Access Management Training

By

Virginia P. Sisiopiku, Ph.D.
Department of Civil and Environmental Engineering
The University of Alabama at Birmingham
Birmingham, Alabama

Prepared by

UTCA

University Transportation Center for Alabama
The University of Alabama, The University of Alabama in Birmingham,
and The University of Alabama in Huntsville

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16. Abstract

The objective of this project was to enhance existing training materials developed by the Alabama Section of the Institute of Transportation Engineers (ALSITE) as a service for the Alabama Department of Transportation. The project involved a literature review, preparation of course notes, and development of visual aids to assist in the delivery of a short course on access management.

As developed, the course offers an overview of access management options, potential impacts on safety, mobility, accessibility, and economic growth, and ways to achieve the maximum benefits through access management. It is expected that technology transfer activities by ALSITE, based on these training materials, will provide valuable input to transportation professionals and transportation decision makers in Alabama and will assist them in determining the types of access management strategies best suited at the local level.

The project deliverables included a narrative in notebook-format, notebook labels, a PowerPoint presentation for each chapter, checklists for practitioners, and a short course evaluation form.

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Contents

Executive Summary

The objective of this project was to enhance existing training materials developed by the Alabama Section of the Institute of Transportation Engineers (ALSITE) as a service for the Alabama Department of Transportation. The project involved a literature review, preparation of course notes, and development of visual aids to assist in the delivery of a short course on access management.

Properly designed transportation systems provide a balance between the needs of transportation users for mobility and accessibility. It is the responsibility of transportation agencies and transportation professionals to ensure that the design of each road balances access and mobility. Access management is used to provide this very important balance. There is clearly a need for better understanding of the interrelated elements of land use, economic activity and growth, and traffic generation and distribution. This project addressed this need by providing training materials for a short course on access management.

As developed, the course offers an overview of access management options, potential impacts on safety, mobility, accessibility, and economic growth, and ways to achieve the maximum benefits through access management. It is expected that technology transfer activities by ALSITE, based on these training materials, will provide valuable input to transportation professionals and transportation decision makers in Alabama and will assist them in determining the types of access management strategies best suited at the local level.

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Part 1- Introduction and Concepts

1.1 Summary

Access management refers to the systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges, and street connections to a roadway. It also involves roadway design applications, such as median treatments and auxiliary lanes, and the appropriate spacing of traffic signals. The purpose of access management is to provide a balance between mobility and accessibility while maintaining safety and efficiency of operations.

Case studies reported in the literature indicate that proper access management actions reduce crashes, improve travel speeds, and have potential economic benefits. The aesthetic and environmental opportunities associated with access management also contribute to a more sustainable transportation system. The various effects have two important applications: (*a*) they may be used to estimate the benefits and impacts of specific access management techniques or applications, and (*b*) they may be used as a rationale for specific actions.

This part introduces access management concepts and discusses the potential gains from proper access management. This part also summarizes the principles of access management implementation and the steps to accomplish it.

1.2 Objectives

1) Introduce access management concepts.
2) Explain why access management is used.
3) Document the results of good and poor access management policies.
4) Outline the principles of access management.

1.3 Context Overview

- What is Access Management?
- Roadway Functional Hierarchy
- Roadway Functional Classification
- Transportation Facilities Life Cycle
- Poor Access Management Implications
- Good Access Management Results
- Access Management and Safety
- Access Management and Operational Efficiency
- Economic Effects of Access Management
- Land Use and Environmental Effects of Access Management
- Good Access Management Really Works
- Access Management Involves
- Access Management Principles
- How is Access Management Accomplished?

1.4 References

Access Management Manual, Transportation Research Board, 2003

Planning & Zoning Center, Inc. *Reducing Traffic Congestion and Improving Traffic Safety in Michigan Communities: The Access Management Guidebook*. Michigan Department of Transportation, Sept. 2001

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Policy on Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials, Washington, D.C., 2001

Part 2 - Developing an Effective Access Management Program

2.1 Summary

State transportation agencies are faced with a continuing challenge of providing safe and efficient roadways in a climate of shrinking budgets, rising costs, public opposition, and environmental constraints. There is growing recognition that capital improvements alone are not enough to solve traffic congestion and safety problems. As a result, more and more states are looking for better ways to manage the existing system to achieve maximum performance. Access management is one such strategy.

