Annex 2. Local roads - facilitating access to services

Transport Sector Review: Bosnia and Herzegovina - the road to Europe.

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1 INTRODUCTION

Defining local roads

1.1 **The orthodox approach to defining roads classifies them according to their function or traffic level.** While sources differ in the nomenclature employed, the basic concepts related to functional classification are similar: functional classification is the process by which roads are grouped into classes by the service they are intended to provide. Basic to this process is the recognition that a trip involves movement through a network of roads. A f*unctionally classified* road network assigns each road link a role that channels trips through a network efficiently. The basic concepts are applicable regardless of the nature or level of development of the economy or mix of traffic.

1.2 **Roads are classed as primary or arterial roads (magistral roads), collectors or secondary roads (regional roads), and tertiary (or local) roads**. The first category includes generally the major through roads (Corridor Vc) that carry the largest volumes of traffic, and provide the highest level of service at the greatest speed for the longest uninterrupted distance, possibly with some degree of access control. Collectors (as their name suggests) collect traffic from the lower levels of the road network and distribute it to the arterials. They provide a less highly developed level of service than the arterials at a lower speed for shorter distances. Collectors are the regional or secondary roads, which in FBH represent roads connecting regions/municipalities to the next levels of the road network.

1.3 **The final layer, the tertiary (or local) road network, provides access from homes and communities to the higher categories of the road network.** These roads generally have the lowest speed limits, the lowest standards, and usually carry the least amount of traffic. Local roads primarily provide access to land or residences, and generally carry little through traffic. They fulfill a vital function connecting small towns, villages and communities within different municipalities, both to each other and to the higher category roads.

Local roads have an important function

1.4 **While local roads are at the bottom of the road network hierarchy, they play an important socio-economic role.** In 2008, agriculture accounted for just under eight (7.8) percent of GDP and up to eighteen (18) percent of total employment (including the informal sector) in Bosnia and Herzegovina (FBH). Productivity in the sector is very low, even by regional standards. Poor quality local roads constrain agricultural productivity in a number of ways: First, high transport and transaction costs make it unviable for rural farmers to increase production to sell in local markets even where possible; second, proximity to a market influences the effective price of both agricultural inputs and outputs. Better roads lead to better farm-gate prices for rural output (particularly for perishable produce), improved competitiveness, and increased income.

Conversely, better roads also lead to lowers prices for inputs like seeds, fertilizers, and pesticides, which may not have been readily available prior to the improvement. Further benefits are also possible in the short to medium term in respect of the crop portfolio, and the increased usage of technology.

1.5 **Poverty is also primarily a rural phenomenon in Bosnia and Herzegovina**. Demographic data reveal that a large percentage of the population still lives in rural areas [sixty (60) percent in the 2007 Household Budget Survey[1]], and that seventy (70) percent of poor people live in rural areas.[2] Local roads not only connect rural inhabitants and communities to markets, but also to essential services like health, education, and employment opportunities. Other benefits arise due to lowered transport costs for goods and services, and stimulating business development and off-farm employment opportunities in the rural areas, for example, tourism and small trade shops.

1.6 **Not surprisingly, improvements to local roads have been found to often rank among the top priorities for local communities.**[3] In Bosnia and Herzegovina, a recent survey found that less than half of sampled households were happy with the level of access provided by the local roads network.[4] They consider that local roads should provide them with an access to essential services (e.g., education, health, administrative functions). The same study found considerable discontent amongst the rural population over the quality and condition of the local road network, exacerbated in winter when municipal providers fall behind with winter snow removal, creating serious consequences in rural areas where up to forty (40) percent of households have insecure access to food supply or medical treatment. In addition, other regional studies have reported positive differences in school enrolment and frequency in use of health services, between areas with and without all-weather roads.[5]

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[1] Agency for Statistics of Bosnia and Herzegovina (2007) *Household Budget Survey*, Sarajevo.

[2] World Bank (2009) *Protecting the Poor During the Global Crises—Poverty Update*, Washington DC.

[3] See for example World Bank (2006), "*Rural infrastructure in Georgia—Improving Service Delivery*" Transport Unit, Sustainable Development Department, Washington DC.

[4] World Bank (2008a) *From Stability to Performance—Local Governance and Service Delivery in Bosnia and Herzegovina*, Washington DC.

[5] World Bank (2006) *Ibid.*

2 REVIEW OF THE INSTITUTIONAL FRAMEWORK

The legal framework for local roads

2.1 **The legal framework for the entire road sector is a patchwork of partial, overlapping and incomplete mandates under a number of different state and entity laws.** Under the Dayton Peace Accords, the responsibilities for air transport and the regulation of transport between the two entities [the Federation of Bosnia and Herzegovina (FBH) and the Republika Srpska (RS)] were assigned to the state level,[6] whereas the responsibility for infrastructure was given to the respective entities. As a result, the legal framework for public roads is defined at the latter level.[7] The result is three Laws on Public Roads, one in each entity and one in Brčko Administrative District (BAD)[8], and a further draft under preparation at the state level. The result is both different arrangements for the management of different levels of the road network within each domain, and confusion over institutional responsibilities regarding the development of the strategic road network, the SEETO core network, and the Pan-European network.

2.2 **For local roads, the law on the Organization and Functioning of Local Governments (July 2000) assigns to the municipalities the responsibility for managing the local road network.** The law provides significant financial autonomy to the municipalities through unconditional transfers based on a defined distribution formula. The local roads are defined as public goods owned by the entities (FBH and RS), but administered and managed by the municipalities.[9] The planning of improvements to the network, and the applicable standards, are both defined at the entity level by the line ministries. Local roads do not differentiate from other assets that municipalities are asked to preserve (e.g., schools, landfill sites, water treatment facilities).

