



Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
OFFICE OF THE SECRETARY
Manila

097-13 DPWH
06-19-2012

JUN 19 2012

DEPARTMENT ORDER)

No. **41**
Series of 2012

) SUBJECT : **ADOPTION OF THE REVISED MANUAL
ON DPWH HIGHWAY SAFETY DESIGN
STANDARDS, MAY 2012 EDITION**

In line with the Department's continuing effort to improve road safety along our national road network, all concerned offices are hereby strictly directed to adopt the herein **Revised DPWH Manual on Highway Safety Design Standards, May 2012 Edition** in your road safety planning & design activities as well as in road safety maintenance activities such as the proper way of installing/applying road signs, road safety devices and pavement markings.

The revised manuals are comprised of two parts as follows:

- Part 1 : Road Safety Design
- Part 2 : Road Signs and Pavement Markings

The Road Safety Manuals, which were initially released in four parts last CY 2004, were developed under the ADB-Assisted Road Infrastructure Safety Projects. The revision on Part 1 & 2 is necessary to reflect current and desired practices as well as incorporate new road safety standards such as the turn outs (loading/unloading bays), road alignment geometry, road signs like hazard markers, spacing for chevrons, rumble strips among others.

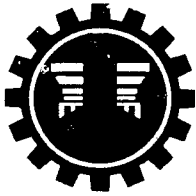
This Department Order is supplementary to Department Circular No.09 Series of 2004 and Department Order No. 13 Series of 2008, copies attached, which both prescribed the guidelines on the adoption and use of road safety manuals.

This order supersedes all issuances or portions thereof which are inconsistent, and shall take effect immediately.


ROGELIO L. SINGSON
Secretary



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Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
OFFICE OF THE SECRETARY
Manila

097.13 DPWH
03-19-2008

MAR 18 2008

DEPARTMENT ORDER)
No, **13**)
Series of 2008)

SUBJECT : **GUIDELINES IN THE
PROCUREMENT AND
INSTALLATION OF
ROAD SAFETY DEVICES
AND FACILITIES**

In line with the Department's objective to improve road safety in the national road network, the standards and guidance for safety planning, safety design, road safety and for risk assessment provided in the *DPWH Highway Safety Design Standards Manual, Part 1: Road Safety Design*, and the standard specifications for road signs, pavement markings and other road safety devices as provided in the *DPWH Highway Safety Design Standards Part 2: Road Signs and Pavement Markings Manual* are hereby prescribed for all road safety projects, road construction and maintenance activities. This directive also applies to all newly completed road improvement projects or on road sections identified as hazardous locations and/or on road sections with potential road hazards where safety devices are needed.

The *DPWH Highway Safety Design Standards Manual, Parts 1 and 2* developed under the ADB-assisted Road Infrastructure Safety Project should be used in conjunction with the DPWH Highway Design Guidelines to maximize road safety.

This Department Order is supplementary to Department Circular No. 09 Series of 2004, copy attached, which prescribed the guidelines on the adoption and use of the road safety manuals.

This order shall take effect immediately.

HERMOGENES E. BASANE, JR.
Secretary



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Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
OFFICE OF THE SECRETARY
Manila

097.7 DPWH
08-23-2004

AUG 23 2004

DEPARTMENT CIRCULAR

No.

Series of 2004

09

08-23-04

FOR/TO ALL : Undersecretaries
Assistant Secretaries
Bureau Directors
Service Directors
Project Managers
Regional Directors
District Engineers
Heads of Attached Agencies
This Department

SUBJECT : Road Safety Manuals and Handbooks

Under the Road Infrastructure Safety Project - Capacity Building Component of the 6th ADB Road Project, there are four (4) new technical manuals and two (2) new handbooks on road infrastructure safety which have been prepared and made available. This is in line with the Department's objective to improve the road safety situation of the country under its traffic accident prevention and reduction program.

