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**Review of the work since the sixth session of
the Working Party on Public-Private Partnerships
on 1-2 December 2022**

Standard on Public-Private Partnerships in Roads¹

**Implementing the United Nations Agenda for Sustainable Development
through effective “Public-Private Partnerships for the Sustainable
Development Goals”**

Revised submission by the Bureau

Background

The following revised standard, originally published on 10 September 2018 in document ECE/CECI/WP/PPP/2018/6, contains policy recommendations targeting governments which are considering the development and implementation of Public-Private Partnerships (PPPs) in the roads sector.

¹ The ECE PPP standards, guiding principles, best practices, declarations and recommendations are endorsed and adopted by acclamation by the ECE intergovernmental bodies – the Working Party on Public-Private Partnerships and the Committee on Innovation, Competitiveness and Public-Private Partnerships – and do not impose any obligations on member States as their implementation is entirely voluntary.



It was prepared by a ECE Project Team² composed of international experts³ with PPP experience in the roads sector and sustainable development led by Alfredo Lucente.

The document⁴ was finalised by the secretariat following a public consultation as envisaged by the Open and Transparent Standard Development Process with input from various agencies, organisations, and individuals.

The document endorsed by the Working Party on Public-Private Partnerships at its second session on 20-21 November 2018 and was adopted by the Committee on Innovation, Competitiveness and Public-Private Partnerships (the Committee) at its thirteenth session on 25-27 March 2019

The document is being reissued pursuant to a decision by the Committee at its fifteenth session on 25-27 May 2022.⁵

The Bureau is very grateful to Alfredo Lucente for leading the Project Team; to Anand Chiplunkar for sharing his vast experience of working in this sector; and to Scott Walchak for managing the work of the Project Team.

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³ The list of experts involved in the work of the Project Team is available at:
<https://wiki.unece.org/display/pppp/P0006-Team+Members>

⁴ The document benefited considerably from a review of published information and the responses to detailed questionnaires from public and private sector organisations with experience of programmes of this kind.

⁵ Decision 2022 – 4b.2 (ECE/CECI/2022/2): Regarding the continued use of the name “People-first PPPs for the SDGs”, the Committee took note of the results of the information consultations conducted with interested delegations on the matter since the fifth session of the Working Party on PPPs in November 2021, and decided to:

- i. Change the name to “PPP for the SDGs”; and
- ii. Progressively reissue the documents endorsed and adopted by the Committee and the Working Party on PPPs to reflect i. above within the document quota allocated to the ECI subprogramme and without incurring additional costs.

The Committee requested the secretariat to reissue three core documents within twelve months, and the rest of the documents within three years. The Committee requested the Bureau of the Working Party on PPPs to decide on which non-core documents should be prioritised during this period.

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I. Introduction

1. The aim of this document is to provide guidance to governments when using PPPs to deliver investment in roads infrastructure to also meet the United Nations Sustainable Development Goals (SDGs). It aims to build on the experience of the use of PPPs for road projects and provide a balanced, neutral account of both the pros and cons of road PPPs, including an accurate portrayal of the spectrum of risk and return associated with road PPPs.
2. Transport stimulates economic and social development, ensures accessibility to opportunities - but is also associated with a number of direct and indirect externalities such as traffic congestion, air pollution and road accidents. The fact that transport related targets are included in nine out of the seventeen SDGs (Goals 2, 3, 5, 8, 9, 11, 12, 13 and 17) illustrates the cross-cutting role that transport has in sustainable development. It therefore has both a direct and indirect role to contribute to the achievement of the Goals.
3. Road infrastructure is crucial for directly achieving the Goal targets of sustainable and resilient infrastructure and promote inclusiveness to support economic development and human well-being, with a focus on affordable and equitable access for all. It needs to be provided in a manner in which it can directly contribute to increased road safety, sustainable and efficient consumption of resources.
4. Indirectly, it also is crucial to achieving the Goal targets, from their role in boosting economic trade and development (within and across borders) and eradication of poverty to increasing access to education, water supply and agricultural, industrial and commercial opportunities. It is necessary to strengthen resilience and adaptive capacity of road infrastructure for combating climate change by using low impact materials, improving efficient travel and reducing fossil fuel usage. In fact, high quality, well planned, efficient roads can alleviate climate change and mitigate the fact that according to the UN, climate change presents the single biggest threat to development, and its widespread, unprecedented impacts disproportionately burden the poorest and most vulnerable.
5. Thus, the PPPs for the SDGs⁶ are designed to take the traditional PPPs to the next level of linking the design and performance of the PPPs to the achievement of the SDGs, in addition to the well-recognised performance parameters of road PPPs.

II. Objectives of the standard

6. If managed well, PPPs in roads can help governments tackle development needs by bringing sustainable investment, replicable processes and expertise to complex roads transportation networks. This document is intended to assist governments in the selection of PPPs in roads projects that have a high likelihood of achieving the SDGs.
7. There are many different models of PPPs in the roads sector worldwide. The first challenge then for governments intending to develop PPPs in roads is to ensure consistency between the country's road project strategy, their programme of activity, and their selection of appropriate PPP models that are likely to achieve the Goals and put people at the core.
8. The traditional concept of Value for Money (VfM) has limitations when assessing projects being designed PPPs for the SDGs. VfM is usually at the core of virtually all PPPs and figure large in the public sector's decision-making process.⁷ It is based on economy,

⁶ A detailed introduction to PPPs for the SDGs is contained in document ECE/CECI/WP/PPP/2022/6.

⁷ However, some observers note, using the VfM approach to inform PPP decision-making can be difficult, and the process can be manipulated and even sometimes controversial. They suggest rather

efficiency and effectiveness (3Es) considerations and areas like procurement and administration costs have been the focus of VfM considerations. A road PPP would therefore be considered a VfM transaction if it generates a net economic benefit for the public in terms of the project outputs related to quantity, quality of the service or facility, cost and risk transfer over the project life, achievement of various transportation related goals, etc. and do so in comparison to the traditionally procured public approach.

9. However, assessing the outputs, outcomes and impacts of the project in improving people's lives is also equally important. A PPP for the SDGs should therefore be assessed on the basis of a Value for People approach that is aligned to the achievement of the SDGs. A Value for People approach means projects should address critical challenges facing humanity, fighting hunger, poverty, and promoting human wellbeing by increasing access to essential services, tackling a social agenda promoting social cohesion, overcoming inequalities, achieving gender equality and empowering women; and disavowing all forms of discrimination based on race, ethnicity, creed and culture. Projects should bring resilience into infrastructure and mitigate risks and adapt it for climate change; lower CO₂ emissions and take on the practices for the circular economy developing more sustainable production and consumption patterns.

