the assessment was conducted for the first time in 2004. The 2004 results are detailed below, followed by a comparative analysis of the 2004 results versus the 2003 results for those areas where the TIM SA was conducted in both years.

**Table 3**  
**Mean Score for Each Section (2004)**

<b>Section</b>	<b>Number of Questions</b>	<b>Mean Score (n=29)</b>	<b>Highest Possible Score</b>
Program and Institutional Issues	12	11.3%	30%
Operational Issues	14	22.9%	40%
Communication and Technology Issues	8	13.5%	30%
<b>Overall Total</b>	<b>34</b>	<b>47.7%</b>	<b>100%</b>

## 4. Comparative Analysis 2003 to 2004

Perhaps the most telling gauge of TIM success is to compare the results from the 24 areas where the assessment was conducted in 2003 and repeated again in 2004. This, after all, is the primary objective of the TIM Self-Assessment – to provide a tool by which program managers can measure progress from the baseline established in 2003. The overall results for the 24 repeat assessments are shown in Table 4.

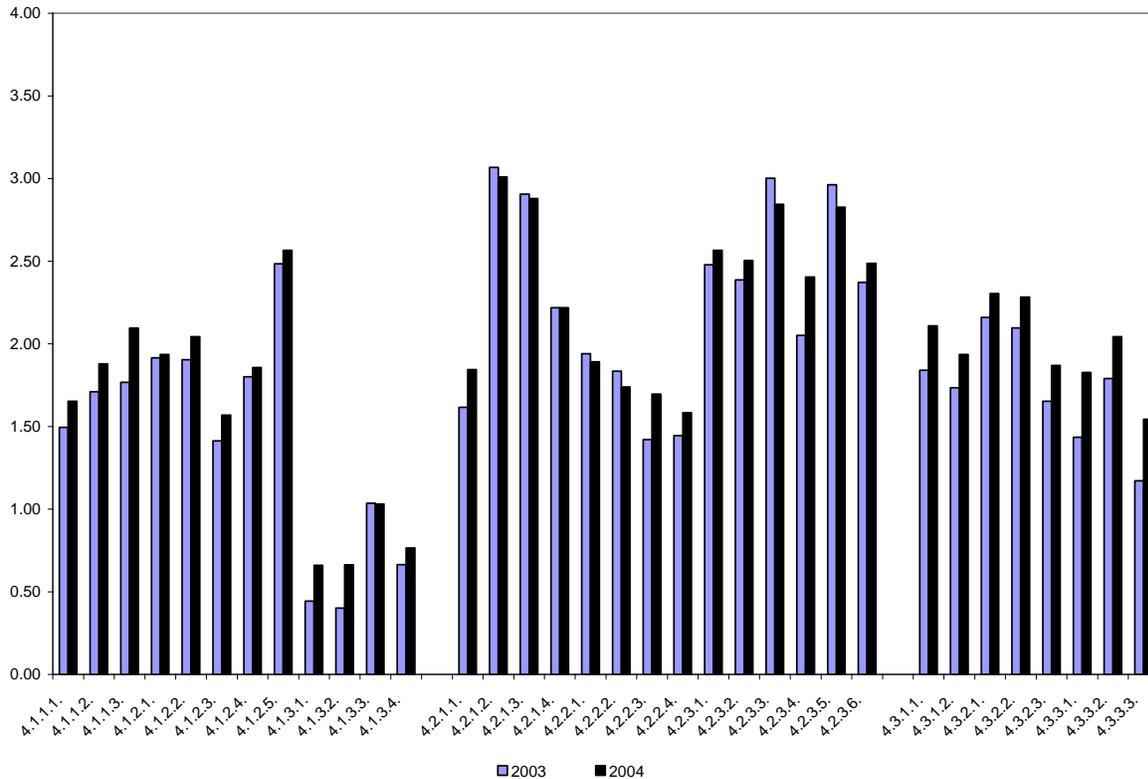
**Table 4**  
**Mean Score for Each Section (2003 and 2004)**

Section	Number of Questions	Mean Score (n=24)		% Change in 2003/2004 scores (n=24)	Highest Possible Score
		2003	2004		
Program and Institutional Issues	12	10.6%	11.7%	9.9%	30%
Operational Issues	14	22.6%	23.2%	2.5%	40%
Communication and Technology Issues	8	13.0%	14.9%	14.7%	30%
<b>Overall Total</b>	<b>34</b>	<b>46.3%</b>	<b>49.8%</b>	<b>7.6%</b>	<b>100%</b>

Between 2003 and 2004, the 24 areas repeating the TIM SA experienced an increase in the overall score of 7.6 percent. The highest percent change was in Communications and Technology Issues, which experienced a 14.7 percent increase in 2004. As in 2003, Operational Issues scored the highest of the three assessment sections, with a 23.2 percent in 2004; representing a 2.5 percent increase over 2003.

The 2003 and 2004 mean scores for each individual question are shown in Figure 1 below, followed by a detailed analysis of the changes in each assessment area.

**Figure 1  
Mean Scores for All Questions  
2003 – 2004**



## 4.1 Program and Institutional Issues

**Mean Score: 11.7% (of 30%)**

Program and Institutional Issues are those that address how a program is organized, its objectives and priorities, agency roles and relationships, resource allocation, and performance measurement. Questions are divided into three sections: 1) Formal Traffic Incident Management Programs; 2) TIM Administrative Teams; 3) Performance Measurement.

Table 5 summarizes the responses for each question in Program and Institutional Issues, providing the mean score for 2003 and 2004, along with the percentage of assessments scoring 3 or higher for each year. Assessments scoring 3 or higher on any particular question are indicative of real success for that particular TIM program feature. Such a score reflects the participants' belief that efforts are strong and results promising in the area in question. Also shown is the percentage change in mean score from 2003 to 2004. Again, the results in Table 5 represent just those areas where the TIM SA was conducted in both years (n=24).

When reviewing this and subsequent tables, it is important to remember that, due to the relatively small sample size (n=24), outlier scores have a greater impact on the aggregate mean scores. As mentioned earlier, an attempt was made to mitigate this effect by grouping together areas with similar scores on the assessment in 2003 to repeat it in 2004.

**Table 5  
Program and Institutional Issues**

Question Number	Question	Mean Score (n=24)		% of Assessments Scoring 3 or Higher		Change in 2003/2004 Mean Scores
		2003	2004	2003	2004	
4.1.1.1.	Have multi-agency, multi-year strategic plans detailing specific programmatic activities to be accomplished with appropriate budget and personnel needs identified?	1.49	1.65	13%	17%	10.6%
4.1.1.2.	Have formal inter-agency agreements on operational and administrative procedures and policies?	1.71	1.88	30%	35%	9.9%
4.1.1.3.	Have field-level input into the plans ensuring that the plans will be workable by those responsible for their implementation?	1.77	2.10	35%	52%	18.6%
4.1.2.1.	Have formalized TIM multi-agency administrative teams to meet and discuss administrative policy issues?	1.92	1.93	30%	30%	1.0%
4.1.2.2.	Hold regular meetings of the TIM administrative team?	1.90	2.04	39%	48%	7.4%