Several states have implemented some form of contemporary access management program, and more are under development. The majority of programs involve the development and adoption of state access management regulations and access permitting procedures. A uniform statewide regulation enables the state transportation agency to implement and enforce its program while promoting fair and equal treatment of applicants requesting an access permit. Unlike state transportation agencies, local governments have authority to accomplish access management from both a land use and a transportation perspective. Local governments can engage in access management through land use planning, transportation planning, public works projects, zoning, subdivision regulation, development review, impact assessment, exactions, and permitting. Because of their many functions, local governments are well positioned to develop a comprehensive and effective access management program.

The basic considerations for state transportation agencies in developing a state access management program are reviewed in this part. An initial step in program development is to lay the foundation for stakeholder involvement and consensus building. Other typical start-up activities include documenting current agency practices, reviewing practices in other areas, and evaluating the legal context for access management. A variety of technical and administrative factors are also addressed, ranging from the type of access features that will be managed to the appropriate staffing and organizational structure for administering the program. Because access management programs often require new staff skills and agency procedures, the importance of training and monitoring is also noted. This part also reviews the role of local governments and regional agencies in access management and considerations in developing a local or regional access management program.

2.2 Objectives

1) Review the basic considerations for state transportation agencies in developing a state access management program.
2) Identify the initial steps in program development and address a variety of technical and administrative factors.
3) Note the importance of training and monitoring.
4) Review the role of local governments and regional agencies in access management and discuss considerations in developing a local or regional access management program.

2.3 Context Overview

- Building Consensus and Support
- Assessment Activities
- Drafting Legislation
- Development of Codes
- Specify Program Components
- Staffing, Training, Monitoring
- The Role of the Local Agencies
- How Local Governments Institute Access Management
- Local or Regional Access Management Program
- Examples of Comprehensive State Access Management Programs

2.4 References:

Access Management Manual, Transportation Research Board, 2003

Access Management, Location and Design, Course No. 13378, National Highway Institute, U.S. Department of Transportation, 2003

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Part 3-Access Management Techniques

3.1 Summary

A variety of administrative and design techniques can be applied to preserve and enhance the safety and operational character of a roadway segment and to mitigate the traffic problems at many types of locations. Available techniques relate to the following possible actions:
a. Limiting Conflict Locations
b. Separating Conflict Areas
c. Reducing the Number of Turning Movements
d. Removing Turning Vehicles from Through Lanes
e. Improving Driveway Traffic Operations
f. Administrative Options

This part provides an overview of selected techniques that are more commonly applied in the context of Access Management. Technical details and design guidelines for many of these techniques are offered in the Part 4. Those individuals who are interested in acquiring a more in-depth knowledge might also consult the references which are listed at the end.

3.2 Objectives

1) Review several prominent access management techniques that might be applicable in Alabama.
2) Provide examples to illustrate prominent access management techniques

3.3 Context Overview

- **Technique 1. Limit Conflict Points**
  - Purchase access rights
  - Close a median opening
  - Channelize intersection
  - Install a non-traversable median
  - Replace a Continuous 2-way left turn lane with a non-traversable median
  - Use divisional island to prevent entry into a left-turn bay

- **Technique 2. Separate Conflicts**
  - Establish minimum access spacing
  - Establish minimum corner clearance
  - Establish minimum property line clearance
  - Limit the number of accesses per property
  - Designate the access for each property
  - Consolidate access drives
  - Optimize driveway spacing

- **Technique 3. Remove Turning Vehicles from Through Lanes**
  - Directional Median Opening for LT
  - Provide Isolated Left-Turn Bay
  - Design a Shoulder Bypass
  - Install Continuous RT Lane
  - Install Continuous LT Lane
  - Indirect LT (Jug Handle)
  - Indirect U-Turn

- **Technique 4. Reduce the Number of Turning Movements**
  - Provide connection between adjacent parcels
  - Provide adequate internal circulation
  - Provide alternative access
  - Provide a supporting circulation system
  - Adopt vehicular use limitations