10. Accordingly, the VfM assessment (with due consideration of its limitation mentioned earlier) needs to be broadened to include equity along with economy, efficiency and effectiveness. A Value for People approach includes not only a VfM basis but also proposes that projects' performance be measured by their outcomes and impacts that brings the greatest benefit to the people measured with respect to the SDGs. As a result, this standard recommends Value for People should play a fundamental role (implicitly assessing VfM as well) in the decision of whether a public institution should enter into a road PPP agreement to be acceptable as a PPP for the SDGs.

III. Scope of the standard

11. This document offers guidance on best practice in relation to the development and implementation of PPPs for the SDGs in the roads transportation sector. PPPs in roads is capital investment in road infrastructure and related systems such as information and communication technology (ICT) that are funded using commercial finance, repaid over typically a long-term period, and through a PPP contract or concession style arrangement. Projects delivered in this way range from greenfield projects for the realization and operation of new highways, to brownfield projects for upgrading of existing roads into highways, to bridges, tunnels, parking or other equivalent infrastructure realization, operation and maintenance. The standard does not apply to partnerships to deliver public transportation services, real estate transactions, or leasing arrangements, although these can sometimes occur in conjunction with, are added to, or can be extensions of PPP projects and programmes.

12. For the purpose of this document, the term PPP programme is defined as a framework and/or series of projects under which a public authority grants long term contracts (with a duration typically exceeding 20 years) to a private sector partner for the design, financing, construction or refurbishment, operation, and maintenance of road networks and related infrastructure. The term 'public authority' may include a national or local governmental

than solely relying on VfM assessment, governments need to understand whether or not implementing a project now as a PPP comes at a cost, and if so, to weigh this cost against the associated benefits. Refer "Value for Money Analysis - Practices and Challenges: How Governments Choose When to Use PPP to Deliver Public Infrastructure and Services" Report from World Bank Global Round-Table 28 May, 2013, Washington DC.

department, a regulator, or other public entity tasked with implementing road infrastructure. The operation of these road networks and/or infrastructure often includes the provision of operation and maintenance services and other services such as retail, fuel, repair and cleaning. Under most PPP arrangements for roads, the private sector partner will raise private capital to pay for the new infrastructure, which will be repaid in most cases by a users' payment (e.g., tolls) or a service concession (e.g., availability payment structure) from the public authority. These repayment structures can also be offset by road related lease or rental fees (e.g., commercial or retail space along the road) paid in whole or in part to the private partner. In most cases these agreements remain in effect so long as the facilities and services meet the performance requirements and outcomes specified in the agreement.

IV. Central questions

13. To achieve the SDGs, significant investment in the improvement of roads infrastructure is required. In fact, much of the 2030 Agenda will benefit from governments undertaking successful PPPs for the SDGs in roads systems and infrastructure. Noting that roads infrastructure has both a direct and indirect role to contribute to the achievement of SDGs, it is necessary to link SDG targets that can be directly influenced and monitored in a road project as outputs or outcomes (e.g. SDG 3 - fostering good health and well-being, SDG 5 - achieving gender equality, SDG 9 - delivering innovation in industry and infrastructure, and SDGs 11 - building sustainable cities and communities), along with those targets that can contribute indirectly at the outcome or impact level (e.g. SDG 2 ending hunger, SDG 3 - fostering good health and well-being, SDG 5 - achieving gender equality, SDG 8 providing decent work and economic growth, SDG 9 - delivering innovation in industry and infrastructure, SDGs 11 - building sustainable cities and communities, SDG 12-responsible consumption and production patterns, SDGs 13 - bringing climate action, and SDG 17 - facilitating partnerships that deliver these outcomes). Suitable indicators need to be included in PPP for the SDGs contracts for monitoring the SDGs having a direct contribution at the project level (refer Annex 1, Table 1.1), while the government agencies need to monitor the indicators that result in indirect contributions (refer Annex 1, Table 1.2) to achievement of the SDGs.

A. Public-Private Partnerships in roads in support of the SDGs

14. There are many project types and examples of road PPPs worldwide. Virtually all exhibit some combination of designing, building, financing, operating and/or maintaining (DBFO(M)) a road with specific provisions for ownership of the road (and/or transfer back to the public entity at a specified moment). The nature of road PPPs also varies considerably from project to project and is driven by the local, national and even international factors that make the project a necessity in the first place. Historically, the most common road PPPs have been brownfield concessions. However, since 2000 greenfield projects have become increasingly more popular.

15. Road PPPs are to be distinguished from design-build contracts (DB) which transfer some of the constructability risk to the private partner due to the combined designing and building responsibility but are considered by most to simply be a traditional public procurement contract because they do not have the degree of risk transfer, financing, and partnership, among other aspects, of PPPs.

16. The same is true for 'operate and maintain' contracts where the private partner operates the publicly owned road, maintains it in proper technical condition, and perhaps even creates an automated road management system or develops an electronic toll collection system. Depending on the degree of investment, term length, and other performance

requirements, these contracts can arise to a PPP, but in most cases are classified as traditional service contracts.

17. PPP projects in the road sector may, however, include use of “institutional PPP” frameworks, where the establishment of an entity held jointly by the public partner and the private partner, i.e. the “joint” PPP project vehicle, is created. These mixed ownership arrangements are typically seen as PPPs and have been considered herein.

1. Common road Public-Private Partnerships structures

Toll concession:

18. In a road concession the government grants the private sector the right to exploit a right-of-way for a fixed period. Typically, the traffic and toll collection risks are with the private sector and it is a purely private effort, with minimal to no government contribution. There have been some cases where the concessionaire has even been permitted the freedom to set tolls and apply time-of-day adjustments. More frequently, however, the government will set up tariffs, linking them to an index or composite index of some form. In this scenario, the concession ends either when a contractually agreed amount has been recovered or a fixed expiry date occurs.

19. A primary concern in toll concessions is accurate demand estimates as a number of projects have ended prematurely or required restructuring because demand forecasts were inaccurate or overestimated. These experiences have influenced current thinking on demand risk and highlighted the need for careful, and even conservative, assessments of demand when structuring toll concessions.

Toll and traffic guarantee concession:

20. In a toll concession that includes traffic guarantees, the private party takes some but not all of the demand risk of the project. Under this model, the concessionaire will get a minimum usage guarantee from the government. Traffic guarantees are an approach to mitigating inaccuracies in traffic forecasting and can hedge against the optimism issue noted previously. An alternative to the traffic guarantee is the so-called “cap-and-collar” whereby a cash payment is made to the private operator if usage falls below a stated level and the public sector takes in full (or in part) the excess revenue over a stated percentage.

Direct payment models: shadow tolls and availability payments:

21. In direct payment models, the private partner is not paid by the users of the road; instead the private partner is paid by the public partner. The two most popular direct payment models are shadow tolls and availability payments. The former is a demand-based model, where the government pays the fees for the users. Availability payment models are based on output standards rather than demand. For example, the contractor has to meet certain output standards set out in detail in the PPP agreement and, so long as the terms are met, the contractor receives payment of a pre-agreed sum for making the assets ‘available’. If it fails to do so, then pre-agreed deductions are made on an accumulated points basis. The effect of these approaches is to insulate the private partner from the demand risk associated with the project.

