



ROAD AND TRANSPORTATION MASTER PLAN

WEST BANK AND GAZA STRIP

TA 2012013 PS 00 F10

Annex 6 – Technical Sheets of Proposed Road and Rail Projects

SEPTEMBER 30, 2016





Table of Contents

1. Introduction	5
2. Road Works Technical Sheets	7
3. Rail Works Technical Sheets	48



List of Figures

Figure 1.	Road Works Overall Map.....	8
Figure 2.	SN 1 Road Work Plan	9
Figure 3.	SN 3 Road Work Plan	10
Figure 4.	SN 4 Road Work Plan	11
Figure 5.	SN 5 Road Work Plan	12
Figure 6.	SN 7 Road Work Plan	13
Figure 7.	SN 8 Road Work Plan	14
Figure 8.	SN 10 Road Work Plan	15
Figure 9.	SN 16 Road Work Plan	16
Figure 10.	SN 17 Road Work Plan	17
Figure 11.	SN 18 Road Work Plan	18
Figure 12.	SN 20 Road Work Plan	19
Figure 13.	SN 21 Road Work Plan	20
Figure 14.	SN 22 Road Work Plan	21
Figure 15.	SN 23 Road Work Plan	22
Figure 16.	SN 24 Road Work Plan	23
Figure 17.	SN 25 Road Work Plan	24
Figure 18.	SN 26 Road Work Plan	27
Figure 19.	SN 28 Road Work Plan	28
Figure 20.	SN 31 Road Work Plan	29
Figure 21.	SN 32 Road Work Plan	32
Figure 22.	SN 33 Road Work Plan	33
Figure 23.	SN 34 Road Work Plan	34
Figure 24.	SN 35 Road Work Plan	35
Figure 25.	SN 36 Road Work Plan	37



Figure 26.	SN 37 Road Work Plan	38
Figure 27.	SN 39 Road Work Plan	39
Figure 28.	SN 40 Road Work Plan	40
Figure 29.	SN 41 Road Work Plan	42
Figure 30.	SN 42 Road Work Plan	44
Figure 31.	SN 5 Rail Work Plan	49
Figure 32.	SN 9 Rail Work Plan	50
Figure 33.	SN 10 Rail Work Plan	51
Figure 34.	SN 11 Rail Work Plan	52
Figure 35.	SN 12 Rail Work Plan	53
Figure 36.	SN 13 Rail Work Plan	54
Figure 37.	SN 14 Rail Work Plan	55
Figure 38.	SN 17 Rail Work Plan	56
Figure 39.	SN 18 Rail Work Plan	57



List of Tables

Table 1.	Road Works Summary Table.....	1
Table 2.	Rail Works Summary Table.....	6

1. Introduction

This Annex provides a comprehensive presentation of all road and rail projects proposed by NTMP to implement the envisaged road and rail network.

Road works herein presented include both rehabilitation/ upgrade of existing road infrastructure and construction of new roads. Rail works consists of the implementation of new railways both in West Bank and Gaza Strip.

Before illustrating each single road and rail works, with technical details and layout, the following tables provide two overall summaries where all road and rail works are presented with:

- Serial number (SN);
- Description,
- Phasing indications; and;
- Road Work Segments.

Tab 1. Road Works Summary Table

Sn.	Project Description	Phase	Road Work Segments
1	Road between Karem Abu-Salem BCP and Rahaf BCP	Phase 1A (2016-2018)	1
3	Salah Al Din Central Axis Road in Gaza Strip	Phase 1A (2016-2018)	3
4	Road Connection to Yasser Arafat Airport	Phase 1A (2016-2018)	4
5	Road Connection to Gaza Fishery Port	Phase 1A (2016-2018)	5
7	Road Connection to Karama Bridge BCP	Phase 1A (2016-2018)	10
8	Road Connection between Ramallah and Nablus	Phase 1A (2016-2018)	13
10	Rural Roads Sealing - Stage 1 (40%)	Phase 1A (2016-2018)	16
16	Gaza Strip Coastal Road	Phase 1 (2019-2024)	19
17	Gaza Strip Main Connections to N-S Central Axis	Phase 1 (2019-2024)	20
18	New Gaza Strip Eastern Corridor	Phase 1 (2019-2024)	2
20	New Connection from Bayt Ummar - Surif - ad-Dhahiriya	Phase 1 (2019-2024)	6
21	New Eastern Road Network: Nabi Musa to Bethlehem	Phase 1 (2019-2024)	8
22	New Connection "Wadi al-Nar"	Phase 1 (2019-2024)	9
23	New Ramallah Eastern By-pass Road	Phase 1 (2019-2024)	11
24	New Nablus/Huwara By-pass Road	Phase 1 (2019-2024)	12
25	West Bank N-S Backbone Reinforcement	Phase 1 (2019-2024)	22
26	Road Connecting Ramallah to Jericho (Road n.449)	Phase 1 (2019-2024)	14
28	New Eastern Road Network: Nabi Musa-Hebron-Bethlehem	Phase 1 (2019-2024)	24
31	Urban Ring-roads in West Bank Main Cities - Stage 1	Phase 1 (2019-2024)	26.1/2/3/4
32	New West Bank - Gaza Strip Corridor - Stage 1	Phase 1 (2019-2024)	27
33	New Gaza Strip East-West Road Connections	Phase 2 (2025-2031)	33

34	New Western Connection: Tulkarm to Ramallah	Phase 2 (2025-2031)	28
35	West Bank Radial Road System - Stage 1	Phase 2 (2025-2031)	31
36	Road Connecting Ramallah to Jericho (Road n.457/458)	Phase 2 (2025-2031)	29
37	West-East Road Connecting Majdal to Road n.90	Phase 2 (2025-2031)	30
39	New West Bank - Gaza Strip Corridor - Stage 2 (100%)	Phase 2 (2025-2031)	32
40	Urban Ring-roads in West Bank Main Cities - Stage 2 (100%)	Phase 2 (2025-2031)	26.5/6/7
41	West Bank Radial Road System - Stage 2 (100%)	Phase 3 (2032-2037)	34
42	West Bank Perimeter Road System	Phase 4 (2038-2045)	35

Tab 2. Rail Works Summary Table

Sn.	Project Description	Phase	Project Code
5	Ramallah-Nablus Rail Connection Construction	Phase 1 (2018-2024)	5
9	West Bank Northern Rail Connection Design and Construction	Phase 2 (2025-2031)	9
10	Nablus-Jenin Rail Connection Construction	Phase 2 (2025-2031)	10
11	Ramallah-Hebron Rail Connection Construction	Phase 2 (2025-2031)	11
12	Gaza Strip International Railway Construction	Phase 3 (2032-2037)	12
13	Rail Connection to New Gaza Commercial Seaport Design and Construction	Phase 3 (2032-2037)	13
14	West Bank International Rail Connection Design and Construction	Phase 3 (2032-2037)	14
17	Western West Bank rail system Construction	Phase 4 (2038-2045)	17
18	Tubas - Damyeh BCP Rail Connection Construction	Phase 4 (2038-2045)	18

2. Road Works Technical Sheets

This chapter illustrates each single road work proposed by NTMP, providing the following information:

- Road Works Segments;
- Road Works Description;
- Road Works Location (Key Plan);
- Road Works Layout;
- Road Works Type of Infrastructure (road, tunnel, viaduct, ...), and
- Road Works Section Type (Type 1, Type 1var, Type 2; Type 3 viaduct; Type 4 tunnel).¹

All proposed road works are illustrated in the following overall map.

¹ For more detail concerning Road Section Types considered by NTMP, refer to *IV.1 Road Transport*.

Figure 1. Road Works Overall Map

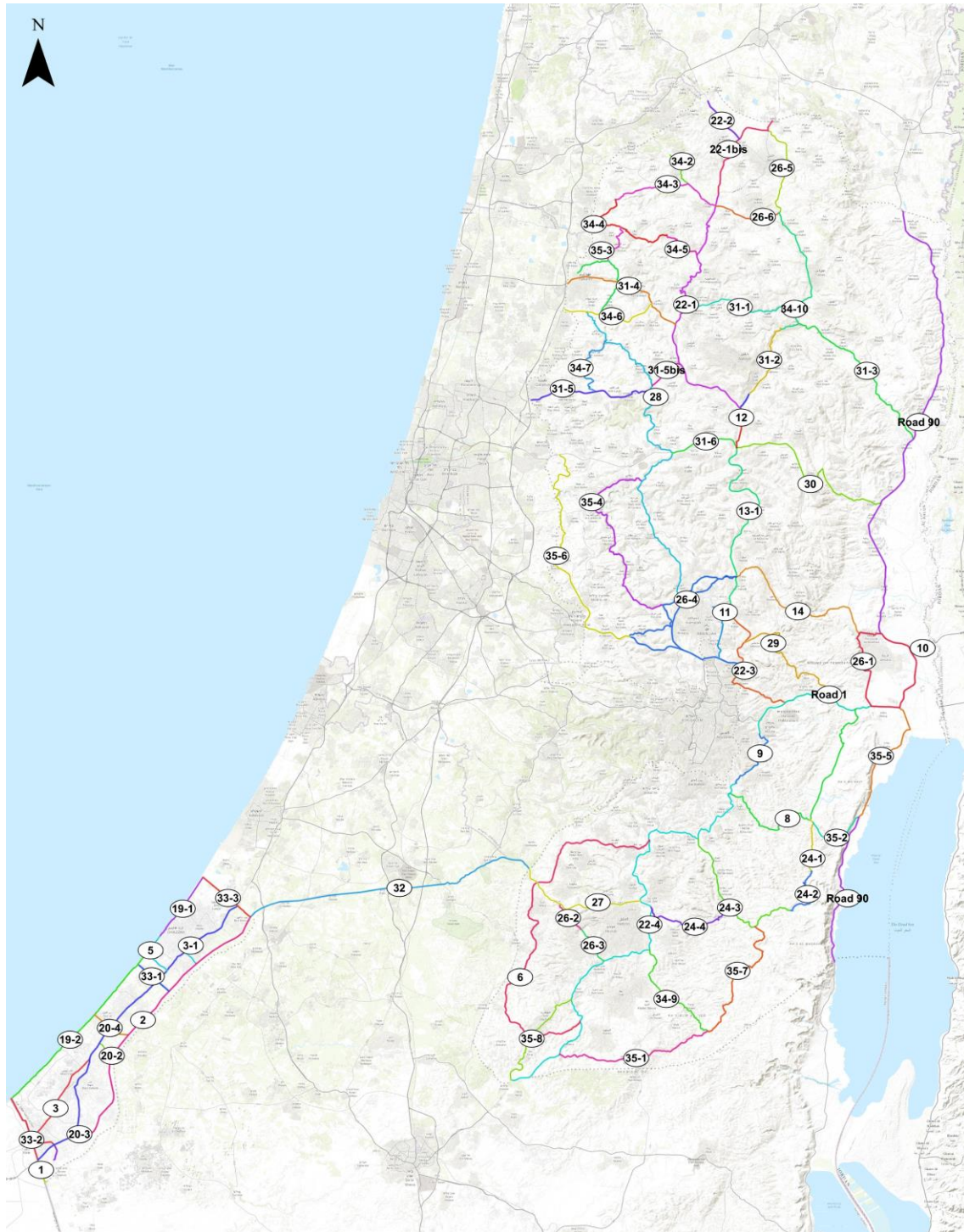
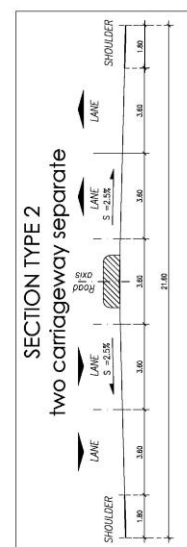
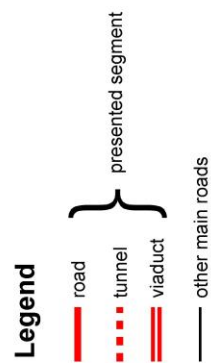
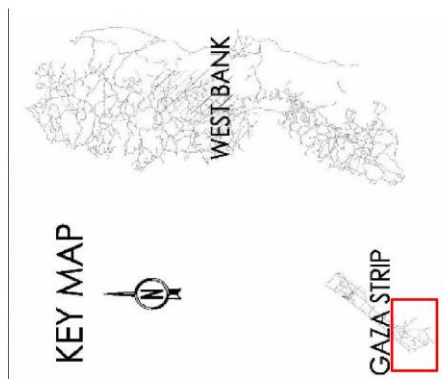


Figure 3. SN 3 Road Work Plan



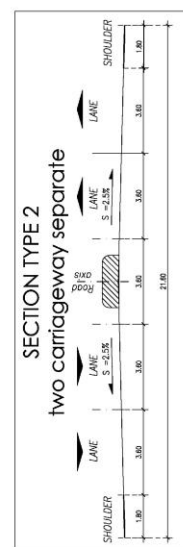
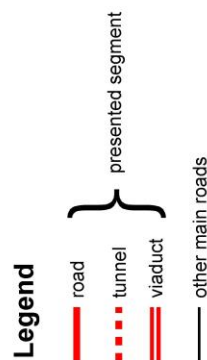
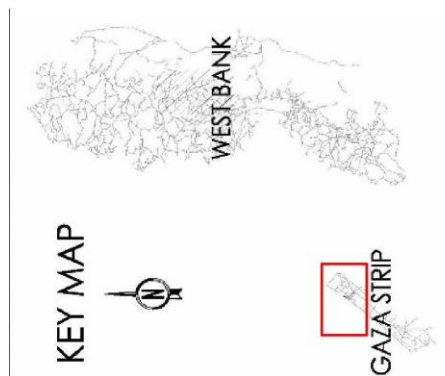
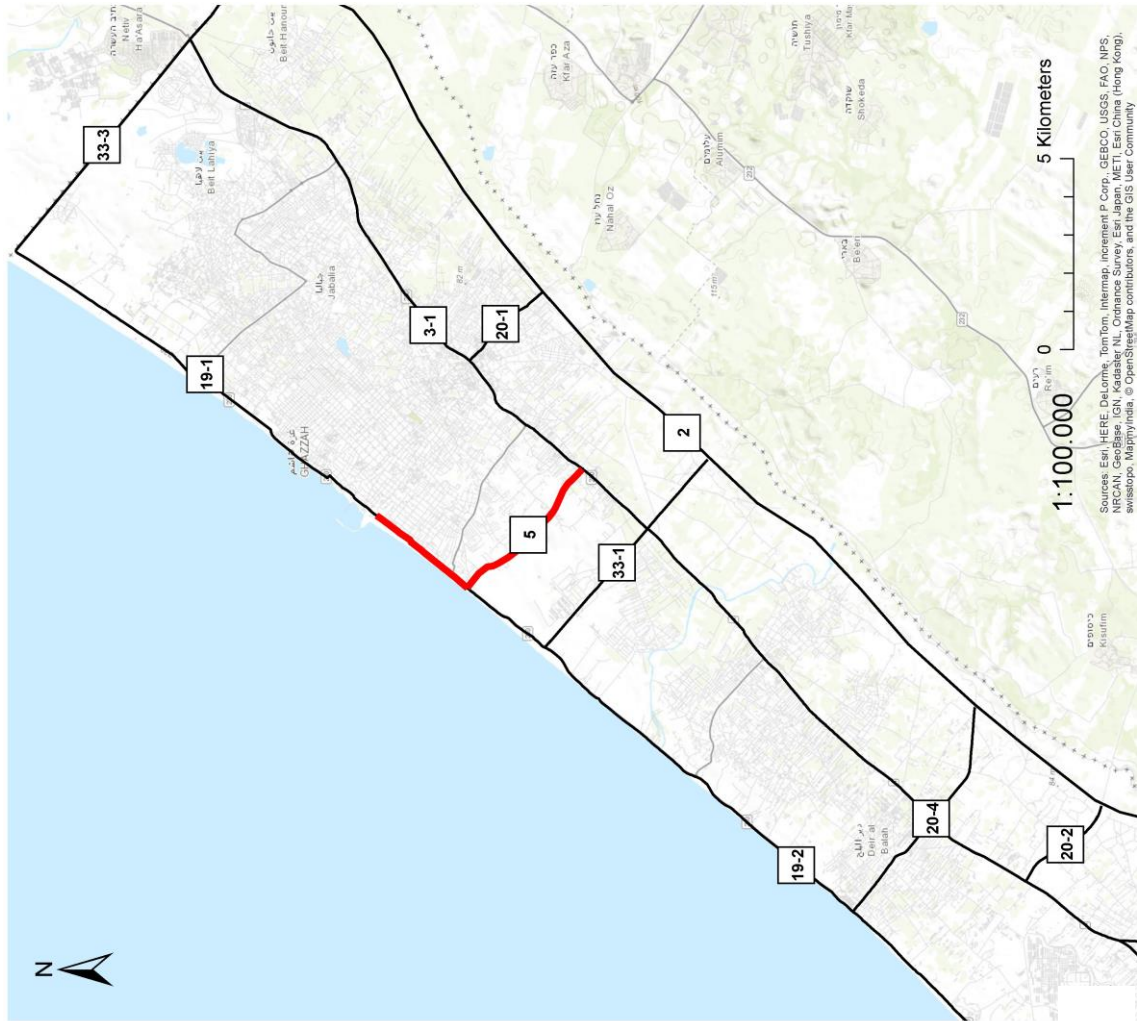
Salah Al Din Central Axis Road in Gaza Strip

Figure 4. SN 4 Road Work Plan



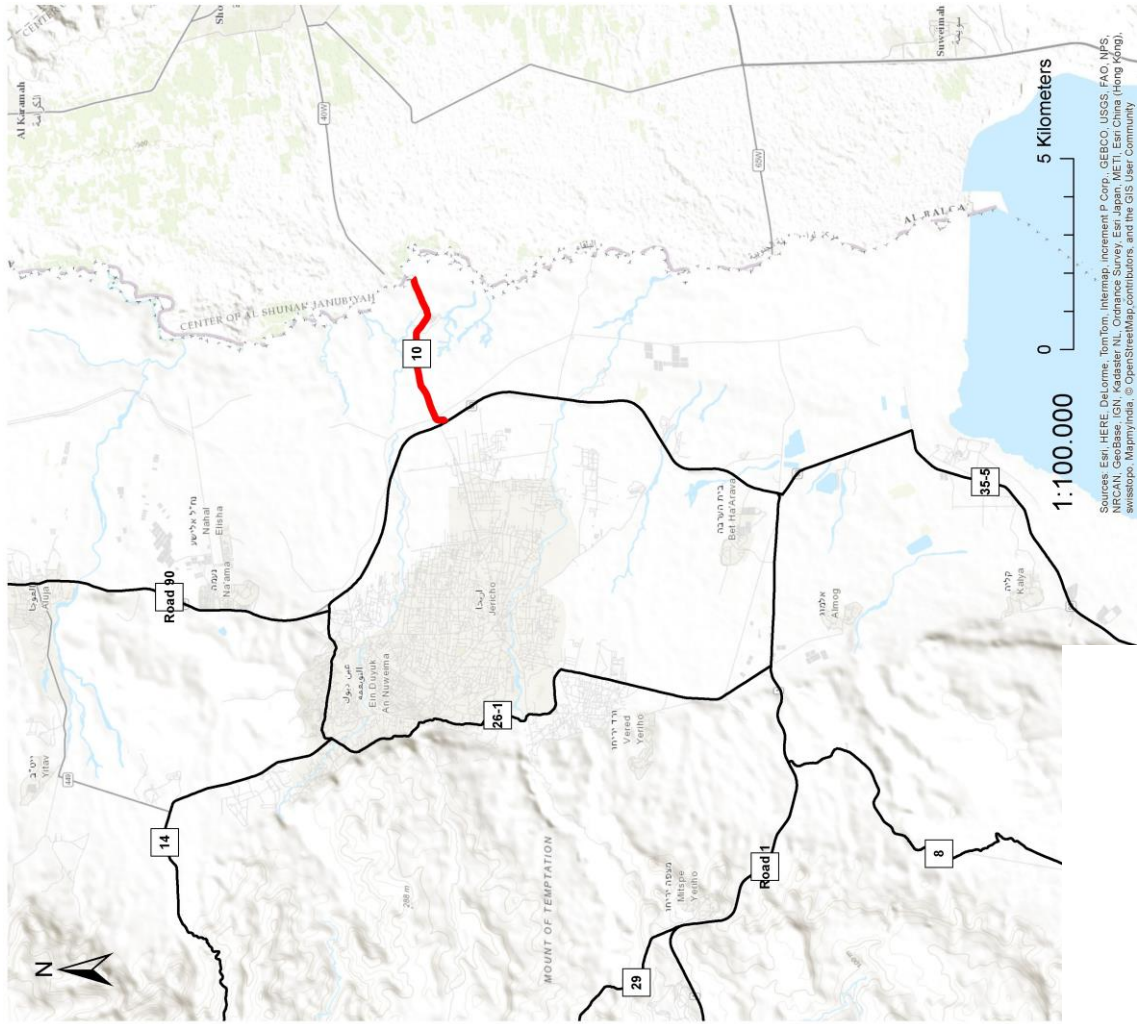
Road Connection to Yasser Arafat Airport

Figure 5. SN 5 Road Work Plan

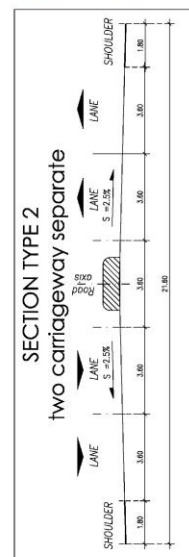
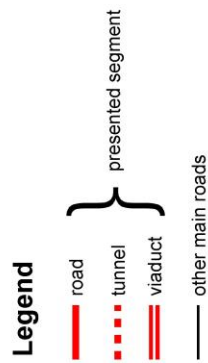
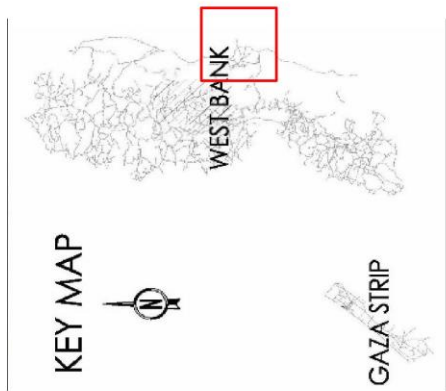


