



SUNRA

Sustainability – National Road Aministrations

**Sustainability Definitions for NRAs –
Framework Part 1**

FRAMEWORK v2.0
April 2013

Report Details

Work package: 1

Deliverable: 3 (Framework Part 1)

Work package lead: DTU

Lead author:

Henrik Gudmundsson, DTU

Contributing authors:

Clare Harmer, TRL

Alison Hewitt, TRL

Anders Vestergaard Jensen, DTU

Quality Review:

Ulla Steen Salado-Jimena, DTU

Table of content

Table of content..... 3

Introducing the framework 4

Step 1: Interpretation of sustainability in the context of transport and road systems 6

Step 2: Review of impact and influence 10

Step 3: Crafting a strategic commitment and definition 15

Step 4: Implementing the commitment 16

Appendix A: Extended example..... 17

Appendix B: Glossary 18

Appendix C: References..... 20

Introducing the framework

This document provides a practical four-step framework to help NRAs create and apply an appropriate definition of sustainability which can frame its subsequent activities in relation to sustainability.

‘An appropriate definition of sustainability’ means a definition that:

- Is true to the fundamental ideas in sustainable development.
- Addresses key sustainability impacts of concern to NRAs.
- Is adapted to the particular NRAs internal and external context; and
- Can easily be transposed to subsequent steps of implementation.

A ‘definition of sustainability’ for an NRA is not simply meant to be a semantic definition of the term ‘sustainability’. The definition is seen as a *strategic commitment* an NRA makes to adopt and pursue a deliberately created understanding of sustainability, and to seek ways to implement this understanding within those areas of activity and with those levels of aspiration that the NRA finds most suitable.

A *framework for adopting a definition* is proposed, rather than one particular definition that all NRAs should adopt. This is because context matters, not so much for what sustainability means in general, not even in terms of the relevance of sustainability for European NRAs, but for how sustainability should be pursued under the particular conditions and priorities under which each NRA operates, and considering what the NRA believes it can influence.

Hence, NRAs may adopt more or less comprehensive and ambitious levels of commitment to sustainability, and may have different priorities within their definition, even though they are referring to the same basic principles. This framework aims to assist NRAs in conducting such an assessment and to shape the results into written form and further actions

The framework is based on the analytical background report released in parallel to the framework, “Sustainability Definitions for NRAs – Framework Part 1 REPORT v2.0”.

The background report provides the conceptual and analytical foundations for the recommended framework. It is based on a wide-ranging literature review and a workshop held with stakeholders. The following main components are included in the report:

- Key observations on sustainable development (literature).
- Key observations on sustainability and transport (literature).
- Key observations on sustainability and road management (literature and workshop); and
- Methodology applied in building the framework (literature and workshop).

This framework is named ‘SUNRA Framework - Part 1’, as it is one of three frameworks which the SUNRA project offers to NRAs to help them to consider sustainability. Framework - Part 2 aims to help NRAs identify and apply suitable measures to improve sustainability. While Part 3 offers a system to undertake sustainability rating of individual projects. Together the three parts of the framework will help NRAs comprehensively address sustainability from the strategic to the project level, and to ensure consistency in its overall approach to sustainability.

The key idea of this Framework - Part 1 is that a definition process is a helpful first mechanism for shaping the overall priorities and subsequent operational steps. In this process the NRA will first define a suitable scope and level of ambition through its interpretation of sustainability, and then use this scoping to review its current mandates, resources, priorities and activities, in terms of how these can help – or constrain – the NRA in realising its interpretation. This will enable the NRA to adopt a justified strategic commitment to pursuing sustainability.

The framework provides *four steps* that NRAs are recommended to take when defining sustainability, it suggests *key elements* to consider within each step (summarised in table or figure formats), and proposes *specific outputs* to be delivered from each step.

The four steps are as follows:

Step 1: Interpretation of sustainability in the context of transport and road systems.

Step 2: Review of impact and influence.

Step 3: Crafting a strategic commitment; and

Step 4: Implementing the commitment.

The following sections of the framework introduce each step and provide conceptual guidance and content for undertaking them. Further support and inspiration to help apply the framework can be found in the accompanying report.

The outputs from using the framework consist of a series of memos, one for each step, possibly consolidated into a more integrated report containing the strategic commitment. Key results should subsequently be integrated in other NRA frameworks or steering documents.

