Pedestrian Crossing Control Manual for British Columbia

SECOND EDITION
APRIL 1994

PREPARED BY

Province of
British Columbia
Ministry of Transportation
and Highways

HIGHWAY SAFETY BRANCH

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

LIST OF FIGURES

PART 1: INTRODUCTION

PART 2: DEVICES

1. CROSSING FACILITIES
2. APPLICATION AND INSTALLATION
3. WARRANTS

PART 3: SCHOOL CROSSING PROGRAMS

4. BACKGROUND
5. SAFE ROUTE TO SCHOOL PROGRAM
6. SCHOOL PATROL PROGRAM
7. ADULT CROSSING GUARD PROGRAM

LIST OF FIGURES

NOTE: Figures are numbered using chapter and section numbers followed by letters where there is more than one figure in an individual section.

Figure 1.1 Crosswalk Pavement Markings **1**-8
Figure 2.1A Pedestrian Crosswalk Side Mounted Signs: Two Lane, Two-Way Undivided **2**-23
Figure 2.1B Pedestrian Crosswalk Side Mounted Signs: Four Lane, Two-Way Divided **2**-24
Figure 2.1C Pedestrian Crosswalk Side Mounted Signs: Two Lane, One-Way **2**-25
Figure 2.2 Advance 'X' Marking **2**-26
Figure 2.2A School Crosswalk Side Mounted Signs: Two Lane, Two-Way **2**-27
Figure 2.2B School Crosswalk Side Mounted Signs: Four Lane, Two-Way Divided **2**-28
Figure 2.2C School Crosswalk Side Mounted Signs: Two Lane, One- Way **2**-29
Figure 2.3A Pedestrian Crosswalk Overhead Mounted Signs: Four Lane, Two-Way **2**-30
Figure 2.3B Pedestrian Crosswalk Overhead Mounted Signs: Six Lane, Two-Way Divided **2**-31
Figure 2.3C Pedestrian Crosswalk Overhead Mounted Signs: Three Lane, One-Way **2**-32
Figure 2.3D Pedestrian Crosswalk 4 Lane, 2-Way, 2WLTL **2**-35
Figure 2.4A School Crosswalk Overhead Mounted Signs: Four Lane, Two-Way **2**-36
Figure 2.4B School Crosswalk Overhead Mounted Signs: Six Lane, Two-Way Divided **2**-37
Figure 2.4C School Crosswalk Overhead Mounted Signs: Three Lane, One-Way **2**-38
Figure 2.5 Special Crosswalk **2**-39
Figure 2.6 Pedestrian Signal **2**-40
Figure 3.1 Warrant Model Flow Chart **3**-12
Figure 3.5A Estimated Crossing Opportunities: Two Lane Cross-Section **3**-13
Figure 3.5B Estimated Crossing Opportunities: Four Lane Cross-Section **3**-14
Figure 3.5C Estimated Crossing Opportunities: Six Lane Cross-Section **3**-15
Figure 3.5D Estimated Crossing Opportunities: Three Lane, One-Way Cross-Section **3**-16
Figure 3.5E Pedestrian Crossing Control Warrant Chart **3**-17
Figure 5.4 A Safe Route To School Program Flow Chart **5**-18
Figure 5.5 Safe Route To School Map **5**-19
Figure 5.7 Traffic Signs and Signals **5**-20
Figure 6.1 School Patrol Program Development **6**-14
Figure 6.2A Guidelines For Selection Of School Crosswalk Guarding **6**-15
Figure 6.2B Pedestrian Count Form **6**-16
Figure 6.2C Vehicular Count Form **6**-17
Figure 6.3A A Sample Patrol Team Structure For A Crosswalk **6**-18
Figure 6.3B Sample School Patrol Parent's Consent Form **6**-19
Figure 6.7A School Patrol: School Crosswalk Side Mounted Signs, Two Lane, Two-Way **6**-20
Figure 6.7B School Patrol: School Crosswalk Side Mounted Signs, Two Lane, Two-Way **6**-20
Figure 6.7C School Patrol: School Crosswalk Side Mounted Signs, Three Lane, One-Way **6**-21
Figure 6.7D Sample Infraction Report Form **6**-22
Figure 6.8A Recognition Of Service Form **6**-23
Figure 6.8B Efficiency Award Form **6**-24
Figure 7.1 Adult Crossing Guard Program Development **7**-22
Figure 7.8A Adult Crossing Guard: School Crosswalk Overhead Mounted Signs, Six Lane, Two-Way Divided - Unsignalized Intersection **7**-23
Figure 7.8B Adult Crossing Guard: School Crosswalk Overhead Mounted Signs, Six Lane, Two-Way Divided - Unsignalized Intersection **7**-23
Figure 7.8C Adult Crossing Guard: School Crosswalk Overhead Mounted Signs, Six Lane, Two-Way Divided - Unsignalized Intersection **7**-24
Figure 7.8D Adult Crossing Guard: School Crosswalk Overhead Mounted Signs, Six Lane, Two-Way Divided - Unsignalized Intersection **7**-24
Figure 7.8E Adult Crossing Guard: Signalized Intersection **7**-25
Figure 7.8F Adult Crossing Guard: Signalized Intersection **7**-25

PART 1: INTRODUCTION

1. 1 INTRODUCTION: PEDESTRIAN CROSSING

Pedestrian crossing presents one of the greatest challenges for the traffic and safety engineering communities. The challenge is created by the two modes of travel that share the road. The issues associated with pedestrian crossing activities generally create considerable emotional concern within the community, especially when the community is reacting to an incident involving pedestrian injury.

Pedestrian crossing safety relies on the judgement exercised by pedestrians and drivers. To interact safely requires an exchange of information between the pedestrian and the motorist. Although traffic control devices can help to promote an exchange of information, educating pedestrians and drivers is paramount to providing for a safe operation.

Since pedestrians involved in traffic accidents are inevitably injured, safety must receive a high priority in analyzing pedestrian crossing issues. Crosswalk safety is usually evaluated using engineering factors, since no reliable method exists to forecast pedestrian accident trends and accident rates are usually very low. Pedestrian accident history is generally categorized by age but seldom does it consider all variables such as level of use by population or age group.

The school-age group experiences, on a proportional basis, a higher accident rate. Because of this it has received additional attention in the form of specific signs and legislation governing school pedestrian activities. Concern has also been focused on the group aged 65 and over, due mainly to the general reduction in their crossing skills.

As with other forms of traffic control, the uniform application of traffic control devices for pedestrian crossings promotes the orderly and predictable movement of traffic. When traffic is operating in an orderly and predictable manner, the probability of accidents occurring decreases significantly.

Since there is no practical means of communicating with pedestrians, information about traffic flow is generally directed at drivers. Hence, information is directed primarily at the individual with the lower risk of injury. Ideally, information should be communicated to the individual who is at higher risk of injury during a crossing situation - the pedestrian.

As pedestrian control issues are often emotionally charged, there can be a tendency to assume that using more traffic control devices will resolve pedestrian safety problems. However, experience has shown that the overuse of devices may reduce their effectiveness and establish practice by precedent as compared with technically demonstrated improvements of pedestrian crossing conditions.

Traffic control devices should be selected and implemented to ensure that the most troublesome locations receive attention commensurate with the problem.

Pedestrian traffic control issues must be continually monitored to ensure that devices remain effective and that available funds derive the best value.

1.2 INTRODUCTION: PEDESTRIAN CROSSING CONTROL MANUAL

The Manual of Uniform Traffic Control Devices for Canada (MUTCD) presents the devices and their application for pedestrian crossings with the objective of providing standards that will promote uniformity.

This Pedestrian Crossing Control Manual for British Columbia is primarily intended to augment the MUTCD for Canada by serving an interpretive function and by linking the Manual of Uniform Traffic Control Devices for Canada standards and warrants with the activities related to complying with these national uniform standards. It offers guidelines and warrants for implementing the standards and applications contained in the MUTCD.

This manual involves guidelines for side mounted, overhead, special crosswalk, pedestrian signals and pedestrian overpasses. The use of signing, marking and signals appropriate for this hierarchical system of pedestrian control has been established. Warrants were developed for the use of pedestrian crosswalks, special crosswalks and pedestrian signals. The manual also incorporates general information on the use of school programs involving safest routing, guards and the training of guards.

Throughout these guidelines, the words “shall”, “should” and “may” are used to describe specific conditions related to crosswalk installations. The following definitions apply to these words in these guidelines:

Shall: A mandatory condition.

Should: An advisory condition. Where the word “should” is used it is considered to be advisable usage, strongly recommended but not mandatory.

May: A permissive condition. An option that is not mandatory.

This manual also provides information related to the fundamental concepts of traffic control, traffic control devices and current application practices. The materials used to develop this manual reflect the experience of provincial and municipal agencies.

This manual summarizes the developments as reported in recent research and by technical representatives in the industry.

Although intended for use by various levels of design, traffic and maintenance engineering personnel, the manual may also prove of value to consulting engineers, educators, students and others.

1.3 DISCLAIMER

The purpose of the Pedestrian Crossing Control Manual for British Columbia is to provide operational guidelines for the use of devices for the control of traffic and provision of information to vehicle drivers. The contents have no Legislative authority and are not intended to be interpreted as minimum standards by which road authorities are to be judged. Similarly, this manual is not intended to be used as a basis for establishing civil liability.

While the manual was prepared with a view to promoting uniformity, the recommendations do not take into consideration the specific local factors of particular situations. Accordingly, variations in standards and their application will continue to exist, as will the distinction between ideal and actual conditions.

PART 2: DEVICES

CHAPTER 1:
CROSSING FACILITIES

CHAPTER 2:
APPLICATION AND INSTALLATION

CHAPTER 3:
WARRANTS

1. CROSSING FACILITIES

CONTENTS

1. CROSSWALK DEFINITION AND FACTORS TO BE CONSIDERED 1-2

2. MARKINGS, SIGNS AND SIGNALS 1-3

3. THE HIERARCHICAL SYSTEM
   - 3.1 General 1-5
   - 3.2 The Hierarchical System Described 1-5

4. MUTCD/B.C.EQUIVALENT SIGN CODE CONVERSION 1-7

1. CROSSWALK DEFINITION AND FACTORS TO BE CONSIDERED

1. A crosswalk is that part of the roadway used to channel pedestrian traffic across the roadway.

2. In determining the type of crosswalk most suited to a particular crossing location, a number of factors should be considered, including:

a. pedestrian volume,

b. pedestrian age and ability,

c. roadway width,

d. vehicular volume,

e. speed,

f. visibility conditions,

g. the proximity of adjacent pavement markings, signs or signals and

h. accident history.

2. MARKINGS, SIGNS AND SIGNALS

Crosswalks

1. Crosswalks exist at intersections, by legal definition, without markings, signs or signals. However, all crosswalks referred to in these guidelines are marked, signed or signalized as per the following:

a. a marked crosswalk should always be indicated by both:

- pavement markings and

- either signs or signals,

b. pavement markings should not be used alone to indicate a pedestrian crossing,

c. crosswalk signs or signals should be supplemented by pavement markings and

d. crosswalk signs should not be installed where pedestrian or full vehicular signals are in place.

Stop Bars

2. Stop bars are not necessary at pedestrian crossings except where the approach is controlled by means of a signal or a STOP sign.

Zebra Markings

3. The recommended pavement marking for crosswalks which have no signal controls is the zebra style with longitudinal stripes which are more visible to approaching drivers **(See Figure 1.1)**.

4. The zebra markings will be used for all crosswalks installed at unsignalized intersections under the jurisdiction of the Ministry of Transportation and Highways.

NOTE: Municipalities may choose, however, to retain the twin parallel line markings for unsignalized crossings on roads under their jurisdiction.

5. The zebra markings will consist of a series of equally spaced longitudinal markings, parallel to the centreline of the roadway, having the following recommended specifications:

   a. 60 cm stripe and spacing width,

   b. minimum length of 3.0 m where posted speed limits are 60 km/h or less and

   c. minimum length of 4.0 m where the posted speed limits are 70 km/h and greater.

Twin Parallel Lines

6. Twin parallel line type crosswalks are only suitable at intersections that are controlled by pedestrian or vehicular signals **(See Figure 1.1)**.

3. THE HIERARCHICAL SYSTEM

3.1 General

1. A hierarchical system of signing, markings and signal control has been developed to provide a guide for matching crossing systems with conditions found at specific locations.

2. The systems range in increasing complexity from pedestrian crosswalks to grade separation.

3. The hierarchical system includes:

a. pedestrian crosswalks (signed and marked crossings),

b. special crosswalks,

c. pedestrian activated signals and

d. grade separation.

3.2 The Hierarchical System Described

Pedestrian Crosswalks (Signed and Marked Crossings)

1. Signed and marked crossings includes:

a. side mounted signs and marked crossings and

b. overhead signs and marked crossings.

2. The development of a traffic management plan for schools is a preferred first step to applying the appropriate traffic control devices.

NOTE: School crossings raise a higher degree of concern, particularly for the primary school children who are developing their pedestrian crossing skills. It is important that these pedestrian crossing skills be properly developed as they are required on a daily basis.

In developing traffic control devices, special attention has been

paid to school crossings by providing specific signs and devices. These devices should only be used following input from educational, enforcement and engineering agencies.

Some jurisdictions have created a committee made up of representatives from local schools, school boards, police and traffic engineering departments. Through a committee structure, it has been possible to develop plans to manage the flow of pedestrians to and from the school catchment area and in the immediate school area.

Special Crosswalks

3. Special crosswalks include:

- **a.** pavement markings,
- **c.** internally illuminated overhead signs,
- **d.** downlighting of crosswalk,
- **e.** pushbuttons,
- **f.** timers and
- **g.** overhead flashing beacons.

Pedestrian Activated Signals

4. Pedestrian activated signals include all of the elements of a traffic control signal except for side street vehicle indications.

Grade Separation

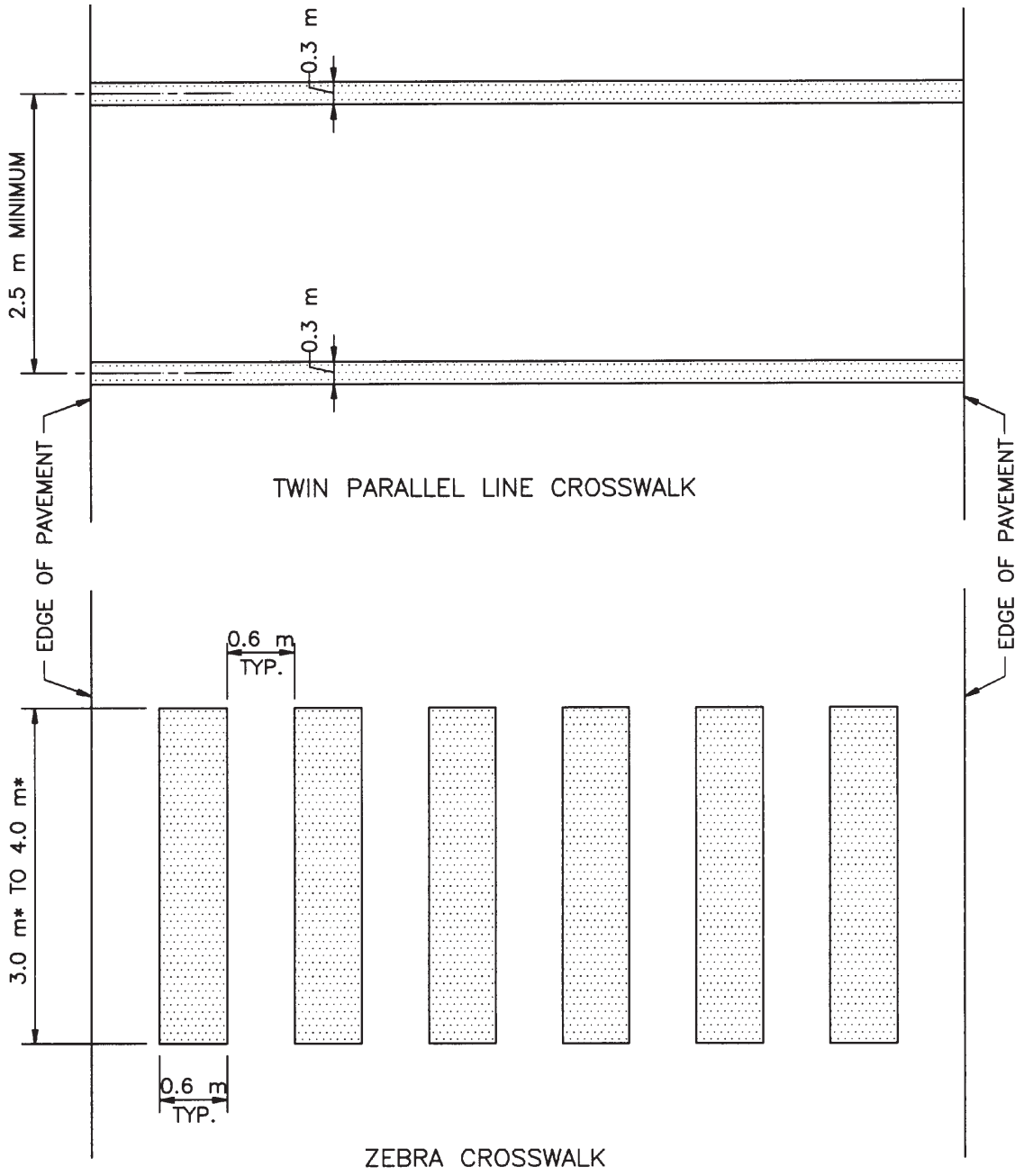
5. This type of device is the highest level of crossing protection, providing a physical separation between pedestrians and vehicles.

4. MUTCD/B.C. EQUIVALENT SIGN CODE CONVERSION

1. Alpha-numeric identification codes for signs referenced in these guidelines have been taken from "The Manual Of Uniform Traffic Control Devices For Canada".

2. The British Columbia equivalent Alpha-numeric identification codes are as follows:

MUTCD	B.C. Equivalent
WC-1	SP-001
WC-1A	SP-001A
WC-2	SP-002
WC-3	SP-003
WC-16	SP-016
RA-1	R-001
RA-3 L&R	SP-004 L&R
RA-3A L&R	SP-004A L&R
RA-4 L&R	SP-005 L&R
RA-4A L&R	SP-005A L&R
ID-21	SP-010D
ID-21 L&R	SP-010 L&R



* 3.0 m ≤ 60 km/h
4.0 m ≥ 70 km/h

1.1 Crosswalk Pavement Markings

2. APPLICATION AND INSTALLATION

CONTENTS

1. PEDESTRIAN CROSSWALK WITH SIDE MOUNTED SIGNS
   - 1.1 Application Guidelines 2.2
   - 1.2 Description Of Installation 2.2

2. SCHOOL CROSSWALK WITH SIDE MOUNTED SIGNS
   - 2.1 Application Guidelines 2.5
   - 2.2 Description Of Installation 2.5

3. PEDESTRIAN CROSSWALK WITH OVERHEAD MOUNTED SIGNS
   - 3.1 At Intersections
     - 3.1.1 Application Guidelines 2.8
     - 3.1.2 Description Of Installation 2.8
   - 3.2 At Mid-Block Locations
     - 3.2.1 Application Guidelines 2.11
     - 3.2.2 Description of Application 2.11

4. SCHOOL CROSSWALK WITH OVERHEAD MOUNTED SIGNS
   - 4.1 Application Guidelines 2.13
   - 4.2 Description Of Installation 2.13

5. SPECIAL CROSSWALKS
   - 5.1 Application Guidelines 2.17
   - 5.2 Description Of Installation 2.17

6. PEDESTRIAN SIGNAL
   - 6.1 Application Guidelines 2.20
   - 6.2 Description Of Installation 2.20

7. PEDESTRIAN GRADE SEPARATIONS
   - 7.1 Application Guidelines 2.22
   - 7.2 Description Of Installation 2.23

1. PEDESTRIAN CROSSWALK WITH SIDE MOUNTED SIGNS

1.1 Application Guidelines

1. Considered the "standard crosswalk", the Pedestrian Crosswalk With Side Mounted Signs should be used under the following circumstances:

a. the crosswalk is not associated with a school route in jurisdictions that differentiate between pedestrian and school crosswalks,

b. the roadway is not more than two through lanes in each direction, two-way, or three through lanes if the road is one-way (additional auxiliary lanes such as turn lanes may be present) and the posted speed is 60 km/h or less,

c. only where the roadway is one through lane in each direction, two-way, or two through lanes if the road is one-way under the following circumstances:

- on roadways with high speeds (≥70 km/h), high volumes, limited sight distances for side mounted signs or

- where the crosswalk is mid-block or serves the elderly and/or physically challenged pedestrians, who may require a longer crossing time.

1.2 Description Of Installation (Figures 2.1A, 2.1B, 2.1C)

The installation of a pedestrian crosswalk with side mounted signs is described as follows:

Marking

1. The pavement marking consists of the zebra design, as described in **Figure 1.1**

Signs

2. Post mounted Pedestrian Crosswalk (RA-4) signs shall be placed on each side of the roadway so that the motorist will face one sign on the right side of the roadway and one on the left side of the roadway.

3. These signs shall show a single pedestrian symbol in black on a white background which will be oriented to face toward the centre of the roadway.

> **NOTE:** RA-4L and RA-4R signs are available.

4. These signs shall be a minimum size of 60 x 75 cm.

Stopping Restrictions

5. Stopping should be prohibited for a minimum of 30 m on the approaches to the crosswalk and for 15 m following the crosswalk.

Passing Restriction - Single Lane Approach

6. On a single lane approach, a passing restriction should be implemented for traffic approaching a crosswalk.

> **NOTE:** Generally, a solid yellow directional dividing line pavement marking is adequate and additional signing is not necessary.

7. The length of the passing restriction is dependent upon the approach speed.

Lane Changing Restriction - Multilane Approach

8. On multilane approaches, solid white lane lines should be installed on each approach to the crosswalk to prohibit lane changing.

9. The recommended length of the solid line is dependent upon the approach speed (30 m is suggested for 50 km/h).

Minimum Stopping Sight Distance

10. Crosswalks should not be installed where a minimum stopping sight distance cannot be maintained.

11. Crosswalk visibility should be maximized through:

- proper location,
- parking restrictions and
- vegetation control.

Crosswalk Ahead Warning Sign

12. Where visibility of the crosswalk area is limited:

- a Pedestrian Crosswalk Ahead sign (WC-2 black on yellow warning sign) should be installed in advance of the crosswalk,

  NOTE: The recommended distance between the crosswalk and the sign is the safe stopping sight distance, which depends upon approach speed.

- the pedestrian symbol on the sign should be oriented to face toward the roadway.

Raised Median

13. Where there is a raised median 2 m or more in width, such as at some mid-block locations, an alternate sign arrangement should be used.

14. The sign arrangement for a raised median is shown in **Figure 2.1B** and includes the following:

- post mounted pedestrian crosswalk signs placed on the median and on the right side of the roadway for each approach,

  NOTE: The left side sign in **Figure 2.1A** is replaced by a median mounted sign **(Figure 2.1B)**.

- the pedestrian symbols shall be oriented to face toward the centre of the roadway.

2. SCHOOL CROSSWALK WITH SIDE MOUNTED SIGNS

2.1 Application Guidelines

1. This type of crosswalk is similar to the "standard crosswalk".

2. For those jurisdictions that distinguish between pedestrian and school crosswalks, School Crosswalk With Side Mounted Signs should be used under the following circumstances:

a. the crosswalk is associated with a school route,

b. these routes should be determined in conjunction with school, police and road authorities,

NOTE: Children should be trained in pedestrian safety **(See SCHOOL CROSSING PROGRAMS)**.

c. the roadway is one through lane only in each direction, two-way, or two through lanes if the road is one-way.

2.2 Description Of Installation (Figures 2.2A, 2.2B, 2.2C)

The installation of a school crosswalk with side mounted signs is described as follows:

Marking

1. The pavement marking consists of the zebra design, as described in **Figure 1.1**.

2. A white "X" **(Figure 2.2)** should be painted on the roadway in advance of the crosswalk.

3. The recommended distance between the crosswalk and the "X" marking depends upon the approach speed.

4. The recommended size of the "X" marking is approximately 6.0 m x 2.5 m.

Signs

5. Post mounted School Crosswalk (RA-3) signs shall be placed on each side of the roadway and may be mounted back-to-back.

6. The motorist will face one sign on the right side of the roadway and one sign on the left side of the roadway.

7. The signs show a symbol of two children in black on a white background which shall be oriented to face toward the centre of the roadway except for the median mounted signs in which the symbol should face the centre of the approach roadway.

   NOTE: RA-3L and RA-3R signs are available.

8. These signs shall be a minimum size of 60 x 75 cm.

School Area Signs

9. The white on blue pentagon shaped School Area Warning sign (WC-1) may be used as an advance warning sign to indicate that a school is nearby and children may be walking along or crossing the roadway.

10. A tab reading "30 km/h" or "XXkm/h When Children on Highway", when installed below a School Area Warning sign, establishes a regulatory school maximum speed zone.

    NOTE: Designated by the Motor Vehicle Act and Regulations, such restricted speed limits are in effect from 8:00 a.m. to 5:00 p.m., on school days.

School Crosswalk Ahead Warning Sign

11. A School Crosswalk Ahead Warning sign (WC-16) may be used in advance of the crosswalk, except where the School Area Warning sign (WC-1) is already in place.

12. The recommended distance between the crosswalk and the WC-16 sign is the safe stopping distance, which depends upon the approach speed.

Stopping Restriction

13. Stopping should be prohibited for 30 m on each approach to the crosswalk and for 15 m following the crosswalk.

Passing Restriction - Single Lane Approach

14. On a single lane approach, a passing restriction should be implemented for traffic approaching a crosswalk.

> **NOTE:** Generally, a solid yellow directional dividing line pavement marking is adequate and additional signing is not necessary.

15. The recommended length of the passing restriction is dependent upon the approach speed.

Passing Restriction - Multilane Approach

16. On multilane approaches, solid white lane lines should be installed on each approach to the crosswalk to prohibit lane changing.

17. The recommended length of the solid line is dependent upon the approach speed (30 m is suggested for 50 km/h).

School Crossing Guard

18. The need for school crossing guards should be considered **(See SCHOOL CROSSING PROGRAMS)**.

3. PEDESTRIAN CROSSWALK WITH OVERHEAD MOUNTED SIGNS

3.1 At Intersections

3.1.1 Application Guidelines

1. Pedestrian Crosswalk With Overhead Mounted Signs should be used under the following circumstances:

a. the crosswalk is not associated with a school route,

b. the roadway has more than two through lanes in each direction, two-way, or more than three through lanes if the road is one-way and the posted speed is 60 km/h or less,

c. where the roadway is more than one through lane in each direction, two-way, or more than two through lanes if the road is one-way:

- on roadways with high speeds (≥70 km/h), high volumes or limited sight distance,
- where the crosswalk is mid-block or serves the elderly and/or physically challenged pedestrians, who may require a longer crossing time.

3.1.2 Description Of Installation (Figures 2.3A, 2.3B, 2.3C)

The installation of a pedestrian crosswalk with overhead mounted signs is described as follows:

Marking

1. The pavement marking consists of the zebra design, as described in **Figure 1.1**.

Signs

2. Pedestrian Crosswalk (RA-4) signs shall be erected over the centre of the approach roadway, at the crosswalk location.

3. The Pedestrian Crosswalk signs may be supported by either overhead davits or cables and may be mounted back-to-back.

4. The motorist shall face one sign over the right half of the roadway and one over the left half, or on the median, of the roadway.

5. The pedestrian symbol on each sign shall be oriented to face toward the centre of the roadway.

6. These signs shall be a minimum size of 60 x 75 cm though the preferred overhead sign size is 90 x 120 cm, especially for applications with higher speeds.

Supplementary Signs

7. A supplementary (RA-4) sign may be side mounted on the right side of the roadway, similar to secondary signal heads.

8. A sign may also be mounted on the left side, but if only one additional sign is used, the right side is preferred.

9. The recommended size for these signs is 60 x 75 cm.

Stopping Restrictions

10. Stopping should be prohibited for a minimum of 30 m on the approaches to the crosswalk and for 15 m following the crosswalk.

Lane Changing Restriction

11. Solid white lane lines should be installed on each approach to the crosswalk in order to prohibit lane changing.

12. The recommended length of the solid lane line is dependent upon the approach speed (30 m is suggested for 50 km/h).

Minimum Stopping Sight Distance

13. Crosswalks should not be installed where a minimum stopping sight distance cannot be maintained.

14. Crosswalk visibility should be maximized through:

- proper location,
- parking restrictions and
- vegetation control.

Crosswalk Ahead Warning Sign

15. Where visibility of the crosswalk area is limited:

- a Pedestrian Crosswalk Ahead sign (WC-2 black on yellow warning sign) should be installed in advance of the crosswalk,

  NOTE: The recommended distance between the crosswalk and the sign is the safe stopping sight distance, which depends upon approach speed.

- the pedestrian symbol on the sign shall be oriented to face toward the centre of the roadway.

Raised Median

16. Where there is a raised median 2 m or more in width, such as at some mid-block locations, an alternate signing plan may be used **(Figure 2.3B)**.

17. For this installation, a Pedestrian Crosswalk (RA-4) sign shall be:

- erected over the centre of each approach to the crosswalk and
- symbol oriented to face approaching traffic.

  NOTE: Back-to-back overhead signs are not necessary.

18. The minimum size for these signs is 60 x 75 cm though the preferred size is 90 x 120 cm for overhead signs.

19. A post mounted (RA-4) sign, 60 x 75 cm in size, shall be:

- placed on the median side of the approach and
- symbol oriented to face approaching traffic.

20. An additional post mounted (RA-4) sign may be:

- mounted on the right side and
- symbol oriented to face approaching traffic.

21. Back-to-back signs may be used for the median post mounted position such that a motorist approaching the crosswalk will face one pedestrian crosswalk sign overhead and one on the left side of the roadway and, optionally, one on the right.

