



TUNISIA
PPP 2018



5

Widening of national road 13 (GP13) from Sfax to Kasserine

General project presentation

The project (TND 633 million) consists of widening the national road for a length of 200km linking Kasserine-Sidi Bouzid-Sfax, and improving the existing engineering structures along the route.

The main goals of the project are:

- The development of economic trade between the Governorates of Kasserine, Sidi Bouzid, Gafsa, the areas of Sfax and Gabes with the neighbouring countries of Algeria and Lybia .
- The improvement of the connections of the Governorates of Kasserine, Sidi Bouzid and Gafsa to the existing North-South Motorway network
- The facilitation of regional connectivity between the regions, the strengthening of agricultural activities and the creation of jobs
- The enhancement of the current transport network by strengthening the existing roads and avoiding congestion in those roads
- The improvement of road safety

This project is aligned with the general policy of the country aiming at:

- Reducing regional inequalities
- Providing the country with a modern infrastructure aiming to increase and facilitate the connectivity and exchanges between the interior regions and the coastal economic centres
- Creating an economic and social dynamics encouraging investment in those regions by the modernisation of local and interurban roads
- Improving the economic trade with the neighbouring countries

The GP13 road evolves in a predominantly agricultural environment. The relief is flat at the origin of the road and hilly on the side of Kasserine. The road is floodable in some areas requiring special treatment.

Along the route, the road intercepts several classified roads (such as RN2, RN3, RR125, RR96, RR71, etc.) where it is necessary to treat these points of intersection.

Several large flows are also intercepted and their crossings require the construction of bridges.



Location:
Sfax-Kasserine



Company:
MEHAT



Mission:
Widening of national
road 13

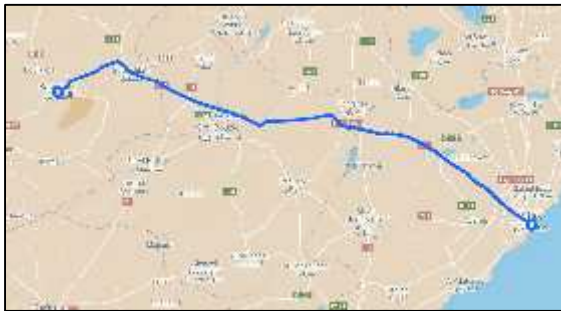


Cost:
TND 633 million



The technical standard chosen in the Preliminary Design is the French Norm ARP. The design chosen corresponds to the type of road R80 and its main characteristics are the following:

- 2 dual carriageways of 7m width
- A central reserve (median strip) of 4 meters with two left shoulders of 1
- Two right shoulders of 2m and two berms of 1m each



Project justification

The road from Sfax to Kasserine can be characterised in six main sections. The data obtained from the count stations managed by the Ministry of Equipment, Housing and Territorial Development (MEHAT) shows for the year 2012 an Average Annual Daily Traffic oscillating between 4,500 and 7,400 vehicles.

For the existing type of road, it is considered that after 8,500 of AADT there is discomfort in the circulation and the level of service starts to deteriorate. Considering reasonable growth rates, it is quite likely that the ceiling of discomfort has already been surpassed in 2018, at least for some sections, hence the need to study the future widening of the road.

Traffic forecasts

The following GDP growth forecasts have been considered:

GDP evolution			
Period	2012-2022	2023-2032	2033-2042
GDP	3,00%	4,00%	5,00%

The transport demand has been estimated by applying elasticities of 0.9-1.1 to the different

traffics and periods. In addition, 20% of induced traffic has been assumed for the period 2012-2022. Hence, the Annual Average Growth Rates for the traffic along GP13 are presented in the table below.

Average Annual Growth Rate for traffic along GP13				
Period	2012-2022	2023-2032	2033-2042	2022-2042
Type of vehicle				
LV	4,90%	3,80%	4,60%	4,20%
HV	4,90%	4,20%	5,50%	4,80%
Total	4,90%	3,90%	4,70%	4,30%

With these assumptions, the AADT has been forecasted for three time horizons.



