

ROAD AND TRANSPORTATION MASTERPLAN

PALESTINE

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XIIKey-Projects Financial Analysis

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1 Introduction

This final chapter of NTMP Master Plan Report is dedicated to the financial analysis of the most important projects proposed for the implementation of the first multi-modal transport network in West Bank and Gaza Strip. NTMP multi-modal proposal is entirely described by phase (*for more details, refer to ¶III – Road and Transportation Master Plan Overview*) and by transport sub-sector (*for more details, refer to ¶IV – Transport Sub-Sectors Plans*).

The envisaged transport network is the result of a combination of infrastructure and facilities involving the following transport sub-sectors and complementary sectors:

- Road Transport;
- Rail Transport;
- Air Transport;
- Maritime Transport;
- Public Transport;
- Logistics (Freight Transport), and;
- Border Crossing Points - BCPs.

A group of the projects foreseen for each of the transport sub-sectors listed above, is deemed crucial for the sound implementation of NTMP proposed network and for this reason they are herein presented as Key-Projects.

Key-Projects are based on actual and objective needs to bridge service gaps and provide better present conditions for future growth. They all aim at establishing or reestablishing vital transport services and at normalizing current marginal internal traffic flow, in order to support and improve development of urban areas as well as the trade, agriculture, touristic and maritime sectors, hence reflecting positively on Palestine GDP and jobs opportunities. The implementation of the Key-Projects will have a positive impact on Palestinian society and economy, assisting with:

- Regional and national integration through uninterrupted accesses and alternative options;
- Economic efficiency improvement through reduced transport costs for goods and people, and;
- New development and employment opportunities.

Key-Projects are reported here with their main financial aspects and are organized by transport sub-sector.

Before illustrating the single Key-Projects, the following paragraph presents a summary table and an overall map, providing a complete overview on NTMP Key-Projects.

2 Key-Projects Overview

The following table lists all Key-Projects organized by Transport Sub-Sector and reporting the following data:

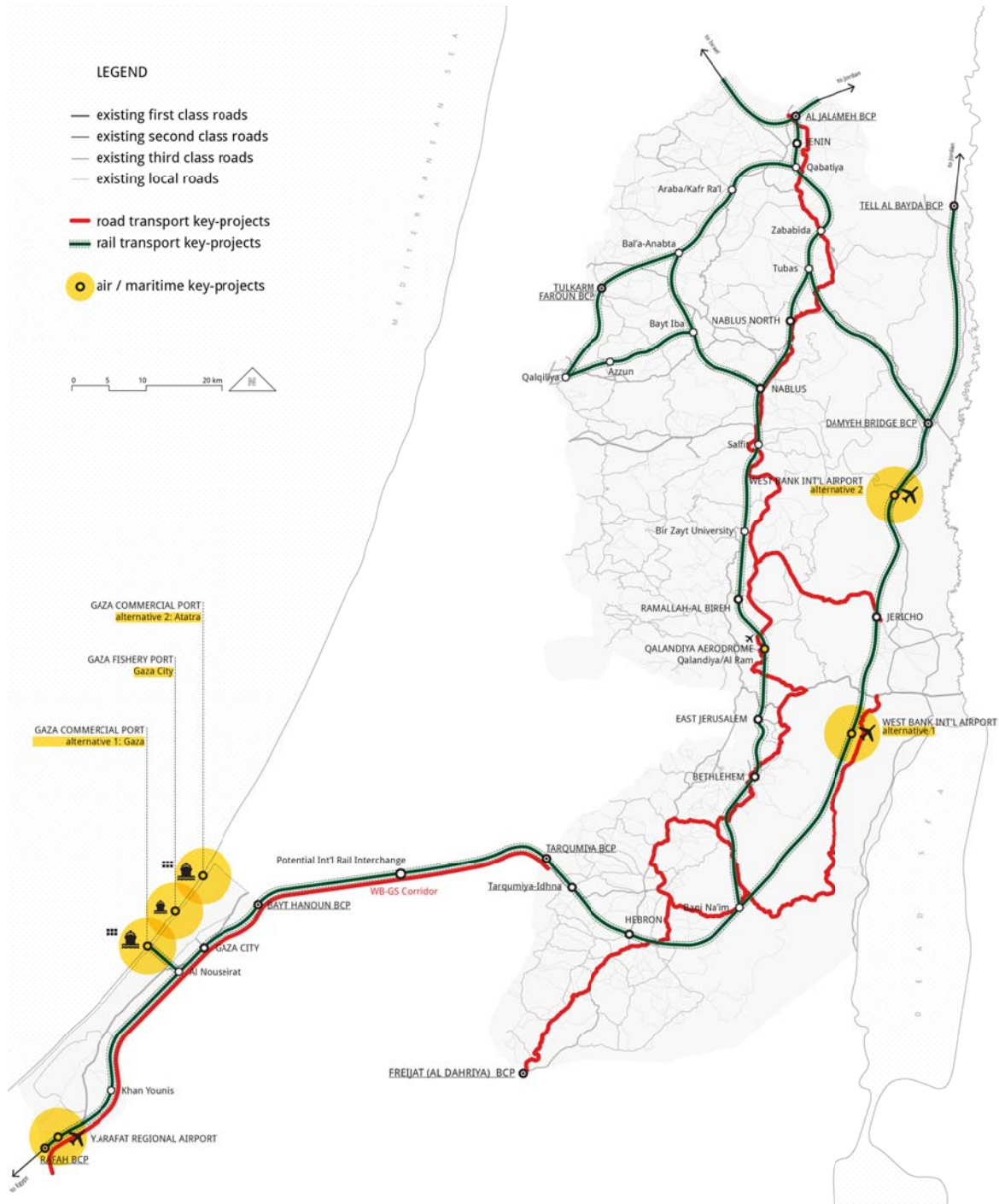
- Key-Projects Serial Number and Name;
- Key-Project Intervention Category, and;
- Key Project Location.

Tab 1. NTMP Key-Projects Summary Table

ROAD TRANSPORT			
No.	Key-Project Name	Intervention Category	Location
01	New Gaza Strip Eastern Corridor	New Infrastructure	Gaza Strip
02	New West Bank - Gaza Strip Corridor	Rehabilitation/ Upgrade	West Bank
03	West Bank N-S Backbone Reinforcement	Rehabilitation/ Upgrade	West Bank
04	Road Connecting Ramallah to Jericho (Road n.449)	Rehabilitation/ Upgrade	West Bank
05	New Eastern Road Network: Nabi Musa-Hebron-Bethlehem	New Infrastructure	West Bank & Gaza Strip
RAIL TRANSPORT			
No.	Key-Project Name	Intervention Category	Location
06	Ramallah-Nablus Rail Connection Construction	New Infrastructure	West Bank
07	West Bank Northern Rail Connection Design and Construction	New Infrastructure	West Bank
08	Nablus-Jenin Rail Connection Construction	New Infrastructure	West Bank
09	Gaza Strip International Railway Construction	New Infrastructure	Gaza Strip
10	Rail Connection to New Gaza Commercial Seaport Design and Construction	New Infrastructure	Gaza Strip
11	West Bank International Rail Connection Design and Construction	New Infrastructure	West Bank
12	Western West Bank rail system Construction	New Infrastructure	West Bank
13	Tubas - Damyeh BCP Rail Connection Construction	New Infrastructure	West Bank
MARITIME TRANSPORT			
No.	Key-Project Name	Intervention Category	Location
14	Existing Gaza Fishery Port Restructuring	Rehabilitation/ Upgrade	Gaza Strip
15	New Gaza Strip Commercial Port	New Infrastructure	Gaza Strip
AIR TRANSPORT			
No.	Key-Project Name	Intervention Category	Location
16	Yasser Arafat Airport Rehabilitation in Gaza Strip	Rehabilitation/ Upgrade	Gaza Strip
17	New West Bank International Airport	New Infrastructure	West Bank

The following map illustrates the multi-modal network composed by NTMP Key-Projects.

