

APPENDIX A

Survey Questionnaire

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

NCHRP PROJECT 20-5

SYNTHESIS OF HIGHWAY PRACTICE 32-07

PERFORMANCE MEASURES OF OPERATIONAL EFFECTIVENESS FOR HIGHWAY SEGMENTS AND SYSTEMS

Twentieth-century surface transportation programs were substantially focused on the development of basic infrastructure networks. The challenge for transportation in the 21st century is managing and operating these transportation resources to deliver needed services to customers under varying conditions in the face of growing travel demand and capacity limitations. Performance measurement is emerging as a critical tool to help meet this challenge. It is being used at several levels, ranging from day-to-day operations to long-term capital planning that enhances system operations. It can also be used at the project level to identify design features that improve operations and at the policy level to allow stakeholders to evaluate the benefits of highway improvements. However, evaluating and improving system operations through performance measures can be challenging. Data collection and analysis demands can be overwhelming. Different measures are appropriate for different audiences, e.g., the public, elected officials, system planners, and operations managers. Engineering measures may be useful in improving operations, but may not be effective in communicating meaningful information to the public.

This synthesis will summarize the practices concerning highway operational performance measures and associated data collection (e.g., link travel times, duration of congestion, reliability, LOS, seasonal road closures, recurring and non-recurring delays). How they are collected and put to use, their relative strengths, weaknesses, and the usefulness of these measures for various audiences and purposes will be documented. Successful practices will also be highlighted using agency profiles. The following survey is designed to support this analysis.

This survey should be completed by those in your agency who are familiar with your agency's activities related to operations and performance measures. Your responses are important regardless of the current use of performance measure in your agency.

Please respond to the survey by September 1, 2001 or provide any comments or questions to:

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**Survey on the Use of Performance Measures for the Operational Effectiveness
of Highway Systems and Segments**

Background Information

1. Name: _____
2. Title: _____
3. Agency: _____
4. Address: _____
5. City/State/Zip: _____
6. Phone: _____ 7. Fax: _____
8. E-mail: _____ 9. Website: _____
10. May we contact you for additional information? Yes ☐ No ☐
11. Would you like your responses to be confidential? Yes ☐ No ☐
12. What part of the agency do you work in? Planning ☐ Design ☐ Other ☐ _____

Agency Profile Information

13. Is your agency a:

State Department of Transportation	<input type="checkbox"/>
Metropolitan Planning Organization	<input type="checkbox"/>
City or County	<input type="checkbox"/>
Other type of agency	<input type="checkbox"/> _____

☐ Headquarters ☐ or Region ☐
14. What is the population of the area for which your agency has jurisdiction?

5 million or more	<input type="checkbox"/>
1 million to 4,999,999	<input type="checkbox"/>
500,000 to 999,999	<input type="checkbox"/>
Less than 500,000	<input type="checkbox"/>
15. How many centerline-miles of roadways are present in your agency's jurisdiction? _____
16. Is your agency responsible for the operation of streets, highways, or toll roads? Yes ☐ No ☐
17. Is your agency responsible for traffic data collection systems? Yes ☐ No ☐
18. Is your agency responsible for the operation of intelligent transportation systems (ITS)? Yes ☐ No ☐
19. Is your agency involved in project planning and decision making? Yes ☐ No ☐
20. Does your agency currently use performance measures in the operational analysis of highways?

No	<input type="checkbox"/>
Yes	<input type="checkbox"/>

21. If yes, what performance measures are used?

- | | |
|---|--|
| <input type="checkbox"/> Traffic volume | <input type="checkbox"/> Number of incidents |
| <input type="checkbox"/> Vehicle-miles traveled | <input type="checkbox"/> Weather-related traffic incidents |
| <input type="checkbox"/> Travel time | <input type="checkbox"/> Rail grade crossing incidents |
| <input type="checkbox"/> Speed | <input type="checkbox"/> Duration of delay caused by incidents |
| <input type="checkbox"/> Density (passenger cars per hour per lane) | <input type="checkbox"/> Response times to incidents |
| <input type="checkbox"/> Recurring delay | <input type="checkbox"/> Commercial vehicle safety violations |
| <input type="checkbox"/> Level of service/Highway Capacity Manual | <input type="checkbox"/> Security for highway and transit |
| <input type="checkbox"/> Duration of congestion | <input type="checkbox"/> Weather-related road closures |
| <input type="checkbox"/> Travel time reliability | <input type="checkbox"/> Response time to weather-related closures |
| <input type="checkbox"/> Percent of travel congested | <input type="checkbox"/> Evacuation times |
| <input type="checkbox"/> Percent of system congested | <input type="checkbox"/> Toll revenue |
| <input type="checkbox"/> Travel costs | <input type="checkbox"/> Delay from toll collection |
| <input type="checkbox"/> Vehicle occupancy | <input type="checkbox"/> Delay from incidents |

22. Any others? Please specify.

23. What measures are most important and why?

24. Why do you consider performance measures (check all that apply)?

- ☐ Quality Initiative
☐ Legislative Mandate
☐ Planning Process
☐ ITS Operations
☐ ITS Evaluation
 Other _____

25. How long have you used performance measures? _____ years

26. Who is your audience for performance measures (elected officials, agency management, public, etc.)?

27. If a summary of the performance measures employed by your agency is available, please provide a copy or a link to a website with your response to the survey.

Website location: _____

28. What was the process used to define which measures will be used?

29. How are the measures reported?

30. Who is the audience for the performance measures reporting?

31. What media are used in reporting the measures?

32. What format is used in reporting the measures?

☐ Tables ☐ Graphs/Charts ☐ Maps ☐ Text ☐ Other _____

33. How are the measures used in operations?

34. Are there any other uses than operations of performance measures by your agency?

35. What is your agency's role in defining and collecting data to support these measures?

36. What data are collected to support the performance measures?

37. What technologies are used to collect the data?

Technology

Which measures?

Inductive loops? _____

Video detection? _____

Probe vehicles or travel time studies? _____

Road tubes? _____

Radar/acoustic? _____

Customer survey? _____

Modeling/estimation? _____

Others? _____

38. What technologies are used to collect the data (inductive loops, ViDS, RTMS, etc.)

39. What percentage of the system is covered? _____%

40. How was this coverage selected?

41. How frequently are the data collected?

42. What are the approximate costs of the data collection (if costs are not available, how many people in full-time equivalents are involved)?

43. Is some of your data provided by another agency? If so, please explain.

44. Are these costs in addition to other data collection programs or are they part of another data collection requirement/system such as HPMS?

45. How are the data collection funded?

46. How is the data stored and who is responsible for the data?

47. How long are the data stored?

48. Who are the users of the stored data?

49. Which measures, if any, are used only in “real-time”?

50. Who are the users of the “real-time” data?

51. Would you like to receive a copy of this synthesis when complete? Yes ☐ No ☐

Thank you for your participation!

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