It is important that before initiating this process the NRA considers who will manage it and who will participate in it. Support and involvement at the Board level is essential, especially with regard to the key output, i.e. the strategic commitment.

Appendix A provides an example of how a transportation agency in the US has defined sustainability and implemented it in other documents and strategies. NRAs would likely adopt their own wordings.

Appendix B is a glossary of terms, identical to the one found in the accompanying report.

Appendix C includes the references directly cited in the framework. Additional references are found in the accompanying report.

Step 1: Interpretation of sustainability in the context of transport and road systems

In this step the NRA is to consider key existing definitions and principles of sustainable development, and key ideas on how these relate to the context of the transport system and road sector. This will help the NRA to appreciate fundamental aspects of sustainability and how sustainability applies to NRAs and will help them adopt a scope and level of ambition of their sustainability efforts. The interpretation of sustainability in the context of sustainability should be summarised in a note, and the scope should refer to a level of aspiration (see Table 3).

Main points to observe in the interpretation of sustainable development as such:

It is recommended that NRAs begin by considering sustainable development from a comprehensive point of view before moving into specific transport or impact areas.

It is relevant for NRAs to consider sustainable development in general, mainly because:

- Nearly every NRA asset and activity contributes (positively or negatively) to some aspect of development or sustainability.
- Sustainable development is the underlying concept with the widest international support, the strongest connections to national and European policy strategies, and the broadest scientific backing; and
- Sustainable development as a notion can encompass and integrate many other key notions including for instance environmental stewardship, corporate social responsibility, green growth, socio-economic efficiency, and value for money and stakeholders.

Since the report of the World Commission on Environment and Development from 1987 and the United Nation's Summit in Rio de Janeiro in 1992 sustainable development is generally understood as "Meeting the needs of the present without compromising the ability of future generations to meet their own needs", i.e., a normative aspiration for a process where:

- The evolving needs of the present are met without compromising the ability of future generations to meet their own needs; and
- Taking jointly into account the economic, social and environmental foundations for human life, while also considering the multiple interdependencies and interactions among these dimensions.

As a result of the complexities and the multitude of interests and perspectives involved, sustainable development is envisaged as a *process* which can unfold in different ways in time and space, rather than as a race towards a predefined endpoint.

It is widely recognised that the pursuit of sustainable development must be supported by an integrated institutional framework reinforced by a participatory governance approach, to limit contradictory decisions and policy failures, obtain legitimacy, and to promote synergies.

The recommended way to interpret sustainable development is to:

- Adopt the basic definition of sustainable development as basis.
- Incorporate the fundamental principles; and
- Adopt additional important principles which are found to be pertinent to the NRA.

Please refer to Table 1 for recommendations for these key elements.

The drafted written result of the interpretation is to be *applied* when adopting a level of aspiration for sustainability for the NRA (see the final part of this step).

However, first the interpretation is to be reinforced by adding aspects specific to transport.

Table 1: Sustainable development

Sustainable development
<p>Fundamental elements and principles of sustainability</p> <ul style="list-style-type: none"> • Key definition “Meeting the needs of the present without compromising the ability of future generations to meet their own needs” (intergenerational equity) • Ensure sustainable development in the economic, social and environmental pillar of sustainable development (including economic development, equity, improving quality of life, protect environmental life-support systems) • Ensure integrated decision making • Promote participation of major social groups in development processes
<p>Additional important elements to observe</p> <ul style="list-style-type: none"> • Overall sustainable development goals of the European Union and the member state • Avoiding large-scale irreversible changes, such a dangerous interference with the global climate • Consider sustainable development as a process, rather than an endpoint • Adopting a position on the scale from strong sustainability (preserve natural capital) to weak sustainability (ensure genuine savings) • Consider guiding principles such as ‘The Natural Step’ approach • Pursue opportunities for ‘green growth’ and innovation, in the context of sustainable development and poverty reduction

Main points to observe in the interpretation of sustainability and transport:

After having addressed sustainable development in general, NRAs should consider sustainability in the context of transport, mainly because:

- Transport systems have substantial impacts on multiple endpoints across all of the three pillars of sustainable development, in the short- and long term.
- NRAs manage one of the largest and most important transport systems in any country, and could be expected to address its sustainability.
- Relationships between transport and sustainable development are extremely complex and the contributions from NRAs need to be fully understood and managed; and
- NRAs have multiple potential contributions to make to ‘sustainable transport’ policy strategies, which most countries and the European Union aim to pursue.