The four (4) new manuals on road infrastructure safety are:

- Road Safety Audit Manual
- Road Works Safety Manual
- Highway Safety Design Standards Manual – Part 1: Road Safety Design Manual
- Highway Safety Design Standards Manual – Part 2: Road Signs and Pavement Markings Manual

The two (2) new handbooks that have been prepared to serve as reference material for the development and prioritization of projects for the accident prevention and reduction programs are:

- Accident Blackspot Investigation Handbook
- Project Evaluation Handbook

The use of these manuals and handbooks will contribute to maximizing road safety on the national road network in our country. The standards in the above mentioned manuals shall replace other standards that are currently being used in relation to road design, construction and maintenance.

1. ROAD SAFETY AUDIT MANUAL

This manual shall serve as the official reference for all Road Safety Audit activities to be undertaken by DPWH. The manual contains Road Safety Audit policies and procedures and includes pre-design and design activities, monitoring and post-construction site inspection.

2. ROAD WORKS SAFETY MANUAL

This manual shall be used as the official reference for defining temporary signing, traffic devices and traffic management for maintenance and construction works on roads and bridges. The manual also defines the circumstances under which these devices should be arranged to provide appropriate warning and guidance for various types of works and environments.

3. HIGHWAY SAFETY DESIGN STANDARDS MANUAL – PART 1:
ROADSAFETY DESIGN MANUAL

This manual shall be used in conjunction with the DPWH Highway Design Guidelines. The manual includes standards and guidance for safety planning, safety design and for road safety risk assessment. The manual shall be used as the official reference for the planning, design and management of our national road network. It includes safety design principles based on best international practice applicable to our country.

4. HIGHWAY SAFETY DESIGN STANDARDS MANUAL – PART 2:
ROAD SIGNS AND PAVEMENT MARKINGS MANUAL

This manual shall be used as the official reference for the design and installation of road signs and pavement markings on national and local roads. The manual includes standards and guidance for the use of regulatory signs, warning signs, guide signs (including direction, street name and tourist signs), expressway signs, traffic instruction signs, hazard markers and pavement markers.

5. ACCIDENT BLACKSPOT INVESTIGATION HANDBOOK

The Accident Blackspot Investigation Handbook contains information on the use of accident data, reports and maps from the Traffic Accident Recording and Analysis System (TARAS) to identify hazardous locations and assist with the analysis of accident patterns and causal factors at particular sites.

The Handbook provides guidance on the critical steps required to investigate and develop a project comprising engineering countermeasures that will have a high probability of improving road safety at an accident blackspot location.


6. PROJECT EVALUATION HANDBOOK

The Project Evaluation Handbook details the processes that shall be followed for evaluating candidate projects that are submitted for funding. It also includes the process of screening road safety projects to ensure compliance with the criteria for acceptable road accident reduction works, economic appraisal using cost benefit analysis and prioritization using a multi-criteria analysis methodology.

The corresponding guidelines on the adoption and use of these manuals and the responsibilities of each office in relation to these Manuals and Handbooks are detailed in Annex – A (Attached).

In the interest of uniformity, all offices concerned shall adopt these manuals to works under their area of responsibilities.

The Circular shall take effect immediately and supersede all previous Department Orders and other issuances or any provision thereof that are inconsistent herewith.



FLORANTE SORIQUEZ
Acting Secretary

IMPLEMENTING GUIDELINES ON THE STANDARDS, POLICIES AND PROCEDURES AND USE OF THE NEW ROAD SAFETY MANUALS AND HANDBOOKS

1. ROAD SAFETY AUDIT MANUAL

A Road Safety Audit (RSA) is a formal process where an independent and qualified audit team examines and reports on the traffic accident potential and safety performance of:

- A future road project (through design plans), or
- A traffic management scheme, or
- An existing road.

Road Safety Audit focuses on traffic accident prevention, rather than accident reduction that is the focus of improvement programs at accident blackspots with a history of traffic accidents.