3.2 At Mid-Block Locations

3.2.1 Application Guidelines

1. Special crosswalks may be installed at mid-block locations under special circumstances and only with the approval of the Senior Traffic Engineer, Regional Traffic Engineer and/or the Highway Safety Engineer. The following criteria should be met:

a. Posted speed less than or equal to 60km/h

b. Supporting pedestrian infrastructure that will lead the pedestrian to the crossing must be in place, i.e sidewalks, pathways

c. Crosswalk **must** be illuminated

d. Maximum 2 through lanes per direction for two way streets or three lanes for one way streets.

e. The installation would not unreasonably disrupt traffic flow on the main street or at an adjacent traffic control device.

f. Stopping sight distance is available

g. Minimum of 200 metres to next traffic or pedestrian signal.

h. Only installed in conjunction with a major access

3.2.2 Description of installation:

Markings:

- Zebra pavement markings per Ministry's standard
- No passing, solid white lane lines shall be painted for a minimum of 30m back of the crosswalk.
- Stopping shall be restricted for 30m prior to the approach of the crosswalk and for 15m following the crosswalk.

Signs:

- 2- SP-5RX sign shall be davit mounted, on luminaire/sign posts, back to back, over the centre of the approach lanes at the crosswalk for both directions

- 2- SP-5RX signs shall be mounted back to back on a sign post as per the Standard Specification for Highway Construction on the median behind the pedestrian refuge area.
- Supplemental SP-5R signs may be installed to the right of traffic on the vertical portion of the sign/luminaire post if required.
- SP-2 signs may be installed in advance of the cross walk. These signs are optional.

4. SCHOOL CROSSWALK WITH OVERHEAD MOUNTED SIGNS

4.1 Application Guidelines

1. For those jurisdictions that distinguish between pedestrian and school crosswalks, School Crosswalk With Overhead Mounted Signs should be used under the following circumstances:

a. the crosswalk is associated with a school route,

b. these routes should be determined in conjunction with school, police and road authorities,

NOTE: Children should be trained in pedestrian safety **(See SCHOOL CROSSING PROGRAMS)**.

c. the roadway has more than one through lane in each direction, two-way, or more than two lanes if the road is one way.

4.2 Description Of Installation (Figures 2.4A, 2.4B, 2.4C)

The installation of a school crosswalk with overhead mounted signs is described as follows:

Marking

1. The pavement marking consists of the zebra design, as described in **Figure 1.1**.

2. A white "X" **(Figure 2.2)** should be painted on the roadway in advance of the crosswalk.

3. The recommended distance between the crosswalk and the "X" marking depends upon the approach speed.

4. The recommended size of the "X" marking is approximately 6.0 m x 2.5 m.

Signs

5. School Crosswalk (RA-3) signs shall be erected over the centre of the approach roadway, at the crosswalk location.

6. The School Crosswalk signs should be supported by either overhead davits or cables and may be mounted back to back.

7. The motorist shall face one sign over the right half of the roadway and one over the left half of the roadway.

8. The symbol of the children on each sign shall be oriented to face toward the centre of the roadway.

9. These signs shall be a minimum size of 60 x 75 cm, though the preferred overhead sign size is 90 x 120 cm, especially for roadways with higher speeds.

School Area Warning Signs

10. The white on blue pentagon shaped School Area Warning sign (WC-1) may be used as an advance warning sign to indicate that a school is nearby and children may be walking along or crossing the roadway.

11. A tab reading "30 km/h" or "XXkm/h When Children on Highway", when installed below a School Area Warning sign, establishes a regulatory school maximum speed zone.

    NOTE: Designated by the Motor Vehicle Act and Regulations, such restricted speed limits are in effect from 8:00 a.m. to 5:00 p.m. on school days.

School Crosswalk Ahead Warning Sign

12. A School Crosswalk Ahead Warning sign (WC-16) may be used in advance of the crosswalk, except where the School Area Warning sign (WC-1) is already in place.

13. The recommended distance between the crosswalk and the WC-16 sign is the safe stopping distance, which depends upon the approach speed.

Supplementary Signs

14. A supplementary (RA-3) sign may be side mounted on the right side of the roadway, similar to secondary signal heads.

15. A sign may also be mounted on the left side, but if only one additional sign is used, the right side is preferred.

16. The recommended size for these signs is 60 x 75 cm.

Stopping Restrictions

17. Stopping should be prohibited for 30 m on each approach to the crosswalk and for 15 m following the crosswalk.

Lane Changing Restriction

18. Solid white lane lines should be installed on each approach to the crosswalk to prohibit lane changing.

19. The recommended length of the solid lane line is dependent upon the approach speed (30 m is suggested for 50 km/h).

Raised Median

20. Where there is a raised median 2 m or more in width, such as at some mid-block locations, an alternate signing plan may be used **(Figure 2.4B)**.

21. For this installation, a School Crosswalk (RA-3) sign shall be:

- erected over the centre of each approach to the crosswalk and
- symbol oriented to face approaching traffic.

NOTE: Back-to-back overhead signs are not necessary.

22. The minimum size for these signs is 60 x 75 cm though the preferred size is 90 x 120 cm for overhead signs.

23. A post mounted (RA-3) sign, 60 x 75 cm size, shall be:

- placed on the median side of the approach and
- symbol oriented to face approaching traffic.

24. An additional post mounted (RA-3) sign may be:

- mounted on the right side and
- symbol oriented to face approaching traffic.

25. Back-to-back signs may be used for the median post mounted position such that a motorist approaching the crosswalk will face one pedestrian crosswalk sign overhead and one on the left side of the roadway and, optionally, one on the right.

School Crossing Guard

26. The need for a school crossing guard should be considered **(See SCHOOL CROSSING PROGRAMS)**.

5. SPECIAL CROSSWALKS

5.1 Application Guidelines

1. Special crosswalks may be installed at either pedestrian or school crosswalks and should be used only when all of the following criteria have been met:

a. the posted speed is less than or equal to 60 km/h,

b. the roadway is not greater than:

- two through lanes in each direction for two-way streets or
- three through lanes for one-way streets,

c. the installation would not disturb traffic flow at an adjacent traffic control signal or another special crosswalk,

NOTE: A minimum spacing of 200 m from an adjacent traffic control signal is recommended.

d. safe stopping sight distance is available for motorists approaching the crosswalk,

NOTE: Decision sight distance is desirable.

e. the installation would not create constant interruptions in vehicular traffic due to the level of pedestrian and vehicular volumes.

5.2 Description Of Installation (Figure 2.5)

The installation of a special crosswalk is described as follows:

Marking

1. The pavement marking consists of the zebra design, as described in **Figure 1.1**.

Signs

2. Two white on black Pedestrian Crosswalk (RA-5) signs shall be mounted overhead for each approach.

3. One sign shall be over the centre of the right half of the roadway and the other sign shall be over the centre of the left half of the roadway.

4. Each pedestrian symbol shall be oriented to face toward the centre of the roadway.

5. These signs shall be a minimum size of 60 x 75 cm, though the preferred sign size is 90 x 120 cm.

6. Each overhead sign will contain:

   - internal illumination,
   - downlighting for the crosswalk area and
   - one flashing yellow beacon (20 cm lens).

7. Upon activation by the pedestrian, the two flashing beacons per approach (one per sign) shall flash alternately.

8. It is also recommended that side mounted RA-4 signs (60 x 75 cm) be installed on the shaft of the davit poles.

Pedestrian Crosswalk Ahead Signs

9. Pedestrian Crosswalk Ahead (WC-2) warning signs should be used where there is limited visibility for the crosswalk.

10. The recommended distance between the crosswalk and the WC-2 sign is dependent on the approach speed **(Figure 2.5)**.

Stopping Restrictions

11. To improve visibility of pedestrians for motorists, a vehicular stopping prohibition, in effect at all times, should be implemented 30 m on the near side and 15 m on the far side of the special crosswalk.

Passing Restriction - Single Lane Approach

12. On a single lane approach, a passing restriction should be implemented for traffic approaching the special crosswalk.

13. The length of the no passing zone is dependent upon the approach speed.

NOTE: For an approach speed of 50 km/h, a minimum dimension of 65 m should be used (Dimension "A" in **Figure 2.5**).

Lane Changing Restriction - Multilane Approach

14. On multilane approaches, solid white lane lines should be installed on each approach to the crosswalk to prohibit lane changing.

15. The recommended length of the solid line is dependent upon the approach speed (30 m is suggested for 50 km/h).

Timing

16. A 30-40 second time is desirable to minimize the interruption to vehicular traffic.

6. PEDESTRIAN SIGNAL

6.1 Application Guidelines

1. Pedestrian signals, typically on arterial roadways, should only be used when all of the following criteria have been met:

    a. pedestrian volumes are high and sufficient gaps in vehicular traffic are not available to accommodate the pedestrian demand,

    b. the crosswalk location is a minimum of 200 m (400 m preferred) from an adjacent traffic control signal or special crosswalk,

    c. traffic volumes do not warrant full vehicular signals.

6.2 Description Of Installation (Figure 2.6)

The installation of a pedestrian signal is described as follows:

Marking

1. Crosswalk pavement markings should be of the twin parallel line type except for mid-block crossings where a zebra marking is acceptable.

Signals

2. A primary three section signal head shall be suspended on the far side of the intersection over the centre of the right half of the roadway.

3. A secondary head shall be located on the far left side.

4. On multilane approaches, a second overhead primary signal head may be installed.

5. Signal heads should not be provided for cross street traffic, which should face stop signs.

6. Standard pedestrian activated “WALK/DON’T WALK” signal heads will be placed at either end of the crosswalk and oriented to face across the roadway.

7. A pushbutton for signal activation should be installed at each end of the crosswalk.

8. The signal sequence should be as follows:

- the vehicular signal heads should rest in flashing green and the pedestrian heads in solid "DON'T WALK" until the signal is pedestrian activated,
- the vehicular signals should then change to solid green, then yellow and an all red clearance period,
- following the vehicular clearance period, the pedestrian "WALK" signal should be displayed followed by a flashing "DON'T WALK" indication for pedestrian clearance and then the steady "DON'T WALK" during the rest of the cycle,
- the signal should then return to the flashing green rest mode.

7. PEDESTRIAN GRADE SEPARATIONS

7.1 Application Guidelines

1. This type of crossing device provides the highest level of crossing protection as pedestrians are physically separated from vehicles by vertical distance.

2. These devices are significantly more expensive and require more property than other crossing devices.

3. Pedestrian grade separations may be an effective alternative where the following conditions occur:

a. the pedestrian crossing is permanent and is located in a substantially developed area with established high volumes of pedestrian and vehicular traffic,

b. pedestrians can be channelled to one crossing location and can be persuaded that the additional protection provided by the grade separation is worth the extra time and effort required to climb the stairs or ramp,

NOTE: If pedestrians perceive the grade separation as inconvenient or unnecessary, many will choose not to use it.

c. pedestrians must cross:

- a freeway at a location separate from an interchange or where pedestrian traffic within the interchange area is not appropriate due to high volumes or high speeds,

NOTE: Generally, low volumes of pedestrians can be accommodated at diamond interchanges as the ramp intersections can be signalized when warranted.

OR

- a high speed expressway at a location separate from a signalized intersection or where pedestrian traffic within the intersection area is not appropriate due to complicated signal phasings, long crossing distances or high volumes of turning traffic,

OR

- an arterial at a location where sufficient gaps are not available to accommodate the pedestrian demand for crossing and where there is no existing plan for a vehicular or pedestrian signal within reasonable walking distance or where there is an existing or proposed signal, but where pedestrian traffic is not appropriate.

7.2 Description Of Installation

The installation of a pedestrian grade separation is described as follows:

Types Of Grade separation

1. Grade separation may be either overpasses or underpasses.

Underpasses

2. Underpasses have the advantage that clearance height can be lower and they can be relatively inexpensive if installed at the time of road construction.

3. Underpasses, however, can be very expensive and disruptive to install on an existing roadway and, as they are enclosed, they must be well lit for pedestrian safety and security.

Overpasses

4. Vertical and horizontal clearance requirements for overpasses vary among jurisdictions, and federal, provincial and municipal requirements should be confirmed before designs are finalized.

Approaches

5. Grade separation approaches should be oriented to attract the most pedestrians.

6. Ramps rather than stairs should be used to provide accessibility for wheelchairs and bicycles.

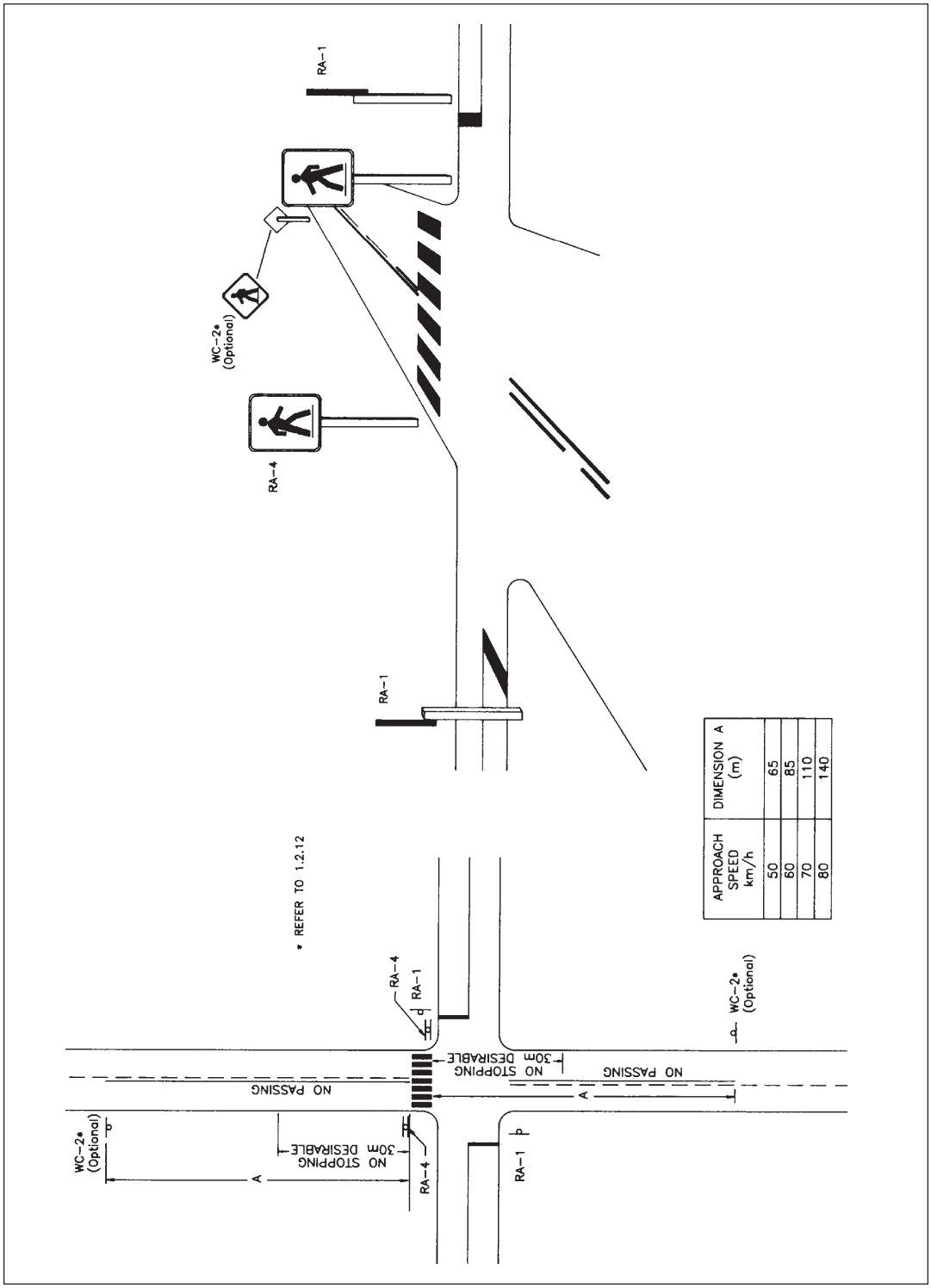
NOTE: The recommended maximum grade to accommodate wheelchairs is 12:1 (8.3%)

Fencing

7. Fencing should be considered in the vicinity of the approaches to discourage

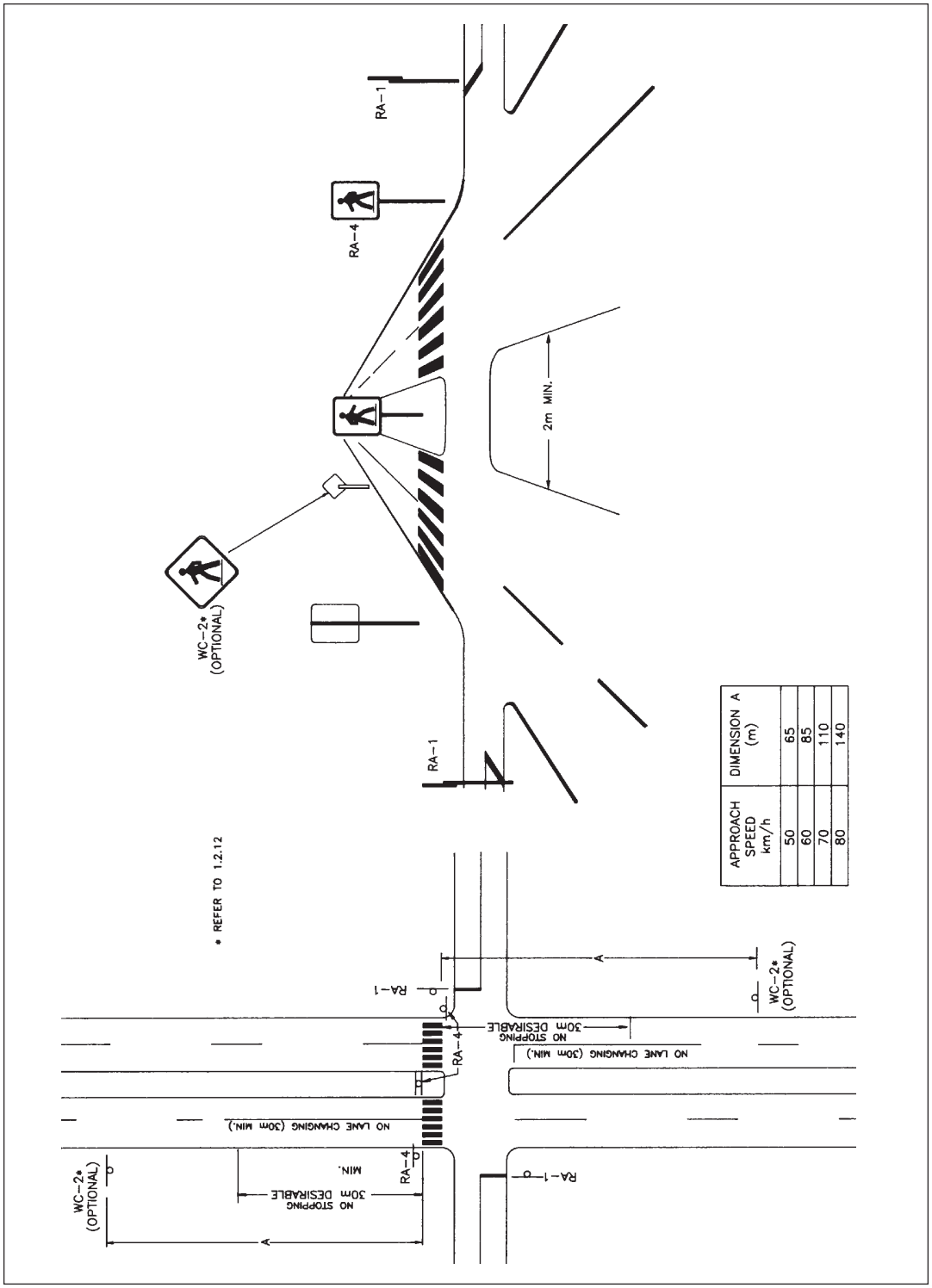
pedestrians from crossing at grade.

8. Fencing an overpass may also be required to stop pedestrians from dropping objects onto vehicles below.



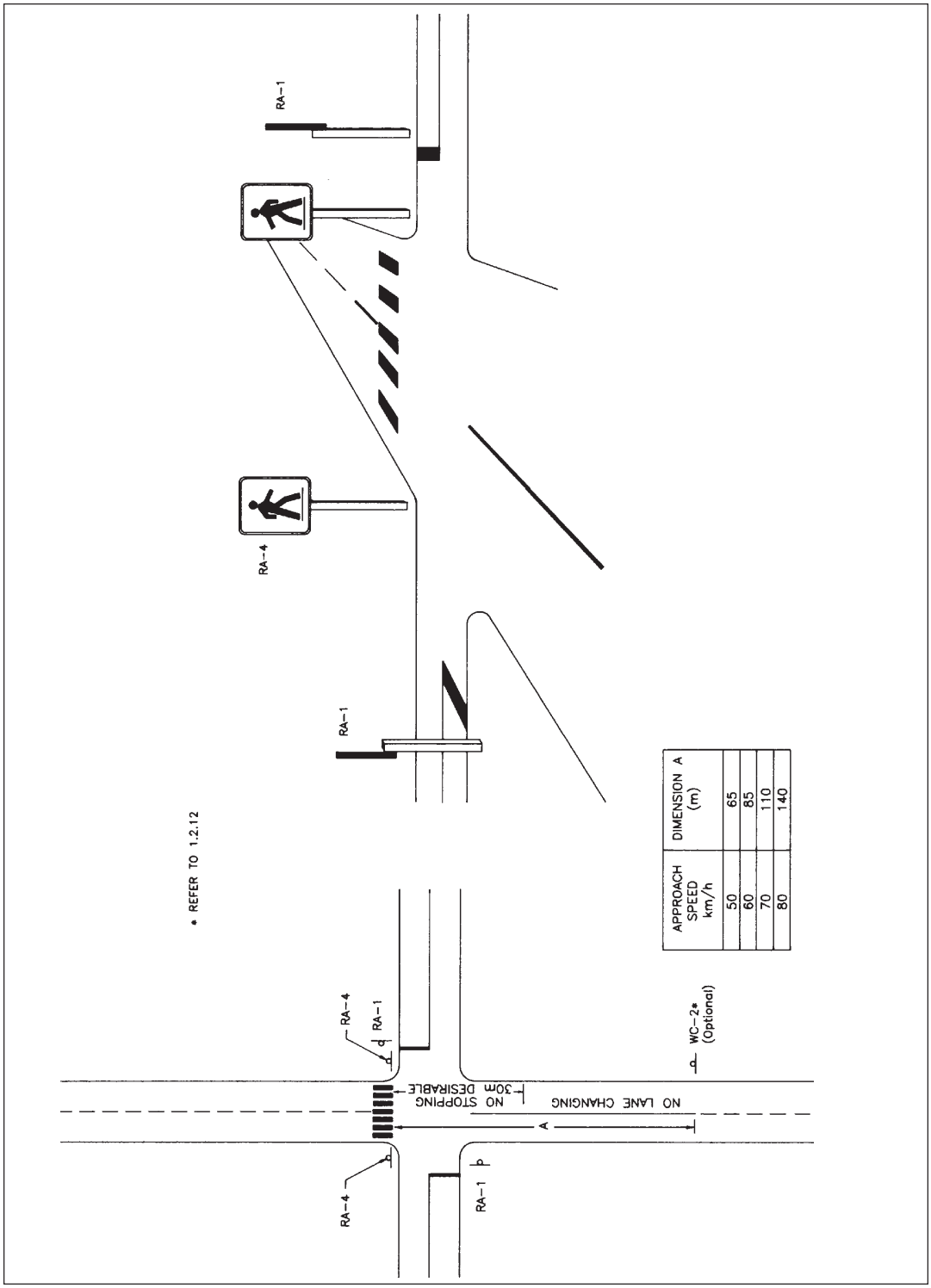
APPROACH SPEED km/h	DIMENSION A (m)
50	65
60	85
70	110
80	140

2.1A Pedestrian Crosswalk
Side Mounted Signs
(2 Lane, 2-Way Undivided)



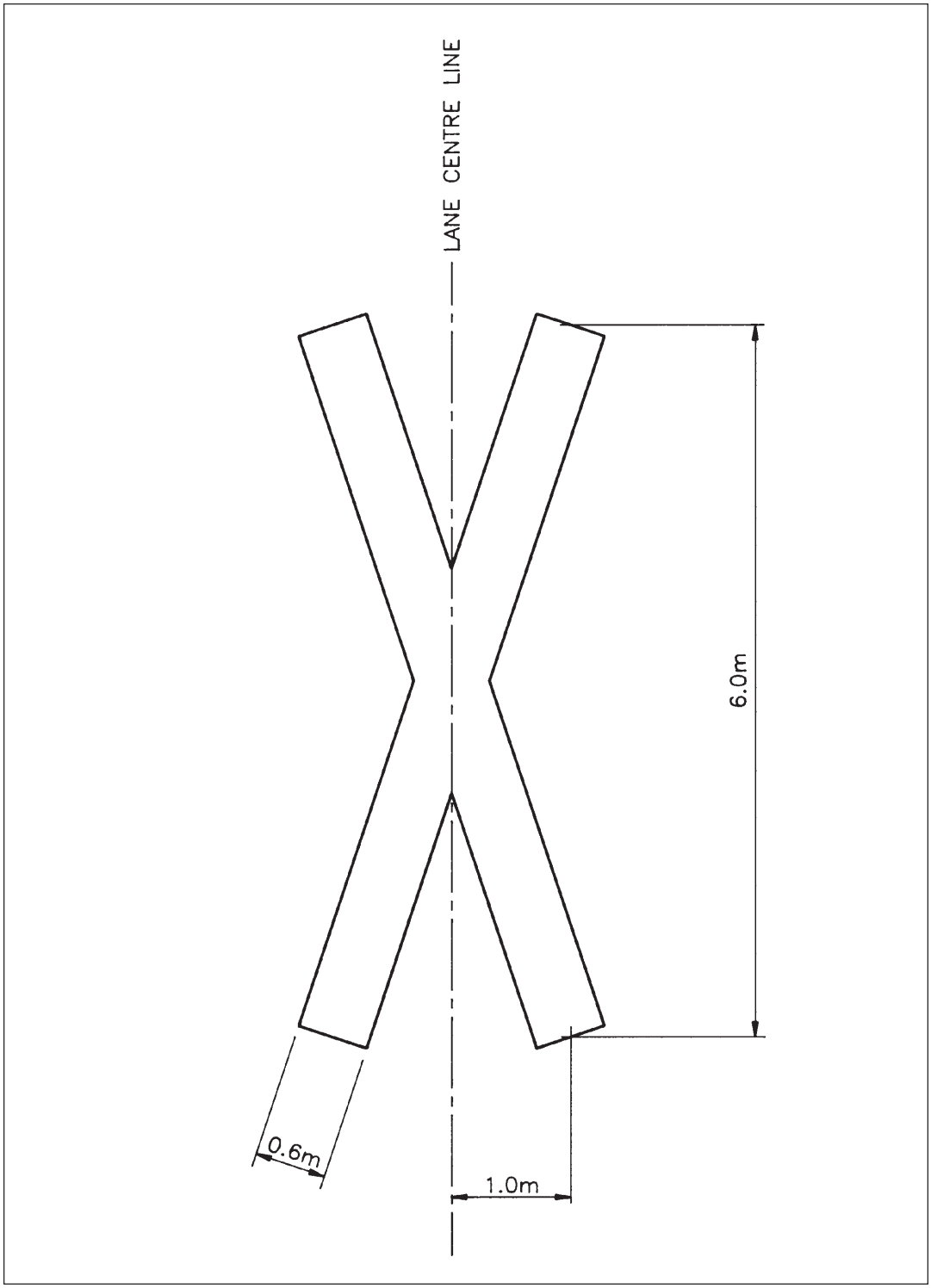
APPROACH SPEED km/h	DIMENSION A (m)
50	65
60	85
70	110
80	140

2.1B Pedestrian Crosswalk
Side Mounted Signs
(4 Lane, 2-Way Divided)