There is a limited understanding as to how transport systems as a whole affect sustainability and development, taking into account all transport system components in a life perspective, and especially considering indirect effects of transport on other sectors.

It is therefore difficult to create a one firm definition of ‘sustainable transport’. No definition is internationally agreed. The most frequently used one adopted by the European Council in 2001 is shown in Table 2. Also shown are a set of principles for addressing sustainability in transport as proposed in scholarly research (Hall 2006).

This framework does not recommend one particular definition of sustainable transport for use by NRAs. Instead they are advised to consider which of the proposed principles may help them to supplement their own definition. Examples of definitions are included in Step 3, and more can be found in Section 4 of the main report.

In the debates on ‘sustainable transport’ it is sometimes questioned whether sustainability can be accomplished through road network expansion or at the level of (road) transport

project development. Transport policy and planning needs to ‘manage’ demand rather than ‘promote’ it, as it has been put. NRAs wishing to adopt sustainability are advised to consider if they have or could have a role in contributing to mobility management, and reduced travel demand.

According to for example the World Road Association (PIARC 2003), sustainability needs to be addressed at earlier stages of policy and planning with wide involvement of stakeholders. Road authorities may wish to engage themselves more actively with new types of strategic efforts in order to identify solutions just as much as they are concerned with developing and maintaining the road network. Commitments to engage in this may be included in the NRAs interpretation of sustainability.

Please see Table 2.

Table 2: Sustainability and transport

Sustainability and transport			
Most widely cited definition (Council 2001)			
<p>“A sustainable transport system: Allows the basic access and development needs of individuals, companies and society to be met safely and in a manner consistent with human and ecosystem health, and promotes equity within and between successive generations.</p> <p>Is affordable, operates fairly and efficiently, offers a choice of transport mode and supports a competitive economy, as well as balanced regional development</p> <p>Limits emissions and waste within the planet’s ability to absorb them, uses renewable resources at or below their rates of generation, and uses non-renewable resources at or below the rates of development of renewable substitutes, while minimizing the impact on the use of land and the generation of noise.”</p>			
Principles for sustainability in transport (Hall 2006)			
Environment	Society	Economy	Governance
<p>Adopt - A precautionary and preventative approach to decision-making</p> <p>Avoid - Irreversible impacts - Global climate change - Pollution</p> <p>Encourage - Remanufacturing/reuse and recycling of transportation vehicles and equipment</p> <p>Ensure - The proper disposal of transportation-related toxic materials and waste</p> <p>Protect - Habitats/ecosystems and operate within their assimilative and regenerative capacities - Biodiversity - Environmental Aesthetics</p>	<p>Enhance - Safety - Human health - Social wellbeing/ quality of life</p> <p>Promote - (Equity/distributional Fairness) - Access and choice - Environmental justice - Individual and community responsibility - Meaningful employment in the transportation sector</p>	<p>Ensure - Affordable transportation services - Cost-effective transportation - Efficient use of natural and financial resources - Internalization of negative social and environmental costs - i.e., the polluter pays principle</p> <p>Support - Trade and business activity that enhances productiveness and contributes to development</p>	<p>Encourage - Technological innovation</p> <p>Ensure - Transparency and accountability - Public and stakeholder participation</p> <p>Establish - Goals and performance objectives</p> <p>Support - Comprehensive and long-term planning - Interagency and international cooperation - The integration and co-optimisation of policy</p>

Levels of aspiration for sustainability

NRAs may, as other organisations, be more or less experienced in working with sustainability, and may have more or less ambitious aspirations for their work in this area. It is therefore common for frameworks of sustainability to adopt a tiered approach, with distinct levels of achievement or aspiration.

An organisation may first seek a suitable interpretation that fits its present situation or level of ambition, and then to prepare to climb the ladder to a higher level as part of their sustainability strategy.

Table 3 provides a ladder with four levels of aspirations for a sustainable development definition. The basic level (1) includes only the most fundamental principles. The following levels then add more aspects, with the 3rd and 4th levels referring explicitly to European Union sustainable transport and development concerns, as these would have relevance for all European NRAs.

NRAs should identify a level to aspire to within the framework.

