

Boosting Economic Growth Reducing Traffic Congestion



Gauteng Freeway Improvement Project



Slide 1

**GFIP: Road Design Alternatives and Material Consumption Estimates
RPF Feedback 6th May 2008
Louw Kannemeyer**

Gauteng Freeway Improvement Project



GFIP OBJECTIVE

“To provide a sustainable, safe and reliable strategic road network system in the Gauteng Province to optimize the movement of freight and passengers, focusing on the promotion public transport, in order to grow the economy and enable development to the benefit of all in the province.”

To achieve GFIP objective we need to:

- Upgrade and expand the freeway network in order to allow sustainable growth in the Gauteng Province
- Sustainable funding mechanism
- Integration of Transport initiatives and Promotion of Public Transport:
 - Modal Integration (park and ride)
 - Travel Demand Management (HOV lanes, ramp metering)
 - Intelligent Transport Systems (ITS)
 - Improved Incident Management



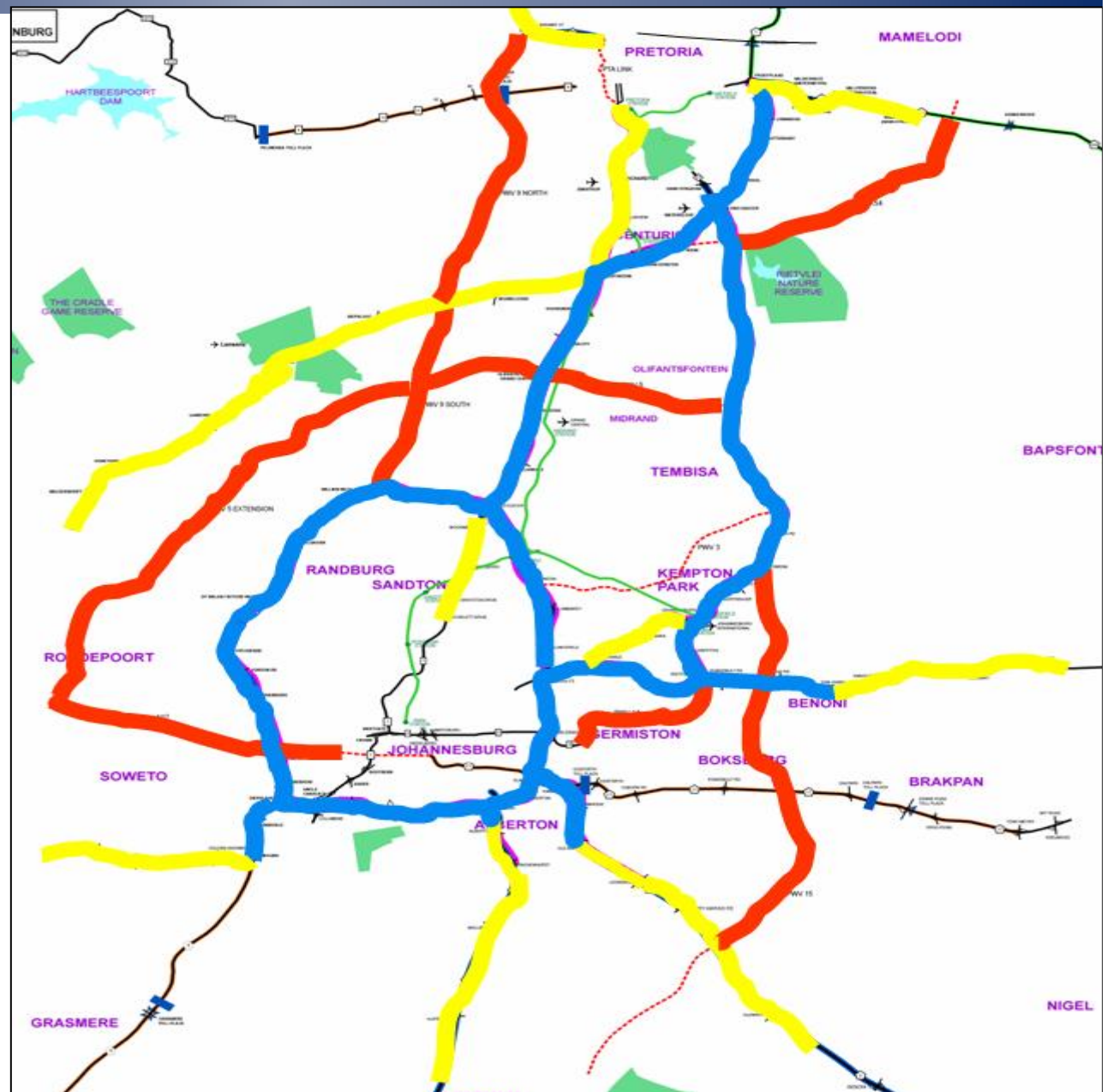
GFIP Project Extent

PLANNED LANE ADDITIONS: 180 km
(2010) Phase 1

FUTURE UPGRADES:
(223 KM)