Figure 1. NTMP Key-Projects Overall Map





3 Road Transport Key-Projects

The table below lists the Key-Projects proposed for Road Transport.

Tab 2. NTMP Key-Projects for Road Transport

ROAD TRANSPORT			
No.	Key-Project Name	Intervention Category	Location
01	New Gaza Strip Eastern Corridor	New Infrastructure	Gaza Strip
02A	New West Bank - Gaza Strip Corridor (No Toll)	New Infrastructure	West Bank & Gaza Strip
02B	New West Bank - Gaza Strip Corridor (Toll)	New Infrastructure	West Bank & Gaza Strip
03	West Bank N-S Backbone Reinforcement	Rehabilitation/ Upgrade	West Bank
04	Road Connecting Ramallah to Jericho (Road n.449)	Rehabilitation/ Upgrade	West Bank
05	New Eastern Road Network: Nabi Musa-Hebron-Bethlehem	New Infrastructure	West Bank

The following pages provide detailed descriptions of each of the five Key-Projects proposed for Road Transport, including the following data:

- Key-Project Location Map;
- Key-Project Number and Name;
- Key-Project Length (km);
- Key-Project Unit Rate (mil€/km);
- Key-Project Cost Estimate (mil€);
- Key-Projects Annual Traffic Volume (by phase);
- Key-Project Discount Rate;
- Key-Project Infrastructure Evaluation Years;
- Key-Project Maintenance and Operational Costs (% tot. investment costs);
- Key-Project Scrap Value (% tot. investment costs);
- NPV (mil€), and;
- IRR (%).

3.1 New Gaza Strip Eastern Corridor

Road Transport Key-Project no.1 consists of the implementation of a new expressway running along the Eastern border of Gaza City, to serve all the major urban centres. The table belows illustrates the principal technical and financial aspects related to the implementation of the **New Gaza Strip Eastern Corridor**.

Tab 3. Road Transport Key-Project no.1 – Technical and Financial Main Aspects

Road Transport Key-Project no.1: New Gaza Strip Eastern Corridor		
	Length (Km)	48.0
	Unit Rate (mil€/Km)	1.7
	Cost Estimate (mil€)	81.6
	Annual Traffic Volume (veh*km)	Phase 1 51,077,607 Phase 2 149,487,932 Phase 3 413,335,794 Phase 4 404,368,445
	Discount rate	12.0%
	Infrastructure evaluation years	30
	Mant. & operat. Costs (as % of total investment costs)	1.0%
	Scrap value (as % of total investment costs)	5.0%
	NPV (million €)	-36.9
	IRR (%)	N/A

Tab 4. Road Transport Key-Project no.1 –Financial Analysis

Year	Investment costs	Maintenance and operating costs	Revenues	Scrap value	CF
2018	-	-	-	-	-
2019	-	-	-	-	-
2020	-	-	-	-	-
2021	-	-	-	-	-
2022	28.6	-	-	-	- 28.6
2023	53.0	-	-	-	- 53.0
2024	-	0.8	-	-	- 0.8
2025	-	0.8	-	-	- 0.8
2026	-	0.8	-	-	- 0.8
2027	-	0.8	-	-	- 0.8
2028	-	0.8	-	-	- 0.8



			-		
2029	-	0.8	-	-	0.8
2030	-	0.8	-	-	0.8
2031	-	0.8	-	-	0.8
2032	-	0.8	-	-	0.8
2033	-	0.8	-	-	0.8
2034	-	0.8	-	-	0.8
2035	-	0.8	-	-	0.8
2036	-	0.8	-	-	0.8
2037	-	0.8	-	-	0.8
2038	-	0.8	-	-	0.8
2039	-	0.8	-	-	0.8
2040	-	0.8	-	-	0.8
2041	-	0.8	-	-	0.8
2042	-	0.8	-	-	0.8
2043	-	0.8	-	-	0.8
2044	-	0.8	-	-	0.8
2045	-	0.8	-	-	0.8
2046	-	0.8	-	-	0.8
2047	-	0.8	-	-	0.8
2048	-	0.8	-	-	0.8
2049	-	0.8	-	-	0.8
2050	-	0.8	-	-	0.8
2051	-	0.8	-	-	0.8
2052	-	0.8	-	-	0.8
2053	-	0.8	-	4.1	3.3
2054	-	-	-	-	-
2055	-	-	-	-	-
2056	-	-	-	-	-
Total Inv.	81.6	24.5	-	4.1	- 102.0
NPV	34.3	2.7	-	0.1	- 36.9

3.2 New West Bank-Gaza Strip Corridor (No-Toll)

Road Transport Key-Project no.2A consists of the implementation of a new multi-modal corridor (road + rail + utilities) connecting West Bank with the Gaza Strip, hence providing the entire Palestinian territories with access to the sea. No toll is proposed.

The table below illustrates the principal technical and financial aspects related to the implementation of the **New West Bank-Gaza Strip Corridor**.

Tab 5. Road Transport Key-Project no.2 – Technical and Financial Main Aspects

Road Transport Key-Project no.2: New West Bank-Gaza Strip Corridor			
	Length (Km)	40.2	
	Unit Rate (mil€/Km)	1.6	
	Cost Estimate (mil€)	64.3	
	Annual Traffic Volume (veh*km)	Phase 1 Non-Existing	
		Phase 2 322,636,038 (8,025,772 veh)	
		Phase 3 364,154,574 (9,058,572 veh)	
		Phase 4 456,473,658 (11,355,066 veh)	
	Discount rate	12.0%	
	Infrastructure evaluation years	30	
	Mant. & operat. Costs (as % of total investment costs)	1.0%	
	Scrap value (as % of total investment costs)	5.0%	
	NPV (million €)	-21.4	
IRR (%)	N/A		

Tab 6. Road Transport Key-Project no.2 – Financial Analysis (Toll Scenario)

Year	Investment costs	Maintenance and operating costs	Revenues	Scrap value	CF
2016	-	-	-	-	-
2017	0.9	-	-	-	-0.9
2018	-	-	-	-	-
2019	-	-	-	-	-
2020	-	-	-	-	-
2021	-	-	-	-	-
2022	-	-	-	-	-
2023	-	-	-	-	-
2024	-	-	-	-	-
2025	22.5	-	-	-	-22.5
2026	41.8	-	-	-	-41.8
2027	-	0.7	-	-	-0.7
2028	-	0.7	-	-	-0.7



2029	-	0.7	-	-	-0.7
2030	-	0.7	-	-	-0.7
2031	-	0.7	-	-	-0.7
2032	-	0.7	-	-	-0.7
2033	-	0.7	-	-	-0.7
2034	-	0.7	-	-	-0.7
2035	-	0.7	-	-	-0.7
2036	-	0.7	-	-	-0.7
2037	-	0.7	-	-	-0.7
2038	-	0.7	-	-	-0.7
2039	-	0.7	-	-	-0.7
2040	-	0.7	-	-	-0.7
2041	-	0.7	-	-	-0.7
2042	-	0.7	-	-	-0.7
2043	-	0.7	-	-	-0.7
2044	-	0.7	-	-	-0.7
2045	-	0.7	-	-	-0.7
2046	-	0.7	-	-	-0.7
2047	-	0.7	-	-	-0.7
2048	-	0.7	-	-	-0.7
2049	-	0.7	-	-	-0.7
2050	-	0.7	-	-	-0.7
2051	-	0.7	-	-	-0.7
2052	-	0.7	-	-	-0.7
2053	-	0.7	-	-	-0.7
2054	-	0.7	-	-	-0.7
2055	-	0.7	-	-	-0.7
2056	-	0.7	-	3.3	2.6
Total Inv.	65.2	19.5	-	3.3	-81.5
NPV	20.0	1.5	-	0.0	-21.4

3.3 New West Bank-Gaza Strip Corridor (Toll)

Road Transport Key-Project no.2B consists of the implementation of a new multi-modal corridor (road + rail + utilities) connecting West Bank with the Gaza Strip, hence providing the entire Palestinian territories with access to the sea. Toll is proposed.