Output- and performance-based contracts:

22. Output- and performance- based PPP contracts for roads (OPRCs) have evolved in recent years and focus mostly on routine and periodic maintenance tasks. OPRC contracts may cover either individual assets, like traffic signs or bridges, or all road assets within a

road corridor or network, but the rehabilitation and improvement requirements are typically measured on overall performance-based metrics.

23. These projects today often follow the design-build-operate-maintain-transfer methodology, where the contractor designs and completes the required rehabilitation and/or improvements to deliver a certain level of service and thereafter operates and maintains the road for term of years.

24. As the name stipulates, OPRC projects are based on output as opposed to input. For example, under a traditional input-based road contract the private contractor gets paid for each repaired pothole, whereas under an OPRC the contractor gets paid for each length of road it maintains at the required condition. In return for achieving this standard, the government will periodically pay a fixed amount to the contractor or allow the firm to collect user fees (e.g., toll fees).

2. Other structural characteristics

25. Citing the above-mentioned approaches, road PPPs can therefore be structured with various payments mechanisms and have some typical characteristics:

(a) A direct toll mechanism where users are charged directly for use of the road facilities:

- Used in large-scope build, (own), operate and transfer (B(O)OT) projects as well in some DBFO projects;
- Combined with revenue-sharing schemes and Minimum Revenue Guarantee.
- Availability payments where the public entity pays a fee for the ‘availability’ of the private sector road infrastructure and/or service:
- Often used both in free and toll DBFO(M) projects in case when the public partner bears all or a significant share of demand (traffic) risks.

(b) Annuity payments where the private entity is paid for the provision of road infrastructure and/or services in increments and over a fixed period of time:

- Used mainly in BOT projects in case when the public partner bears the demand (traffic) risks and the private partner’s fee is equal to fixed annuities and is not necessarily calculated on key performance indicators formula.

(c) Shadow toll mechanism, where the public entity pays the private sector partner directly on a per vehicle or per user basis:

- Used instead of (or in addition to) direct toll mechanism when direct tolls are inappropriate or insufficient due to social or political risks (*i.e.*, road should be free for users or toll should be kept at acceptable levels for users).

(d) Performance-based payments, where the private entity is paid based on certain defined, measurable performance criteria that is to be met, rather than paid strictly on usage of the infrastructure or services:

- There is a recent trend to use performance-based payments in road PPP projects in order to create incentives for the private partner to improve performance and safety.

26. Combinations of the above referred mechanisms can also be used in individual projects when a mix of risk allocation and payment mechanism is desired.

3. Recent trends

27. Recent years have also seen an expansion in the use of electronic tolling technology, including the introduction of automated technology and operational schemes in PPPs. For example, the use of free-flow tolling equipment has increased dramatically and allowed PPPs to be implemented in scenarios facing complex urban environments. With limited space and high traffic volumes, urban environments are not conducive to the implementation of toll booths as they are both undesirable because they tend to cause increases in journey time, but also because they present very difficult and often costly land acquisition requirements. Current technology is available that allows users to pass through toll locations without the need for substantial toll barriers, but rather overhead gantries. Congestion tolling, or urban tolls, have also been introduced in some major cities. However, such tolling schemes cannot be assimilated to PPP schemes *per se* as their application is intended to reduce congestion in city centres and their revenues are often received by municipalities to fund improvements in public services.

28. These nevertheless highlight some of the new solutions available to governments when efficient, modern technology from the private sector is used. The models have also been adapted to suit the circumstances of a particular project or a particular political/socio-economic context showing the benefits to the flexible application of the model and the risks triggered by some project-specific arrangements.

4. Typical applications

(a) the development of new road infrastructure in urban environments is often a regional or urban ring road and/or bypass to enhance connectivity. Such projects are based on concession agreements of on average 25 to 30 years' length, with balanced risk allocation except for payment mechanism, blended direct toll and shadow toll payment mechanism, supported by strong current usage data, with minimum usage typically in the range of 50,000 to 100,000 vehicles per day, and an agreement that provides for road improvements and certain ICT infrastructure for monitoring usage and tracking tolls; and

(b) the development of new national highways aimed at creating a reliable and efficient infrastructure network, in particular in developing countries. Such projects are often based on concession agreements and average 20 to 25 years in length, sometimes with shorter term (less than 20 years) to allow governance flexibility for enhanced concession in the mid-term, and performance-based payments or availability payments schemes.

B. Pros and cons of Public-Private Partnerships in the road sector

29. Roads have the potential to be a significant asset to any country—both in terms of the physical investment and the social and economic benefits. A well-maintained and managed road network unlocks the region's productive capacity by linking agricultural areas to national or regional markets, and encourages economic growth and social integration by bringing cities and villages closer together. In particular, there is increased awareness and recognition among national governments about the key role of rural accessibility and rural transport in contributing to achieving the SDGs. With this in mind, governments are eager to develop and manage their road networks to meet their economic, political and social needs. In some jurisdictions this means building brand new roads, while in others it requires refurbishing, widening and extending existing road networks. While the public sector is ultimately responsible for roads, the private sector has a potential role to play in the project lifecycle, whether it be in road construction, operation, financing or maintenance. Partnerships between the public and private sector in roads are by no means a new phenomenon and, if done correctly in the appropriate circumstances, can improve project quality and increase efficiencies. Such partnerships may also provide an opportunity to the

governments to strengthen their institutional capacity while working with the project preparation agencies and international financing organizations by using their experiences for creation of more effective projects based on PPP principles consistent with the SDGs.

30. Private sector participation can also alleviate some of the challenges of road projects. Roads are amongst the most complex and socially sensitive infrastructure initiatives that governments can undertake for their citizens. They require sophisticated technical resources, extensive permitting, consistent and efficient operations and maintenance, and usually have huge environmental, social and financial impacts. An experienced, a well-qualified private partner can help overcome all of these challenges and is one of the reasons PPPs can be attractive to governments.

31. There is wide acceptance that the role of PPP is to complement rather than replace conventional public-sector procurement. Conventional procurement should be preferred, among other cases, if the quality of the infrastructure can be clearly specified, there are sufficient budgets, the technological requirements are low, and/or there are robust public sector operational and maintenance capabilities. In contrast, PPP is better if the quality of the service is struggling, maintenance has been deferred and/or long-term care has been neglected, new or innovative technological solutions are needed, or the quality of the infrastructure or service is paramount.

Advantages

32. The advantages of a PPP programme in the roads transportation sector is the availability of well-developed sets of documentation for road PPP projects planning and deployment both in developed and developing countries, as well as a large platform of experienced entities playing key roles in roads infrastructure projects. This makes road PPPs very replicable as a number of successful projects have been undertaken.