Road Connection to Gaza Fishery Port

Figure 6. SN 7 Road Work Plan

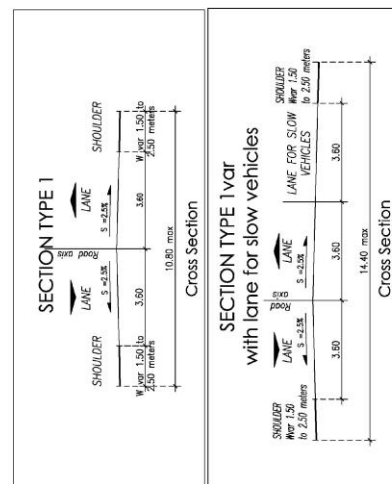
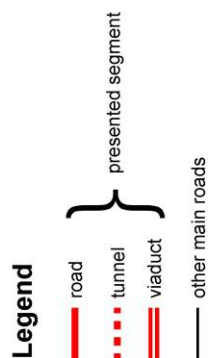
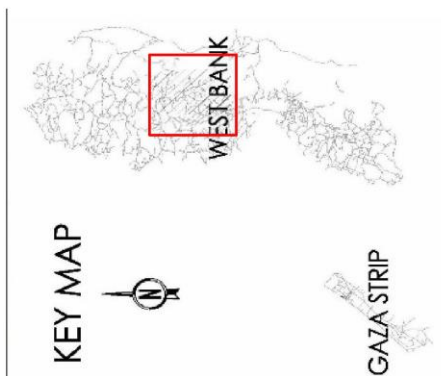
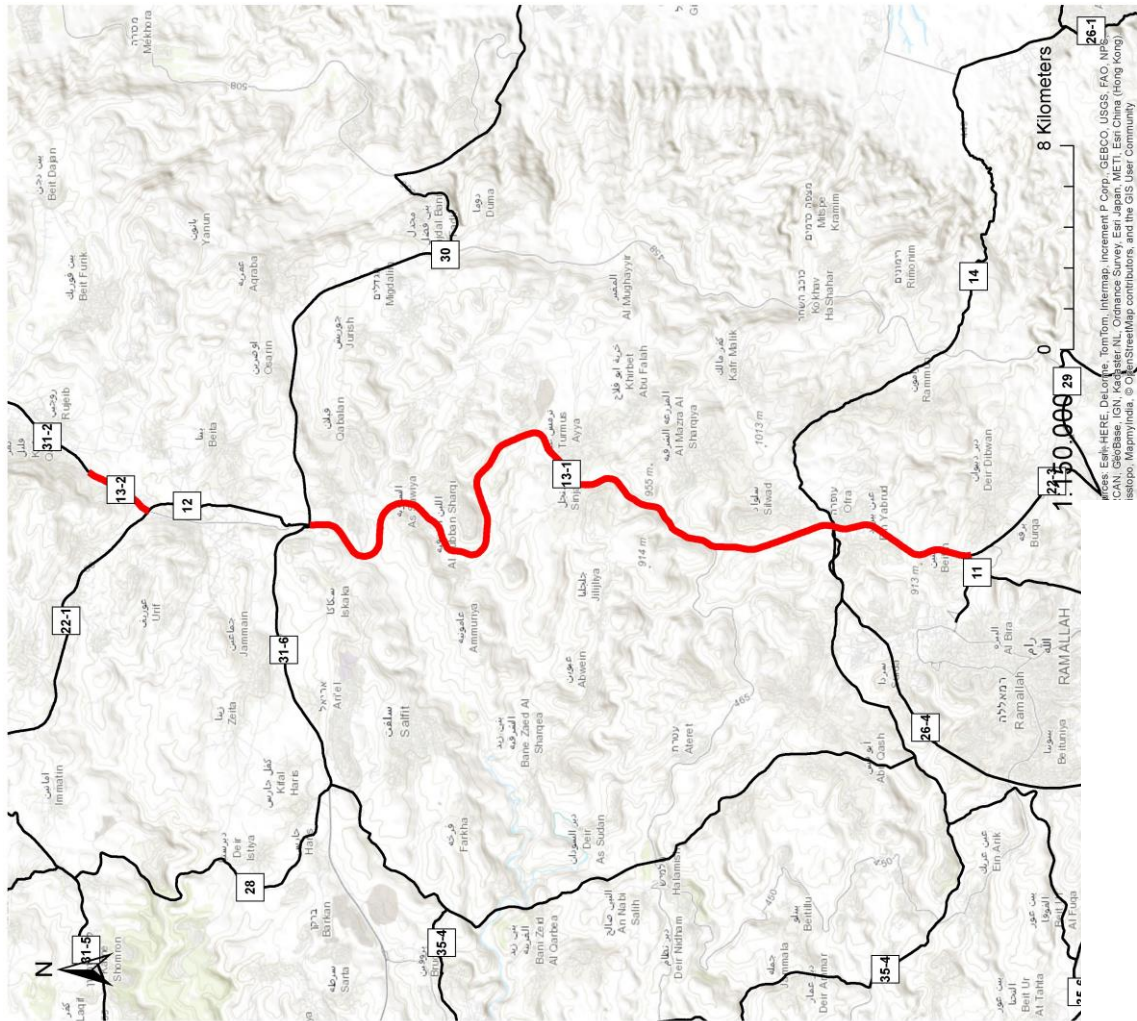


Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, MapboxIndia, © OpenStreetMap contributors, and the GIS User Community



Road Connection to Karama Bridge BCP

Figure 7. SN 8 Road Work Plan



Road Connection between Ramallah and Nablus

Figure 8. SN 10 Road Work Plan

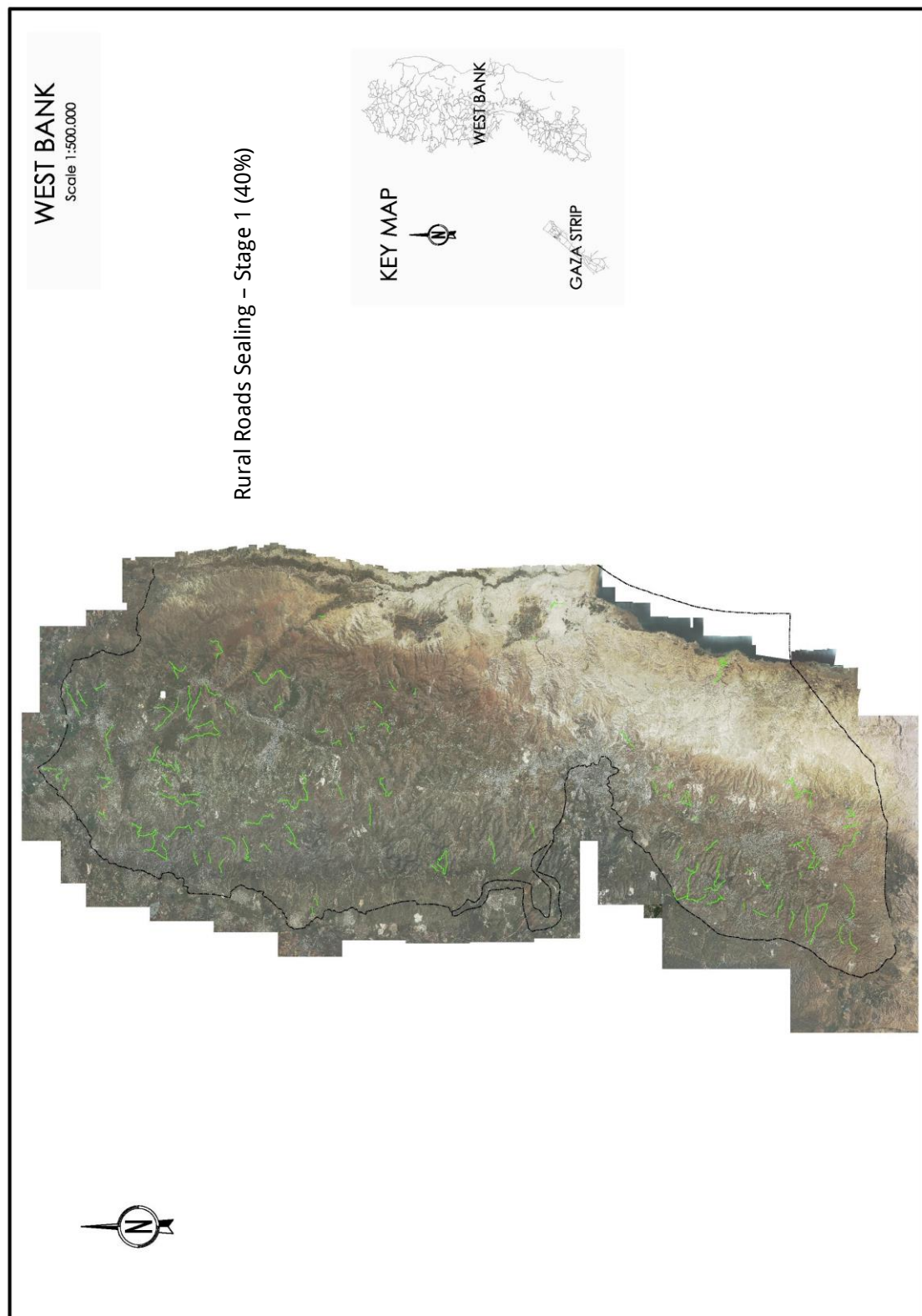
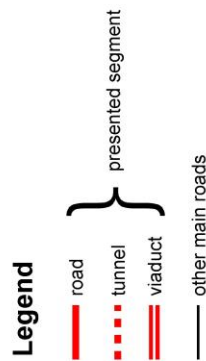
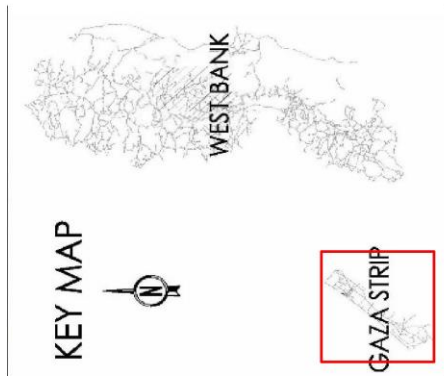
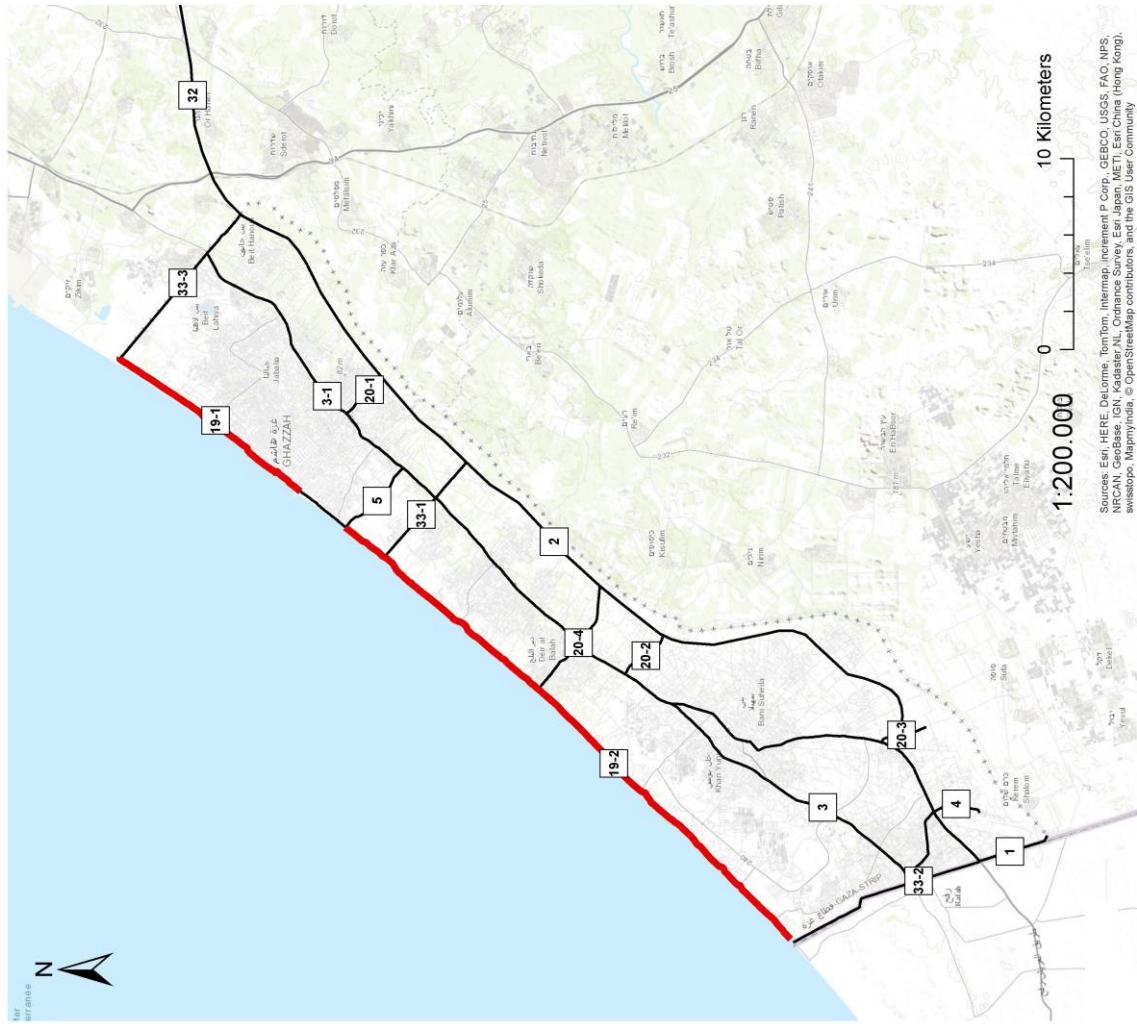


Figure 9. SN 16 Road Work Plan

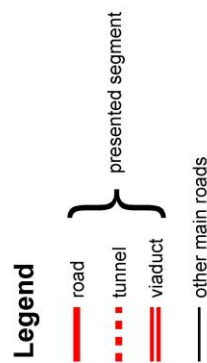
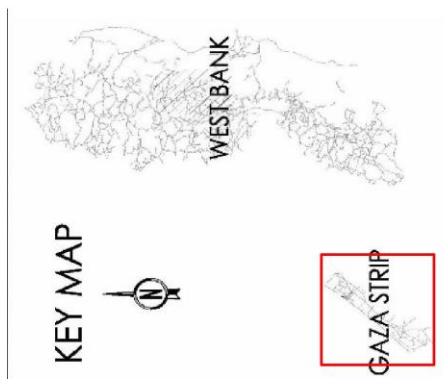


Gaza Strip Coastal Road

Figure 10.SN 17 Road Work Plan

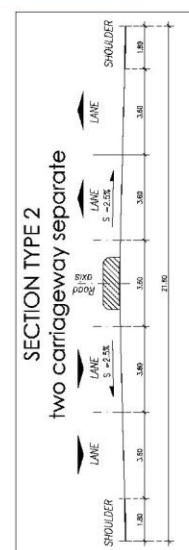
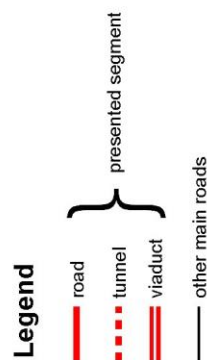
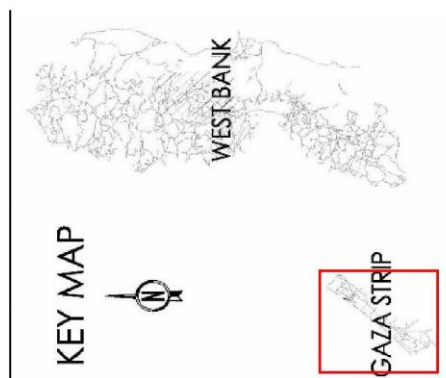


Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, MRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community



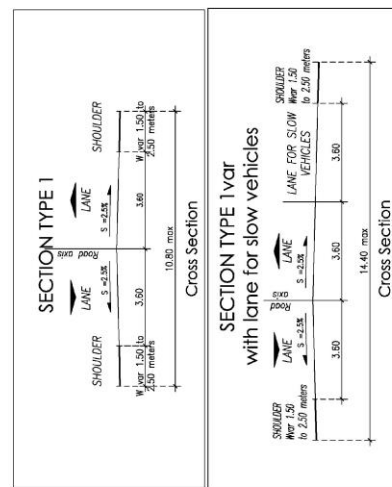
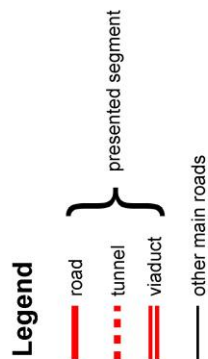
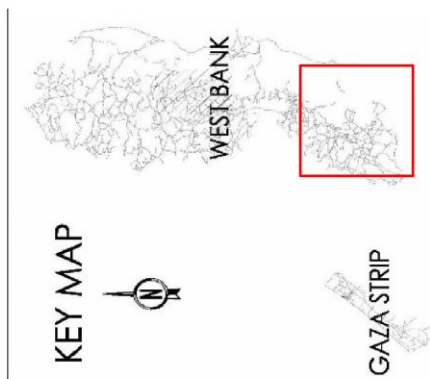
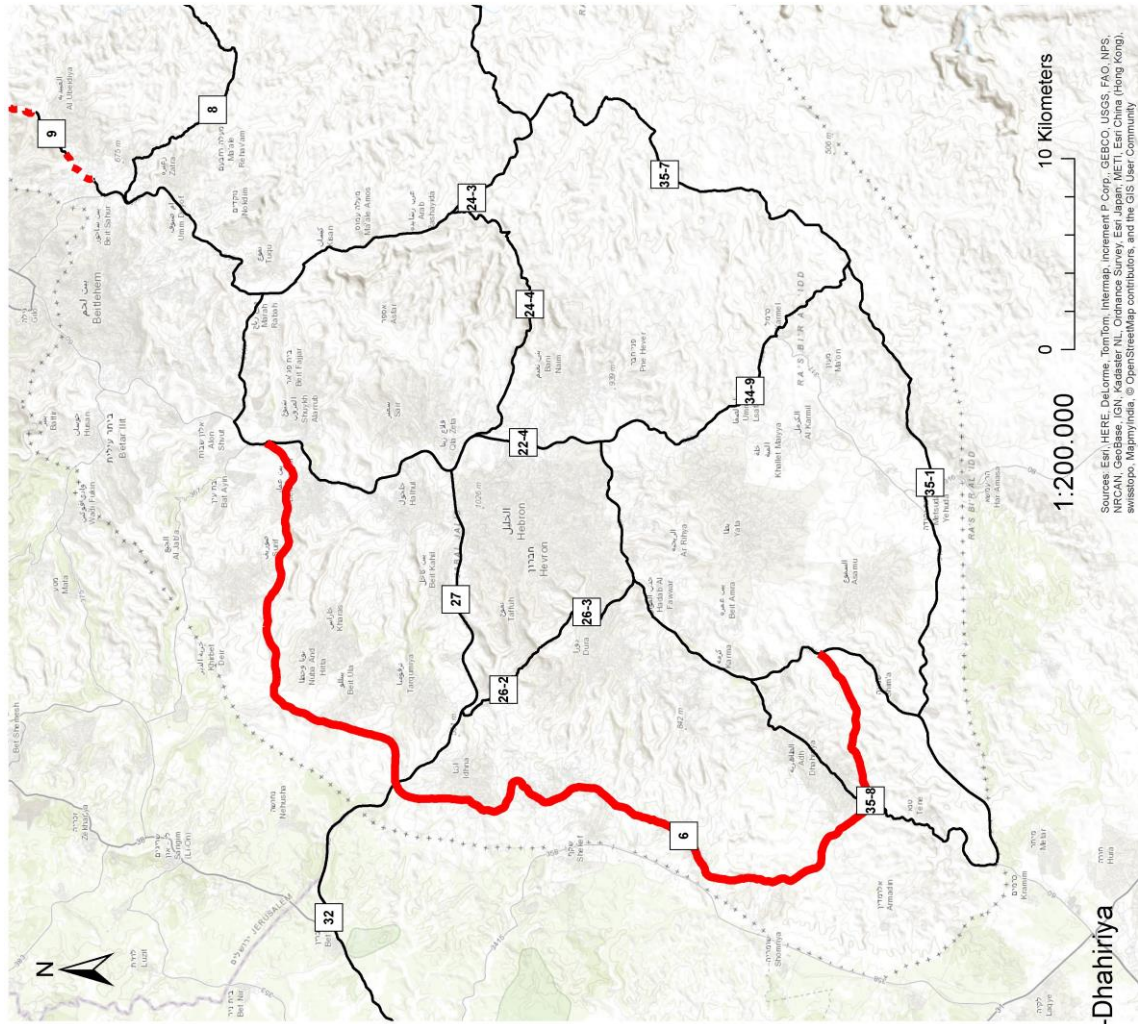
Gaza Strip Main Connection to N-S Central Axis