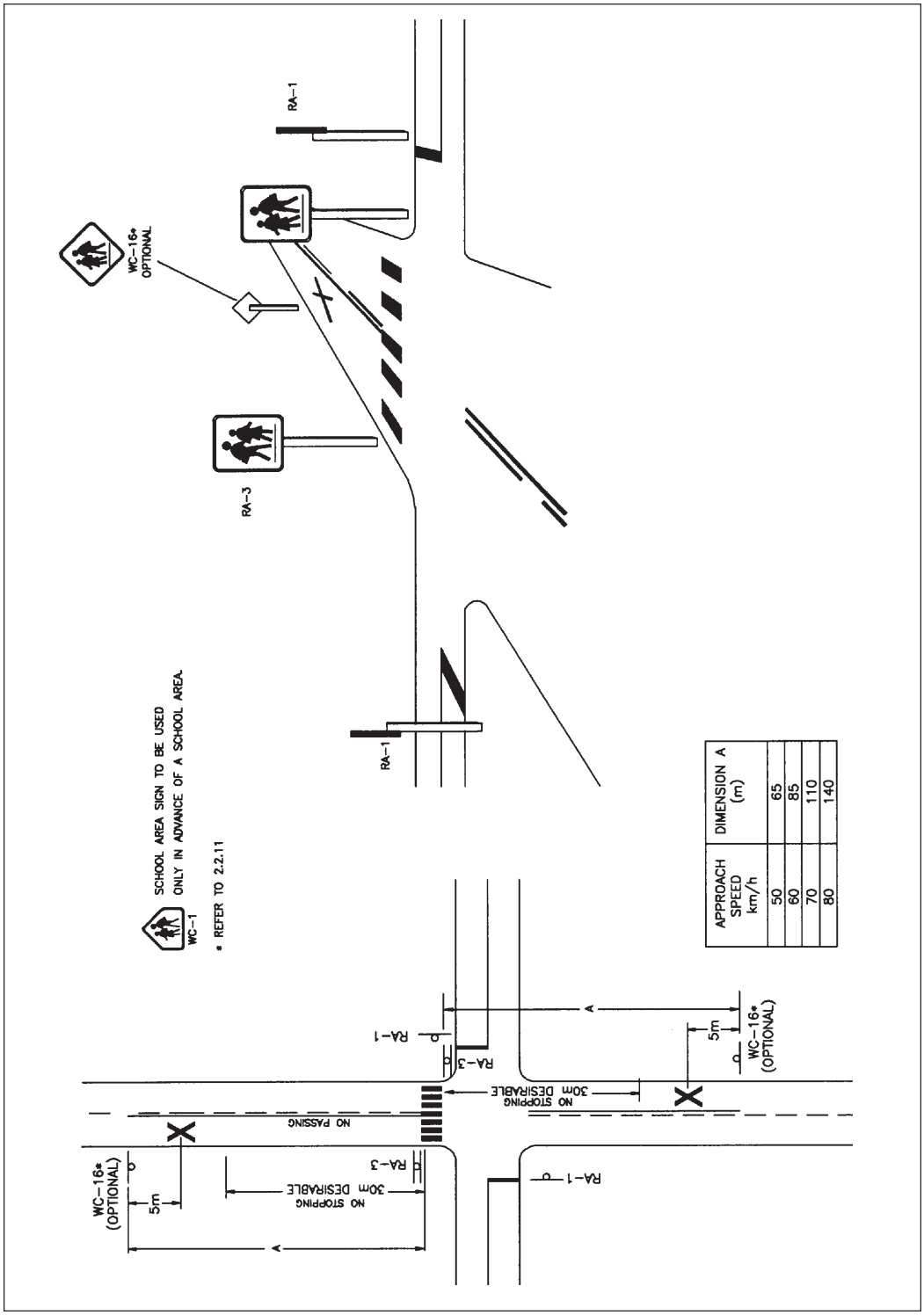


APPROACH SPEED km/h	DIMENSION A (m)
50	65
60	85
70	110
80	140

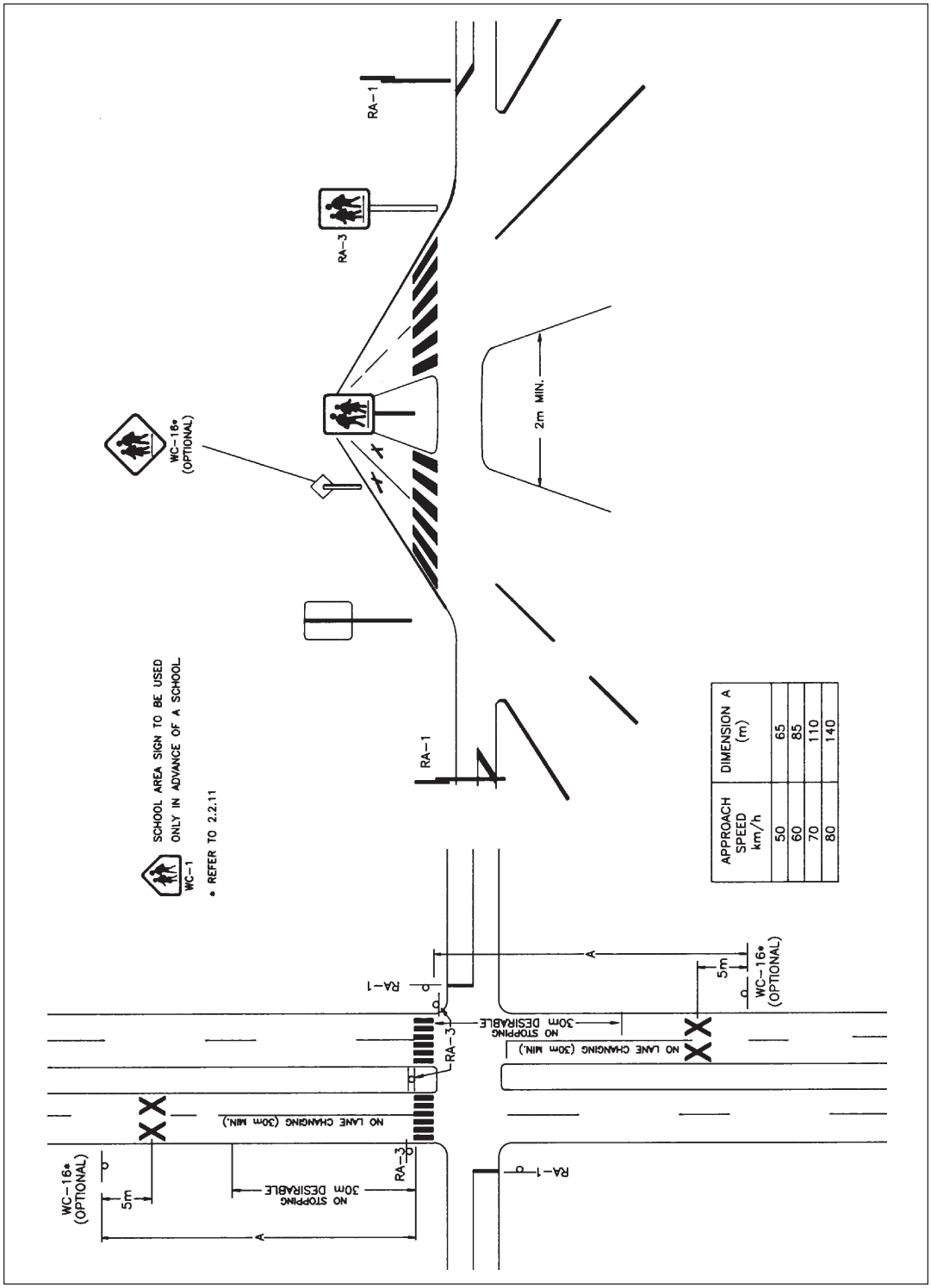
2.1C Pedestrian Crosswalk
Side Mounted Signs
(2 Lane, 1-Way)



2.2 Advance 'X' Crossing

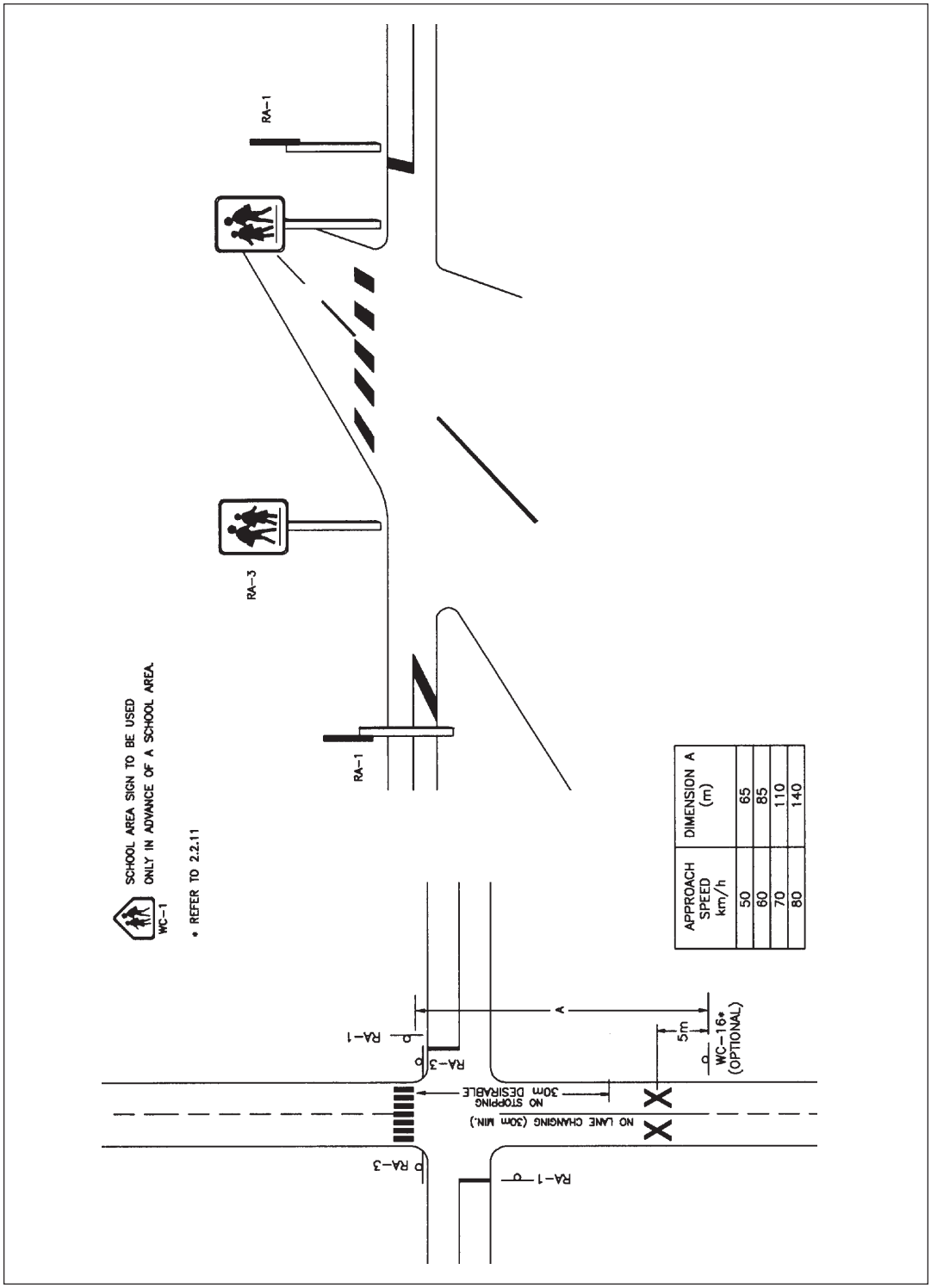


2.2A School Crosswalk
Side Mounted Signs
(2 Lane, 2-Way)

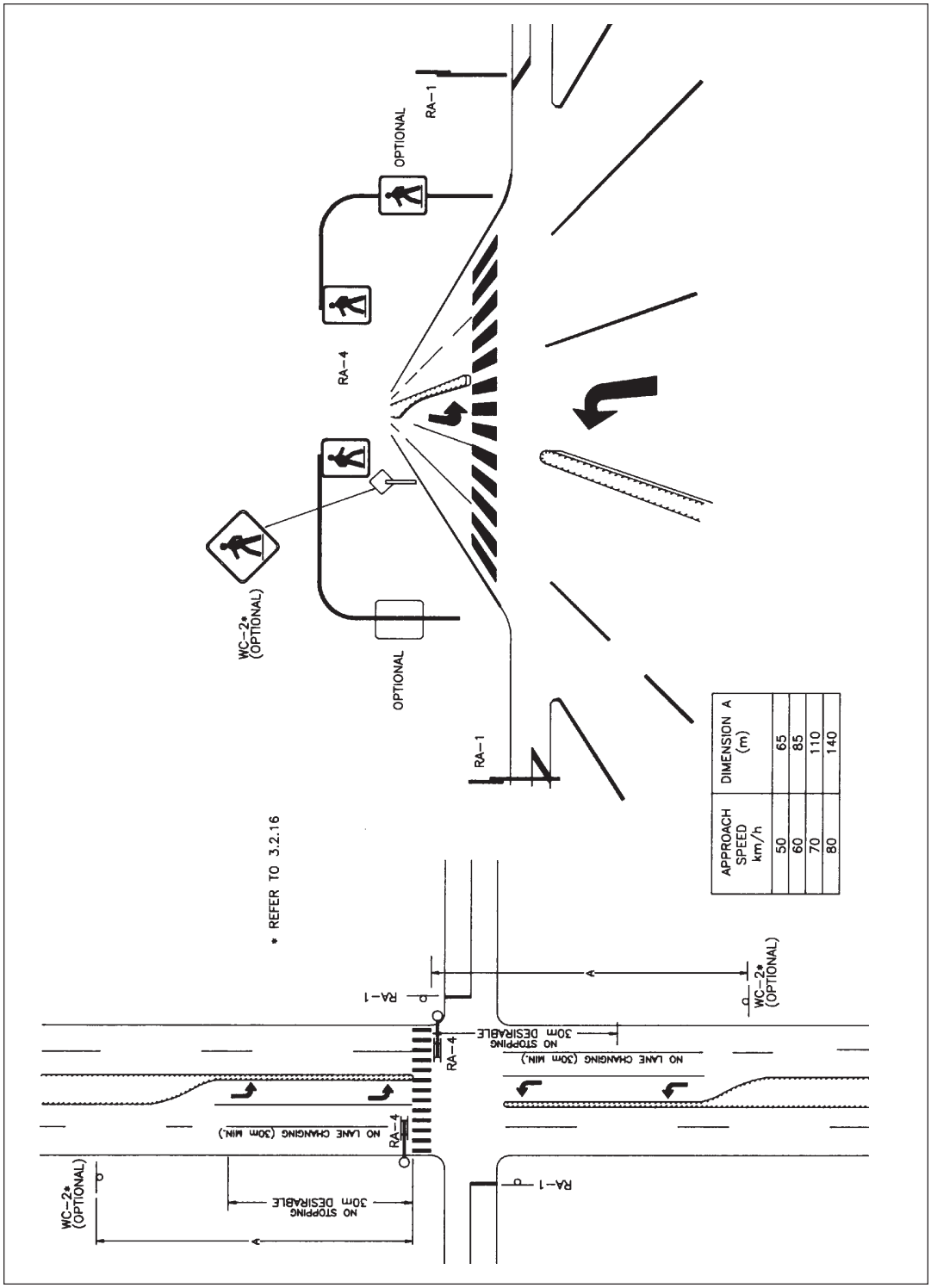


APPROACH SPEED km/h	DIMENSION A (m)
50	65
60	85
70	110
80	140

2.2B School Crosswalk
Side Mounted Signs
(4 Lane, 2-Way Divided)

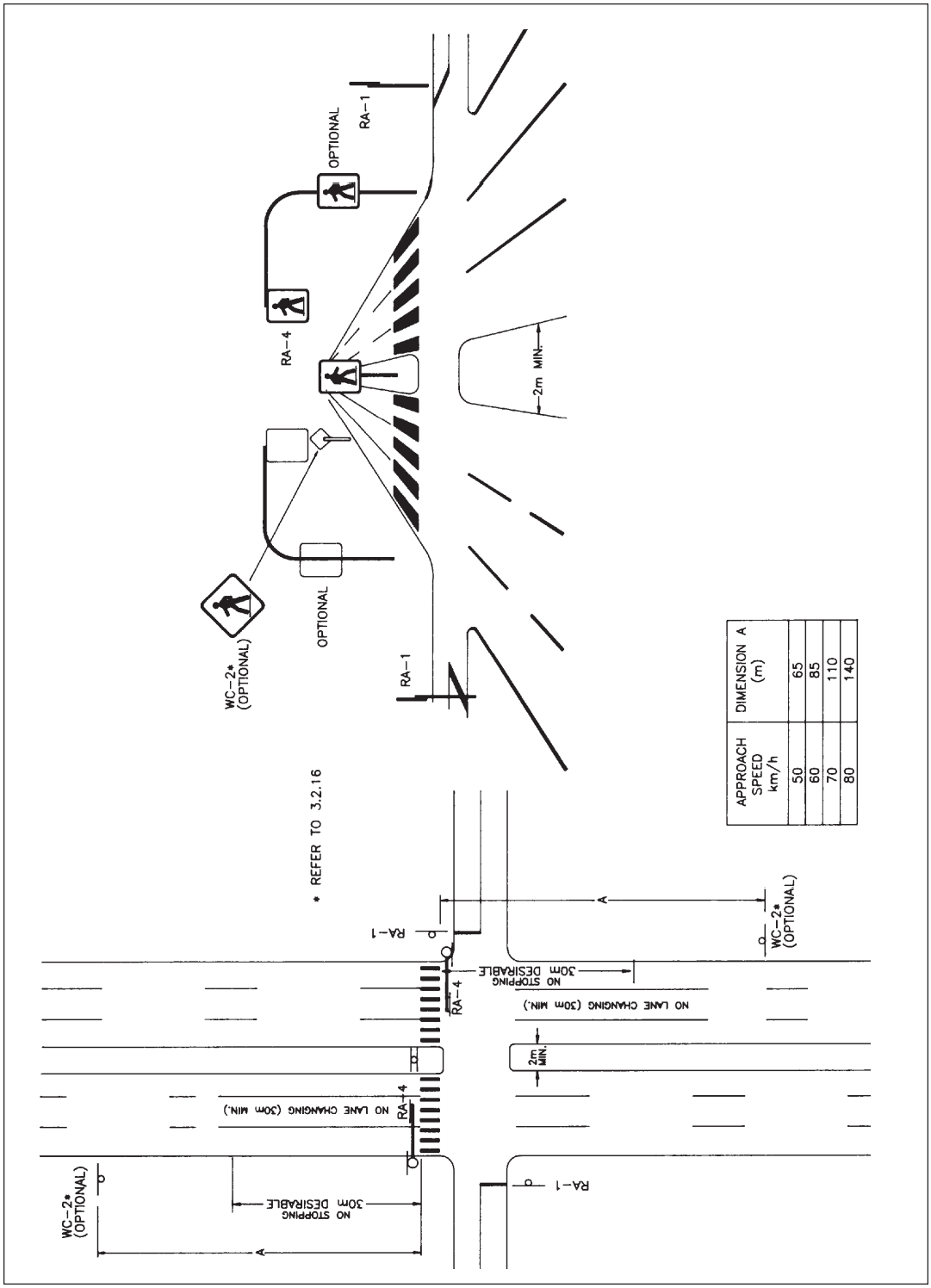


2.2C School Crosswalk
Side Mounted Signs
(2 Lane, 1-Way)



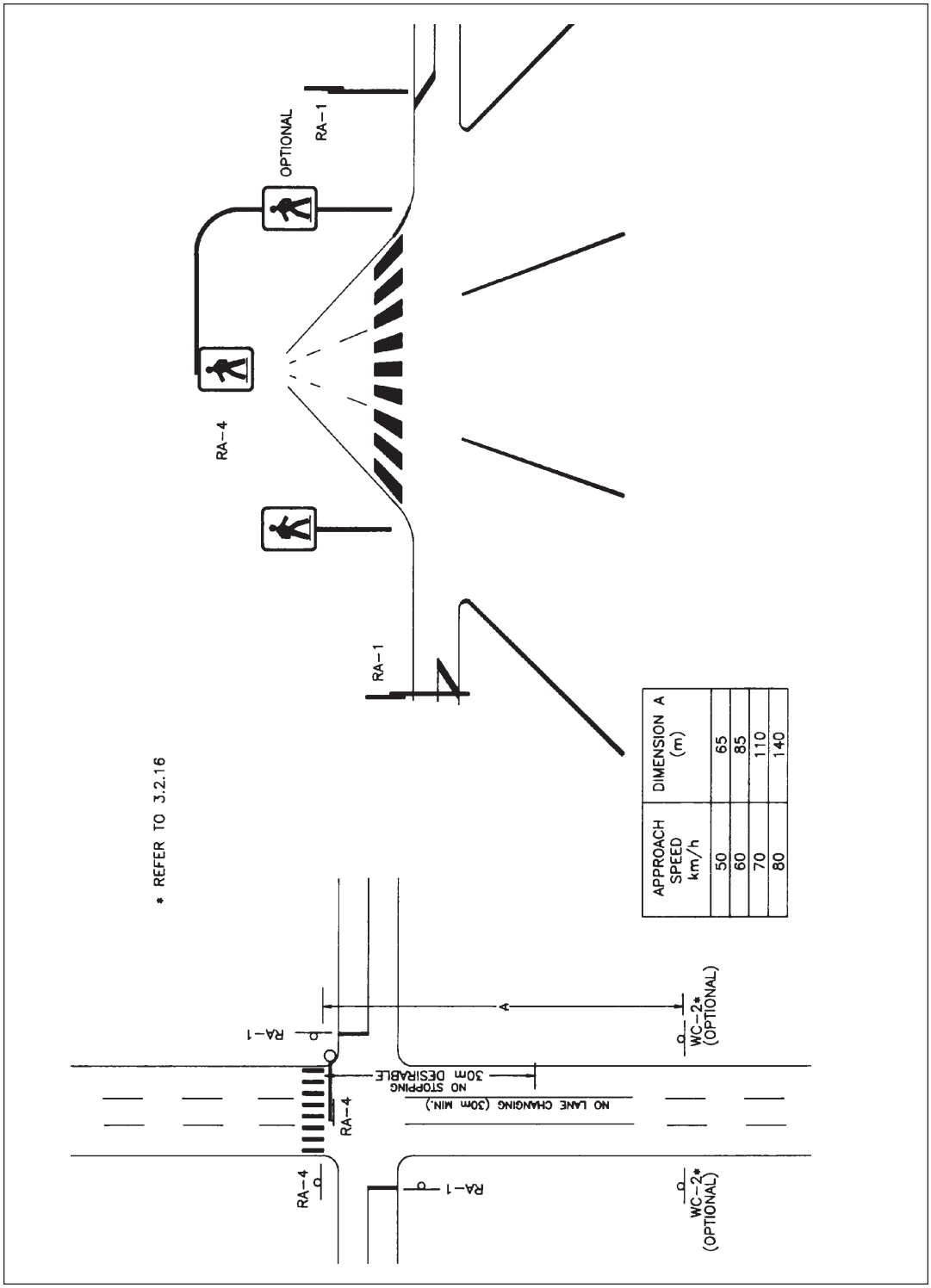
APPROACH SPEED km/h	DIMENSION A (m)
50	65
60	85
70	110
80	140

2.3A Pedestrian Crosswalk
Overhead Mounted Signs
(4 Lane, 2-Way)



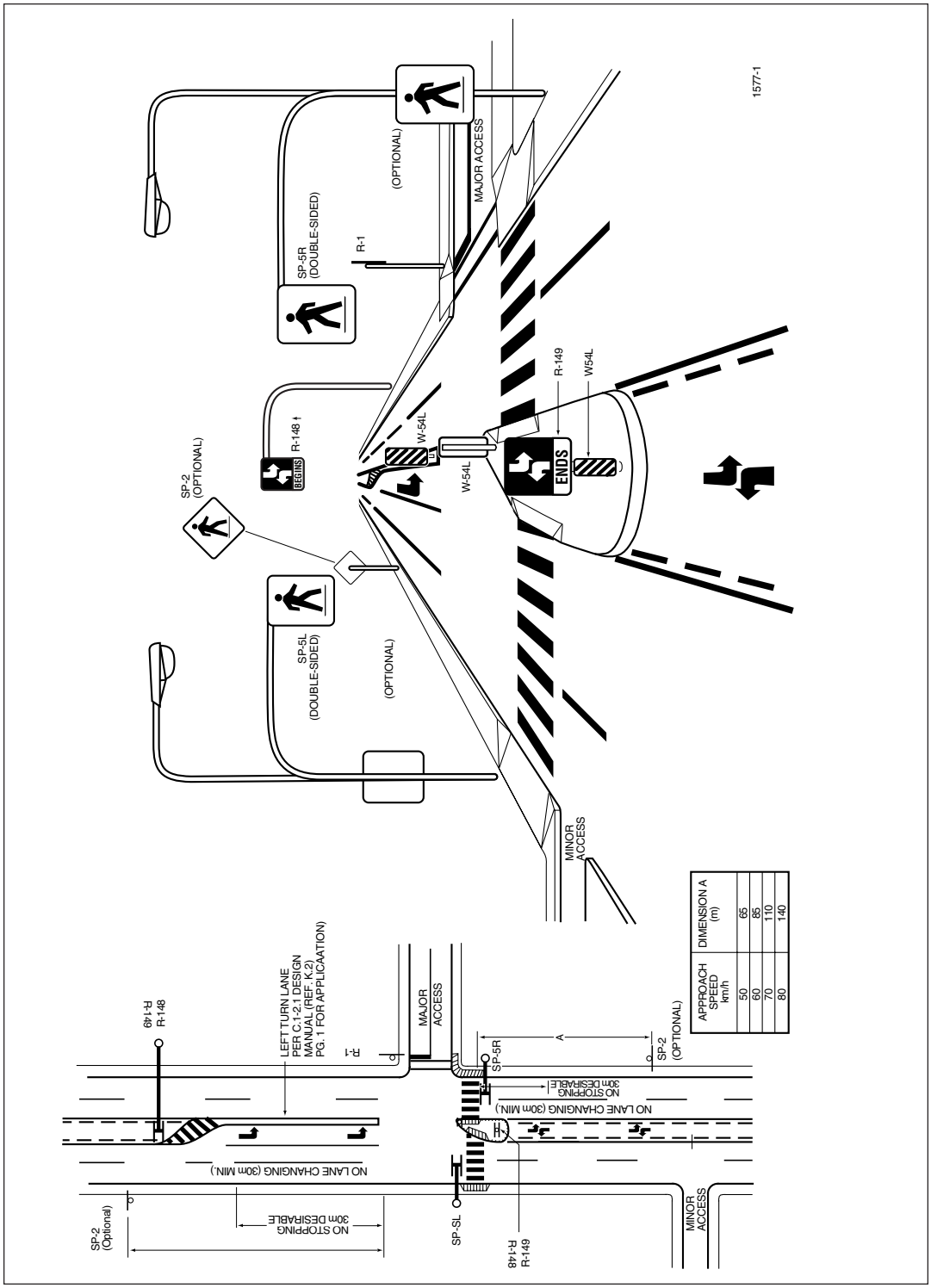
APPROACH SPEED km/h	DIMENSION A (m)
50	65
60	85
70	110
80	140

2.3B Pedestrian Crosswalk
Overhead Mounted Signs
(6 Lane, 2-Way Divided)



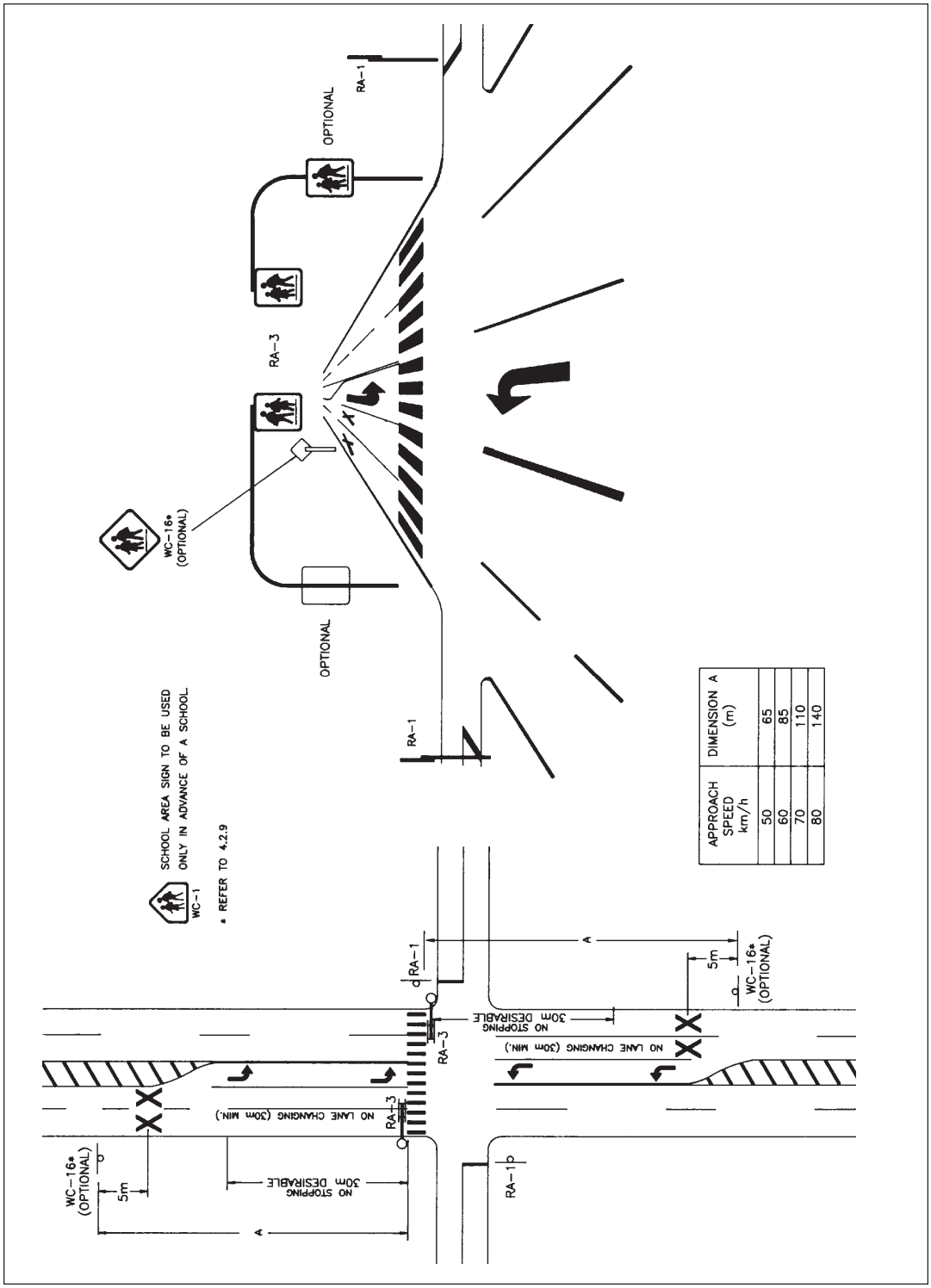
APPROACH SPEED km/h	DIMENSION A (m)
50	65
60	85
70	110
80	140

2.3C Pedestrian Crosswalk
Overhead Mounted Signs
(3 Lane, 1-Way)