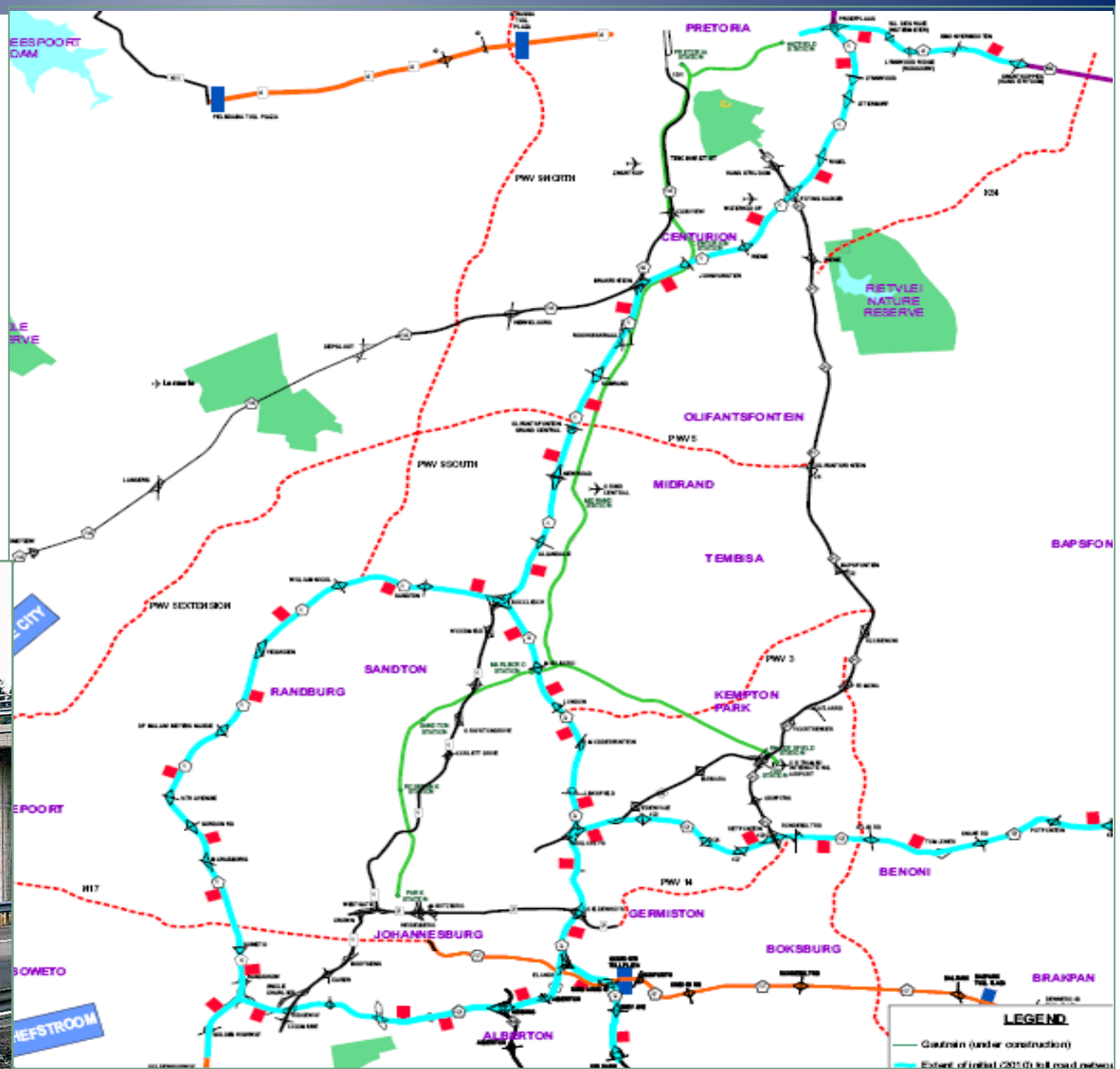
PLANNED NEW ROUTES:
158 km

FINAL SCHEME:
561 KM



GFIP Financing & Implementation

- User pay principle will be used to finance project
- Open Road Tolling



GFIP Proposed Road Improvements – Phase 1

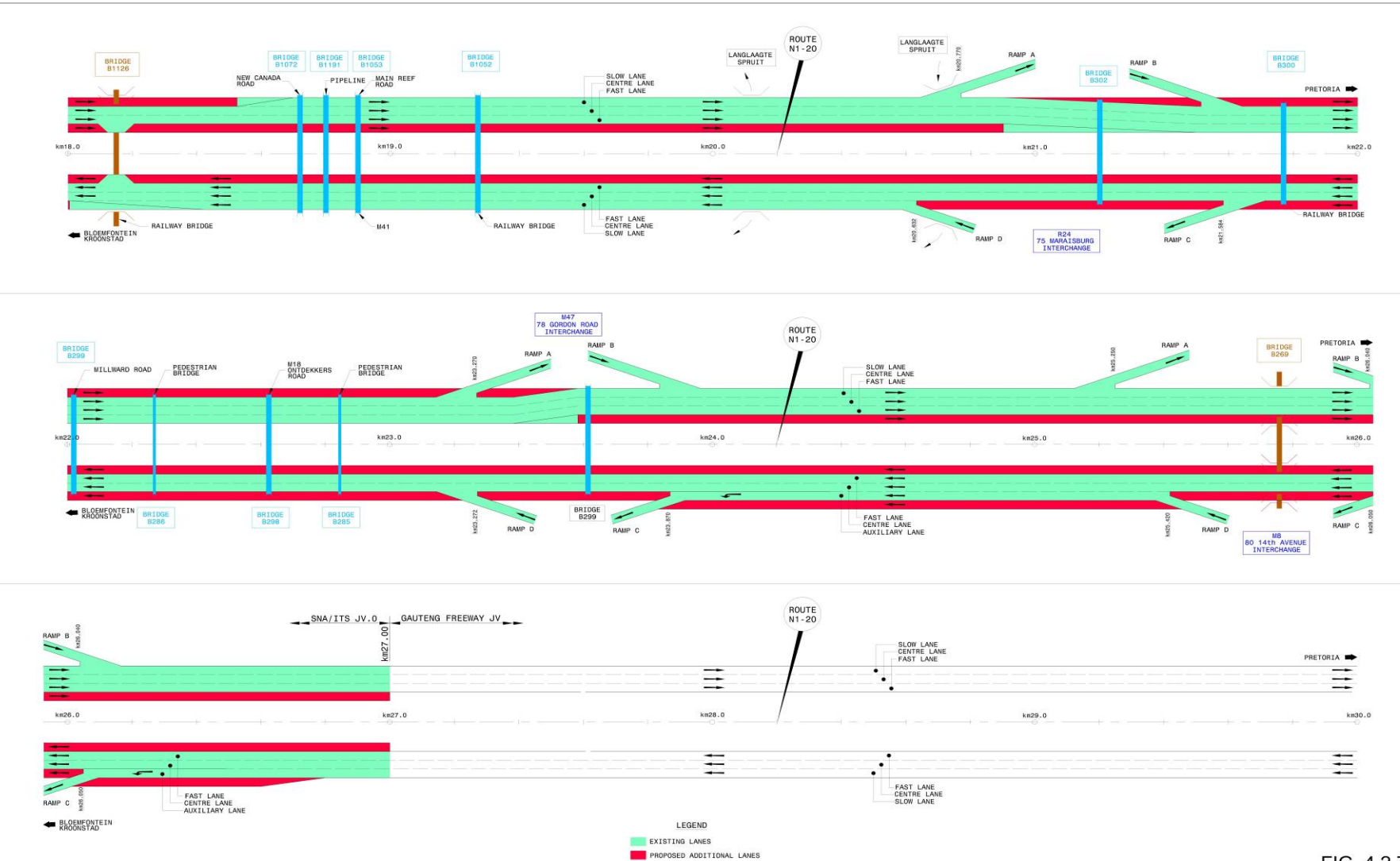
- In general, freeways will be upgraded to 4 lanes per direction - some sections, up to 6 lanes per direction
- Interchanges are improved
- Auxiliary lanes at on- and off ramps
- Cross road improvements
- Median lighting is provided
- Many instances – F-Shape barrier in median