4.1.2.3.	Conduct training through simulation or “in-field” exercises?	1.41	1.57	9%	17%	11.1%
4.1.2.4.	Conduct post-incident debriefings?	1.80	1.86	22%	30%	3.1%
4.1.2.5.	Conduct planning for special events?	2.48	2.57	43%	48%	3.2%
4.1.3.1.	Have multi-agency agreements on what measures will be tracked and used to measure program performance?	0.44	0.66	0%	0%	49.0%
4.1.3.2.	Have agreed upon methods to collect and analyze/track performance measures?	0.40	0.66	0%	0%	64.9%
4.1.3.3.	Have established targets for performance?	1.04	1.03	0%	0%	-0.5%
4.1.3.4.	Conduct periodic review of whether or not progress is being made to achieve targets?	0.66	0.77	0%	0%	15.1%

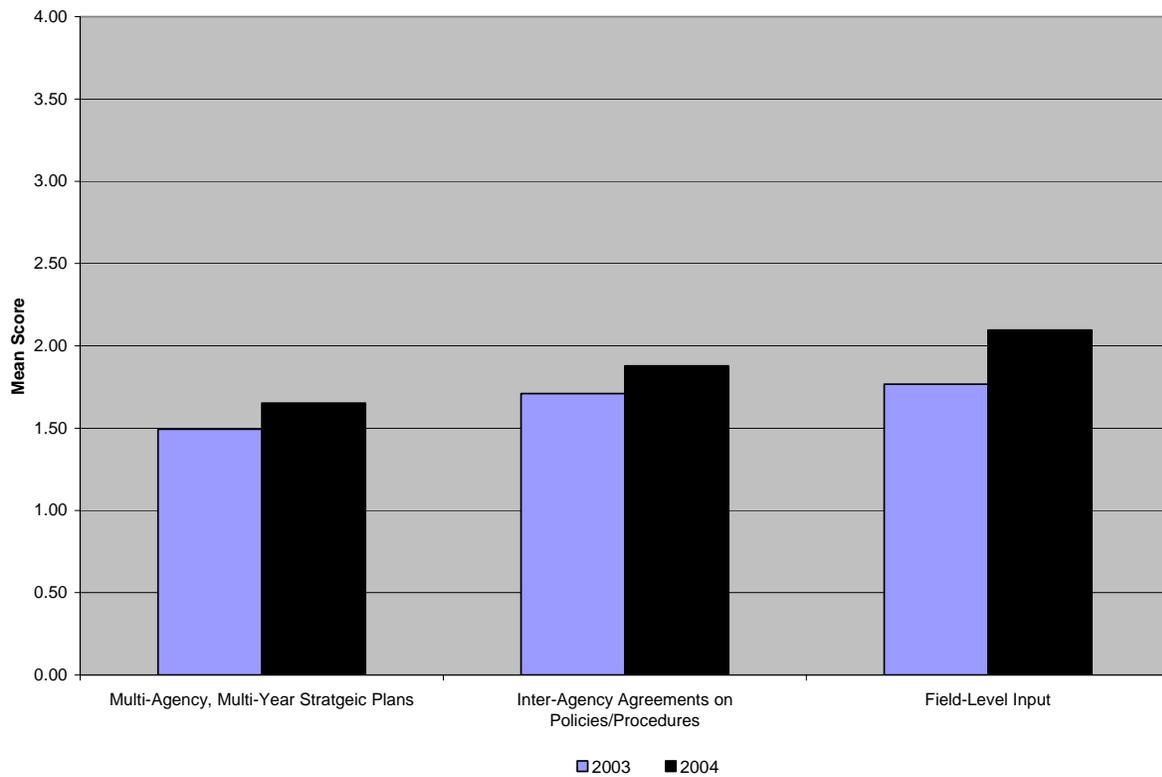
With a mean score of 11.7 percent in 2004, Program and Institutional Issues experienced a 9.9 percent increase over the 2003 score. While changes in individual subsections will be discussed below, this overall increase in Program and Institutional Issues may be attributable to the conduct of the 2003 assessments. In many instances, the 2003 TIM SAs were the first opportunity for the various stakeholders to come together to discuss program components. That may have been a catalyst for improved interagency understanding and cooperation, and, as a result, a more unified approach to the program issues so critical to TIM success.

#### **4.1.1 Formal Traffic Incident Management Programs**

In order to be successful over the long term, traffic incident management efforts will need to be supported through strategic plans with agreed upon program goals and objectives. The strategic plans should contain multi-year program plans describing specific programmatic activities and projects and resource requirements, with funding sources identified.

To solidify relationships and establish program policies among disparate agencies, formal inter-agency agreements on operational and administrative policies and procedures are important. These agreements foster closer inter-agency relationships than do informal or ad hoc program relationships. Traffic Incident Management programs usually are started at the mid-management levels of transportation and public safety agencies. The most successful programs are the result of mid-level managers successfully communicating program needs identified by field personnel to the upper-level managers responsible for budgeting to obtain needed resources.

**Figure 2**  
**Formal Traffic Incident Management Programs**



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## Analyzing the Change

- The very early successes in TIM were, in large part, due to the dedication and commitment of mid-level and field-level personnel, a trend that appears to continue. The only question regarding formalized TIM programs to have a mean score above 2 is on field-level input into the development of plans, policies and procedures.
- This same question also realized the highest percent change over 2003, increasing 18.6 percent. Additionally, 52 percent of the assessments scored this question 3 or higher.
- As was the case in 2003, there continues to be a lack of multi-agency, multi-year strategic planning brought to TIM programs. Only 17 percent of the programs scored this question 3 or higher, indicating the existence of a strategic planning process supported by the necessary resources.

### 4.1.2 TIM Administrative Teams

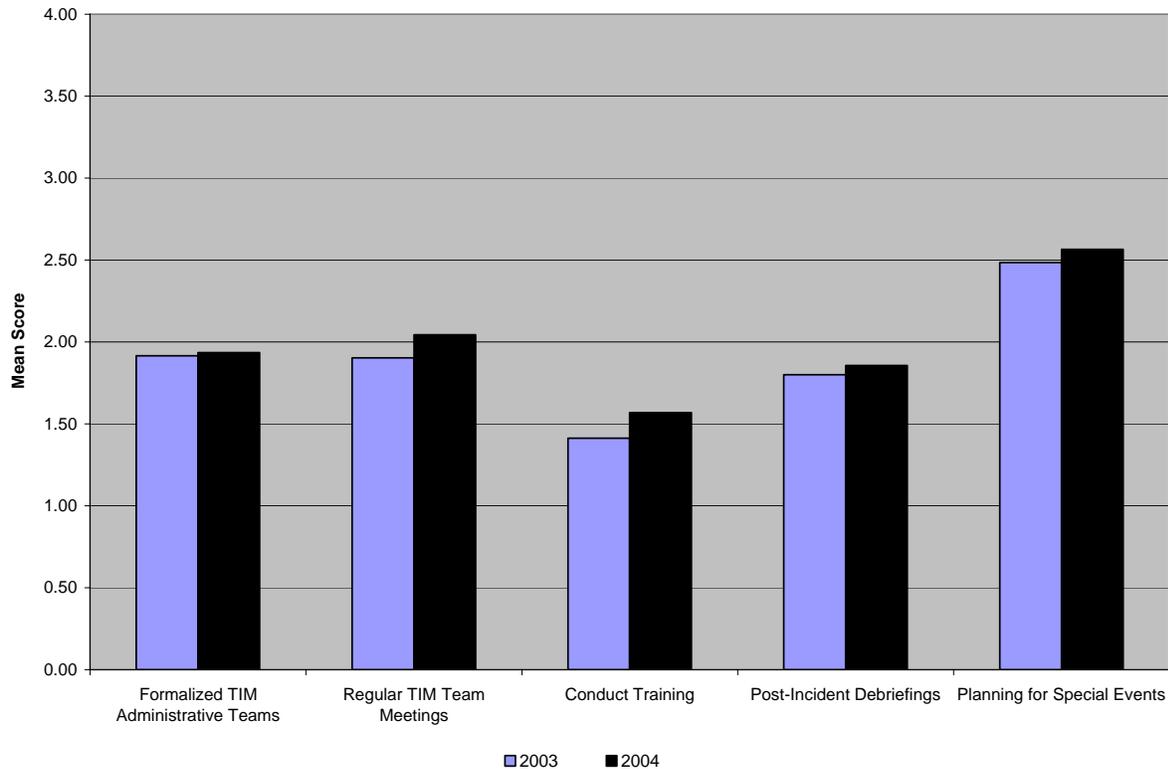
A formalized multi-agency TIM Administrative Team should be the mechanism for accomplishing the established goals and objectives of the program and ensuring its continuity beyond administration and personnel changes. To do so, the TIM Administrative Team needs to serve as the focal point for advancing field-level and mid-level management recommendations on policies, procedures, and budget issues to upper management for formal actions and budgeting for needed resources.