Figure 11.SN 18 Road Work Plan



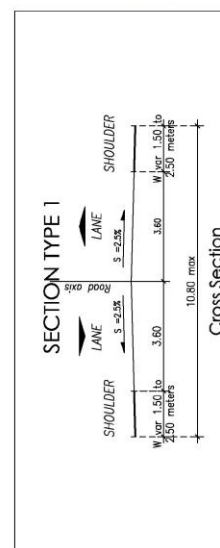
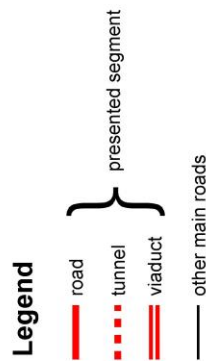
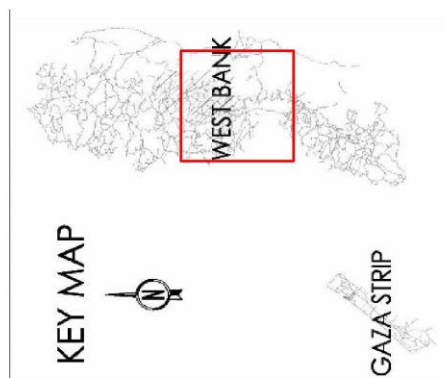
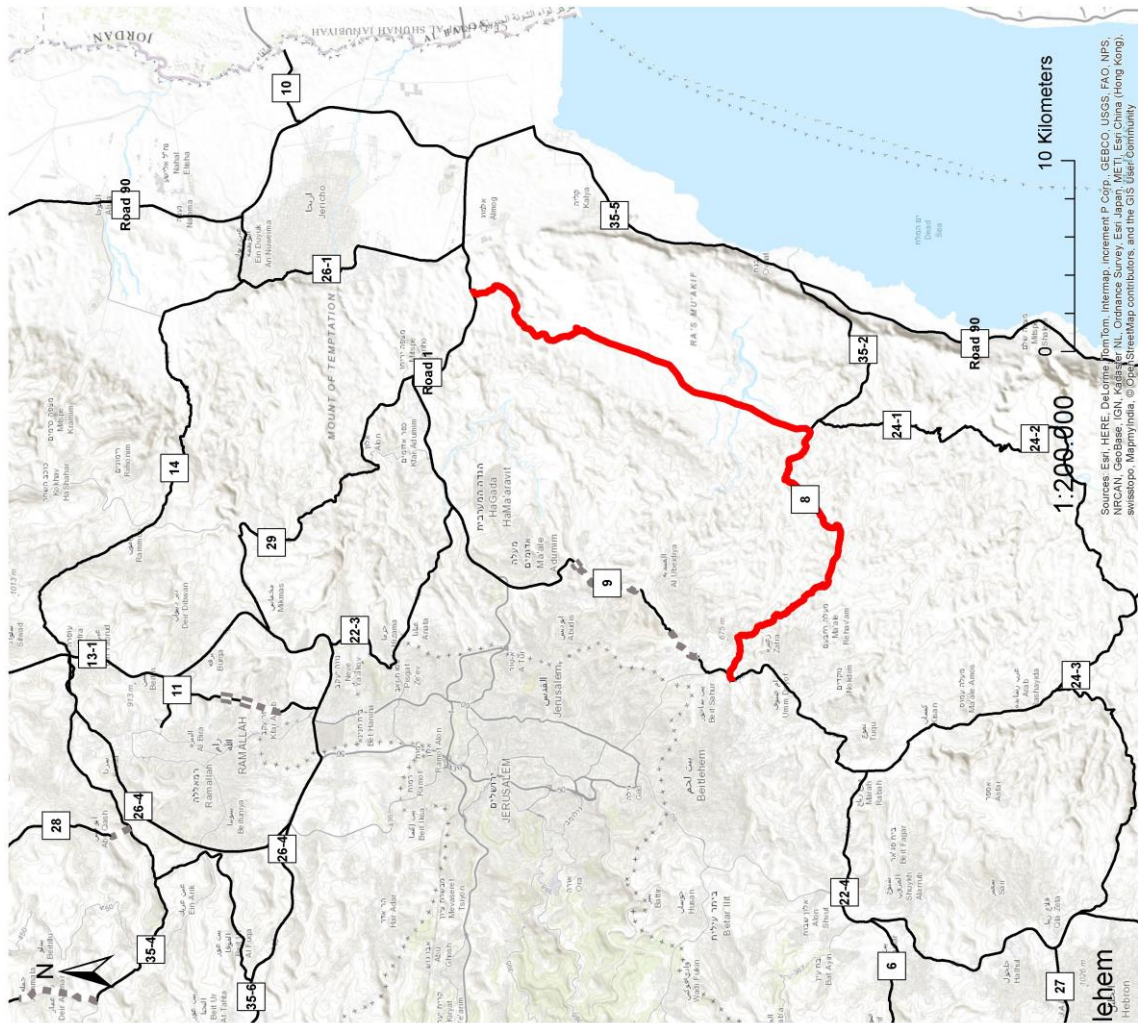
New Gaza Strip Eastern corridor

Figure 12. SN 20 Road Work Plan



New connection from Bayt Ummar - Surif - ad-Dhahiriya

Figure 13. SN 21 Road Work Plan



New eastern road network: Nabi Musa to Bethlehem

KEY MAP

WEST BANK

GAZA STRIP

Legend

- road
- tunnel
- = viaduct
- other main roads

} presented segment

SECTION TYPE 1

SHOULDER		LANE		SHOULDER	
Width 1.50 to 2.50 meters	3.60	S = +2.5%	3.60	Width 1.50 to 2.50 meters	3.60
Road axis					
S = +2.5%					
10.80 max.					

Cross Section

New connection "Wadi-al-Nar"

Figure 15. SN 23 Road Work Plan

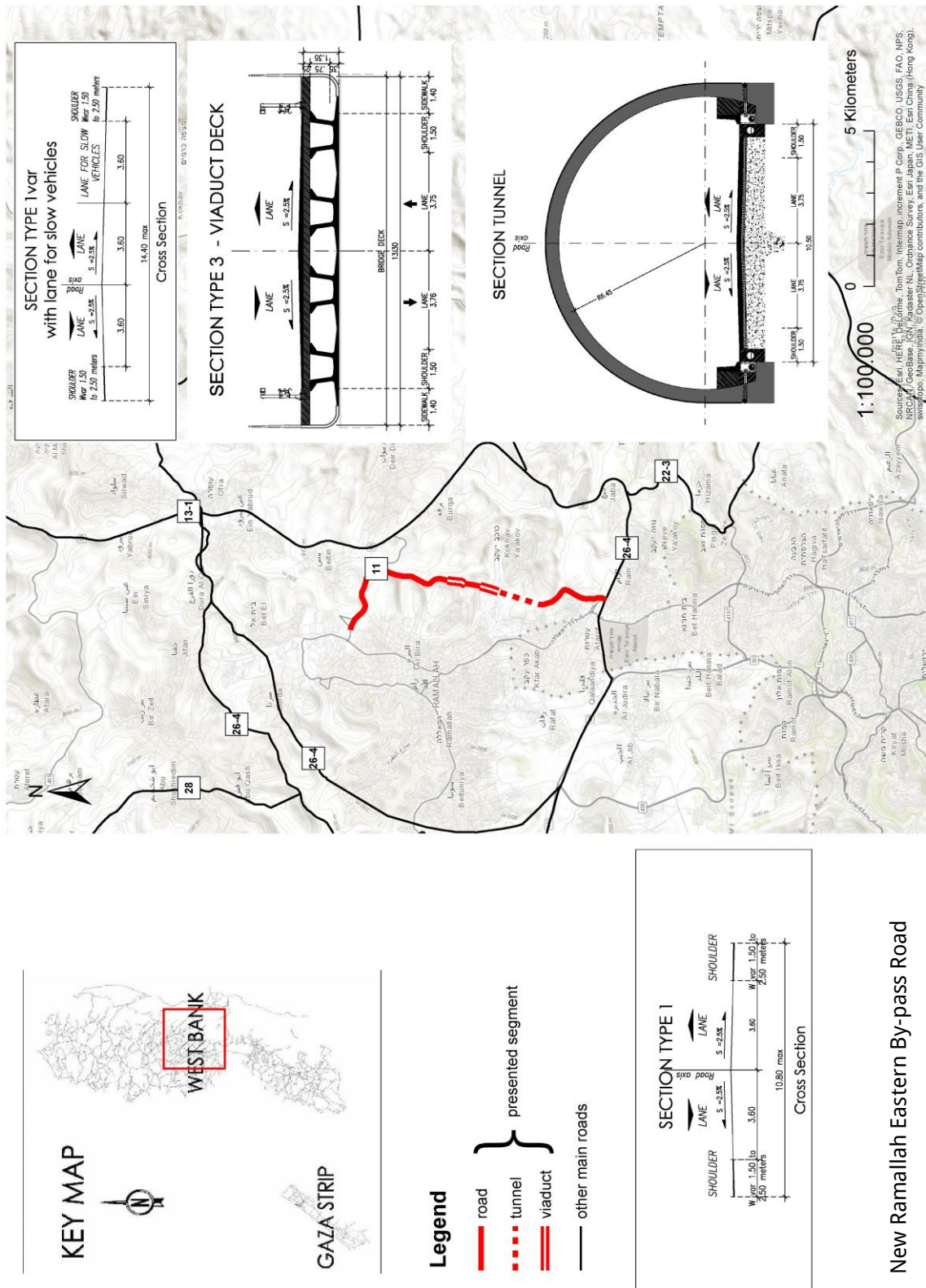
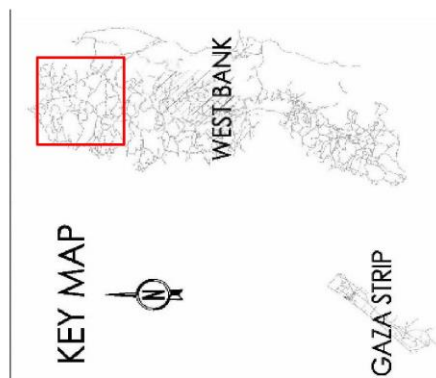
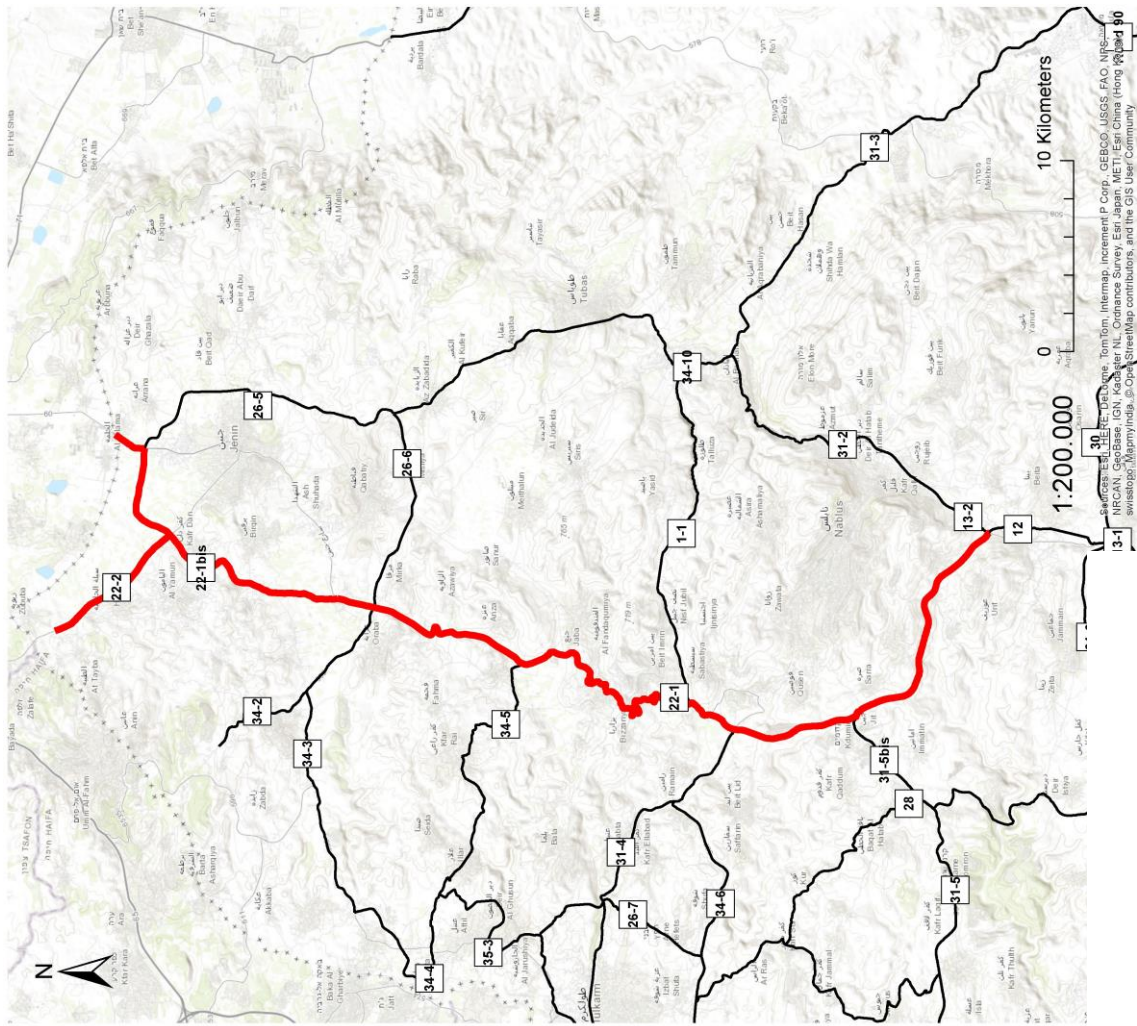
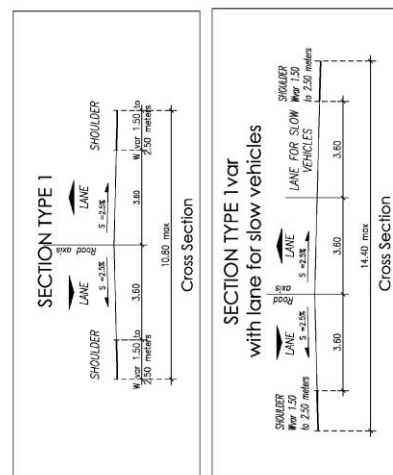


Figure 17. SN 25 Road Work Plan



Legend

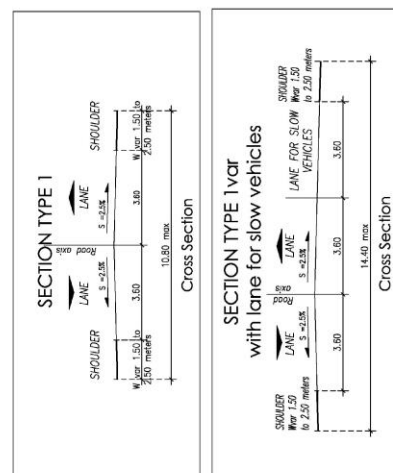
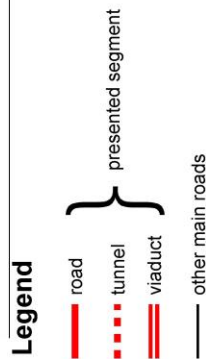
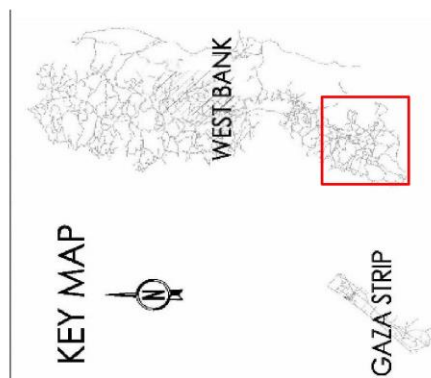
- road
- tunnel
- = viaduct
- other main roads



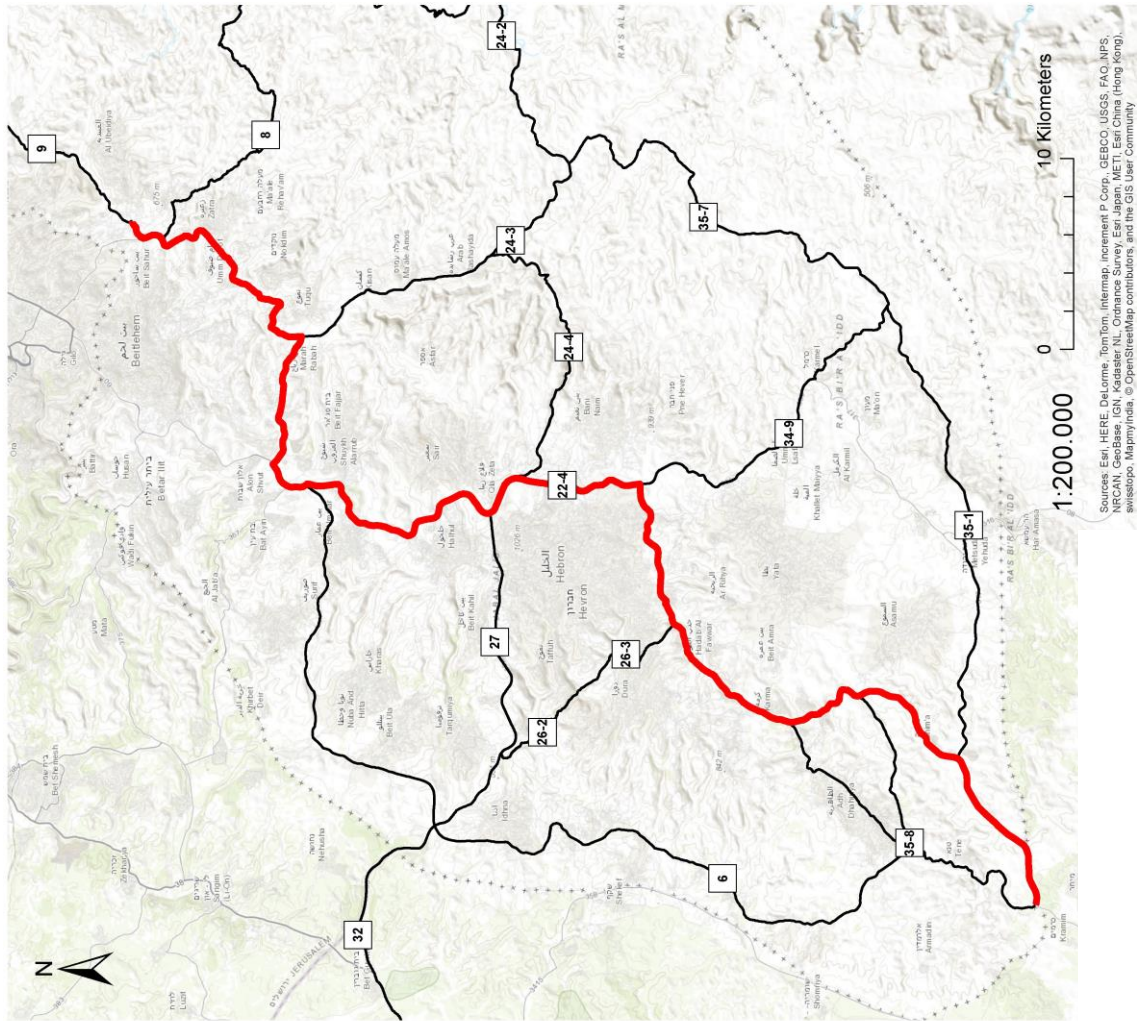
West Bank N-S Backbone Reinforcement



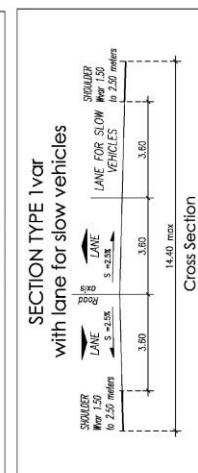
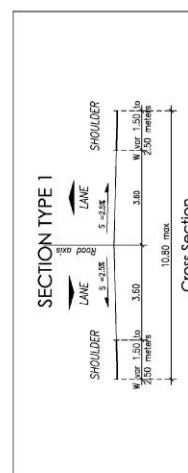
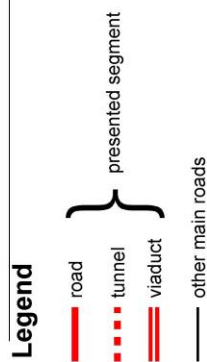
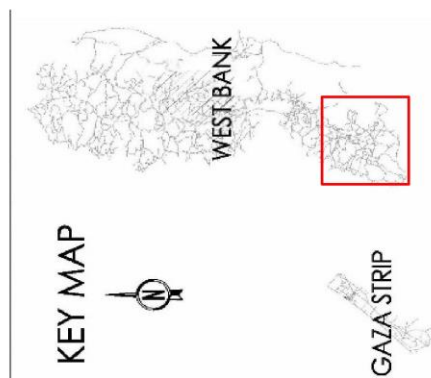
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West Bank N-S Backbone Reinforcement