GFIP Typical Road Upgrades N1 Section 20

ASSESSMENT EVALUATION AND RECOMMENDATION

647 N1-20 PROPOSED ADDITIONAL LANES FOR INCREASED CAPACITY-LAYOUT 2



DETAIL ASSESSMENT

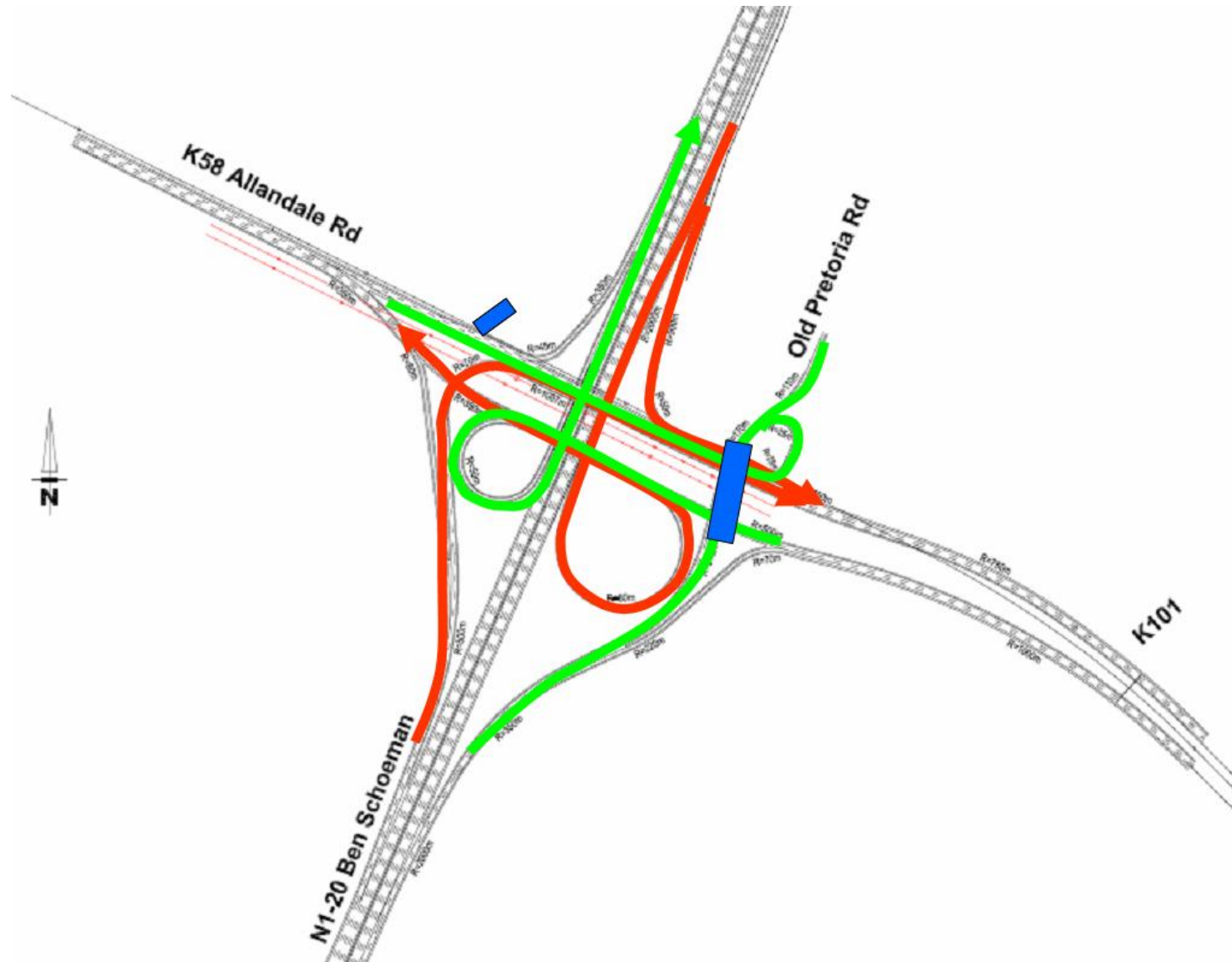
FIG. 4.2.7

PAGE 4/21

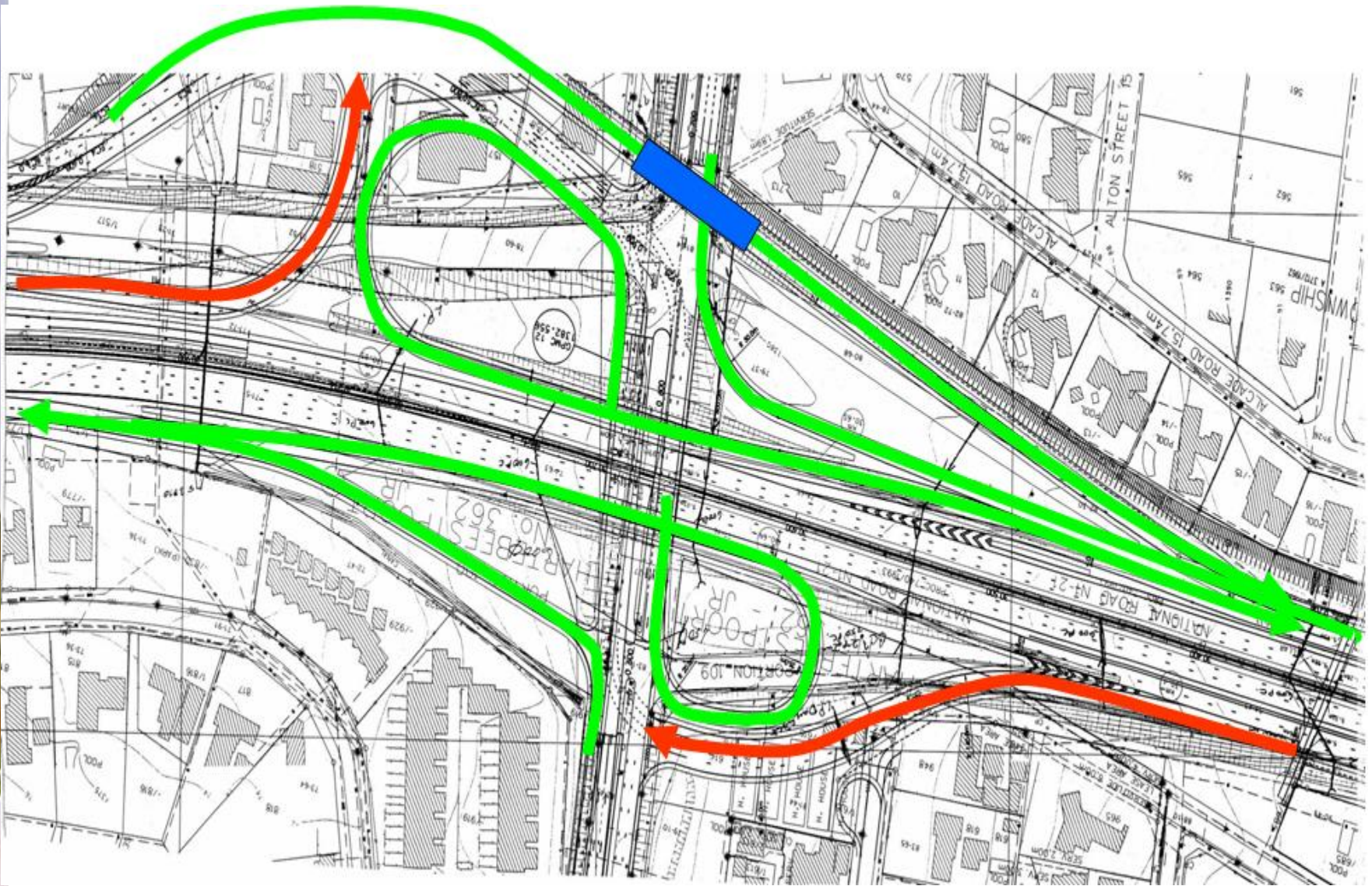
SNA / ITS JOINT VENTURE SNA CIVIL AND STRUCTURAL ENGINEERS (Pty) LTD P. O. Box 7727 LYNNWOOD RIDGE TEL: 012-862 6000 FAX: 012-863 4429 E-MAIL: jpa@sna.co.za		ITS ITS ENGINEERS (Pty) LTD P. O. Box 7530 LYNNWOOD RIDGE 009 TEL: 012-349 1064 FAX: 012-349 1065 E-MAIL: jpa@its.co.za		DESIGNED BY: G.B. SARPT NAME: G.B. SARPT Prof. Reg. No.: 71074 CHECKED BY: A. SIBBER NAME: A. SIBBER Prof. Reg. No.: XXXXXXXX		DRAWN BY: M. VAN DER MERWE NAME: M. VAN DER MERWE Prof. Reg. No.: 10300005 DATE: 02/06/11		THE SOUTH AFRICAN NATIONAL ROADS AGENCY HEAD OFFICE: 25th Floor, 170M Park