- **Technique 5. Improve Traffic Operations**
  - Provide uniform signal spacing
  - Provide adequate radius
  - Provide good driveway design
  - Improve frontage road design
  - Provide adequate throat length

- **Technique 6. Alternative Access and Administrative Techniques**
  - Acquisition of access rights
  - Joint and cross access
  - Internal access to outparcels
  - Access Management overlay district
  - Land division and subdivision regulations
  - Vehicular use limitations

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NCHRP Report 279, Intersection Channelization Design Guide. Transportation Research Board, Washington, D.C., 1985

Part 4-Access Management Guidelines

4.1 Summary

The appropriate location and design of access points is critical to driver safety and roadway efficiency. Providing adequate sight distance, avoiding connections in the functional area of intersections and interchanges, and observing the hierarchy of roadways and intersections are all important concepts in access location. This part addresses the major areas of access design, namely driveway visibility, driveway operations, and auxiliary lanes. Basic concepts that are common to the location and design of access connections are set forth. Specifically, this part provides guidance for the design of the primary street elements involved in access management, including:

- Intersection functional area
- Sight distance
- Turn lanes
- Median openings
- Traffic signal spacing
- Driveway location and design

4.2 Objectives

1) Provide guidelines that can be used to apply the access management techniques discussed in Chapter 3.
2) Review a sample of techniques thought to be the most important for access management in Alabama.

4.3 Context Overview

- **Design Guidelines of Street Elements**

- **Intersection Functional Area Considerations**
  - Intersection Functional Area

- **Sight Distance Considerations**
  - Types of Sight Distance
  - Stopping Sight Distance
  - Driver's Line of Sight
  - Intersection Sight Distance
  - Intersection Sight Distance-ISD
  - Right- and Left-Turn Sight Distance

- **Turn Lanes Considerations**
  - Turn Lane Design Options
  - Turn Lane Warrants
  - Left Turn Warrants

- Isolated Left-Turn Bay
- Shoulder Bypass
- Continuous Two-Way Left Turn Lane
- Left Turn Bay at a Median Opening
- Indirect Left Turn (Jug Handle)
- Indirect U-Turn
- Continuous Right Turn Lane
- Right Turn Bay Options
- Right Turn Lane Guidelines

- **Median Opening Considerations**
  - Median Types
  - Median Width
  - Geometry of Openings
  - Spacing of Median Openings

- **Signal Spacing Considerations**
  - Effects of Traffic Signal Spacing
  - Signal Density Effects
  - Signal Spacing and Speed
  - Optimum Signal Density
  - Minimum Signal Spacing Guidelines
  - Signal Progression
  - Signal Spacing and Access Control
  - Deviation from the Adopted Signal Spacing Interval

- **Driveway-Related Considerations**
  - Driveway Function
  - Major Driveway Considerations
  - Driveway Location Principles
  - Access "Window"

- **Driveway Design Issues**
  - Driveway Visibility
  - Driveway Operations
  - Auxiliary Lanes
  - Driveway Geometrics
  - Driveway Configuration
  - Clear Pavement Makings
  - Driveway Channelization
  - Driveway Throat Length

- **Additional Site-Specific Characteristics to Evaluate**

4.4 References

Access Management, Location and Design. Course No. 13378, National Highway Institute, U.S. Department of Transportation, 2003

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Transportation Research Circular 456: Driveway and Street Intersection Spacing. TRB, National Research Council. Washington, D.C., 1996

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Part 5- Retrofitting to Existing Roads

5.1 Summary

Introducing a "retrofit" program of access control to an existing roadway is an important but often complex task. Land for needed improvements is often unavailable, making certain access management techniques impossible to implement and requiring the use of minimum rather than desirable standards. Moreover, rights of property access must be respected. Social and political pressures will emerge from abutting property owners who perceive that their access will be unduly restricted and their business hurt. The needed cooperation of proximate, sometimes competitive, developments in rationalizing on-site access and driveway locations may be difficult to achieve. Moreover, it may be difficult to compare the cost of economic hardship to an individual to the benefits accruing to the general public.