The RSA process applies mainly to new road designs, although it may also apply to existing roads, to identify potential safety hazards with the primary objective of preventing future traffic accidents. The Road Safety Audit approach is based on the principle that **“Prevention Is Better Than Cure”**.

Project Selection Criteria for Road Safety Audit

All new road projects will benefit from having road safety audits undertaken during the design and construction stages. However, in recognition of the need to apply resources to where they can have maximum effect, road safety audits are required by this policy at selected stages according to the relative cost of the road project.

The criteria for road projects that are to be audited at various stages are detailed in Table 1 below:

ROAD SAFETY AUDIT STAGE	Audit Criteria - Cost of Road Project		
	Major ^{1/} Projects	Medium ^{2/} Projects	Minor ^{3/} Projects
Stage 1: Feasibility	All projects	Not Required	Not Required
Stage 2: Draft Design	All projects	All projects ^{4/}	At the discretion of the District Engineer ^{5/}
Stage 3: Detailed Design	All projects		
Stage 4: Pre-opening	All projects	All projects	
Stage 5: Roadwork Traffic Schemes	Any road work traffic scheme that is to remain in place for more than two months		
Stage 6: Existing Roads	National Highway sections are to be audited each year at the direction of the District Engineer, and as resources permit.		

Table 1: Project Audit Criteria for Road Safety Audit

Notes:

- 1/** Major projects are those with a total cost exceeding PHP 50 million.
- 2/** Medium projects are those with a total cost between PHP 10 million and PHP 50 million.
- 3/** Minor projects are those with a total cost under PHP 10 million.
- 4/** These projects may be audited at either of the stages shown.
- 5/** These projects may be audited at any of the stages shown. Suggested projects may include those where conflicts between vehicles and other road users will be high (intersections), where speeds will be high, or where substantial changes to the existing traffic situation are expected.

Responsibilities for Road Safety Audit

Responsibilities in relation to the Road Safety Audit are detailed in Table 2 below:

Office	Responsibilities
Project Evaluation Division, Planning Service (PED, PS)	<ul style="list-style-type: none"> ▪ Provide strategy direction, technical support and recommend policy; ▪ Establish procedures; ▪ Maintain and review road safety design standards; ▪ Carry out Road Safety Audits when requested by other offices coordinating road projects; ▪ Maintain and update the Road Safety Audit Manual; and ▪ Provide training and seminars within and outside DPWH, (e.g consultants and contractors).
Highways Division, Bureau of Design Regional Offices District Engineering Offices Project Management Offices	<ul style="list-style-type: none"> ▪ Organize and/or conduct RSA on road projects under their control; ▪ Include reference in all Terms of Reference for design or construction of road projects, indicating that Road Safety Audit requirements are to be in accordance with the Road Safety Audit Manual; ▪ Ensure that auditors are independent of the project and appropriately skilled and experienced; ▪ Liaise with PED, PS on road safety requirements for designs; ▪ Participate in training courses and seminars; and ▪ Report annually to the PED, PS on road safety audits carried out.

Table 2: Responsibilities relating to the Road Safety Audit

2. ROAD WORKS SAFETY MANUAL

The Manual is to be used as the primary reference for defining temporary signing, traffic devices and traffic management for maintenance and construction works on roads and bridges, as well as the circumstances under which these devices should be arranged to provide appropriate warning and guidance for various types of works and in various road environments.

The safe and effective control of road users through or around a roadwork site is an essential component of road and bridge construction works, maintenance activities or works relating to utilities within the road right of way. It is also essential to provide for the safety of workers at a roadworks site.

To maximize safety and provide appropriate and necessary advice to drivers encountering unexpected works on the road network, it is important to maintain a consistent standard for signs and traffic control devices. The Manual is to be used by all roadworks engineers and supervisors in the planning or undertaking of works and be the source of reference during works, whether these are by contract or direct management.

The principles contained in this Manual should also be used in the training of workers involved with roadworks so they become familiar with the requirements and so they are aware of the dangers and the need for safety when working near traffic.