Past and Forecasted traffic on GP13						
YEAR Road KM	Section	Vehicle Type	2012	N (2022)	N+10 (2032)	N+20 (2042)
16	RL922 - RR11 9	LV	6852	11028	16047	25057
		Part	98,2%	98,2%	98,1%	97,9%
		HV	128	206	311	532
		Part	1,8%	1,8%	1,9%	2,1%
		Total	6980	11235	16359	25589
	Part	100,0%	100,0%	100,0%	100,0%	
48	RR11 9 - RN2	LV	3663	5896	8579	13395
		Part	82,2%	82,1%	81,6%	80,2%
		HV	795	1282	1935	3305
		Part	17,8%	17,9%	18,4%	19,8%
		Total	4458	7178	10513	16700
	Part	100,0%	100,0%	100,0%	100,0%	
78	RN2 - RL903	LV	6600	10623	15457	24136
		Part	91,6%	91,6%	91,3%	90,6%
		HV	605	976	1472	2515
		Part	8,4%	8,4%	8,7%	9,4%
		Total	7205	11599	16929	26651
	Part	100,0%	100,0%	100,0%	100,0%	
125	RR73 - RR12 5	LV	586	8186	11911	18600
		Part	88,6%	88,6%	88,2%	87,3%
		HV	653	1053	1589	2714
		Part	11,4%	11,4%	11,8%	12,7%
		Total	5739	9239	13500	21314
	Part	100,0%	100,0%	100,0%	100,0%	
159	RN3 - Sbeitl a	LV	4698	7562	11003	17180
		Part	90,7%	90,7%	90,3%	89,5%
		HV	483	779	1175	2008
		Part	9,3%	9,3%	9,7%	10,5%
		Total	5181	8341	12178	19188
	Part	100,0%	100,0%	100,0%	100,0%	
187	Sbeitl a - Kasse rine	LV	6631	10673	15530	24249
		Part	89,7%	89,7%	89,3%	88,5%
		HV	761	1227	1852	3163
		Part	10,3%	10,3%	10,7%	11,5%
		Total	7392	11900	17382	27413
	Part	100,0%	100,0%	100,0%	100,0%	

It is shown that by 2032 the ceiling of saturation for the current road (approx. 15,000 AADT for a 2x1 road) will have been surpassed

in several sections. The implementation of the project between 2020 and 2030 seems justified to avoid high levels of congestion. It is necessary though to update count data and refine an economic evaluation of the project.

Legal and institutional framework

Institutional framework:

Created in 1957, the Ministry of Equipment emanates from the transformation of the Public Works Department created in September 1882.

The Ministry of Equipment, Housing and Territorial Development, sponsor of this study, is the Ministry that sets guidelines and procedures at the national or regional level to organize and optimize the use of space and ensure consistency in the implementation of major infrastructure projects, public facilities and cities.

- The Tunisian Ministry of Equipment heads the following departments:
- Bridges and Roads
- Civil buildings
- Habitat
- Air and maritime infrastructures
- Spatial Planning and Town Planning
- Strengthening administrative and technical decentralization

The *Ministry of Housing and Territorial Development Equipment* (MEHAT) is the Contracting Authority through the *Directorate General of Roads and Bridges* (DGPC), which is responsible for the implementation of the program on behalf of the Tunisian Government. It also includes a unit for the liberation of motorway rights and road projects) which works with the *General Directorate of Land, Legal and Litigation Affairs* (DGAFJC) / *Directorate of Land Affairs* (DAF) (coordinator between the MEHAT and the *Ministry of the domains of the state and land affairs* (MDEAF). Finally, the *Regional*



Delegations of the Equipment (DREHAT) are responsible for the execution and the Control of the works (Mastery of Work). The DREHAT will set up each a Project Monitoring and Impact Monitoring Unit (CS).

Legal framework:

Concessions

- Law No. 2008-23 of 1 April 2008 on the concession scheme.
- Decree No. 2010-1753 of 19 July 2010, laying down the conditions and procedures for granting concessions.
- Decree No. 2010-3437 of 28 December 2010, setting the criteria for the classification of concessions of national interest.
- Decree No. 2013-4630 of 18 November 2013, establishing a Concession Monitoring Unit within the Presidency of the Government.
- Decree No. 2013-4631 of 18 November 2013, amending and supplementing Decree No. 2010-1753 of 19 July 2010, laying down the conditions and procedures for granting concessions.

PPP contracts

- Law No. 2015-49 of November 27, 2015, on Public Private Partnership Contracts
- Government Decree No. 2016-771 of June 20, 2016, determining the composition and prerogatives of the Public-Private Partnership Strategic Council.
- Government Decree No. 2016-772 of June 20, 2016, setting the conditions and procedures for awarding public-private partnership contracts.
- Government Decree No. 2016-782 of 20 June 2016, laying down the procedures for keeping the register of real rights over constructions, structures and fixed equipment built under a public-private partnership contract.