2.3 **In addition, recent legal changes have stabilized revenues and municipal government status and strengthened their role in local service delivery**. Both FBH and RS have adopted new local government laws that clarify functional assignments to municipalities and their revenue sources. Also in line with the European Charter on Local Self Governance, the new laws strengthen the role of local communities (MZ), and

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[6] Dayton Peace Accords (1995) Annex 4. The powers accorded to the state were enhanced by the passage of the 2003 Law on Ministries, which established the Ministry of Communication and Transport.

[7] The relevant laws in the Federation of Bosnia & Herzegovina (FBH) and in the Republic Srpska (RS) are, respectively, the Law of Roads, (currently in the process of being revised), (Official Gazette of the Federation of Bosnia & Herzegovina, No. 6/02), and the Law on Public Roads (Official Gazette of the Republic of Srpska, No. 3/04).

[8] Brčko Administrative District was established by the Dayton Peace Accords as competing claims were difficult to overcome. The territories of the two entities overlapped in Brčko District, and since agreement on the Inter-entity line was not forthcoming, Brčko Administrative District was formed under the arbitration process, established by the Dayton Peace Accords. The District is self-governing, under the supervision of an International Supervisor, appointed by the Office of the High Representative (and the EU Special Representative). With the recent addenda to the DPA, Brčko District now enjoys the same status as the other two entities.

[9] As defined in the 2004 Law on Roads in the RS, and the 2002 Law on Roads in the Federation.

provide a legal framework for the Association of Cities and Municipalities to participate in legislative and policy-making processes in FBH.[10] However, many of the ten cantonal laws have yet to be harmonized with these new laws.

However decentralization has resulted in an unfunded mandate

2.4 **The decentralization process has assigned responsibilities for local service delivery to the respective local government.** This initiative, supported by the donor community, has placed the entire local road network, and the delivery of the other local services, under the responsibility and management of the respective municipalities. Unfortunately, devolution of administrative and managerial responsibility has not been supported with matching fiscal delegation. One study in Albania focusing on the issues of decentralization found that while progress had been made, there remained a number of significant obstacles,[11] conclusions which are equally resonant for FBH. The salient findings pertinent to the management and financing of local roads can be summarized as the following:

i. ***The lack of implementation capacity and weak institutions***[12] delayed the adoption of decentralization measures due to fears that this could disrupt the delivery of local public services and/or have an unfavorable impact on fiscal accountability. Administrative capacity at many local governments is weak on technical, financial and management grounds*;*

ii. ***The fragmentation of local government units and the undefined role of the regions in some countries*** complicates a uniform attribution of responsibilities and potentially affects local public service delivery efficiency, fiscal transparency and fiduciary accountability;

iii. ***The lack of a clear definition of specific responsibilities*** and decision making powers, especially for shared functions, has led to inefficiencies. Unclear assignment of responsibilities for some secondary and tertiary roads with confusion or disagreement as to who is responsible, leading mainly to under-provision of services;

iv. ***Insufficient local revenue autonomy*** has negatively affected fiscal and political accountability of local authorities directly to the citizens. Own source revenues for many municipalities are generally very low.[13] The worst affected

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[10] In FBH, these include the Law on the Principle of Local Self-Government (Official Gazette 49/06), and new Law on Distribution of Public Revenues in FBH (Official Gazette 22/06). In FBH, this includes the Law on the Local Self-Government (Official Gazette 101/04) and Amendments to the Law on Budgetary System of RS (Official Gazette 34/06).

[11] World Bank (2004) *Albania Decentralization in Transition*" *Volume 1: Summary Report and Matrix of Issues and Options.* World Bank. Washington DC.

[12] Including the absence of central coordination and the reluctance of the central bureaucracy to relinquish decision making power on micro-managing public services.

[13] In many cases, these are usually vehicle registration charges and other small revenues from local taxes, fines and business interests.

municipalities are those in rural areas, with small populations, and high levels of poverty[14]. Most municipalities have limited or no borrowing capacity or are heavily indebted from previous commitments and hence cannot secure varied and competitive sources of funding;

v. ***Inefficient transfer/grant system*** renders the local government financing system unpredictable (and still reflects a "gap-fill" type of approach), since it remains dependent on undesirable political and bureaucratic maneuvers. In addition to this, most legal frameworks regarding inter-governmental transfers are silent or at best ambiguous about the set-up or amounts. Monies transferred from the central government go into a general pot and there is no certainty that funds intended for use on tertiary roads maintenance are actually used for that purpose; and

vi. ***There is little in the way of accountability*** as to how monies are spent, especially from municipalities. Making matters worse is the fact that access to information on local roads is difficult or non-existent at both the local and central government levels.

Organizations in the local road sector

2.5 **Management of the local road network in FBH suffers the same deficiencies observed in other countries in the South East Europe region.** These deficiencies include: an unclear delineation of responsibilities, lack of capacity, lack of appropriate design standards, and, most important of all, insufficient financing, although the latter is less relevant in FBH. The length of the 'active' road network is simply not known; the classification of some roads remains a contentious issue; and the condition and usage of the assets are unknown and not monitored. Consequently, proper planning and prioritization for interventions is not possible. Interventions are undertaken in an *ad hoc* manner, often based on subjective priorities. In the Federation, the Federation of Bosnia and Herzegovina Road Directorate (FBHRD) often acts informally, in agreement with one or more cantons, to undertake activities on the local road network, but these tend to be activities involving capital expenditure, rather than preemptive maintenance. In RS, the Republika Srpska Roads (RSR) fulfils this role.

