

DESIGN BULLETIN #49/2007 (Revised February 2008)

Amendment to the Highway Geometric Design Guide Section F.2 - Highway Safety Rest Areas (SRA)

**February 2008 Update to Design Bulletin #49/2007
Refinements to SRA Guidelines on Ramp Configuration, Parking Requirements
and Right of Way**

Summary

This Bulletin is being issued as an amendment to Alberta Infrastructure and Transportation's (INFTRA) Highway Geometric Design Guide, 1995 (Updated 1999) and to Design Bulletin #49/2007 (issued May 2007). This Bulletin also supersedes Design Bulletin #20/2004.

Further developments have evolved from the SRA Policy Framework & Implementation Strategy document. This Bulletin provides updates and additional guidelines to assist planners and designers in providing for SRA based on Design AADT along with the type of roadway they serve, and their purpose.

Key changes

An updated Chapter F with the amended Section F.2 has been included with this Bulletin. The following key changes and/or additions have been made to Section F.2 of the department's Highway Geometric Design Guide which was previously issued in May 2007 under this Design Bulletin:

F.2.3.1 Existing Divided Highways

Reference to 20 Year AADT limits have been deleted from Figures F.2.1.1, F.2.1.2, F.2.1.3, and F.2.1.4 and renamed as follows:

Figure F-2.1.1: Stage I (Basic) (was 20 Year AADT < 10,000 Stage I)

Figure F-2.1.2: Stage II. (was 10,000 < 20 Year AADT < 20,000 Stage II)

Figure F-2.1.3: Stage III. (was 20,000 < 20 Year AADT < 40,000 Stage III)

Figure F-2.1.4: Stage IV. (was 20 Year AADT > 40,000 Stage IV)

The Stage 1 (Basic) template Figure F-2.1.1 should be considered as the minimum layout on existing divided highways regardless if the initial parking area exceeds the projected 20 year AADT requirement.

SRA's are built in stages. The parking requirement determines the initial stage size of the SRA. The initial parking requirements are based on the projected 20 year AADT and type / number of anticipated design vehicles using the site. The Stage 1 (Basic) template allows for expansion if required to meet the future requirements.

Stages 2, 3, and 4 are provided to show how additional parking, facilities and/or services can be accommodated.

F.2.3.2 Future Divided Highways

Reference to 20 Year AADT limits have been deleted from Figures F.2.2.1 and F.2.2.2 and renamed as follows:

Figure F-2.2.1: On Future Divided Highway Same Side. (was 20 Year AADT > 10,000)

Figure F-2.2.2: On Future Divided Highway Opposite Side. (was 20 Year AADT > 10,000)

Same design criteria applies to SRA's on future divided highways The Stage 1 (Basic) template should be considered as the minimum layout on future divided highways regardless if the initial parking area exceeds the projected 20 year AADT requirement.

The parking requirement determines the initial stage size of the SRA. The initial parking requirements are based on the projected 20 year AADT and type / number of anticipated design vehicles using the site.

F.2.2.3 Two Lane Highways

Figure F.-2.3.1 Typical Safety Rest Area on Two Lane Highways 20 Year AADT > 3,000 Revisions include site dimensions, right of way, ramp width and drawing notes.

F.2.7 Parking Requirements

SRA Parking requirements should be calculated based on a 75/25 (was previously 60/40) split between passenger vehicles and commercial vehicles (projected for 20 year AADT) as per the formula from AASHTO Guide for the Development of Rest Areas on Major Arterials and Freeways.

F.2.10 Exit and Entrance Ramp Requirements (New Section to F.2))

On existing and future divided highways, the choice of SRA freeway or expressway style ramps is made based on the projected 20 year AADT and whether the existing highway operates as a freeway or expressway.

Figures for SRA proposed on existing and future divided highways have been provided showing ramp layouts in a freeway and expressway style exit and entrance ramps. Refer to Figures F-2.1.1 and F-2.2.2 for details on freeway and expressway style ramps respectively. A 20 year design AADT of 15,000 is to be used for the break point between using "freeway style" ramps versus "expressway style" ramps.

SRA freeway exit and entrance ramps should be considered on divided highways where the projected AADT is > 15,000 (two-way traffic) OR where the highway is operating as a freeway.

SRA expressway exit and entrance ramps are acceptable on divided highways where the projected AADT is \leq 15,000 (two-way traffic) AND the highway is operating as an expressway.

Merge speeds on the entrance ramps are to be measured at the point where the taper has been reduced to 2m. The merge speeds are to be determined using the 180 g/W performance curves which represents a fully loaded truck (generally a truck/trailer combination). Desirable merge speeds are as follows:

- 60 - 70 km/h for expressway ramps
- 70 - 80 km/h for freeway ramps

Parallel acceleration lane may be provided if additional acceleration length is needed.

Deceleration requirements should be based on a comfortable braking rate of 0.25g (2.45m/sec²) after the vehicle has typically left the through lane.

On existing and future divided highways, the right-of-way requirements of freeway exit and entrance ramp layouts should be accommodate regardless if expressway ramps are required at the initial stage.

Proposed Right of Way for SRA Site

Figures: F-2.1.1 to F-2.1.4 (inclusive), F-2.2.1, and F-2.2.2

The proposed SRA right of way has been revised to better accommodate the horizontal alignment of a proposed service road in the event it is required parallel to the SRA right of way limits. The proposed SRA right of way required area is 9.5 ha (was previously 8.5 ha). The proposed service road right of way, if required, would be in additional to the proposed SRA right of way shown.

Implementation

The revised guidelines as indicated in this Design Bulletin are to be implemented as per the usual practice. The decision to revise or not (for projects that are already designed but not constructed) will be made at the discretion of the Project Sponsor.

Effective Date: May 7, 2007.

Revised Date 1: February 29, 2008

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Attachments and References:

- [Alberta Infrastructure and Transportation, Highway Geometric and Design Guide, Chapter F- Roadside Facilities, complete with update to Sections F.2 \(January 2008\).](#)
- [Alberta Infrastructure and Transportation, Safety Rest Area Implementation Framework, Policy Framework & Implementation Strategy, Final, March 31, 2004.](#)
- [Alberta Infrastructure and Transportation \(Southern Region\), Safety Rest Areas Site Evaluations, Final, January 2005.](#)
- Alberta Infrastructure and Transportation, Highway Guide & Information Sign Manual.
<http://www.infratrans.gov.ab.ca/1840.htm>
- [Superseded \(Issued in May 2007\): Alberta Infrastructure and Transportation, Highway Geometric and Design Guide, Chapter F- Roadside Facilities, complete with update to Sections F.2, F3 and F4.](#)

Recommended:

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