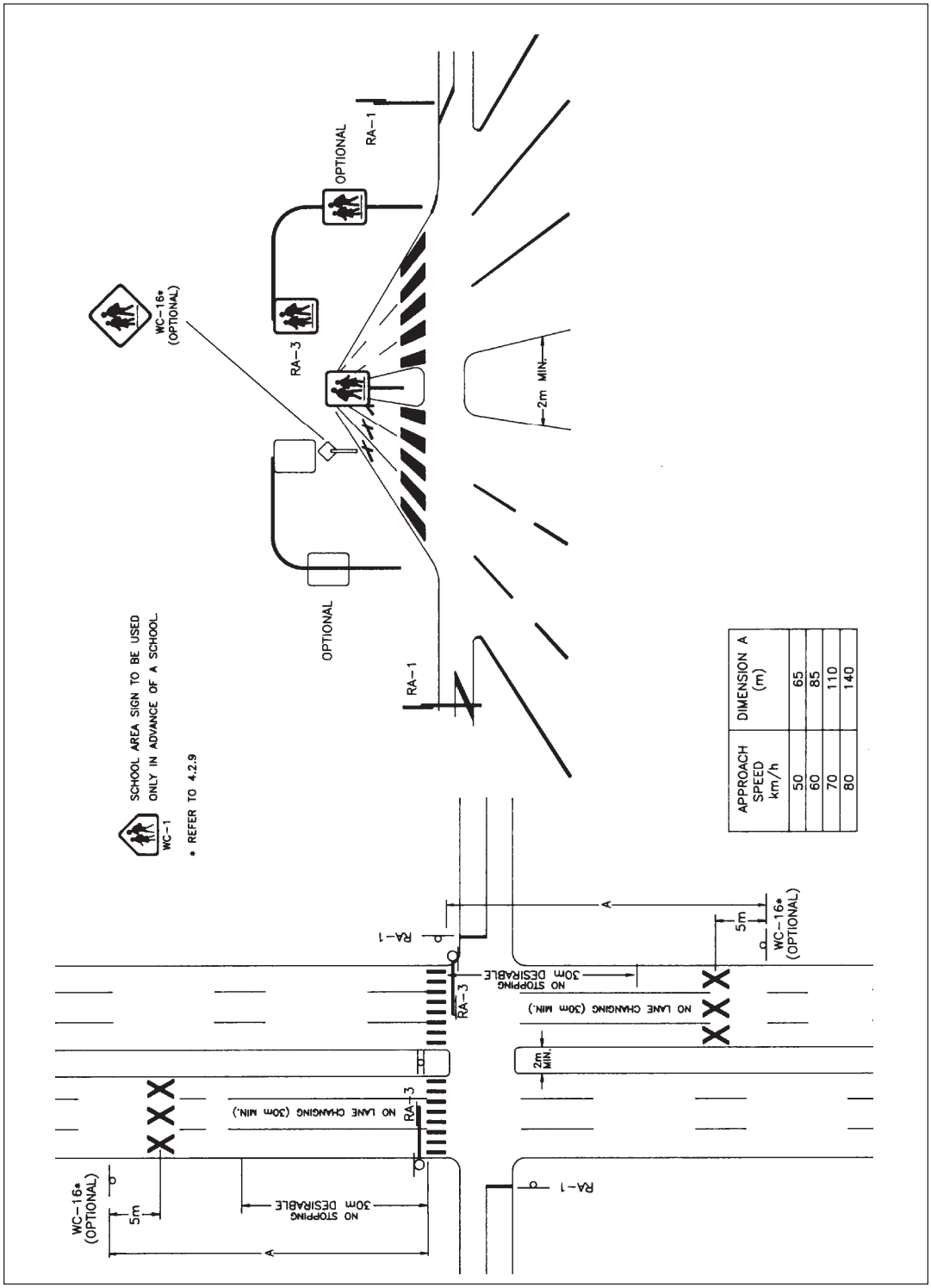


APPROACH SPEED km/h	DIMENSION A (m)
50	65
60	85
70	110
80	140

2.3D Pedestrian Crosswalk
Overhead Mounted
(4 Lane, 2-Way, 2WLTL)

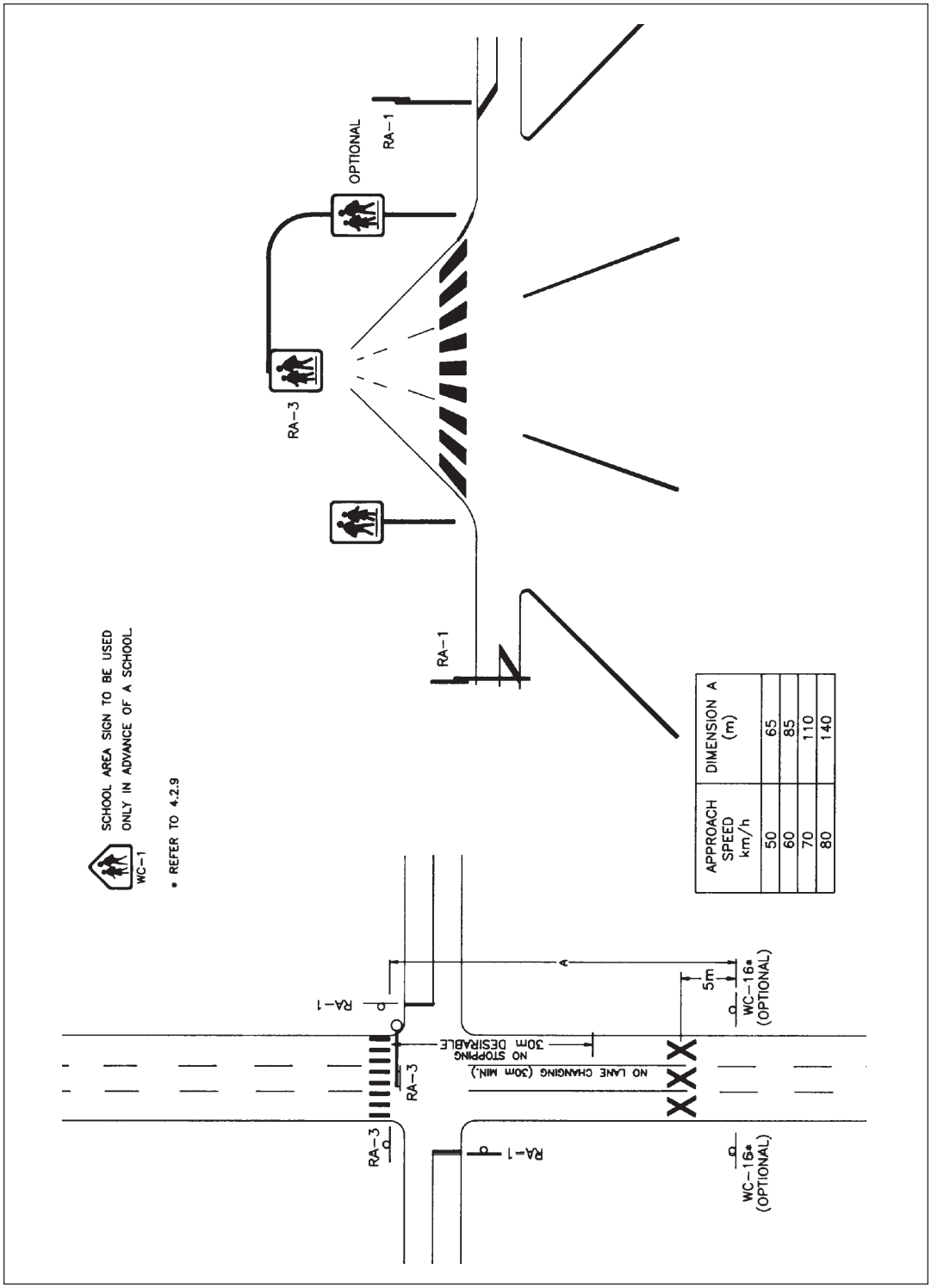


2.4A School Crosswalk
Overhead Mounted Signs
(4 Lane, 2-Way)



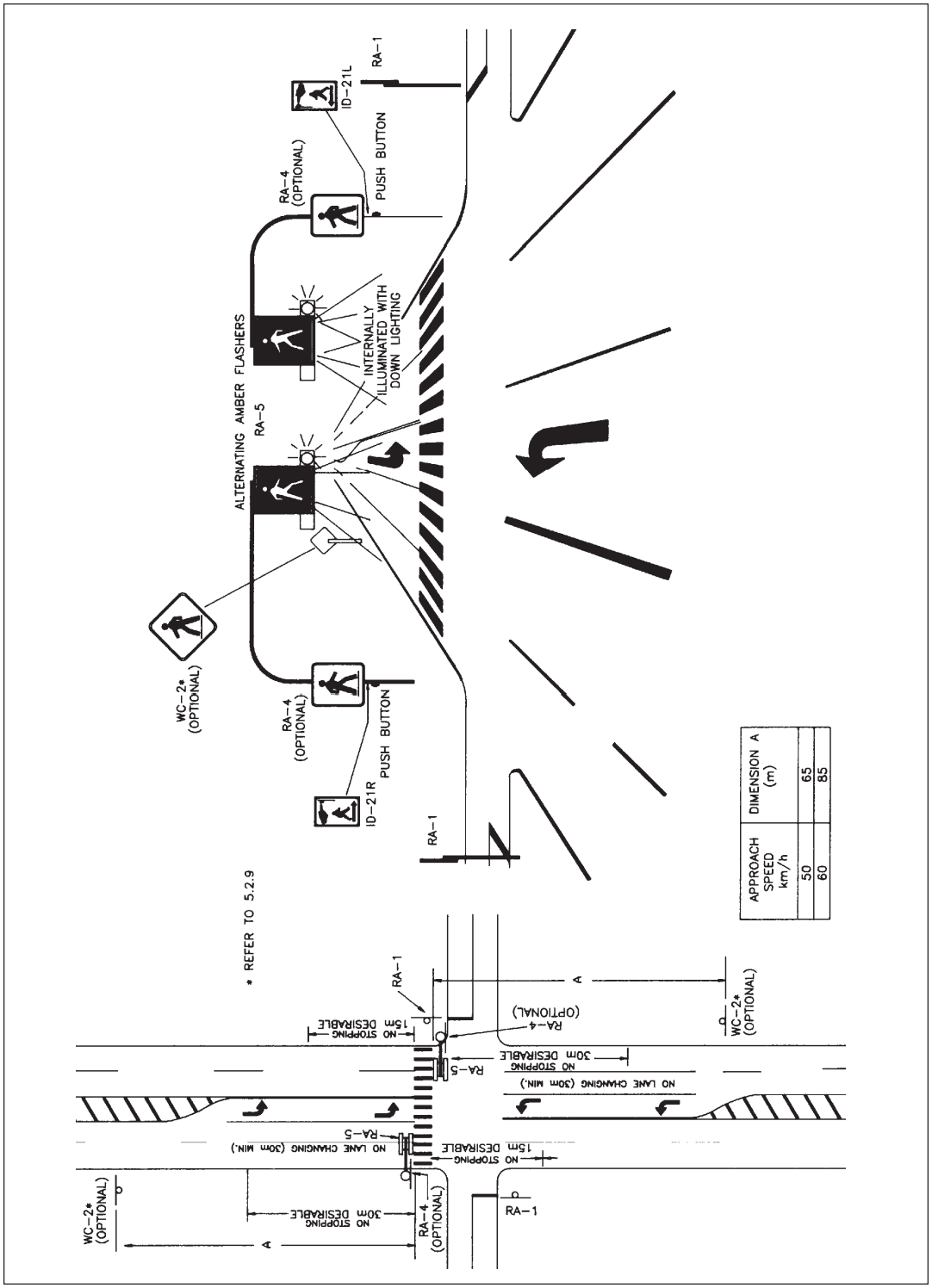
APPROACH SPEED km/h	DIMENSION A (m)
50	65
60	85
70	110
80	140

2.4B School Crosswalk
Overhead Mounted Signs
(6 Lane, 2-Way Divided)

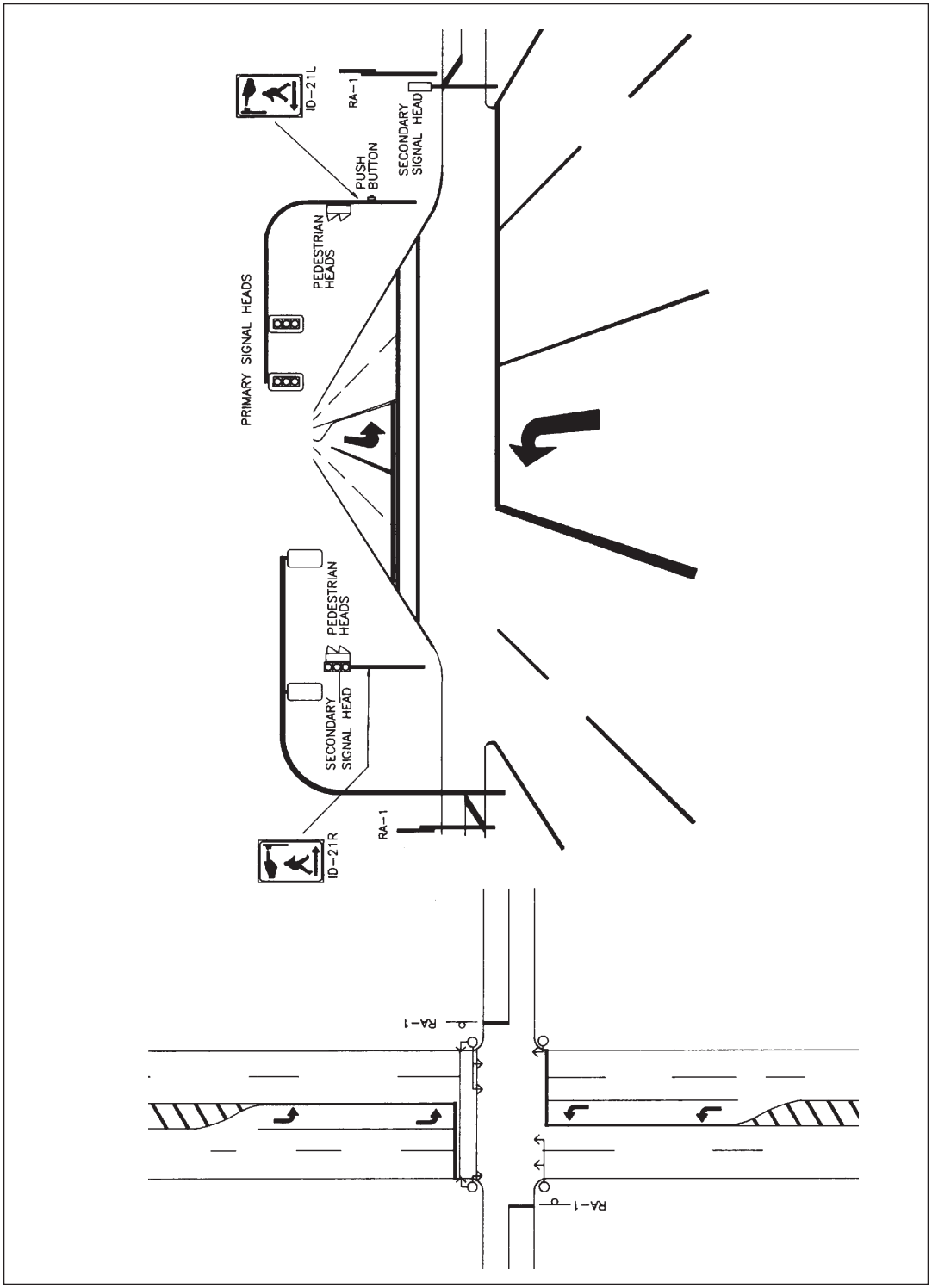


APPROACH SPEED km/h	DIMENSION A (m)
50	65
60	85
70	110
80	140

2.4C School Crosswalk
Overhead Mounted Signs
(3 Lane, 1-Way)



2.5 Special Crosswalk



2.6 Pedestrian Signal

3. WARRANTS

CONTENTS

1. INTRODUCTION
   - 1.1 Purpose 3-2
   - 1.2 Background 3-2
   - 1.3 Developing The Model 3-2

2. DEFINITIONS 3-4

3. PURPOSE OF PEDESTRIAN CROSSING CONTROL DEVICES
   - 3.1 Unmarked Crosswalks 3-6
   - 3.2 Signed And Marked Crosswalks 3-6
   - 3.3 Special Crosswalks 3-6
   - 3.4 Pedestrian Signals 3-6
   - 3.5 Grade Separation 3-6

4. STUDY AND DATA REQUIREMENTS 3-7

5. APPLICATION OF THE WARRANT
   - 5.1 Check Site Condition 3-8
   - 5.2 Determine Pedestrian Volumes 3-8
   - 5.3 Calculate Crossing Opportunities 3-9
   - 5.4 Adjustment Factor - Community Size 3-9
   - 5.5 Select Warranted Device 3-10
   - 5.6 Accident History 3-10

6. NUMERICAL EXAMPLES 3-11

1. INTRODUCTION

1.1 Purpose

The warrant model is intended to provide users in both small and large jurisdictions with a basis for making rational, defensible decisions regarding the installation of pedestrian traffic control devices.

1.2 Background

Warrants for installation of pedestrian related traffic control devices have traditionally been based upon vehicular and pedestrian volumes. Although adequate for roads of a specific cross section with random vehicular arrivals, these warrants do not address the complexities of varying road widths and vehicular arrival patterns. The warrant model described here is structured to address this deficiency.

The warrant model is based on the principle that pedestrian delay is the most critical factor in determining the need for traffic control improvements. Since pedestrian delay is difficult and time consuming to measure, the warrant model instead uses the concept of availability of crossing opportunities for pedestrians. These crossing opportunities are a function of the road cross section, the vehicular volume and the vehicular arrival pattern. Pedestrian demand and geometric features are also factored into the warrant model.

1.3 Developing The Model

Literature on the subject of warrants indicated that relationships between crossing opportunities and vehicular traffic volumes had not been developed extensively.

Therefore, for the purposes of this warrant model, these relationships were derived empirically from gap data collected throughout the Lower Mainland and Greater Victoria areas of British Columbia. Nomographs were developed to allow an estimation to be made of the number of crossing opportunities given vehicular volume, road cross section and traffic flow pattern.

The warrant model defines crossing opportunities and pedestrian volume threshold levels for installation of appropriate traffic control devices. The pedestrian volume is adjusted for pedestrian age and ability in accordance with standard traffic engineering principles. Various thresholds for pedestrian volume are used depending on community size and recognizing the potential community variance in pedestrian and driver expectation of acceptable delay.

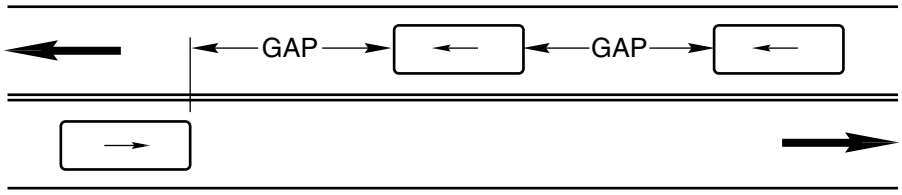
The sequence to be followed for use of the warrant model is described in **Figure 3.1**.

Section 5 provides a detailed description of the procedure to be followed in completing each step of the warrant procedure.

Upon completion of the steps in Section 5, final values for pedestrian volumes and crossing opportunities are obtained. These figures can then be plotted on the pedestrian control warrant chart to determine the required crossing control device.

2. DEFINITIONS

GAP: The time a crosswalk is unoccupied by successive vehicles.



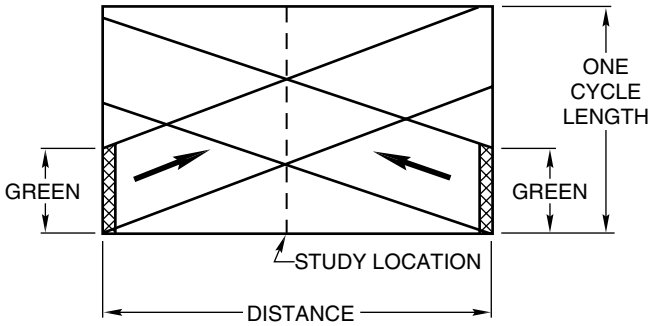
ACCEPTABLE GAP: The time needed to cross the travelled lanes of a roadway at a walking speed of 1.2 m per second plus three seconds of perception and reaction time.

CROSSING OPPORTUNITIES: The number of times a pedestrian can cross the roadway over a given period of time (e.g., one hour).

TRAVEL ARRIVAL PATTERNS: The manner in which traffic arrives at the study location (e.g., random, platoon).

A time space diagram can be used to determine the traffic arrival pattern at a location between signalized intersections.

A typical time space diagram is shown below.



STOPPING SIGHT DISTANCE: Stopping sight distance is the length of road that must be visible to drivers to enable them to come to a safe stop before reaching an object.

EQUIVALENT ADULT UNITS: The relative weighting of a child, senior or physically challenged person in comparison to an adult.

3. PURPOSE OF PEDESTRIAN CROSSING CONTROL DEVICES

The prime function of any type of pedestrian crossing control device is to channel pedestrians across a roadway in safety.

In the development of warrants, an attempt was made to rank the various control devices in a hierarchical form ranging from unmarked crosswalks to pedestrian signals.

3.1 Unmarked Crosswalks

Pedestrian crossing is permitted at intersections even if crosswalks are unmarked and unsigned.

3.2 Signed And Marked Crosswalks

Pedestrian crossing is permitted at marked and signed crosswalks.

Marked crosswalks are installed to draw a driver's attention to a crossing location and to indicate to pedestrians that the location is a good place to cross the road.

3.3 Special Crosswalks

Special crosswalks also draw a driver's attention to the needs of pedestrians at the crosswalk. They are pushbutton operated and usually reserved for more complex locations where a driver's attention may be difficult to obtain with a signed and marked crosswalk.

3.4 Pedestrian Signals

Pedestrian signals are pushbutton actuated and allow pedestrians to force traffic to yield the right-of-way.

3.5 Grade Separation

Grade separation provides the highest level of crossing protection. No warrants are developed for grade separation as part of this manual. Requests for grade separations should be examined on a case by case basis in light of the guidelines provided in this manual in section **7. Pedestrian Grade Separation**s.

4. STUDY AND DATA REQUIREMENTS

Studies

1. When undertaking a review of a pedestrian crossing location, the following studies are required:

- gap study or vehicular count,

  NOTE: Assessment of a pedestrian crossing is based on a one hour period. Since the peak hour for traffic may not coincide with the peak hour for pedestrians, it may be necessary to survey several hours to ascertain which hour will constitute the one hour assessment period.

- pedestrian count, including age distribution (e.g., 0-12, 13-65, over 65 years),

- speed study, to determine the 85th percentile speed (may use the speed limit otherwise).

Other Information

2. Other information needed to conduct a thorough review of the crossing location includes:

- stopping sight distance,

- proximity of adjacent traffic signals,

- traffic signal timing,

- road geometry and

- review of accident history.

5. APPLICATION OF THE WARRANT

The following steps should be carried out in the application of the warrant:

5.1 Check Site Condition

1. If the physical conditions are satisfied, the warrant model can be applied to determine the appropriate control device.

2. Site conditions to be satisfied include the following

> **NOTE:** See **Application Guidelines** for each crosswalk application described in **2. APPLICATION AND INSTALLATION** in this manual.

- number of travel lanes to cross,
- stopping sight distance,
- distance to alternate crossing offering equal or higher control,
- grade, where roadways with grades greater than eight percent (up or down) are not considered suitable for pedestrian crossing controls unless special consideration is given, such as the provision of advance warning devices.

5.2 Determine Pedestrian Volumes

1. Pedestrian volumes are converted into equivalent adult units (EAUs) where children, seniors and the physically challenged are given preferential treatment to account for their vulnerability.

	Number Per Hour	Factor	EAUs
Children (≤12 years)	_____	x 2.0	= _____
Seniors (≥65 years)	_____	x 1.5	= _____
Physically Challenged	_____	x 2.0	= _____
Adults	_____	x 1.0	= _____
Total EAUs in the one hour assessment period			= _____

5.3 Calculate Crossing Opportunities

Consider the following points in calculating crossing opportunities (COs):

1. The actual number of COs counted in the one hour assessment period should be used, if available.

2. If gap data is not available, estimate COs using the traffic count as follows:

   a. determine traffic volume in the one hour assessment period,

   b. determine traffic arrival pattern which is a function of the coordination of the traffic signals on either side of the study location,

   c. refer to **Figures 3.5A, 3.5B, 3.5.C, 3.5.D** to determine which curve to use, draw a time space diagram:

Pattern A

- choose curve A if there are no signals within 1 km of the study location,

Pattern B

- choose curve B if signals are uncoordinated or if the total time occupied by the green bands at the crossing location is more than 50% of the cycle length,

Pattern C

- choose curve C if the total time occupied by the green bands at the crossing location is less than 50% of the cycle length.

5.4 Adjustment Factor - Community Size

The concentration of pedestrians at a particular crossing is a function of the adjacent land use and, therefore, community size. In large urban centres, high concentrations of pedestrians are frequently found while, in comparison, concentrations of pedestrians in villages and towns would be considerably lower.

To reflect this situation, the pedestrian volume base threshold level is decreased for smaller communities so that a traffic control device is recommended sooner than would otherwise be considered. The adjustment of the EAU threshold must be based on the metropolitan population rather than municipality population.

Community Size	Adjustment To EAU Threshold
<10,000	-10
10,000-250,000	- 5
>250,000	0

NOTE: EAU threshold adjustment has been incorporated in the Pedestrian Crossing Control Warrant Chart, see **Figure 3.5E.**

5.5 Select Warranted Device

Select the appropriate traffic control device from the warrant chart using COs and EAUs **(Figure 3.5E)**.

5.6 Accident History

While pedestrian accidents are not included as a direct component of the warrant model, the analyst should include a review of the accident history as part of the study of pedestrian crossing needs at the study location.

6. NUMERICAL EXAMPLES

The following examples illustrate the application of the warrant model.