History of road classification in Bosnia and Herzegovina

2.6 **The road system in FBH is currently classified according to three categories: magistral (primary) roads, regional (secondary) roads, and local (tertiary) roads**. The current classification of roads is an administrative or jurisdictional typology, rather than one based on function. The first law to introduce a typology for the different categories of roads was the "Law of National and Autonomous Roads" (1929-1932), which established the administrative partition of public roads; in this way, public and autonomous roads were distinguished first, which were then further subdivided into domain and municipal roads of the 1st and 2nd order, and municipal roads of 1st and 2nd order. This system remained in place until 1945, when public roads were classified into categories I. – III, which become categories I. – IV in 1953. The current administrative

[14] World Bank (2009) *op cit*.

typology of magistral, regional, local and unclassified roads dates to the Law of Public Roads. But an administrative typology overlooks core evolving elements, such as the introduction of motorways or expressways and the changing function of different roads over time; prioritizing expenditures on such a typology is non-optimal.

Limitations in the institutional framework

Limitations in capacity

2.7 **All municipalities, except a limited number of large ones, suffer from a lack of institutional capacity**. Inadequate resources preclude the development of a strategy for maintenance. There is little or no capacity to manage the maintenance of the local road network. Decentralization has assigned to the municipalities responsibility for the local road network, but without providing appropriate resources. Only ad-hoc arrangements have materialized with some general administrative unit or a few individuals put in charge of the local roads with poor planning, little financial back-up, and consequently a patent lack of maintenance of the network. One could question whether a network like local roads can actually be considered a local service like local water supply, or local health services. The supply of electricity or gas, the local delivery of which remains the responsibility of the utility, would appear to be a closer comparator.

Limitations in the current categorization of roads

2.8 **The current road classification system is based on administrative and technical grounds and needs updating.** Local roads are simply defined as "what remains" once the magistral and regional roads are defined, and the exact extent is unclear. What is clear, without an updated survey of the function of each road in the network, too often this category contains everything else in the outdated administrative inventory—all those roads that exist, irrespective of whether they are private access roads, no longer actively used, or should more properly be re-categorized as regional, or secondary, roads. It is likely that a significant portion of the local road network is inappropriately classified and could be declassified to reduce the burden on the local municipalities and allow them to focus limited resources on the active local road network. One unusual feature of the current classification is that even unclassified roads, i.e., private roads which are not legally required to be open for public use, are managed by the respective municipality.

2.9 **In a context of limited resources, an updated inventory should focus on a 'lifeline' local road network**. The concept of a lifeline road is a road that is either the only link between a particular community and a road of a higher category, or where there is more than one link, where the closure of the main link will significantly increase the generalized cost (in terms of time and money) of the residents of said community in accessing the higher category road. Using this simple definition, employed in many countries in Europe (e.g., the United Kingdom) the core lifeline local road network can be identified, and resources focused on those key links. Finally, those local roads with little traffic and less significant functional importance can be declassified. The converse

is also true i.e., roads that have higher traffic levels or greater functional importance, can also be reclassified.

Limitations in the design and construction standards

2.10 **There are no appropriate design and construction standards for local roads in FBH.** Given the low level of traffic on most local roads, and because of the continual scarcity of funds for maintenance, greater emphasis should be placed on the definition and employment of appropriate technical standards for design, construction and maintenance. One of the unfortunate legacies from the former Yugoslavia is that some local roads were designed to comparatively high standards, and maintenance requirements are high, making it even more expensive and difficult to implement an appropriate maintenance regime, even in those rare cases where resource are available.

2.11 **Standards are an economic, rather than a purely engineering, choice.** Given the low level of traffic on most rural roads, and the continual scarcity of funds for maintenance, the emphasis should be on the definition and use of appropriate technical standards. Options should be evaluated for design standards which offer substantial accessibility benefits while lowering construction costs and ensuring that the future maintenance burden will not be so heavy. The primary considerations for local roads are therefore reliability and durability rather than the usual engineering design considerations of width and speed. Drainage provision, usually at low cost, is also an important element in ensuring the durability of the road asset and in helping to sustain the maintenance efforts. With new design standards in place, downgrading of existing roads is a possibility that may need to be considered by the management authorities.

Limitations in the policy and planning framework

2.12 **The planning framework exhibits a lack of coordination**. The planning framework for primary roads is relatively clear in both entities, and the same is true for regional roads in the RS. However, the planning framework for regional and local roads in the Federation, reflecting the atomization of responsibilities, and the framework for local roads in the RS, is less clear. There is no clear mandate for the line ministries and the FBHRD or RSR to work with the cantons and municipalities in charge of regional and local roads. It happens in practice, but these ad hoc arrangements are opaque, and do not always represent the most efficient or effective approach.

2.13 **At the municipal level, planning and management structures are ad-hoc with each municipality deciding what form of management model work best**. A common feature with local road management in both entities is that municipalities are in charge of small lengths of road network, which are mainly fragmented and relatively dispersed. This is neither efficient nor effective in terms of management or implementation of work, as it is very difficult to mobilize competent personnel and adequate resources at such a low level.

2.14 **There is currently no policy or strategy for the development of the local road network, as part of a broader rural development strategy.** The development of such a

broader rural development strategy, which encompasses the issue of rural transport and local roads, would go some way to providing a framework for resolving the pressing issues that plague the local road sector: poor management, lack of coordination, unclear responsibilities, inappropriate designs, neglected maintenance, and insufficient funds among many others. The development of a coherent rural development strategy would require the involvement of all relevant stakeholder agencies and institutions at the national, regional, district and local community level, including organizations dealing with agriculture, mining, tourism, transport and rural development. Formulation of the strategy should ideally involve all the relevant Non Government Organizations, together with the various donors with interests in the sphere.