Despite these difficulties, implementation of access control techniques on existing roads is often practical and desirable from the operational, and traffic safety perspectives. For example, many studies have documented the adverse effects that frequent access points have on the quality of traffic flow provided by a roadway. Access management actions that reduce the number of access points, the amount of traffic, or both may often be one of the best options for reducing crash rates and increasing the level of service in existing facilities.

This part addresses the constraints on retrofit projects that may pose challenges to traffic managers today and summarizes the most common techniques for retrofitting the access management to existing roads.

5.2 Objectives

1) Introduce the reader to the difficulty of retrofitting access management techniques.
2) Outline some of the techniques used to retrofit access management to existing roads.
3) Discuss lessons learned using examples of previous projects.

5.3 Context Overview

- Reasons for Retrofit Actions
- Examples of Constraints
- Prominent Retrofit Techniques
- Classification of Physical Improvement Options
- Driveway Improvements Options and Considerations
- Median Retrofit Options
- Auxiliary Lanes
- Frontage Roads for Retrofit
- Traffic Signal Improvements

- Traffic Signal Removal
- Texas Case Study Details and Conclusions
- Effects of Retrofit Actions on Businesses

5.4 References

Access Management Manual, Transportation Research Board, 2003

Access Management Plan for Taylor Road and Chantilly Parkway. City of Montgomery, Skipper Consulting, Inc, Birmingham, Alabama, 2003

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Part 6-Legal and Institutional Issues and Access Management

6.1 Summary

This part offers an overview of the legal principles associated with access management and legal considerations in the development and administration of access management programs. It should be noted that there is a variation in laws and rules from state to state and even states with the same general principles of law have legislative or court established nuances that operate differently. This part provide details on legal and institutional issues associated with Access Management with emphasis on the access permitting, internal and intergovernmental coordination and right of way considerations.

A well-conceived permitting process that is carried out by trained staff is critical for an effective access management program. It is through access permitting that state and local agencies apply access management standards to development. Therefore it is important that permitting procedures and requirements are carefully formulated and that staff responsible for permitting are adequately trained and well-informed on any changes in agency rules, standards, or policies. This part sets forth considerations in access permitting, including established guidelines for traffic impact studies, procedures for addressing deviations from access management standards, and state and local coordination issues and strategies. Case examples of access permitting procedures are also provided.

Coordination is essential at every stage of access management—from program development to permitting decisions. Access management decisions typically involve the participation of multiple divisions within an agency or of multiple agencies. Coordination strategies and procedures help to ensure the regular involvement of appropriate parties at each stage of the decision-making process. Alternatively, lack of coordination and incongruous decision making cause frustration for affected parties and can damage agency credibility. Inadequate coordination can also lead to enforcement problems that undermine the access management program. This part sets forth strategies for internal and interagency coordination in various stages of access management.

Last but not least, the right of access to a public roadway is discussed in the context of state law and recommendations are offered regarding the role and responsibilities of state agencies and local governments in safeguarding right of access privileges.

6.2 Objectives

1) Discuss considerations in access permitting, including established guidelines for traffic impact studies, procedures for addressing deviations from access management standards, and state and local coordination issues and strategies
2) Overview the legal principles associated with access management and legal considerations in the development and administration of access management programs

3) Address strategies for internal and interagency coordination in various stages of access management

6.3 Context Overview

- Access Permitting Definition
- Role of Access Permitting
- Access Permitting Process
- Access Permitting Considerations
- Access Permit Evaluation Result
- Site Impact Study
- Evaluation of Access and Design Process Flowchart
- Appeals and Waivers
- Right of Way Considerations
- Legal Issues Involved
- Police Power
- Right to Reasonable Access
- Right to Direct Access
- Joint and Cross Access
- Circuity of Travel
- Role of Coordination
- Types of Coordination Needed
- Internal Coordination Strategies
- Intergovernmental Coordination
- Intergovernmental Coordination Strategies

6.4 References

Access Management Manual, Transportation Research Board, 2003

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Part 7 - Public Involvement in Access Management

7.1 Summary

Government actions that affect property access can be controversial. This is true whether the changes are temporary, such as access impacts during construction, or permanent, such as the construction of a raised median. Circuitry of access, effects on business activity, potential for neighborhood cut-through traffic, access for delivery vehicles, and the safety of U-turns are among the issues that frequently arise in relation to access management. Without a process for identifying and responding to public concerns, agencies can face intense public opposition to access management actions. The need for an effective approach to public involvement in access management is especially crucial for state and local governments seeking to develop new policies or expand their access management activities. Principles and techniques for meaningful public involvement in access management decisions are reviewed in this part.