The identification of a level within this framework will be needed as it provides the basis for conducting the review of impact and influence (Step 2).

Table 3 Proposed levels of aspirations for sustainable development definitions by NRAs

Level	Adoption of sustainable development principles
1	Adopt the basic dimensions of sustainable development: serve present and future generations equally; address the three pillars; integrated decision-making and participatory approach.
2	As level 1, plus adoption of additional important elements of sustainable development, plus principles specifically related to sustainable transport as found in Table 2.
3	As level 2, plus commitment towards goals of European sustainable transport strategies and policies (see section 4).
4	As level 3, plus commitment to wider European goals of sustainable development where transport can play a part (see section 3).

Output of Step 1

A first memo should be produced, describing the key observations and interpretation of the NRA in considering sustainability, development, and transport. An indication of the framework level the NRA aspires to achieve should also be included.

The memo should include the following points:

1. The NRAs initial Interpretation of overall sustainable development (including key principles – refer to table 1).
2. The NRAs initial interpretation of sustainability for road transport systems (additional principles – refer to table 2).
3. The NRA initial intentions for its level of ambition (refer to table 3).

Step 2: Review of impact and influence

In this step the NRA should consider its more specific role in and possible contributions to sustainability, taking into account impacts, context and influence. This will include the identification of impacts of main concern and the planning of a review of the key contributions the NRA can make to influence sustainability further, through mandates, resources, existing priorities and activities.

Attribution, influence and responsibility

It is recommended firstly to consider the distinction between impacts, influence and responsibility:

- **Impacts** refer to effects on important endpoints due to NRA assets or activities, for example through the stages of the project life cycle. Impacts belong to a cause-effect relationship between the source and the endpoint. A positive impact may be conveyed by a service provided by the road transport system; a negative one may be conveyed by a pressure arising of the transport system.
- **Influence** refers to how NRAs can *create* positive or *minimise* negative impacts, or otherwise foster change towards sustainable development. This is conditioned by the resources, capacities and mandates an NRA has, as well as by the creativity, commitment and support it is able to mobilise. This interrelationship sees the NRAs as an acting subject with intentions and strategies, rather than just as a mechanical system.
- **Responsibility** refers to the impacts the NRAs can influence given their mandates and resources. Responsibility is not an objective fact but may be ascribed, negotiated or assumed.

Considering impacts

Tables 4 to 6 provide an overview of the 27 general impact types associated with road transport systems (13 environmental, 7 economic, 7 social). The impacts arise throughout the various stages of the project life cycle, or from network operations. Some are immediate effects, while others occur over a longer period. Most could warrant attention at the strategic level.

Within the NRA's general commitment to sustainability the NRA should consult the list of impacts to check whether there are any of these (or others) that require special attention.

Reasons to emphasise particular impacts may for example be if:

- A higher-level transport policy has an emphasis on certain impacts.
- The NRA frequently needs to deal with certain impacts.
- Other strategies within the NRAs work focus on a particular impact (for example low carbon strategies, safety, transport facility cost).
- The NRA sees particular potential for innovation with regard to a certain impact (e.g. low noise pavements; low carbon construction materials); and
- Priorities in EU policies (for example CO₂ and safety).

A review of impacts should therefore take into account the context of the sustainability effort, including the internal context (existing priorities; or activities addressing certain impact), as well as the external context (mandates, expectations, significant trends etc.).

The emphasis on certain impacts should however not contradict a comprehensive approach across all three pillars of sustainability. The identification of particular impacts should be checked with the overall sustainability interpretation level (see previous section/first memo).

The result of this review should appear in the output of Step 2.

Table 4: Major environmental impact categories of transport and sustainable development

ENVIRONMENTAL		
Impact type	Sustainable development endpoints	Sign of impact
Noise	Present	Negative
Air pollution (humans)	Present	Negative
Air pollution (nature)	Present/Future	Negative
Climate Change - mitigation /adaptation	Future/Present	Negative/Positive
Soil and water pollution	Present/Future	Negative
Land take	Present/Future	Negative
Habitat fragmentation	Future	Negative
Non-renewable resources	Present/Future	Negative
Waste	Present/Future	Negative
Cultural heritage/visual intrusion	Present/Future	Negative
Invasive species due to transport	Future	Negative
Light pollution	Present	Negative/Positive