Limitations in the management of the assets

2.15 **Constituting what is arguably the biggest concern in the planning structures is the lack of a proper asset management system.** There is no accurate and maintainable road management database covering the secondary and tertiary roads. A bridge and road database was established in Bosnia and Herzegovina (covering the main and secondary road network) but did not cover local roads. As such, especially with regard to the local road network, road lengths are not readily known, the classification of some roads remains a contentious issue and the condition and usage of the assets is not being appropriately monitored. Consequently, proper planning and prioritization for interventions cannot be made. In many municipalities, the agencies in charge of the local roads rely on community reporting to address shortfalls in service conditions of the roads.

2.16 **There is also little immediate incentive on the part of authorities to address maintenance needs at the right time.** As roads deteriorate, road users do not immediately see the connection between the poor condition of the roads and increased operating costs. As a result, the respective authorities do not feel any immediate pressure to address the maintenance shortcomings until the roads reach such a state of utter disrepair that residents become more vociferous. Ironically, the reconstruction of a deteriorated road, or even better the construction of a new road, is more attractive from a purely political perspective as the action is more visible to the particular constituency. Politicians at any level have little incentive to support unseen preemptive maintenance.

3 ASSETS IN THE LOCAL ROAD SECTOR

The local road network

3.1 **The local (or tertiary) road network in Bosnia and Herzegovina amounts to some 14,000km of roads, mainly unpaved and consisting of short sections.** The majority of this local road network is unpaved, with only twenty-four percent having an asphalt surface, with the remainder gravel (seventy-two percent) or earth (four percent). The proportion of the local road network that is asphalted is slightly higher in the RS than in the FBH, but the unreliability of the data, particularly in the latter, means that this finding needs to be treated with caution. The average length of local road is estimated to be four and one-half kilometers, with a distribution ranging from 16.5 – 1.5 km in length, and the average population served by each link is approximately 1,000 people.

Table 1. Length and characteristics of the road network in Bosnia and Herzegovina (2008)

	FBH	RS	TOTAL
Magistral	2,037	1,763	3,800
% asphalted	96	100	98
Regional	2,658	2,157	4,815
% asphalted	78	63	72
Local	5,220	8,780	14,000
% asphalted	20	38	24
Total	9,915	12,700	22,615
% asphalted	41	51	47

Sources: FBH Statistical Office and RS Institute of Statistics and Study Estimates.

3.2 **The density of the local road network in FBH is broadly similar to that of its regional neighbors.** In terms of the density of the local road network per head of population and per square km., FBH compares reasonably well with regional neighbors, but with a marked discrepancies between the entities, although such comparisons need to be treated with a degree of caution, given the different physical characteristics of the countries concerned.

Table 2. Density of the local road network (2008)

	(Km/1000 sq km)	(Km/1000 people)
Bosnia & Herzegovina	**273**	**3.7**
Federation of FBH	196	2.2
Republika Srpska	357	6.1
Croatia	186	2.3
Serbia	263	3.1
Albania	314	2.7

Sources: EC, Statistical Pocketbook 2009; WB.

The condition of the assets

3.3 **The magistral road network has rightly received the greatest support in recent years.** Much of the emphasis in the road sector in recent years has been on rehabilitating, upgrading, and more recently new construction on the magistral road network. Magistral roads have, rightly so, been the level of the network that has received the primary share of investment, particularly from donors, reflecting the fact that these roads carry the greatest share of the traffic, and the importance of these roads to the recovery and the economic development needs of FBH.

3.4 **The concomitant to this policy, however, is that local roads have received less attention and have been allocated less resources**. The standard of this network is considerably below that of the magistral (primary) and regional (secondary) road networks. The implication of this was made clear in the findings from another recent study undertaken by the World Bank, which involved a survey of over 2,000 households across 20 municipalities:[15] One million citizens of Bosnia and Herzegovina, or over twenty-five percent of the total population, cannot reach other parts of their community via an asphalt road. The same survey also found that when municipal providers fall behind with winter snow removal, there are serious access problems, in which up to forty (40) percent of households in rural areas have problems accessing food supply or medical treatment.

3.5 **There is no comprehensive and up-to-date information on the condition of the local road network**. The findings of a simple visual survey of a small sample of local roads in ten selected municipalities (in RS, Trebinje, Rogatica, Samac, Kotor Varos and Novi Grad; in FBH, Grude, Vitez, Srebrenik, Sanski Most and Cazin), revealed that just over half were in good condition, twenty-four percent in fair condition, and twenty-two percent in poor or very poor condition. Given some of the issues mentioned earlier, this is a surprising finding, and would represent one of the better performances in the region. However, the modest size of the sample, the approach used, and the results of earlier more comprehensive surveys suggest that these findings should be viewed with caution.

Table 3. Summary road condition results (disaggregated)

Country	Secondary Road Condition			Tertiary Road Condition		
	% Good	% Fair	% Poor	% Good	% Fair	% Poor
Bosnia and Herzegovina	47	21	32	54	24	22
Kosovo	74	26	0	8	2	90
FYR Macedonia	56	28	15	28	47	25
Montenegro	45	18	37	9	37	54
Serbia	*National Class II - not sampled*			8	18	74

Source: World Bank (2008b).

[15] World Bank (2008a), *From Stability to Performance, Local Governance and Service Delivery in Bosnia and Herzegovina*. Washington D.C. The World Bank.

The demand for use of the assets

3.6 **Traffic volumes on the local road network range from less than 100 vehicles per day on some unpaved roads to an estimated 1,750 vehicles per day on some paved sections close to urban areas.** Most of the local roads have low traffic volumes, although accurate and up-to-date information is rarely available. The exceptions to the general rule are those roads that are functioning as regional roads, or are close to urban areas, where traffic volumes can be significant. In addition, traffic volume can vary markedly by season, reflecting greater usage in the summer or winter months, by day of the week, reflecting the frequency of local markets, or even time of day, reflecting travel to employment or education facilities.

