



Ministry for the
Environment
Manatū Mō Te Taiao

Good Practice Guide for Assessing Discharges to Air from Land Transport

Report on Submissions on Draft for Consultation

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1 Introduction

In June 2006, the Ministry published the *Good Practice Guide for Assessing Discharges to Air from Land Transport – Draft for Consultation*. The guide is one in a series of good practice guides developed by the Ministry for the Environment to promote national consistency and good practice. The target audience includes practitioners in making assessments of effects for discharges to air from land transport projects – consultants, council officers, scientists, and reviewers.

This document presents an overview of the submissions received on the *Good Practice Guide for Assessing Discharges to Air from Land Transport – Draft for Consultation*.

The *Good Practice Guide for Assessing Discharges to Air from Land Transport* has a sister document – the *Good Practice Guide for Assessing Discharges to Air from Industry*. These two guides are intended to be consistent with each other. This means that sometimes submissions addressing one aspect of one Guide impacts on advice provided in the other. This report therefore, summarises changes made to both draft Guides in response to submissions where submissions cross-over.

2 An Overview of Response to Submissions

Formal comments were received from five submitters, and their individual contributions have been acknowledged in the updated document. The five submitters were:

- Auckland Regional Council
- Beca
- Ministry of Transport
- North Shore City Council
- Transit New Zealand.

A number of the comments were on corrections, detail, formatting, spelling etc – these have all been addressed.

Several comments related to the overall structure of the document. Significant structural change to the Land Transport Guide would have necessitated structural change to its sister document (the Industry Guide) and is not generally favoured by the Ministry. In most cases, therefore, such structural change was not carried out. Requests for small or minor structural changes (eg, addition of subsections) so as to clarify and simplify the document were, however, addressed wherever possible.

As can be expected, several comments were also at variance with each other, and with the outcomes of the public meetings and views of the Ministry. An attempt has been made to balance these views so as to present a nationally consistent methodology that permits flexibility where needed (and justified). Additional explanatory text has also been provided to the guide for these areas.

A new feature has been added to both guides – a brief summary ‘Recommendation’ for each section. This is to be consistent with other good practice guides (eg, the *Good Practice Guide for Atmospheric Dispersion Modelling*).

One submitter requested delayed publication so further case studies could be provided. The development of detailed case studies, however, requires substantial effort and validation and the results, by their nature, are region and example specific. This was felt to be beyond the scope of the guide and, the case studies have yet to be provided.

2.1 Specific changes

The following significant changes were made to address the specific issues raised, covered by order in the document, rather than by submitter. Some comments were made by more than one submitter. Section 3 of this report provides a detailed summary of all issues raised and changes made.

- 1.2 Section on “Target Audience” added.
- Figures 1.1 and 1.2 amended to indicate other relevant good practice guides.
- 2.4 Section on “Designations and Notices of Requirement” added.
- 2.5 Section on “Land-use Consents” added.
- 4.2.4 Section on “How to decide which tier” added.
- 4.3.2 Section on “National Environmental Standards” added.
- 4.4 Section on “Comparing Project Options” added.
- Five major updates to this section to highlight importance of regional plans and give clear recommendations on order of priority of application of criteria.
- 5.3 Section on “Regional Plans” added.
- 5.4 Section on WHO guidelines updated for 2005 release.
- 5.5 Section on “Other Air Quality Criteria” added.
- 6 Tier 1 significantly changed to clarify, and now called “Preliminary Assessment” (consistent across both guides).
- 7 Tier 2 now called “Screening Assessment” (consistent across both guides).
- Table 7.1 updated with more recent data.
- 7.2.4 Section on “Derivation of significance criteria” added.
- Table 8.1 updated with more recent data.
- 8.2.1, 8.4.1, 8.4.2 and 8.4.5 updated to be consistent with amendments to Industry Guide.
- 8.4.4 Section on “Assessment of photochemical smog or other regional scale impacts” added.
- 8.5 Section on health risk assessment largely deleted.
- Section 9 (Assessment of Community Impacts and Comparison of Project Options) deleted with content moved to other sections.
- References updated (eg, World Health Organization guidelines).