The table below illustrates the principal technical and financial aspects related to the implementation of the **New West Bank-Gaza Strip Corridor**.

Tab 7. Road Transport Key-Project no.2 – Technical and Financial Main Aspects

Road Transport Key-Project no.2: New West Bank-Gaza Strip Corridor		
	Length (Km)	40.2
	Unit Rate (mil€/Km)	1.6
	Cost Estimate (mil€)	64.3
	Annual Traffic Volume (veh*km)	Phase 1 Non-Existing Phase 2 322,636,038 (8,025,772 veh) Phase 3 364,154,574 (9,058,572 veh) Phase 4 456,473,658 (11,355,066 veh)
	Discount rate	12.0%
	Infrastructure evaluation years	30
	Mant. & operat. Costs (as % of total investment costs)	1.0%
	Scrap value (as % of total investment costs)	5.0%
	NPV (million €)	6.8
	IRR (%)	14.5%

Tab 8. Road Transport Key-Project no.2 – Financial Analysis (Toll Scenario)

Year	Investment costs	Maintenance and operating costs	Revenues	Scrap value	CF
2016	0.0	0.0	0.0	0.0	0.0
2017	0.9	0.0	0.0	0.0	-0.9
2018	0.0	0.0	0.0	0.0	0.0
2019	0.0	0.0	0.0	0.0	0.0
2020	0.0	0.0	0.0	0.0	0.0
2021	0.0	0.0	0.0	0.0	0.0
2022	0.0	0.0	0.0	0.0	0.0
2023	0.0	0.0	0.0	0.0	0.0
2024	0.0	0.0	0.0	0.0	0.0
2025	22.5	0.0	0.0	0.0	-22.5
2026	41.8	0.0	0.0	0.0	-41.8
2027	0.0	0.7	2.0	0.0	1.3
2028	0.0	0.7	4.0	0.0	3.3



2029	0.0	0.7	6.0	0.0	5.3
2030	0.0	0.7	8.0	0.0	7.3
2031	0.0	0.7	10.0	0.0	9.3
2032	0.0	0.7	10.2	0.0	9.6
2033	0.0	0.7	10.5	0.0	9.8
2034	0.0	0.7	10.7	0.0	10.0
2035	0.0	0.7	10.9	0.0	10.3
2036	0.0	0.7	11.1	0.0	10.5
2037	0.0	0.7	11.4	0.0	10.7
2038	0.0	0.7	14.0	0.0	13.4
2039	0.0	0.7	16.6	0.0	16.0
2040	0.0	0.7	19.3	0.0	18.6
2041	0.0	0.7	21.9	0.0	21.3
2042	0.0	0.7	24.5	0.0	23.9
2043	0.0	0.7	27.2	0.0	26.5
2044	0.0	0.7	29.8	0.0	29.2
2045	0.0	0.7	32.4	0.0	31.8
2046	0.0	0.7	32.4	0.0	31.8
2047	0.0	0.7	32.4	0.0	31.8
2048	0.0	0.7	32.4	0.0	31.8
2049	0.0	0.7	32.4	0.0	31.8
2050	0.0	0.7	32.4	0.0	31.8
2051	0.0	0.7	32.4	0.0	31.8
2052	0.0	0.7	32.4	0.0	31.8
2053	0.0	0.7	32.4	0.0	31.8
2054	0.0	0.7	32.4	0.0	31.8
2055	0.0	0.7	32.4	0.0	31.8
2056	0.0	0.7	32.4	3.3	35.0
Total Inv.	65.2	19.5	637.4	3.3	556.0
NPV	20.0	1.5	28.3	0.0	6.8

Tab 9. Road Transport Key-Project no.2 –Traffic and Toll Revenues

Year	Traffic		Revenues		Total revenues
	Light vehicles	Heavy vehicles	Light vehicles	Heavy vehicles	
2016	-	-	-	-	-
2017	-	-	-	-	-
2018	-	-	-	-	-
2019	-	-	-	-	-
2020	-	-	-	-	-
2021	-	-	-	-	-
2022	-	-	-	-	-
2023	-	-	-	-	-
2024	-	-	-	-	-




2025	-	-	-	-	-
2026	-	-	-	-	-
2027	1'043'452	254'050	1'607'191	391'304	1'998'494
2028	2'086'904	508'100	3'214'381	782'607	3'996'988
2029	3'130'356	762'150	4'821'572	1'173'911	5'995'483
2030	4'173'808	1'016'200	6'428'762	1'565'215	7'993'977
2031	5'217'260	1'270'249	8'035'953	1'956'518	9'992'471
2032	5'240'108	1'396'935	8'071'144	2'151'647	10'222'791
2033	5'262'956	1'523'620	8'106'336	2'346'775	10'453'111
2034	5'285'804	1'650'305	8'141'528	2'541'903	10'683'431
2035	5'308'652	1'776'990	8'176'720	2'737'032	10'913'751
2036	5'331'499	1'903'675	8'211'911	2'932'160	11'144'071
2037	5'354'347	2'030'360	8'247'103	3'127'288	11'374'392
2038	5'877'631	3'216'756	9'053'098	4'954'650	14'007'748
2039	6'400'915	4'403'152	9'859'093	6'782'012	16'641'105
2040	6'924'199	5'589'548	10'665'088	8'609'374	19'274'462
2041	7'447'483	6'775'944	11'471'083	10'436'736	21'907'819
2042	7'970'767	7'962'340	12'277'078	12'264'098	24'541'176
2043	8'494'051	9'148'736	13'083'072	14'091'460	27'174'532
2044	9'017'335	10'335'132	13'889'067	15'918'822	29'807'889
2045	9'540'619	11'521'528	14'695'062	17'746'184	32'441'246
2046	9'540'619	11'521'528	14'695'062	17'746'184	32'441'246
2047	9'540'619	11'521'528	14'695'062	17'746'184	32'441'246
2048	9'540'619	11'521'528	14'695'062	17'746'184	32'441'246
2049	9'540'619	11'521'528	14'695'062	17'746'184	32'441'246
2050	9'540'619	11'521'528	14'695'062	17'746'184	32'441'246
2051	9'540'619	11'521'528	14'695'062	17'746'184	32'441'246
2052	9'540'619	11'521'528	14'695'062	17'746'184	32'441'246
2053	9'540'619	11'521'528	14'695'062	17'746'184	32'441'246
2054	9'540'619	11'521'528	14'695'062	17'746'184	32'441'246
2055	9'540'619	11'521'528	14'695'062	17'746'184	32'441'246
2056	9'540'619	11'521'528	14'695'062	17'746'184	32'441'246

3.4 West Bank N-S Backbone Reinforcement

Road Transport Key-Project no.3 consists of the rehabilitation/ upgrade of the road system composing the N-S Backbone that runs through the West Bank, connecting its major urban centres.

The table below illustrates the principal technical and financial aspects related to the implementation of the **West Bank N-S Backbone Reinforcement**.