3.7 **Traditional measures of demand may not always be reliable indicators of the importance of low volume roads.** Low quality roads, with limited access can result in substantial suppressed demand, due to the cost or time involved, which would be realized in the short term with improved access. Not surprisingly, traditional measures of traffic volume (such as annual average daily traffic for example) can be less reliable indicators of the significance of a particular road, than criteria such as population or poverty rates in the hinterland, distance to health and education facilities, the quality and use of agricultural land in the hinterland, or the existence of tourist sites, etc.

3.8 **A small survey of traffic composition undertaken for a recent study[16] found that cars and vans make up the majority of the traffic on the local road network**. Private cars comprise between sixty (60) and ninety (90) percent of the total traffic. Buses and trucks are limited on the local road network and do not exceed twelve (12) percent. Depending on the causal chain, this has implications on the proposed design standards for these roads. If heavy traffic is light, then less expensive design standards may be proposed for the tertiary roads. By contrast, if heavy traffic is light due to the condition of the roads, then the proposed design will need to reflect the possibility of heavier axle loads. This is particularly true for those roads that provide access to and from mines and forests.

[16] The World Bank (2008b) *Improving the Management of Secondary and Tertiary Roads in the South East Europe Countries*, Sustainable Development Department, Europe and Central Asia Region.

4 FINANCING THE LOCAL ROAD SECTOR

Introduction

4.1 **In the road sector, the main sources of financing are the road fee and vehicle registration fees**. The fuel fee, collected by the Indirect Tax Administration (ITA) is now BAM 0.25 per liter, having been increased from BAM 0.15 per liter in July 2009. These two sources account for over seventy percent (70) percent of total revenue for both the FBHRD and the RSR. These funds are, in theory, to cover all road maintenance expenditures, routine, winter and scheduled periodic, together with development expenditures in the form of reconstruction, upgrades and new construction, and road related debt servicing. The BAM 0.1 per liter increase in the fuel fee was introduced specifically to fund the development of the respective motorway and expressway networks in the two entities.

4.2 **The revenue raised from the fuel fee is collected together with other proceeds from all the other indirect taxes and put in one common fund**. The revenues raised from the fuel fee go to a single account, of which sixty-five (65) percent of funds go to FBH, thirty-two (32) percent to RS, and the remainder to Brčko District. Out of this, 4.9 percent of FBH revenues were earmarked for roads, but this was changed to 3.9 percent in 2007—the funds are then distributed as follows: 40 percent to main roads, 35 percent for local roads (municipalities) and 25 percent to cantons for regional roads. In the case of RS, 4 percent of RS revenues go directly to the road company, up from 3.5 percent in 2009. Thus, the total amount of funds earmarked for roads is a function of the size of total revenues, and not directly related to the revenue collected from the fuel fee. Thus a strong element of variability (and competition) has been introduced into the funding streams at all levels, as their primary source of income is now subject to various layered decision-making processes beyond their control. It is thus practically impossible to plan company budgets with even the same degree of certainty as under the old scheme involving a direct (and predictable) allocation of revenue from the old fuel fee.

Expenditures in the local road sector

4.3 **Reliable and comprehensive information on local road expenditures is very difficult to obtain**. There are differences in the categorization of the different types of expenditures across different municipalities, and across the two entities. There is often no distinction made between recurrent and capital expenditure, even if all expenditure is recorded. Last, accountability remains a problem, especially in a context where the access to information on the local roads is almost non-existent at both the local and central government level. However, one recent study,[17] (admittedly based on a small sample), estimated that the expenditures on the local road network in FBH at around BAM 27 million per year (US$20 million).

[17] World Bank (2008b) *op cit*.

Financial needs of the local road network

4.4 **The financial needs of the local road network in FBH are estimated to amount to some BAM 51 million (US$37.8 million) per year over each of the next five years**. This estimate assumes a five (5) year recovery plan to address backlog maintenance, which forms the majority of the estimate. The estimate does not include any new construction. The estimate has been made to cover backlog maintenance, followed by provisions for the normal routine/winter maintenance and periodic maintenance. This calculation includes provision for the total recovery of the local road network and for its continued annual maintenance. Once the backlog is addressed in the assumed 5 year time frame, normal roads maintenance needs would drop to the estimated annual total of (BAM 18.5 million) US$13.7 million, for routine/winter and scheduled periodic maintenance.

Table 4. Estimated annual expenditure needs for local road network 2010-2014 (BAM million)

Road Class	Activity	2010	2011	2012	2013	2014	2015	2016	2017	2018
Local	Addressing Backlog	32.2	32.2	32.2	32.2	-	-	-	-	-
	Routine/Winter	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9
	Periodic	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Total (Local Roads)		**50.7**	**50.7**	**50.7**	**50.7**	**18.5**	**18.5**	**18.5**	**18.5**	**18.5**

Source: Adapted from World Bank (2008b) *op cit*.

4.5 **From an analysis of expenditures and needs, the financing gap for the local roads sector in Bosnia and Herzegovina was estimated at an annual BAM 23.6 million (US$17.5 million)**. This represents a shortfall of forty-six (46) percent, which compares well to the findings of a recent report[18] which found that in the region, on average, one-quarter (25 percent) of needs for local roads are currently being met. An updating of the current functional classification, reclassifying, or de-classifying, some local roads, and a willingness to accept a lower quality standard on low volume roads, would be expected to lead to a corresponding decrease in the estimated expenditure needs. The final section presents some recommendations to address this shortfall.