- Government Decree No. 2016-1104 of 4 July 2016, on the setting of conditions and procedures for determining the consideration paid by the public company to the project company and setting the terms and conditions for the transfer or sale of the project. pledging of claims under public-private partnership contracts.
- Government Decree No. 2016-1185 of October 14, 2016, determining the organization and attributions of the general public-private partnership authority.

In addition, Tunisia has a varied legislative and regulatory arsenal ranging from the development of codes relating to the main natural resources, the multiple coercive measures against the polluting establishments and the obligation of the ESIA's in as a prevention tool.

According to Tunisian legislation, the Code of Town Planning and Territorial Planning (Law No. 2003-78) makes the preparation of EIA mandatory before any planning or equipment program.

The approach of its application is declined by the decree n ° 2005-1991 of July 11th, 2005, relative to the environmental impact studies. It constitutes the methodological procedure which allows the examination of the consequences that a planned development project will have on the environment, and ensure that these are duly taken into account in the design, implementation and operation of the project.

Functional scope of the project

The works along the National Road 13, in a section of 200 km, comprise the rehabilitation and the widening of the carriageway. The works consist of:

- the drainage works of the carriageways and their recalibration;
- the reinforcement of the pavement bodies with a total thickness of between 25 cm and 35 cm for the zones of weak structure,



or a surfacing course in bituminous mix for the sections of sufficient bearing capacity;

- placing asphalt pavement with an average thickness of 8 cm or any other type of suitable coating;
- the reinforcement of drainage and sanitation works; and
- the installation of safety and protection devices as well as vertical and horizontal signs.

These works also include:

- the possible movement of service networks for road widening;
- the rectification of the route for turns considered dangerous, which consequently requires land acquisitions while remaining as much as possible within the boundaries of the road rights-of-way.
- the construction and renovation of engineering structures which responds to the urgent need to upgrade culverts and scuppers whose geometric and hydraulic characteristics are not consistent with the level of service expected on the classified network.
- the deviation to the new crossing sites identified,
- the construction of approach structures for the engineering structures and the engineering structures themselves, which will be, depending on the case, slab or girder bridges under reinforced or prestressed concrete pavement, with spans between 65 and 250 ml.

In addition to this, annual routine maintenance and periodic renewal works are part of the scope during the operations phase.

Completed technical studies (on going or yet to be carried out)

2016 – Strategic Corridor Study « East-West »

The goal of this preliminary study was to compare and evaluate 5 potential corridors

connecting the governorates of Kasserine, Sidi Bouzid and Gafsa with the Governorates of Sfax and Gabes.

This study identified the Corridor 1 – Kasserine-Sidi Bouzid-Sfax as the key priority and was followed by a preliminary design.

2017 – Preliminary design for the widening of the GP 13 Sfax-Sidi Bouzid-Kasserine

A second phase of the previous study, it served to detailed the technical solutions to be selected, the identify the main engineering and hydraulic structures to be build or widened, and made a first cost estimation of the project and of land acquisitions.

2018 – PPP Eligibility study for the widening of the GP13

A brief study was made in 2018 exploring different alternatives of PPP structuring for the project. The results of the study underlined the potential interest of implementing the project under the form of PPP.

Additional Studies to undertake

Two main studies must be still carried out prior to entering in the project procurement phase.

- *Update of the Traffic and Economic Studies*

In order to attract investors for PPP contract procurement, it is important to provide them with the more detailed and recent data as possible. Even if each potential concessionaire will carry out independent traffic studies, recent traffic data is essential.

It is therefore crucial to undertake traffic counts at least in the 6 different sections identified (10 count stations or more would be preferable), as the last traffic counts are from 2012. Updating the counts to 2019 will be useful for three different purposes:

- To provide recent traffic data as part of the bid documents



- To evaluate if the traffic growth rates estimated for the period 2012-2022 were close to reality
- To reassess the economic profitability of the project so the MEHAT has recent data to support the investment

- *Detailed Design and Land acquisition process*

Simultaneously to the update of the traffic studies, the detailed design of the project should be launched in order to:

- Quantify more precisely the cost of the project
- Select and detail the final technical solutions (for bridges, big hydraulic works, route rectifications...)
- Obtain a final inventory of the land to be acquired

As the exact parcels to expropriate will have been identified, and provided that the procurement for the PPP is planned in the following year, the land acquisition process should start to minimise project delays.