3 Individual Submissions

3.1 Auckland Regional Council – Janet Petersen

Section	ARC summary points of submission	Review	Edits actioned
Target audience	The target audience is unclear and should clearly state its directed at skilled air quality practitioners (as per industry submission).		New section 1.2 added.
Consistency	Inconsistent level of detail – s8.5 too detailed/need more detail on sensitivity of receiving environment. Need consistency and more emphasis on introductory and general assessment issues.		Amended reverse sensitivity section in Chapter 6 (Tier 1) and added 'sensitivity table' similar to industry (Table 6.2). Amended 8.2.2 to cross ref Table 6.2. Reduced Section 8.5 (risk) to cross reference industry guide (not as relevant to transport).
Consistency	Confusing arrangement of report especially 9. Chapter 9 useful, but a combination of issues not addressed in other parts (some sections of chapter also out of order). Chapter 9 separated from Tiered process (but relate to Tier 2 and 3). → Suggest rearranging 8 and 9.		Removed Chapter 9. Moved assessment of community impacts to Section 4.4. Moved detailed methodology to Appendix 4. Changed order of sections where appropriate.
Tiered approach	Tiered process needs further clarification. Particularly terminology (ie, screening is used to describe both Tiers 1 and 2). Tier 1 appears to be two separate processes.		Tier 1 changed to clarify that it is a preliminary assessment. Amended Tier 1 to clarify difference between Tier 1 assessment of projects that require further assessment and projects that do not. Amended chapter heading for Tier 2 to "screening assessment" (consistent with industry guide).
Tiered approach	Need more info about stages and timeframes of transport project and when different assessment types should be undertaken. Preliminary assessments of environmental effects should be considered at the beginning of the project.		Added paragraph to Section 4.3. Also amended Chapter 6 (Tier 1) to emphasise this.
Recommendations	Suggest summary of main recommendations at the end of major sections.		Summary added to each chapter but this includes major points only. Impractical to reflect extensive detail in summarised recommendations.

Section	ARC summary points of submission	Review	Edits actioned
1	<p>Need further background information for context ie,</p> <ul style="list-style-type: none"> • overall environmental effects of transport • stages of transport project and how tiered approach works in this context • information on regulatory framework for notices of requirement and consenting process and relationship – as this is often confusing for those not involved • spatial effects of transport projects • construction effects – ie, refer to dust emissions GPG • effects of unsealed roads. 	GPG for air only – no to overall environmental impacts of transport, no to spatial effects, no to unsealed roads.	<p>Section 1.2 added to clarify target audience and explain what this document does and doesn't do. Regarding "project stages" – other sections have been amended to clarify that preliminary assessment is at beginning of project, etc.</p> <p>Added Sections 2.4 and 2.5 regarding designations and consents.</p> <p>Amended Section 1.1 to cross reference GPG Dust (refer Transit comment below).</p>
3.1.2	Last sentence not true for SO ₂ and NO ₂ – refer to <i>Ambient Air Quality Guidelines</i> , 2002.		Amended.
3.3	Clarify last bullet "experience of details of air quality assessments".		Amended to "experience of what is required in air quality assessments".
4.2.1 Tier 1	Confusing. Needs rewording to better explain purpose of quantitative and qualitative aspects.		Tier 1 amended to clarify (see comments above).
4.2.3 Tier 3	The example is more relevant to Tier 2 than Tier 3.		Example removed.
4.3	What is meant by airshed designation in this case?		Amended 4.3.2.
4.4	Difficult to distinguish 'corridor' v 'community' v 'airshed' effects, and should assess all anyway.		Section 4.4 deleted because this is only really relevant to Tier 3. All information is now provided in 8.4.3 and 8.4.4.
4.4	Importance of public concerns.	Noted.	
5 Air quality criteria	Incorporate new WHO guidelines.		New section added. (Main section overhauled to be consistent with changes to Industry GPG.)
5.1	Needs rewording regarding "requirements for resource consents", if "requirements" refer to the air quality guidelines should also refer to regional policies and plans.		Amended to remove reference to "requirements".
5.3	Would be useful to name the five NEPC pollutants. Not clear what recommendation is regarding non-criteria pollutants.		Superseded by amendments for consistency with Industry GPG.
6.1	<p>First three paragraph fit better under the main heading.</p> <p>Heading 6.1.1 should be deleted.</p> <p>Need an explanation of distinction between quantitative and qualitative – and when they should be used.</p> <p>Note that Tier 1 can be used for comparative assessment of options prior to the final design phase of a project.</p>		Amended.