Table 5. Estimated financing needs and annual average expenditures (2001-2005)

Country	Average Annual Expenditures (2001-2005)	Financing Needs	Expenditures (as % of needs)
Albania	29.8	67.6	44
FBH	20.3	37.8	54
Kosovo	19.6	38.8	51
FYROM	14.1	50.8	28
Montenegro	2.2	65.7	3
Serbia	29.4	180.4	16

Source: Adapted from World Bank (2008b) op cit.

[18] World Bank (2008).

4.6 **This report has revealed inadequate maintenance funding for the local roads, but it is important to reiterate that it is not just a question of the level.** The sustainability of the local road network revolves around the timely execution of routine and periodic maintenance which is in turn dependent on the existence of a steady and adequate flow of funds, irrespective of source, good management, sufficient implementation capacity and effective use of the funds. While addressing the issue of sufficient finance is a necessary condition, it is not a sufficient condition. The need to improve the effectiveness and efficiency of expenditures in the sector ranks as high. Recommendations in this area are presented in the subsequent section.

5 THE PROPOSED STRATEGY AND ACTION PLAN

Strengthen the decentralization process[19]

5.1 **To improve the delivery performance of municipal services, the government needs to tackle four main areas.** First, FBH needs to fully implement Indirect Taxation Administration (ITA) reforms and align sectoral legislation with the Laws on Local Self-Governance. Second, municipalities must expand their fiscal space to enhance local service delivery. Each municipality should examine the four dimensions of fiscal space—transfers, own-source revenues, expenditure efficiency, and borrowing—to maximize the dimensions with the most potential to increase local-level fiscal capacity for improving service outcomes. Third, municipalities must be held accountable to citizens for service delivery. This will require implementing a performance-based system that includes publicly available performance benchmarks and indicators, and offers incentives to providers to improve their service delivery. The following key recommendations will help realize this crucial transition.

5.2 **Increase accountability.** Both vertical and horizontal mechanisms require strengthening through a framework for service delivery standards, monitoring and evaluation, and oversight bodies to ensure compliance across constituent jurisdictions. Higher-level governments should work with municipalities to establish minimum service standards and estimate fiscal resources needed. Entity ministries of finance and sector ministries need to strengthen their financial and technical oversight functions and design performance-based grants to complement the existing intergovernmental transfers. Municipal councils must improve oversight of service providers, monitor the decision-making of municipal executives, and both municipal councils and municipal administrations must enhance their capacity in the management of public finances. Citizens and local officials could play a more significant role in securing benefits of efficient local government, and increase civil society "voice" and participation.

Strengthening the organizational structure of the local road sector

5.3 **Aggregation of managerial responsibilities will realize significant savings in the local road sector.** Most municipalities in FBH do not have the capacity, or the funds, to maintain the local roads they are responsible for. In theory, the situation could be addressed in four different ways: (i) the management of the local roads could be transferred to a higher level of the administration (the cantons or the entity in the case of FBH, only the entity in the case of RS); (ii) the management could be delegated to a specialized implementation agency; (iii) the municipalities could join together through some form of Joint Service Committee (JSC) to administer a larger network; and (iv) the

[19] These initial paragraphs are reproduced from World Bank (2008) *From Stability to Performance : Local Governance and Service Delivery in Bosnia and Herzegovina*.

management could be contracted out—although this latter option is probably a little early for FBH at this time.

5.4 **JSCs are fairly common models in developed countries**. In most cases, the central government ministry remains in charge of the planning and coordinates the local roads. However, it encourages the municipalities to come together (through use of financial incentives) to form Joint Services Committees, or co-operatives, to provide services for participating local agencies. Under this arrangement, resources are pooled and individual agencies are better able to plan and manage their affairs and therefore can award larger and more cost-effective contracts for procurement of goods and services. Services may extend to the provision of road maintenance, waste disposal and other services as the participating members deem appropriate. The group of local government agencies generally assigns the tasks of organizing procurement and supervising implementation to one of their members, or to a higher level of government, or to a local consultant.

5.5 **The aim is to allow the municipalities to reach a minimum capacity for administering services properly.** JSCs would be responsible for local road management. They could also manage additional services that currently fall under the responsibilities of the municipalities. Such services traditionally include landfill site management, refuse collection, water and sanitation, school commutes etc. Because they would group municipalities and deal with several services, JSC's would ensure a minimum technical capacity to manage the services on their territory efficiently.

5.6 **Such cooperation already exists in FBH, although on a limited scale**. Some of the solid waste collection and limited investment to rehabilitate existing landfill sites are managed through cooperation of municipalities. Six multi-municipal waste management districts exist at present with very positive results in Sarajevo, Banja Luka, Zenica and Bijeljina. From this experience, it seems that inter-municipal boards could function very well and municipalities could cooperate smoothly with each other. One positive experience involving a JSC already exists in FBH with Sarajevo Canton. This region has created a JSC that manages waste collection and disposal, road maintenance, public parking management, and winter services with significant economies of scale, a better service and higher client satisfaction (see Box 1 for details).

Box 1. Cooperating municipalities around Sarajevo bring benefits to citizens

Although cooperation requires increased coordination among stakeholders, experience from Sarajevo Canton proves that economies of scale in the public sector translate into better service outcomes and higher client satisfaction. Sarajevo Canton, the most populous canton in the FBH, comprises nine municipalities with around 400,000 inhabitants. It spans 1,277 sq. km and includes the capital of Bosnia and Herzegovina. As early as the mid eighties, municipal officials realized that serving a broader area required a higher degree of coordination. But the results were mixed, and all too often efforts failed.