33. Government, while selecting the most appropriate models to achieve PPP objectives in support of the SDGs, should consider the following advantages connected with PPP models in roads:

- Private sector financing and roads projects can bring private sector expertise and skills to bear on the operations of public roads. This can allow for a significant increase in user efficiency due to shortened travel times and improved economic interconnectedness, and in turn can improve the government's ability to pay for such endeavours. This circle of benefits is a win-win for government, users, and the private sector operator;
- The private sector is encouraged to not only act as supplier or service provider, but to take on project specific risks and operational efficiency which allows public administrators to concentrate on planning, policy and regulation, and impact and outcomes of their efforts; this can also serve as a catalyst for public-sector reform in transparency and accountability in procurement to improve operational oversight and governance capacity;
- Leverage private funds to achieve more in the roads sector and move governments toward reaching the SDGs in transport more quickly and/or effectively;
- Improve level of public service, especially for projects requiring road user charges (tolls or other);
- Transfer of, often international, modern road and transport technology to domestic public and private sectors thereby improving domestic capacity, know-how, and expertise;

- PPPs tend to have more rigorous project evaluation and selection processes and therefore can assist governments in avoiding the political "white elephant" transport projects and improve the efficient use of public funds;
- PPPs are generally built in a shorter amount of time than if the project was built as a public investment. Use of private funds and the agility of private sector in decision making in a challenging task like building a road, enables the investment phase to progress faster;
- Encourage the private sector to focus on the efficient use of resources and materials over the project lifecycle; and
- An increase in road projects and interconnectivity contributes not only to overall poverty reduction but improves access to/from economic centres, access social services (health, education facilities), and gender development and equality, among other social benefits.

Disadvantages

34. In general, PPPs are complex structures and complexity normally means higher costs. The public should therefore commit to maintain the costs of the PPP project, in particular during the project initiation process, and balance this against the other immediate needs of the public budget, for example highway maintenance and traditional public procurement and investment in transport. Some other disadvantages to a road PPP arise from:

- The tendency for governments to employ the model too quickly using inadequate preparation and/or inappropriately selecting the type of PPP structure;
- Lack of proper market analysis and financial modelling, such as overly optimistic or inflated user data which in turn inflates revenues, often causing road PPP projects to fail, or, expose the private (and eventually the public) partner to significant obligations to make up the shortfall;
- Difficulty in forecasting all the possible operational challenges that may emerge during the life of the project which often results in unbalanced consequences and additional unforeseen costs. While this may be reduced through renegotiation, which is becoming a more common feature in failing Road PPPs, in those circumstances the private party can also bargain overly favourable contract terms that would not have been obtained under competitive conditions;
- In case of brownfield road projects, it is hard to ask a concessionaire to take risks relating to work done by the original contractor. In such cases governments should reduce the risks for private partners, for example, by providing capital grants or financing guarantees in toll projects, and/or reducing demand risk by using shadow tolls or guaranteeing part of the revenue through minimum traffic assurances;
- Challenging to build in the evolution of toll collection technology, *e.g.*, recently toll booths have given way to toll plazas and free flow systems where there is no plaza or physical barrier;
- Difficulty in building in prospective changes in law, in particular with safety requirements, which may require new capital expenditures many years into the life of the road;
- For some types of infrastructure, such as local or urban roads, the physical difficulties of excluding users who do not pay, or the high transaction costs of implementing direct user charges, make it difficult to achieve a competitive market yet provide equitable and open access and use to all sectors of society;

- Where there are substantial externalities (such as road congestion and air pollution effects) that cannot easily be addressed by market-based instruments, there is greater likelihood that the government will have to intervene;
- Many countries are uncomfortable with fully private owned or free-market operation of transport infrastructure or there is a public perception that transport infrastructure is an inherent part of the public patrimony and should be run for the public good and contain little to no aspects of commercial gain; and
- Finally, some highway infrastructure is so intertwined with spatial planning that governments are not willing to leave it entirely to the private sector.

C. Key lessons

35. Road PPPs have usually allowed the public sector to complete road projects earlier than with conventional project delivery methods. Some governments have reported that PPPs produce better price and schedule certainty during design and construction; and early commissioning is more likely as a private partner is incentivized to commission a project as quickly as possible to commence revenue service from tolls or government payments. Another factor is that the public sector's capacity to appropriate budgetary funds lags behind the private sector's ability to access capital in the financial markets, particularly for large-scale projects. While these alone do not justify a PPP approach, they are nevertheless aspects of PPPs that public agencies can use to their advantage.

36. In the alternative, most road PPP failures can be attributed to inadequate or non-existent feasibility studies, including unrealistic traffic forecasts and undefined public contribution of funds. Other common reasons include poor legal framework and enforcement, weak institutional capacity, absence of a PPP strategy, unrealistic revenue estimations, lack of thorough financial and economic analysis, inappropriate sharing of risks, lack of competitive procurement, and public resistance or willingness to pay.

37. Some of the key lessons learned from road PPPs from some countries are summarized below:⁸

1. Preserving the public's interest while attracting private participation

38. These may be conflicting objectives but balancing the public's interest and a private sector partner's interest can be challenging. The two interests for PPP road projects, essentially requires that the government and its people receive a reasonable price and obtain a marginal increase in value or benefit (e.g. services); while the private partner requires reasonable risk and reward profiles and manageable transaction costs.

39. Public sector project and business case analysis methods therefore are important to help identify drivers of life-cycle value as well as appropriate risk-allocation strategies. Emphasis on project outputs also enables public decisionmakers to pinpoint customer needs and target Key Performance Indices to satisfy those requirements. Competitive procurement processes are also critical, and governments should (a) employ phased approaches to filter potential respondents down to a select few and/or (b) fix project requirements and bid parameters to improve transparency and accountability while driving down transaction costs. The public sector's recognition that latent financial gains are possible in these sorts of arrangements also precludes excessive private sector profits and promotes public confidence

⁸ More details are contained in the World Bank Group, PPP Legal Resource Center. <https://ppp.worldbank.org/public-private-partnership/lessons-learned#Transport>

in government. Measures such as these similarly prompt the private sector to focus its strengths on finding creative and effective solutions for complex projects.

2. Viewing road Public-Private Partnerships as enterprises

40. Road PPPs should be seen as enterprises that require a careful combination of technical, legal, and commercial conditions. This is fundamentally different from the typical public-sector project delivery that prescribes the input specifications for a constructed facility. Instead, the public sector is granting the private sector the right to initiate and operate a road enterprise within the bounds of a contract. Accordingly, a careful balance must be struck between the project's business and engineering provisions so that the private partner can succeed while also satisfying the public sector's policy objectives and the SDGs.

3. Building and continuously improving public sector institutional capacity

41. The importance of building and improving institutional capacity for an effective PPP programme in roads needs no emphasis. Countries have experienced that as their PPP programmes have matured and their staff capacity has increased, they are able to rely less heavily on external consultants. The need for complementary specialized expertise in areas such as legal and financial matters may not cease; however, the institutional infrastructure required to conceptualize, procure, deliver, and manage PPP arrangements as they themselves continue to evolve is significant. Failure to recognize this could leave a public agency overmatched by its private partner.