Tab 10. Road Transport Key-Project no.3 – Technical and Financial Main Aspects

Road Transport Key-Project no.3: West Bank N-S Backbone Reinforcement			
	Length (Km)	173.3	
	Unit Rate (mil€/Km)	0.8	
	Cost Estimate (mil€)	136.4	
	Annual Traffic Volume (veh*km)	Phase 1	538,353,299
		Phase 2	650,357,684
		Phase 3	748,944,895
		Phase 4	843,738,906
	Discount rate	12.0%	
	Infrastructure evaluation years	30	
	Mant. & operat. Costs (as % of total investment costs)	1.0%	
	Scrap value (as % of total investment costs)	5.0%	
	NPV (million €)	-63.0	
IRR (%)	N/A		

Tab 11. Road Transport Key-Project no.3 – Financial Analysis

Year	Investment costs	Maintenance and operating costs	Revenues	Scrap value	CF
2016	-	-	-	-	-
2017	-	-	-	-	-
2018	-	-	-	-	-
2019	-	-	-	-	-
2020	2.7	-	-	-	2.7
2021	27.3	-	-	-	27.3
2022	40.9	-	-	-	40.9
2023	38.2	-	-	-	38.2
2024	27.3	-	-	-	27.3
2025	-	1.4	-	-	1.4
2026	-	1.4	-	-	1.4



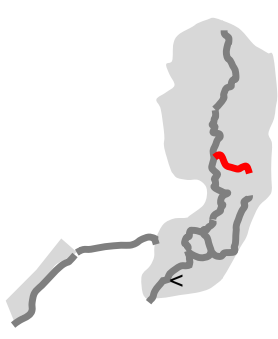
			-		
2027	-	1.4	-	-	1.4
2028	-	1.4	-	-	1.4
2029	-	1.4	-	-	1.4
2030	-	1.4	-	-	1.4
2031	-	1.4	-	-	1.4
2032	-	1.4	-	-	1.4
2033	-	1.4	-	-	1.4
2034	-	1.4	-	-	1.4
2035	-	1.4	-	-	1.4
2036	-	1.4	-	-	1.4
2037	-	1.4	-	-	1.4
2038	-	1.4	-	-	1.4
2039	-	1.4	-	-	1.4
2040	-	1.4	-	-	1.4
2041	-	1.4	-	-	1.4
2042	-	1.4	-	-	1.4
2043	-	1.4	-	-	1.4
2044	-	1.4	-	-	1.4
2045	-	1.4	-	-	1.4
2046	-	1.4	-	-	1.4
2047	-	1.4	-	-	1.4
2048	-	1.4	-	-	1.4
2049	-	1.4	-	-	1.4
2050	-	1.4	-	-	1.4
2051	-	1.4	-	-	1.4
2052	-	1.4	-	-	1.4
2053	-	1.4	-	-	1.4
2054	-	1.4	-	6.8	5.5
2055	-	-	-	-	-
2056	-	-	-	-	-
Total Inv.	136.4	40.9	-	6.8	- 170.5
NPV	59.1	4.0	-	0.1	- 63.0



3.5 Road Connecting Ramallah to Jericho (Road n.449)

Road Transport Key-Project no.4 consists of the rehabilitation/ upgrade or the road linking Ramallah, and its entire conurbation, to Jericho, the only city located in the Jordan Valley. The table below illustrates the principal technical and financial aspects related to the implementation of the **Road Connecting Ramallah to Jericho (Road n.449)**.

Tab 12. Road Transport Key-Project no.4 – Technical and Financial Main Aspects

Road Transport Key-Project no.4: Road Connecting Ramallah to Jericho (Road n.449)			
	Length (Km)	24.5	
	Unit Rate (mil€/Km)	1	
	Cost Estimate (mil€)	24.5	
	Annual Traffic Volume (veh*km)	Phase 1	44,238,056
		Phase 2	57,588,562
		Phase 3	72,561,048
		Phase 4	77,487,404
	Discount rate	12.0%	
	Infrastructure evaluation years	30	
	Mant. & operat. Costs (as % of total investment costs)	1.0%	
	Scrap value (as % of total investment costs)	5.0%	
	NPV (million €)	-15.3	
IRR (%)	N/A		

Tab 13. Road Transport Key-Project no.4 – Financial Analysis

Year	Investment costs	Maintenance and operating costs	Revenues	Scrap value	CF
2016	-	-	-	-	-
2017	-	-	-	-	-
2018	-	-	-	-	-
2019	4.9	-	-	-	- 4.9
2020	19.6	-	-	-	- 19.6
2021	-	0.2	-	-	- 0.2
2022	-	0.2	-	-	- 0.2
2023	-	0.2	-	-	- 0.2
2024	-	0.2	-	-	- 0.2
2025	-	0.2	-	-	- 0.2
2026	-	0.2	-	-	- 0.2



2027	-	0.2	-	-	0.2
2028	-	0.2	-	-	0.2
2029	-	0.2	-	-	0.2
2030	-	0.2	-	-	0.2
2031	-	0.2	-	-	0.2
2032	-	0.2	-	-	0.2
2033	-	0.2	-	-	0.2
2034	-	0.2	-	-	0.2
2035	-	0.2	-	-	0.2
2036	-	0.2	-	-	0.2
2037	-	0.2	-	-	0.2
2038	-	0.2	-	-	0.2
2039	-	0.2	-	-	0.2
2040	-	0.2	-	-	0.2
2041	-	0.2	-	-	0.2
2042	-	0.2	-	-	0.2
2043	-	0.2	-	-	0.2
2044	-	0.2	-	-	0.2
2045	-	0.2	-	-	0.2
2046	-	0.2	-	-	0.2
2047	-	0.2	-	-	0.2
2048	-	0.2	-	-	0.2
2049	-	0.2	-	-	0.2
2050	-	0.2	-	-	0.2
2051	-	0.0	-	-	-
2052	-	0.0	-	-	-
2053	-	0.0	-	-	-
2054	-	0.0	-	-	-
2055	-	0.0	-	-	-
2056	-	0.0	-	1.2	1.2
Total Inv.	24.5	7.4	-	1.2	30.6
NPV	14.2	1.1	-	0.0	15.3

3.6 New Eastern Road Network: Nabi Musa-Hebron-Bethlehem

Road Transport Key-Project no.5 consists of the implementation of a new road running between Nabi Musa and Hebron/ Bethlehem, in the South-Eastern part of West Bank.

The table belows illustrates the principal technical and financial aspects related to the implementation of the **New Eastern Road Network: Nabi Musa-Hebron-Bethlehem**.

Tab 14. Road Transport Key-Project no.5 – Technical and Financial Main Aspects

Road Transport Key-Project no.5: New Eastern Road Network: Nabi Musa-Hebron-Bethlehem			
	Length (Km)	60	
	Unit Rate (mil€/Km)	1.5	
	Cost Estimate (mil€)	88.7	
	Annual Traffic Volume (veh*km)	Phase 1	1,282,079
		Phase 2	2,048,660
		Phase 3	2,316,676
		Phase 4	2,793,080
	Discount rate	12.0%	
	Infrastructure evaluation years	30	
	Mant. & operat. Costs (as % of total investment costs)	1.0%	
	Scrap value (as % of total investment costs)	5.0%	
	NPV (million €)	-38.1	
IRR (%)	N/A		

Tab 15. Road Transport Key-Project no.5 – Financial Analysis

Year	Investment costs	Maintenance and operating costs	Revenues	Scrap value	CF
2016	-	-	-	-	-
2017	-	-	-	-	-
2018	-	-	-	-	-
2019	-	-	-	-	-
2020	-	-	-	-	-
2021	-	-	-	-	-
2022	17.7	-	-	-	- 17.7
2023	44.4	-	-	-	- 44.4
2024	26.6	-	-	-	- 26.6
2025	-	0.9	-	-	- 0.9
2026	-	0.9	-	-	- 0.9



2027	-	0.9	-	-	-	0.9
2028	-	0.9	-	-	-	0.9
2029	-	0.9	-	-	-	0.9
2030	-	0.9	-	-	-	0.9
2031	-	0.9	-	-	-	0.9
2032	-	0.9	-	-	-	0.9
2033	-	0.9	-	-	-	0.9
2034	-	0.9	-	-	-	0.9
2035	-	0.9	-	-	-	0.9
2036	-	0.9	-	-	-	0.9
2037	-	0.9	-	-	-	0.9
2038	-	0.9	-	-	-	0.9
2039	-	0.9	-	-	-	0.9
2040	-	0.9	-	-	-	0.9
2041	-	0.9	-	-	-	0.9
2042	-	0.9	-	-	-	0.9
2043	-	0.9	-	-	-	0.9
2044	-	0.9	-	-	-	0.9
2045	-	0.9	-	-	-	0.9
2046	-	0.9	-	-	-	0.9
2047	-	0.9	-	-	-	0.9
2048	-	0.9	-	-	-	0.9
2049	-	0.9	-	-	-	0.9
2050	-	0.9	-	-	-	0.9
2051	-	0.9	-	-	-	0.9
2052	-	0.9	-	-	-	0.9
2053	-	0.9	-	-	-	0.9
2054	-	0.9	-	4.4	-	3.5
2055	-	-	-	-	-	-
2056	-	-	-	-	-	-
Total Inv.	88.7	26.6	-	4.4	-	- 110.9
NPV	35.5	2.6	-	0.1	-	- 38.1



4 Rail Transport Key-Projects

The table below lists the Key-Projects proposed for Rail Transport.