In 1984, Sarajevo hosted the Winter Olympics, and in the same year, the eleven independent utility companies could not agree on an integrated cleaning and waste collection plan. That motivated Sarajevo city assembly to make a decision that would ensure efficient and reliable services throughout the capital region—they founded the public utility, RAD, a single company for waste collection and disposal, road maintenance, public parking management, and winter services.

Today, RAD functions as an integrated service company under the Sarajevo Canton and is contracted by the member municipalities. RAD finances its operations mainly from user fees for waste collection and disposal, traffic area reconstruction, and parking lot maintenance. Cleaning public areas, winter services, and other shared communal expenditures are financed from the cantonal budget, which also funds capital investments.

Providing services for almost half a million citizens is still a challenge but RAD has adopted an organizational structure that combines functional and spatial decentralization that enables it to handle requests from different stakeholders. Under the umbrella of the cantonal company, regional teams in each spatial unit develop and implement operational plans in cooperation with each municipality, which creates smooth and efficient coordination since negotiations don't take place among eleven independent companies. Integrated plans and bundled operational knowledge boost performance and create economies of scale.

RAD's combined resources give it the leverage to exceed regular service delivery levels in FBH, and its size enables it to assemble investment projects with larger-scale capital expenditure that would otherwise not be feasible. For example, the Sarajevo solid waste landfill is a precedent in FBH and meets international operational standards. Only a few years ago, frequent incidents and contaminated soils threatened the sustainability of the landfill. Today, a water processing facility allows redirection of liquid filtrates into the Miljacka River without pollution. A self-sustaining recycling facility, the first of its kind in FBH, functions at EU-level standards and will eventually turn a profit. Landfill gas emissions used to cause frequent incidents, but now a methanol energy production facility generates 0.3 Mega-Watt and has the potential to produce up to 1.5 MW.

Introducing good management practices

5.7 **The first step is an up-to-date road inventory database to cover all classes of roads.** In addition to databases usually prepared for the primary and secondary roads, there is a necessity that all tertiary roads and the most important community (unclassified) roads be identified, recorded and mapped. The inventories should include details on the surface type, condition, drainage structures and usage (volume and type of traffic) of individual roads. Given the nature of the rural road traffic, provision should include traffic classes of, animal carts, tractors, motorcycles, bicycles and pedestrians. Complementary information on the inventories such as the location of hospitals, markets and schools should also form part of the inventory. It is important to standardize the road inventory and keep it as simple as possible to avoid incurring extra costs on collecting large pieces of information that may not be useful. To avoid any ambiguity in ownership and responsibility, the production of 1:100,000 scale maps to illustrate the roads under each municipality is recommended.

5.8 **The second step is to use the road inventory to review and update the functional classification systems for the road network.** For tertiary roads, there are currently three informal classes of road: (i) local access roads—the key lifeline rural access roads, which carry relatively heavy traffic, and should be reclassified as part of the national network, i.e., as secondary roads; (ii) local rural roads—which would remain the responsibility of the relevant local government unit, where shown to be relevant; and (iii) those roads that are essentially private access roads, which should be declassified. In many of the countries, there are a number of roads serving mines or forests and hardly used by other road users. Maintenance of these roads becomes the responsibility of the respective mine owners or forest authorities who derive the maximum benefit from these roads. The process of transfer of responsibility for forest or mine roads has to be coordinated in line with the functional reclassification exercises, backed by changes in the relevant road laws.

5.9 **The functional classification review process should be accompanied where necessary by strengthening of the legal framework, to ensure that any future changes to the classification of roads are clear and adhered to**. The laws should be explicit in referring to the criteria for each class of road—main, secondary and local—and in describing the procedures under which transfer from one class to another or designation for new roads occurs. Responsible agencies for each class of road should also be mentioned, including clear chains of command, responsibility and funding. Any changes to the road network, at any level, would need to be clearly reflected in the ownership record.

5.10 **The road network classification should shift to a classification by function in order to highlight the importance of the road for planning and design purposes.** The current road network classification is based on an administrative classification and a rather complex set of administrative layers.[20] A functional road classification should become part of the State Law on Roads. It would provide the ground for funding allocation mechanisms. This new classification would also foster the consensus among the state and the entities about the adjustment in the responsibility matrix. The new classification would provide the mechanism for a more logical and financially sustainable approach in terms of assistance from the international community for financing network enhancements.

5.11 **The most dramatic adjustment would probably be the reduction in the total length of the regional (secondary) road network**. It is expected that approximately one-third of this network would be downgraded to local road status. As for the magistral (primary) road network, it should expand by fifteen percent, linking primary centers, administrative centers and main border centers, including the SEETO core network and the motorway projects. The magistral (primary) road network would be divided into international routes on one hand (about 850kms) and the inter-entity and intra-entity

[20] The need for a reclassification of the road network is even more important, as the latest reclassification was done in 1987, and since the Dayton Peace Agreement there have been important shifts in traffic flows, with some main roads losing their importance, and conversely, some regional roads gaining considerably in terms of traffic. A reclassification would require a new set of criteria to be defined and agreed upon.

network on the other hand (about 3,200kms). Road safety interventions will primarily be directed at high-risk sections on the magistral (primary) road network. The regional (secondary) road network would reduce by one-third to about 3,000 km (about 1,600 kms being transferred to local roads), and a significant proportion of the current local road network would be declassified. But these numbers are preliminary approximations, and a detailed review would be necessary to determine the final reallocation among the different road classes.

5.12 **The road database and an asset management system should be established, maintained and updated.** Data should continuously be collected on road inventory and basic traffic count data. Pavement condition should be monitored on a rolling basis and the revolving functional importance of different roads in the network, for example, populations served, villages accessing road etc monitored to aid network-wide maintenance priorities. An asset management system should support the preparation of both annual and multi-year plans for maintaining the tertiary road network taking into account the condition, function, available funding and prioritization.[21] The use of economic decision models like the World Bank's Roads Economic Decision (RED) model for the tertiary roads and the Highway Design and Management model (HDM-4) for the main and secondary road network are essential for the professional management of the assets and assisting in effective prioritization processes.