Section	ARC summary points of submission	Review	Edits actioned
Table 6.1	<p>Reconsider logic behind table – some need Tier 2/3 assessments not suggested by table.</p> <p>Is step 3 relevant for a screening assessment?</p> <p>Effects over eight hours also important for CO.</p> <p>Clarify 'significant'.</p>		<p>Amended table to remove step 3 – this addresses first three points.</p> <p>Table already states that if there is doubt, a Tier 2 assessment will quickly clarify what is significant.</p>
7	<p>Use of word 'screening' confusing when used for Tier 1.</p> <p>Suggest using 'conservative' or describe the difference instead.</p>		<p>Amended so that Tier 1 is 'preliminary' and Tier 2 is 'screening' (consistent with industry guide).</p>
Figure 7.1	<p>Suggest assessing all links can be just as straightforward as 'worst case' – suggest adding to second box.</p>		<p>Highlighted "if necessary".</p>
Table 7.1	<p>Request explanation of how to determine PM₁₀ data from TSP – ARC suggest all TSP is considered PM in this case.</p> <p>Request note describing composition of fleet for calculation.</p>		<p>Amended with footnote.</p> <p>Amended – refer to Table 8.1.</p>
7.2.3	<p>Most assessments are for future years – suggest change to "additional future years".</p> <p>Should mention NZTER has predicted data for future years.</p>		<p>Amended.</p>
7.4.2	<p>Significance criteria given as percentage but not clear why.</p> <p>Use recent WHO annual guideline for NO₂.</p>		<p>Explained and amended so that is 5% for long term averages and 10% for short term – slightly simplified.</p> <p>Annual averages not included because background work hasn't been done (review of New Zealand concentrations etc).</p> <p>Also Tier 2 is only a first order screening assessment, which is very conservative, so should be adequate to consider 1 and 24 hour at this stage.</p>
8.1.2 Pages 42–43	<p>Unclear recommendations (last two paragraphs of "traffic data requirements").</p>		<p>Tried to clarify. Already states that analysts must use their judgement – we can't be prescriptive because there are too many variables involved.</p>
8.1.3	<p>Reorder section and add subsections.</p> <p>Need to note if all sections on non-exhaust emissions are based on the ARC emissions inventory.</p> <p>Micro assessment not relevant or useful.</p> <p>Rail emissions not relevant to GPG p.49.</p>		<p>Added subsections to clarify.</p> <p>Restructuring limited to retain consistency with industry guide.</p> <p>Amended "non-exhaust emissions factors" paragraph slightly. (There is already a footnote under each table.)</p> <p>This was retained because some users believe microsimulation is necessary. This is intended to clarify that it usually is not.</p> <p>Rail emissions retained – GPG now "Land Transport".</p>

Section	ARC summary points of submission	Review	Edits actioned
8.2.1	Monitoring should be strongly advised for Tier 3. More discussion on background. Last paragraph on page 53 contradicts Table 8.6. Clarify Figure 8.2 (average of worst value in each of preceding five years). Values in Table 8.6 so high would preclude consideration of the project. Monitoring should be undertaken in these areas.	Content sufficient.	Inserted new sentence in first section. Reworded last sentence of paragraph to clarify. Amended. Reworded slightly – “This approach is very conservative, and a more accurate assessment of existing air quality, or a health risk assessment may be required if this results in a prediction of unacceptable air quality effects”. Amended.
8.2.2	Reverse sensitivity useful but unclear how it would be handled in practice.		The intent is to signal that reverse sensitivity should be considered.
8.4.3	Not clear when assessment of airsheds would be required.		No known New Zealand examples as yet. Amended section 8.4.4 to clarify that it is about smog/regional effects and emphasised that recommendation is to consult regional council if there is a significant net increase in emissions. Amended title.
9	“Study area” needs clarification.		Amended (now Appendix 4).
9.3.2	Why only PM ₁₀ in this section?		Amended section A4.2 to state that method may be similarly applied to other pollutants.
10.1	“Consent” should be “notice of requirement”. Possibly check limitations on operation (example of State Highway 1).		Removed reference to consent process. Removed comment.
10.2	More information on offsets.	Noted.	
10.3	Local bylaws another option to be included. Section 10.1 and 10.3 could be combined.		Amended to include. Amended to combine.
11	Separate pre and post monitoring. What to do if concentrations higher than expected.	Not considered necessary. Not part of this guidance remit.	
Appendices	Multiple comments.		Removed ‘linear extrapolation’. Added comment regarding 20 m. Amended table and removed text regarding five and 50 m because these have been removed from Table 6.1. Deleted sentence. Added explanation of why information provided. Included references to WHO review, amended comments re benzene and sulphur in fuel to reflect fuel spec review, removed comment regarding vehicles being minor contributor to SO ₂ . Updated to reflect NOx treatment in Industry GPG.