Responsibilities for Road Works Safety

Responsibilities in relation to the Road Works Safety are detailed in Table 3 below:

Office	Responsibilities
Project Evaluation Division, Planning Service (PED, PS)	<ul style="list-style-type: none"> ▪ Provide strategy direction, technical support and recommend policy; ▪ Review road works safety standards; ▪ Maintain and update the Road Works Safety Manual; and ▪ Provide training and seminars within and outside DPWH, (e.g consultants and contractors).
Highways Division, Bureau of Design Regional Offices District Engineering Offices Project Management Offices	<ul style="list-style-type: none"> ▪ Apply the requirements of the Road Works Safety Manual on all road projects under their control; ▪ Train workers on their projects so that they are familiar with the requirements of the Manual; ▪ Include reference in all Terms of Reference for design or construction of road projects, indicating that signs and traffic management for construction of the project are to be in accordance with the Road Works Safety Manual; ▪ Liaise with the PED, PS on road safety requirements included in the Manual; and ▪ Participate in training courses and seminars.

Table 3: Responsibilities relating to the Road Works Safety

3. HIGHWAY SAFETY DESIGN STANDARDS MANUAL - PART 1: ROAD SAFETY DESIGN MANUAL

This Manual is to be used in conjunction with the DPWH Highway Design Guidelines (currently in draft form). The Manual includes standards and guidance for safety planning, safety design and for road safety risk assessment. The Manual is to be used as a primary reference for the planning, design and management of National Highways.

To maximize safety, it is essential to maintain a consistent standard for road and intersection design by application of the standards in the Manual. The principles contained in this Manual should also be used in the training of DPWH staff involved in road planning, design, roadworks project management and traffic management.

The Manual includes safety design principles based on best international practice applicable to the Philippines. Specific areas of design where changes to past practice are expected to lead to significant safety improvements include:

- Choice of intersection type and layout. This is particularly related to the design and use of roundabouts and the form of channelization to reduce potential conflicts and the severity of traffic accidents (includes avoiding use of Y junctions and T junctions with triangular islands);
- Safety of the roadside (includes the choice and design of median and roadside barriers and the use of frangible lighting poles); and
- Safety of unprotected road users such as pedestrians and cyclists.

Responsibilities for Road Safety Design

Responsibilities in relation to the Road Safety Design are detailed in Table 4 below:

Office	Responsibilities
Project Evaluation Division, Planning Service (PED, PS)	<ul style="list-style-type: none"> ▪ Provide strategy direction, technical support and recommend policy; ▪ Review road safety design standards; ▪ Maintain and update the Road Safety Design Manual; and ▪ Provide training and seminars within and outside DPWH, (e.g consultants and contractors).
Highways Division, Bureau of Design	<ul style="list-style-type: none"> ▪ Incorporate the road safety principles and standards from the Road Safety Design Manual into the DPWH Highway Design Guidelines (currently being revised). ▪ Review road safety design standards; ▪ Maintain and update the Road Safety Design Manual

Highways Division, Bureau of Design Regional Offices District Engineering Offices Project Management Offices	<ul style="list-style-type: none"> ▪ Apply the requirements of the Road Safety Design Manual on all road projects under their control; ▪ Include reference in all Terms of Reference for design or construction of road projects, indicating that the design standards of the project are to be in accordance with the Road Safety Design Manual; ▪ Liaise with PED, PS on road safety requirements included in the Manual; and ▪ Participate in training courses and seminars.
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Table 4: Responsibilities relating to Road Safety Design

4. HIGHWAY SAFETY DESIGN STANDARDS MANUAL - PART 2: ROAD SIGNS AND PAVEMENT MARKINGS MANUAL

The Manual includes standards and guidance for the use of regulatory signs, warning signs, guide signs (including direction, street name and tourist signs), expressway signs, traffic instruction signs, hazard markers and pavement markings.