Tab 16. NTMP Key-Projects for Rail Transport

RAIL TRANSPORT			
No.	Key-Project Name	Intervention Category	Location
06	Ramallah-Nablus Rail Connection Construction	New Infrastructure	West Bank
07	West Bank Northern Rail Connection Design and Construction	New Infrastructure	West Bank
08	Nablus-Jenin Rail Connection Construction	New Infrastructure	West Bank
09	Gaza Strip International Railway Construction	New Infrastructure	Gaza Strip
10	Rail Connection to New Gaza Commercial Seaport Design and Construction	New Infrastructure	Gaza Strip
11	West Bank International Rail Connection Design and Construction	New Infrastructure	West Bank
12	Western West Bank rail system Construction	New Infrastructure	West Bank
13	Tubas - Damyeh BCP Rail Connection Construction	New Infrastructure	West Bank


The following pages provide detailed descriptions of each of the four Key-Projects proposed for Rail Transport, including the following data:

- Key-Project Location Map;
- Key-Project Number and Name;
- Key-Project Length (km);
- Key-Project Unit Rate (mil€/km);
- Key-Project Cost Estimate (mil€);
- Key-Projects Annual Traffic Volume (by phase);
- Key-Project Discount Rate;
- Key-Project Infrastructure Evaluation Years;
- Key-Project Maintenance and Operational Costs (% tot. investment costs);
- Key-Project Scrap Value (% tot. investment costs), and;
- NPV (mil€).

4.1 Rail Infrastructure –Ramallah–Nablus Connection

Rail Transport Key-Project no.1 consists of the implementation of a new railway linking Ramallah-Al Bireh-Beitunia conurbation with Nablus, via Bir Zayt University and Salfit. The table below illustrates the principal technical and financial aspects related to the implementation of the **Rail Infrastructure – Ramallah–Nablus Connection**

Tab 17. Rail Transport Key-Project no.1 – Technical and Financial Main Aspects

Rail Transport Key-Project no.1: Rail Infrastructure – Ramallah–Nablus Connection			
	Length (Km)	30.8	
	Cost Estimate (mil€)	251.3	
	Annual Traffic Volume (pax*km)	Phase 1	43,892,139
		Phase 2	50,475,960
		Phase 3	54,865,174
		Phase 4	63,643,602
	Discount rate	12.0%	
	Infrastructure evaluation years	30	
	Mant. & operat. Costs (as % of total investment costs)	2.0%	
	Scrap value (as % of total investment costs)	5.0%	
NPV (million €)	-148.2		
IRR (%)	-8.7%		

Tab 18. Rail Transport Key-Project no.1 – Financial Analysis

Year	Investment costs	Maintenance and operating costs	Revenues	Scrap value	CF
2016	-	-	-	-	-
2017	-	-	-	-	-
2018	12.6	-	-	-	-12.6
2019	75.4	-	-	-	-75.4
2020	100.5	-	-	-	-100.5
2021	62.8	-	-	-	-62.8
2022	-	5.0	3.8	-	-1.3
2023	-	5.0	3.8	-	-1.3
2024	-	5.0	3.8	-	-1.3
2025	-	5.0	4.3	-	-0.7
2026	-	5.0	4.3	-	-0.7
2027	-	5.0	4.3	-	-0.7
2028	-	5.0	4.3	-	-0.7
2029	-	5.0	4.3	-	-0.7



2030	-	5.0	4.3	-	-0.7
2031	-	5.0	4.3	-	-0.7
2032	-	5.0	4.7	-	-0.3
2033	-	5.0	4.7	-	-0.3
2034	-	5.0	4.7	-	-0.3
2035	-	5.0	4.7	-	-0.3
2036	-	5.0	4.7	-	-0.3
2037	-	5.0	4.7	-	-0.3
2038	-	5.0	5.4	-	0.4
2039	-	5.0	5.4	-	0.4
2040	-	5.0	5.4	-	0.4
2041	-	5.0	5.4	-	0.4
2042	-	5.0	5.4	-	0.4
2043	-	5.0	5.4	-	0.4
2044	-	5.0	5.4	-	0.4
2045	-	5.0	5.4	-	0.4
2046	-	5.0	5.4	-	0.4
2047	-	5.0	5.4	-	0.4
2048	-	5.0	5.4	-	0.4
2049	-	5.0	5.4	-	0.4
2050	-	5.0	5.4	-	0.4
2051	-	5.0	5.4	12.6	13.0
2052	-	-	-	-	-
2053	-	-	-	-	-
2054	-	-	-	-	-
Total	251.3	150.8	145.7	12.6	-243.8
NPV	145.7	20.5	17.8	0.2	-148.2

4.2 Rail Infrastructure –Jenin-Bani Na'im Connection

Rail Transport Key-Project no.2 consists of the implementation of two new branches of railway: a) from Ramallah to Bani Na'im (Hebron Governorate), and; b) from Nablus to Jenin to Al Jalameh BCP. The latter will provide the first international rail linkages with the line Haifa-Irbid. The table belows illustrates the principal technical and financial aspects related to the implementation of the **Rail Infrastructure – Jenin-Bani Na'im Connection**.

Tab 19. Rail Transport Key-Project no.2 – Technical and Financial Main Aspects

Rail Transport Key-Project no.2: Rail Infrastructure – Jenin-Bani Na'im Connection			
	Length (Km)	107.7	
	Cost Estimate (mil€)	760.3	
	Annual Traffic Volume (pax*km)	Phase 1 Non-Existing	
		Phase 2	168,376,400
		Phase 3	208,373,129
		Phase 4	250,351,099
	Discount rate	12.0%	
	Infrastructure evaluation years	30	
	Mant. & operat. Costs (as % of total investment costs)	2.0%	
	Scrap value (as % of total investment costs)	5.0%	
NPV (million €)	-366.0		
IRR (12%)	-6.6%		

Tab 20. Rail Transport Key-Project no.2 – Financial Analysis

Year	Investment costs	Maintenance and operating costs	Revenues	Scrap value	CF
2016	-	-	-	-	-
2017	-	-	-	-	-
2018	12.6	-	-	-	-12.6
2019	75.4	-	-	-	-75.4
2020	100.5	-	-	-	-100.5
2021	62.8	-	-	-	-62.8
2022	-	5.0	3.8	-	-1.3
2023	-	5.0	3.8	-	-1.3
2024	38.0	5.0	3.8	-	-39.3
2025	228.1	5.0	4.3	-	-228.8
2026	304.1	5.0	4.3	-	-304.8
2027	190.1	5.0	4.3	-	-190.8
2028		15.2	14.4	-	-0.8



2029		15.2	14.4	-	-0.8
2030		15.2	14.4	-	-0.8
2031		15.2	14.4	-	-0.8
2032	-	15.2	17.8	-	2.6
2033	-	15.2	17.8	-	2.6
2034	-	15.2	17.8	-	2.6
2035	-	15.2	17.8	-	2.6
2036	-	15.2	17.8	-	2.6
2037	-	15.2	17.8	-	2.6
2038	-	15.2	21.4	-	6.2
2039	-	15.2	21.4	-	6.2
2040	-	15.2	21.4	-	6.2
2041	-	15.2	21.4	-	6.2
2042	-	15.2	21.4	-	6.2
2043	-	15.2	21.4	-	6.2
2044	-	15.2	21.4	-	6.2
2045	-	15.2	21.4	-	6.2
2046	-	15.2	21.4	-	6.2
2047	-	15.2	21.4	-	6.2
2048	-	15.2	21.4	-	6.2
2049	-	15.2	21.4	-	6.2
2050	-	15.2	21.4	-	6.2
2051	-	15.2	21.4	-	6.2
2052	-	15.2	21.4	-	6.2
2053	-	15.2	21.4	-	6.2
2054	-	15.2	21.4	-	6.2
2055	-	15.2	21.4	-	6.2
2056	-	15.2	21.4	-	6.2
2057	-	15.2	21.4	38.0	44.2
2058	-	-	-	-	-
2059	-	-	-	-	-
2060	-	-	-	-	-
2061	-	-	-	-	-
Total	1,011.6	486.3	616.4	38.0	-843.5
NPV	369.1	41.9	44.7	0.3	-366.0

4.3 Rail Infrastructure –International Line (Rafah-Tell Al Bayda)

Rail Transport Key-Project no.3 consists of the implementation of the first international railway, running from Rafah BCP (South of Gaza Strip) to Tell Al Bayda BCP (North-East of West Bank). This line will connect all major air and maritime infrastructure with major logistics facilities, reason why it will be more freight-oriented. The table below illustrates the principal technical and financial aspects related to the implementation of the **Rail Infrastructure – International Line (Rafah-Tell Al Bayda)**.