Street, Sandton, Pretoria 0081 PRIVATE BAG 415, PRETORIA 0001, SOUTH AFRICA TEL: (012) 426 6000 FAX: (012) 349 9883		ACCEPTANCE: THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE PURPOSES ONLY. IT DOES NOT ATTRACT LEGAL LIABILITY OR GUARANTEE OF ANY KIND FROM THE ROAD AGENCY OR THE CONSULTANT. PROJECT DESCRIPTION: GAUTENG FREEWAY UPGRADING AND EXPANSION PROJECT NATIONAL ROAD 1-20 BETWEEN GOLDEN HIGHWAY AND 14th AVENUE DRAWING DESCRIPTION: PROPOSED ADDITIONAL LANES FOR INCREASED CAPACITY, LANE BALANCE & BASIC No. OF LANES - N1-20 km 18.0 - km 27.0 SCALE: DIAGRAMATIC		PROJECT NUMBER: N-001-200-2008/1 DRAWING LOCATION DATA: START: N001, END: N001 SECTION: 20, 20 DRAWING km DISTANCE: km 18.0, km 27.0 DRAWING TYPE: BRIDGE/STRUCTURE No. PD CONSULTANT DRAWING No. SNA-ITS-XXX SANRAL DOC V XXXXXX VER: V1	
--	--	---	--	--	--	--	--	---	--	--	--	--	--