The Manual is to be used as the primary reference for the design and installation of road signs and pavement markings on National Highways and local roads. To maximize safety and provide credible advice to drivers, it is essential to maintain a consistent standard for signs and pavement markings. In the interests of uniformity, Local Government Units, traffic management and enforcing authorities, project managers and consultants are requested to apply the requirements of this Manual to provide appropriate road signs and pavement markings on roads in the Philippines.

The principles contained in this Manual should also be used in the training of DPWH and other traffic management personnel involved in design and construction works. This will enable all future road signs and pavement markings to be of a consistent and uniform standard.

Responsibilities for Road Signs and Pavement Markings

Responsibilities in relation to the Highway Safety Design Standards Part 2: Road Signs and Pavement Markings are detailed in Table 5 below:

Office	Responsibilities
Project Evaluation Division, Planning Service (PED, PS)	<ul style="list-style-type: none"> ▪ Provide strategy direction, technical support and recommend policy; ▪ Review road signs and pavement markings standards; ▪ Maintain and update the Road Signs and Pavement Markings Manual; and ▪ Provide training and seminars within and outside DPWH, (e.g consultants and contractors).

Highways Division, Bureau of Design Regional Offices District Engineering Offices Project Management Offices	<ul style="list-style-type: none"> ▪ Apply the requirements of the Road Signs and Pavement Markings Manual on all road projects or road maintenance activities under their control; ▪ Include reference in all Terms of Reference for design or construction of road projects, indicating that the design standards of the project are to be in accordance with the Road Signs and Pavement Markings Manual; ▪ Liaise with PED, PS on road safety requirements included in the Manual; and ▪ Participate in training courses and seminars.
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Table 5: Responsibilities relating to Road Signs and Pavement Markings

The standards in the above Manuals shall replace other standards that are currently being used in relation to road design, construction and maintenance.

Copies of these Manuals may be obtained from the Division Chief Project Evaluation Division, Planning Service.

5. ACCIDENT BLACKSPOT INVESTIGATION HANDBOOK AND PROJECT EVALUATION HANDBOOK FOR ROAD ACCIDENT REDUCTION PROGRAM

These Handbooks describe procedures for identifying and investigating hazardous (accident blackspots) locations and developing road accident reduction projects. These projects are generally localized, relatively low-cost infrastructure and traffic management projects specifically designed to make the roads safer to use. The procedures are designed to provide a systematic approach to the identification and investigation of accident blackspots and the development of candidate projects that can be considered for inclusion in the road accident reduction program.

The objective of the projects resulting from application of these procedures is to reduce the incidence and / or severity of major accidents at the worst accident locations on the national road network. The procedures are to be used to guide in the selection of sites and improvement proposals, to determine the cost-effectiveness of individual road safety proposals and to prioritize projects that are being considered for funding.

Accident Investigation Handbook

The Accident Investigation Handbook contains information on the use of accident data, reports and maps from the Traffic Accident Recording and Analysis System (TARAS) to identify hazardous locations and assist with the analysis of accident patterns and causal factors at particular sites. It does not provide guidance on the use of TARAS, so staff should refer to the TARAS Users Manual for this purpose (also refer to DO No. 40 in relation to implementation of TARAS).

The Handbook provides guidance on the critical steps required to investigate and develop a project comprising engineering countermeasures that will have a high probability of improving road safety at an accident blackspot location. It therefore is aimed at developing an understanding of the factors that contribute to road accidents as well as knowledge of which treatments will be the most effective in addressing different accident types and patterns.

The scope of this Handbook extends to the point in the project cycle at which a road accident reduction project has been developed to the concept design stage with a preliminary cost estimate. Beyond this point, candidate projects will be submitted for evaluation.

Project Evaluation Handbook

The Project Evaluation Handbook details the processes that shall be followed for evaluating candidate projects that are submitted for funding, including screening to ensure compliance with the criteria for acceptable road accident reduction works, economic appraisal using cost-benefit analysis and prioritization using a multi-criteria analysis methodology.

