

LOCAL ROAD SAFETY PLANS: GUIDELINES AND BEST PRACTICES

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1 ABSTRACT

2

3 Local road practitioners across the country play a critical role in addressing crash risks at the local level
4 and may be able to identify the specific or unique conditions that contribute to crashes within their
5 jurisdictions. The Local Road Safety Plan (LRSP) offers a foundation for consensus and focus. It defines
6 key emphasis areas and strategies that impact local rural roads and provides a framework to accomplish
7 safety enhancements at the local level. The LRSP helps communities take a proactive stance in reducing
8 and preventing local road fatalities and injuries. This paper focuses on the recently completed US
9 guidelines for the development Local Road Safety Plans (LRSP) and how they can potentially be applied
10 in Canadian jurisdictions. These guidelines are summarized in the US Federal Highway Administration
11 (FHWA) report *Developing Safety Plans: A Manual for Local Rural Road Owners* and how they can be
12 practically applied in Canadian communities.

13

EXECUTIVE SUMMARY

In Canada much of the rural road network is owned and operated by local entities, such as towns, counties, and First Nations governments. According to Transport Canada (1), in 2010, 56 percent of highway deaths occurred on rural roads and the fatality rate was significantly higher in rural areas than in urban areas. These data underscore the need to systematically improve road safety in rural areas.

Canada's Road Safety Strategy 2015 (2) provides a national framework for reducing highway fatalities and serious injuries on public roads. To implement this strategy several provinces have developed province-wide safety plans. These province specific safety plans are data-driven and establish province-wide goals, objectives, and key emphasis areas that integrate the 4 E's of Safety – engineering, education, enforcement and emergency services. Several of these plans are based on the safe systems approach. Province-wide safety plans can assist local practitioners in addressing safety on local rural roads but a locally-focused plan is often needed to address the unique conditions that contribute to safety problems and to assist local practitioners in making informed safety investment decisions. These challenges faced by local agencies can be addressed through the creation of a Local Road Safety Plan (LRSP).

Local practitioners play a critical role in addressing crash risks at the local level. A LRSP provides the framework for local practitioners to take a proactive stance to identify the specific or unique conditions that contribute to crashes within their jurisdictions. Similar to a Province's Safety Plan, an LRSP utilizes the 4 E's or the safe systems approach as appropriate to address safety issues. An LRSP provides an excellent opportunity for safety stakeholders and involved agencies at all levels of government (local, Province, and Federal) to work together to align and leverage resources to address the safety challenges unique to rural roads.

Additional benefits may be realized in the process of developing an LRSP to include:

- Promoting road safety awareness.
- Developing lasting partnerships that may benefit future projects.
- Instilling or enhancing a sense of collaboration among different disciplines.
- Assisting local agencies to better leverage funding.

LRSPs have been successful in comprehensively addressing safety for a variety of local agencies throughout both Canada and the US. The safety plans developed by these agencies have strengthened multi-disciplinary commitments to road safety. For example, Olmsted County, Minnesota prepared an LRSP that resulted in the implementation of county-wide strategies such as enhancing delineation of horizontal curves, upgrading sign and pavement markings, and providing dynamic warning signs at rural stop-controlled intersections. These and other projects initiated from identified safety strategies in the LRSP leveraged nearly \$1 million in transportation funds for implementation.

Addressing safety on rural roads can be challenging. The development of an LRSP can serve as a cornerstone to building a comprehensive safety program to address the safety challenges on the roadways. Depending on safety needs of the jurisdiction, the LRSP will vary in size and level of detail. This manual provides the tools necessary to start a LRSP. It provides information to local practitioners about identifying stakeholders and partnerships needed to build support, tools to analyze data, and resources to identify safety issues and select safety strategies. Worksheets and other sample materials have been provided to aid in the LRSP process. Examples of programs and experiences of other agencies have also been included to provide examples of successes in implementing LRSPs and improving safety for all road users.

SCOPE OF DOCUMENT

The Federal Highway Administration's (FHWA) Office of Safety provides training, tools, guidance, and countermeasure for locals (3). This manual is part of the *Local Rural Road Owner's Manual* series, and is intended to help guide local practitioners in developing an LRSP.

The sections in the manual include:

- The Importance of Developing a Local Road Safety Plan;
- Understanding the Process of Developing a Local Road Safety Plan;
- Common Issues, Opportunities, and Challenges;
- Case Studies;
- Summary; and
- Appendices

The second section, "Understanding the Process of Developing a Local Road Safety Plan," walks a practitioner through the process of implementing an LRSP and include figures, tables, and links to other documents which may be of value in drafting a plan.

A summary of the manual is provided below as well as how it can be applied in Canada.