7.2 Objectives

1) Highlight the importance of public involvement in access management program
2) Outline the benefits of public involvement in access management activities
3) Address principles and techniques for meaningful public involvement in access management decisions

7.3 Context Overview

- The Need for Public Involvement
- Potential Sources of Conflict
- How to Achieve Balanced Solution
- Benefits of Public Involvement
- Principles of Public Involvement
- Public Involvement Plans
- Level of Public Involvement
- Evolution of Public Involvement
- Techniques For Working With The Public

7.4 References

Access Management Manual, Transportation Research Board, 2003

Access Management Handbook, Center for Transportation Research and Education (CTRE) at Iowa State University, Oct. 2000

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Part 8 - Access Management in Alabama

8.1 Summary

This part discusses the role of access management as a strategy to address the current and future traffic problems in the state of Alabama. The current status of access management in Alabama is summarized, along with proposed further steps and recommended initiatives. Finally, the part provides information on available resources for those with an interest to obtain additional background and/or pursue further studies in access management.

8.2 Objectives

1) Review the current traffic situation and previous work associated with access management in Alabama
2) Highlight the importance and benefits application of a comprehensive access management program in Alabama
3) Recommend further steps for instituting access management in the state of Alabama.

8.3 Context Overview

- Traffic Situation in Alabama
- Rapid Road Growth
- Preserving Traffic Flow
- Alabama Growth Rates
- Traffic Safety Situation
- Where to Go from Here?
- What Have We Done in AL?
- Alabama City Access Management Example
- What Should We Do Next?
- Developing Access Management Standards
- How Can we Institute Access Management?
- What Can You Do For Your Community?

8.4 References

Access Management Plan for Taylor Road and Chantilly Parkway. City of Montgomery, Skipper Consulting, Inc, Birmingham, Alabama, 2003

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Appendices

Appendix A-1: Evaluation checklist for local access management programs
Appendix A-2: Sample policies and objectives that support access management

Appendix B: Access management Training Evaluation Form

Appendix A-1
Evaluation Checklist For Local Access Management Programs

Source: Training materials, Land Development and Access Management Short Course,
By Center for Urban Transportation Research for the Florida Department of Transportation, 1996.

1. Does your local comprehensive plan include goals, objectives, and policies that support access management? ☐Yes ☐No ☐Partly

2. Does your comprehensive plan or major thoroughfare plan classify roadways according to function and level of access control? ☐Yes ☐No ☐Partly

3. Does your local land development code include a statement of purpose and intent that supports access management? ☐Yes ☐No ☐Partly

4. Do your plan and land development code discourage commercial strip development on major thoroughfares? ☐Yes ☐No ☐Partly

5. Do your plan and code promote activity centers with unified access? ☐Yes ☐No ☐Partly

6. Does your land development code include regulations for driveway spacing, sight distance, and corner clearance? ☐Yes ☐No ☐Partly

7. Do you restrict the number of driveways per lot or parcel on arterials? ☐Yes ☐No ☐Partly

8. Are minimum lot frontage requirements higher along thoroughfares? ☐Yes ☐No ☐Partly

9. Are new developments encouraged or required to provide inter-parcel connections and joint access? ☐Yes ☐No ☐Partly

10. Do you treat properties under the same ownership or those consolidated for development as one property for the purposes of access control? ☐Yes ☐No ☐Partly