D. Key risks areas

42. PPPs allow public and private partners to share risks and the management of these is best done in a balanced way. However, the challenge of the SDGs requires projects to be done in countries where the risks are very high and, all things being equal, the private sector will be reluctant to invest. Here governments at all levels should encourage companies to take longer term perspectives, adopt new models of partnership and a de-risking PPP model and strategy that improves the country's enabling environment. Intergovernmental organizations should help to insure good projects to enable companies to invest in low and middle-income countries.

43. The key risk areas and the relation to road PPPs emerge from the discussions in the earlier sections. They are summarized in section 5 of the technical document that accompanies this standard and which provided empirical evidence to formulate the recommendations in this document.⁹

E. Public-Private Partnerships meeting SDG objectives

44. Firstly, a road PPP for the SDGs should be a project that is roughly synonymous with the purposes of the SDGs and would have the following characteristics:

- **Availability:** a road PPP should increase access of essential services –water and sanitation, energy etc.– to people, especially the socially and economically vulnerable;
- **Replicability:** a road PPP model should be capable of replication and being scaled up to achieve the transformational impact required by the SDGs;

⁹ Technical Document accompanying the ECE Standard on Public-Private Partnerships in Roads ECE/CECI/WP/PPP/2018/INF.1

- **Equity:** a road PPP should promote social justice and make essential services more equitably distributed to all;
- **Efficiency:** a road PPP should improve the productivity of existing assets and deliver savings, for example, in transport operations or costs;
- **Sustainability:** a holistic approach in road PPP should cut CO₂ emissions, foster green growth and be designed and built to be resilient to climate change impacts recognizing the need to address the interlinked nature of the SDGs and their role through a full life cycle impact on climate resilience, and mitigate and adapt to increasing climate change risks and environmental impacts; and
- **Effectiveness:** a road PPP should work and deliver defined objectives.

45. Based on the foregoing, the recommended PPP model for SDG driven road development in new road infrastructure (greenfield projects) is a DBFOM model that links major urban centres to suburban and rural areas. Projects such as these enhance overall economic activity by increasing access to goods and services, but also improve employment opportunities, and from a project development viewpoint allow the government to bundle viable roads (in terms of revenue) with those that are less viable but increase the overall access to opportunities and the mobility of the poor and underserved. DBFOM also allows costs to be spread over the long term and incorporate important elements such as whole life costing which focuses on long term viability and maximizing the transformational benefit of the project for the people, promotes the efficient use of public funds, and improves the quality of public road infrastructure.

46. The recommended model for PPP development/redevelopment of existing road infrastructure (brownfield projects) is also a DBFOM model that improves road conditions, capacity, and/or availability and connectivity. Brownfield projects, however, present a number of challenges that greenfield projects do not. For example, a brownfield project may need to continue or discontinue employment of existing employees, in particular treatment of their wages, benefits, pensions, and working conditions requirements and collective bargaining rights; lack existing or accurate as-built information that can increase the likelihood of environmental or civil engineering work or rework; and present inefficiencies and/or unknown risks arising from the handover from existing operators or contractors to the new operator.

47. In both greenfield and brownfield projects, the lack of financial viability through direct tolls is always a major concern, thus shadow tolls and/or availability payments need to be judiciously considered. This is true in particular for rural roads.

V. Delivering the model

48. The recommendations in the following section represent a concise statement of key issues that should be considered when determining how to implement a road project using a PPP and attracting investment in road infrastructure.

A. Project selection issues

1. Develop a clear planning context

49. The project should be a part of a comprehensive, scaled-up transformative road sector development plan that ideally helps deliver the SDGs by 2030. Before starting a road PPP project, governments should develop traffic forecasts to fully assess current and future supply and demand for roads infrastructure and systems in the project demographic area, taking into

account possible competition from other modes of transport. Based on these considerations, the traffic/demand risk, especially in the early stages of the project, is a critical risk to be addressed and even conservatively forecast.

2. Project identification and prioritization based on Value for People

50. Each road project should be costed in outline terms prior to its commencement of procurement and should only proceed if and when it is fiscally and financially affordable and represents the best VfM and best Value for People of the realistically deliverable options. This means prioritization plans for road planning must take into consideration the costs and time necessary to deploy the relevant road PPP projects, the availability of government fiscal capacity and/or financial support, and the short and long-term development objectives and desired outcomes and impacts duly aligned with the SDGs.

3. Prepare an evidence-based delivery plan

51. In preparing for PPPs in roads, governments should develop a plan for delivering the PPP (PPP delivery plan) and take special note of:

- (i) Prior to procurement:
 - planning the use of public procurement system incorporating competitive, fair and transparent procedures to support the promotion of PPPs for the SDGs to not only optimize VfM but also Value for People;
 - identifying if local procurement laws allow for negotiations with selected or shortlisted bidders, or if they provide limited or no room for quality evaluation in the award of the PPP concession. This is to carry out a thorough analysis of technical and project's specific requirements that bidders may be able/willing to satisfy;
 - identifying and developing appropriate policy and legislative framework to support a road PPP, for example, the lack of laws that address "material adverse government action" issues and provisions in the road PPP contract;
 - preparing standard documentation, guidance, and ministry level and supervisory approval processes for road PPPs, including requiring feasibility assessments, business case analysis, thorough risk assessment and transfer assumptions, and VfM and Value for People analysis;
 - in case of non-viable projects based on direct tolls, but those having a strong economic justification such as urban rural road linkages and rural roads, the government budget or its ability to raise financing for shadow tolls and availability payments needs to be firmly established;
 - assessing market demand and capacity so the public sector's expectations with respect to the PPP are reflective of market realities; and
 - ensuring land acquisition and right of way availability and that the concessionaire will have control over the road before commencement, to avoid potential delays;
- (ii) During procurement:
 - ensuring projects remain affordable, structured to deliver VfM and Value for People, and consistent with the overall programme, policy and development strategy; and
 - ensuring the procurement process is fair and transparent and takes a zero-tolerance approach to corruption.

- (iii) During construction:
 - building in contract incentives that ensure projects are delivered on time, to the specified standards, within budget, and continue to meet their stated objectives; and
 - design contracts to ensure the delivery maintains the negotiated allocation of risks between the parties; for example, excluding governmental approvals, permits, and the risk of changes arising from those processes from ‘applicable law’, changes which are often treated separately as compensable changes in law.
- (iv) Before and during commissioning of the road
 - ensuring that the staffing plan for the new road infrastructure is achieved; that the transition to the operational phase runs efficiently; and that any changes that are necessary are implemented in line with the project business case.
- (v) During the operational phase:
 - ensuring that projects can be managed transparently and efficiently by the public partners (and project performance can be accurately verified and audited); and
 - creating systems that oversee and monitor major investments, development/redevelopment, and maintenance work, and any changes in the project, including that they represent the best Value for People.