Example #1

Given the following information, determine the appropriate crossing control device:

- traffic volume = 1200 veh/h
- pedestrian count = 10 adults, 2 children, 2 elderly
- roadway cross section = 2 lane (7.2 m wide)
- signal progression = none
- speed limit = 50 km/h
- population = 9,500

Solution

1. EAU = (10 times 1) + (2 times 2) + (2 times 1.5) = 17
2. Crossing opportunities (Figure 3.5A, Pattern A) = 60
3. Device (Warrant Chart Figure 3.5E) = **SIGNING/MARKING**

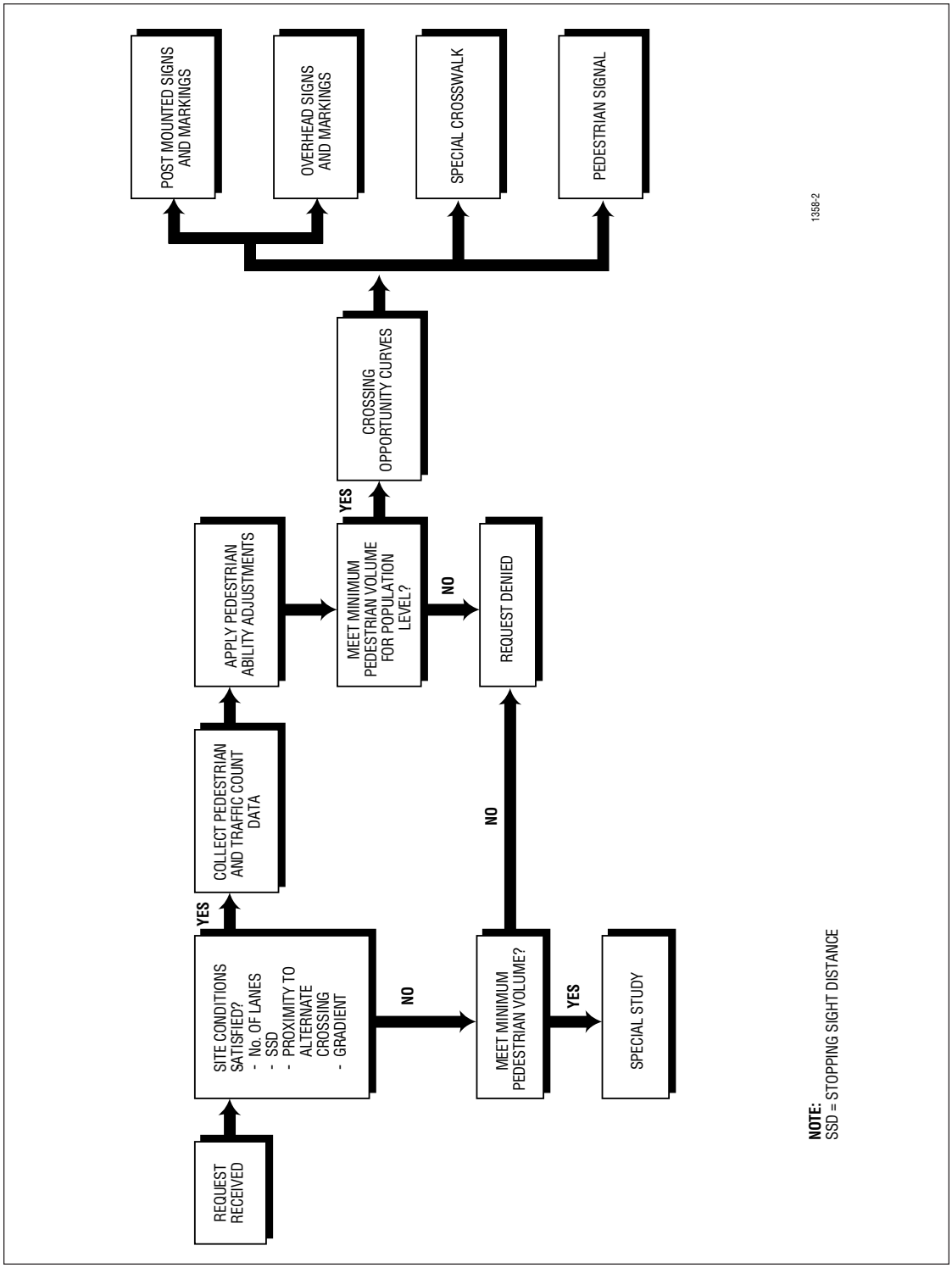
Example #2

Given the following information, determine the appropriate crossing control device:

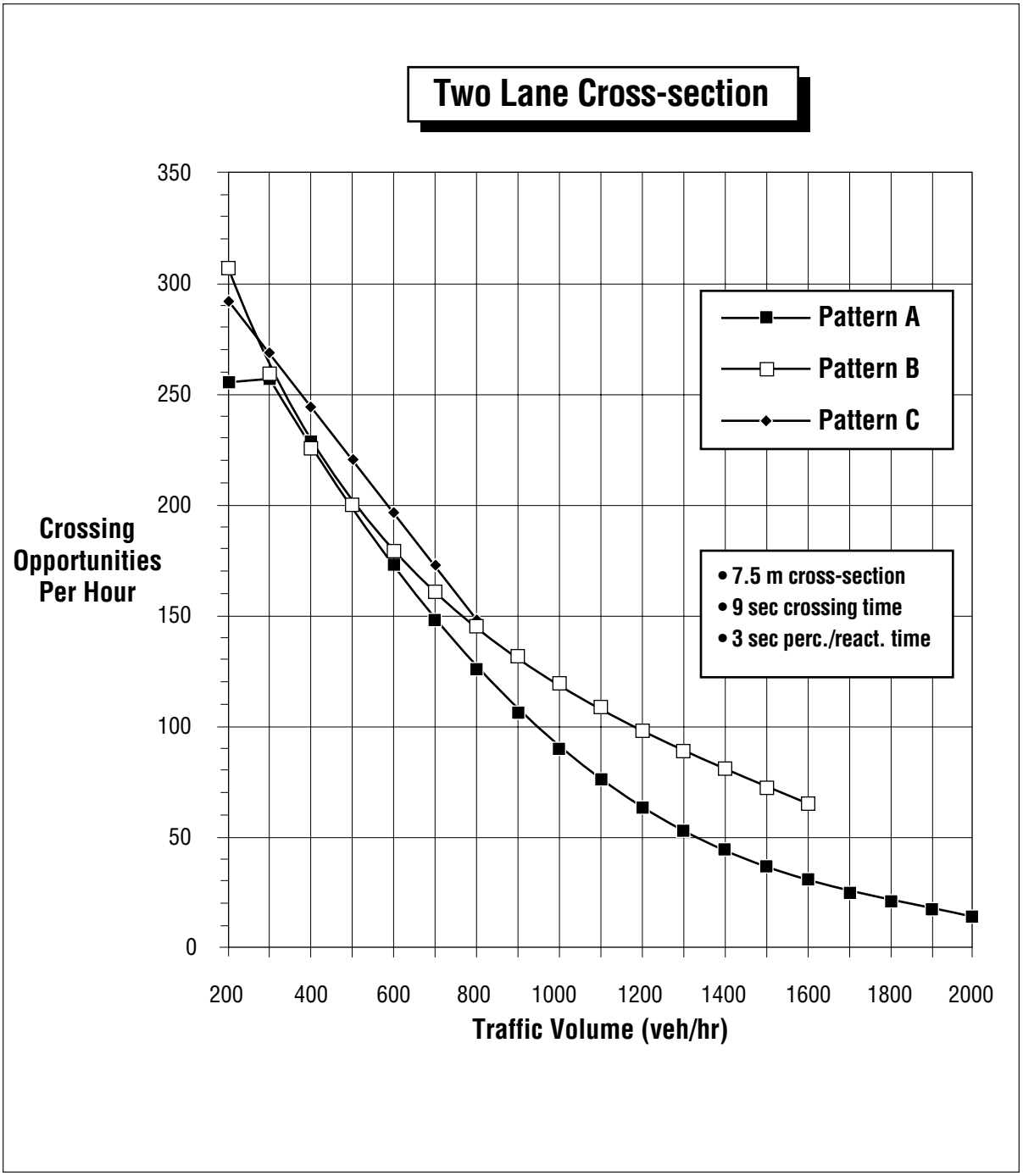
- traffic volume = 1200 veh/h
- pedestrian count = 30 adults, 10 children, 4 elderly
- roadway cross section = 4 lane (14 m wide)
- signal progression = uncoordinated signals
- speed limit = 60 km/h
- population = 50,000

Solution

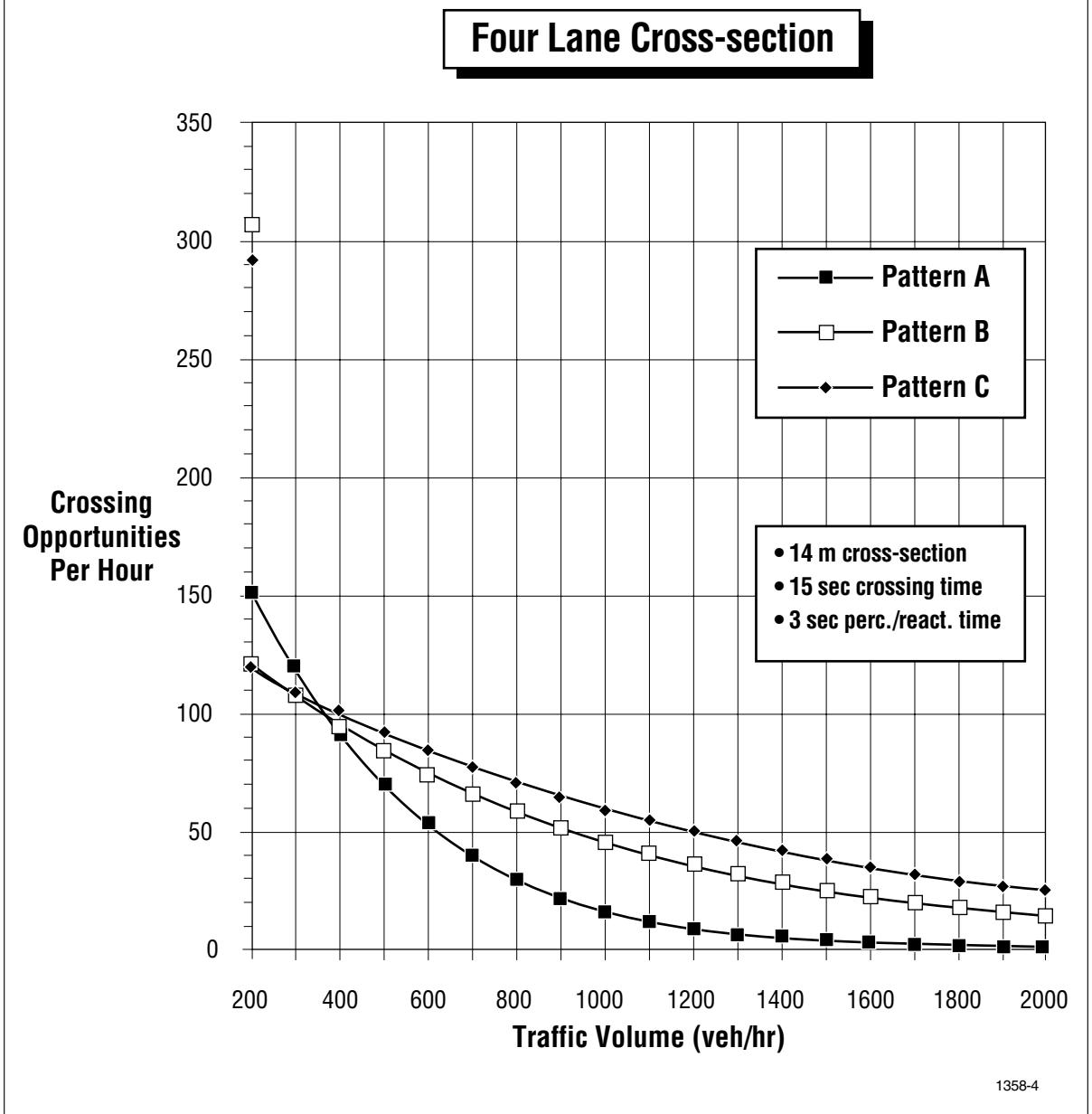
1. EAU = (30 times 1) + (10 times 2) + (4 times 1.5) = 56
2. Crossing opportunities (Figure 3.5B, Pattern B) = 35
3. Device (Warrant Chart Figure 3.5E) = **PEDESTRIAN SIGNAL**



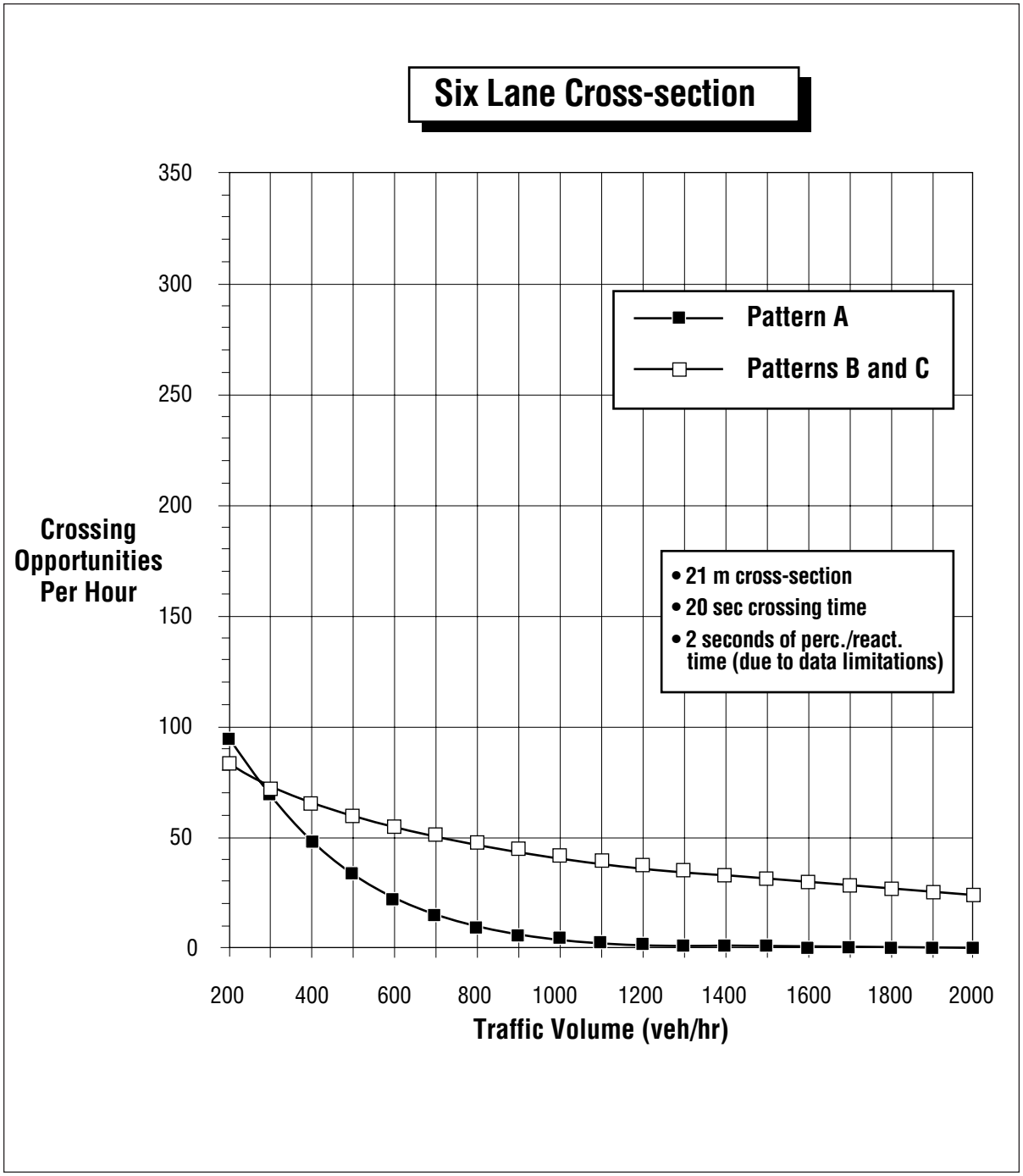
3.1 Warrant Model Flow Chart



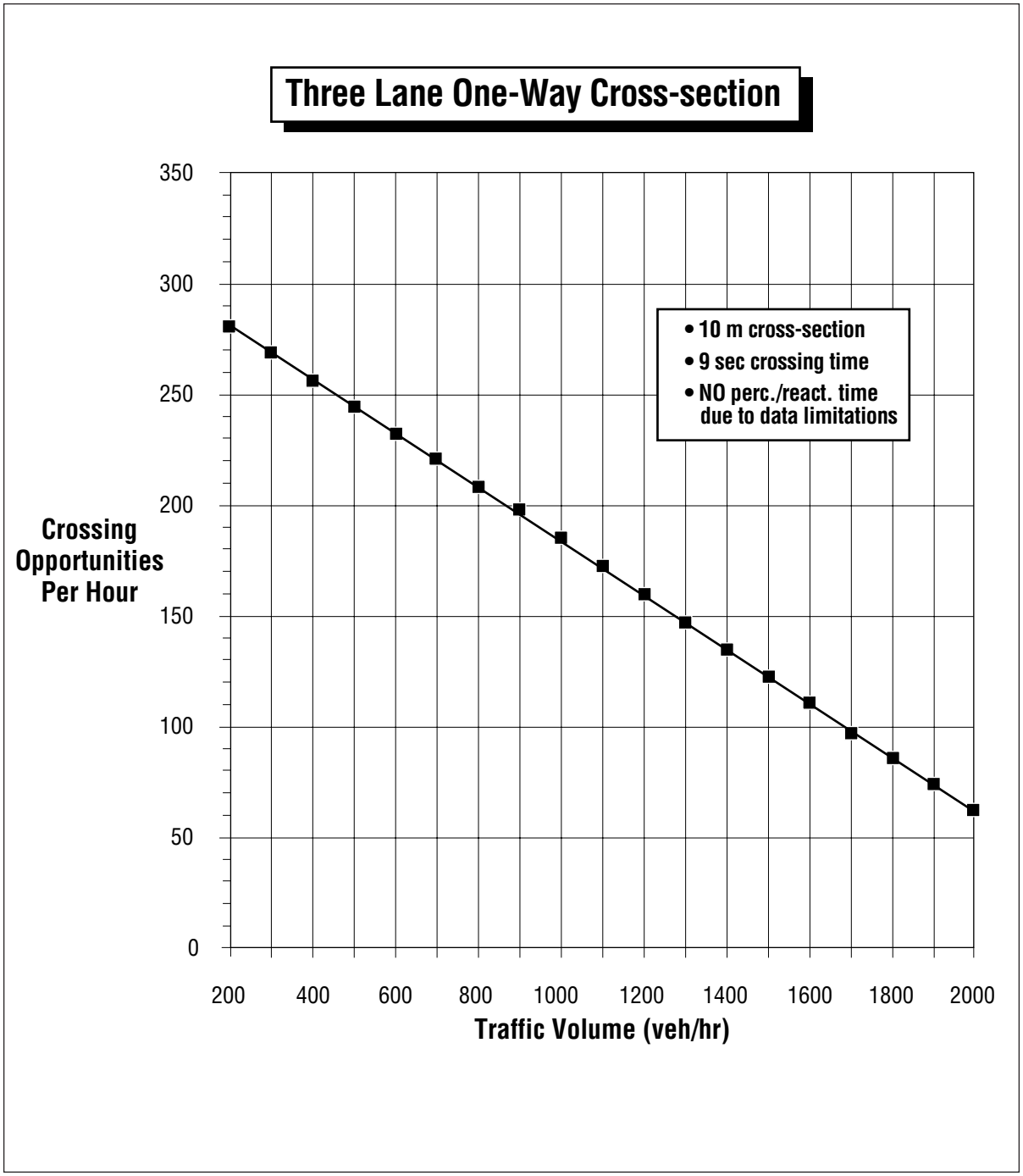
3.5A Estimated Crossing Opportunities for a 2 Lane Cross-Section



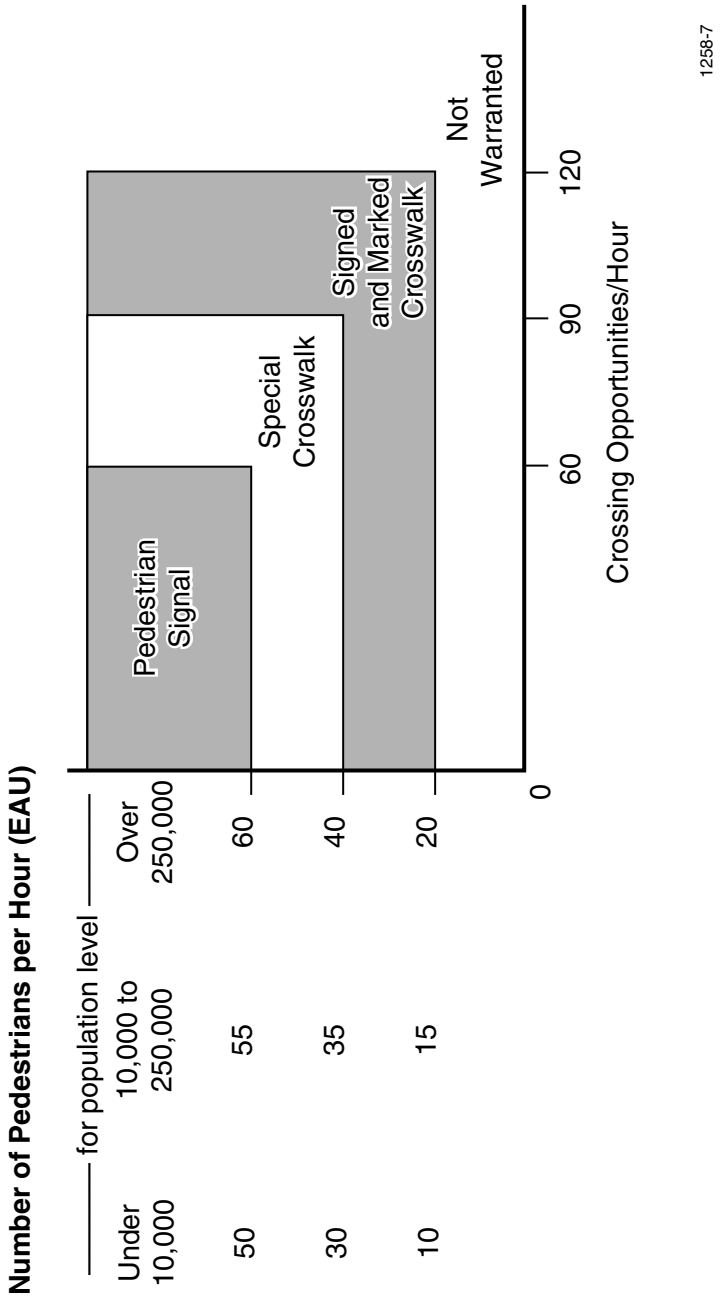
3.5B Estimated Crossing Opportunities for a 4 Lane Cross-Section



3.5C Estimated Crossing Opportunities for a 6 Lane Cross-Section



3.5D Estimated Crossing Opportunities for a 3 Lane One-Way Cross-Section



3.5E Pedestrian Crossing Control Warrant Chart

PART 3: SCHOOL CROSSING PROGRAMS

CHAPTER 4.
BACKGROUND

CHAPTER 5.
SAFE ROUTE TO SCHOOL PROGRAM

CHAPTER 6.
SCHOOL PATROL PROGRAM

CHAPTER 7.
ADULT CROSSING GUARD PROGRAM

4. BACKGROUND

CONTENTS

1. INTRODUCTION 4-2

2. CHARACTERISTICS OF SCHOOL CHILDREN IN TRAFFIC STREAM 4-3

3. THREE SCHOOL CROSSING PROGRAMS 4-4

1. INTRODUCTION

In British Columbia, almost 20% of all pedestrian accidents involve children under 15 years of age. Of the pedestrian accidents involving children under 15 years of age, about 60% occurred during the morning, noon and afternoon peak hours.

2. CHARACTERISTICS OF SCHOOL CHILDREN IN TRAFFIC STREAM

Children's perceptions and sensory skills may put them at a disadvantage in traffic situations. Children can be helped to be safe as pedestrians by receiving instruction in safe crossing practices.

Research on children in traffic suggests that children perceive traffic differently than do adults. Young children may typically:

- assume that cars stop instantly,
- think that if they can see a car, the driver can see them,
- have difficulty judging speed and distance,
- have a field of vision one-third narrower than that of an adult,
- have difficulty discriminating the direction of sounds,
- concentrate on one thing at a time (i.e., focus on what is of interest to them at the moment),
- intertwine fantasy and reality,
- have no sense of danger,
- cannot perceive complicated traffic situations and
- overestimate their knowledge and physical strength.

3. THREE SCHOOL CROSSING PROGRAMS

There are three popular school crossing programs:

- Safe Route To School Program,
- School Patrol Program,
- Adult Crossing Guard Program.

Identifying a safe route to school and practicing the necessary traffic safety behaviours will empower the child with a greater sense of personal responsibility. School children, especially the young children (Kindergarten to Grade 3), will benefit from additional assistance in going to and returning from school safely.

Generally, the first step is to establish safe routes to school. The identification of safe routes facilitates the consolidation of crossing points and allows proper evaluation of traffic control devices at the crossing points along the routes. The need for additional safety programs, such as school patrol and adult crossing guards, should also be evaluated.

The children should be instructed to follow their route, to understand and follow the directions of traffic signs and signals and to follow the instructions of patrollers and guards.

It is important for the children to learn safe crossing practices through education in the classroom and at home, and by regular reinforcement of the safety messages.

5. SAFE ROUTE TO SCHOOL PROGRAM

CONTENTS

1. PURPOSE OF THE PROGRAM 5-2

2. GUIDELINES TO CONSIDER 5-3

3. ROLES OF KEY STAKEHOLDERS 5-7

4. SAFE ROUTE TO SCHOOL COMMITTEE 5-8

5. PROGRAM DEVELOPMENT, IMPLEMENTATION, AND REVIEW 5-9

6. SELECTION OF TRAFFIC CONTROL DEVICES 5-11

7. CLASSROOM TRAINING 5-12

1. PURPOSE OF THE PROGRAM

The Safe Route To School Program is designed to assist children in the development of safe walking habits, the identification of safe routes and to make them more aware of the potential dangers they face in walking to and from school. The same principles apply to travelling to and from school bus stops.

The program fosters coordination and cooperation between parents, school officials, police and the local road authority in working toward the common goal of protecting the lives of children.

The Safe Route To School Program includes field trip activities, development of individual maps, traffic safety education activities and parent participation.

2. GUIDELINES TO CONSIDER

There is no magic formula for selecting safe routes since conditions differ between and within communities. Local conditions should be considered before adopting the safe route to school model or a modified version of this model.

The following guidelines should be considered in planning a safe route in order to minimize the exposure to hazards as much as possible.

Directness

1. Children should be encouraged to take the most direct and safe route to and from school.

2. Often, several routes of equal distance are available, so the route that appears to be the safest when all factors are considered should be selected.

Minimize Street Crossings

3. Routes that involve the minimum number of streets to cross should be selected.

Complicated Intersections

4. Complicated intersections should be avoided unless adult crossing guards are assigned to assist school children.

Guarded Intersections

5. Intersections that are guarded by police, adult crossing guard or school patrols are preferable.

Traffic Signals

6. Signals with separate pedestrian intervals or WALK/DON'T WALK indicators are preferable.

NOTE: Traffic signals offer protection to pedestrians but they are not a guarantee of safety.

Merging Routes

7. Routes should be selected so that as many children as possible will merge at one place when crossing a hazardous street.

> **NOTE:** Such gathering of children may permit a wider and more effective use of police, adult crossing guards and school patrols.

School Crossings

8. Where possible and appropriate, school crossings should be provided adjacent to school grounds.

> **NOTE:** Motorists are generally warned of these crossings by school crossing signs, signals, markings and/or designated speed restrictions.

Vehicular Volume And Speed

9. Compare and analyze vehicular volumes at all intersections before routes are finalized.

10. The three factors to consider are:

- the number of vehicles,
- the number of vehicles completing right hand turns and
- the number of vehicles completing left hand turns.

11. Higher speed and lower speed areas should be compared.

Traffic Composition

12. Special consideration should be given to a high proportion of large trucks in the traffic stream.

One-Way Streets

13. Generally, intersections on one-way streets are safer to cross than intersections on two-way streets.

Stop Signs

14. Signs and pavement markings directing motorists to stop must be legible and in easily observed positions to be of maximum value to pedestrians.

NOTE: Pedestrians crossing at a stop sign are protected to some degree since the law requires a vehicle to come to a complete stop.

Pedestrian Accident Exposure

15. The number and type of pedestrian accidents that have occurred at intersections in the area should be determined.

Sidewalks

16. Improved sidewalks and pathways should be used at every opportunity since they provide buffer zones from traffic flow.

17. If the roadway must be used, stress:

- walking on the left side facing traffic and
- staying as far away from the travelled roadway as possible.

Silhouette

18. Where there is a need for a school patrol or adult crossing guard at the school crosswalk, the use of a silhouette depicting the profile of a pedestrian should **not** be considered an equal substitute.

NOTE: In addition to assuring safe crossing, school patrol and crossing guards are capable of encouraging and promoting safe crossing behaviours and helping the young school children to develop sound judgement and safe behaviour regarding crossing.

19. The use of a silhouette on the roadway, as a substitute for guarding, is not recommended.

NOTE: The silhouette on the roadway may divert the attention of the drivers from the pedestrians. The presence of the silhouette may unnecessarily generate a false sense of security to the young school children.

Child's View Obscured

20. Conditions that obscure a child's view of oncoming traffic should be avoided or removed (e.g., bus stops, sharp grades or curves, blind corners, congested streets and intersections with parking near the crosswalks).

Rural/Northern Areas

21. For rural/northern areas, factors such as gravel roads, road surface conditions, fog, snowbanks and short winter days should be considered.

Other Factors

22. Other factors which may compromise the safety of the children travelling to or from school should be scrutinized (e.g., speeding traffic, rough street surfaces at crossings, hazardous sidewalks in inclement weather, mid-block crossings, poorly located safety zones or islands, lighting and land use).

3. ROLES OF KEY STAKEHOLDERS

Parental Involvement

1. The child's safety as a pedestrian should be a coordinated/cooperative effort between home and school.

2. Parents are encouraged to be involved in the planning of the safe route to school then walk the route with their child, discussing hazards, obstacles and crossing behaviours.

Teacher Involvement

3. Teachers can help children to be aware of, adopt and practise the correct traffic behaviours that will assist them in arriving at school safely **(See Section 5.7)**.

4. Safe crossing behaviour and related activities should become an integral part of the children's safety education curriculum.

Police Involvement

5. Police coordination and cooperation promotes acceptance of the Safe Route To School Program in the minds of children, drivers and teachers.

6. Police may also assist in the following, where they are part of the local program:

   - the development of the program,
   - the training of school crossing guards and patrollers,
   - the development and undertaking of enforcement campaigns at the school crossing location and
   - the monitoring and evaluation of the school crossing programs.

Road Authority Involvement

7. The local road authority, either provincial or municipal, should be consulted in determining:

   - the appropriateness of the crossing location and
   - the adequacy of traffic control devices.

4. SAFE ROUTE TO SCHOOL COMMITTEE

Membership Of Committee

1. A Safe Route To School Committee should be formed consisting of representatives from the school and parents, as a minimum **(Figure 5.4)**.

NOTE: The police and the road authority may be involved as a part of committee or, alternatively, they may be invited on an as needed basis.

Purpose

2. The Safe Route To School Committee would:

- review the current and future walking patterns of the students,
- prepare a master map showing the school location and the catchment area, the road network, possible crossing locations and the traffic control inventory.
- identify preferred crossing locations and safety considerations,
- facilitate the evaluation of the need for, and installation of, suitable traffic control devices,
- evaluate the need for school patrols and/or adult crossing guards,
- implement the Safe Route To School Program,
- develop and implement the guarding programs, if necessary and
- monitor, evaluate and provide direction to the programs.

5. PROGRAM DEVELOPMENT, IMPLEMENTATION AND REVIEW

Master Map

1. Based on the crossing demand data, and with input from the road authority and the police, the Safe Route To School Committee would:

    - finalize the selection and consolidation of crossing locations and
    - prepare a master map **(Figure 5.5)**.

Traffic Control Device Requirements

2. The road authority should then:

    - assess the traffic control device requirements along the safe route to school and
    - undertake any improvements that may be necessary.

Crossing Programs

3. The school and the Safe Route To School Committee would then have to assess the need for school patrol and/or adult crossing guard programs at each of the identified crosswalks **(See SCHOOL PATROL PROGRAM and ADULT CROSSING GUARD PROGRAM)**.

Safe Route To School Exercise

4. In the classroom, teachers and students will use the master map as a platform for the safe route to school exercise.

5. The exercise will include the preparation of a personal map with a safe route to school for each student who walks to school.

6. The parent and the student will:

    - examine the personal map with the safe route to school,
    - walk the safe route as an exercise and
    - provide feedback to the Safe Route To School Committee.

7. The feedback from the walking exercise will be used by the Safe Route To School Committee to update the route selection and crossing demand for each crosswalk location.

Monitoring Routes and Crossing Locations

8. All routes and crossing locations should be monitored for safety performance and operational patterns.

9. This monitoring should include:

    - a review of the traffic and school pedestrian patterns to assess the need to add or delete routes or crossing locations and

    - a review of the crossing locations to determine the need to update the traffic control devices and/or school crossing programs.

