
Task 3 – Annotated Outline for Guidelines

NCHRP Project 14-40

Comparison of Cost, Safety, and Environmental Benefits of Routine Mowing and Managed Succession of Roadside Vegetation

LIMITED USE DOCUMENT

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CHAPTER 1 – INTRODUCTION

1.1 Document Overview

An overview of the document and a quick guide to the topics covered in the individual chapters.

1.2 What is Roadside Vegetation Management?

Presents a general vision for roadside vegetation management strategies that are discussed in more detail in the various chapters in the guidebook.

1.3 Key Considerations

Presents the key considerations of vegetation management including but not limited to:

- Roadway and roadside safety;
- Ecology;
- Economy;
- Public relations and legal issues; and
- Aesthetical issues.

1.4 Organization of the Guidelines

Presents the organization of the guideline on the transformation of roadside management and technology practices.

1.5 Goals, Intent, and Audience for the Guideline

Presents typical goals and benefits of the effective roadside vegetation management. The intended audience for the guideline includes the following:

- Audience focus: operational practitioners primarily involved in implementing and operating active vegetation management on freeways and arterial streets;
- Agency focus: federal, state, local planning and implementing agencies, public and private perspectives (MPOs, DOTs and state/ local/regional agencies, municipalities);
- Planning: highway, transit, metropolitan planning organizations;
- Designers: highway, transit, consultants; and
- Operators: traffic, enforcement, maintenance, maintenance services.

1.6 Chapters at a Glance

Provides a quick guide to the major topics covered in each of the chapters of the guidebook, and highlights the format and major elements covered.

1.7 References

Provides a list of all references cited within the chapter.

CHAPTER 2 – LITERATURE REVIEW

2.1 Chapter Overview

Provides an overview of the chapter, including the concepts and topics discussed related to the various roadside management strategies, safety and environmental issues, economy, and lessons learned.

2.2 Roadway and Roadside Safety

This section provides the vegetation related issues that may contribute to crashes, injury, or disruption to travel. It will also include roadside vegetation induced animal related crash studies. To some extent, this section will explore studies related to roadway departure crashes associated with vegetation management. The potential sub-topics are:

- Sight clearance and vegetation management;
- Animal related crashes;
- Roadside management and roadway departure crashes;
- Ditch and standing water on roadways; and
- Low water crossing crashes.

2.3 Ecology

This section provides the vegetation related issues that may affect environment and ecology. The potential sub-topics are:

- Air quality and noise control;
- Wildlife habitat; and
- Regulations of run-off water quality.

2.4 Economy

Summarizes the environmental and ecological impact of vegetation management. This section will include:

- Benefit from crash reduction;
- Benefit from erosion control;
- Reduction of maintenance cost;
- Protection of highway assets; and
- Protection of roadside and roadway countermeasures.

2.5 Other issues

Summarizes findings from the studies related to:

- Aesthetics issue;
- Public relations; and
- Legal issues.

2.6 References

Provides a list of all references cited within the chapter.

CHAPTER 3 – VEGETATION MANAGEMENT PRACTICES

3.1 Chapter Overview

Provides an overview of the chapter, including the conventional and innovative practices, and strategies related to roadside vegetation management.

3.2 State Practices

Provides a detailed documentation on the current state practices related to roadside vegetation management.

3.3 Innovative Practices

Provides a synthesis on the innovative practices using drone and autonomous vehicle technology.

3.4 Noteworthy Practices

Couple of noteworthy practices will be discussed, as well as how those may differ from conventional practices. Examples and lessons learned will be presented.

3.5 References

Provides a list of all references cited within the chapter.

CHAPTER 4 – ROADSIDE VEGETATION MANAGEMENT ZONES

4.1 Chapter Overview

This chapter will present discussion on roadside vegetation management zones for the purposes of planning management activities.

4.2 What is Roadside Vegetation Management Zone?

Provides the definition of a roadside vegetation management zone.

4.3 Design of Roadside Vegetation Management Zone

Provides a general overview of the design perspectives of roadside vegetation management zones.

4.4 Vegetation establishment

Describes how vegetation establishment can increase safety, provide roadside aesthetics, and enhance wildlife habitat.

4.5 References

Provides a list of all references cited within the chapter.

CHAPTER 5 – CONTROL OF VEGETATION

5.1 Chapter Overview

Provides an overview of the chapter, including:

- Various vegetation controlling techniques;
- Key considerations in selecting controlling technique; and
- Pros and cons of each technique

5.2 Mechanical Control

Describes different mechanical control techniques with examples. Describes noteworthy practices. Describes pros and cons.

5.3 Permanent Control

Describes different permanent control techniques with examples. Describes noteworthy practices. Describes pros and cons.

5.4 Chemical Control

Describes different chemical control techniques with examples. Describes noteworthy practices. Describes pros and cons.

5.5 Biological Control

Describes different biological control techniques with examples. Describes noteworthy practices. Describes pros and cons.

5.6 Cost and Benefit

Describes cost and benefit of different control techniques with examples.

5.7 References

Provides a list of all references cited within the chapter.

CHAPTER 6 – MANAGEMENT AND COST

6.1 Chapter Overview

Provides an overview of management and cost of roadside vegetation.

6.2 Management

Discusses the typical objectives and structures related to roadside vegetation management. The key structures fall into several categories, including but not limited to:

- Personnel categorization;
- Program goal and budget;
- Research and legal services;
- Quality control;
- Inventory of equipment;
- Requirement of additional equipment;
- Timeline of the management plan; and
- Public relation;

6.3 Cost

Provides guidance on estimating the costs of roadside vegetation management for implementation and planning purposes.

6.4 References

Provides a list of all references cited within this chapter.

CHAPTER 7 – BENEFITS

7.1 Chapter Overview

Provides an overview of the benefits associated with roadside vegetation management.

7.2 Safety Benefits

Describes different safety benefits with examples.

7.3 Environmental and Ecological Benefits

Describes different environmental and ecological benefits with examples.

7.4 Economic Benefits

Describes different economic benefits with examples.

7.5 References

Provides a list of all references cited within the chapter.

CHAPTER 8 – DECISION SUPPORT INTERACTIVE TOOL

9.1 Chapter Overview

Provides an overview of the developed decision support interactive tool.

9.2 What is a Decision Support Tool?

Highlights the overall contribution and perspective of the decision support interactive tool.

9.3 Synthesis on Similar Decision Support Methods and Tools

Provides a general discussion on the similar decision support methods and tools.

9.4 Input Criteria

Provides information about input criteria. Provides resources for input criteria selection.

9.5 Output and Decision Support

Provides examples of the outputs for various problems. Discusses on outputs and their relationship with the decision support system.

9.6 Step-by-Step Guidance Examples

Provides examples of step-by-step guidance for various sample problems.

9.7 References

Provides a list of all references cited within the chapter.

CHAPTER 9 – SURVEY

9.1 Chapter Overview

Provides a general overview of the conducted survey and general findings.

9.2 Survey Questions

Provides the general discussion on the survey questions.

9.3 Survey Results

Provides different visualizations and statistics on the survey results.

9.4 References

Provides a list of all references cited within the chapter.

CHAPTER 10 – CONCLUSIONS

10.1 Chapter Overview

Provide an overview of study findings.

10.2 Conclusions

Provides general conclusions from the study findings. Provides recommendations.

10.3 Lesson Learned

Provides a list of ‘lesson learned’ items from the study.

10.4 References

Provides a list of all references cited within the chapter.

CHAPTER 11 – APPENDIX

Provides appendices as needed.