The teams should represent all of the TIM program partners. Successful teams meet regularly and are often facilitated by an agency perceived as “neutral.” Meetings have an agenda and agency representatives participate in identifying agenda items.

TIM administrative teams can plan for and sponsor multi-agency “cross-training” through field exercises or simulation. The teams often conduct multi-agency debriefings following major incidents where participants meet to discuss successes and areas for improvement.

TIM administrative teams can also plan for major construction and maintenance projects that have a major effect on traffic, as well as responding to traffic and other public safety incidents. The teams serve as catalysts for multi-agency planning for special events such as sporting events, concerts, fairs, parades and conventions. Team meetings are also excellent forums for planning response to natural and man-made catastrophic events.

**Figure 3**  
**Traffic Incident Management Administrative Teams**



**Analyzing the Change**

- The mean score for the question on the existence of TIM administrative teams remained virtually unchanged in 2004, experiencing a one percent increase to 1.93.
- As was the case in 2003, only 30 percent of the assessments scored this question a 3 or higher.
- The question on planning for special events experienced an increase in mean score from 2.48 in 2003 to 2.57 in 2004; a 3.2% increase. Included in the 24 assessment areas are ones that were impacted by the national political conventions and the very active 2004 hurricane season, perhaps reflecting better preparation for such traffic-interrupting events.

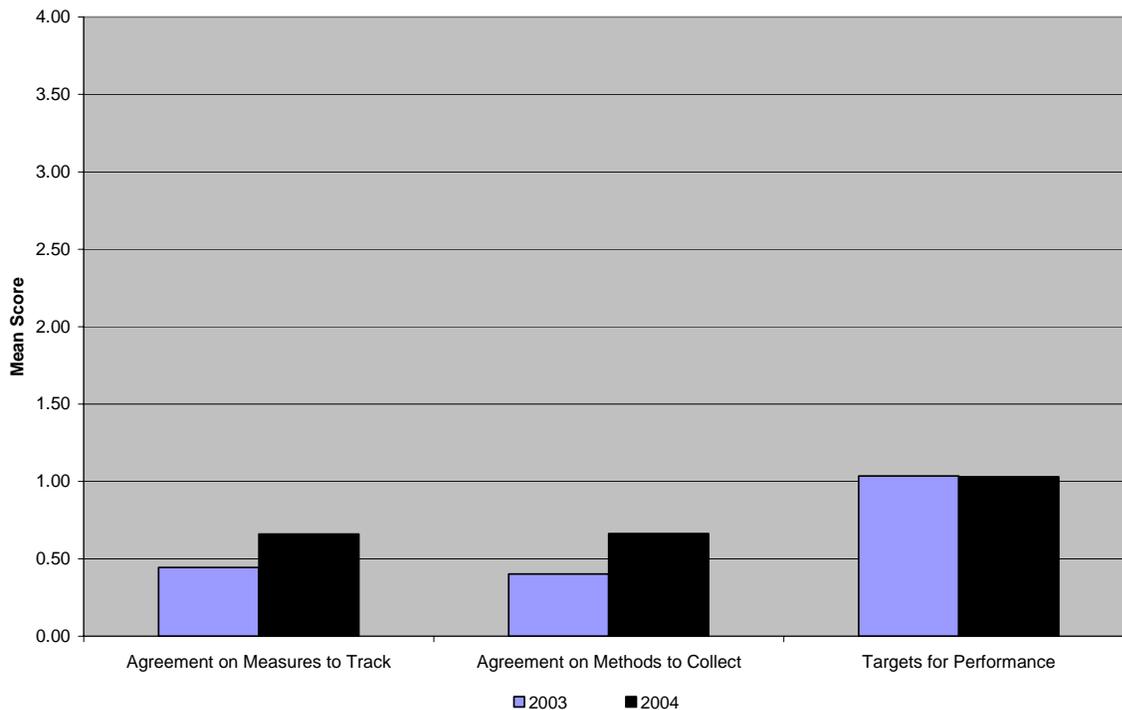
**4.1.3. Performance Measurement**

Many public safety and transportation agencies measure performance in the context of single-agency objectives. Traffic Incident Management programs are not owned by any agency and thus measuring the performance of one agency’s achievement of traffic incident management objectives does not provide a complete picture of how well a multi-agency program is performing. Furthermore, the data needed to

measure program performance is housed in several agencies and no one agency's data is sufficient to adequately assess program performance.

The questions related to performance measurement in the TIM Self-Assessment were intended to be answered from a multi-agency program perspective and not from the perspective of individual agencies.

**Figure 4  
Traffic Incident Management Performance Measurement**



### Analyzing the Change

- Establishing and tracking performance measures for TIM continues to be an elusive objective. As was the case in 2003, none of the assessments scored the performance measure questions a 3 or higher in 2004.
- In fact, with the exception of having established targets for performance, none of the assessments even indicated moderate success in this area; the mean scores for both years are at or under 1.
- However, no other subsection of the assessment realized a greater percentage change in mean score from 2003 to 2004 than did the performance measure questions, indicating that progress is being made.
- There was a 49 percent increase in the assessment score for multi-agency agreements on what measures to track and use in evaluating program performance.

- There was a 64.9 percent increase in the assessment score for agreed upon methods to collect and analyze the necessary performance measures.
- The emphasis placed on performance measures by the U.S. Department of Transportation and the Federal Highway Administration is beginning to gain ground among transportation practitioners, as evidenced by the increased scores in this assessment subsection.

## 4.2 Operational Issues

**Mean Score: 23.3% (of 40%)**

Operational Issues address the policies, procedures, and processes used in the field while responding to an incident. Designed to maximize safety and reduce response and clearance times, Operational Issues are the nuts and bolts of a TIM program. Questions are divided into three sections: 1) Procedures for Major Incidents; 2) Responder and Motorist Safety; 3) Response and Clearance Policies and Procedures.

Table 6 summarizes the responses for each question in Operational Issues, providing the mean score for 2003 and 2004, along with the percentage of assessments scoring 3 or higher for each year. Also shown is the percentage change in mean score from 2003 to 2004. Again, the results in Table 6 represent just those areas where the TIM SA was conducted in both years (n=24).