Table 5: Major economic impact categories of transport and sustainable development

ECONOMIC		
Impact type	Sustainable development endpoints	Sign of impact
Accessibility as an economic function	Present	Positive
Transport operation costs	Present	Negative
Transport facility costs	Present/Future	Negative
Productivity /Efficiency	Present/Future	(Positive)
Costs & benefits to the economy	Present/Future	Positive/Negative
Affordability	Present	Positive/Negative
Economic viability	Present/Future	(Positive)

Table 6: Major social impact categories of transport and sustainable development

SOCIAL		
Impact type	Sustainable development endpoints	Sign of impact
Accessibility as a social function	Present	Positive
Safety	Present	Negative
Health and fitness	Present	Positive/Negative
Livability	Present	Negative
Social Cohesion	Present/Future	Positive/Negative
Diversity	Present	Positive/Negative
Security	Present/Future	Positive/Negative

Aggregation or trade-off

Aggregation of impacts will be necessary for making decisions which affect multiple impact endpoints. At the project and programming levels such aggregation is often performed via cost-benefit analysis or sometimes multi-criteria decision-making methods.

Sustainable development ethics and also some sustainability research impose limits on aggregation. For example, a trade-off between the needs of the present and of the future is generally not allowed. Certain principles of sustainability may be set as 'non-negotiable', such as the protection of environmental and ecological life support systems; and a priority to cater for the absolute poor when it comes to development.

The position of strong sustainability in ecological economics imposes limits on aggregation of 'natural capital' jointly with manufactured capital, whereas a weak sustainability position requires just that. Most definitions of 'sustainable transport' are based on a strong view, where different impact categories are kept separate rather than aggregated.

It is recommended that NRAs follow a cautious approach, with limited or no aggregation across the social, economic and environmental impact domains assumed, unless when well-established monetary valuations exist for each impact.

One way to apply such an approach is to require projects or programmes to fulfil certain criteria in each domain in order to go forward, meaning that a score below threshold in one domain cannot be traded off with a high score in another. The UK Highways Agency, for example applies such an approach (see SUNRA Framework Part 2 Report).

Considering mechanisms of influence

Influence refers to how NRAs can create positive or minimise negative impacts, or otherwise foster change towards sustainable development. This is conditioned by the resources and mandates an NRA has, as well as by the commitment and support it is able to mobilise.

Influence is not proportional to the impact. NRAs may have (or appear to have) very limited influence on major impacts of the road transport system, such as emissions from vehicles or social cohesion. On the other hand it may have direct control over some impacts, which are very small (such as travel policies of employees; gender balance within the board).

Within this framework it is not possible to give guidance on exactly which kind or how much influence NRAs have on the three pillars of sustainability, through various governance levels, management approaches, procurement contract specifications, or other mechanisms.

The framework provides recommendation to the NRAs on how to conduct such a review themselves.

Two recommendations are:

- To prepare a review of mechanisms that enable and constrain the NRA's influence, and to specify a level of aspiration. Mechanisms have been divided into mandates, resources, priorities, and activities (see Table 7), even if others may exist.
- To seek to minimise the gap between impact and influence for areas where either of them is large. (For example, seek to increase influence on major or important impacts; or conversely to enhance (positive) impact where the control is strong).

An influence review can be more or less comprehensive, in terms of the areas covered (first bullet), and it can be conducted with a higher or lower level of ambition with regard to the enhancement of influence (second bullet).

The influence review aims to help the NRA become aware of areas where it could particularly 'make a difference' with regard to sustainability, and to facilitate the implementation of the strategic commitment to sustainability.

It is not necessary to complete a full influence review as part of the exercise of *defining* sustainability. The full review could be conducted as part of the implementation of the sustainability commitment (Step 4).

What should however be defined during the present exercise is a level of ambition (or levels of ambition) for the reviews. Thus a level of ambition is recommended to be part of the commitment. Table 7 illustrates the mechanisms of influence within the four categories suggested.