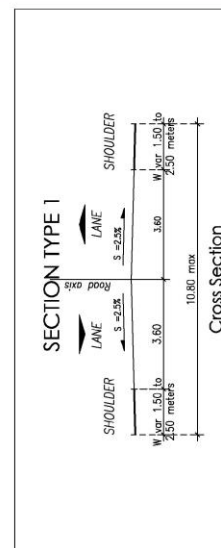
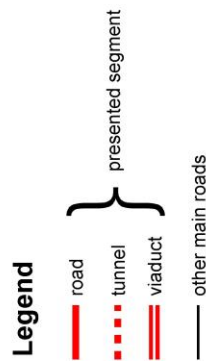
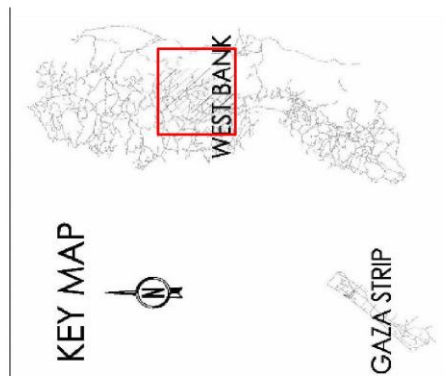
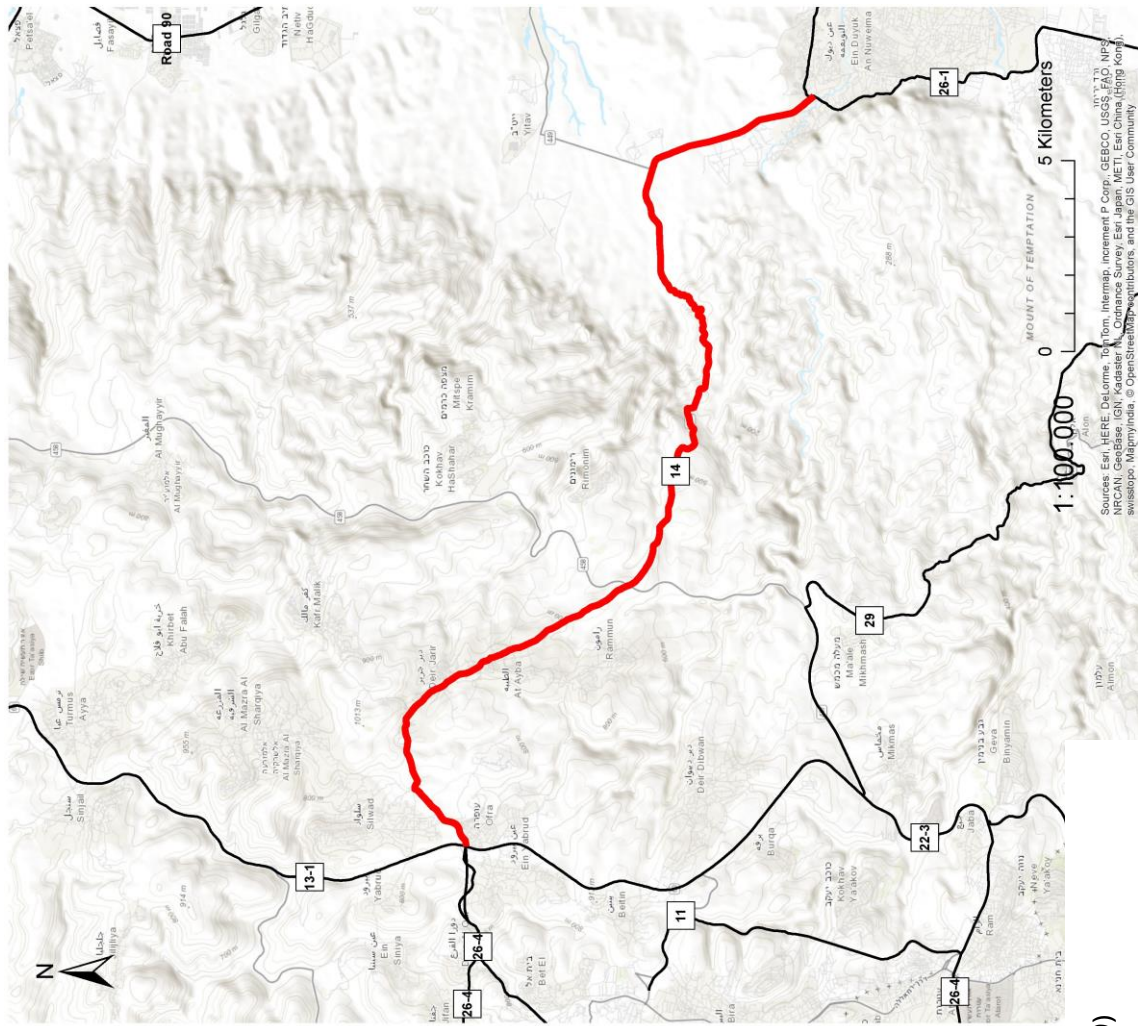


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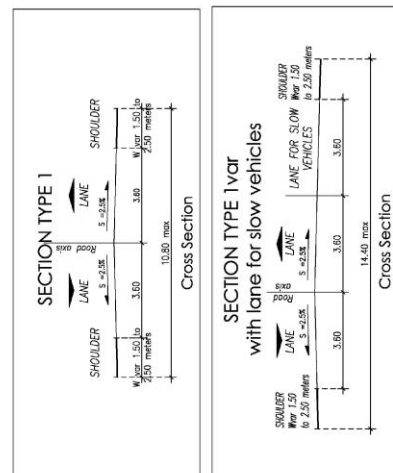
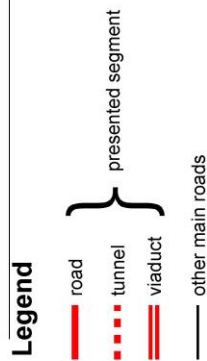
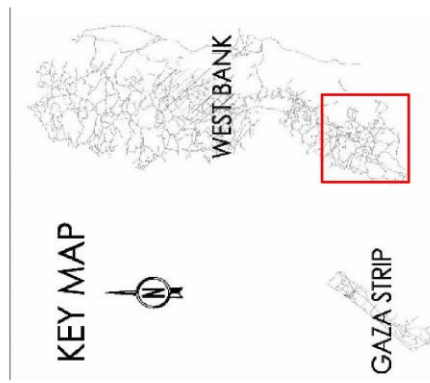
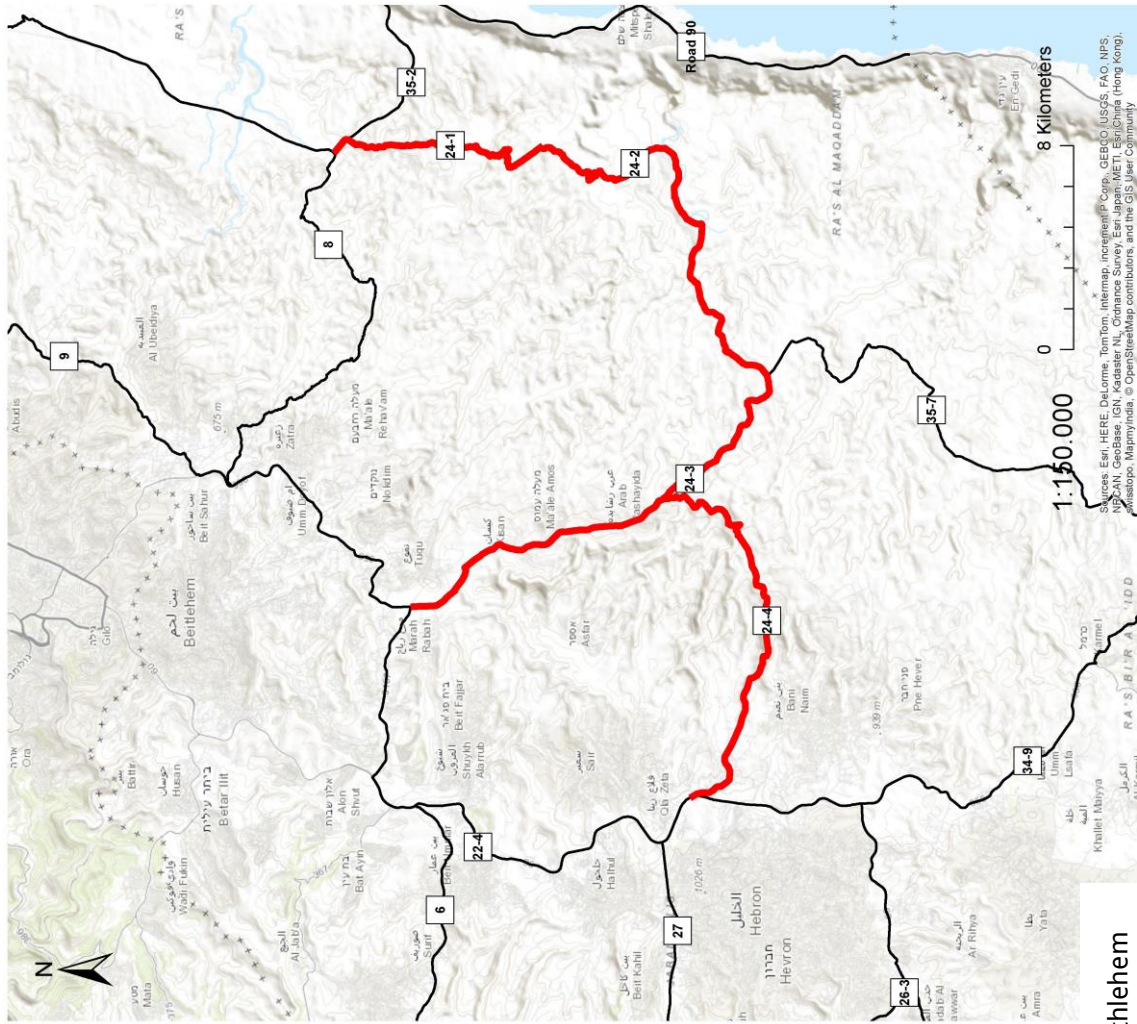
West Bank N-S Backbone Reinforcement

Figure 18. SN 26 Road Work Plan



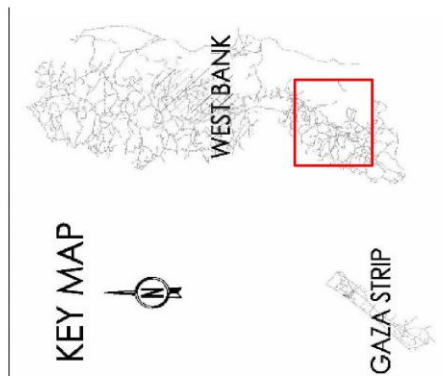
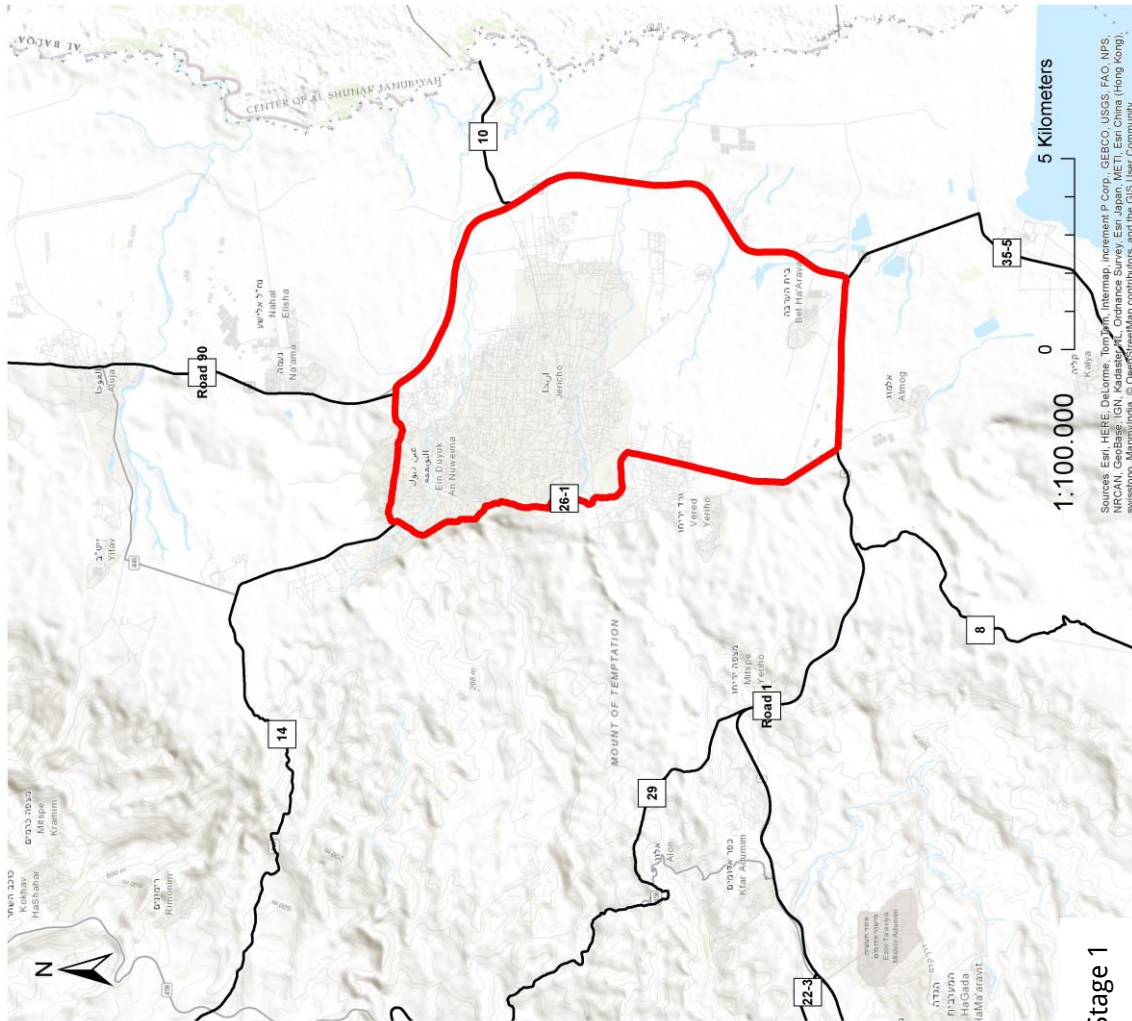
Road Connecting Ramallah to Jericho (Road n.449)

Figure 19. SN 28 Road Work Plan

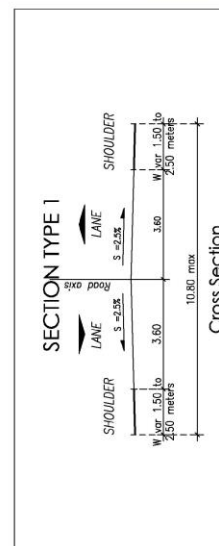


New Eastern Road Network: Nabi Musa – Hebron – Bethlehem

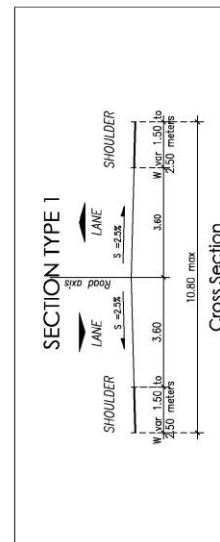
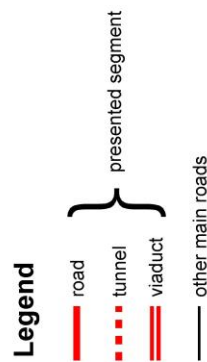
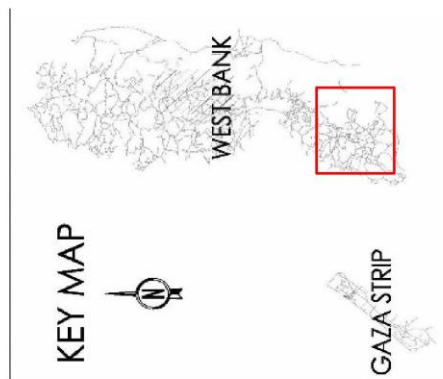
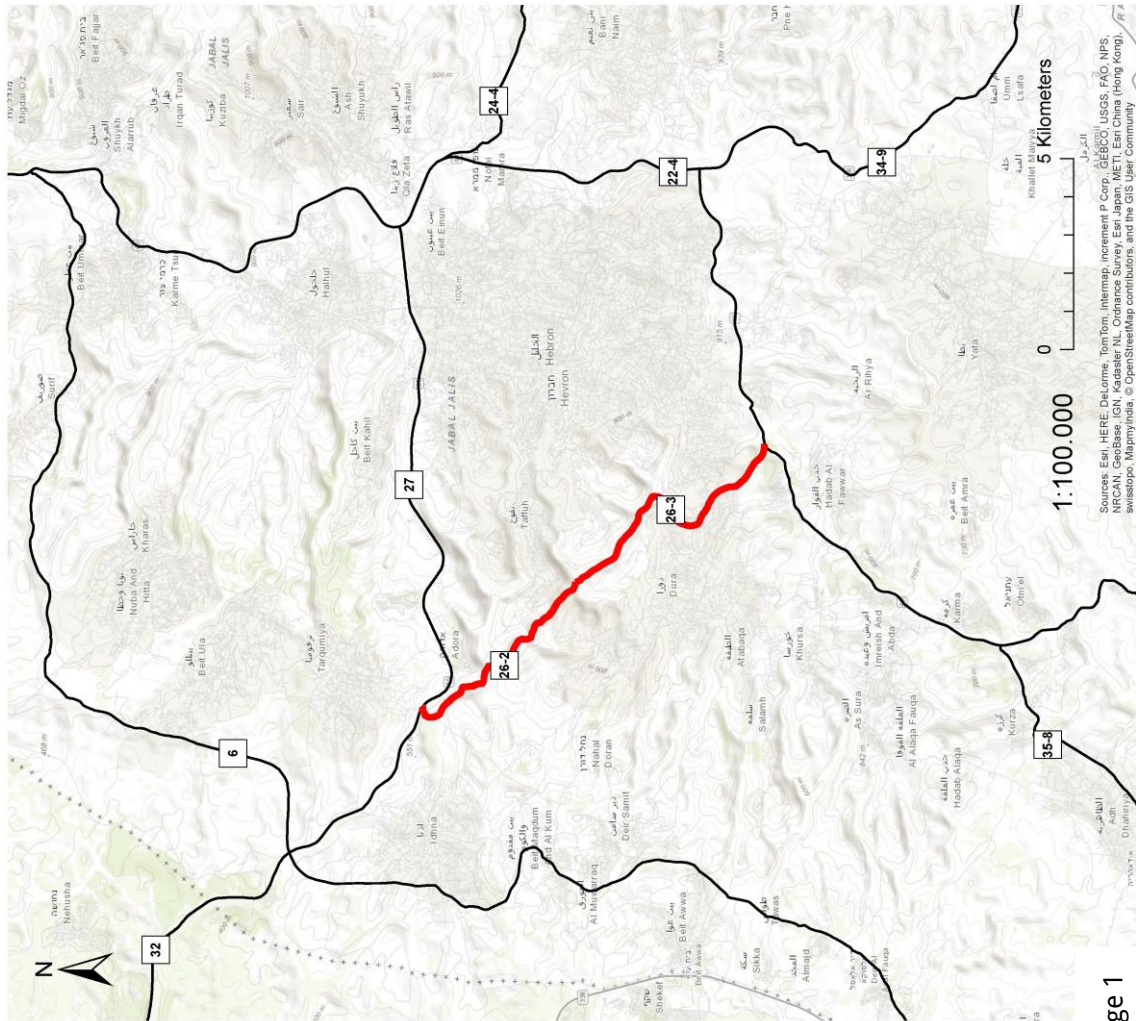
Figure 20. SN 31 Road Work Plan



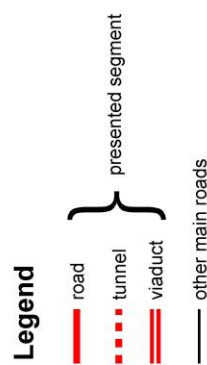
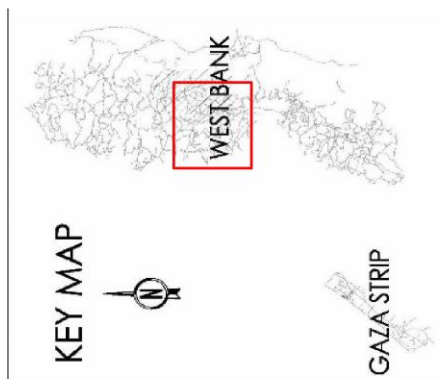
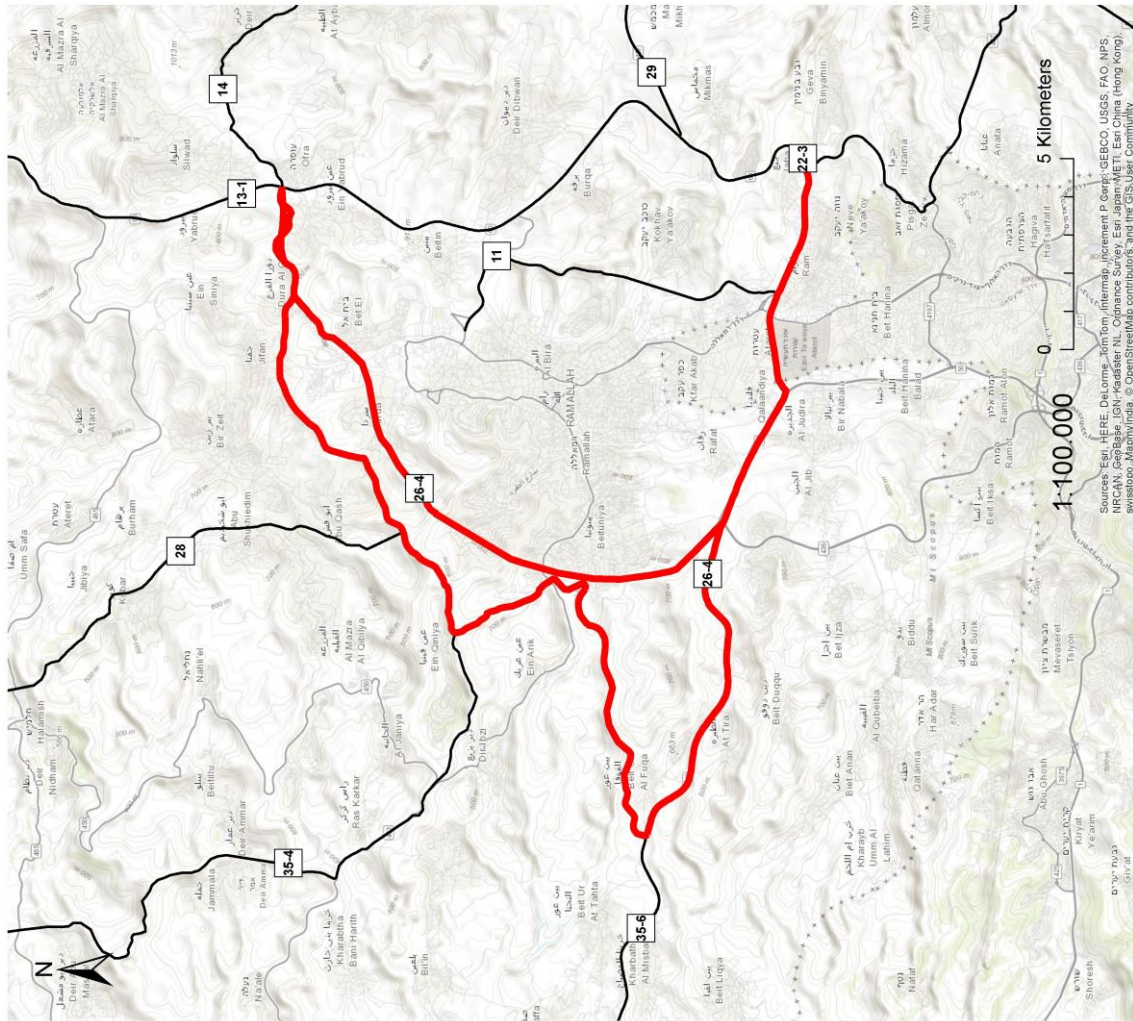
- Legend**
- road
 - tunnel
 - = viaduct
 - other main roads
- presented segment**