Tab 21. Rail Transport Key-Project no.3 – Technical and Financial Main Aspects

Rail Transport Key-Project no.3: Rail Infrastructure – International Line (Rafah-Tell Al Bayda)			
	Length (Km)	191.2	
	Cost Estimate (mil€)	1399.1	
	Annual Traffic Volume (pax*km)	Phase 1 Non-Existing	
		Phase 2 Non-Existing	
		Phase 3 260,497,152	
		Phase 4 305,888,899	
	Discount rate	12.0%	
	Infrastructure evaluation years	30	
	Mant. & operat. Costs (as % of total investment costs)	2.0%	
	Scrap value (as % of total investment costs)	5.0%	
NPV (million €)	-168.0		
IRR (12%)	-10.0%		

Tab 22. Rail Transport Key-Project no.3 – Financial Analysis

Year	Investment costs	Maintenance and operating costs	Revenues	Scrap value	CF
2017	-	-	-	-	-
2018	-	-	-	-	-
2019	-	-	-	-	-
2020	-	-	-	-	-
2021	-	-	-	-	-
2022	-	-	-	-	-
2023	-	-	-	-	-
2024	-	-	-	-	-
2025	-	-	-	-	-
2026	-	-	-	-	-
2027	-	-	-	-	-
2028	-	-	-	-	-
2029	-	-	-	-	-



2030	-	-	-	-	-
2031	-	-	-	-	-
2032	70.0	-	-	-	-70.0
2033	419.7	-	-	-	-419.7
2034	559.6	-	-	-	-559.6
2035	349.8	-	-	-	-349.8
2036	-	28.0	22.3	-	-5.7
2037	-	28.0	22.3	-	-5.7
2038	-	28.0	26.1	-	-1.8
2039	-	28.0	26.1	-	-1.8
2040	-	28.0	26.1	-	-1.8
2041	-	28.0	26.1	-	-1.8
2042	-	28.0	26.1	-	-1.8
2043	-	28.0	26.1	-	-1.8
2044	-	28.0	26.1	-	-1.8
2045	-	28.0	26.1	-	-1.8
2046	-	28.0	26.1	-	-1.8
2047	-	28.0	26.1	-	-1.8
2048	-	28.0	26.1	-	-1.8
2049	-	28.0	26.1	-	-1.8
2050	-	28.0	26.1	-	-1.8
2051	-	28.0	26.1	-	-1.8
2052	-	28.0	26.1	-	-1.8
2053	-	28.0	26.1	-	-1.8
2054	-	28.0	26.1	-	-1.8
2055	-	28.0	26.1	-	-1.8
2056	-	28.0	26.1	-	-1.8
2057	-	28.0	26.1	-	-1.8
2058	-	28.0	26.1	-	-1.8
2059	-	28.0	26.1	-	-1.8
2060	-	28.0	26.1	-	-1.8
2061	-	28.0	26.1	-	-1.8
2062	-	28.0	26.1	-	-1.8
2063	-	28.0	26.1	-	-1.8
2064	-	28.0	26.1	-	-1.8
2065	-	28.0	26.1	70.0	68.1
2066	-	-	-	-	-
2067	-	-	-	-	-
2068	-	-	-	-	-
Total	1,399.1	839.5	776.4	70.0	-1,392.2
NPV (12%)	166.0	23.4	21.1	0.2	-168.0

4.4 Rail Infrastructure - Western Network + Tubas-Damyeh Connection

Rail Transport Key-Project no.4 consists of the implementation of new E-W railways located in the Northern areas of the West Bank.

The table below illustrates the principal technical and financial aspects related to the implementation of the **Rail Infrastructure – Western Network + Tubas-Damyeh Connection**.

Tab 23. Rail Transport Key-Project no.4 – Technical and Financial Main Aspects

Rail Transport Key-Project no.4: Rail Infrastructure – Western Network + Tubas-Damyeh Connection			
	Length (Km)	118.4	
	Cost Estimate (mil€)	964.2	
	Annual Traffic Volume (pax*km)	Phase 1 Non-Existing	
		Phase 2 Non-Existing	
		Phase 3 Non-Existing	
		Phase 4 78,558,519	
	Discount rate	12.0%	
	Infrastructure evaluation years	30	
	Mant. & operat. Costs (as % of total investment costs)	2.0%	
	Scrap value (as % of total investment costs)	5.0%	
NPV (million €)	-62.9		
IRR (%)	N/A		

Tab 24. Rail Transport Key-Project no.4 – Financial Analysis

Year	Investment costs	Maintenance and operating costs	Revenues	Scrap value	CF
2023	-	-	-	-	-
2024	-	-	-	-	-
2025	-	-	-	-	-
2026	-	-	-	-	-
2027	-	-	-	-	-
2028	-	-	-	-	-
2029	-	-	-	-	-
2030	-	-	-	-	-
2031	-	-	-	-	-
2032	-	-	-	-	-
2033	-	-	-	-	-
2034	-	-	-	-	-
2035	-	-	-	-	-
2036	-	-	-	-	-



2037	-	-	-	-	-
2038	48.2	-	-	-	-48.2
2039	289.3	-	-	-	-289.3
2040	385.7	-	-	-	-385.7
2041	241.1	-	-	-	-241.1
2042	-	19.3	6.7	-	-12.6
2043	-	19.3	6.7	-	-12.6
2044	-	19.3	6.7	-	-12.6
2045	-	19.3	6.7	-	-12.6
2046	-	19.3	7.7	-	-11.6
2047	-	19.3	7.7	-	-11.6
2048	-	19.3	7.7	-	-11.6
2049	-	19.3	7.7	-	-11.6
2050	-	19.3	7.7	-	-11.6
2051	-	19.3	7.7	-	-11.6
2052	-	19.3	7.7	-	-11.6
2053	-	19.3	7.7	-	-11.6
2054	-	19.3	7.7	-	-11.6
2055	-	19.3	7.7	-	-11.6
2056	-	19.3	8.4	-	-10.9
2057	-	19.3	8.4	-	-10.9
2058	-	19.3	8.4	-	-10.9
2059	-	19.3	8.4	-	-10.9
2060	-	19.3	8.4	-	-10.9
2061	-	19.3	8.4	-	-10.9
2062	-	19.3	8.4	-	-10.9
2063	-	19.3	8.4	-	-10.9
2064	-	19.3	8.4	-	-10.9
2065	-	19.3	8.4	-	-10.9
2066	-	19.3	9.7	-	-9.6
2067	-	19.3	9.7	-	-9.6
2068	-	19.3	9.7	-	-9.6
2069	-	19.3	9.7	-	-9.6
2070	-	19.3	9.7	-	-9.6
2071	-	19.3	9.7	48.2	38.7
2072	-	-	-	-	-
2073	-	-	-	-	-
2074	-	-	-	-	-
Total	964.2	578.5	246.4	48.2	-1,248.2
NPV (12%)	58.0	8.2	3.2	0.1	-62.9



5 Maritime Transport Key-Projects

The list of Key-Projects proposed for Maritime Transport is reported in the following table.