Table 7: Examples of influence mechanisms that will enable or constrain an NRA in realising and implementing any understanding of sustainability

Mandates	Resources	Priorities	Activities
Legal requirements;	Road assets	Mission/vision statement	Strategic planning
Requirements instated in steering documents by client	Funding sources and levels	Corporate values	Programming
Strategic decisions by the Board	Personnel	Goals	Major construction projects
	Skills/knowledge	Objectives	Networks maintenance
	Office buildings, equipment	KPIs	Operations
	Tools	Principles used for selection, trade-off and prioritisation	Corporate activities
	Networks		Communication

Level of aspiration for the review

The levels of aspiration build on the adopted interpretation of sustainable development (developed in Step 1 and outlined in the first memo). The levels extend from merely reviewing how existing mandates etc. relate to the sustainability level, towards a comprehensive review seeking to fundamentally realign NRA activities towards sustainability as an overarching goal.

The recommendation is that in this step the NRA indicates a level of ambition or aspiration with regard to the role of the review. The four levels offered are shown in Table 8. Hypothetical examples are shown in Table 9.

The review need not address all columns or mechanisms to the same degree.

Table 8: Suggested levels of aspiration for an influence review

Level	Levels of the influence review
	Review of existing Mandates, Resources, Priorities and Activities (MRPA)
1	Identify and highlight how existing MRPA apply to and support the adopted commitment to sustainable development principles
2	As level 1 plus commitment to identify gaps in existing MRPA with regard to the adopted commitment to sustainable development principles
3	As level 2 plus commitment to identify ways to revise and/or extend existing MRPA to better fulfil the adopted commitment to sustainable development principles
4	As level 3 plus commitment to comprehensively revise existing MRPA to fundamentally realign them with the adopted commitment to sustainable development principles

Table 9: Hypothetical examples of reviews of MRPA at different levels of aspiration

Examples of reviews of MPRA				
Level	Mandates	Resources	Priorities	Activities
1	Highlight how existing contract with client, or appropriations reflect the three pillars	Highlight reflection of SD dimensions in current resources (e.g. 'balanced scorecard')	Highlight social, economic, environmental goals in existing strategic plans	Highlight for example existing use of LCC in project development
2	Highlight possible imbalance in existing contract etc. with regard to SD principles	Identify gaps in resources (e.g. skills, tools), to pursue SD principles	Suggest new elements to mission and values	Identify maintenance practices that may need to be revised
3	Suggestion for renegotiated mandates to reflect SD principles	Seek new resources to fund new corporate social responsibility program	Suggest new principles reflecting balance of SD principles in programming phase	Redefine procurement guideline to reflect sustainability principles
4	Suggestion to revise NRA legal framework etc. to reflect SD principles	Suggest comprehensive redesign of assets to adapt to climate change	Suggest comprehensive revision of mission, goals, objectives and performance measures	Engage in transport demand reducing measures before network expansion

Output of Step 2:

A second memo should be prepared containing the results of preliminary impact and influence reviews. These may be undertaken in parallel with the other steps.

The memo should include the following points:

1. Identification of key impacts (refer to tables 4 – 6).
2. Consideration of trade-off and aggregation.
3. Considering mechanisms of influence (refer to table 7).
4. Defining the level of ambition for the review (refer to table 8).

Step 3: Crafting a strategic commitment and definition

In this step: The NRA will formulate a commitment, based on the work undertaken in Steps 2 and 3.

It is recommended that the strategic commitment, as a statement, contains the following elements:

- An expression of an overall commitment to sustainable development.
- Adoption of sustainable development principles.
- Inclusion of principles and strategies related to sustainability and transport.
- Specification of the ambition level of commitment for sustainability/transport principles, possibly with an indication of the future levels aspired to.
- An indication of the impact categories of particular concern to the NRA.
- Consideration of the influence mechanisms or areas targeted, including.
 - Mechanisms already reviewed during this phase; and
 - Mechanism that are planned for review under the subsequent implementation.
- The level of ambition with regards to the review.
- All of the above (or suitable parts hereof) included in an integrated definition of sustainability for the NRA; and
- A check whether the definition remains loyal to the most fundamental sustainability principles (present and future needs; inclusion of all pillars, integrated and participatory decision-making).

The strategic commitment developed should be approved by the board.

Output of Step 3:

The output of Step 3 should consist of a memo or document stating the NRA's strategic commitment to sustainability.

The memo should include the following points:

1. A summary of the interpretation of sustainability in the context of transport and road systems (possibly revised from the initial output from step 1).
2. A summary of review of impact and influence.
3. A commitment to a definition.