Urban Ring-roads in West Bank Main Cities – Stage 1

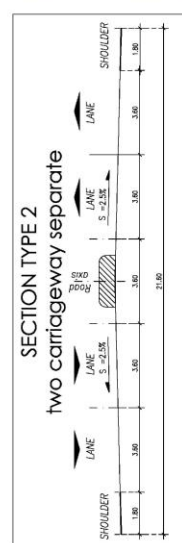
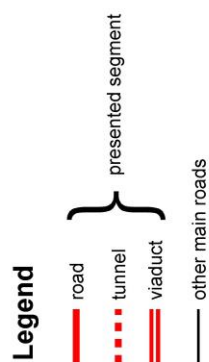


Urban Ring-roads in West Bank Main Cities – Stage 1



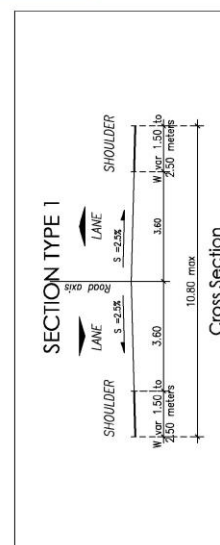
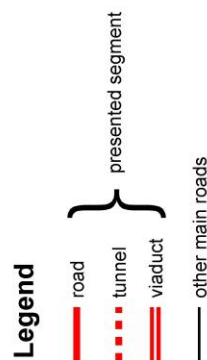
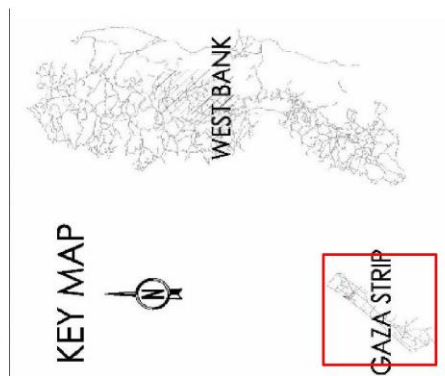
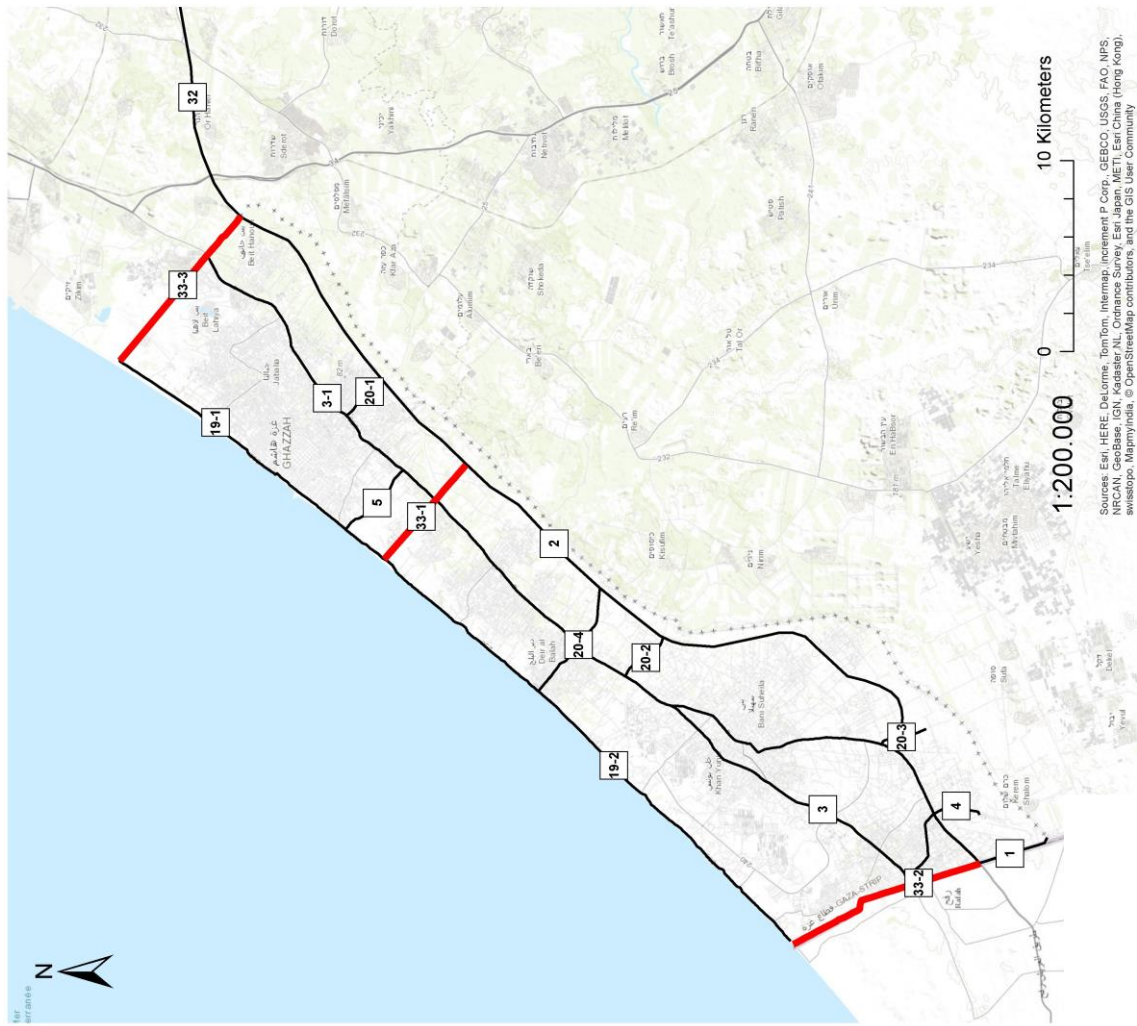
Urban Ring-roads in West Bank Main Cities – Stage 1

The map shows the Eilat-Zela road (red line) and the Eilat-Zela railway (black line). The road starts at Eilat (32) and goes north to Zela (24-4). The railway starts at Eilat (32) and goes north to Zela (24-4). The map includes contour lines, place names in Hebrew and Arabic, and a scale bar indicating 1:100,000 and 5 Kilometers.



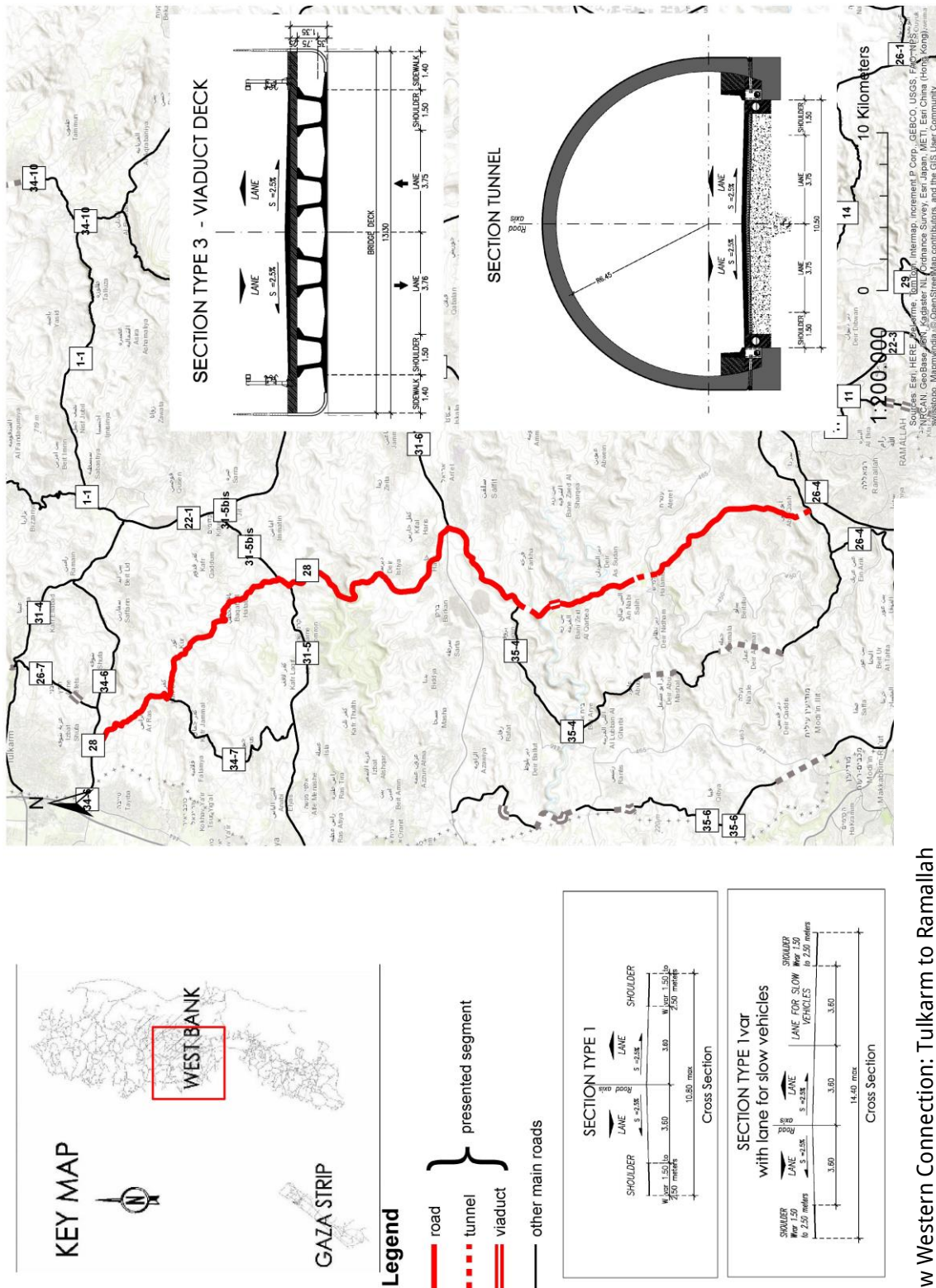
New West Bank – Gaza Strip Corridor – Stage 1

Figure 22. SN 33 Road Work Plan



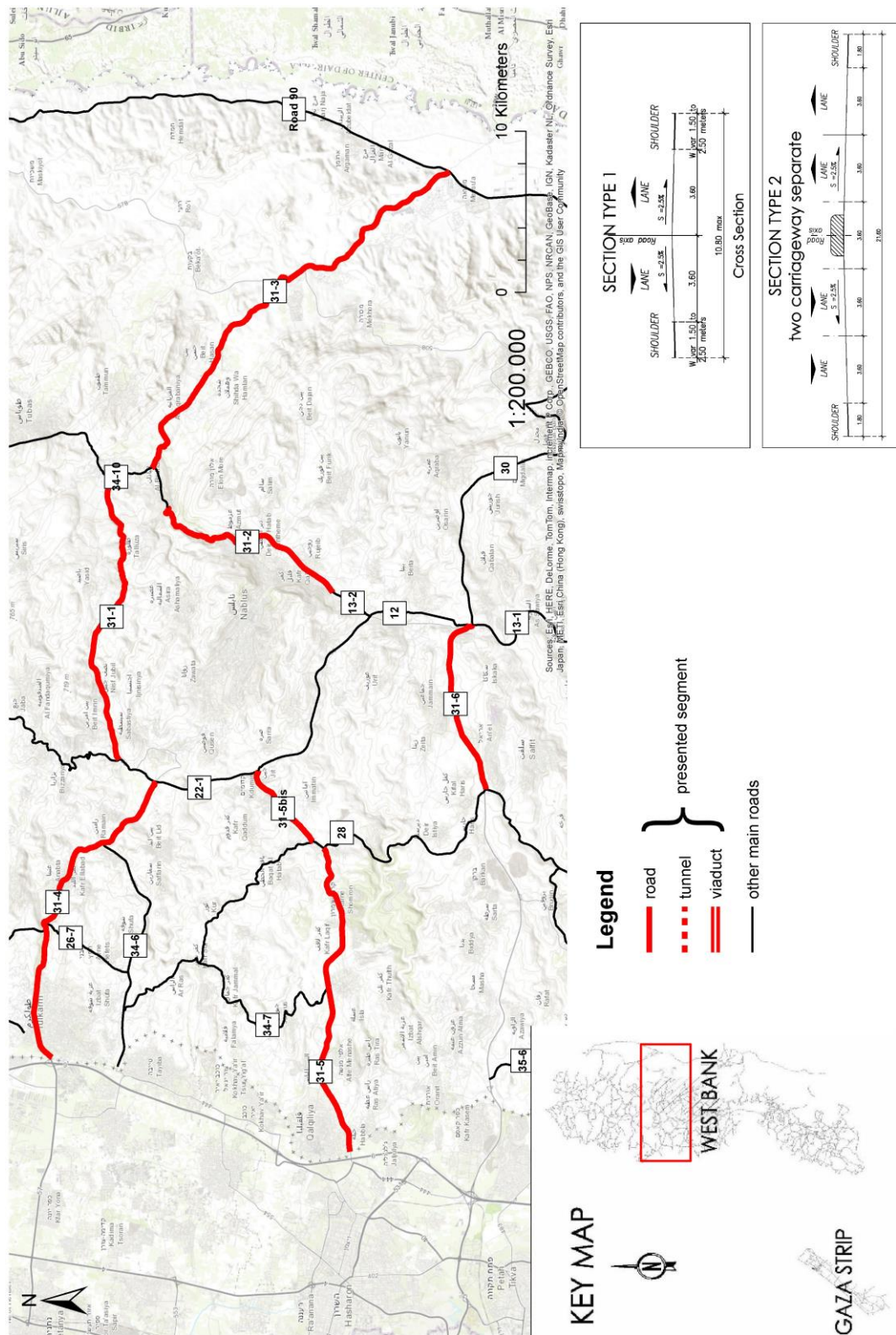
New Gaza Strip East – West Road Connections

Figure 23. SN 34 Road Work Plan



New Western Connection: Tulkarm to Ramallah

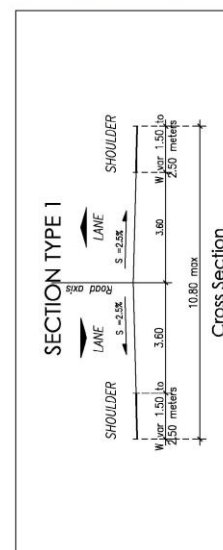
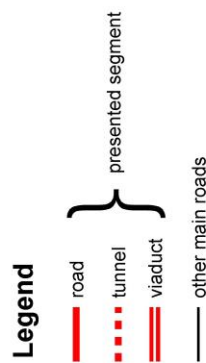
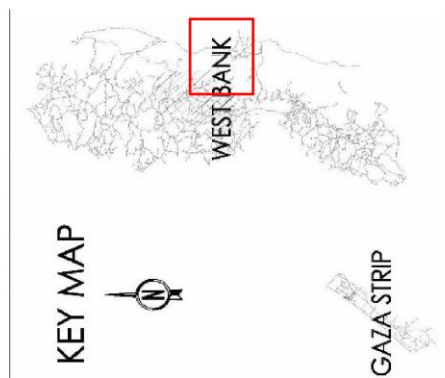
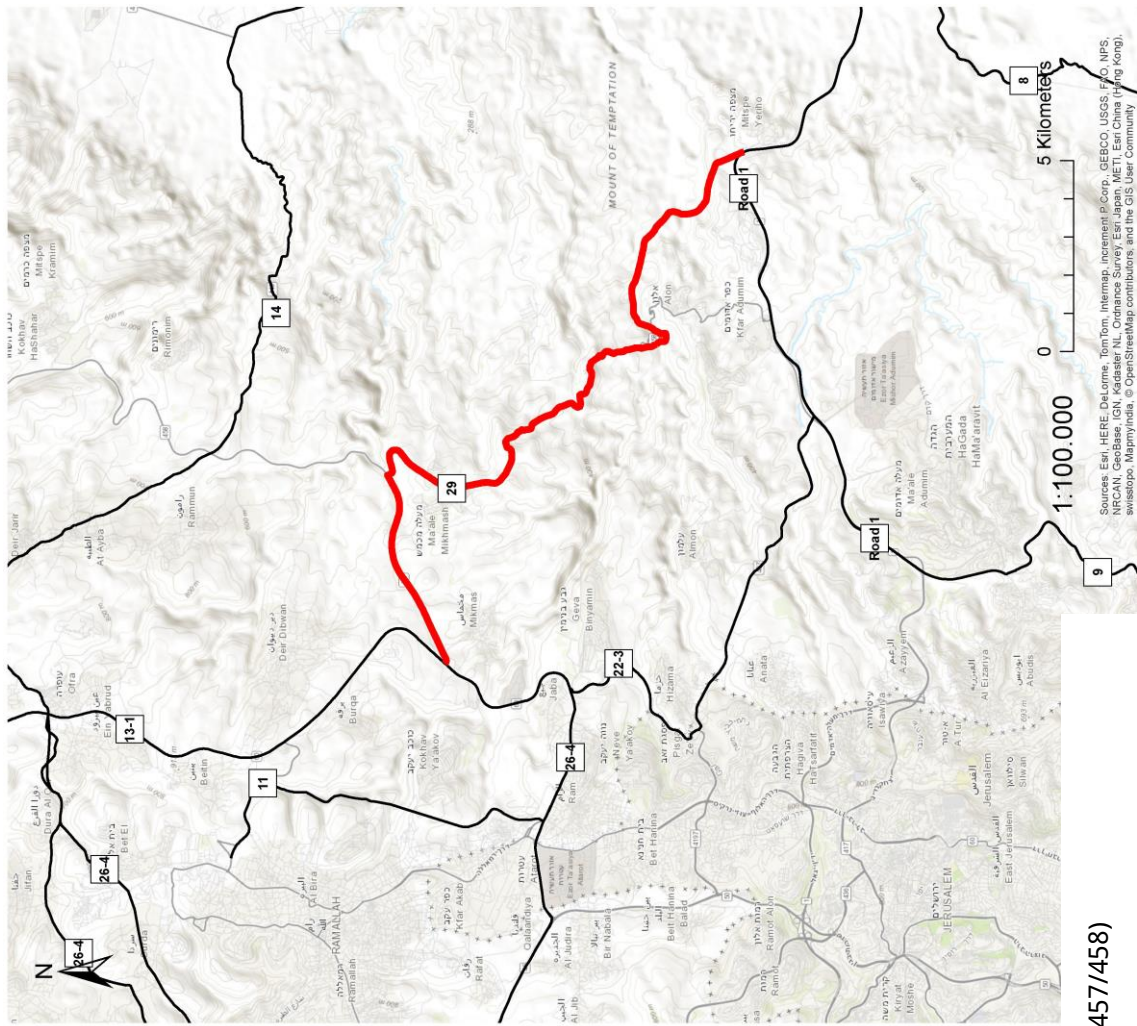
Figure 24. SN 35 Road Work Plan



West Bank Radial Road System – Stage 1

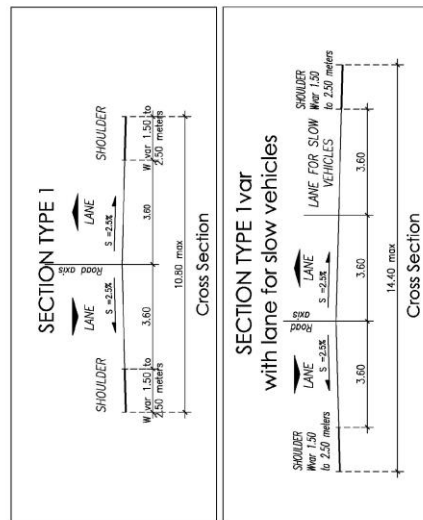
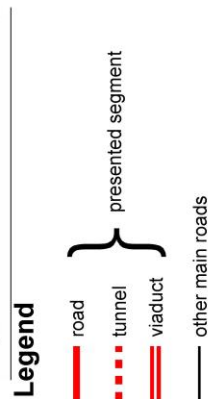
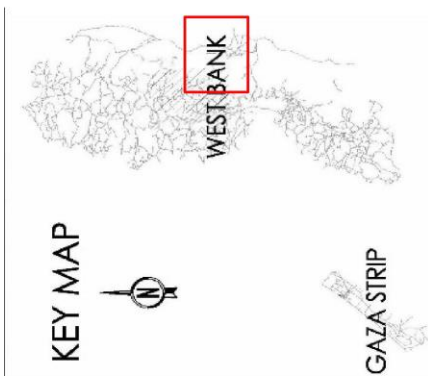


Figure 25. SN 36 Road Work Plan



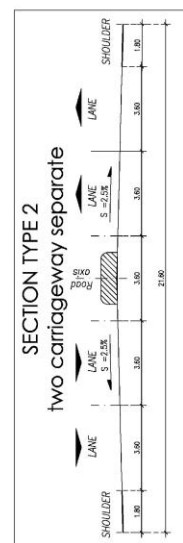
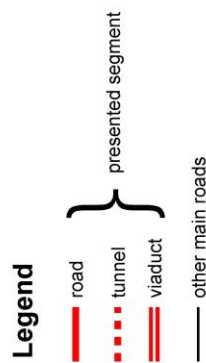
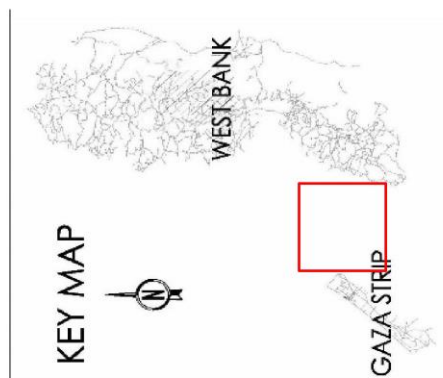
Road Connecting Ramallah to Jericho (Road n.457/458)

Figure 26. SN 37 Road Work Plan



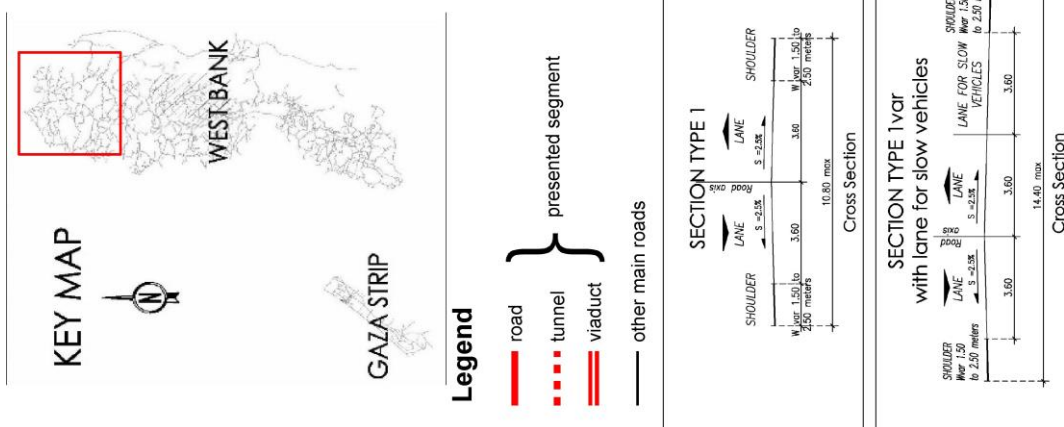
West-East Road Connecting Majdal to Road n.90