Tab 25. NTMP Key-Projects for Maritime Transport

MARITIME TRANSPORT			
No.	Key-Project Name	Intervention Category	Location
14	Existing Gaza Fishery Port Restructuring	Rehabilitation/ Upgrade	Gaza Strip
15	New Gaza Strip Commercial Port	New Infrastructure	Gaza Strip

The following pages provide detailed descriptions of each of the two Key-Projects proposed for Maritime Transport, including the following data:

- Key-Project Location Map;
- Key-Project Number and Name;
- Key-Project Cost Estimate (mil€);
- Key-Projects Number of Tons (last operating year tons);
- Key-Project Discount Rate;
- Key-Project Infrastructure Evaluation Years;
- Key-Project Maintenance and Operational Costs (% tot. investment costs);
- Key-Project Scrap Value (% tot. investment costs);
- NPV (mil€), and;
- IRR (%).

5.1 Existing Gaza Fishery Seaport Restructuring

Maritime Transport Key-Project no.1 consists of the rehabilitation and upgrade of the existing fishery port located in Gaza City, and currently not fully operational.

The table belows illustrates the principal technical and financial aspects related to the implementation of the **Existing Gaza Fishery Seaport Restructuring**.

Tab 26. Maritime Transport Key-Project no.1 – Technical and Financial Main Aspects

Maritime Transport Key-Project no.1: Existing Gaza Fishery Seaport Restructuring		
	Cost Estimate (mil€)	68
	No. of Tons (last operating year tons)	2,689,118
	Discount rate	12.0%
	Infrastructure evaluation years	30
	Mant. & operat. Costs (as % of total investment costs)	0.5%
	Scrap value (as % of total investment costs)	5.0%
	NPV (million €)	-35.1
	IRR (%)	-1.4%

Tab 27. Maritime Transport Key-Project no.1 – Financial Analysis

Year	Investment costs	Maintenance and operating costs	Revenues	Scrap value	CF
2016	-	-	-	-	-
2017	10.2	-	-	-	10.2
2018	18.9	-	-	-	18.9
2019	8.6	-	0.8	-	7.9
2020	11.7	-	0.8	-	-
2021	10.9	-	0.8	-	10.2
2022	7.8	-	0.8	-	7.1
2023	-	0.3	2.0	-	1.6
2024	-	0.3	2.0	-	1.6
2025	-	0.3	2.0	-	1.6
2026	-	0.3	2.0	-	1.6
2027	-	0.3	2.0	-	1.6
2028	-	0.3	2.0	-	1.6
2029	-	0.3	2.0	-	1.6
2030	-	0.3	2.0	-	1.6
2031	-	0.3	2.0	-	1.6



2032	-	0.3	2.0	-	1.6
2033	-	0.3	2.0	-	1.6
2034	-	0.3	2.0	-	1.6
2035	-	0.3	2.0	-	1.6
2036	-	0.3	2.0	-	1.6
2037	-	0.3	2.0	-	1.6
2038	-	0.3	2.0	-	1.6
2039	-	0.3	2.0	-	1.6
2040	-	0.3	2.0	-	1.6
2041	-	0.3	2.0	-	1.6
2042	-	0.3	2.0	-	1.6
2043	-	0.3	2.0	-	1.6
2044	-	0.3	2.0	-	1.6
2045	-	0.3	2.0	-	1.6
2046	-	0.3	2.0	-	1.6
2047	-	0.3	2.0	-	1.6
2048	-	0.3	2.0	1.5	3.1
2049	-	0.2	1.1	-	0.9
2050	-	0.2	1.1	-	0.9
2051	-	0.2	1.1	-	0.9
2052	-	0.2	1.1	2.0	2.9
Total	68.0	9.6	59.7	3.4	- 15.1
NPV	42.7	1.2	9.0	0.1	- 35.1

5.2 New Gaza Strip Commercial Port

Maritime Transport Key-Project no.2 consists of the implementation of a new commercial port in Gaza Strip. On this concern, two alternatives are proposed: a) New Gaza Strip Commercial Port in Gaza City, or; b) New Gaza Strip Commercial Port in Atatra (Northern Gaza Strip)



The table belows illustrates the principal technical and financial aspects related to the implementation of the **New Gaza Strip Commercial Port**.

Tab 28. Maritime Transport Key-Project no.2 – Technical and Financial Main Aspects

Maritime Transport Key-Project no.2: New Gaza Strip Commercial Port		
	Cost Estimate (mil€)	185
	No. of Tons (last operating year tons)	21,699,816
	Discount rate	12.0%
	Infrastructure evaluation years	30
	Mant. & operat. Costs (as % of total investment costs)	0.5%
	Scrap value (as % of total investment costs)	5.0%
	NPV (million €)	-53.8
	IRR (%)	-4.3%

Tab 29. Maritime Transport Key-Project no.2 – Financial Analysis

Year	Investment costs	Maintenance and operating costs	Revenues	Scrap value	CF
2016	-	-	-	-	-
2017	-	-	-	-	-
2018	-	-	-	-	-
2019	3.6	-	-	-	3.6
2020	27.3	-	-	-	27.3
2021	40.0	-	-	-	40.0
2022	45.5	-	-	-	45.5
2023	41.9	-	-	-	41.9
2024	23.7	-	-	-	23.7
2025	-	0.9	9.2	-	8.3
2026	-	0.9	9.2	-	8.3
2027	-	0.9	9.2	-	8.3
2028	-	0.9	9.2	-	8.3
2029	-	0.9	9.2	-	8.3
2030	-	0.9	9.2	-	8.3
2031	-	0.9	9.2	-	8.3
2032	-	0.9	12.3	-	11.5
2033	-	0.9	12.3	-	11.5
2034	-	0.9	12.3	-	11.5
2035	-	0.9	12.3	-	11.5



2036	-	0.9	12.3	-	11.5
2037	-	0.9	12.3	-	11.5
2038	-	0.9	16.1	-	15.2
2039	-	0.9	16.1	-	15.2
2040	-	0.9	16.1	-	15.2
2041	-	0.9	16.1	-	15.2
2042	-	0.9	16.1	-	15.2
2043	-	0.9	16.1	-	15.2
2044	-	0.9	16.1	-	15.2
2045	-	0.9	16.1	-	15.2
2046	-	0.9	16.1	-	15.2
2047	-	0.9	16.1	-	15.2
2048	-	0.9	16.1	-	15.2
2049	-	0.9	16.1	-	15.2
2050	-	0.9	16.1	-	15.2
2051	-	0.9	16.1	-	15.2
2052	-	0.9	16.1	-	15.2
2053	-	0.9	16.1	-	15.2
2054	-	0.9	16.1	9.0	24.1
Total	182.0	26.9	411.1	9.0	211.2
NPV	84.1	2.6	32.8	0.1	- 53.8

6 Air Transport Key-Projects

The list of Key-Projects proposed for Air Transport is reported in the following table.

Tab 30. NTMP Key-Projects for Air Transport

AIR TRANSPORT			
No.	Key-Project Name	Intervention Category	Location



16	Yasser Arafat Airport Rehabilitation in Gaza Strip	Rehabilitation/ Upgrade	Gaza Strip
17	New West Bank International Airport	New Infrastructure	West Bank

The following pages provide detailed descriptions of each of the two Key-Projects proposed for Air Transport, including the following data:

- Key-Project Location Map;
- Key-Project Number and Name;
- Key-Project Cost Estimate (mil€);
- Key-Projects N. of passenger (yearly pax n. last operating year);
- Key-Project Discount Rate;
- Key-Project Infrastructure Evaluation Years;
- Key-Project Maintenance and Operational Costs (% tot. investment costs);
- Key-Project Scrap Value (% tot. investment costs);
- NPV (mil€), and;
- IRR (%).