PURPOSE OF THE MANUAL

The purpose of this manual is to guide local rural road practitioners in developing a local road safety plan (LRSP). The expected result of a successful LRSP is to save lives and prevent injuries resulting from motor vehicle crashes. Practitioners may be road supervisors, engineers, planners, local officials, law enforcement officers, or others who deal with transportation issues. This manual may be referenced throughout the process of developing a LRSP to assist local rural road practitioners in improving safety in a comprehensive manner, incorporating engineering, enforcement, education, and emergency services, measures—the 4 E's of safety—into a framework.

This manual outlines the process for developing an LRSP. An LRSP is a locally-coordinated safety plan that provides a comprehensive framework for reducing highway fatalities and serious injuries on local rural roads. An LRSP is flexible and utilizes the 4 E's as appropriate to establish and gain support for an agency's local safety goals, objectives, and key emphasis areas. LRSP development is usually initiated by a transportation professional or elected official. The purpose of an LRSP is to identify key safety needs and guide investment decisions to achieve reductions in fatalities and serious injuries on local rural public roadways. An LRSP provides an opportunity for agencies at all levels of government (local, Province, and Federal) and other stakeholders to work together to align and leverage resources to address the safety challenges unique to rural roads.

BACKGROUND

In Canada much of the rural road network is owned and operated by local entities, such as towns, counties, and First Nations governments. According to Transport Canada (1), in 2010, 56 percent of highway deaths occurred on rural roads and the fatality rate was significantly higher in rural areas than in urban areas. These data underscore the need to systematically improve road safety in rural areas. The majority of these roads are two-lane, paved roads. Rural roads reflect a disproportionate number of fatalities and serious injuries. In 2010, 56 percent of highway deaths occurred on rural roads, though only less than 19 percent of Canadians live in rural areas. (3)

Furthermore, the fatality rate (deaths per 100 million vehicle kilometers traveled) is significantly higher in rural areas than in urban areas, underscoring the need to systematically improve road safety in rural areas.

1 THE IMPORTANCE OF DEVELOPING A LOCAL ROAD SAFETY PLAN

3 Local Roads in Rural Areas

4
5
6 Local roads in rural areas may have design elements that increase the risk of fatalities or serious injuries,
7 such as inappropriately high speed limits, narrow lane widths and shoulders, steep ditches, or trees close
8 to the roadway. Additionally, the low population density and sparse land use of rural communities can
9 increase detection, response, and travel times for emergency services, reducing key factors in crash
10 survivability. It typically takes more than twice as long for emergency services to arrive at a crash scene
11 in a rural community compared to an urban community (5).

12
13 Many Provinces already have a comprehensive safety plan. These plans provide a framework for
14 province-wide coordinated safety plan that provides a comprehensive framework for reducing highway
15 fatalities and serious injuries on all public roads. They are typically developed in a cooperative process
16 with local, Provincial, Federal, and private sector safety stakeholders. These provincial plans are a data-
17 driven, comprehensive plan that establishes province-wide goals, objectives, and key emphasis areas that
18 integrates the 4 E's – engineering, enforcement, education, and emergency services.

19
20 The purpose of a provincial safety plan is to identify the Province's key safety needs and guide
21 investment decisions to achieve significant reductions in highway fatalities and serious injuries on all
22 public roads. Very often a Province's Safety Plan will include local and or rural roads as a specific
23 emphasis area for safety improvements.

24
25 An LRSP can also be valuable for improving roadway safety. Local road practitioners across the country
26 play a critical role in addressing crash risks at the local level and may be able to identify the specific or
27 unique conditions that contribute to crashes within their jurisdictions. The LRSP offers a foundation for
28 consensus and focus. It defines key emphasis areas and strategies that impact local rural roads and
29 provides a framework to accomplish safety enhancements at the local level, whereas the Provincial Safety
30 Plan prioritizes safety needs and investments at the Provincial level. However, the Provincial Safety Plan
31 may provide inputs to the LRSP. Likewise, the LRSP can feed the Provincial Safety Plan process to
32 identify local road specific safety issues. Altogether, the LRSP is a coordinated effort that assists local
33 agencies in taking a proactive stance in reducing and preventing local road fatalities and injuries.

34 Benefits of a Local Road Safety Plan

35
36
37 An LRSP can be an effective tool for saving lives and reducing injuries on local rural roadways. While
38 this is ultimately the purpose of an LRSP, there are other benefits that may be realized in the process of
39 developing an LRSP. These benefits are summarized in Table 1 (Table 1.1 in the manual).