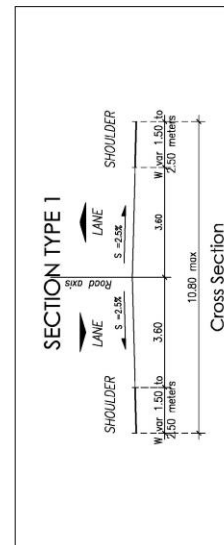
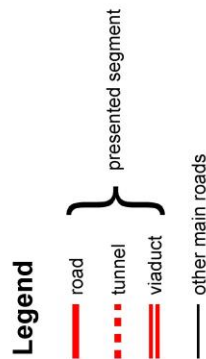
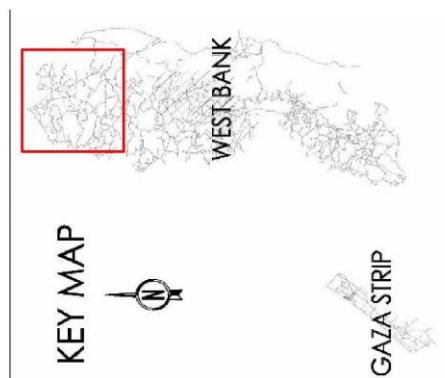
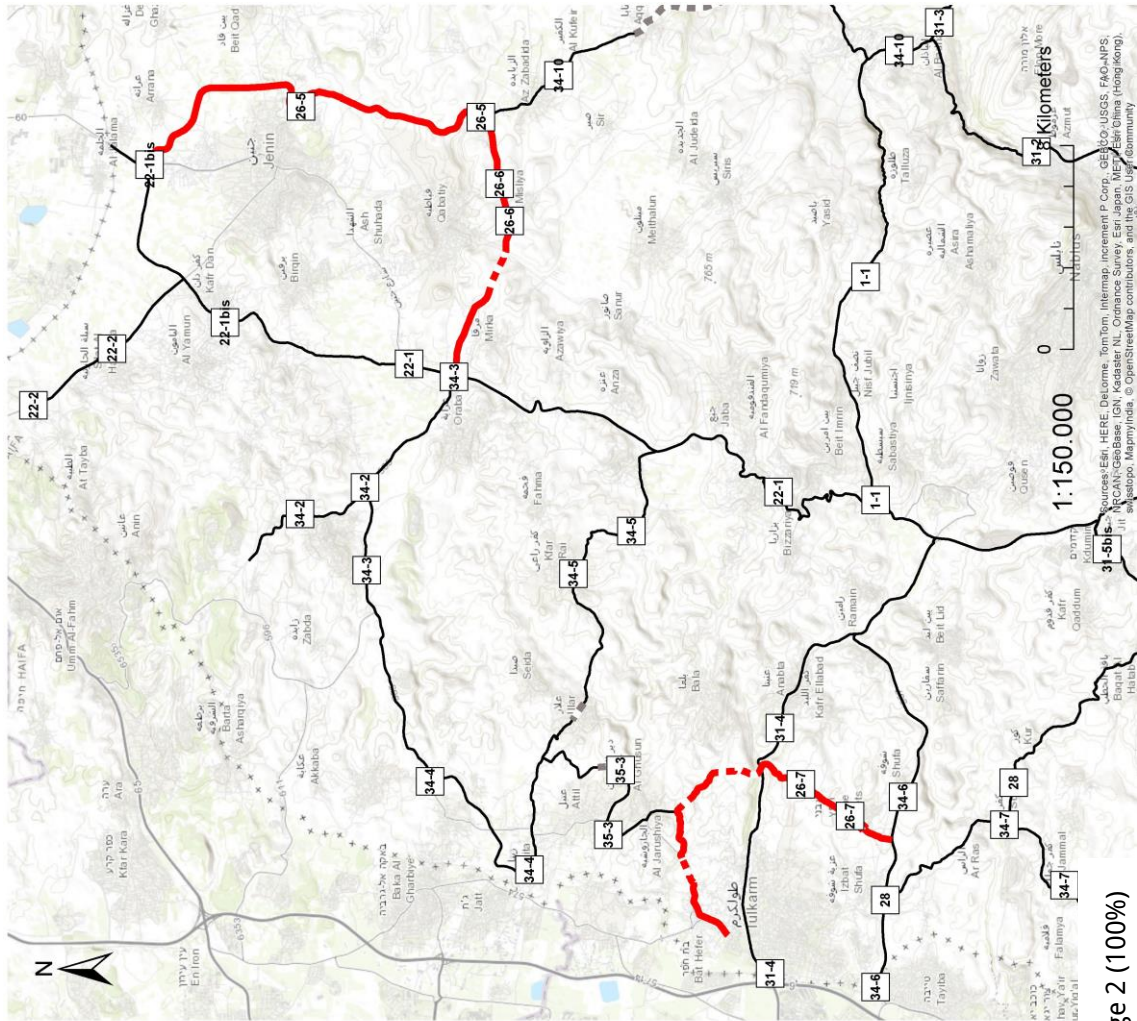
Figure 27. SN 39 Road Work Plan



New West Bank – Gaza Strip Corridor – Stage 2 (100%)

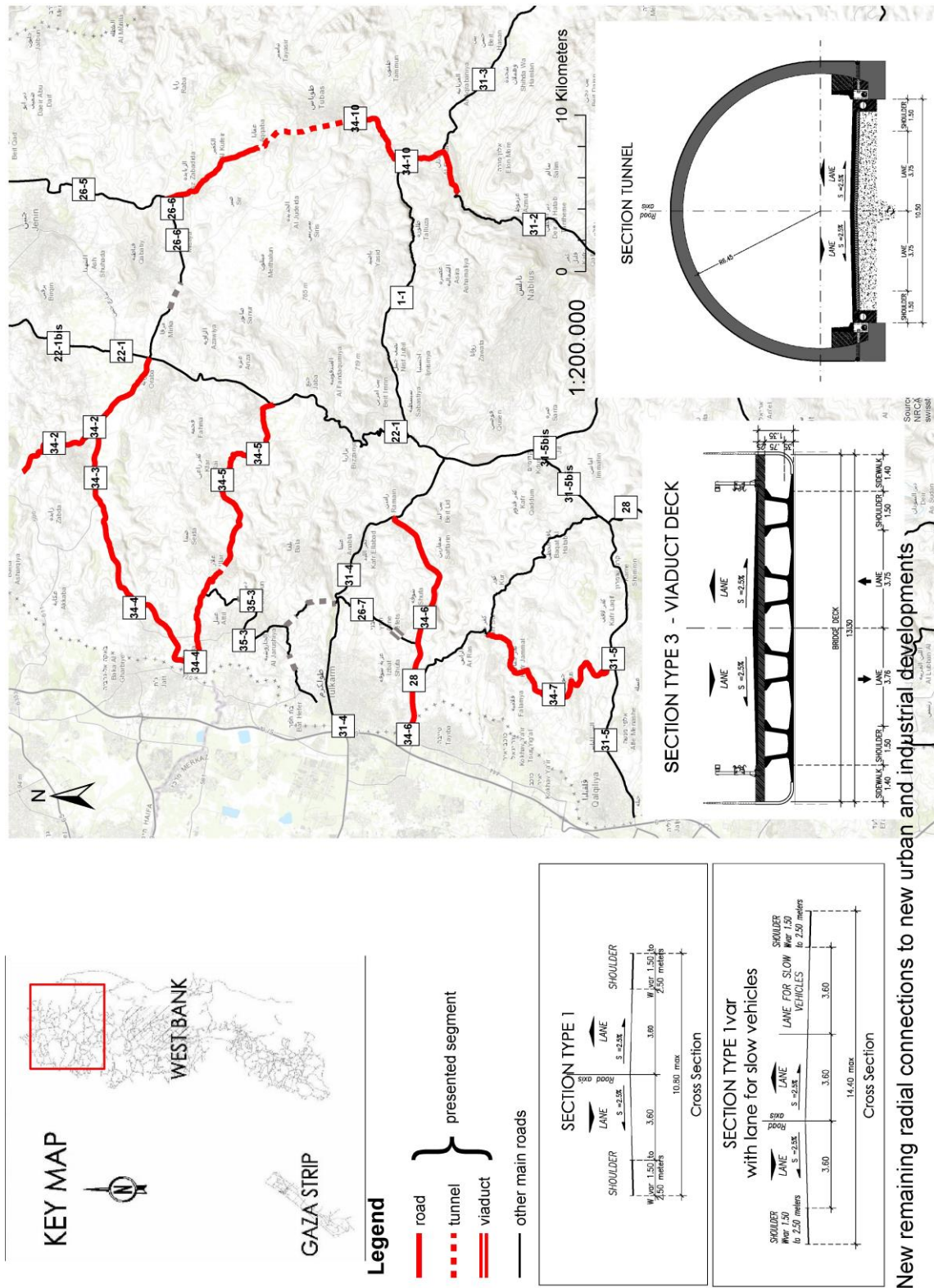
Urban Ring-roads in West Bank Main Cities – Stage 2 (100%)

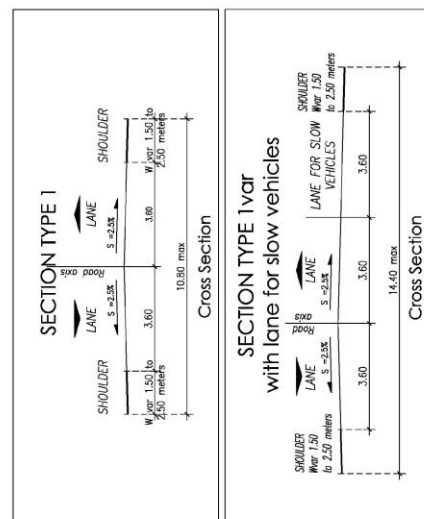
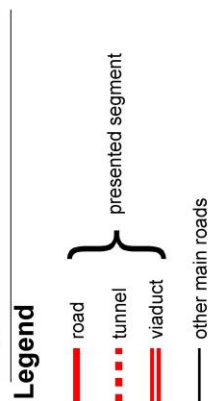
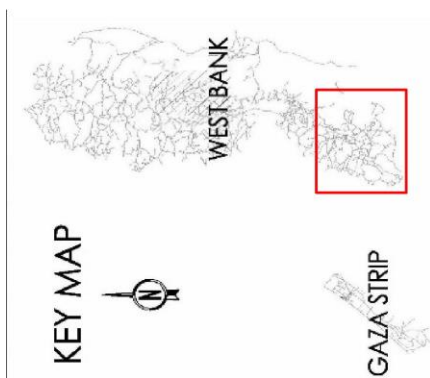
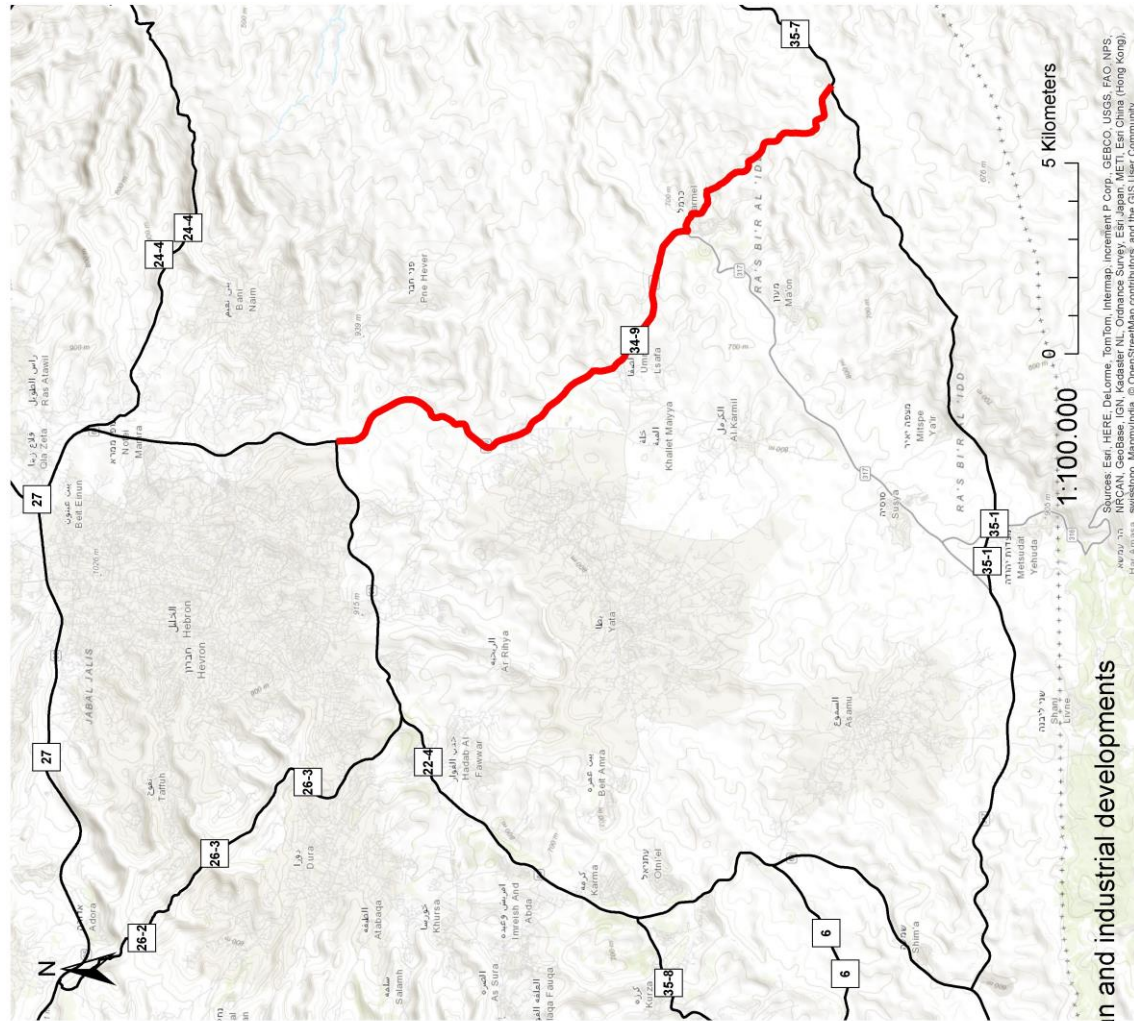




Urban Ring-roads in West Bank Main Cities – Stage 2 (100%)

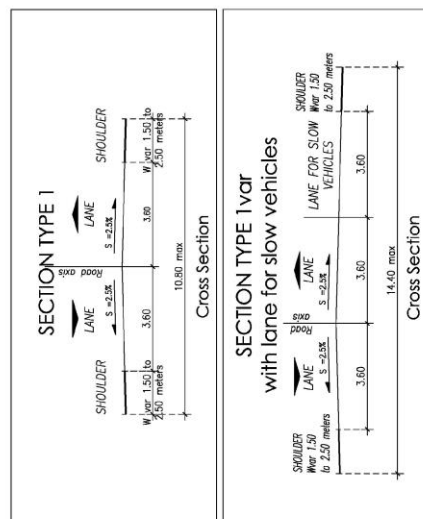
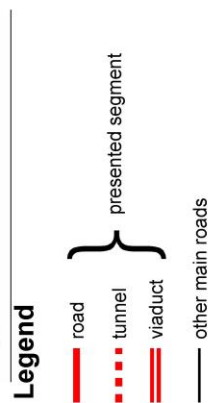
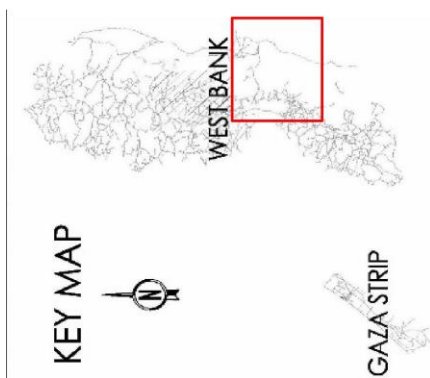
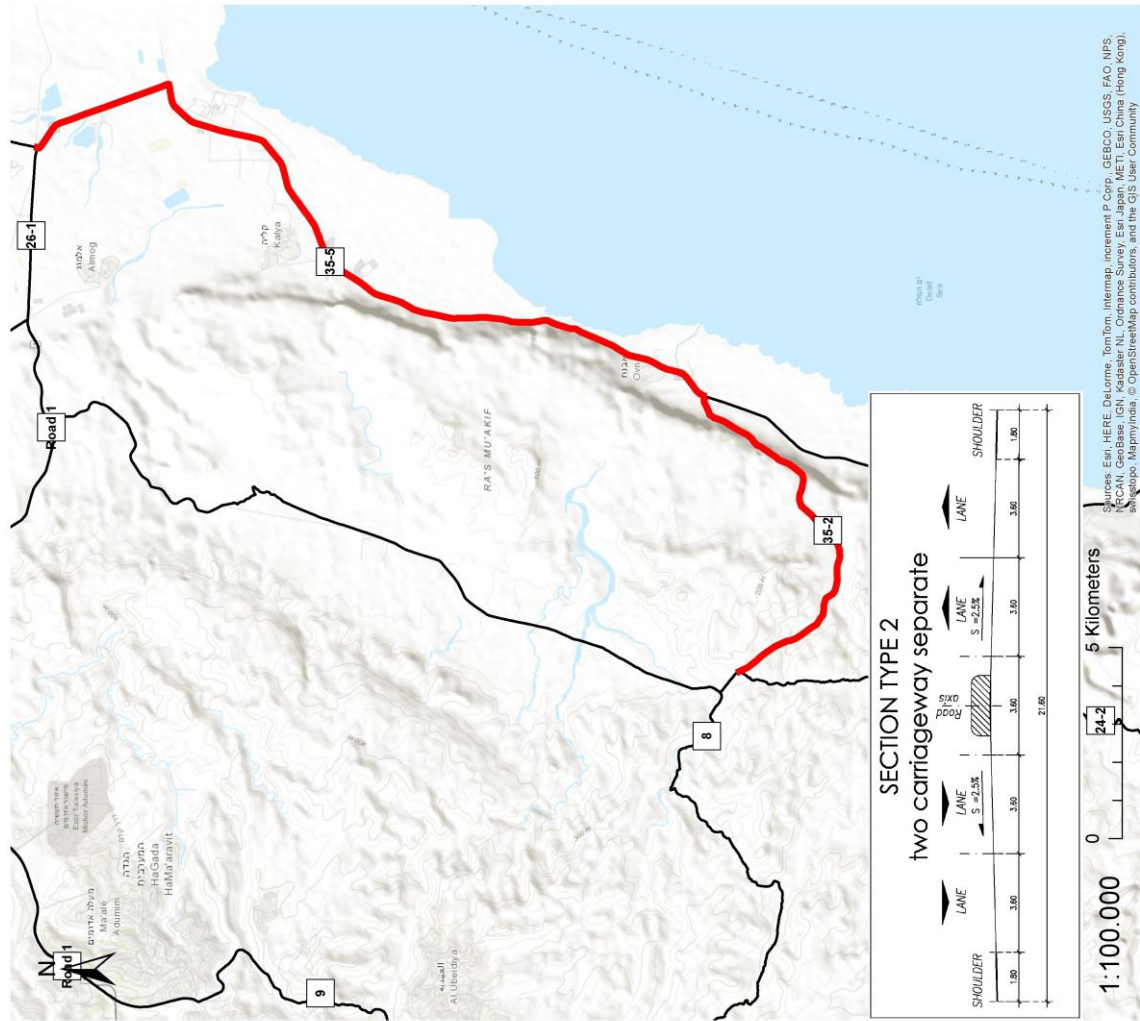
Figure 29. SN 41 Road Work Plan