Program Review

10. The safe route to school, and the crossing locations, should be regularly reviewed in consideration of:

    - constantly changing traffic patterns which make a constant review of the safe route essential and

    - new developments, increased vehicle traffic and changing traffic patterns which may change the operational environment of the crossing locations dramatically.

11. The committee structure, the roles and working relationship amongst all stakeholders, and the effectiveness of the programs to enhance school children safety should be monitored and reviewed periodically.

6. SELECTION OF TRAFFIC CONTROL DEVICES

1. When a safe route to school is identified, the appropriate traffic control devices (TCDs) should be assessed by the road authority.

2. The traffic control devices that are selected by the road authorities should take into consideration several engineering factors **(See APPLICATIONS AND INSTALLATION and WARRANTS)**, including:

- traffic volume and flow pattern,
- pedestrian volume,
- pedestrian age and ability,
- width of roadway,
- roadway geometry
- speed of traffic,
- classification of the roadway
- accident history
- community size.

3. Corridor consistency is important to traffic safety and traffic operations, therefore consideration should be given to providing traffic control that varies according to the complexity of roads, from local, collector, to arterial facilities.

4. As part of the Safe Route To School Program, the road authority may consider the installation of school crossing traffic control devices where there is a concentration of school children below the thresholds described in the **WARRANTS** section of this manual.

7. CLASSROOM TRAINING

1. Traffic Signs and Signals

Concept

1. Children are road users, as pedestrians, and must follow the same rules as other road users.

Learning Outcomes

1. After completing the activities in this topic, students should be able to:

    - identify the traffic signs and signals that occur most frequently at intersections,
    - describe and demonstrate the correct behaviour for each of the given traffic signs and signals and
    - state the reasons for having traffic signs and signals.

Activities

Traffic Signs Discussion

1. Show and explain each of the traffic signs and signals contained in **Figure 5.7**
2. Discuss the meaning of the signs and signals.
3. Discuss the need for the signs and signals.

Traffic Signs and Signals Field Trip

4. Take a field trip around the neighbourhood to hunt for traffic signs and signals.
5. At the location, discuss each sign or signal regarding shape, colour, size, location, meaning and importance.
6. At the location, practise doing what each sign and signal indicates.

Traffic Signs and Signals Role Play

7. Create life size versions of each traffic sign and signal.

8. Position the signs in the classroom and have the children dramatize the correct behaviour for each sign or signal.

2. Crossing the Road

Concept

1. Crossing the road is dangerous.

2. Even marked and signalized intersection crossings are not automatically safe.

3. Children can learn safe crossing skills to protect themselves in crossing situations.

Learning Outcomes

1. After completing the activities in this topic, students should be able to:

    - state the reasons for using safe crossing rules and
    - demonstrate the safe way to cross the road.

Activities

Learning The Crossing Rules

1. Teach the students safe crossing rules:

    How To Cross The Road

    - always stop at the curb or the edge of the road,
    - if a car is parked at the corner, stop at the outside edge of the parked car,
    - always look left, right and left again to see if a car is coming, even when the walk signal is on or when the crossing guard says to cross,
    - listen for approaching traffic,

- if a car is coming, let it pass, then look left, right and left again,
- listen and watch again for approaching traffic,
- walk smartly across the road,
- keep looking for traffic as you cross the road,

Helpful Hints

- traffic signals and crossing guards are helpers; however, you should always check for approaching traffic,
- always cross a busy intersection with an adult or older child,
- walk, do not run when crossing (if you run a driver might not see you or you might trip and fall),
- never go between parked cars onto the road,
- a car cannot see, only the driver can see, and sometimes the driver does not see you,
- drivers need time and distance to stop.

Simulated Crossing Exercise

2. Reinforce the safe crossing rules by setting up a simulated pedestrian crossing in the classroom or in the gym.

3. Have the students take on various roles in the simulated crossing such as crossing guards, traffic light signals, traffic signs, cars or pedestrians.

4. After the exercise, ask students why they think safe crossing rules are important.

Pedestrian Crossing Field Trip

5. Using a pedestrian crossing near the school, show the class the correct way to cross the road.

6. Have the students practise the safe crossing procedures.

3. Safe Route to School

Concept

1. The shortest or easiest route to school may not always be the safest.

Learning Outcomes

1. After completing the activities in this topic, students should be able to:
    - state the reasons for walking safely on the sidewalk or facing traffic,
    - state the reasons for crossing the road at corners or marked crosswalks,
    - identify a safe route between home and school.

Activities

Learning Background Information

1. Teach the students background information including:
    - always walk on a sidewalk if one is available,
    - walk single file on the left side of the road facing traffic if there is no sidewalk,
    - if you must cross a highway or road that has no crosswalk, ask your parents or teacher the safest place to cross,
    - walk with an adult or older child, whenever possible.

"Getting To School" Discussion And Drawing

2. Ask students to describe how they get to school each day.
3. Mark on the board the following:
    - the number of students who walk all the way to school,
    - the number who walk part way,
    - the number who are driven and

- the number who take a bus.

4. Have a discussion on getting to school which includes the following:

- "How many of you walk part or all of the way to school?"
- "Is there a sidewalk to walk on? Where do you walk if there is no sidewalk?" (Walk on the left, facing traffic).
- "Why is it a good idea to walk facing traffic if there is no sidewalk?" (Reinforce the idea that the driver and the child can more easily see each other when they are facing each other).
- "What different kinds of road crossings do you use on the way to school?" (Answers may include: traffic lights, walk signal, railway crossing, school safety patrolled crosswalk, four-way stop intersection).
- "Why is it best to cross at corners or marked crosswalks?" (Drivers should be watching for pedestrians at corners and crosswalks and should stop when they see pedestrians waiting to cross. Drivers should already be stopped at light controlled intersections when the pedestrian sees the WALK light).
- "Why should you always look for cars, even in a crosswalk?" (A driver may not see you and may not stop).

5. Have students draw a picture of themselves on the way to school.

Police Officer Class Visit

6. Invite a local police officer to your school to talk to the students about ways to make themselves safe in traffic on the way to and from school.

Field Trip And Story Telling

7. Take the class on a field trip around the neighbourhood pointing out safe and unsafe places to walk, cross roads and wait for buses.

8. If there are no sidewalks, ensure that the children understand that they should walk on the left side of the road, facing traffic.

9. After the field trip, have students tell or write a story describing the safest route between home and school.

Locate A Safe Route To School On A Map

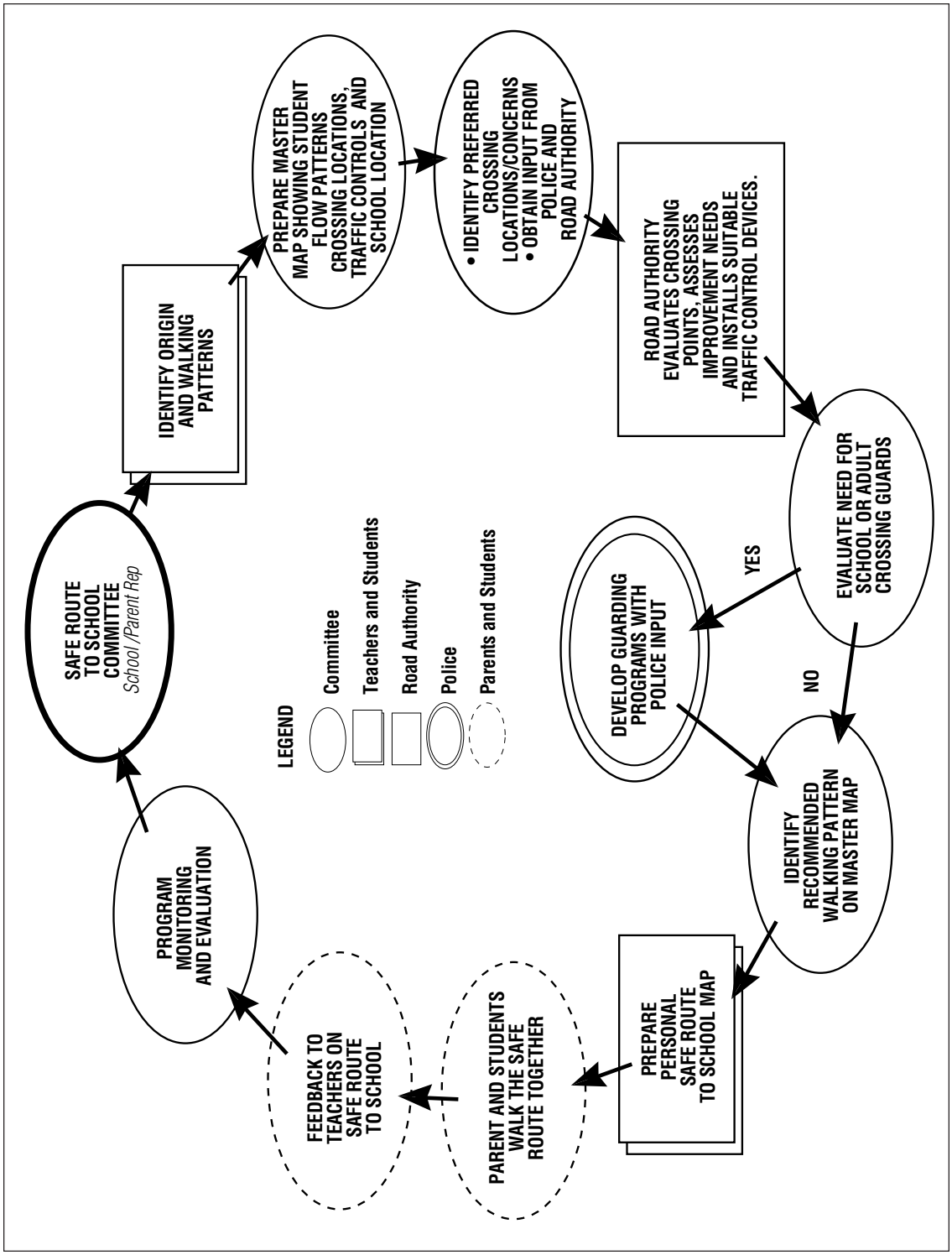
10. Make a simple pictorial map of your area.

11. Send a copy home so that, together, parents and students can fill in the safest route between home and school (copies of formal street maps may be available from your local road authority).

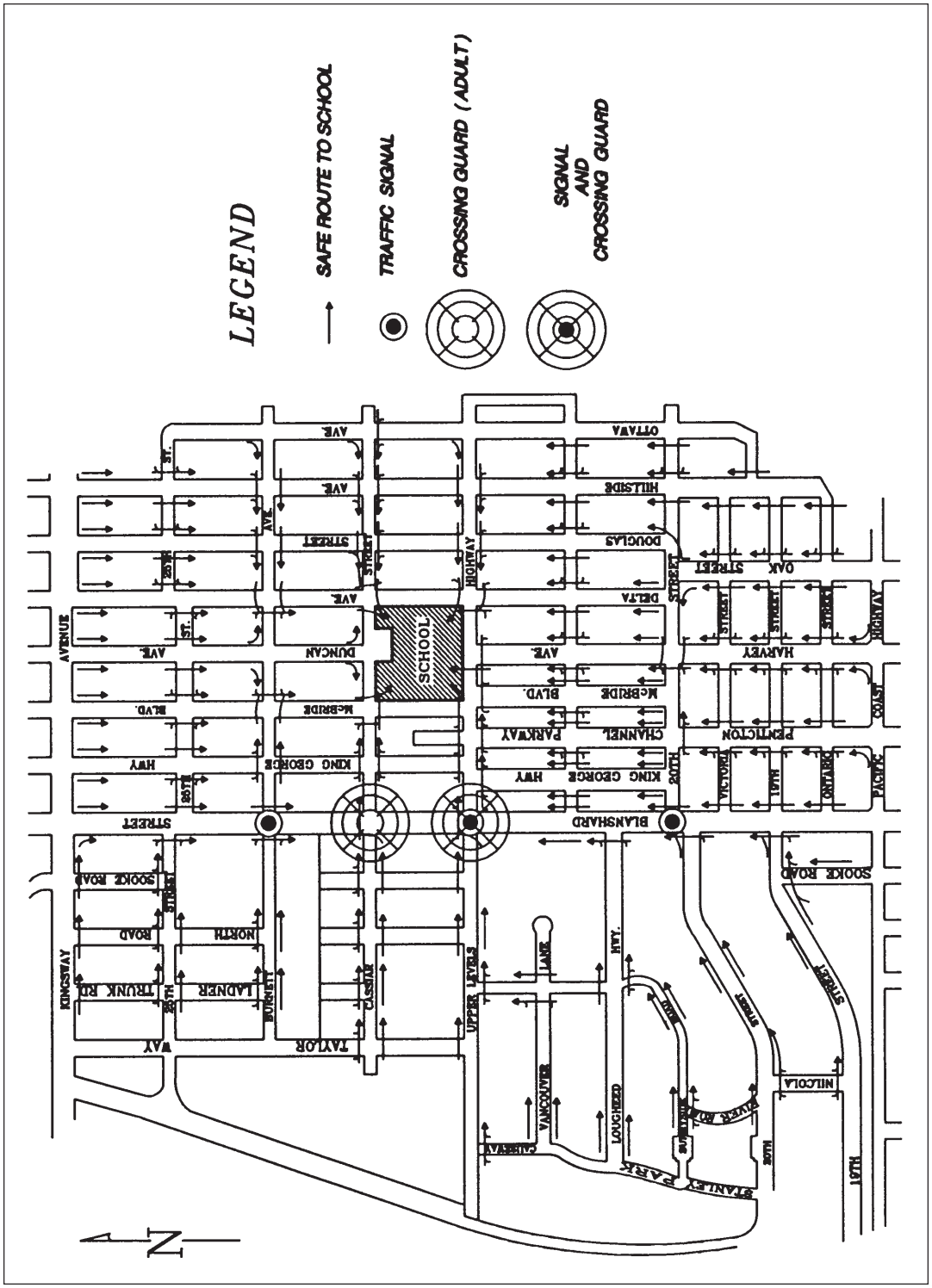
OR

12. Send a letter home requesting parents to assist their child in drawing a map of a safe route to school.

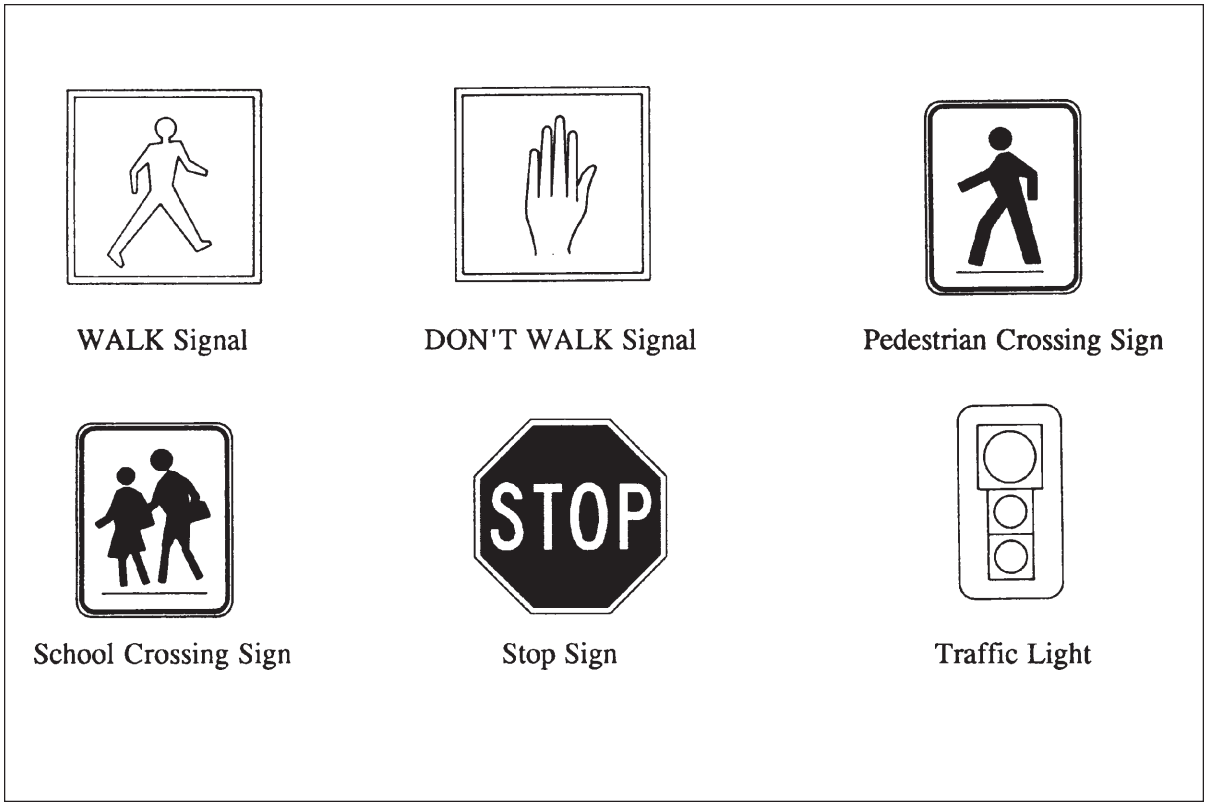
13. Display the safe route to school maps and discuss them with the class.



5.4 A Safe Route to School
Program Flow Chart



5.5 Safe Route to School Map



5.7 Traffic Signs and Signals

6. SCHOOL PATROL PROGRAM

CONTENTS

1. INTRODUCTION 6-2

2. LOCATION EVALUATION FACTORS 6-3

3. DEVELOPMENT OF SCHOOL PATROL PROGRAM
   - 3.1 Organization And Administration 6-6
   - 3.2 Size And Structure Of Patrol Team 6-6
   - 3.3 Recruitment And Selection 6-6

4. SCHOOL PATROL SCHEDULE AND HOURS 6-8

5. TRAINING PROGRAM 6-9

6. UNIFORM AND EQUIPMENT 6-10

7. PATROL PROCEDURE 6-11

8. PROGRAM MONITORING, ANNUAL EVALUATION AND RECOGNITION 6-13

1. INTRODUCTION

School patrol programs have been in operation in Canada for more than 50 years.

The following information is intended as a guideline for elementary schools planning to implement a school patrol program. Patrollers serve an important role in the reduction of pedestrian injuries and fatalities. The safety of the patrollers and those children using a patrolled crosswalk depends on the effective implementation and operation of the school patrol program. A sample "School Patrol Program Development" chart is attached **(Figure 6.1)**.

The purpose of this section is to recommend guidelines for the safe operation of a school program, permit ease of implementation and increase the program's uniformity and effectiveness across the Province.

2. LOCATION EVALUATION FACTORS

Involve Road Authorities/Police

1. Involve the local road authority and police when evaluating the need for a school patrol program.

Use Of Guards/Patrollers

2. Strategically, patrollers/guards are used to supplement traffic control devices with school patrollers typically used on local and collector roadways, whereas adult guards are typically used on arterial facilities.

3. The use of school patrols is typically reserved for low speed (less than or equal to 60 km/h) collector roads with low complexity.

4. The use of school patrols on local roads is optional.

5. At locations with moderate complexity, or at pedestrian activated signals, the use of school patrols solely for the purpose of controlling the pedestrians is acceptable.

6. At complex and high volume arterial locations, adult crossing guards are preferable.

7. The use of adult crossing guards, or school patrols, may be considered to provide special assistance to young school children (i.e., Kindergarten to Grade 3).

School Crosswalk Supervision

NOTE: Guidelines for the selection of school crosswalk guarding are suggested in **Figure 6.2A**.

Pedestrian And Traffic Studies

8. It is recommended that a study of pedestrian and traffic patterns be conducted as per the following:

- during the one hour prior to school commencing (i.e., this time of day should provide an accurate count of the number of students using the school crossing),
- during the one-hour period after school closing,
- the noon period is optional, depending on pedestrian and travel patterns.

9. The pedestrian count form and the traffic count form samples may be used to conduct the studies **(Figure 6.2B, Figure 6.2C)**.

10. Studies should consider the following factors:

- number of vehicles passing through the crosswalk,
- speed limit,
- turning movements of vehicles,
- frequency of gaps or crossing opportunities in traffic (i.e., for the determination of crossing opportunities see **WARRANTS)**,
- composition of traffic (e.g., percentage of trucks),
- roadway class and number of lanes,
- divided or undivided roadway,
- drivers' habits (e.g., passing),
- infractions and types,
- accident history,
- number of student pedestrians crossing, their age groups, and abilities,
- student crossing habits and pattern,
- traffic control devices,
- crosswalk width,
- distance of the crosswalk from the school,
- urban or rural surroundings,
- visibility (i.e., sight distance),
- environmental conditions and
- lighting conditions (i.e., ambient and artificial).

Traffic Control Devices

11. Before the commencement of guarding activities, the road authority should be contacted to evaluate the need for, and to install, appropriate traffic control devices (i.e., signs, signals and pavement markings).

Report

12. A report should then be prepared stipulating the findings and presented to the individual or committee responsible for school children safety.

3. DEVELOPMENT OF SCHOOL PATROL PROGRAM

3.1 Organization And Administration

1. School patrols are generally organized and administered by individual schools.

2. Support, coordination and monitoring of all programs may be conducted jointly with the school board and the local police.

3.2 Size And Structure Of Patrol Team

1. The number of patrollers per intersection should depend on pedestrian and vehicular traffic conditions.

   NOTE: Generally, a minimum of two patrollers on duty, per crosswalk, is acceptable.

2. The sample patrol structure **(See Figure 6.3A)**, as described below, appears to be able to sustain the interaction of the patrol members without extending their time commitment:

   - 26 members, in 2 teams of 13, for each crosswalk location,
   - each team will be on duty on alternating weeks, therefore each duty member will be on duty once every two weeks,
   - each team of 13 has a patrol captain and 12 members (i.e., 10 duty members and 2 standby members),
   - the 10 duty members form 5 duty groups of 2 each (a third patroller may be required in special circumstances), one group on duty for each day of the week,
   - the 2 standby members are needed in case of sickness or absenteeism.

3.3 Recruitment And Selection

The following points should be considered in selecting individuals for the patrol program:

1. Patrollers could be appointed by school officials and teachers on the basis of proven reliability and leadership skills.

2. The following should be considered in the selection of patrol members:

   - patrollers should be selected from grades six and seven,
   - appointments should be for the entire school year,
   - students are recruited as program volunteers,
   - no student will be eligible for appointment until a consent form has been signed by the parent/guardian and provided to the school **(Figure 6.3B)**,
   - no student will continue in the patrol if the principal receives a note from a parent/guardian requesting that the student resign from the program.

4. SCHOOL PATROL SCHEDULE AND HOURS

Schedule Of Duty

1. Each patroller should be given a copy of their schedule.

2. The following sample schedule could be considered with the times changed, if necessary, to suit the timetable of the school:

Patrol shift begins	- 12:30 p.m. to 1:00 p.m. - 2:55 p.m. to 3:15 p.m.
Day 2	- 8:30 a.m. to 9:00 a.m. - 11:55 a.m. to 12:15 p.m. Shift ends

NOTE: A patrol's shift works best if started at 12:30 p.m. and ended at 12:15 p.m. the following day. This allows the patroller to have lunch and then begin their shift. Starting at this time seems to make patrollers less likely to forget their 8:30 a.m. shift, which is the most important time.

Hours Of Duty

3. The recommended minimum times of operation are:

- 30 minutes before morning assembly,
- 15 minutes following noon dismissal,
- 30 minutes before afternoon assembly,
- 20 minutes after afternoon dismissal.

4. Noon and afternoon patrols should be at their posts five minutes prior to school dismissal.

5. TRAINING PROGRAM

Police Involvement

1. Training is the most essential component of implementing a school patrol program, therefore it is highly recommended that schools solicit the support of their local police department.

Classroom Instruction

2. Once patrollers have been selected, and parent or guardian consent forms received, the program trainer (preferably a police officer) should:

- arrange one class period with patrols and with the school principal or designated teacher and
- instruct patrollers on the proper procedures to follow when on duty, with emphasis on the level of responsibility the job entails.

Field Training

3. Once the new patrol groups have been formed, the trainer should:

- accompany and monitor each patrol, morning, noon and afternoon, for two weeks and
- work with every member of the patrol groups during this time.

6. UNIFORM AND EQUIPMENT

Uniform

1. It is recommended that a patrol uniform be established consisting of:

- a fluorescent vest (for good weather),
- a fluorescent rain coat (for inclement weather) and
- white hard hat.

2. The fluorescent uniform:

- provides a safety element and
- allows motorists to become familiar with the school crossing and the need to exercise extra caution when the patrol is on duty.

Equipment

3. It is recommended that patrols use a light weight, hand held STOP paddle since STOP paddles do not blow around in the wind, are more visible and work better than flags.

4. Patrollers shall not use whistles or any other device that may cause confusion for the motorist or patrol partner on duty.

7. PATROL PROCEDURE

Instructions To Students

1. Students should be instructed by the principal or teachers:

- to cross only at the patrolled crossing and
- to walk, never run.

Crossing Procedure

2. It is recommended that the following procedures be used by the school patrols to facilitate the safe crossing of students:

- the patrollers hold back the students until they observe a safe gap in traffic **(Figure 6.7A)**,
- when a safe gap in the traffic occurs, or when traffic in all directions is stopped for the crosswalk, the patroller will shout "Okay" to his/her partner,
- the partner will, in turn, shout "Okay",
- then, and only then, do both members hold their STOP paddles out at full arm's length to show "Stop",
- the patrollers then motion students to walk in a group across the pedestrian crosswalk **(Figure 6.7.B)**,
- once the group has reached the centre of the roadway, no more students are allowed to leave the curb,
- when the students have reached the opposite curb, both patrollers will check the crosswalk and call "Okay", if and when clear,
- they will return the paddles to the rest position,
- if, for any reason, a patroller feels it is unsafe when their partner has shouted "Okay", they should shout "No" in response,
- school patrollers should not step on the roadway,
- **Figure 6.7C** indicates the positioning of school patrollers for a three lane, one-way roadway.

Use Of STOP Paddle

3. When the patroller does not have his/her sign extended, it should be kept in a steady position by his/her side, in the rest position, since any errant movement of the sign could confuse the motorists.

Do Not Wave Cars Through

4. Patrollers should not wave cars through because drivers may accelerate and create a dangerous situation.

Signals

5. Where a pedestrian activated signal has been installed at a crossing controlled by a school patrol, the signal should be used to control motor vehicles and the patrol's duty is to control children who are crossing.

Reporting Infractions

6. Patrollers may report infractions observed while on duty on an Infraction Report Form **(See Figure 6.7D)**.

7. The information will be provided to the police for follow up action.

8. PROGRAM MONITORING, ANNUAL EVALUATION AND RECOGNITION

Police Involvement

1. Wherever possible, the local police should be involved in monitoring the school patrols including:

- the visiting and monitoring of locations on a regular basis and
- surprise visits to locations which:
  - allows the police officer to see how the program is working, and provide advice and support, and
  - reinforces in the patroller's mind the need for good behaviour at all times.

Police Support Not Available

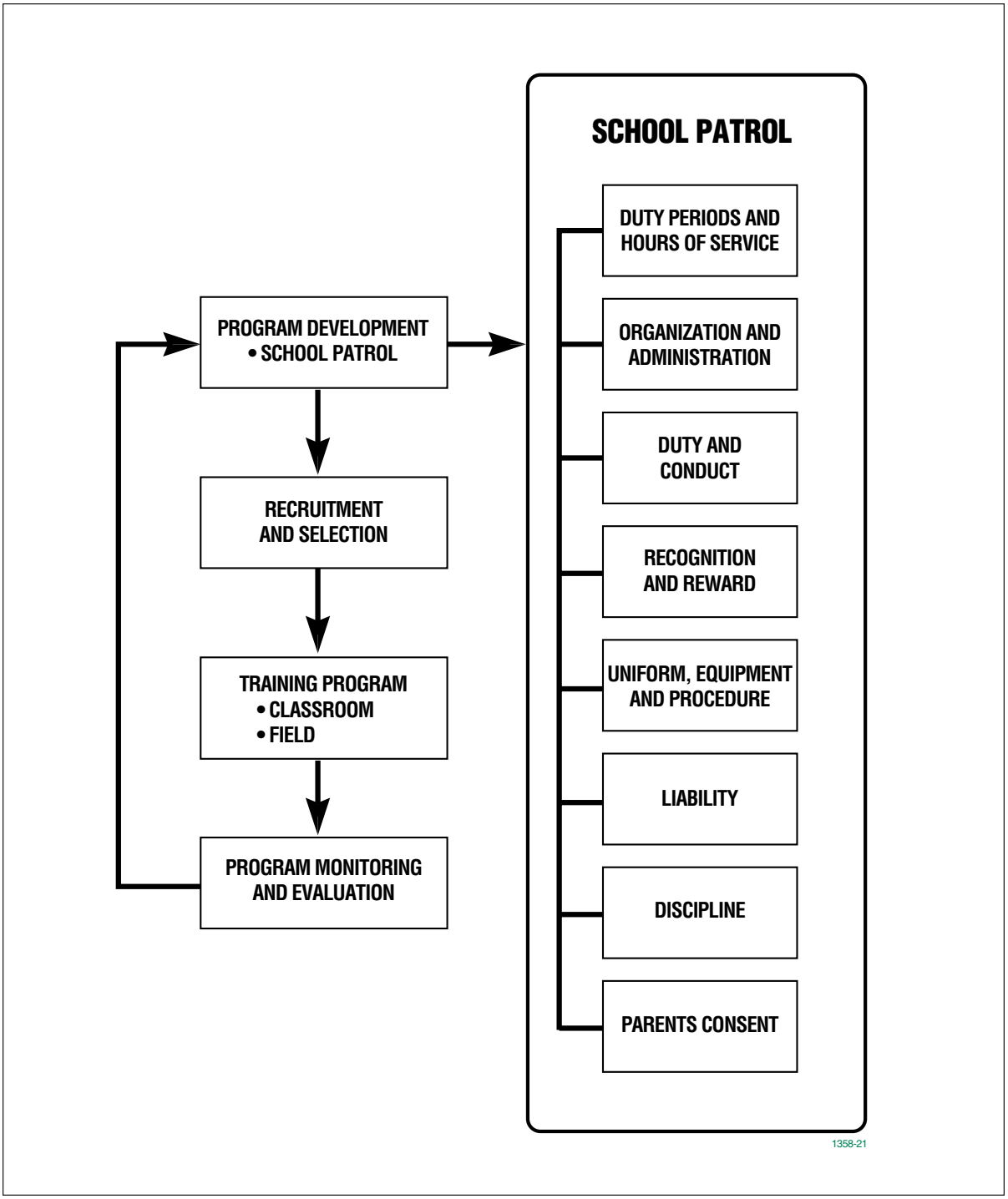
2. If police support is not available, a teacher or member of the school's consultative committee (Parent Teacher Association) should be involved in the monitoring and evaluation of the program.