Step 4: Implementing the commitment

In this step: The NRA will adopt an action plan for how the commitment will be communicated, plus the strategy and next steps in the application and integration of the commitment in relevant NRA documents, procedures and activity areas.

Advising on the full implementation process is outside the scope of the definition process and this framework. However, it is possible to outline some next steps.

Communication

First of all there needs to be a plan for communication of the definition and the strategic commitment. The communication strategy should address the organisation internally, as well as external stakeholders. The purpose should be to make it visible that the NRA has adopted sustainability as a guiding principle, and how it is interpreted in the context of the individual NRA. This could potentially inspire other organisations to adopt similar approaches.

Integration plan

The strategic commitment should not be an isolated process, nor should the result be a standalone product. The commitment needs to be integrated into processes, commitments, plans and procedures throughout the NRA.

The influence review is the main instrument in this regard. The view may identify mandates, resources, priorities or activities that need to be highlighted for a sustainability point of view (level 1), reconsidered (level 2), revised (level 3) or fundamentally changed (level 4).

It may be sensible to initiate the implementation in the review areas identified as 'priorities', as these are ones that the NRA can to large degree control, and ones that would be significant in terms of guiding the further process, in effect 'snowballing' the sustainability commitment through the organisation.

In the context of the SUNRA project it is of particular interest that the commitment supports a focus on metrics and rating tools as elements under the 'priorities mechanism.'

Revision

It is recommended that the NRA regularly checks whether the original strategic commitment needs to be updated. A review of impacts may for example lead to the realisation that different or a more precisely defined impact area should be focused on (for example: work area safety, and soft road user safety as a further specification of the safety impact category).

Undertaking a review of the influence areas may uncover particular mechanisms that hinder improvements (for example funding tied to particular pavement types, which does not include low noise types) or to areas where innovations could be incentivised (for example by rewarding contractors that introduce cost saving methods during a maintenance contract period).

Output of Step 4:

The output will be the draft action plan, including next steps, communication plans, integration, and expected revision. The action plan would state which entities or personnel would be responsible for the further process (implementing the definition).

Eventually the output will include elements such as adjusted vision and mission statements, goals, objectives and procedures.

Appendix A: Extended example

Table 10: New York State DOT definition and subsequent implementation (Nelson 2011)

New York State Department of Transportation (NYSDOT) has adopted a comprehensive approach to its work with sustainability.

An overall understanding of sustainable development forms the basis for the efforts:

"NYSDOT understands that a sustainable society manages resources in a way that fulfils the social (community), economic and environmental needs of the present without compromising the needs and opportunities of future generations."

Rather than defining 'sustainable transport' NYSDOT adopts a more holistic view on how transportation can support a sustainable society:

"A transportation system which supports a sustainable society is one that:

- 1. Allows individual and societal transportation needs to be met in a manner consistent with human and ecosystem health with equity within and between generations.*
- 2. Is safe, affordable, and accessible, operates efficiently, offers choice of transport mode, and supports a vibrant economy.*
- 3. Protects and preserves the environment by limiting transportation emissions and wastes, minimizes the consumption of resources and enhances the existing environment as practicable."*

NYSDOT adapts the third paragraph so that it assumes an active obligation to *improve* the environment and not simply to protect it.

The overall definitions have been transposed into strategic statements such as vision and mission statements:

NYSDOT Sustainability Vision: Exemplify how transportation supports a sustainable society.

NYSDOT Sustainability Mission: To fully integrate sustainability into the Department's decisions and practices in planning, designing, constructing, maintaining and operating New York State's transportation system. NYSDOT will also model and advance sustainability in managing its internal resources.

Finally NYSDOT has adopted a set of overarching Sustainability Strategies:

- Develop, advocate and advance Department sustainability goals and strategies through interaction with Main Office and Regional employees, program areas, workgroups and external stakeholders.*
- Incorporate sustainability concepts into the Department's procedures, investments, policies, manuals, specifications, programs, projects and practices.*
- Use the Sustainability Steering Committee as a feedback loop so that constructive participation is vetted through Executive Management.*
- Develop and use sustainability measures and indicators to better manage NYSDOTs internal resources and programs.*
- Facilitate partnerships through sharing of ideas and best practices.*
- Evaluate the costs and benefits (societal, environmental, and economic) of transportation investments over life-cycles as well as fiscal cycles.*