4. Stakeholder engagement

52. In the event of user pay road PPPs (where road users pay tolls), experience has shown that popular resistance to tolling, if not addressed, can have a negative effect on revenues. If negative perceptions persist, the result can be the project failing entirely or simply falling short of demand estimates, and thus the project having to rely on public sector support or the project restructured. Also, some other topics like environmental or social issues are very important. Therefore, informing the citizens about the consequences of the project and providing the active participation of all shareholders in the preparation phase is of great importance. This is needed for PPPs for the SDGs as well as decreasing the costs during the procurement phase.

B. Financing issues

1. Ensure the project (or programme) will enable competitive project financing

53. In planning the PPP, governments should carry out a formal assessment of potential sources of finance including local and international commercial debt, international financial institutions (including development finance institutions and export credit agencies), government debt and the local and international capital markets. Enabling innovative financing mechanisms is key to achieve the SDGs and impact investing is a form of financing that has the potential to be a significant contribution to the financing of PPPs for the SDGs. The assessment includes the capacity and sophistication of local contractors, the ability of local banks to lend money for road PPP projects, the capacity and quality of the insurance market, and the robustness of the contract structure and legal framework underpinning it.

54. Road PPPs typically require the involvement and support of international financial institutions. Usually, revenues in local currency should be converted into hard currencies under the PPP contract. PPP contracts may include a portion of revenues which are not linked to exchange rate movements against hard currencies: this sort of arrangement is also of course

subject to the willingness of the private investors (in particular international investors) to receive their returns partially in the local currency. This however depends on the creditworthiness of the country, its track record of PPP projects and maturity of the local financial market, and thereby, the willingness of local banks to provide long-term limited-recourse finance to PPP projects.

55. Also, lenders financing a road PPP project on a limited recourse basis typically require security interests over all the rights and interests of the project company. This comprises land for the project site, physical assets and equipment, contractual rights and receivables, bank accounts, insurances and the shares in the project company. In certain jurisdictions the law relating to the granting of security may be underdeveloped or may not allow for assets such as land to be secured in favour of foreign lenders. Contracting authorities should consider whether, in developing a road PPP programme, specific legislation or exemptions could be passed to enable PPP project lenders to benefit from the protections and enforcement remedies that lenders customarily enjoy.

56. PPPs in the road sector are also much like any other major PPP infrastructure project, e.g. lenders will want step-in rights, compensation-on-termination, clear compensation events for both private parties and lenders, and often guarantees for certain categories of risk (revenues or political risks such as nationalization).

57. Particular to road PPPs, however, is collateral. Lenders may also require “real” security in the event of termination. This security is often over the project land and/or assets which has a re-sale market value. The PPP contract should include appropriate provisions to allow the government to re-bid the project (to restructure the project while maintaining the security of the lenders) but may also require a change in law to allow foreign entities to hold real property assets in the country.

58. Also, PPP contracts should make very clear whether the so called “tax gross-up” clause would apply to any termination payment by the contracting authority, so that the private party is able to repay the full amount to lenders net of any applicable tax.

2. Develop a standardized ‘shadow’ cost model against which to compare value

59. Government should develop a robust and locally relevant system of capital and operating cost benchmarks specific to roads. This system should be used to establish transparent evidence that the road PPP represents the best possible VfM as compared to alternative means of achieving the project or transport objectives – particularly the direct delivery of the same road project by the public sector.

3. Offer robust payment security that guarantees debt repayment

60. A road PPP represents a long term public sector commitment. A framework should be established to manage government commitments arising from such a road PPP, including fiscal commitments such as ongoing subsidies and payments, and contingent liabilities and guarantees. Governments should maximise VfM by offering bidders and investors formal instruments that provide certainty that payments will be made and/or that certain risks will not be passed to the private parties (such as the risk of change of laws, costs for land acquisition, etc.), as this should reduce the cost of finance.

61. Toll road mechanisms may prove to lower the government financial commitment to the extent they are based on robust traffic estimates certified by recognized international entities.

4. Plan for financial shifts

62. PPP projects in the road sectors often show results during the project performance different from initial estimates, sometimes showing better performance, sometimes worse. It may be worth including provisions to the effect that contracting authorities have the right to either make a lump-sum payment or continue to pay the senior debt as scheduled or modify payment structures accordingly.

C. Legal issues

1. Road Public-Private Partnerships regulatory framework

63. The legislative and regulatory framework for a road PPP should be consistent with the SDGs and the government's domestic transport and environmental policy, including economic and fiscal policy, and other relevant policies such as urban planning and land use controls. If needed, the Government should strengthen their legal frameworks PPPs as an enabler in order to mobilise private investment required to achieve the SDGs, mindful at the same time to protect citizens' 'rights in infrastructure projects critical to people's lives.

2. Promote transparency and zero tolerance to corruption

64. Governments should ensure transparency and accountability as all times during project preparation, procurement and implementation because successful and sustainable projects require substantial transparency and accountability at all stages of the PPP project implementation.

65. Governments should develop standard definitions of corrupt practices in public procurement and management, and ensure they are applied to road PPPs. To this end, the ECE's standard on a Zero Tolerance to Corruption in PPP Procurement should be incorporated into the governmental practices.

66. Tenderers for each project should be required to confirm their willingness to comply with these anti-corruption policies and should be eliminated from a tender if they are unable to do so, or if there is evidence that they have exhibited corrupt practice. Acceptance of this principle should be a pass/fail tender requirement.

D. Feasibility of road Public-Private Partnerships for low and middle-income countries

67. Faced with an increasing investment gap and a requirement for funds, many public authorities in low and middle-income countries do not have the luxury to choose between public and private funds options for the development of their infrastructure. In such circumstances, private finance may allow economically justified projects to be implemented which would otherwise have been delayed or cancelled through lack of funds.

68. PPP road projects in emerging markets prove to be more effective where governments considered making capital payments, which can help the authority realize better VfM and can demonstrate the relevant public commitment to the project.

69. Typically, road PPP projects in these jurisdictions are rarely promoted and financed solely by domestic parties and it is necessary, or at least strategically important, to seek the participation of international players. Accordingly, an appropriate mechanism addressing currency exposure (availability, convertibility and transferability) may need to be developed in the case of PPP projects where revenues (under both "government pay" and "user pay" models) are denominated in local currency. For example, the exchange rate which is used to

calculate the user fees could be set at the beginning of a year (e.g. 2 January). This rate could be valid for the whole year to protect the users against fluctuations in the exchange rate throughout the year. But it should be noted that despite this mitigation mechanism, the risk which is directed to end users may reduce the traffic levels and trigger the demand guarantee and eventually end up as the governments' responsibility. It would be beneficial to include a discussion on this issue and the mechanisms that need to be put in place to ensure that international investors and lenders are assured the contracted net return, and are protected against adverse currency movements.