**Table 6  
Operational Issues**

Question Number	Question	Mean Score (n=24)		% of Assessments Scoring 3 or Higher		Change in 2003/ 2004 scores
		2003	2004	2003	2004	
4.2.1.1.	Have established criteria for what is a "major incident" – incident levels or codes?	1.62	1.84	22%	22%	14.0%
4.2.1.2.	Identify high-ranking agency members available on 24/7 basis to respond to a major incident (Major Incident Response Team)?	3.07	3.01	78%	74%	-1.9%

4.2.1.3.	Have a pre-identified (approved) contact list of resources (including special equipment) for incident clearance and hazardous materials response?	2.91	2.88	74%	78%	-0.9%
4.2.1.4.	Have the response equipment pre-staged for timely response?	2.22	2.22	43%	39%	0.0%
4.2.2.1.	Train all responders in traffic control procedures?	1.94	1.89	26%	22%	-2.6%
4.2.2.2.	Utilize on-scene traffic control procedures for various levels of incidents in compliance with MUTCD?	1.83	1.74	30%	26%	-5.2%
4.2.2.3.	Utilize traffic control procedures for the end of the incident traffic queue?	1.42	1.70	4%	26%	19.3%
4.2.2.4.	Have mutually understood equipment staging and emergency lighting procedures on-site to maximize traffic flow past an incident while providing responder safety?	1.44	1.58	13%	13%	9.5%
4.2.3.1.	Utilize the Incident Command System?	2.48	2.57	61%	65%	3.5%
4.2.3.2.	Have specific policies and procedures for fatal accident investigation that also address maintenance of traffic flow?	2.39	2.50	48%	48%	4.9%

4.2.3.3.	Have specific policies and procedures for hazardous materials response that also address maintenance of traffic flow?	3.00	2.84	74%	65%	-5.3%
4.2.3.4.	Have quick clearance policies for major and minor incidents?	2.05	2.40	39%	57%	17.2%
4.2.3.5.	Have a pre-qualified list of available and contracted towing and recovery operators (to include operators' capabilities)?	2.96	2.83	83%	74%	-4.6%
4.2.3.6.	Use motorist assist service patrols?	2.37	2.49	57%	61%	4.9%

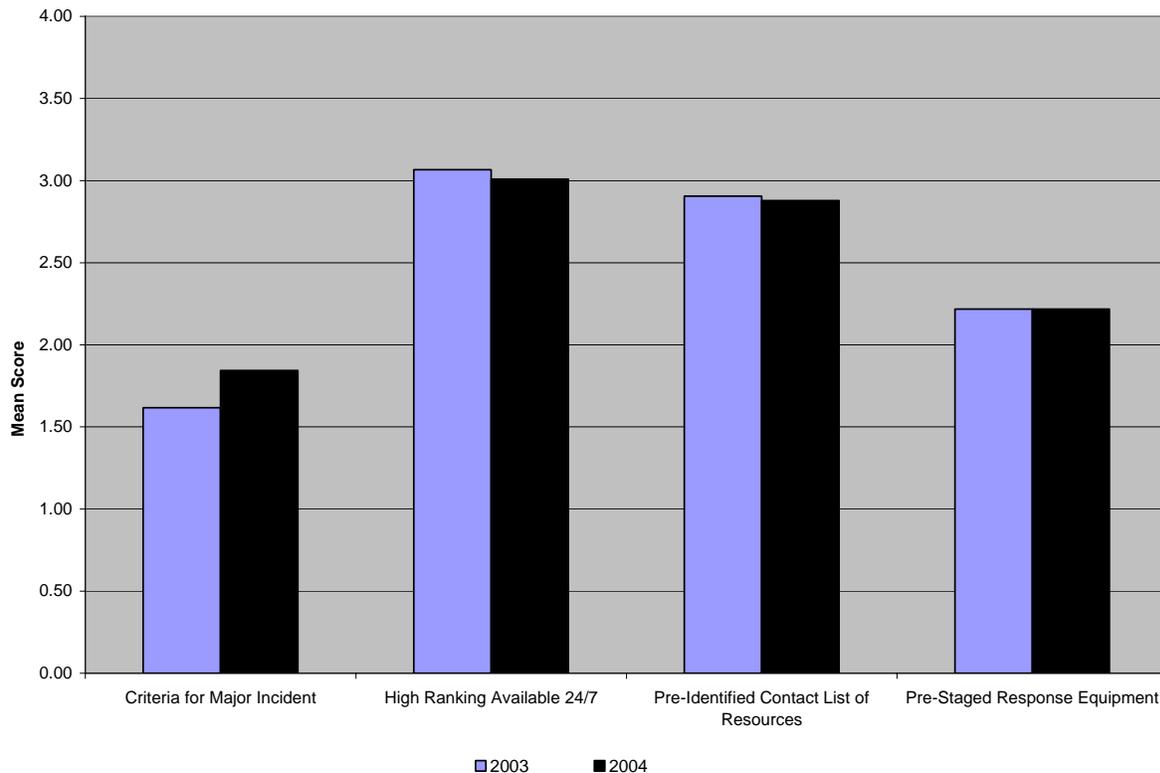
With a mean score of 23.2 percent in 2004, Operational Issues experienced a 2.5 percent increase over the 2003 score. Operational Issues continue to be the one area where programs have the greatest degree of success. Recognizing the achievements in this area in 2003, assessment participants may have concentrated in other areas over the course of 2004, leading to a smaller percentage increase in Operational Issues from 2003 to 2004.

#### **4.2.1. Procedures for Major Incidents**

Major incidents can disrupt the mobility of a transportation corridor or even a large portion of an urban area, as well as impact public safety operations. Major incidents attract media attention and public perception of how well the incident is handled is often negative.

Many agencies and private sector partners typically respond to major incidents. If these partner entities have not cooperatively addressed policy and procedure issues, and coordinated operations, major incidents can test the ability to effectively work together. Many traffic incident management programs today are the result of multiple partners working together to remedy the ineffective response to a major incident.