40

1 **TABLE 1 Summary of the Benefits of a Local Road Safety Plan**
 2

Benefit	Details
Proactive Approach	An LRSP offers a proactive approach for local road agencies to address safety issues. An LRSP can show the public and policy makers that something is being done to systematically reduce severe crashes, thereby building trust with local government officials, key stakeholders, and the general public.
Develop Partnerships	An LRSP provides local agencies an opportunity to improve relationships with the public, stakeholders, and across governmental agencies by working through a collaborative process. Improving road safety is a benefit for everyone involved.
Multidisciplinary Cooperation	An LRSP is a multi-disciplinary approach to addressing safety. Agencies are better able to develop more effective solutions and leverage resources by considering and coordinating engineering, enforcement, education, and emergency service strategies.
Safer Roadways	An LRSP facilitates a comprehensive approach to addressing road safety that—if successfully implemented—can lead to projects that reduce severe crashes.
Safety Funding	An LRSP with a prioritized list of improvements can help agencies better justify funding requests by documenting specific needs, particularly if they are consistent with emphasis areas and strategies identified in the Province’s Safety Plan. An LRSP also shows that an agency has done its due diligence and can help an agency compete more effectively for limited funds.
Managing Liability	An LRSP is one of several proactive risk management techniques that demonstrate an agency’s responsiveness to the safety needs of the public.

3
 4 **Critical Success Factors**
 5

- 6 The success of an LRSP is dependent on five critical components:
- 7 • Having a champion: A champion advocates for the LRSP and gathers the political support to
 - 8 assist in its implementation.
 - 9 • Developing a clear vision and mission: A strategic vision and mission unite all stakeholders
 - 10 with a common goal.
 - 11 • Assembling collaborative partners: Partners collaborate to implement the plan.
 - 12 • Allocating appropriate resources: Manpower and management are essential for ensuring a
 - 13 plan’s success.
 - 14 • Establishing open communication: The LRSP owners should foster open and frequent
 - 15 communication with stakeholders, community partners, and citizens as they develop and implement the
 - 16 plan.
- 17 If one of these components is not initially available, the plan should still move forward, as other
 18 components may be added or expanded as the plan is refined. For example, the plan may begin with a

1 champion, but partners may be added as the plan develops. In fact, the plan itself may help attract
 2 partners.
 3

4 Practitioners who are interested in developing and implementing an LRSP should also be fully
 5 aware of the other strategic goals within their organization and how the proposed LRSP will complement
 6 those goals. These success factors are applicable in both Canada and the US.
 7

8 **UNDERSTANDING THE PROCESS OF DEVELOPING A LOCAL ROAD SAFETY PLAN**
 9

10 A a six-step process, as shown in Figure 1 provides a framework for developing and implementing a
 11 LRSP.
 12



13
 14 **FIGURE 1 Structure of a Local Road Safety Plan**
 15

16 Each step is explained with best practices and suggestions from other public documents; for
 17 example, a list of potential stakeholders is included in Step 1, and links to FHWA and National
 18 Cooperative Highway Research Program (NCHRP) publications are included in the discussion about
 19 analyzing safety data in Step 2.

1 This manual stresses the importance gaining support from leaders and the community, often with
2 the Champion and Working Group paving the way.

3 4 **COMMON ISSUES, OPPORTUNITIES, AND CHALLENGES**

5
6 When developing an LRSP, agencies may be confronted with challenges from lack of personnel and data
7 to funding restrictions and/or limitations.

8 Personnel suggestions for overcoming these limitations include other groups or agencies that may
9 be able to lend support when creating an LRSP.

10 Limited funding is often a concern to most road agencies as they seek to implement roadway
11 safety improvements. Agencies may also be concerned about how they will fund projects identified
12 within an LRSP. In many cases, having an LRSP in place will increase an agency's ability to secure
13 funding to implement its safety strategies when competing for funding resources. An LRSP can also be
14 useful for leveraging private funds from local businesses and corporations interested in investing in traffic
15 safety. An LRSP can be developed using in-house staff in coordination with other agencies, thereby
16 limiting the costs of time and financial resources spent developing the plan.

17 Several options for funding both the development of an LRSP and the implementation of its
18 strategies are included for practitioners.

19 Limited data should not inhibit the development on an LRSP. Sources of crash data include
20 Transport Canada, the Provincial Ministry of Transportation, raw law enforcement data, or the existing
21 Provincial Safety Plan. Additionally, data, such as traffic citations, hospital records, and speed
22 monitoring, can also be used in the development of an LRSP. Other risk assessment processes, such as
23 road safety audits or in-service safety reviews provide methods to identify major safety shortcomings
24 through a program of systematic assessment of risk can be used to identify safety issues for an LRSP.