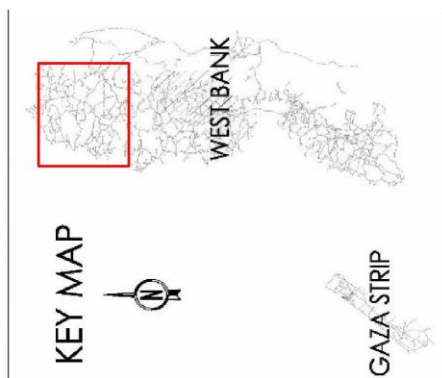
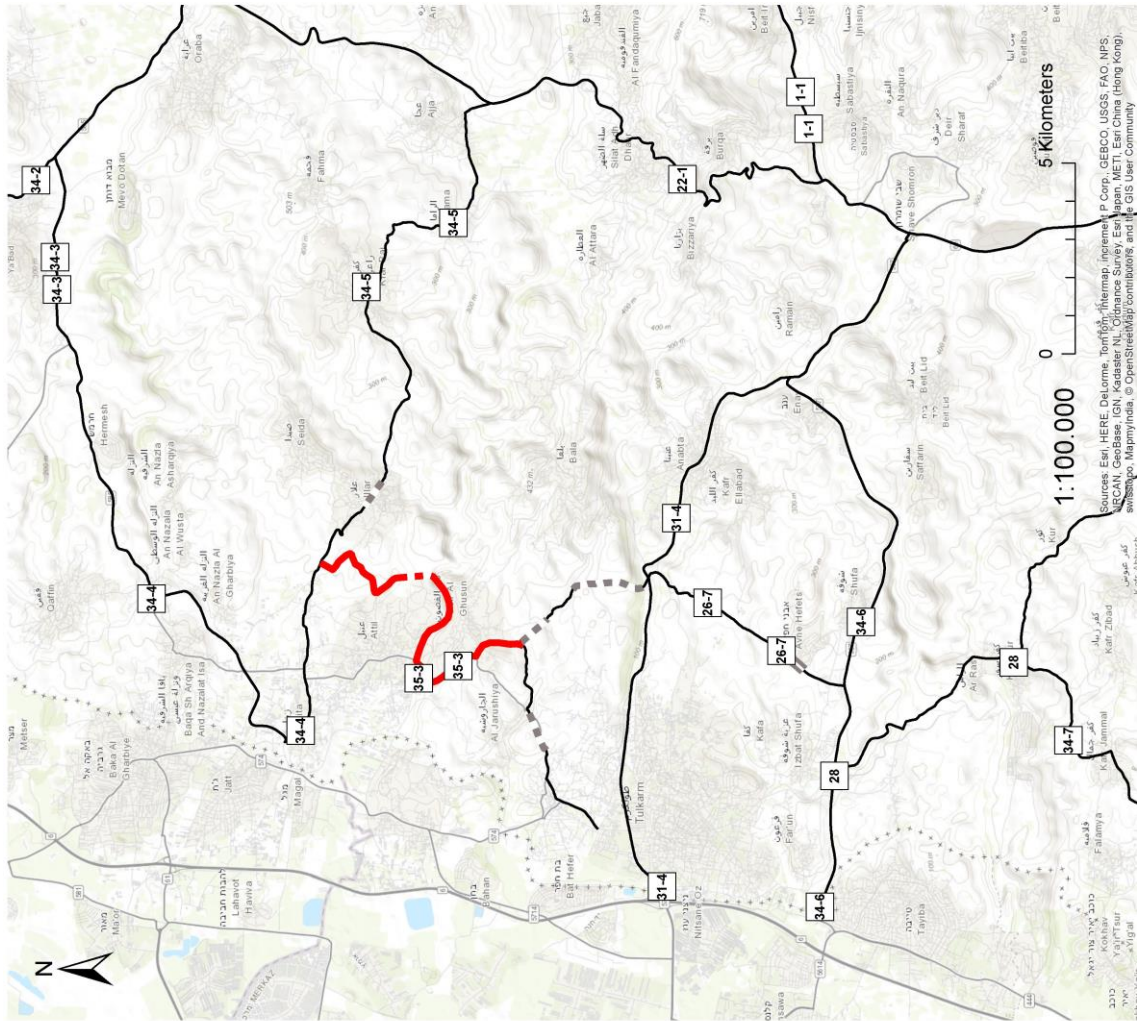


New remaining radial connections to new urban and industrial developments



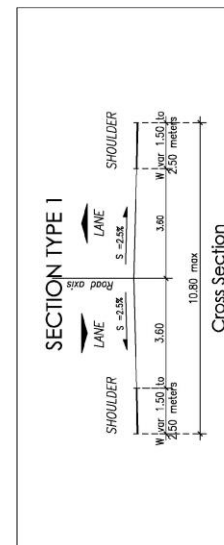


Completion of perimetral national road

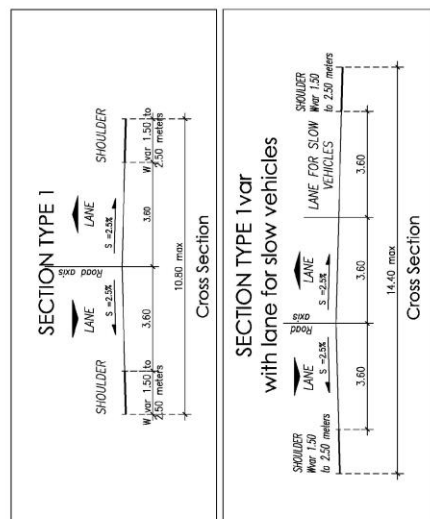
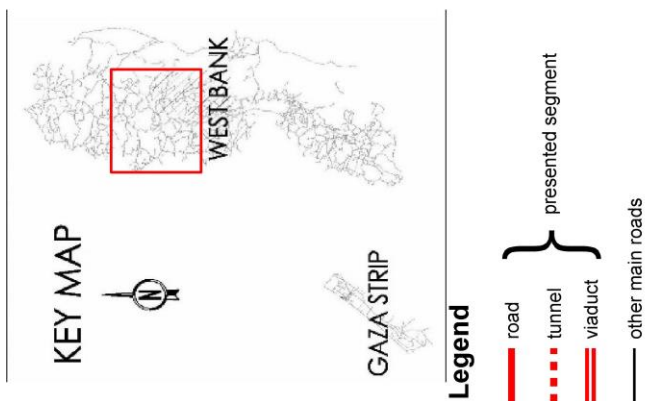
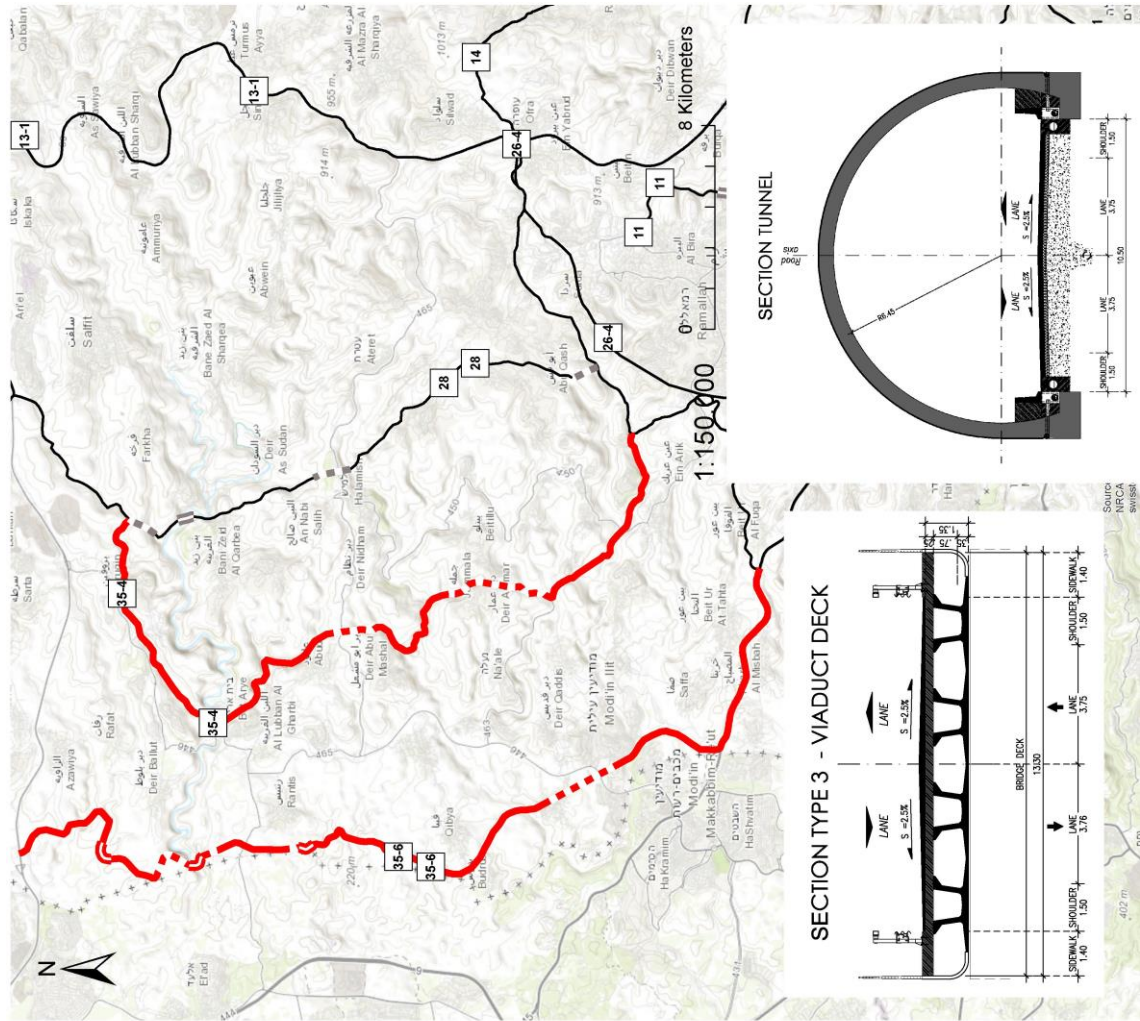


Legend

- road
 - tunnel
 - = viaduct
 - other main roads
- } presented segment



Completion of perimetral national road



Completion of perimetral national road

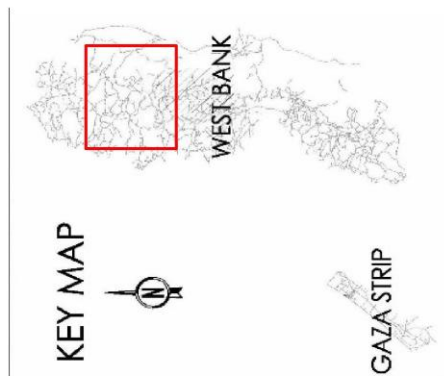
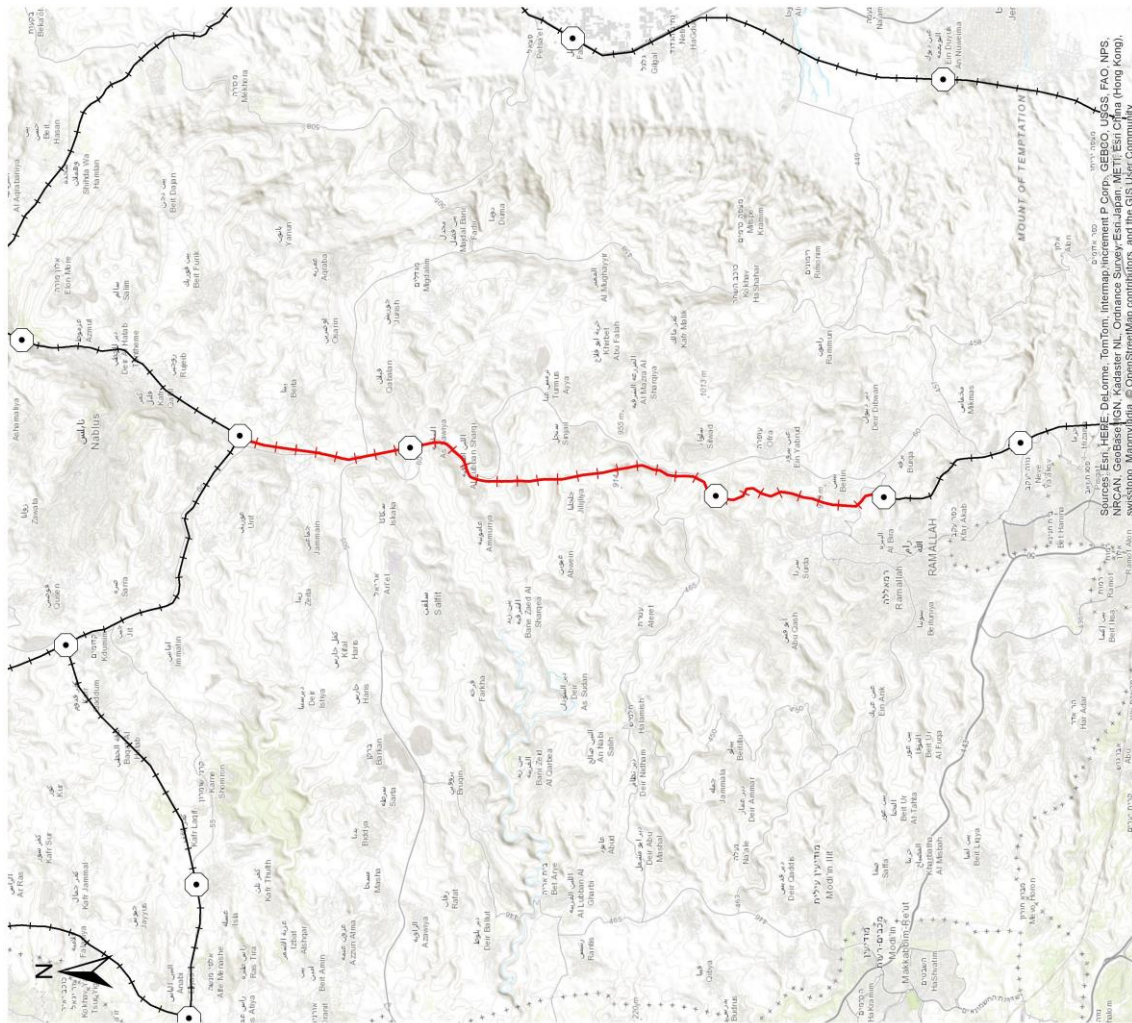


3. Rail Works Technical Sheets

This chapter illustrates each single rail work proposed by NTMP, providing the following information:

- Rail Works Project Code;
- Rail Works Description;
- Rail Works Location (Key Plan), and;
- Rail Works Blueprint.

Figure 31. SN 5 Rail Work Plan



Legend

—+— rail - presented segment

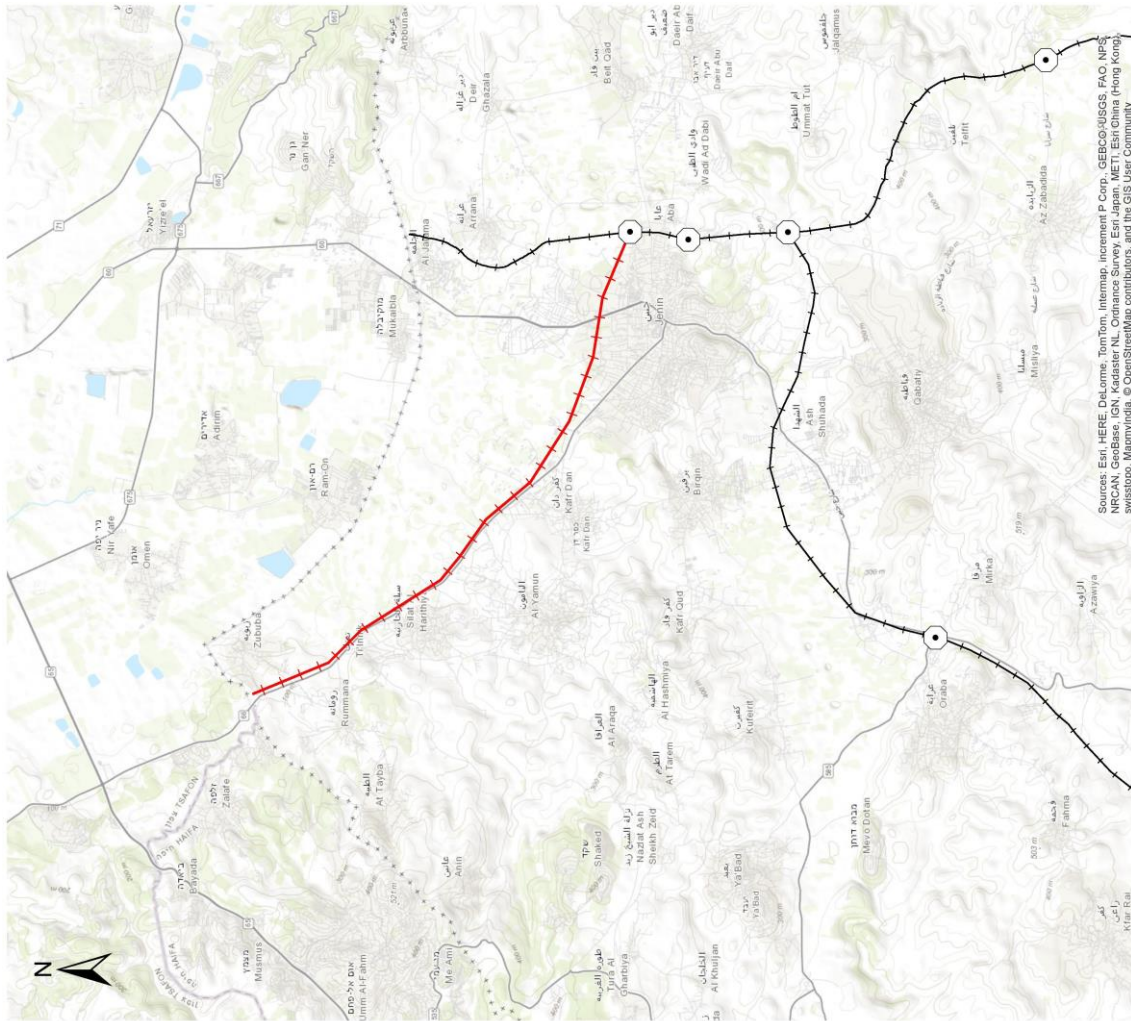
—+— other main rails

○ stations

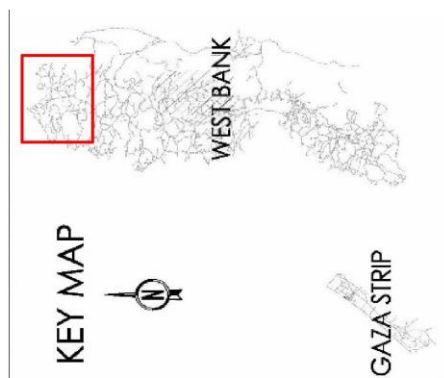
1:200.000 0 10 Kilometers

Segment 5
Ramallah-Nabulus Rail Connection

Figure 32. SN 9 Rail Work Plan



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO/USGS, FAO, NPS, NRCAN, Geobase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, Mapbox, © OpenStreetMap contributors, and the GIS User Community



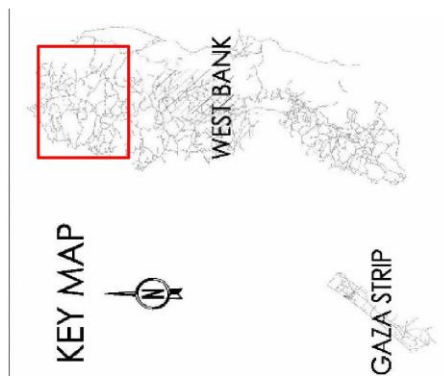
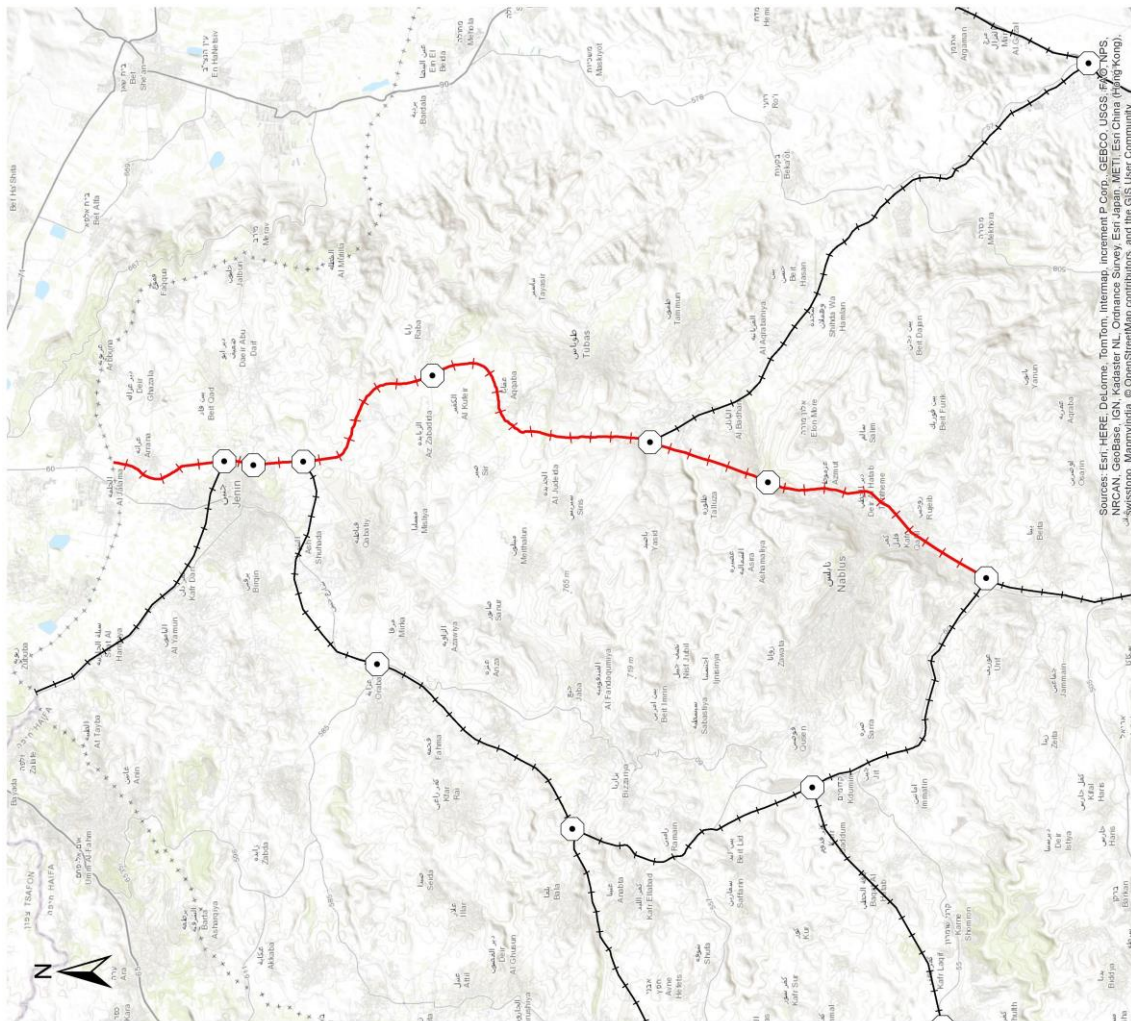
Legend