Developing a comprehensive rural development strategy

5.13 **A comprehensive rural development strategy has never been developed in FBH.** A rural transport strategy that covers the management and financing of local road infrastructure, as well as the operation of transport services on these roads would help the municipalities a long way, providing them with guidance on the management of the assets. A coherent rural development strategy would be drawn from engaging all agencies and institutions with an interest in the local roads at the State, entity, Canton, Municipality, and local community level. In addition, this would include organizations dealing with agriculture, mining, tourism, transport and rural development. Formulation of the strategy should ideally involve all the donors as well as NGOs.

Improving the sustainability of the local road sector

5.14 **Based on the current financing scheme, no funds are available for network enhancement of any of the road networks.** A higher road fuel tax is required to support network enhancements via domestic funding. Possible options in this regard include:

> ***Option 1.*** *100 percent of the accrued BAM 0.25 per liter revenue plus vehicle registration fees to be fully allocated to the magistral, regional and local road networks to fund recurrent maintenance needs.* This option would allow the financing of all maintenance from domestic resources. However, no domestic funding would be available for road enhancements other than via approaches used

[21] Multi-year plans would constitute plans for periodic renewal, rehabilitation and reconstruction while annual plans would deal primarily with the routine maintenance aspects.

in the past (special budget allocations) or an increased reliance on borrowing. A staged increase to BAM 0.30 per liter would result in additional revenues for capital expenditures on the network. This option would remove the current ear-marking of the BAM 0.10 per liter for motorways, removing the double taxation of motorway users, and also prevent the cross-subsidy from all road users to motorways users. The respective shares would be BAM 0.16 per liter for magistral and regional roads, and BAM 0.9 per liter for local roads, significantly improving poverty alleviation and improved access in the rural areas.

Option 2. *Immediate increase of the fuel fee to BAM 0.35 per liter with the breakdown of BAM 0.10 per liter for motorways, BAM 0.16 for magistral (primary) and regional (secondary) roads, and BAM 0.09 for local roads.* The available total revenue is estimated to double from this approach. With reasonable economic growth, the year 2020 income would stand at about BAM 900 million, allowing the financing of all maintenance (BAM 480 million), motorway construction (BAM 210 million) and upgrading of non-motorway roads (BAM 210 million). This option would not address the current double taxation of motorway users, and also prevent the cross-subsidy from all road users to motorways users. By 2020 this option would be expected to contribute significantly to the development of the FBH road network.

Option 3. *Immediate increase of the fuel fee to BAM 0.40 per liter (approximately 2/3 to the EU accession directive) with the breakdown of BAM 0.12 for motorways, BAM 0.18 for magistral (primary) and regional (secondary) roads, and BAM 0.10 for local roads.* This option would not address the current double taxation of motorway users, and also prevent the cross-subsidy from all road users to motorways users. But global revenue for motorways would reach a cumulative total of BAM 1,872 million by year 2020 and BAM 1,400 million for magistral (primary) and regional (secondary) roads, allowing for slightly more motorway sections and magistral (primary) road upgrades to be implemented by 2020 (compared to option 2).

Option 4. *increasing the total fuel road tax to a BAM 0.65 per liter as per EU accession directive with identical relative stratification per road type.* Under this option, the funds available for road work would increase vastly. However, this level of fuel fee is considered socially and economically inappropriate for Bosnia and Herzegovina at this time. The global revenue for motorways would reach a cumulative total of some 3,725 million BAM by year 2020, and a cumulative BAM 3,880 million would be available for of magistral (primary) and regional (secondary) road by the same year. It is worth noticing that even under this rather optimistic scenario (in term of financing), the funds would still remain less than required for funding the full network as currently envisioned.

5.15 **However, any increase in the road fee should be gradual, to ensure acceptability and affordability.** It is recommended that the government implement the increase in fuel fee in a staged manner, with the goal of reach EU accession requirements

at some future date**. Option 2 is the recommended option at this time**, for four main reasons: (i) it reflects recent domestic efforts to review the fuel fee and is considered affordable and acceptable at this time; (ii) it provides increased revenues for the entire road network, whilst still allowing funds for the implementation of a priority program for network upgrading and motorway construction; and (iii) it also provides an increase in the revenues available for local roads, thereby improving poverty alleviation and improved access in the rural areas.

5.16 **It is important to reiterate that it is not just a question of the level.** The sustainability of the local road network revolves around the timely execution of routine and periodic maintenance which is in turn dependent on the existence of a steady and adequate flow of funds, irrespective of source, good management, sufficient implementation capacity and effective use of the funds. While addressing the issue of sufficient finance is necessary condition, it is not a sufficient condition. The need to improve the effectiveness and efficiency of expenditures in the sector ranks as high.

Revising the design standards for local roads

5.17 **Local road design standards should be developed to reflect the context and available resources.** Standards are an economic choice and therefore, given the low level of traffic on most local roads, and the continual scarcity of funds for maintenance, the emphasis should be on the use of technical standards that are appropriate to the context and low cost. There is thus a need to design and maintain local roads in relation to specific levels of serviceability in terms of access for vehicles or in providing what are known as “all-weather roads.” Options should be evaluated for design standards which offer substantial accessibility benefits while lowering construction costs and ensuring that the future maintenance burden can be minimized. The prime considerations for the rural roads should remain reliability and durability rather than considerations for width and speed. Drainage provision is also an important element in ensuring the durability of the road asset and in helping to sustain the maintenance efforts.