Section	ARC summary points of submission	Review	Edits actioned
Typographic and technical errors	Multiple comments.		Did not delete heading 7.1 on page 31. All other amendments made.

3.2 Beca – Tracey Freeman

Section	Beca summary points of submission	Review	Edits actioned
VOCs	<p>Insufficient weight given to PM_{2.5}. To incorporate new WHO guidelines.</p> <p>Please include discussion of proportion of PM₁₀ that is PM_{2.5}.</p> <p>Clarify where volatile organic compound (VOC) assessments necessary.</p> <p>S3.1.3 should cross reference s 8.4.2.</p> <p>What about 1,3 butadiene?</p>		<p>Removed “sometimes” from 3.1.3 bullet points. WHO guidelines incorporated in Section 5.</p> <p>Amended.</p> <p>Clarified benzene and 1,3 butadiene for major projects or where there is high background.</p>
p 21	Spelling mistake.		Amended.
Section 5	To incorporate new World Health Organization (WHO) guideline for PM _{2.5} .		Section overhauled to be consistent with industry GPG.
Table 7.3	Superscript typo.		Amended.
S 7.4.2	<p>No data on PM_{2.5} – please include.</p> <p>Please include WHO annual NO₂ guideline in significance criteria list.</p>	Noted.	<p>Annual averages not included because background work hasn't been done (review of New Zealand concentrations etc).</p> <p>Also Tier 2 is only a first order screening assessment, which is very conservative, so should be adequate to consider 1 and 24 hour at this stage.</p>
8.1.3	<p>Query use of 20% cold start.</p> <p>Query VOC evaporative assumption.</p> <p>No emission factors for 1,3 butadiene.</p>		<p>Amended Section 7.2.2.</p> <p>Leave this as is for now. Auckland Regional Council (ARC) will add evaporative emissions to the vehicle emissions prediction model (VEPM), which will supersede this. In the meantime these emission factors are the same as New Zealand Transport Emissions Rate (NZTER) – we don't really know the assumptions.</p> <p>Australian emission factors added to Table 8.5.</p>
S 8.2.1, Table 8.6	<p>Please include indicative concentrations for PM_{2.5} and annual NO₂ in Table 8.2.1.</p> <p>Include discussion assessments where NES for PM₁₀ exceeded.</p>	Noted.	<p>Unfortunately, data not readily available so not included.</p> <p>Transport assessments are not resource consent applications so different approach to Industry GPG. Approach has been to recommend consultation with regional council in cases where PM₁₀ standard exceeded.</p>
8.3.1	Should not emphasise CALINE4 transport model.	Noted. Emphasis is on practical guidance.	No action.

Section	Beca summary points of submission	Review	Edits actioned
10.2	Paragraph ambiguous and unnecessary. No evidence for recommendation regarding 'at least' equivalent be offset.	Noted. Paragraph included at user request. This is a discussion of net increase in areas where air quality poor. Recommendation based on common sense.	No action.
NOx to NO ₂	Supports proposal to use 20% conversion ratio but further discussion needed.	Overtaken by submission by T Clarkson for industry GPG.	Some further discussion added regarding consistency with industry guide etc.
Long term NO ₂	Justification for inclusion of annual NO ₂ . Remove 24-hour and annual correlation.	Noted.	Amended.

3.3 Ministry of Transport – John Saker

Section	MoT summary points of submission	Review	Edits actioned
p 92	¼ fleet has catalytic converters. Pilot project indicates 71% (10% ineffective).		Amended Appendix 3.
Fuel spec changes	Please update changes to sulphur.		Updated Appendix 3 to reflect fuel spec reviews.
p iii, p 11	Editorial comments.		Amended.