- +— rail - presented segment
- +— other main rails
- stations

1:100.000
0 5 Kilometers

Segment 9 West Bank Northern Rail Connection

Figure 33. SN 10 Rail Work Plan



Legend

—+— rail - presented segment

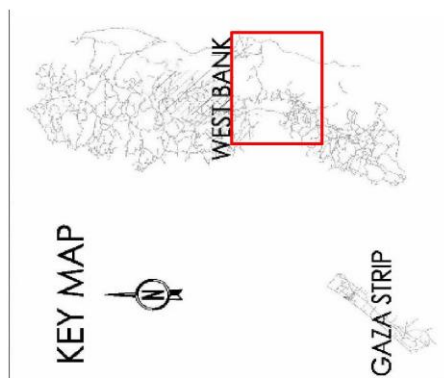
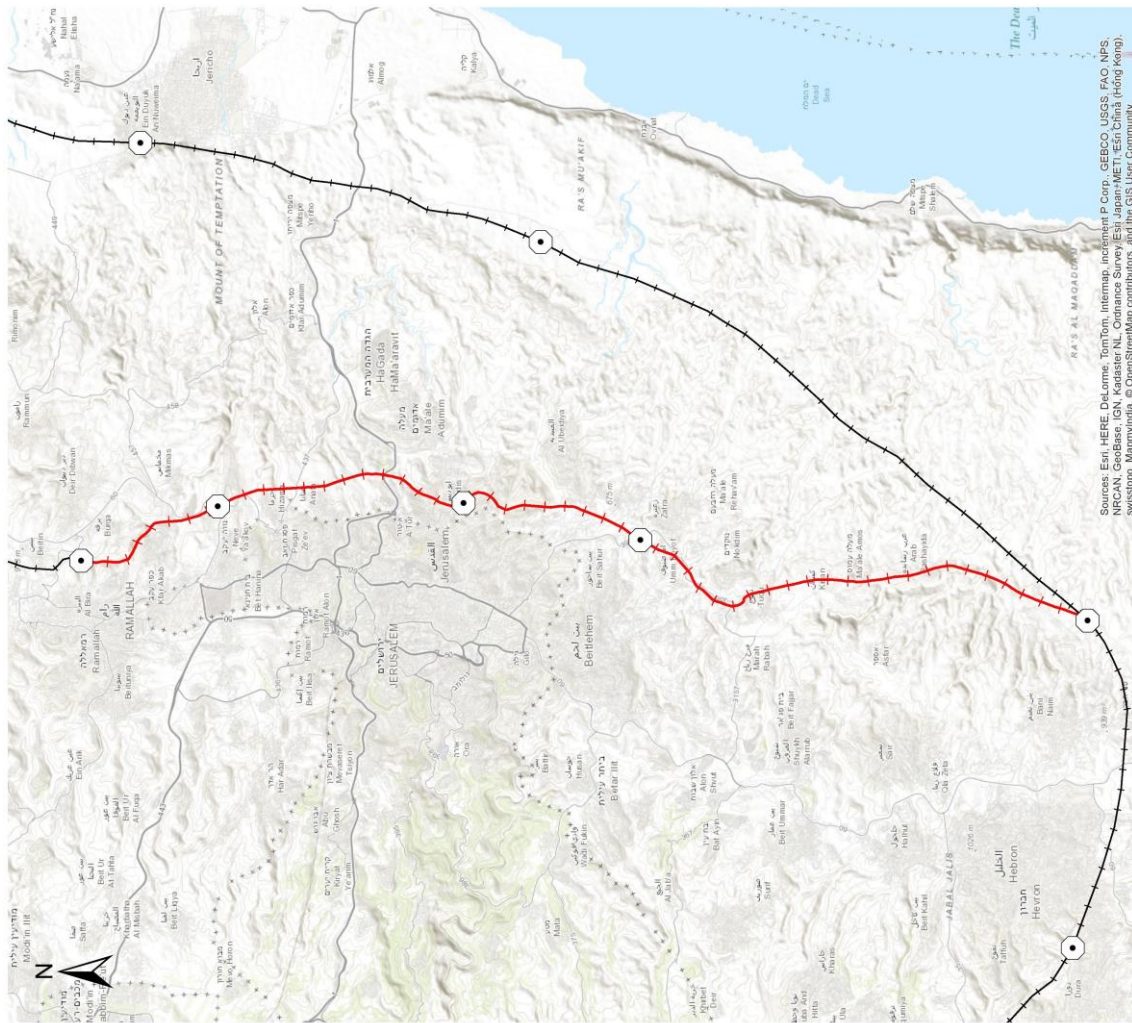
—+— other main rails

● stations

1:200.000
0 10 Kilometers

Segment 10 Nablus-Jenin Rail Connection

Figure 34. SN 11 Rail Work Plan



Legend

—+— rail - presented segment

—+— other main rails

○ stations

1:200,000 0 10 Kilometers

Segment 11
Ramallah-Hebron Rail Connection

Figure 35. SN 12 Rail Work Plan

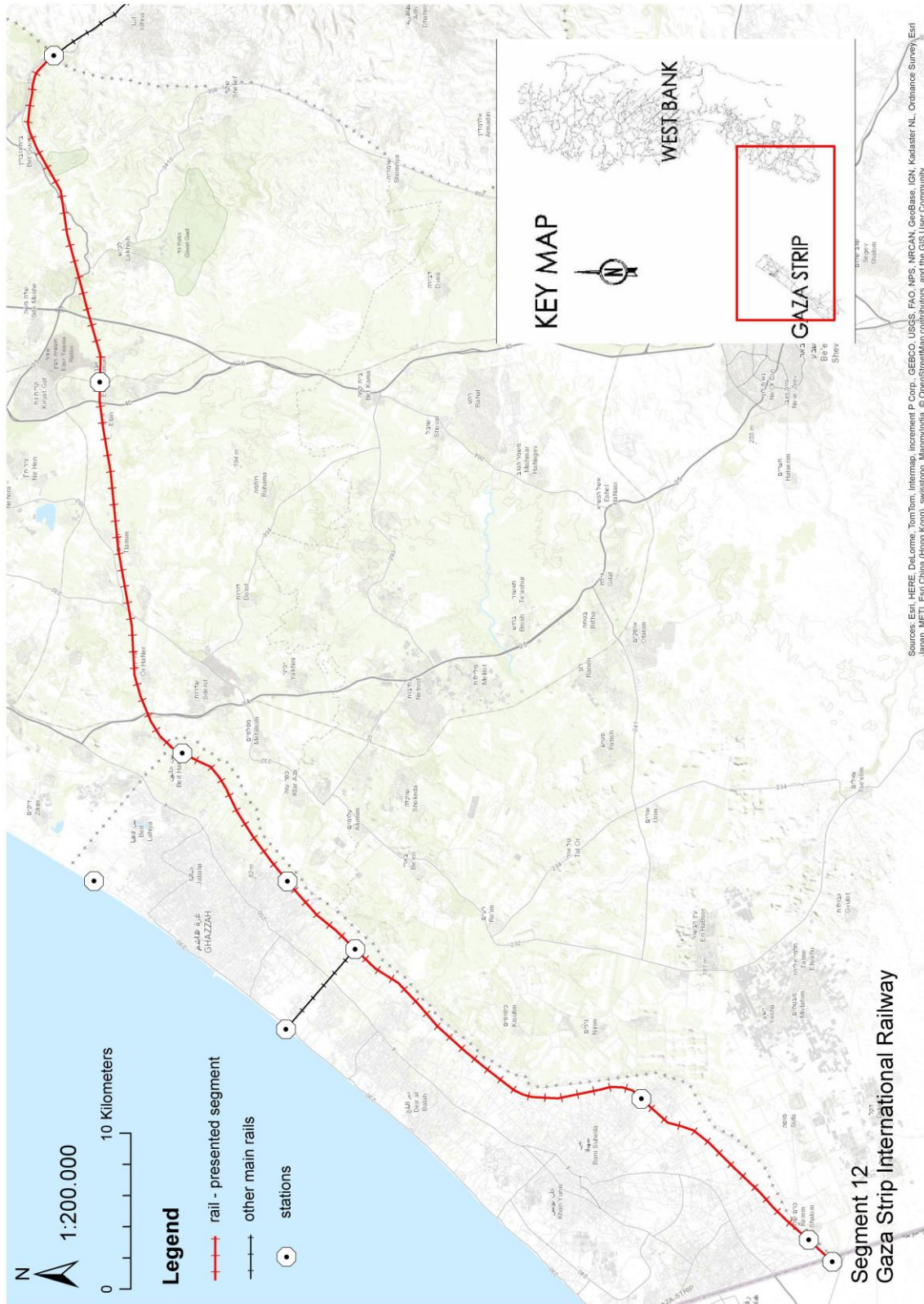
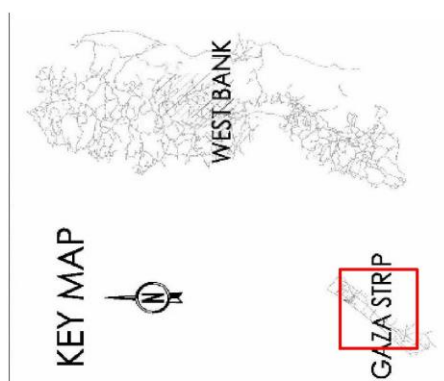
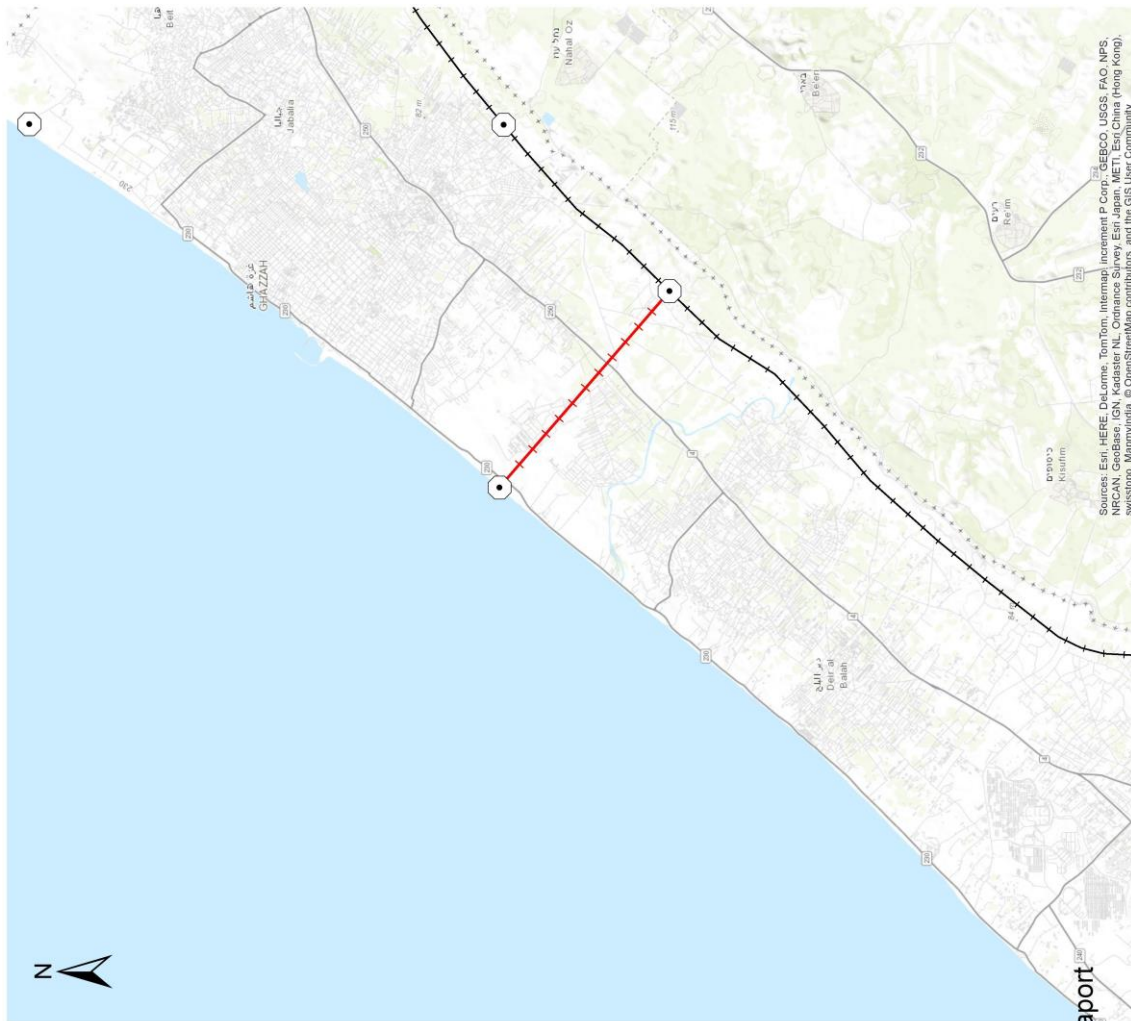


Figure 36. SN 13 Rail Work Plan



Legend

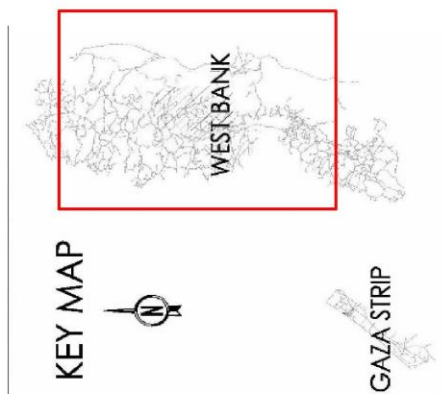
- +— rail - presented segment
- +— other main rails
- stations

1:100.000

0 5 Kilometers

Segment 13 Rail Connection to New Gaza Commercial Seaport

Figure 37.SN 14 Rail Work Plan



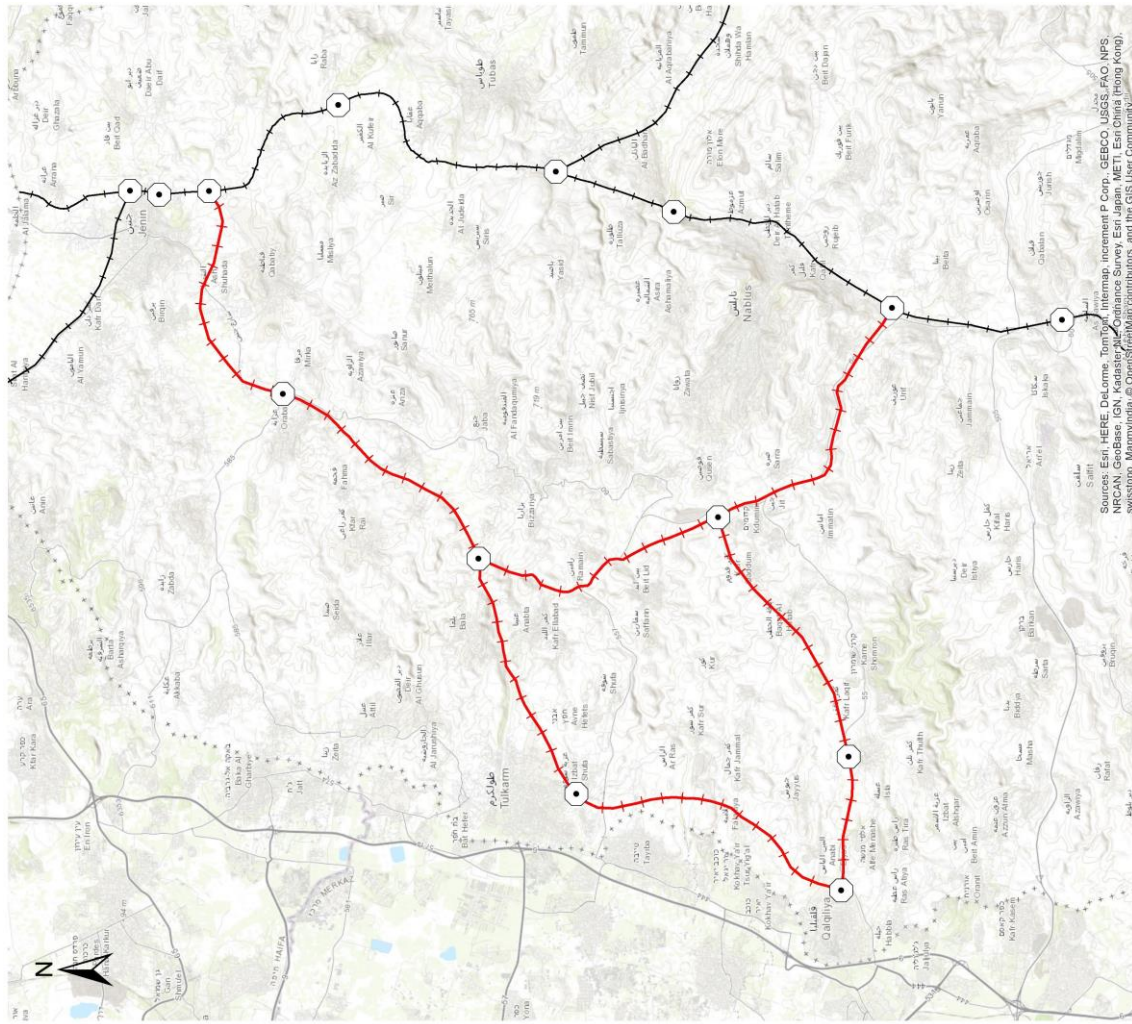
Legend

- rail - presented segment
- +— other main rails
- stations

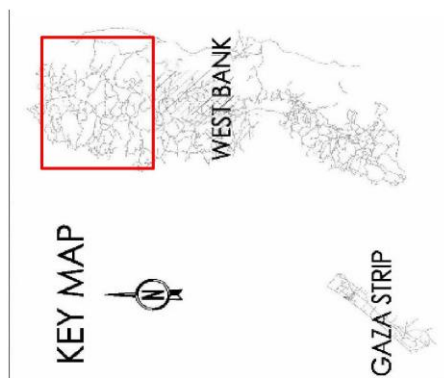
1:500.000
0 25 Kilometers

Segment 14 West Bank International Rail Connection

Figure 38. SN 17 Rail Work Plan



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, Mapbox, Mapbox, OpenStreetMap contributors, and the GIS User Community



Legend

—+— rail - presented segment

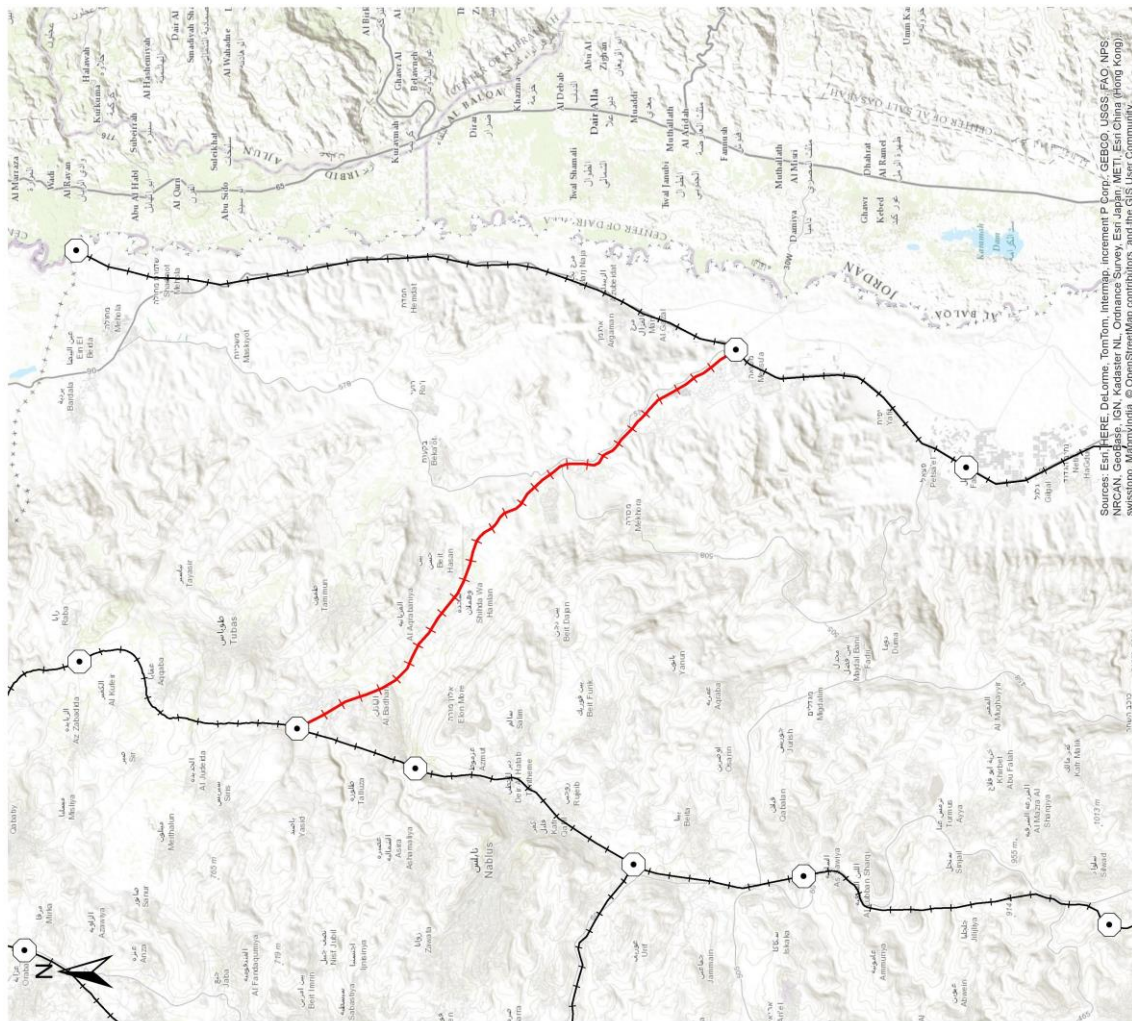
—+— other main rails

○ stations

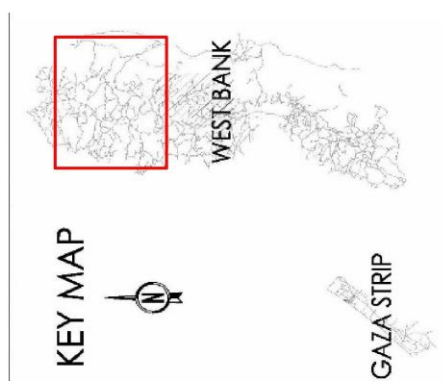
1:200.000 0 10 Kilometers

Segment 17
Western West Bank rail system

Figure 39. SN 18 Rail Work Plan



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, Geobase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, Mapbox India, © OpenStreetMap contributors, and the GIS User Community



Legend

—+— rail - presented segment

—+— other main rails

● stations

1:200.000 0 10 Kilometers

Segment 18
Tubas - Damyeh Rail Connection