6.1 Y. Arafat Airport Rehabilitation in Gaza Strip

Air Transport Key-Project no.1 consists of rehabilitation of existing and disused 'Y.Arafat Airport' located in the Southern-Eastern corner of Gaza Strip. The rehabilitation is aimed at turning the existing airport into a regional (EU-MENA) air transport hub. The table bellows illustrates the principal technical and financial aspects related to the implementation of the **Y.Arafat Airport Rehabilitation in Gaza Strip**.

Tab 31. Air Transport Key-Project no.1– Technical and Financial Main Aspects



Air Transport Key-Project no.1: Y.Arafat Airport Rehabilitation in Gaza Strip			
	Cost Estimate (mil€)	59.2	
	No of passenger (yearly pax n. last operating year);	Phase1	656,611
		Phase2	1,177,253
		Phase3	1,378,931
		Phase4	1,433,410
	Discount rate	12.0%	
	Infrastructure evaluation years	30	
	Mant. & operat. Costs (as % of total investment costs)	0.5%	
	Scrap value (as % of total investment costs)	5.0%	
	NPV (million €)	-14.5	
IRR (%)	8.3%		

Tab 32. Air Transport Key-Project no.1 – Financial Analysis

Year	Investment costs	Maintenance and operating costs	Revenues	Scrap value	CF
2016	-	-	-	-	-
2017	12.4	-	-	-	-12.4
2018	23.1	-	-	-	-23.1
2019	23.7	0.2	1.3	-	-22.6
2020	-	0.3	2.4	-	2.1
2021	-	0.3	2.8	-	2.5
2022	-	0.3	3.2	-	2.9
2023	-	0.3	3.7	-	3.4
2024	-	0.3	4.2	-	3.9
2025	-	0.3	4.7	-	4.4
2026	-	0.3	5.2	-	4.9
2027	-	0.3	5.7	-	5.4
2028	-	0.3	6.2	-	5.9
2029	-	0.3	6.7	-	6.4
2030	-	0.3	7.2	-	6.9
2031	-	0.3	7.7	-	7.4
2032	-	0.3	8.1	-	7.8
2033	-	0.3	8.5	-	8.2
2034	-	0.3	8.8	-	8.5
2035	-	0.3	9.1	-	8.8
2036	-	0.3	9.1	-	8.8
2037	-	0.3	9.2	-	8.9



2038	-	0.3	9.2	-	8.9
2039	-	0.3	9.3	-	9.0
2040	-	0.3	9.3	-	9.0
2041	-	0.3	9.4	-	9.1
2042	-	0.3	9.4	-	9.1
2043	-	0.3	9.4	-	9.1
2044	-	0.3	9.5	-	9.2
2045	-	0.3	9.5	-	9.2
2046	-	0.3	9.6	-	9.3
2047	-	0.3	9.6	-	9.3
2048	-	0.3	9.6	1.8	11.0
2049	-	0.1	3.8	1.2	4.9
2050	-	-	-	-	-
2051	-	-	-	-	-
2052	-	-	-	-	-
2053	-	-	-	-	-
2054	-	-	-	-	-
2055	-	-	-	-	-
2056	-	-	-	-	-
2057	-	-	-	-	-
2058	-	-	-	-	-
2059	-	-	-	-	-
2060	-	-	-	-	-
Total	59.2	8.9	221.3	3.0	156.2
NPV	41.4	1.6	28.4	0.1	-14.5

6.2 New West Bank International Airport

Air Transport Key-Project no.2 consists of the implementation of a new international airport in the West Bank, for which two possible alternative locations are indicated: a) South of Jericho, or; b) North of Jericho. The new international airport in West Bank will be the global gateway to Palestine.

The table below illustrates the principal technical and financial aspects related to the implementation of the **New International Airport in West Bank**.

Tab 33. Air Transport Key-Project no.2– Technical and Financial Main Aspects

Air Transport Key-Project no.2: New International Airport in West Bank			
	Cost Estimate (mil€)	202.2	
	No of passenger (yearly pax n. last operating year);	Phase1	1,072,034
		Phase2	2,033,109
		Phase3	3,491,848
		Phase4	3,521,934
	Discount rate	12.0%	
	Infrastructure evaluation years	30	
	Mant. & operat. Costs (as % of total investment costs)	0.5%	
	Scrap value (as % of total investment costs)	5.0%	
	NPV (million €)	12.9	
IRR (%)	13.8%		

Tab 34. Air Transport Key-Project no.2 – Financial Analysis

	Investment costs	Maintenance and operating costs	Revenues	Scrap value	CF
2016	-	-	-	-	-
2017	1.4	-	-	-	-1.4
2018	2.6	-	-	-	-2.6
2019	-	-	-	-	-
2020	1.6	-	-	-	-1.6
2021	11.9	-	-	-	-11.9
2022	17.4	-	-	-	-17.4
2023	19.8	-	-	-	-19.8
2024	18.2	-	-	-	-18.2
2025	12.7	-	-	-	-12.7
2026	17.8	0.4	11.5	-	-6.7
2027	26.2	0.4	12.6	-	-14.0
2028	29.7	0.4	13.6	-	-16.5
2029	27.3	0.4	14.6	-	-13.2



2030	15.5	0.4	15.5	-	-0.3
2031	-	1.0	33.6	-	32.6
2032	-	1.0	36.0	-	35.0
2033	-	1.0	38.2	-	37.2
2034	-	1.0	40.3	-	39.3
2035	-	1.0	42.2	-	41.2
2036	-	1.0	43.8	-	42.8
2037	-	1.0	45.2	-	44.2
2038	-	1.0	46.3	-	45.4
2039	-	1.0	47.3	-	46.3
2040	-	1.0	48.1	-	47.1
2041	-	1.0	48.6	-	47.6
2042	-	1.0	48.9	-	47.9
2043	-	1.0	49.1	-	48.2
2044	-	1.0	49.2	-	48.2
2045	-	1.0	49.3	-	48.3
2046	-	1.0	49.3	-	48.4
2047	-	1.0	49.4	-	48.4
2048	-	1.0	49.4	-	48.4
2049	-	1.0	49.5	-	48.5
2050	-	1.0	49.5	-	48.5
2051	-	1.0	49.6	-	48.6
2052	-	1.0	49.6	-	48.6
2053	-	1.0	49.6	-	48.6
2054	-	1.0	49.6	-	48.6
2055	-	1.0	49.6	4.0	52.5
2056	-	0.6	29.7	-	29.1
2057	-	0.6	29.7	-	29.1
2058	-	0.6	29.7	-	29.1
2059	-	0.6	29.7	-	29.1
2060	-	0.6	29.7	5.9	35.1
Total	202.2	29.7	1,377.4	9.9	1,155.5
NPV	63.5	1.9	78.2	0.1	12.9



7 Financial Analysis Results

The Financial Analysis carried out on NTMP Key-Projects, and presented in the precedent pages of this chapter, is useful to deduce some considerations about funding sources and instruments which support is deemed fundamental for the implementation of Key-Projects themselves. Financial analysis results are reported below:

Road Transport Key-Projects

- Road Transport Key-Projects need to be wholly funded by the public in the current state (NTMP Phase 1A) and by external Donors, for later stage (from NTMP Phase 1 onwards), and;
- West Bank – Gaza Strip Corridor has the potential to be subject to the interest of Public Private Participation PPP given the positive financial performance results, in case it is subject to toll.

Rail Transport Key-Projects

- Rail Transport Key-Projects will require public funding for construction but could attract private interest for management and operational concession.

Maritime Transport Key-Projects

- The rehabilitation of existing Gaza Fishery Port needs to be fully and publicly funded; at this early and urgent stage, it requires the contribution of external Donors, and;
- The implementation of the New Gaza Commercial Port will require public funding; but could certainly attract PPP or private management Concession considerations, during its operations.

Air Transport Key-Projects

- The rehabilitation of Y. Arafat Regional (EU-MENA) Airport needs public funding and support from Donors, and;
- The implementation of the New International Airport in the West Bank, could attract consideration for both PPP as well as Private funding and operational Concession.