NO.	DATE	REVISION	CONSULTANT	ENG.
V1	01-05-2007	ORIGINAL VERSION	G.B. SARPT	

GFIP N1 Allandale Interchange

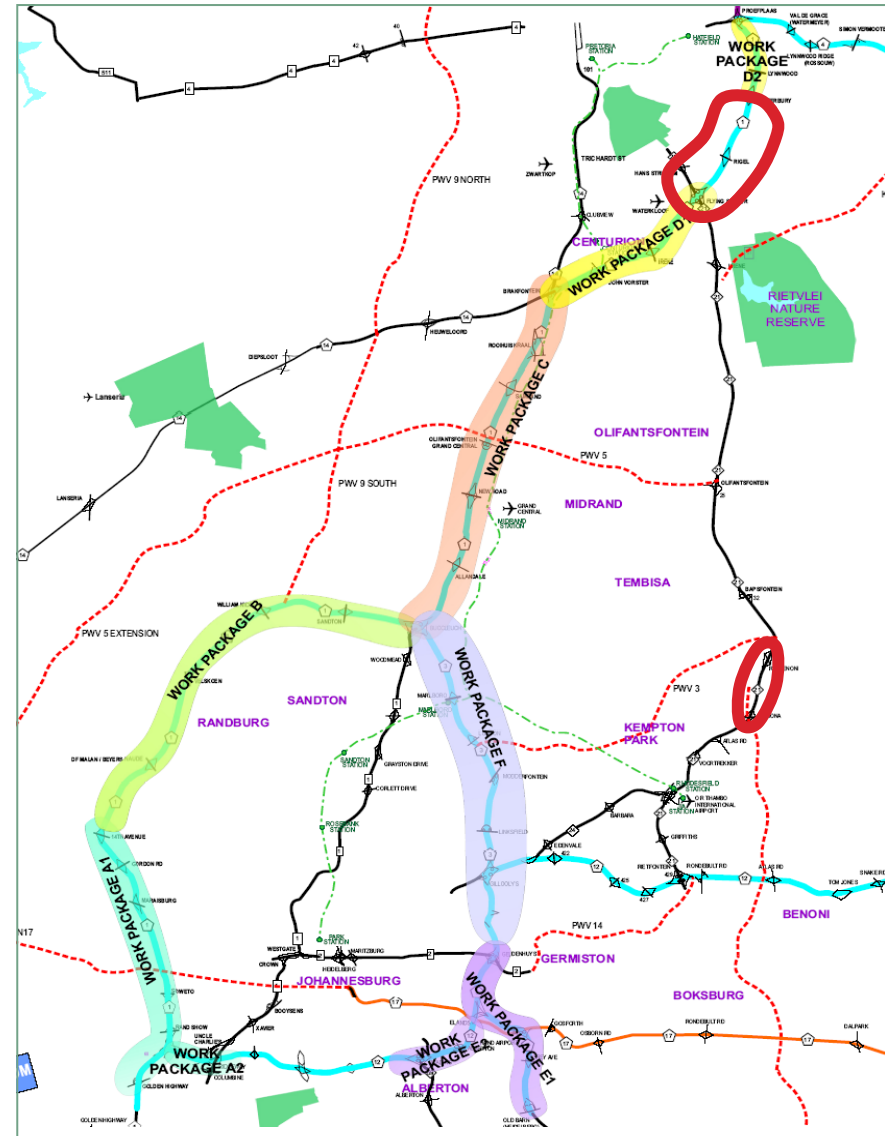


GFIP N1 Lynnwood Interchange

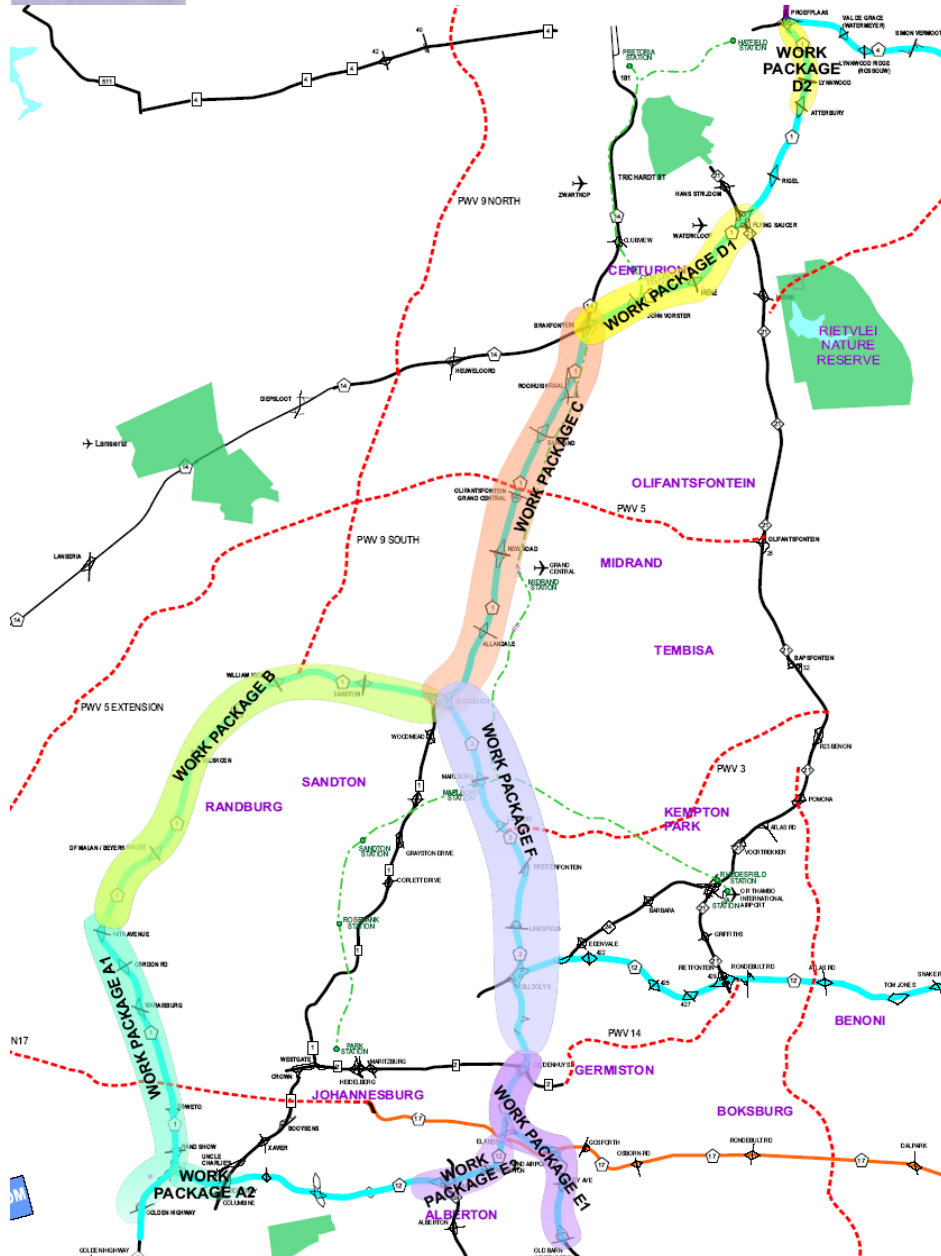


GFIP: Phase 1 Work Packages Under Construction

- N1: R21 to Atterbury (5,5 km)
- R21: Pomona to Benoni (3,5 km)



GFIP Phase 1 Work Packages Currently in Award Stage



Work Package A (18km):

- A1: N1 section 20 between Golden Highway and 14th Avenue – 17 km;
- A2: N12 section 18 between the Elands Interchange and the M1 Interchange – 1km

Work Package B (21km):

- N1 Section 20 between 14th Avenue and Buccleuch Interchanges