Recognition Program

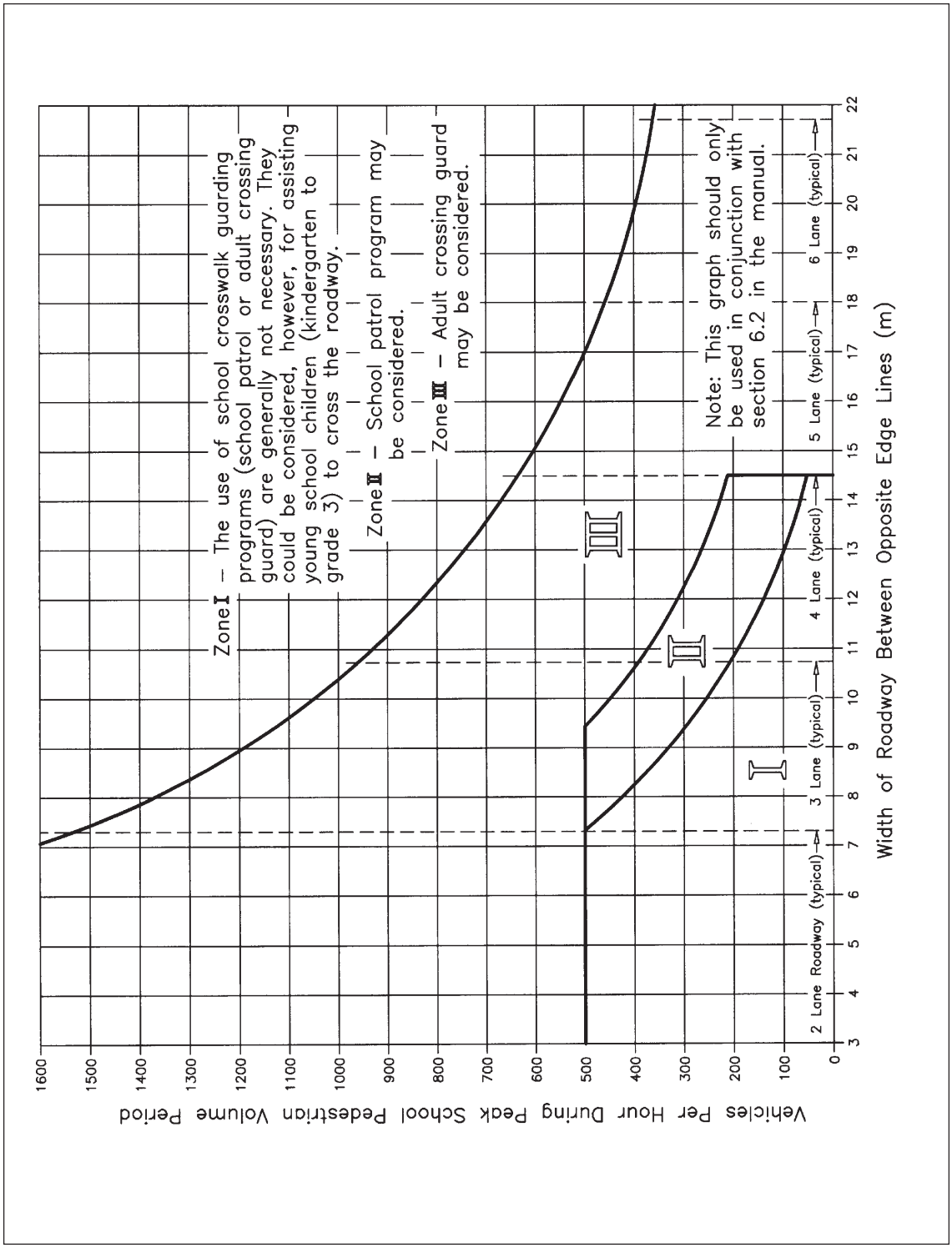
3. A system of rewards is helpful in recognizing patrollers for their commitment to the program. Badges, pins, certificates and various other items are available through the British Columbia Automobile Association office.

4. The following should be considered in developing a participant recognition program:

- patrols can be presented with "patroller badges" in January (after Christmas break), three months after the patrols have settled into the program,
- a certificate of recognition and school patrol lapel pin may be awarded at the close of the school year **(See Figure 6.8A)**,
- schools could develop an "efficiency award" to be framed and displayed in a prominent area of the school (e.g., a plaque would provide space to add annual seals) **(See Figure 6.8B)**,
- special pizza nights or hamburger/hot dog lunch days can be set up to reward patrollers periodically,
- an annual patrol banquet can also be considered.



6.1 School Patrol Program Development



6.2A Guidelines for Selection of School Crosswalk Guarding

LOCATION: _____ Date: _____

WEATHER: _____

PEDESTRIAN COUNT FORM

	North Approach			South Approach			West Approach			East Approach			Total
Time	Kin – Gr 6	Gr 7 – 12 + Adults	Seniors/ Phys Chal	Kin – Gr 6	Gr 7 – 12 + Adults	Seniors/ Phys Chal	Kin – Gr 6	Gr 7 – 12 + Adults	Seniors/ Phys Chal	Kin – Gr 6	Gr 7 – 12 + Adults	Seniors/ Phys Chal	Volume
0700–0715													
0715–0730													
0730–0745													
0745–0800													
0800–0815													
0815–0830													
0830–0845													
0845–0900													
Sub Total													
1100–1115													
1115–1130													
1130–1145													
1145–1200													
1200–1215													
1215–1230													
1230–1245													
1245–1300													
Sub Total													
1500–1515													
1515–1530													
1530–1545													
1545–1600													
1600–1615													
1615–1630													
1630–1645													
1645–1700													
Sub Total													
TOTAL													
Avg.Volume													
a.m. Peak													
Noon Peak													
p.m. Peak													

6.2B Pedestrian Count Form

LOCATION: _____ Date: _____ Speed Limit Major Street – Ref: PED.XLW

WEATHER: _____ VEHICULAR COUNT FORM Speed Limit Minor Street – INT:

	North Approach						South Approach						West Approach						East Approach						Total
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		
Time	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Car	Truck	Volume
0700–0715																									
0715–0730																									
0730–0745																									
0745–0800																									
0800–0815																									
0815–0830																									
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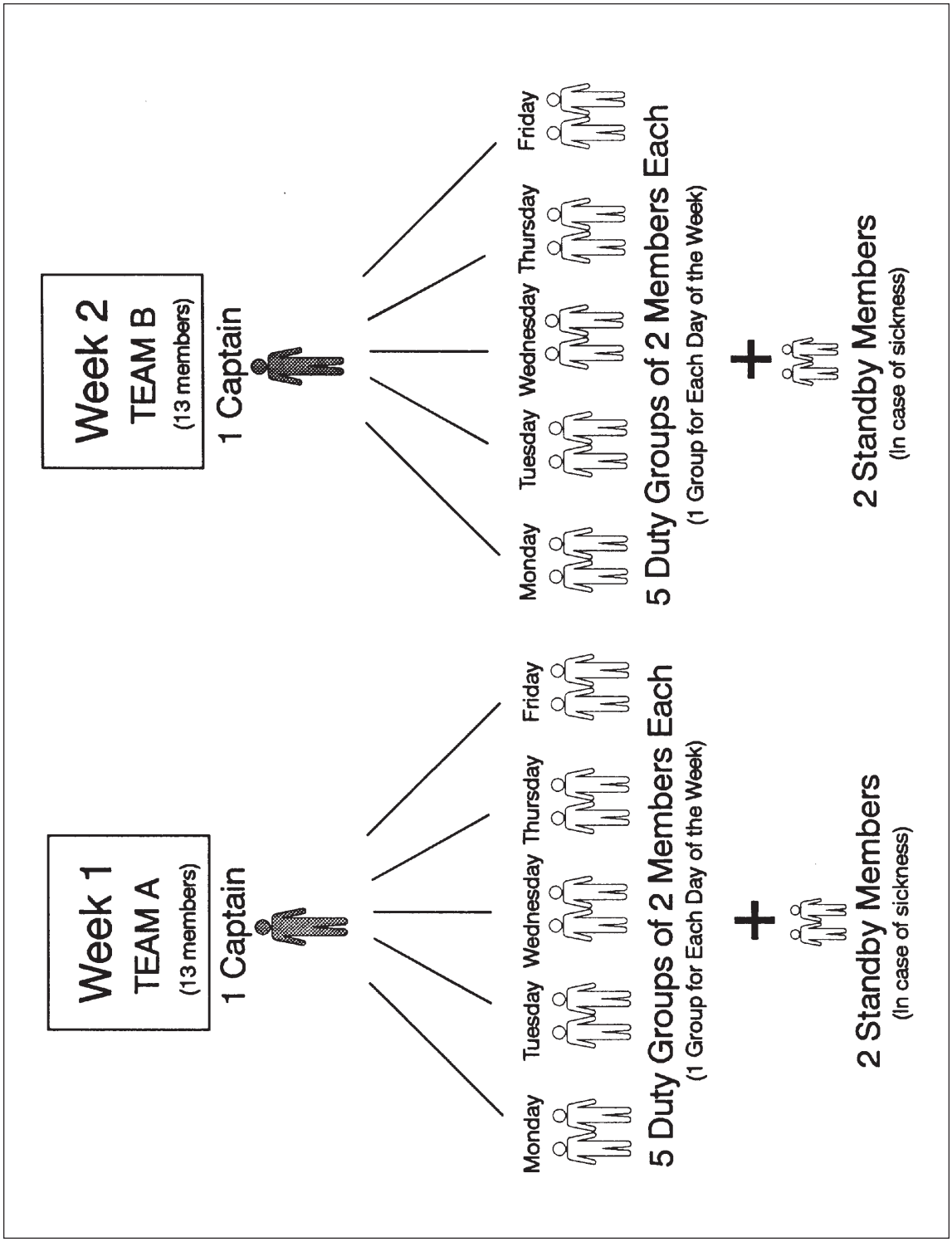
1645–1700																									
Sub Total																									
TOTAL																									
Avg.Volume																									
a.m. Peak																									
Noon Peak																									
p.m. Peak																									

6.2C Vehicular Count Form



6.3A A Sample Patrol Team Structure for a Crosswalk

A very important service to the children attending the _____ School is provided by the members of the School Patrol stationed each school day at the corner of _____ and _____. Students from the school are on duty to patrol this corner before classes in the morning, during lunch hour and after school so that students using the crossing may do so with greater safety.

At the beginning of each school year, students are chosen on a voluntary basis for training in this splendid service. From this group, patrols are organized and a captain is chosen for each patrol. Students in the program should understand the importance of their duties and must agree:

a. To be on duty each day at the times set:

Mornings: _____

Noon: _____

After School: _____

b. To notify the captain (the night before, if possible) in case of inability to patrol the corner for duty so that a substitute may be provided.

c. To conduct themselves in a courteous manner when on duty and to fully understand the importance of their duty.

d. To report misconduct of students at the crossing zone (anything which would endanger others at this point).

e. To take proper care of equipment.

IN ADDITION TO THE ABOVE DUTIES, THE CAPTAINS WILL:

a. See to it daily that the corners are properly patrolled.

b. Attend to the equipment to ensure that it appears clean and well kept.

NOTE: Parents of students on the School Patrol can be of great assistance by finding out from their children their duty days and getting the students off PROMPTLY in the MORNING on these days.

.....

School Patrol Program

_____ School Date: _____

I have read the information above, including the duties in connection with the School Patrol Program in operation at the corner of _____ and _____ in _____ School District.

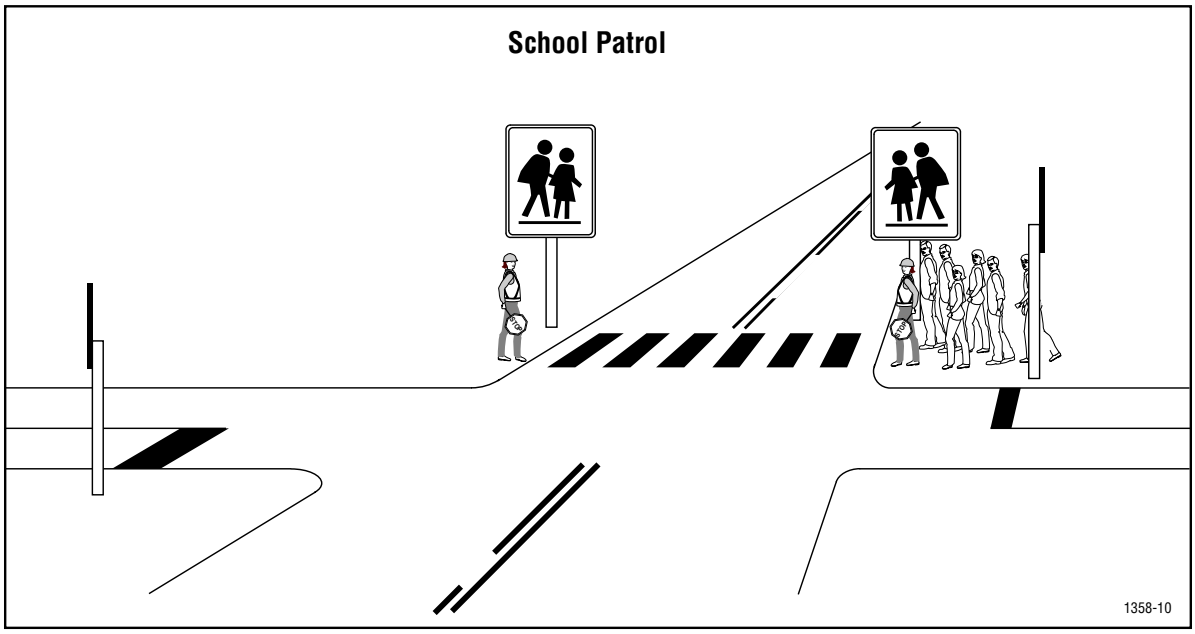
I agree to allow my child _____ to be a member of the School Patrol.

It is understood that _____ will strive to be a good patroller who will fulfill the expected duties faithfully and will be at the assigned post ON TIME when it is their turn to give service.

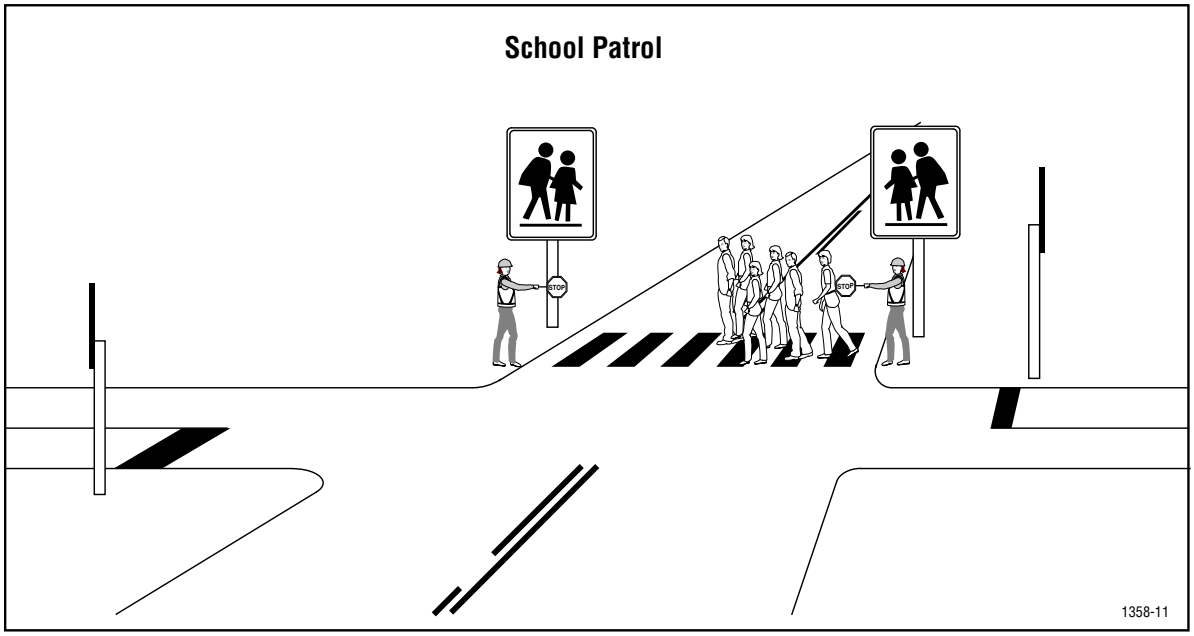
_____ _____

Parent's Signature Patrol Member

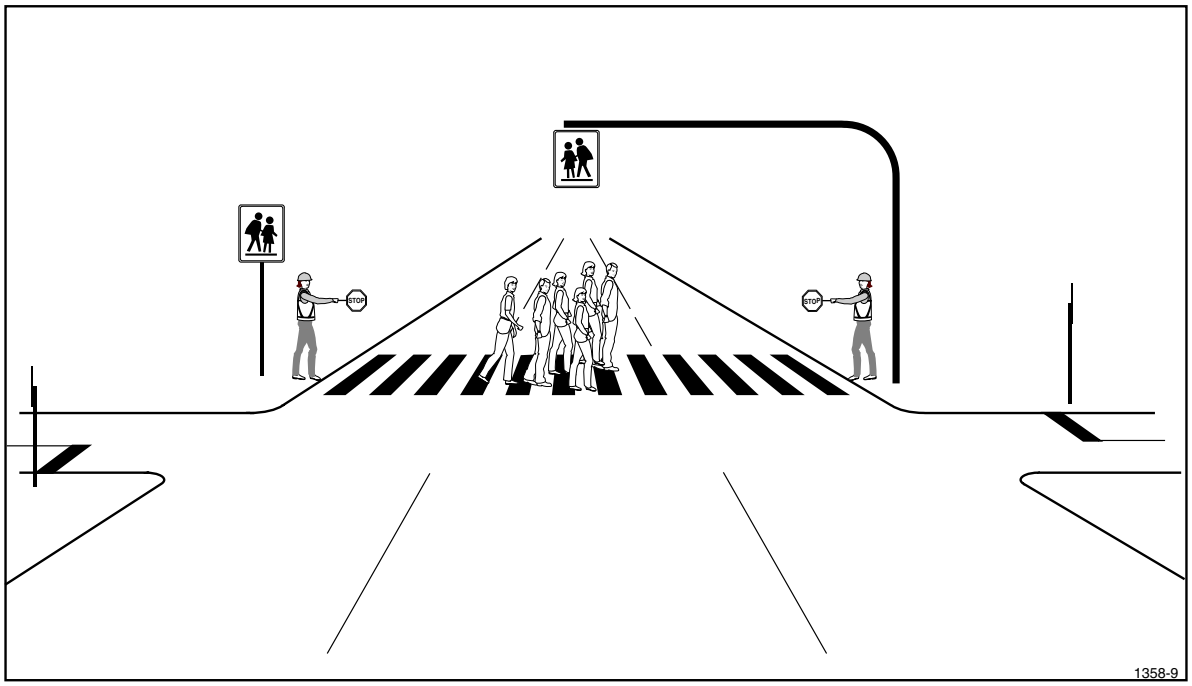
6.3B Sample School Patrol Parent's Consent Form



6.7A School Patrol
(Hold back students while waiting for a safe gap in the traffic)



6.7B School Patrol
(Hold the STOP paddle out at full arms length to show stop sign.
Motion students to walk in a group across the crosswalk)



6.7C School Patrol
(3 Lane, 1-Way)

TO: Chief Constable

ATTENTION: NCO i/c
School Safety Patrol

Dear Sir:

Please note details of infraction(s) at our crosswalk _____ (location) as follows:

DATE: _____ TIME: _____

Traffic Light Was Red: _____

Signs: Up: _____ Down: _____

Direction of Travel: East: _____ West: _____

North: _____ South: _____

License Number: _____

Colour: _____

Type or Make: _____

Driver: Female: _____ Male: _____

Passenger: In Front Of: _____ Behind _____

children in the crosswalk.

Yours truly,

Principal

per: _____ (School)

6.7D Sample Infraction Report Form

VANCOUVER POLICE DEPARTMENT
SCHOOL SAFETY PATROL

STOP

Recognition of Service

This is to Certify that

_____

served as a member of the Vancouver School Safety Patrol

at _____ during _____ for which we

express our sincere appreciation

VSB

Principal _____

Chief Constable _____

Teacher Sponsor _____

6.8A Recognition of Service Form

SCHOOL PATROLS VANCOUVER, B.C.

Efficiency Award

This is to certify that

_____ School

has attained the standard of efficiency that is required in the operation of the School Patrols and is entitled to display this Citation for the year or years indicated in the margin hereof. . . .

City of Vancouver . . . . . _____
Mayor

Vancouver Police Department . _____
Chief Constable

Vancouver School Board . . . _____
Superintendent

6.8B Efficiency Award Form

7. ADULT CROSSING GUARD PROGRAM

CONTENTS

1. INTRODUCTION 7-2

2. LOCATION EVALUATION FACTORS 7-3

3. DEVELOPMENT OF AN ADULT CROSSING GUARD PROGRAM
   - 3.1 Organization And Administration 7-6
   - 3.2 Recruitment And Selection 7-6
   - 3.3 Scope Of Authority 7-7
   - 3.4 Liability 7-8
   - 3.5 Pay 7-8

4. ADULT CROSSING GUARD DUTIES, CONDUCT AND SCHEDULE 7-9

5. COORDINATION WITH SCHOOL PATROLS 7-10

6. TRAINING PROGRAM
   - 6.1 General 7-12
   - 6.2 Classroom Instruction 7-12
   - 6.3 Field Training 7-16

7. UNIFORM AND EQUIPMENT 7-17

8. CROSSING GUARD PROCEDURES 7-18

9. PROGRAM MONITORING, ANNUAL EVALUATION AND RECOGNITION 7-21

1. INTRODUCTION

An adult crossing guard is an adult person employed to supervise and expedite the crossing of school children at complex, hazardous or congested crossing locations. This section examines the basic responsibilities of adult crossing guards and makes suggestions for guiding their work.

A sample "Adult Crossing Guard Program Development" chart is attached **(Figure 7.1)**.

NOTE: The following program information is adapted from "Adult School Crossing Guards", published by the American Automobile Association.

2. LOCATION EVALUATION FACTORS

General Factors

1. Factors to be considered for the adult crossing guard program include:

- number of vehicles passing through the crosswalk,
- speed limit,
- turning movements of vehicles,
- frequency of gaps or crossing opportunities in traffic (i.e., for the determination of crossing opportunities see **WARRANTS**),
- composition of traffic (e.g., percentage of trucks),
- roadway class and number of lanes,
- divided or undivided roadway,
- drivers' habits (e.g., passing),
- infractions and types,
- accident history,
- number of student pedestrians crossing, their age groups and abilities,
- student crossing habits and pattern,
- traffic control devices,
- crosswalk width,
- distance of the crosswalk from the school,
- urban or rural surroundings,
- visibility (i.e., sight distance),
- environmental conditions and
- lighting conditions (i.e., ambient and artificial).

Need For Adult Crossing Guards

2. Adult crossing guards should be assigned to school crossings only after a study has indicated a need.

3. The great demand for this type of control makes it essential that the same set of procedures be strictly followed if crossing guard assignments are to be held to a minimum, according to need.

Use Of Adult Guards

NOTE: Guidelines for the selection of school crosswalk guarding are suggested in **Figure 6.2A**.

4. Adult crossing guards are typically considered for use on arterial roadways:

- at uncontrolled locations,
- at stop sign controlled intersections and
- at traffic signal controlled intersections.

5. The minimum traffic volumes may range from 300 to 500 vehicles per hour during the peak pedestrian periods, whereas minimum school crossing flows may vary from 20 to 60 children per hour.

6. Generally, pedestrian delay time between adequate gaps may be considered excessive when they are less frequent than one per minute (i.e., fewer gaps than this represents an unsatisfactory situation).

7. Adult crossing guards are typically used for the supervision of crosswalks on roadways with speed limits over 60 km/h.

8. Adult crossing guards should be considered at traffic signal controlled intersection crossings where:

- the number of vehicular turning movements through the school crosswalk exceeds 300 per hour while the children are going to or from school,
- there are circumstances not normally present at a signalized intersection, such as crosswalks more than 25 m long with no refuge or an abnormally high proportion of heavy commercial vehicles.

9. If a particular location needs control, the use of an adult crossing guard should be considered if:

- an adult crossing guard is more feasible and economical than either a pedestrian grade separation structure or a traffic control signal specifically installed to handle the problem,

- there are special hazards at certain locations that can be properly handled only by adult supervision, including:

  - extreme fog,
  - complicated intersections,
  - heavy vehicular turning movements or
  - high vehicular approach speeds,

- a change in school routes or school districts is imminent which will require protection at the location for a limited time.

Traffic Signal Control

10. In some circumstances adult crossing guards should be used with the traffic signal control, e.g., the response of very young pedestrians (Kindergarten to Third grade) to traffic signals is frequently so inadequate the traffic signal can create a hazard rather than a solution.

NOTE: Traffic signal control for school crossings is not the only remedy, nor is it necessarily a safe solution. While traffic signals can effectively assign intersection right-of-way and promote the safe, orderly movement of both pedestrian and vehicles, they may not be practical in all situations.

Other Than Elementary Age Children

11. Although adult guards are primarily assigned to assist elementary age children going to and from school, this should not preclude the use of adult guards for junior high or high school students where:

- dangerous traffic situations exist or

- local criteria for the adult guard is met.

3. DEVELOPMENT OF AN ADULT CROSSING GUARD PROGRAM

3.1 Organization And Administration

1. Adult crossing guard programs are usually organized and administered by school boards, schools or local police departments.

2. Usually staff are assigned to supervise the operation of the crossing guards as well as coordinate training programs.

3. The relationship of the guard to the supervisor and the police department is usually described in a handbook or a manual prepared to assist crossing guards in their work.

4. Where joint responsibility exists, it is important that the kind and limits of supervisory authority, exercised by both agencies, be clearly defined.

5. It is more appropriate that legal protection and liability should be the responsibility of the agency that provides supervision, training and guidance as opposed to the agency that hires the crossing guard as an employee.

NOTE: It has proved more effective to have one agency completely responsible for the operation and administration of adult crossing guard programs.

3.2 Recruitment And Selection

Responsibility

1. Recruitment and selection of adult crossing guards are generally the responsibility of the organizing and administering agency.

Selection

2. Selection criteria should be based on the knowledge, skills and ability required for job performance and include a consideration of the following:

Character/Interpersonal Skills

- good character references should be obtained for every individual being considered for adult crossing guard positions,

- an interest in, and an understanding of, children is essential for adult crossing guards,
- adult crossing guards should know how to work effectively with adults,
- it is desirable for prospective crossing guards to have recent practical experience dealing with people generally, as well as an understanding of the basic rules for influencing individual behaviour,
- a knowledge of what motivates people and a friendly desire to be of assistance to others are points to consider.

Physical Fitness

- physical examinations for candidates should give particular attention to the areas of vision, hearing and reflexes which are vital for adult crossing guards to adequately perform their duties,

Dependability

- areas deemed hazardous enough to warrant adult crossing guards require continuous supervision, therefore it is paramount that guards assigned these duty posts be persons who can be relied upon for prompt, consistent and sufficient service,

Availability

- whenever possible, adult crossing guards should live within a reasonable distance of their assigned post in order to:
  - assure their consistent availability and accessibility at all times and under all conditions and
  - minimize operation costs for transportation to duty posts.

3.3 Scope Of Authority

1. Adult crossing guards should not direct traffic in the usual regulatory way.
2. The role of adult crossing guards to safely expedite the movement of children to and from school by creating gaps in traffic does not include enforcement powers.

3. The scope of the adult crossing guard's responsibilities and duties should be clearly spelled out and understood by both police and crossing guards alike.

4. A local bylaw could be enacted to outline responsibilities and authorization for the operation and administration of a adult crossing guard program, usually under the sanction or authorization of the police.

3.4 Liability

1. While adult crossing guard activity is not particularly hazardous, there are physical and legal risks involved which require the following to be considered:

   - adult crossing guards should be informed of the legal limitations and liabilities that may arise in performing their duties,
   - the need for adequate civil liability protection and coverage for injury or death in the line of duty should be considered,
   - the provisions for such coverage, and the conditions under which they apply, should be explained in full during the initial recruitment and training or in a personal handbook provided for all employees,
   - an attorney should be consulted prior to the establishment of the adult crossing guard program to provide direction concerning civil liability and legal authority of crossing guards.

3.5 Pay

1. Generally, programs with paid guards are more reliable.

   NOTE: Experience shows that volunteer adult crossing guard programs usually suffer from reliability problems. Successful volunteer programs depend on the availability of a few highly dedicated individuals in the community and are an exception rather than the norm.