25 26 **EXAMPLE OF A LOCAL ROAD SAFETY PLANS IN CANADA**

27
28 In Alberta, Strathcona County (9) developed a LRSP. The process which was used to develop the
29 Strathcona County plan was one of several example plans which served as the foundation for the
30 development of the process for the FHWA manual. The plan involved was championed by the county
31 government. A steering committee was developed which included several relevant county departments
32 and the Royal Canadian Mounted Police. A vision was prepared by the steering committee which
33 describes the desired outcome of the LRSP.

34
35 *Strathcona County will strive to provide the safest roads possible for all users by proactively*
36 *applying the most appropriate engineering, enforcement, education and evaluation practices in*
37 *an economical, socially sustainable and environmentally-sensitive manner.*

38
39 Specific goals and targets were also developed. These targets were developed so that Strathcona County
40 could help the province meet its province-wide safety targets by addressing issues under the jurisdiction
41 of the county. Once leadership was established, a comprehensive analysis of safety data was completed.
42 This analysis involved a review of county-wide road safety trends to identify trends. Based on the crash
43 data, the emphasis areas were developed. These emphasis areas were developed based on the crash data
44 trends and other current safety issues identified by the steering committee members and other
45 stakeholders. Strategies were developed to address each emphasis area. Strategies were linked to the
46 emphasis areas and included an overview, actions, responsibility (who specifically would champion the
47 effort), costs, and human resource requirements. The implementation of each strategy was then
48 prioritized as short (within two years), medium (within five years), and long term (within ten years). This
49 plan provides a great example of a community which is strategically making investment decisions related
50 to road safety at a local level. If similar plans are developed and implemented around Canada, it will
51 significantly help with the achievement of the national goals in the *Canada Road Safety Strategy 2015*.

1 SUMMARY

2
3 An LRSP is a locally-coordinated safety plan that provides a comprehensive framework to identify key
4 safety needs and guide safety investment decisions on local rural roads. An LRSP provides an excellent
5 opportunity for agencies at all levels of government (local, Provincial, and Federal) and other
6 stakeholders to work together to align and leverage resources and funding to address the safety challenges
7 unique to rural roads.

8 In general, the LRSP development process involves six steps:

9
10 Step 1: Establish Leadership

11 Step 2: Analyze Safety Data

12 Step 3: Determine Emphasis Areas

13 Step 4: Identify Strategies

14 Step 5: Prioritize and Incorporate Strategies

15 Step 6: Evaluate and Update the LRSP

16
17 Successful development of an LRSP depends on fostering leadership and communication among
18 various stakeholders. This can start with the identification of a safety champion. The safety champion
19 advocates for the plan's successful development, implementation, and evaluation. It is also important to
20 establish an LRSP working group. This is the team responsible for developing the LRSP, performing
21 duties ranging from defining each working group member's role to tracking progress after the initial plan
22 is developed. The working group also identifies and contacts other stakeholders who can further the LRSP
23 process by helping to plan, implement, and evaluate the progress of achieving the safety goals outlined in
24 the LRSP.

25 Local road practitioners should analyze any available safety data to identify problem areas that
26 will be addressed in the LRSP. Crash data should be used to identify safety issues. Typically, three years
27 of crash data are needed to average out those years of extreme numbers. If crash data are not readily
28 available, other safety-related data can be used to identify safety issues. The analyses of these data could
29 range from simply marking locations on a map to using a spreadsheet to determine trends by location,
30 crash type, or other factors.

31 The working group should identify emphasis areas consistent with trends identified during the
32 data analysis and the concerns of the various stakeholders. Strategies to address emphasis areas should
33 consider the 4 E's to comprehensively address safety. The proposed strategies for each emphasis area
34 should be prioritized based on benefit (e.g., reduction in collisions) verses cost, the availability of
35 manpower, the schedule for implementation, and the relative importance of each emphasis area. Some
36 strategies can be implemented as part of a systemic improvement process such as providing rumble strips
37 along rural corridors as part of a summer paving program or conducting an enforcement blitz. Detailed
38 information on effective strategy selection may be acquired through partnerships with Provincial or local
39 agencies.

40 LRSPs should be monitored for progress to ensure implementation of strategies that support
41 emphasis areas and to determine if new strategies need to be considered. This helps provide
42 accountability and can be used to keep stakeholders informed and engaged. Evaluation of the LRSP
43 strategies should be ongoing to ensure the effectiveness of the projects and the overall plan.

44 Addressing safety on local rural roads can be challenging. The development of an LRSP can
45 serve as a cornerstone to building a comprehensive safety program to address the safety challenges on the
46 roadways. Depending on needs and jurisdiction, the LRSP will vary in size and level of detail. The LRSP
47 is a living document and should be revisited as established goals are achieved.

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