70. Low and middle-income countries should also consider whether specific legislation or exemption could be passed to enable road PPP project lenders to benefit from the protections usually available in more mature markets, particularly as to the ability to effectively enforce security interests over all the right and interests of the project company. Perceived inadequacies in the security afforded in low and middle-income countries increases the pricing of debt, and in some cases, may require direct contractual commitments to compensate the lenders for any shortcomings in their expected remedies. However, inconsistent laws and regulations can be worse than limited or no laws, where regulation by contract can operate at least initially.

71. In addition, in order to provide incentives for investment in emerging markets, where the tax regime may be perceived as unpredictable or burdensome, it may be necessary for the government to provide certain tax incentives to promote an attractive basis for the investment and for a stable tax regime to be established for the ongoing economic viability of a project.

72. Moreover, many countries impose strict requirements for the procurement of local goods and services. Although the promotion and development of local industry may be an admirable cause, imposing overly restrictive 'local' requirements can be prohibitive and have an adverse impact on cost as well as risk and potential delay. Requiring a private partner to assume overly burdensome local content requirements could therefore hamper the objective of achieving the efficiencies of PPP and the best VfM.

73. Incomes in developing countries also substantially reduces the surplus between acceptable and actual toll levels and may can result in the exclusion of social groups from using the road infrastructure unless protective measures are adopted. Thus, DBFOM projects structures in such countries may be best based on a blend of availability payments and/or performance-based payments, and less frequently shadow toll systems.

74. Experience has revealed certain rules of thumb that low and middle-income countries can use for initially selecting an appropriate road PPP project.

- The project must be one for which there is clearly a social and economic need, and the delivery of which is recognized as important to most political opinions. However, it is best to avoid politically sponsored schemes as they rarely meet other criteria.
- The project(s) should have only moderate risks, be reasonably well-developed (e.g. have strong economic or preliminary studies), and not have too many constraints to overcome obvious and severe socio-environmental issues or land acquisition issues, for example.
- The project should be one that involves known and tested technologies and for which there is a market place of potential suppliers with whom to enter into partnership (*i.e.*, not too complex, risky, or unproven technologically).
- The project should be one that is on the main priority list (*e.g.*, the 5 or 10-year development programme of the respective road ministry).

- Financially, the best projects are those that need little or no government financial support. However, if support is needed, the project payment stream must be clearly affordable by the sponsoring Ministry or Agency (and/or supported by Ministry of Finance issued guarantees).
- The project should be of a sufficient size to interest international financiers and concession companies.
- Before tendering the whole road PPP programme in a short amount of time, using some of these projects as pilot studies and observing their progress and their compatibility with the PPP model could be time consuming but more cost effective.
- Pilot projects also would speed up the learning process and allow developing the necessary expertise inside of the public institutions with a low cost which otherwise could be a challenging task.

75. The lessons learned from the years of experience in several low-income countries for maintenance of both paved and unpaved roads under DBFOM or equivalent structures are also applicable:

- Introduction of new ways of working requires high level commitment and belief to get through the early parts of the learning curve;
- The performance-based approach works best when it is homegrown and funded from local resources;
- It can take several years for a ministry to adapt to new working practices and accept performance-criteria as a payment mechanism;
- Performance contracts require closer supervision than might be expected and ministries should not underestimate supervision requirements;
- Design responsibility should only be passed to contractors for more straightforward maintenance works. Other more substantial interventions should be specified in the tender documents to simplify bid evaluation and contract supervision;
- Local contractors have very limited pre-financing capacity so transfer of risk and financing needs for the performance-based part of the services needs to be carefully assessed to minimise the possibility of default by contractors;
- Performance contracts offer interesting opportunities for local consulting firms, joining with contractors to help plan and manage the maintenance services;
- Build in technical support to assist contractors and consultants during the early stages of implementation.

E. Other issues related to Public-Private Partnerships in roads

1. Regulation

76. In developing the legislative framework, governments may consider establishing a regulatory framework applicable to road infrastructure, with particular respect to the manner in which its maintenance and operation is remunerated. Governments may also consider establishing an independent regulator to take responsibility for monitoring safety of the road infrastructure.

2. Cost overruns

77. A major issue in the development of new road infrastructure can be the allocation of liability for cost overruns due to the size and complexity of road schemes compared to other

types of infrastructure. It will be important to provide a credible strategy for addressing this issue when assessing potential sources of finance.

3. Early termination arrangements

78. A particular issue for road infrastructure is finding suitable replacement operators with the necessary competence. Contracts should allow sufficient time before termination for satisfactory arrangements to be put in place, including preservation of key subcontracts to ensure continuity of operation.

VI. Indicators of compliance

79. The concessionaire is required to meet the standards and specifications mentioned in the contract. These are typically input-related compliance to deliver the specified outputs such as a road of a certain technical quality and length with support road infrastructure like culverts, bridges, road safety measures and signages, and environmental provisions.

PPP projects may also use performance-based criteria, such as:

- safety improvements must be created;
- riding-quality thresholds to be met;
- rut-depth values not to be exceeded;
- skid-resistance tests must be met;
- loss of road surfacing must not exceed agreed thresholds;
- services must be delivered (e.g., sign cleaning, grass cutting); and
- reductions in end to end journey times to be achieved.

80. However, the focus of measures and indicators of compliance need to be on outcomes instead of outputs in order to assess the aim of providing the road. These indicators of compliance at the PPP project level also need to be developed by the government agency so that the project performance measures are aligned with the agency goals.

81. The typical aim of a government road agency is to provide its customers “safe roads, reliable journeys, informed travellers.” This aim is manifested in several agency objectives such as:

- Improving road safety;¹⁰
- Reducing congestion and improving reliability;
- Seeking and responding to feedback from customers; and
- Managing the environmental impacts in an acceptable manner and building climate change resilience in road design.

82. In DBFO contracts, a consistent challenge is mapping the broader programmatic goals into the performance measures and indicators into project performance measures, and link these with the payment mechanisms used in the contracts. For example, for providing:

¹⁰ The ECE pioneered road safety activities in the UN system since 1950. More information on this work is available at: <http://www.unece.org/trans/main/welcwp1.html>

(a) **Safe roads:**

- Reduce casualties through proper design;
- Maintain project road in safe and serviceable condition; and
- Implement programme to develop awareness among users about road safety.

(b) **Reliable journeys:**

- Minimize delay and disruption from planned maintenance; and
- Minimize delay and disruption from incidents.

(c) **Informed travelers:**

- Ensure technology systems are kept operational.

83. In the context of PPPs for the SDGs, in addition to traditional PPP performance indicators mentioned above related to the technical aspects of road management, other output, outcome and impact indicators will also be needed to ascertain compliance to some SDGs influenced directly and contribution to other SDGs impacted indirectly.