**Figure 5  
Procedures for Major Incidents**



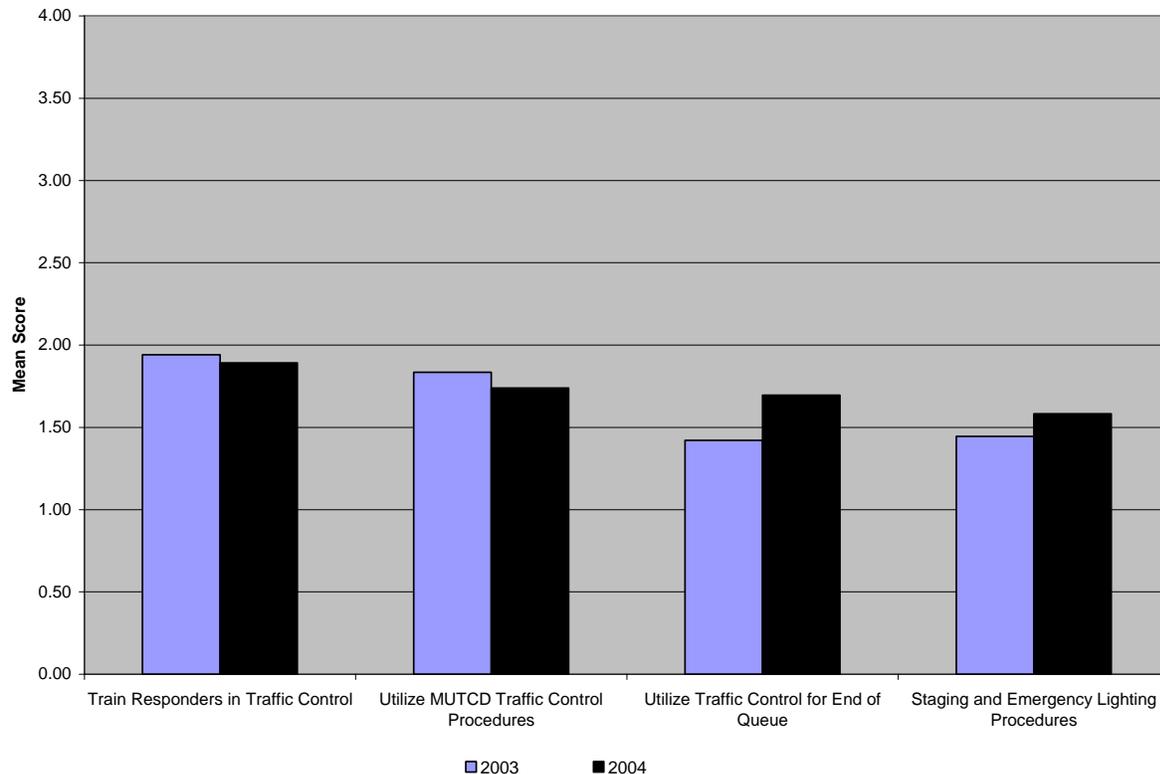
### Analyzing the Change

- Less than one-quarter of the assessments indicate success (scoring 3 or higher) in establishing criteria for what constitutes a “major incident.” However, the mean score of 1.84 on this question realized a 14 percent increase over the mean score in 2003 (1.62). This increase may reflect the adoption of the incident classifications (based on anticipated duration) as detailed in the new TIM chapter of the FHWA 2003 Manual for Uniform Traffic Control Devices (MUTCD). Chapter 6l of the MUTCD classifies a major incident as one expected to last more than two hours.
- Conversely, three-fourths of the assessments indicate a high degree of success (scoring 3 or higher) when it comes to having a high-ranking Major Incident Response Team and a pre-identified list of resources for responding to major incidents.
- These results show that, while there may not exist a systematic approach for categorizing major incidents, it is the consensus of the assessment participants that the resources are in place to respond to major incidents.
- The question on a high-ranking Major Incident Response Team is the only question on the entire 2004 assessment to have a mean score above 3. While there was a slight (1.9%) decrease in the mean score from 2003 to 2004, this question remained the top scorer in 2004, as it was in 2003.

## 4.2.2. Responder and Motorist Safety

Concern for responder safety has led responding agencies, primarily from public safety, to block extra travel lanes to protect responders. Attention is now shifting to providing positive traffic control to guide motorists through confusing incident scenes while protecting on-scene responders.

**Figure 6**  
**Responder and Motorist Safety**



### Analyzing the Change

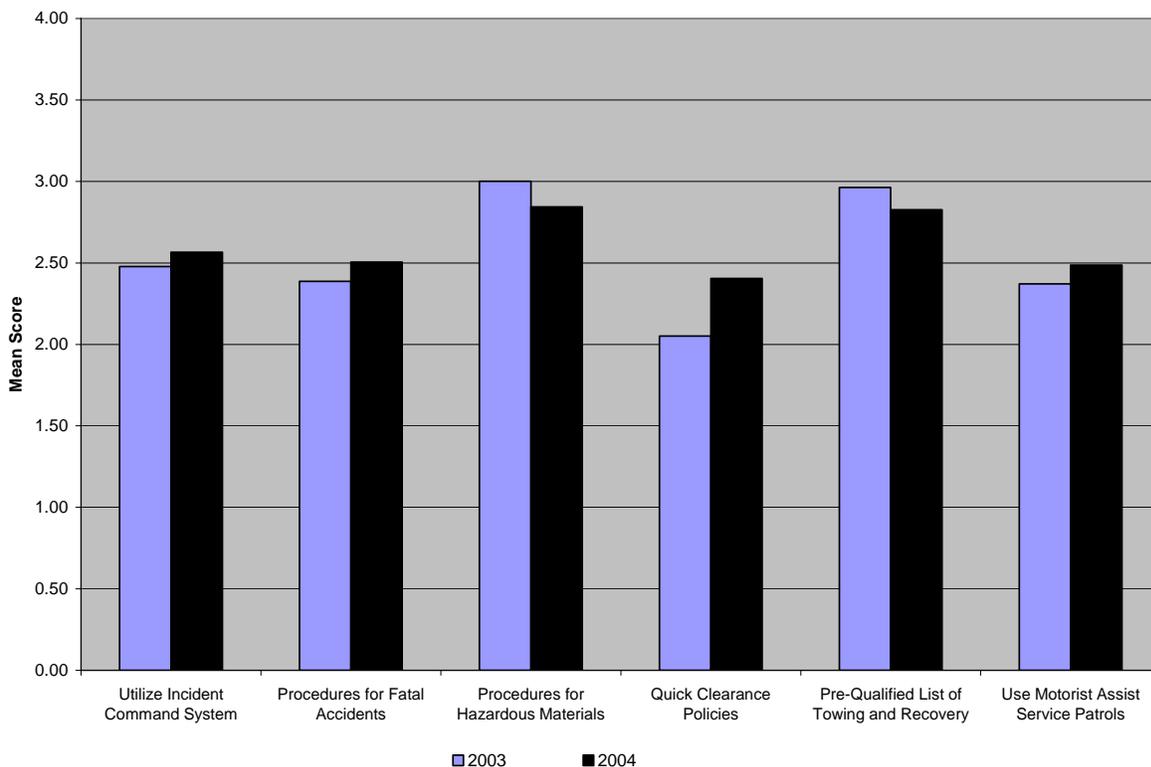
- Training in, and the use of, on-scene traffic control procedures, particularly in compliance with the MUTCD, saw decreases in mean score from 2003 to 2004 (training, -2.6%; utilization, -5.2%).
- In the 2003 assessments, participants expressed concern about “rigid requirements” anticipated with the changes to the MUTCD, referencing the new chapter in the MUTCD which specifically addresses traffic control through traffic incident management areas (Chapter 6I). With this chapter in place at the time the 2004 assessments were conducted, it is possible that participants regarded compliance with the MUTCD guidance in stricter terms, hence the decrease in mean score of 5.2 percent.
- In 2003, only 4% of the participants indicated a high degree of success (scoring 3 or higher) in utilizing traffic control procedures at the end of the

incident traffic queue. However, in 2004, 26 percent of the participants scored this question a 3 or higher. This can be attributed, in part, to increased awareness of the critical role traffic control plays in preventing secondary crashes, particularly at the end of the incident queue.

### 4.2.3. Response and Clearance Policies and Procedures

Quick, safe, and effective incident clearance is the most cost-effective traffic incident management strategy. Quick clearance involves strategies for efficiently handling fatal crashes, hazardous materials incidents, commercial motor vehicle incidents, and smaller incidents involving crashes and injuries – all under effective and well-understood incident command systems.