Work Package C (23km):

- N1 Section 20 & 21 between Buccleuch and Brakfontein Interchanges;

Work Package D (15km):

- D1: N1 Section 21 between Brakfontein and the R21 Interchanges – 10 km;
- D2: N1 Section 21 between the Atterbury and Proefplaas (N4) interchanges – 5 km

Work Package E (16km)

- E1: N3 Section 12 between Old Barn (Heidelberg rd) and Geldenhuys (M2) Interchanges – 12 km
- E2: N12 Section 18 between Reading (R59) and Elands (N3) interchanges – 4 km

Work Package F (17,6 km)

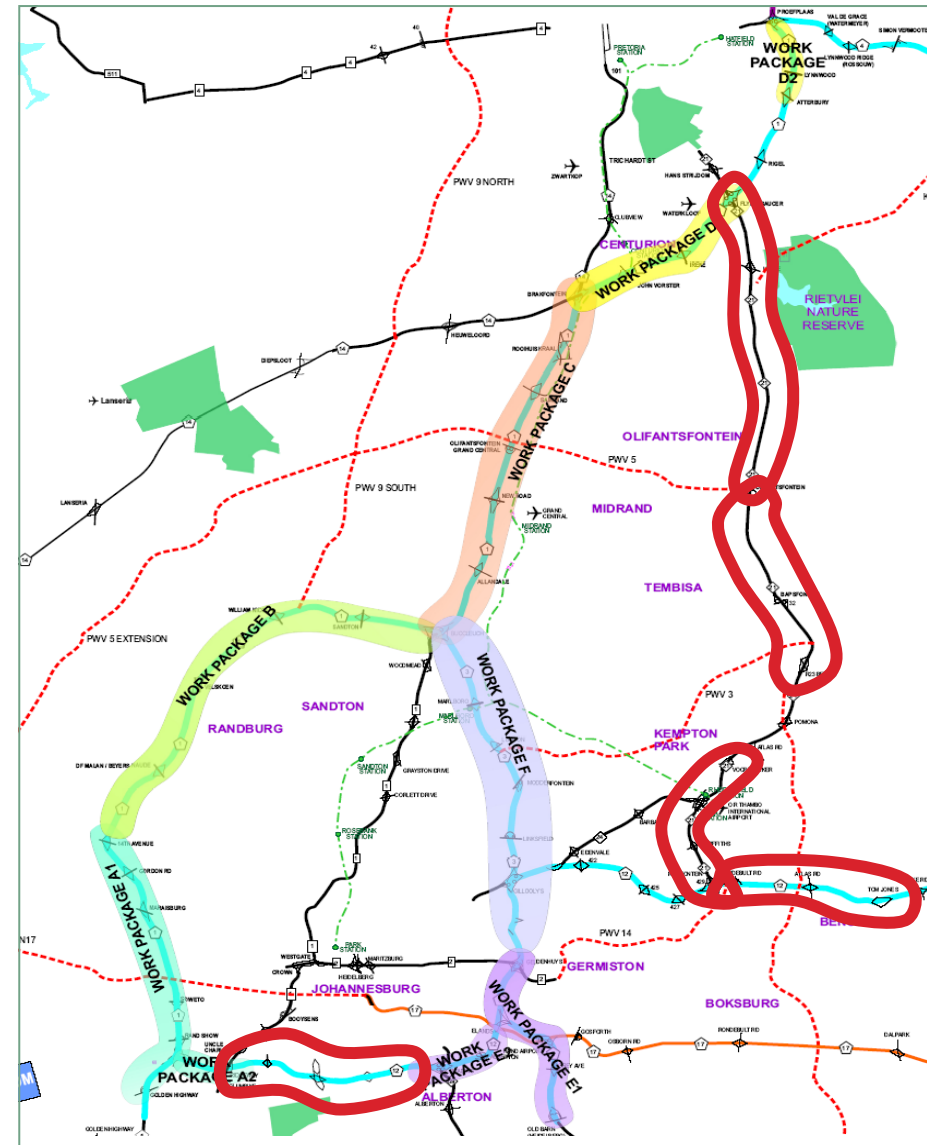
- N3 Section 12 between Geldenhuys (M2) and Buccleuch Interchanges