Appendix B: Glossary

Attribution	The impact or share of an impact on sustainability or development that is objectively attributable to NRA possessions or activities.
Delivery methods	System used by an agency or owner for organising and financing design, construction, operations, and maintenance services for a structure, facility or service by entering into legal agreements with one or more entities or parties (e.g. Design-Bid-Build (DBB), Design-Build-Operate-Maintain (DBOM)).
Economic pillar	Refers to income, savings, capital assets, resources, investments, and other manifestations of and contributors to economic wealth, well-being, and performance at the individual, national and global level.
Endpoint	A direct marker used to describe an effect; the final object or item being affected.
Environmental pillar	Refers to the natural environment that surrounds and sustains human life, in terms of immediate life conditions (water, air, food etc.), as well as 'life-support' systems (ecosystem, climate system, agricultural systems etc.) which enable the survival and development of mankind.
Framework	Set of principles, rules or ideas which can be used to deal with problems or to decide what to do.
Impact	Direct, indirect, negative or positive effect on an endpoint of interest.
Influence	The change an NRA can instigate with regard to an impact on sustainability or development.
Institutional dimension	Concerns how policy, governance and management should be conducted to support sustainable development as a process.
Key Performance Indicator (KPI)	A Key Performance Indicator is a measure of the performance of an activity that is critical to the success of a project or organisation. Key Performance Indicators need to be quantifiable measures agreed to beforehand.
Life cycle analysis	Tool for integrated assessment of impacts in the environmental dimension, seeking a full description of impacts in connection with the production use and disposal of a product. Defined in ISO Standard 14040.
Life cycle costing	Economic assessment considering all agreed projected significant and relevant cost flows over a period of analysis expressed in monetary value. The projected costs are those needed to achieve defined levels of performance, including reliability, safety and availability.
National road administration (NRA)	Any organisation at a national or regional level authorised by a Government to take responsibility for developing and maintaining some of or the entire national or regional road network. The organisational characteristics of NRAs can vary considerably, for example, some NRAs may be responsible for managing

	other transport networks such as rail. Some NRAs may be directly part of the national or regional Government or they may be a separate agency required to meet government objectives.
Programme level	At the programme level an NRA will be required to deliver the strategic objectives set by the board.
Project level	At the project level an NRA will be required to deliver projects that make up a programme. Project practices will need to align to corporate priorities.
Resilience	The capacity of a system to absorb disturbance and reorganise while undergoing change, so as to retain essentially the same function, structure, identity and feedbacks.
Responsibility	Part of an NRA's impacts that it can influence with its given mandates, resources etc.
Road management	Improvement, development, maintenance and operation of the road network.
Social pillar	Refers to social relations and interactions among people and the social conditions (such as education, health, safety, opportunity), which constitute the quality of life and the coherence of society.
Strategic function	The strategic function of an NRA is to manage the construction, maintenance and operation of its network. Often these activities are carried out by a supply chain.
Strong sustainability	In total, the natural capital should be kept constant (or increase with population growth), otherwise development is not likely to be sustainable.
Sustainable development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
Transport system	Facility consisting of the means and equipment necessary for the movement of passengers or goods
User	Users of the road network.
WCED	World Commission on Environment and Development, also known as the Brundtland commission.
Weak sustainability	Allows depletion of natural capital as long as it is replaced with produced or other capital of equivalent value.

Appendix C: References

Council (Transport and Telecommunications) (2001) Integrating Environment and Sustainable Development into the Transport Policy. 2340th meeting. Council of Ministers in Luxembourg, April 4-5, 2001. URL: <http://corporate.skynet.be/sustainablefreight/trans-council-conclusion->

Hall, R. P. (2006). Understanding and Applying the Concept of Sustainable Development to Transportation Planning and Decision-Making in the U.S. Ph.D. Dissertation, Massachusetts Institute of Technology, February 2006. 875 p. URL: http://esd.mit.edu/students/esdphd/dissertations/hall_ralph.pdf

Nelson, D. A. P. Krekeler and M. Rossi. (2011). Incorporating Sustainability into NYSDOT Decisions. In Proceedings of 2011 International Conference on Ecology and Transportation, Seattle, WA.

PIARC (2003). Decision-Making Processes in the Implementation of Sustainable Road Policies. Technical Committee 14 Environment. World Road Association (PIARC), Paris. 144 p. URL: <http://www.piarc.org>