**Figure 7  
Response and Clearance Policies and Procedures**



#### Analyzing the Change

- The Incident Command System (ICS) continues to gain ground as standard operating procedure, particularly at major incidents. Sixty-five percent of the assessments scored this question a 3 or higher, up from 61 percent in 2003. This may reflect the increased participation of public safety agencies, particularly fire departments (well-indoctrinated in ICS), in the conduct of the assessments.

- Additionally, ICS is a key part of the Department of Homeland Security National Incident Management System (NIMS), resulting in greater awareness and adoption of ICS by responders at all levels. One of the requirements of NIMS is the institutionalizing of ICS across the entire response system. As a result, it is expected that scores for this question will continue to increase in the coming years.
- The largest increase in mean score for this assessment subsection was for the existence of quick clearance policies, up 17.2 percent from 2003. More than one-half (57%) of the assessments scored this question a 3 or higher.
- The use of motorist assist service patrols is also increasing, with 61 percent of the assessments scoring this question a 3 or higher, up from 57 percent in 2003.

### 4.3 Communication and Technology Issues

**Mean Score: 14.9% (of 30%)**

Careful planning for incident response and expedited on-scene procedures will not achieve the desired results if communication between agencies, responders and the motoring public is not present. Communication, and the technology to facilitate it, is a critical part of any Traffic Incident Management program. Questions are divided into three sections: 1) Integrated Interagency Communications; 2) Transportation Management Systems; 3) Traveler Information.

Table 7 summarizes the responses for each question in Communication and Technology Issues, providing the mean score for 2003 and 2004, along with the percentage of assessments scoring 3 or higher for each year. Also shown is the percentage change in mean score from 2003 to 2004. Again, the results in Table 7 represent just those areas where the TIM SA was conducted in both years (n=24).

**Table 7  
Communication & Technology Issues**

Question Number	Question	Mean Score (n=24)		% of Assessments Scoring 3 or Higher		Change in 2003/2004 scores
		2003	2004	2003	2004	

4.3.1.1.	Have a two-way interagency voice communications system allowing for direct on-site communications between incident responders?	1.84	2.11	26%	43%	14.6%
4.3.1.2.	Provide data and video information transfer between agencies and applications (TMC-CAD integration)?	1.73	1.93	13%	30%	11.6%
4.3.2.1.	Use Traffic Management Center(s) to coordinate incident notification and response?	2.16	2.30	48%	61%	6.7%
4.3.2.2.	Have a developed technical infrastructure for surveillance and rapid detection of traffic incidents?	2.10	2.28	35%	43%	8.9%
4.3.2.3.	Have specific policies and procedures for traffic management during incident response (i.e. signal timing changes, opening/closing of HOV lanes/ramp metering)?	1.65	1.87	26%	30%	13.2%
4.3.3.1.	Have the ability to merge/integrate and interpret information from multiple sources?	1.43	1.83	17%	26%	27.3%
4.3.3.2.	Have a real-time motorist information system providing incident-specific information?	1.79	2.04	26%	35%	14.2%

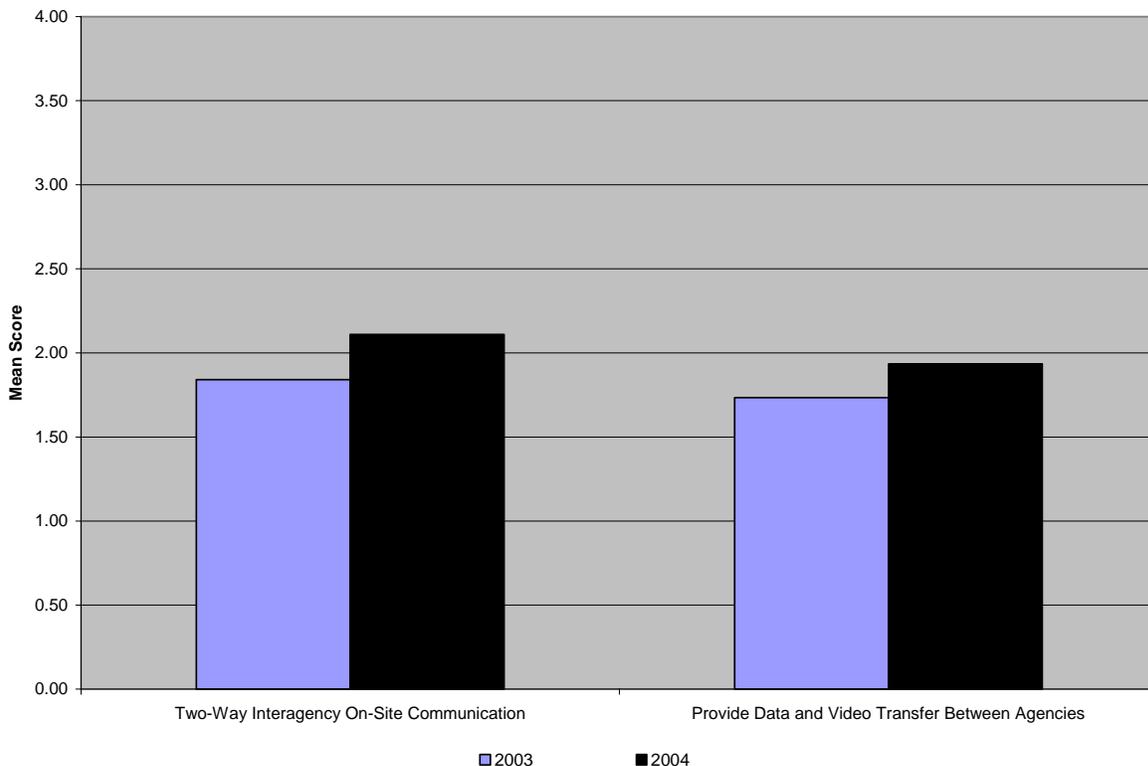
4.3.3.3.	Provide motorists with travel time estimates for route segments?	1.17	1.54	17%	26%	31.8%
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With a mean score of 14.9 percent in 2004, Communication and Technology Issues experienced a 14.7 percent increase over the 2003 score, the largest percentage increase of the three assessment areas. There are several factors driving this increase: greater availability of lower-cost communication devices for direct on-scene communication between responders; an increased recognition of the role motorists play in mitigating the effects of incidents through improved traveler information; and, continued technological advances allowing for greater interchange of incident data.

### 4.3.1. Integrated Interagency Communications

Effective response is supported and facilitated by a two-way flow of information that is center-to-center, center-to-field, and field-to-field. It is essential that responding partners effectively communicate clear, unambiguous information about an incident with each other.