N12 Gilloos to R21 (10,6km)

**Successful Contractors To
Be Notified Next Week**

GFIP Phase 1 Next Tender Work Packages

- **Work Package G1 (10 km):**
- R21: N12 to Olifantsfontein
- **Work Package G2 (18 km):**
- R21: Olifantsfontein to N1
- **Work Package G3 (8 km):**
- R21: N12 to Pomona
- **Work Package H (10 km):**
- N12: Rietfontein to Tom Jones
- **Work Package I (10 km):**
- N12: M1 to Reading



GFIP Phase 1 Project Programme

- Award of construction contracts: May 2008
- Construction for 2010 phase commences (2,5 year construction period): May 2008
- Construction substantially completed: May 2010
- Construction completion date: October 2010
- Commencement of toll operations: October 2010



GFIP Phase 1 Estimated Key Quantities

GAUTENG TOLL HIGHWAY PROJECTS		D1	D2	C	F	A1-A2	B	E1	E2	Total
		Brakfontein to N1/R21 I/C	Atterbury to Proefplaas	Buccleuch to Brakfontein	Geldenhuis to Buccleuch	14th Avenue to Uncle Charlies	14th Avenue to Buccleuch	Old Barn to Geldenhuis	Reading to Elands I/C	
Section 2200	Concrete	670.00 m3	195.00 m3	1930.00 m3	180.00 m3	312.00 m3	750.00 m3	336.00 m3	825.00 m3	5198.00 m3
Prefabricated Culverts	Reinforcing	15.50 t	13.00 t	35.00 t	25.00 t	8.90 t	10.00 t	22.40 t	9.20 t	139.00 t
Section 2300	Concrete	2620.00 m3	2510.00 m3	280.00 m3	4495.00 m3	5785.00 m3	11740.00 m3	1540.00 m3	2125.00 m3	31095.00 m3
Open Drains	Reinforcing	48.40 t	37.00 t	2.50 t	61.60 t	13.50 t	134.00 t	53.00 t	41.50 t	391.50 t
Section 4100 Prime	Prime	160000.00 l	180000.00 l	424400.00 l	24360.00 l	241840.00 l	147000.00 l	77000.00 l	60000.00 l	1314600.00 l
Section 4200 Asphalt	Tack Coat 30% Stable Grade Emulsion	310000.00 l	93600.00 l	1150000.00 l	562342.00 l	424225.00 l	156000.00 l	840000.00 l	140000.00 l	3676167.00 l
	Semi Gap 19mm max AR1							6640.00 t		6640.00 t
	Base 40/50 pen bit. With 26.5mm	159450.00 t	11986.00 t	17320.50 t	64045.00 t	35200.00 t			4221.67 t	292223.17 t
	Continuously Graded	30950.00 t	12130.00 t	26488.00 t	9239.00 t	1180.00 t	44000.00 t	89000.00 t	2875.00 t	215862.00 t
	Semi open grade bitumen rubber						12510.00 t	79000.00 t	16700.00 t	108210.00 t
Structures	Concrete	20391.00 m3	9724.00 m3	32212.00 m3	12672.00 m3	5856.00 m3	26508.50 m3	15962.30 m3	16329.00 m3	139654.80 m3
	Reinforcing	2876.50 t	1359.00 t	3874.00 t	1579.10 t	1568.10 t	4514.20 t	1792.35 t	2814.60 t	20377.85 t
Section 7100 Concrete Pavement	Concrete	5750.00 m3	3075.00 m3	29036.00 m3	16978.00 m3	7623.00 m3	30362.00 m3	1138.00 m3		93962.00 m3
	Reinforcing	400.00 t	270.00 t	1504.00 t	50055.00 t	22.10 t	550.00 t	254.00 t		53055.10 t
BRASO				20831.00 t		116920.00 t	36020.00 t			173771.00 t
UTFC			50000.00 m2							50000.00 m2



Slide 13

Total Concrete	269909.80 m3
Total Reinforcing	73963.45 t
Total Prime	1314600.00 l
Total Tack Coat	3676167.00 l
Total Asphalt	796706.17 t
Total UTFC	50000.00 m2



Thank You !!!