Responsibilities for Accident Blackspot Investigation, Project Development and Project Evaluation

Responsibilities relating to Accident Blackspot Investigation and Project Evaluation are detailed in Table 6 below:

Office	Responsibilities
Project Evaluation Division, Planning Service (PED, PS)	<ul style="list-style-type: none"> ▪ Evaluate project proposals for accident blackspots / hazardous locations in accordance with the Project Evaluation Handbook; ▪ Recommend priorities for funding of accident blackspot / hazardous location projects; ▪ Provide road safety strategy direction, technical support and recommend policy; ▪ Review accident blackspot investigation and evaluation procedures; ▪ Maintain and update the Accident Blackspot Investigation Handbook and Project Evaluation Handbook; and ▪ Provide training and seminars within DPWH.

<p>Regional Offices District Engineering Offices Project Management Offices</p>	<ul style="list-style-type: none"> ▪ Apply the principles in the Accident Blackspot Investigation Handbook for project preparation activities under their control; ▪ Submit project proposals to the PED, PS for evaluation. ▪ Include reference in all new Terms of Reference for project preparation or design relating to accident blackspots or treatment of hazardous locations, indicating that the principles for evaluation are to be in accordance with the Handbooks; ▪ Liaise with PED, PS on road safety requirements included in the Handbooks; and ▪ Participate in training courses and seminars.
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Table 6: Responsibilities relating to Accident Blackspot Investigation Handbook and Project Evaluation Handbook

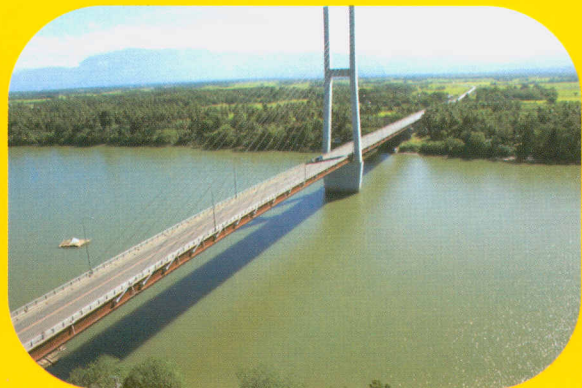
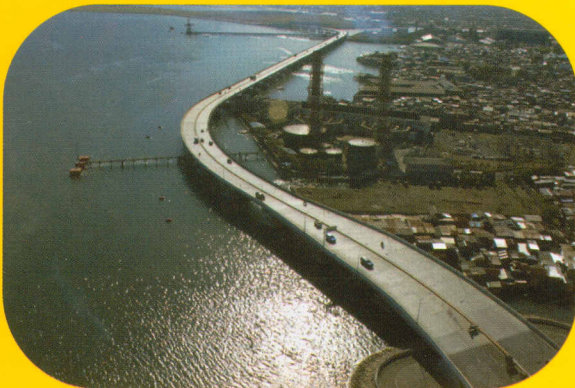
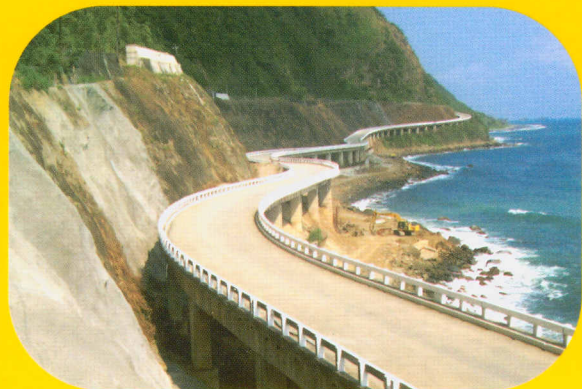


Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

Highway Safety Design Standards

Part 1:

Road Safety Design Manual



May 2012



Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

Highway Safety Design Standards

Part 2:

Road Signs and Pavement Markings Manual



May 2012