**Figure 8**  
**Integrated Interagency Communications**



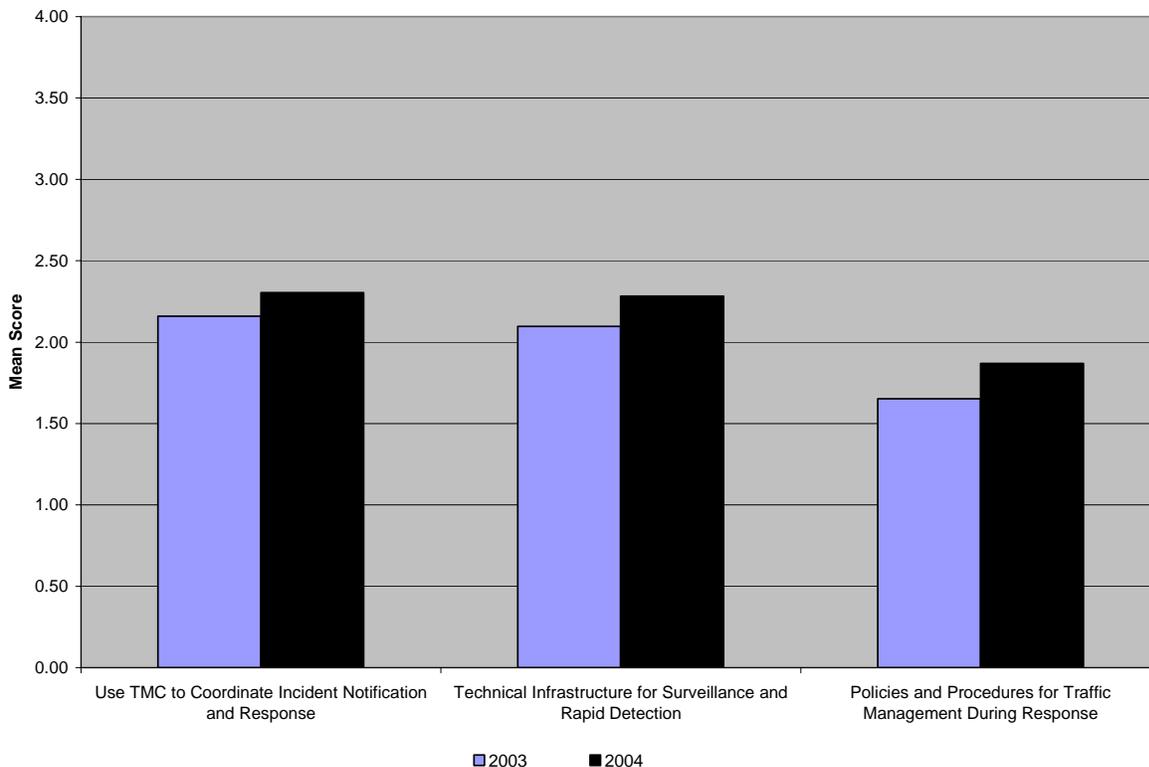
### Analyzing the Change

- Overall interagency communications have improved, as evidenced by the 14.6 percent increase in the mean score for on-site communications between responders and the 11.6 percent increase in the mean score for data transfer between agencies.
- It can be expected that these scores will continue to increase for some time as agencies take advantage of technological advances allowing for better data and information exchange.

### 4.3.2. Transportation Management Systems

Intelligent Transportation Systems (ITS) provide important support for incident responders and provide the means for managing traffic flow in a corridor affected by an incident.

**Figure 9  
Transportation Management Systems**



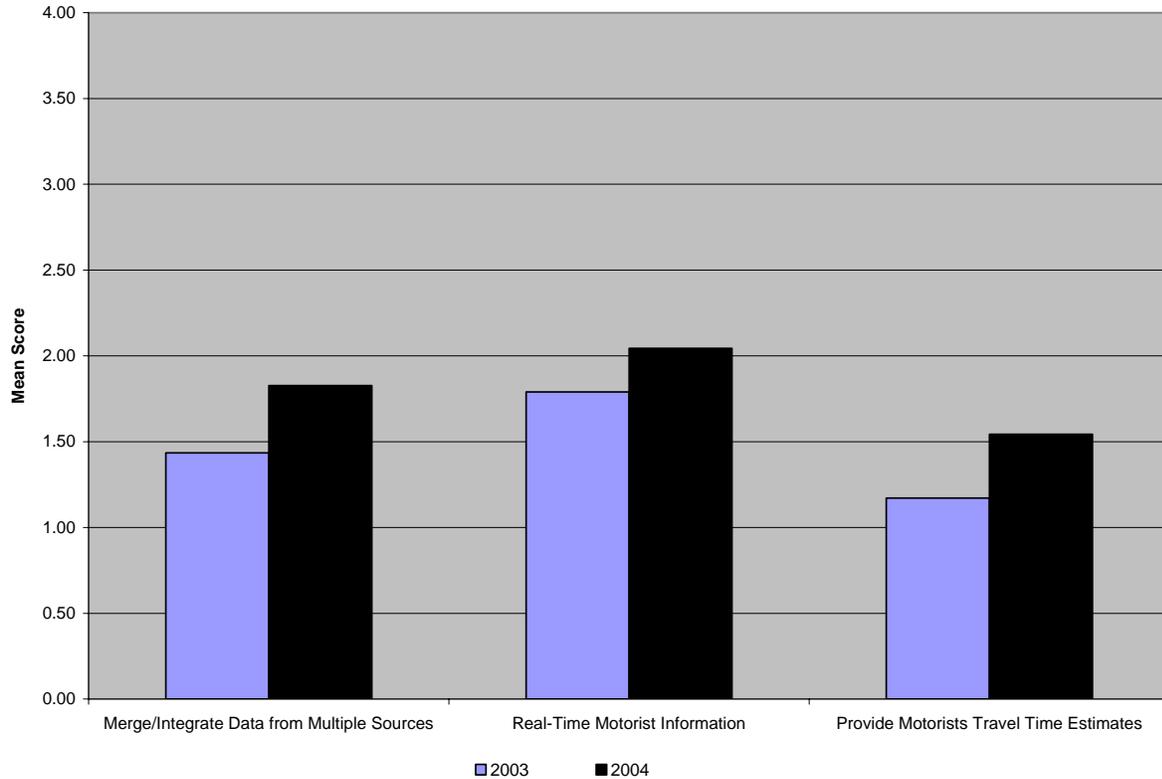
#### Analyzing the Change

- As it was in 2003, the highest mean score (2.3) in Communication and Technology Issues is on the use of Traffic Management Centers (TMCs) to coordinate incident notification and response. Over 60 percent of assessments scored this question a 3 or higher.

### 4.3.3. Traveler Information

An important area of communication is with the motorist, either before the trip is begun or while enroute. The most common source of traveler information is commercial radio. ITS can provide information directly through highway advisory radio and dynamic message signs, or indirectly by providing information to a private third party that can pass on personalized information by a number of communications media such as web sites, pagers or PDAs.

**Figure 10  
Traveler Information**



**Analyzing the Change**

- The largest percentage increase (31.8%) in Communications and Technology Issues was for providing motorists with travel time estimates.
- Motorists play an integral role in mitigating the impact of incidents. Providing motorists with reliable travel information allows for better route choices and less frustration on the part of system users.

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## 5. Conclusions

As shown in Table 8, the top five highest scoring questions all received a mean score greater than 2.5, with scores ranging from 2.57 to 3.01. All five were in Operational Issues, and as shown in the comparison of question ranking 2004 versus 2003, this top five list does not differ significantly from the top five in 2003. Agencies continue to score high the response to major incidents, including those involving hazardous materials. Additionally, the deployment of the National Incident Management System (NIMS), as referenced earlier in the discussion of the Incident Command System (ICS), is very likely having a positive impact on Operational Issues across the board (leading to higher mean scores), and will continue to do so in the foreseeable future.