Prospective implementation schedule

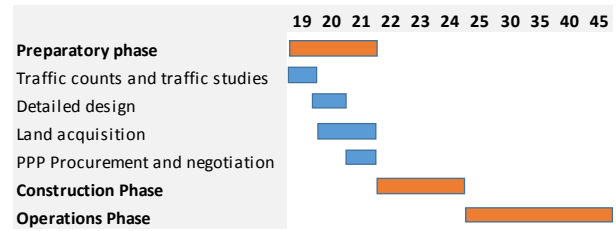
The project comprises three main phases.

1. Preparatory phase (PPP preparation): 2019-2021

During this period four key activities must be undertaken:

- Traffic counts and update of the traffic and economic study;
- Detailed design
- Land acquisitions process
- PPP contract procurement and negotiation

A period of three years have been estimated for these activities as land acquisition can take over one year.



2. Construction Phase: 2022-2024

The Construction Phase will start after the signing of the PPP contract. It will include the execution studies (3 months) and the construction phase itself. Depending on the final complexity of the engineering structures, the length of the phase will vary.

3. Operations Phase: 2025-2045

After the construction phase is finished, the contract for road operations will last 20 years.

Challenges (technical, economic, social and others) and Mitigation Measures

Political and social

- The current approach for the widening of GP13 does not include the collection of tolls so an important part of the political and social risk of a PPP is highly mitigated. If the Government was to reconsider its approach, this would become a major issue
- As there will be a major investment and the concessionaire will not bear demand risk, the implementation of competing projects should be avoided as they would hinder the economic profitability of the project for the country
- A high social risk is the land acquisition and resettlement. The needs of land acquisition have been identified to 60 ha of built surface and 403 ha of rural areas. The estimated cost of the expropriations is TND 23.5 million



Technical

- The selection of the concessionaires must consider the difficulty of the project and therefore opt for a consortium including companies with international reputation in PPP contracts
- During contract negotiation, it is important to define in detail the technical obligations in terms of routine maintenance and periodic maintenance, and linking performance of the concessionaire to the reimbursements
- MEHAT needs to ensure the availability of skilled technical staff to supervise the technical activities of the construction and operations phase to support the decisions of the MEHAT contract managers.

Economical

- Many goals of the project aim at promoting economic development, by fostering exchanges between the regions connected by the project and between those regions and the rest of Tunisia and the neighboring countries. However, it must be noted that for such a project to be totally effective, measures in other sectors (agricultural measures, export policies, tax policies...) in the regions of the project could be considered.

Legal and institutional

- A big challenge will be the capacity of the MEHAT to monitor the PPP contract on behalf of the Tunisian State. It is common that States must deal with concessionaires more experienced in PPP preparation and management. Hence, to avoid such unbalance in skills and experience, and to ensure that the contract is designed and managed in a satisfactory way for Tunisia, it is essential that specialist staff is hired.

Preliminary Cost estimation: CAPEX, OPEX and preliminary Revenue

CAPEX

The cost estimation provided in this section includes the costs site installation, earthworks and pavement, engineering and hydraulic works and finishing works as grassing and lighting.

The CAPEX estimation is based on the work undertaken in the « Strategic study of the corridors East-West » and on the update made by KPMG. Construction costs for the year 2017 were used for the calculations.



Investment Costs for GP13 Widening (Thousand TND)

	In TND '000
Site installation	16,000
Clearing of right of way	6,443
Earthworks	44,704
Pavement works	282,575
Drainage	48,344
Engineering and big hydraulic structures	16,768
Hydraulic works - Culverts	76,030
Road signals and safety equipment	44,925
Environmental measures	43
Grassing	8,048
Lighting	8,250
Sub-total	575,625
Provision for risks	10%
Total (excluding taxes)	633,188
Total (taxes included)	753,493
VAT	19%

The CAPEX are hence equivalent to US\$ 221.6 million excluding taxes and US\$ 263.7 million with 19% of VAT included and an exchange rate of 2.74 TND/US\$.

Investment costs per year (in '000 TND)

Year	1	2	3
Investment costs	202,448	202,448	202,448

OPEX

Routine maintenance costs have been estimated to 1% of the investment costs per year. Periodic maintenance costing 10% of the initial investment has been assumed every 7 years. In addition, 100k TND of other operational expenses were assumed during the construction period. During the operations period the amount was increased to 200k TND. For the whole period, 5% of annual inflation has been used.