2. It has proven more efficient to pay guards on the basis of periods of duty worked, rather than trying to pay by an hourly rate, since the duty does not fall into hourly segments.

3. With duty time cards turned in at the end of each week, guards could be paid at regular intervals.

4. ADULT CROSSING GUARD DUTIES, CONDUCT AND SCHEDULE

Duties

1. The adult crossing guard is employed to ensure pedestrian crossing safety by supervising the safe crossing of pedestrians, particularly children, at crossing locations normally clearly marked as such.

2. The crossing guard's duties include:

   - encouraging patterns of safe behaviour by pedestrians when crossing a roadway,

     NOTE: By employing proven safety procedures, and by indicating the need for action, adult crossing guards can help instill in young pedestrians the desirable practices in roadway use that can, in time, become safe walking habits.

   - deterring pedestrians, as necessary, from committing unsafe and unlawful acts,

   - informing motorists, by the appropriate signals, that pedestrians are using or are about to use the crosswalk and that they have the right to cross,

   - observing and reporting incidents and conditions that are hazardous, including violations of traffic laws and regulations.

3. Crossing guards should not direct traffic in the usual sense of controlling or regulating the flow and movement of cars and pedestrians unless they have been specially authorized, trained, commissioned and assigned for this purpose.

Schedule/Duty Periods

4. Generally, adult crossing guards are on duty 2 to 4 periods per day though the work periods can vary depending on the particular needs of the school.

5. Guards should provide adequate coverage for crosswalk protection, reporting for duty about one half hour before the morning assembly and remaining on duty until at least five minutes after classes begin.

6. It is important that crossing guards call in as soon as possible, and at least one half hour before duty time, if they are unable to report for duty.

7. Specific, consistent procedures must be established for those situations when the adult guard is not able to report for duty.

8. Other arrangements must be made to cover the crossing or to notify the students' parents.

5. COORDINATION WITH SCHOOL PATROLS

1. School patrol duties could complement the adult crossing guard program, when necessary.

2. School patrollers could assist the adult guard by directing children in compliance with the signals of the guard.

> **NOTE:** School patrollers should not be given the responsibility of directing vehicular traffic, nor should they be allowed to do so.

3. Adult crossing guards and police officers should not relieve children of full responsibility at school crossings.

> **NOTE:** A police officer should protect school crossings only when no other suitable means can be employed. In most cases, police officers are in short supply and their use for school crossing protection diverts them from other important assignments. If police officers must be used, such use should only be temporary until another solution to the problem can be developed.

4. It is essential that crossing guards take advantage of their assignment to properly instruct and develop in children the ability to take care of themselves at any pedestrian crossing.

5. Adult crossing guards should be familiar with the patrol program operated in their community.

6. Adult crossing guards should know the teacher acting as patrol supervisor and be familiar with patrol activities.

7. Provision could be made to allow adult guards to assist in the actual training of school children relative to traffic safety.

8. At the beginning of each term, arrangements should be made to present adult guards and patrollers to:

- the entire student body during an assembly and
- the school authorities and the Parent Teacher Association.

> **NOTE:** This will help inform children and parents of the steps being taken to ensure child safety.

9. Greater coordination and cooperation will result when the children know:

- the crossing guard,
- the purpose for the person being on duty and
- what they are supposed to do.

6. TRAINING PROGRAM

6.1 General

1. A training program is necessary for smooth and effective operation of adult crossing guards.

2. The appropriate training and instruction should be provided to adult crossing guards, before they are assigned to actual duty, so that they will know what is expected from them.

3. The local traffic enforcement agency may be available for the training of adult crossing guards.

6.2 Classroom Instruction

Purpose And Goals Of Program

1. The purpose and goals of an Adult Crossing Guard Program should be covered, including:

   - a discussion of the school child accident problem involving:

     - why, when, where and how student accidents occur and

     - the part played by adult crossing guards in the total school crossing protection program,

   - guidelines for the use of adult crossing guards involving:

     - the guards should understand the criteria and guidelines used to determine the need for adult supervision at certain locations,

   - the relationship of adult crossing guards to other traffic control aids, particularly school patrols, involving:

     - the guards should understand how safety patrols operate so that both groups can work together in a smooth and effective fashion.

Extent Of Responsibility Of Adult Crossing Guards

2. The issue of job responsibilities is one of the most important phases of the training program.

3. The exact responsibilities of the job should be spelled out clearly and specifically so that guards know they are creators of gaps to help children cross the street safely, not expediters of motor vehicle traffic.

4. If a community has a bylaw designating the scope of activity of adult crossing guards, a copy should be passed out to each trainee and discussed thoroughly.

Orientation On The Organization

5. Adult crossing guards should understand the organization of the school board, municipality or local police department who hires them and administers the program.

6. Adult crossing guards should know to whom in the department they must report.

Personal Conduct

7. The public image created by adult crossing guards must be an exemplary one and the following must be stressed:

   - need for being on time,
   - neatness of appearance,
   - inadvisability of guards smoking on duty or frequenting liquor establishments while in uniform and
   - not engaging in any other actions that would bring criticism from the general public.

Knowledge Of Local Traffic Regulations

8. Adult crossing guards should become familiar with local traffic regulations especially regulations requiring driver and pedestrian responsibilities in relation to school crossings, parking and yielding right-of-way.

Traffic Control Devices

9. In order to work effectively at school crossings, adult crossing guards should understand the principles behind the use of such traffic control devices as stop signs, signalization, channelization and street markings.

10. While guards should not be expected to become experts on signal timing and traffic engineering, their understanding of how these aids are used will assist them in doing a better job.

Traffic Patterns Recognition And Hazard Identification

11. A crossing guard should become familiar with the typical patterns and vehicle turning movements at their assigned location.

12. The crossing guard should be aware that the following obstructions and unusual circumstances can lead to high risk vehicle/pedestrian conflict and the proper authority should be notified:

- sight obstruction,
- malfunctioning, inoperative or missing traffic control devices,
- roadway or sidewalk construction hazards and
- standing water, mud or other factors in the pedestrian's path which may cause the pedestrian to detour into the vehicular right-of-way.

Vehicle Identification

13. Adult crossing guards should be instructed on how to identify a vehicle by body style, colour and licence plate number so that they can give an adequate description of a vehicle for identification purposes.

Filing Reports

14. Adult crossing guards should be given instructions on filing reports including:

- the need for traffic violations and accidents to be reported to the police traffic division as soon as possible after the incident has occurred,
- the necessary information to be supplied so as to improve the proficiency in fully describing an incident,
- the fact that the follow up action (e.g., arrest or detention of the violator) would be the prerogative of the police and
- the need for the crossing guard to be available for questioning.

Emergency Procedures

15. Adult crossing guards should be given instruction in emergency situation procedures, including:

How To Get Help

- guards should know the appropriate police number as well as other agency numbers to call for help,

First Aid

- guards should receive first aid instruction which should be kept simple and include:

  - caution against moving injured victims,
  - control of bleeding,
  - shock,
  - heat exhaustion,
  - fainting,

Bad Weather

- guards should receive instruction on bad weather conditions, including:

  - the effect on safe student crossing that rain, snow, sleet and extreme weather conditions have,

  - the adverse effect that bad weather has on vehicle traction and stopping distance as well as the ability of the motorist to see,

  - the adverse effect that bad weather conditions have on visibility and traction for the crossing guard and students,

  - the need for additional, adequate clothing in bad weather conditions and

  - the need for increased alertness and caution.

Additional Considerations

16. The following should be also be addressed:

- if the crossing guard must use a personal vehicle, it should be parked away from the crossing,
- the guard should be aware of school schedule changes and special school functions,
- the guard should be alert for unusual situations such as drunk drivers, irresponsible drivers or adults bothering children,
- the guard should be familiar with his/her post before commencing duties.

6.3 Field Training

1. All school crossing guards should be given supervised field training regarding procedures before being assigned to a permanent duty post.

2. In addition, on the job training at the adult guard's assigned location is recommended.

NOTE: The control and direction of pedestrian traffic in helping children to safely cross the street is the major function of adult crossing guards. It is important that this responsibility be carried out properly. A school crossing guard's actions must be uniform, crisp and clearly informative so that both pedestrians and drivers will know what is required of them.

7. UNIFORM AND EQUIPMENT

Uniform

1. Adult crossing guards should be uniformly and distinctly outfitted with identification badges and reflectorized vests so that motorists and pedestrians can recognize them and respond to their signals.

2. It is recommended that the uniform differs from those worn by police officers, unless guards have full police authority.

3. Municipalities, depending upon their budgets, may specify the minimum uniform attire, consisting of a vest that will make the guards visible.

4. Visibility is the essential requirement of any type of uniform.

Equipment

5. A lightweight STOP paddle with a handle attached is the usual equipment provided to assist the guard in alerting motorists.

8. CROSSING GUARD PROCEDURES

Consistent Standards

1. Adult guards, as well as all other protection devices designed to safeguard school pedestrian crossings, must conform to uniform standards that are easily and immediately understood by all motorists.

Crossing Procedures

2. It is recommended that the following procedures be used by the adult crossing guards to facilitate the safe crossing of students:

- the crossing guard will stand on the curb on the side of the street from which the children are approaching,
- the crossing guard or school patrol will stop the children at least one step back from the curb **(See Figure 7.8A)**,
- the crossing guard will wait until a small group of children has assembled,
- if patrollers are present, the crossing guard will caution the patrollers to release the children only upon his/her signal,

Normal Traffic

- the crossing guard will then enter the street according to the following sequence:
  - wait for a gap in the traffic on the near side of the street,
  - walk to the centre of the street,
  - face closest oncoming traffic,
  - raise one hand, holding the STOP paddle in the face of the oncoming traffic, and wait for the traffic to stop **(See Figure 7.8B)**,
  - face opposite approaching traffic, if any, raise the STOP paddle and wait for traffic to stop **(See Figure 7.8C)**
  - catch attention of turning cars to be stopped, if any,
- stand on the edge of the crosswalk nearest to the centre of the intersection, face parallel with the crosswalk and motion the children to cross,

- allow children to walk behind as you face the intersection **(See Figure 7.8D)**,
- wait until the last child of the released group reaches the opposite curb,
- walk to the curb and
- remain on the curb for the next group of children to assemble.

Heavy Traffic

- heavy traffic procedure is the same except that entrance to the street must be made a lane at a time, as follows:
  - step off the curb, allowing closely approaching vehicles to proceed,
  - catch the eye of the drivers to be stopped,
  - face oncoming traffic, raise hand and the STOP paddle as previously directed,
  - stop traffic, lane by lane, until the centre of the street is reached,
- then follow previous procedure for stopping opposite traffic lanes and crossing children,

Divided Roadway Without Signals

- for divided roadways without signals, the guard should stay on the median while the children are crossing,

Signalized Crossings (Undivided)

- children are stopped one step back from the curb **(See Figure 7.8E)**,
- hold children on hold,
- enter the street only with the green or WALK signal,
- stand on the intersection side of the crosswalk,
- stand on the side of approaching turning movements,
- attract the attention of the drivers maneuvering to make right or left turns,

- raise hand and STOP paddle in their direction indicating STOP **(See Figure 7.8F)**,
- watch for right turning traffic that faces the red signal (i.e., right turn on red) to avoid potential conflict,
- signal to release the children,
- wait until the children reach the opposite curb,
- return to curb.

Signalized Divided Roadways

- for signalized divided roadways, the guard should stand on the side of approaching turning movements.

9. PROGRAM MONITORING, ANNUAL EVALUATION AND RECOGNITION

Monitoring

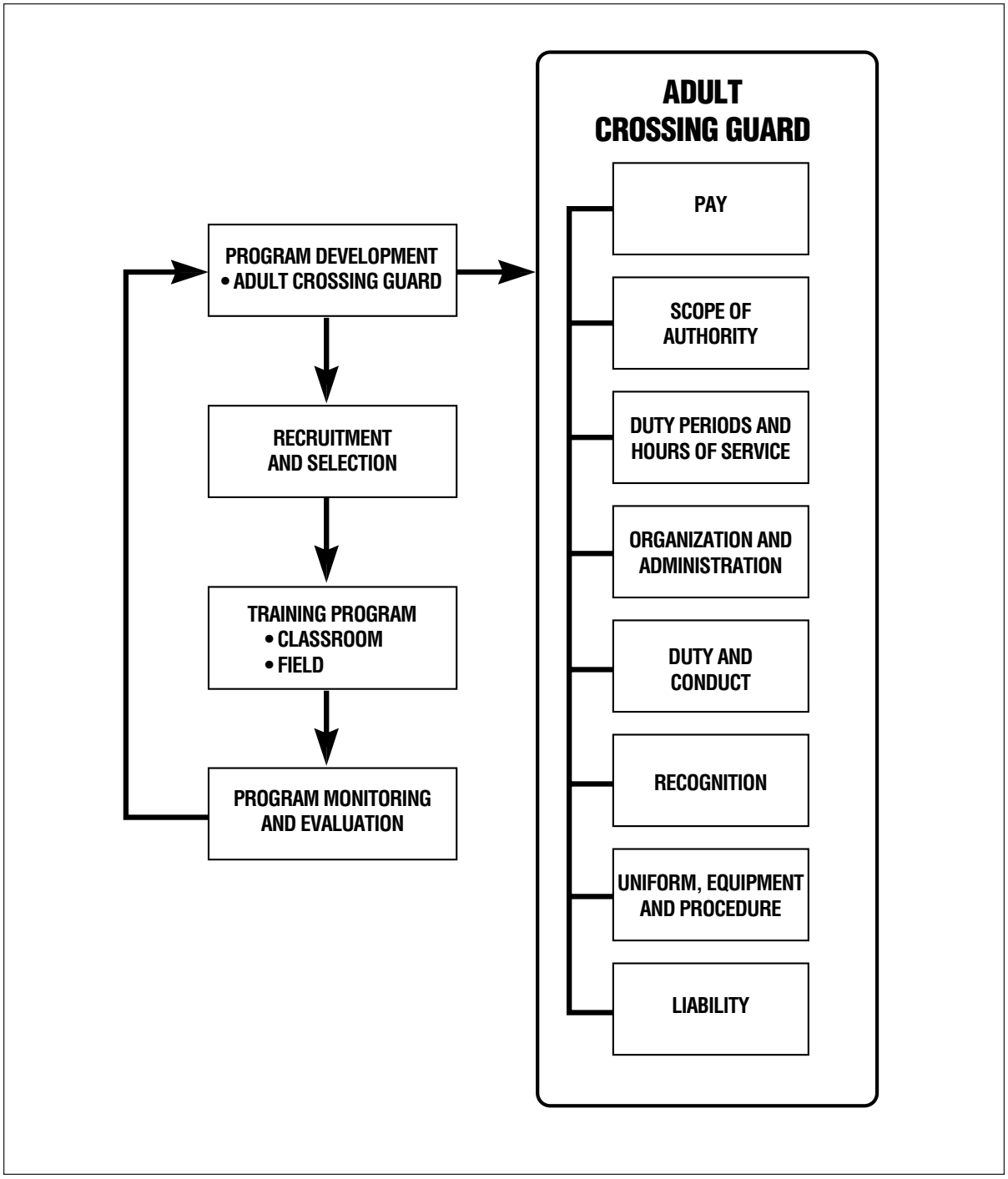
1. A crossing protection program should be flexible and responsive to changing situations.

2. It is important to periodically check all school crossings (an annual check is recommended), for as traffic patterns change so too will the crossing protection need change.

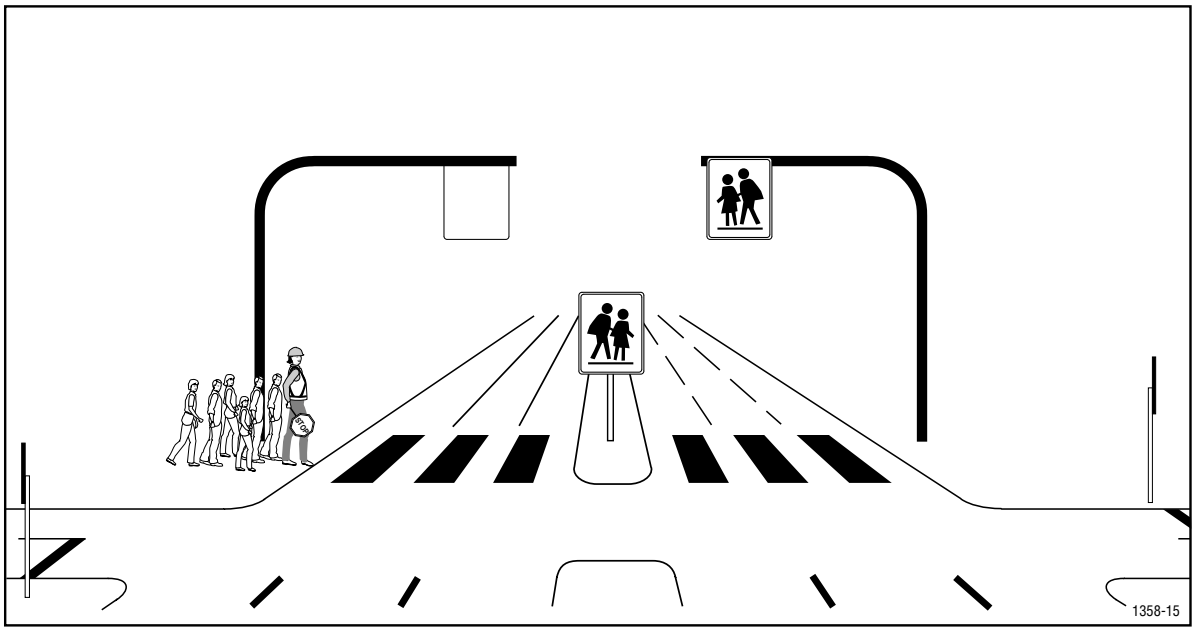
3. Sometimes, such checking will indicate that the use of crossing guards is no longer warranted at a particular crossing.

Recognition

4. Special recognition programs which acknowledge satisfactory service, length of service and outstanding performance by adult guards are important for maintaining high morale.

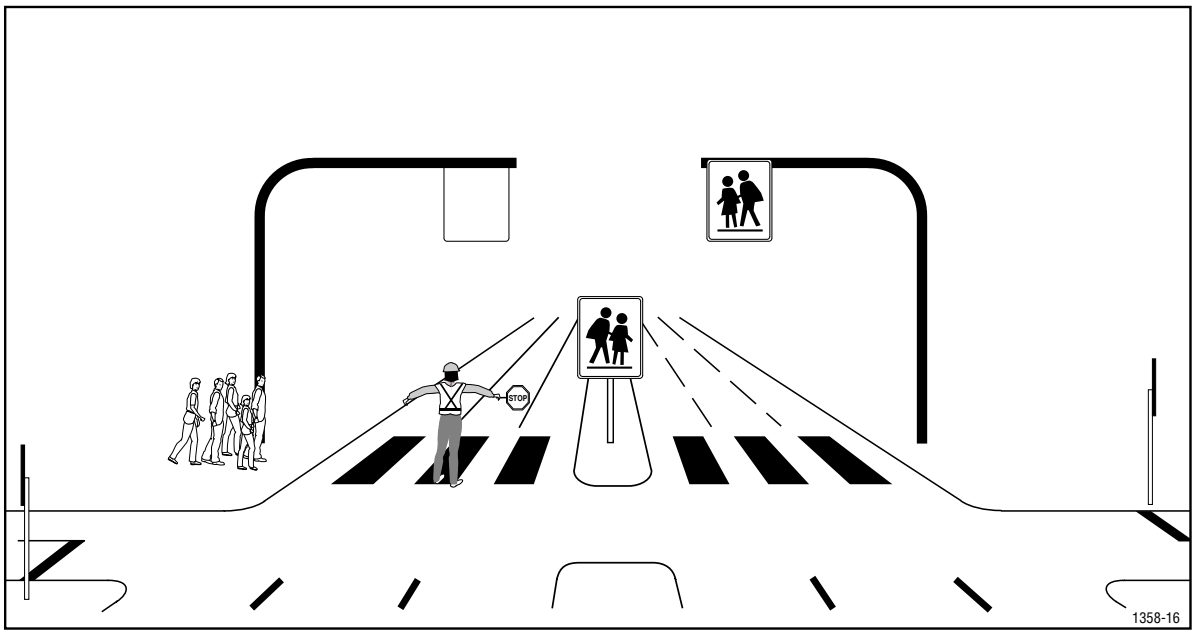


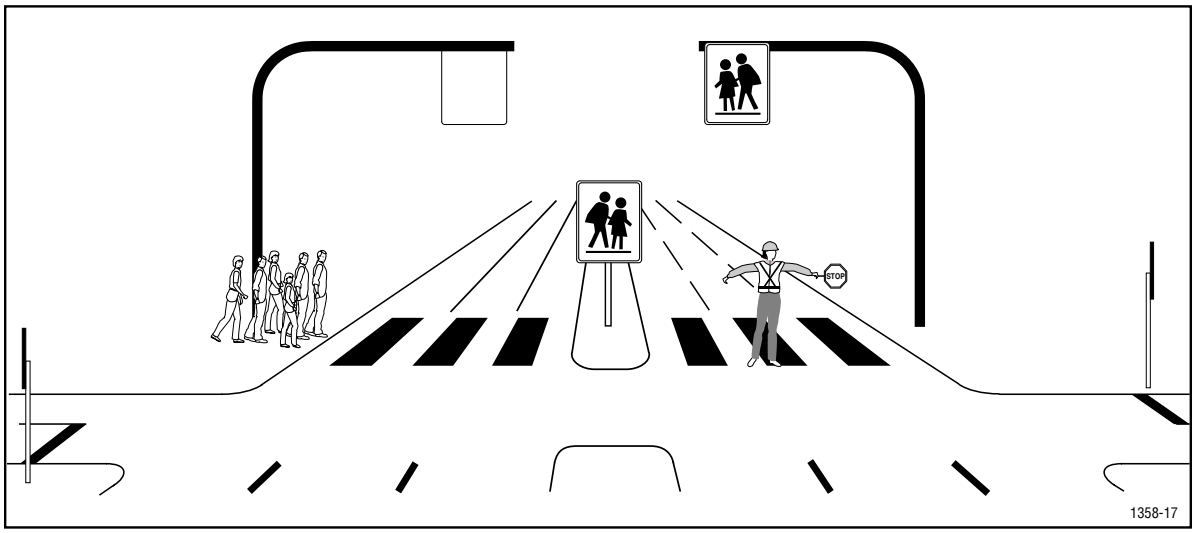
7.1 Adult Crossing Guard Program Development



7.8A Adult Crossing Guard
Stand on the curb and stop students

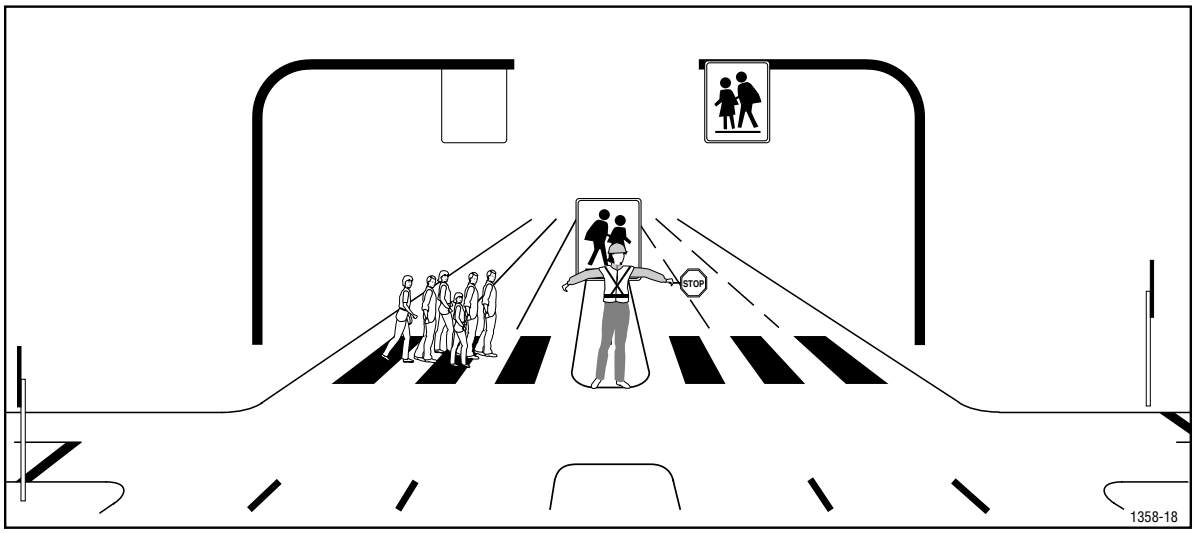
7.8B Adult Crossing Guard
Face closest oncoming traffic. Hold the STOP paddle out and wait for traffic to stop.

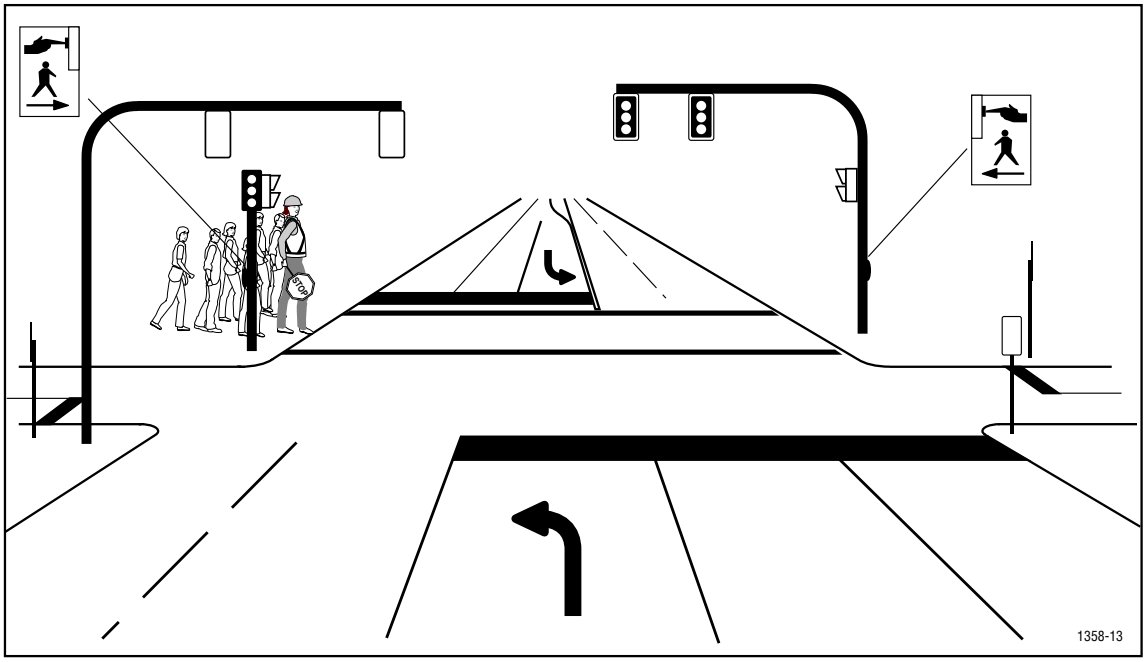


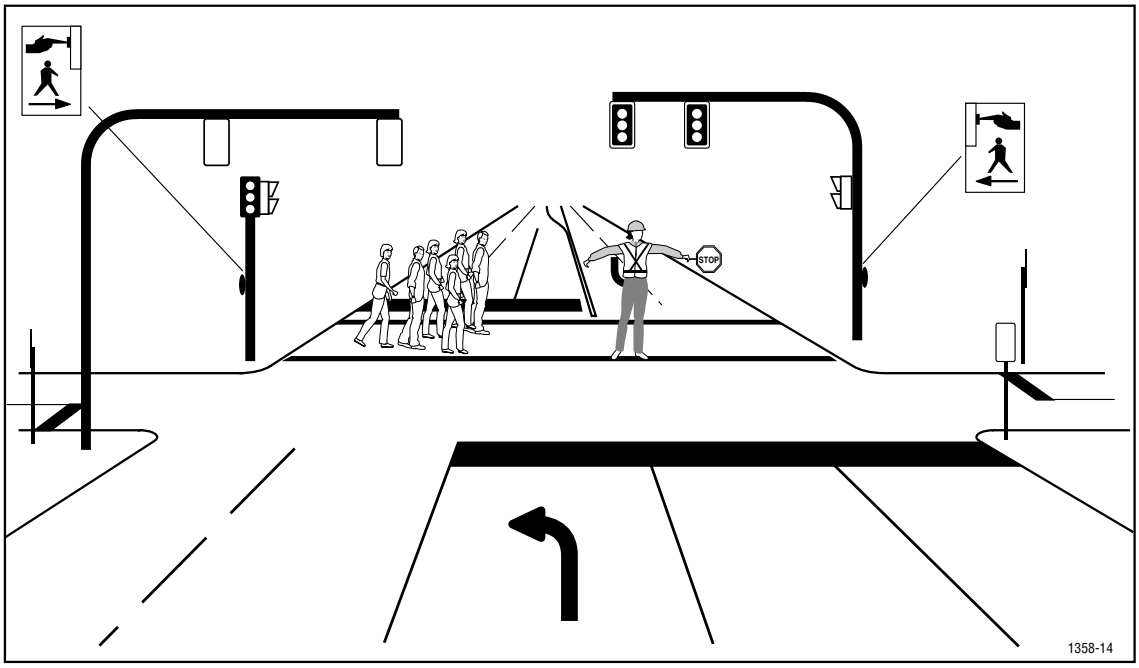


7.8C Adult Crossing Guard
Face opposite approaching traffic with STOP paddle raised.
Stop approaching and turning traffic.

7.8 D Adult Crossing Guard
Face the intersection and motion the children to walk behind.





7.8E Adult Crossing Guard
Wait for WALK signal at signalized intersection with children on hold.

7.8F Adult Crossing Guard
Guarding at signalized intersection.