84. It is the responsibility of the concessionaire to achieve direct contributions to those SDGs that are at the level of outputs and outcomes of the project (measurable during the long-term contract periods) as listed in Annex 1, Table 1.1.

85. The public sector also can use such PPP for the SDGs projects to assess the project impact contributions to the higher-level SDGs as listed in Annex 1, Table 1.2. These are beyond the control of the concessionaire and not a part of the contract performance per se. However, the government agency can take cognizance of the impacts in reporting the progress of achievement of these SDGs.

Indicators for compliance of sustainable development goals

In addition to the performance parameters listed in the main text of the document, related to the technical aspects of road management, PPPs for the SDGs must also include indicators to monitor the outputs, outcomes and impacts of the project. Given below in Table 1.1 is a matrix of indicators that can be used as appropriate. Table 1.2 deals with the contribution of project to the impacts on the SDGs. These are beyond the control of the concessionaire and not a part of the contract performance per se. However, the government agency can take cognizance of the impacts in reporting the progress of achievement of the SDGs.

Table 1.1
Direct road Public-Private Partnerships indicators of compliance
 (to be a part of PPPs for the SDGs' contracts as performance targets within the contract period)

<i>Sustainable development goal</i>	<i>Some listed indicators for setting performance target select as appropriate) (Note 1)</i>
SDG 3. Ensure healthy lives and promote well-being for all at all ages (Project output related)	3.6. By 2020, halve the number of global deaths and injuries from road traffic accident
Road safety targets included in the global development agenda	Measured by: 3.6.1. Annual death rate due to road traffic injuries on project road
SDG 5. Achieve gender equality and empower all women and girls (Project output related)	5.5. Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life
Use of the PPP model in road projects provides an opportunity to seek and achieve greater gender equality	Measured by 5.5.1. Proportion of women employed in the concession agency during project implementation and also proportion of women in managerial positions in the same
SDG 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation (Project output related)	9.1. Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all
Investment in roads infrastructure is generally for the long term and is designed to provide high quality, resilient, infrastructure that will last for years to come	Measured by: 9.1.1. Proportion of the vulnerable or rural population (depending on the road context) who live within 2 km of an all-season road 9.1.2. Passenger and freight volumes, by mode of transport
SDG 11. Make cities and human settlements inclusive, safe, resilient	11.2. By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the

<i>Sustainable development goal</i>	<i>Some listed indicators for setting performance target select as appropriate) (Note 1)</i>
and sustainable (Project outcome related) Improved road infrastructure through PPPs can facilitate high quality, long lasting infrastructure, that is safer and more affordable, and improves interconnectedness and cross-border traffic while expanding access to economic opportunities for citizens	needs of those in vulnerable situations, women, children, persons with disabilities and older persons Measured by: 11.2.1. Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities

Note:

1. The scope of the private sector participation needs to be enhanced to include applicable PPP indicators linked to SDGs. However, depending on the allocation of PPP responsibilities, the indicators also need to be balanced between direct contract deliverable indicators and those attributable to the public-sector agency/government as additional contributions to the project.
2. Above indicators may be suitably altered and are not prescriptive.
3. Applicable indicators need to be chosen depending on the type of project.

Table 1.2

Indirect road public-private partnerships impact targets relevant to the sustainable development goals

(to be assessed by the Government Agency)

<i>Sustainable development goal</i>	<i>Some listed indicators for setting performance target (select as appropriate)</i>
Relevant SDGs affected by impacts of PPP projects (not directly controlled by the project outputs and outcomes alone and depends on other factors beyond project boundary)	To be assessed by the Government Agency (Note 1 of Table 1.1)
SDG 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture (Project impact related) Investment in roads infrastructure provides access to opportunities for income generation	2.3. By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment Measured by: 2.3.1. Average annual income of small-scale food producers, by sex and indigenous status

<i>Sustainable development goal</i>	<i>Some listed indicators for setting performance target (select as appropriate)</i>
<p>SDG 3. Ensure healthy lives and promote well-being for all at all ages (Project impact related)</p> <p>Well-designed roads can reduce the traffic blocks, pollution and spillage contamination</p>	<p>3.9. By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</p> <p>Measured by: 3.9.1. Mortality rate attributed to increased vehicular pollution contribution (fine particulate matter e.g., PM2.5 and PM10) to ambient air and soil pollution</p>
<p>SDG 5. Achieve gender equality and empower all women and girls (Project impact related)</p> <p>Use of the PPP model in roads provides an opportunity to seek and achieve greater gender equality</p>	<p>5.1. End all forms of discrimination against all women and girls everywhere</p> <p>Measured by: 5.1.1. Whether or not legal frameworks are in place to promote, enforce and monitor equality and non-discrimination on the basis of sex</p>
<p>SDG 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all (Project impact related)</p> <p>Road transport is an important element in encouraging economic growth and development</p>	<p>8.1. Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries</p> <p>Measured by: 8.1.1. Annual growth rate of real GDP per capita</p>
<p>SDG 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation (Project impact related)</p> <p>Investment in roads infrastructure is designed to provide access for economic opportunities such as industrial development</p>	<p>9.2. Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries</p> <p>Measured by: 9.2.1. Manufacturing value added as a proportion of GDP and per capita 9.2.2. Manufacturing employment as a proportion of total employment</p>

SDG 11. Make cities and human settlements inclusive, safe, resilient and sustainable (Project impact related)

Improved road infrastructure through PPPs can facilitate improved infrastructure that mitigates adverse environmental impacts

11.6. By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management

Measured by:

11.6.1. Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities

11.6.2. Annual mean levels of fine particulate matter (e.g., PM2.5 and PM10) in cities (population weighted)

SDG 12. Ensure sustainable consumption and production patterns (Project impact related)

Road infrastructure provides opportunities for avoiding food wastage through access to better transportation facilities for agricultural products

12.3. By 2030, halve per capita global (national) food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses

Measured by:

12.3.1 National food loss index

SDG 13. Take urgent action to combat climate change and its impact (Project impact related)

Capacity development and knowledge management in well-designed road projects can result in better and resilient planning of road projects

13.1. Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

Measured by:

13.1.1. Establishment of national and local disaster risk reduction strategies

13.1.2. Number of deaths, missing persons and persons affected by disaster per 100,000 people

13.2. Integrate climate change measures into national policies, strategies and planning.

Measured by:

13.2.1. Communication of the establishment or operationalization of an integrated policy/strategy/plan which increases the countries' ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development (including a national adaptation plan, nationally determined contribution, national communication, biennial update report or other)

SDG 17. Strengthen the means of implementation and revitalise the global partnership for sustainable development (Project impact related)

PPPs in roads provide opportunities for public and private alignment and win-win situations where both public and private interests are served through a mutually beneficial long-term relationship

17.17. Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships

Measured by:

17.17.1. Amount of United States dollars committed to public-private and civil society partnerships