11. Does your land development code include a review process for minor subdivisions or lot splits? ☐Yes ☐No ☐Partly

12. Does your land development code include restrictions on flag lots? ☐Yes ☐No ☐Partly

13. Does your land development code include standards for lot width-to-depth? ☐Yes ☐No ☐Partly

14. Do you regulate design, construction, and maintenance of private roads? ☐Yes ☐No ☐Partly

15. Do your local subdivision regulations include reverse frontage requirements for residential lots along arterials and collectors? ☐Yes ☐No ☐Partly

16. Do you encourage shared residential access drives for small subdivisions? ☐Yes ☐No ☐Partly

17. Do you encourage new development to continue or interconnect with the surrounding street system? ☐Yes ☐No ☐Partly

18. Do your driveway design standards address the following?

Driveway throat length?	☐Yes ☐No ☐Partly
Driveway flare or radius?	☐Yes ☐No ☐Partly
Driveway width?	☐Yes ☐No ☐Partly

19. Do you have a procedure for coordinating with the state transportation agency on access permitting? ☐Yes ☐No ☐Partly

Appendix A-2
Sample Policies And Objectives That Support Access Management

Source: Training materials, Land Development and Access Management Short Course,
by Center for Urban Transportation Research for the Florida Department of Transportation, 1999.

1. Public roadways will be classified according to function and planned, designed, and managed to preserve their functional integrity.

2. Allowable levels of access are assigned to functionally classified roadways to preserve the safety and efficiency of these important transportation facilities.

3. Direct access to major roadways shall be limited to preserve the safety, efficiency, and character of regionally important transportation routes. Individual property access shall not be provided to arterial roadways where alternative access is available.

4. Access to land development along major arterial roadways shall be preserved through the use of parallel roads, side streets, and cross access easements connecting adjacent developments.

5. Commercial activity centers with unified access and circulation systems shall be strongly encouraged on major roadways as an alternative to strip development with individual driveways.

6. Retail streets shall be encouraged on minor arterial or major collector roadways, with shared parking and access.

7. Raised medians shall be incorporated into the design of new and reconstructed multilane arterial roadways with design volumes greater than 24,000 vehicles per day.

8. Driveway connections shall not be permitted in the functional area of the intersections of arterial or major collector roadways.

9. Signalized access points on arterial and major collector roadways shall not be approved where they substantially disrupt the ability to coordinate signals and maintain effective traffic progression.

10. Properties under the same ownership, consolidated for development, or part of phased development plans shall be considered one property for the purposes of access management.

11. Access points to such developments shall be the minimum necessary to provide reasonable access, and not the maximum available, for that property frontage.

12. New residential subdivisions shall include an internal street layout that connects to the streets of surrounding developments to accommodate travel demand between adjacent neighborhoods, without the need to use the major thoroughfare system.

13. Residential subdivisions on arterial roadways shall be designed so that street connections conform to access spacing standards for those roadways. Streets between those points shall be

cul-de-sacs with pedestrian and bicycle connections to the arterial wherever feasible to preserve bicycle and pedestrian mobility.

Appendix B

Access Management Training Evaluation Form

Directions: Please take a few minutes to let us know how well this workshop met your needs. Your scores and comments will enable us to continue to improve this program. **Thank you for your input.**

Participant information

My background is: □ Engineering □ Planning □ Management □ Other _____

My current employer is: □ ALDOT/FHWA □ County Agency □ City Agency □ MPO
□ Consultant/Contractor □ University □ Other _____

Workshop

	Disagree				Agree
Overall the workshop was valuable:	1	2	3	4	5
I would recommend the workshop to others:	1	2	3	4	5
My knowledge on access management increased as a result of the workshop:	1	2	3	4	5

The workshop length was: □ Too Short □ Too long □ Just right

The workshop level was: □ Too basic □ Too advanced □ Just right

Workshop facilitator	**Disagree**				**Agree**
Displayed a clear understanding of the subject:	1	2	3	4	5
Was effective in style and delivery:	1	2	3	4	5
Was responsive to participants:	1	2	3	4	5

Participant Input

What were the strengths of this program? What did you value the most?

What were the weaknesses of this program? What did you value the least?

What additional topics would you like to see covered by this program?

Any recommendations for improving this program?

What do you or your organization plan to do with the information from this workshop?