It is interesting to note that the top four questions, while receiving high mean scores, each experienced a decrease from the mean score in 2003, by as much as 5.3 percent. While all four questions have a high percentage of assessments scoring 3 or higher, this decrease in mean score may reflect a more realistic assessment of progress in 2004 as opposed to the scores given in 2003, when the assessment was conducted for the very first time. In particular, the repeat of the assessment in 2004 likely benefited from several factors, including:

- **A better understanding of the questions.** Familiarity with the questions and the terminology used resulted in less confusion on the part of the assessment participants.
- **Less concern over the intent of the assessment.** The 2003 assessments may have been viewed by participants as a way for FHWA to monitor progress, with some perceived consequence for non-performance. Eliminating that perception and reinforcing its intended purpose as a tool for program managers to monitor their own progress may have led to more realistic assessment scores.

It is important to note that, as the assessments are conducted annually, participating agencies will be represented by different individuals. The subjective nature of the TIM SA questions may lead the individual scores to vary year to year. However, with the TIM SA designed to be a collaborative exercise, the impact of these variances should be minimal over time.

**Table 8  
Top 5 Mean Score (2004)**

<b>Mean Score Rank in 2004/ 2003</b>	<b>Question Number</b>	<b>Question</b>	<b>2004 Mean Score (n=24)</b>	<b>% Scoring 3 or Higher (2004)</b>	<b>Change in 2003/ 2004 Mean Scores</b>
<b>1/1</b>	4.2.1.2. Operational Issues	Identify high-ranking agency members available on 24/7 basis to respond to a major incident (Major Incident Response Team)?	<b>3.01</b>	74%	-1.9%
<b>2/4</b>	4.2.1.3. Operational Issues	Have a pre-identified (approved) contact list of resources (including special equipment) for incident clearance and hazardous materials response?	<b>2.88</b>	78%	-0.9%
<b>3/2</b>	4.2.3.3. Operational Issues	Have specific policies and procedures for hazardous materials response that also address maintenance of traffic flow?	<b>2.84</b>	65%	-5.3%
<b>4/3</b>	4.2.3.5. Operational Issues	Have a pre-qualified list of available and contracted towing and recovery operators (to include operators' capabilities)?	<b>2.83</b>	74%	-4.6%
<b>5/7</b>	4.2.3.1. Operational Issues	Utilize the Incident Command System?	<b>2.57</b>	65%	3.5%

Table 9 shows the five questions experiencing the greatest percentage change in mean score from 2003 to 2004. As discussed earlier, the emphasis placed on

performance measures is paying off as TIM programs continue to seek out ways to quantify performance.

**Table 9**  
**Top 5 Percentage Change in Mean Score**

Question Number	Question	Mean Score (n=24)		% of Assessments Scoring 3 or Higher		Change in 2003/2004 scores
		2003	2004	2003	2004	
4.1.3.2. Program and Institutional Issues	Have agreed upon methods to collect and analyze/track performance measures?	0.40	0.66	0%	0%	<b>64.9%</b>
4.1.3.1. Program and Institutional Issues	Have multi-agency agreements on what measures will be tracked and used to measure program performance?	0.44	0.66	0%	0%	<b>49.0%</b>
4.3.3.3. Communication and Technology Issues	Provide motorists with travel time estimates for route segments?	1.17	1.54	17%	26%	<b>31.8%</b>
4.3.3.1. Communication and Technology Issues	Have the ability to merge/integrate and interpret information from multiple sources?	1.43	1.83	17%	26%	<b>27.3%</b>
4.2.2.3. Operational Issues	Utilize traffic control procedures for the end of the incident traffic queue?	1.42	1.70	4%	26%	<b>19.3%</b>

Table 10 shows the five questions with the lowest mean scores in 2004. Mirroring the experience of the top five mean score questions, there was not much of a shift in the lowest scoring questions from 2003 to 2004. However, the three questions with the lowest mean scores in 2004 also happen to be among the top five in percentage change in mean score.

One of the primary goals of the TIM SA is to provide assessment participants with a tool for quantifying gaps in TIM program performance. This finding may reflect the achievement of that goal. Armed with the results of the 2003 TIM SA, agencies focused more attention on those areas with the lowest scores and as a result, indicated progress in the scoring of the 2004 assessments.

**Table 10  
Bottom 5 Mean Score (2004)**

<b>Mean Score Rank in 2004/ 2003</b>	<b>Question Number</b>	<b>Question</b>	<b>2004 Mean Score (n=24)</b>	<b>% Scoring 3 or Higher (2004)</b>	<b>Change in 2003/ 2004 Mean Scores</b>
<b>34/34</b>	4.1.3.1. Program and Institutional Issues	Have multi-agency agreements on what measures will be tracked and used to measure program performance?	<b>0.66</b>	0%	49.0%
<b>33/33</b>	4.1.3.2. Program and Institutional Issues	Have agreed upon methods to collect and analyze/track performance measures?	<b>0.66</b>	0%	64.9%
<b>32/32</b>	4.1.3.4. Program and Institutional Issues	Conduct periodic review of whether or not progress is being made to achieve targets?	<b>0.77</b>	0%	15.1%
<b>31/31</b>	4.3.3.3. Communication and Technology Issues	Provide motorists with travel time estimates for route segments?	<b>1.54</b>	26%	31.8%
<b>30/29</b>	4.1.2.3. Program and Institutional Issues	Conduct training through simulation or "in-field" exercises?	<b>1.57</b>	17%	11.1%

An inverse relationship may be at play in the five questions experiencing the smallest increase (and for these five questions it was actually a decrease) in mean score from 2003 to 2004. Three of the five experiencing a decrease in 2004 are also in the top five scoring questions, and were at such a position in 2003. Again, with

the TIM SA designed to demonstrate where attention needs to be focused, it is possible that, with such high scores, participants felt that less attention was needed for those three areas. Further evidence of this can be found in the fact that all five are in Operational Issues, an area that consistently scores high overall and therefore, may not garner the added attention that Program and Institutional and Communication and Technology issues do.

**Table 11  
Bottom 5 Percentage Change**

Question Number	Question	Mean Score (n=24)		% of Assessments Scoring 3 or Higher		Change in 2003/2004 scores
		2003	2004	2003	2004	
4.2.3.3. Operational Issues	Have specific policies and procedures for hazardous materials response that also address maintenance of traffic flow?	3.00	2.84	74%	65%	<b>-5.3%</b>
4.2.2.2. Operational Issues	Utilize on-scene traffic control procedures for various levels of incidents in compliance with MUTCD?	1.83	1.74	30%	26%	<b>-5.2%</b>
4.2.3.5. Operational Issues	Have a pre-qualified list of available and contracted towing and recovery operators (to include operators' capabilities)?	2.96	2.83	83%	74%	<b>-4.6%</b>
4.2.2.1. Operational Issues	Train all responders in traffic control procedures?	1.94	1.89	26%	22%	<b>-2.6%</b>
4.2.1.2. Operational Issues	Identify high-ranking agency members available on 24/7 basis to respond to a major incident (Major Incident Response Team)?	3.07	3.01	78%	74%	<b>-1.9%</b>

The purpose of the Traffic Incident Management Self-Assessment is to identify those areas where success has been achieved as well as those where more attention needs to be directed. The assessment will help State and local TIM practitioners identify specific program initiatives to improve those areas identified by low scores and build on the success already achieved in other program areas.

This appears to be the case with the 24 repeat assessments. In general, the lower scoring questions in 2003 were given more attention and saw a resulting increase in scores. At the same time, the highest scoring questions from 2003 saw less of an increase in mean score in 2004, in part due to the shift in focus to other program areas.