3.4 North Shore City Council – Lloyd Johnson

Section	NSCC summary points of submission	Review	Edits actioned
Implications for urban design	Balconies, decks, etc cannot be located next to road with more than 7,000 vehicles per day.	The Guide is about Assessment, not urban planning. It does not set standards. Stated concerns about health impacts are noted – these do occur in practice. (Note Australian research on urban planning implications for air quality: http://www.csiro.au/science/psaq.html . Specific research has not been undertaken in New Zealand to date.)	No action.
Implications for Walking School Bus programme	Concerns over impacts on children walking to school.	Current research shows walking to be the least impact mode of transport compared with driving, bus and cycling (in that order). This GPG does not advocate discharge assessments as part of school and work travel plans.	No action.
Central government leadership	Ministry of Transport (MoT) should tighten vehicle emissions standards.	Outside scope of GPG. As an aside, during the delay between publication of the draft and updating this document MoT have tightened vehicle emission standards.	
Changes in land use	Changing adjacent land use provisions are unclear.	Noted. The Guide provides the tools to assess air quality along with other transport / land-use considerations. The Quality Planning website (currently being updated for air quality) provides more discussion on planning: http://www.qp.org.nz/ .	
Vertical separation from emissions	Guidance needed, would balconies above a certain height be okay from a health point of view?	At date of writing, no known New Zealand research to inform this. It would depend on level of containment etc. First step would be to undertake ground level assessment – Tier 1 and 2, then if a Tier 3 assessment is required, undertake specific modelling to assess vertical concentrations.	
Mitigation	Requested guidance on effectiveness and appropriateness of mitigation techniques. For example, a solution on busy shopping streets may be to close the street during rush hours or 'pedestrianising' the street.	Noted. Each case is highly specific and therefore, it is impossible to provide guidance that covers every eventuality.	
Toolkit	North Shore City Council provided details of a trial application of the toolkit for the Esmonde Road – Lake Road Corridor (40,000 vehicles per day). Surprised that increase to current upgrade air pollutants reduce in next 15 years due to improvements in fleet. Query use of toolkit for industrial uses. Clarify "roadside". Would like width of road incorporated into toolkit.	Thank you for provision of case study. Toolkit not appropriate for industrial use. Please refer GPG industry. Noted. This level of detail would need to be considered as part of a Tier 3 assessment, if the screening assessments indicate a potential problem. This would require a level of sophistication not possible for current toolkit.	Amended pages 74 and 29 to include "from edge of driving lane".

3.5 Transit – Rob Hannaby*

Section	Transit summary points of submission	Review	Edits actioned
Provisional status	Wait until June and then incorporate more case studies.	Publication delayed beyond June 2007, no case studies provided by Transit. NB: It should be recognised that there are several parts of the guide that might need to be updated within a few years.	
Updates and support	Want a web-based document that can be updated easily. To include a FAQ section.	May present problems with users not being sure of which version is current. Happy to provide FAQ for website. Please provide questions.	
Exemptions	Request explicit guidance that assessments are not required for minor works (eg, temporary diversions, maintenance works) and any project not likely to increase emissions. Would like to add exemptions to document as examples occur.	Noted. Please provide additional examples of suitably exempt activities.	Explicit guidance provided page 1 (bold type), section 4 (bold type) and Table 6.1.
Health risk assessments	Not comfortable with recommendation for health risk assessment, requested it be removed.	Noted.	Section 8.5 significantly reduced, but not deleted.
Non-criteria pollutants	Assessments should be limited to regional plan and NES pollutants only.	Noted. The RMA requires that assessments cover all potential adverse impacts.	
Background air quality	Table 8.6 may lead to excessive process and false initial conclusions. Please remove. Believes general issue of background air quality requires better definition. Requests FRST research be incorporated into Guide when available.	Noted. Table is considered essential to provide much needed consistency of approach in the absence of anything else. Current guidance as comprehensive as state of knowledge permits.	Removed the word "background", and replaced with "existing" air quality".
Significance criteria	Expressed concerns over use of significance criteria. Please indicate values provided as provisional and indicative only.	NB: This is guidance only – all values only indicative. The significance criteria apply to tier 2 assessments. If exceeded it is intended that a more accurate (tier 3) assessment be undertaken. The guide further states CO, NO ₂ and PM ₁₀ are indicator contaminants and that if the significance criteria are not exceeded, then assessment of other pollutants should not be necessary.	Section 7.4.2 "Derivation of significance criteria" added. Specifically references discussion on "reasonableness" and that they provide an indication only.
Land Transport NZ Toolkit	Please provide clearer guidance as to status and use of toolkit.	Noted. Toolkit not mentioned in GPG. Has no current 'owner' so not appropriate to mention in the GPG.	
Construction dust	No guidance – please cross reference GPG for dust.		Amended page 1.

* Transit also provided comment on an early draft of the GPG on 3 May 2006. These comments were addressed before the publication of the draft for consultation.