Reconciliation strategy for KZN Metropolitan Coastal areas

Lower Tugela BWSS and Hazelmere Supply Infrastructure

Celebrating 40 years of safe potable water

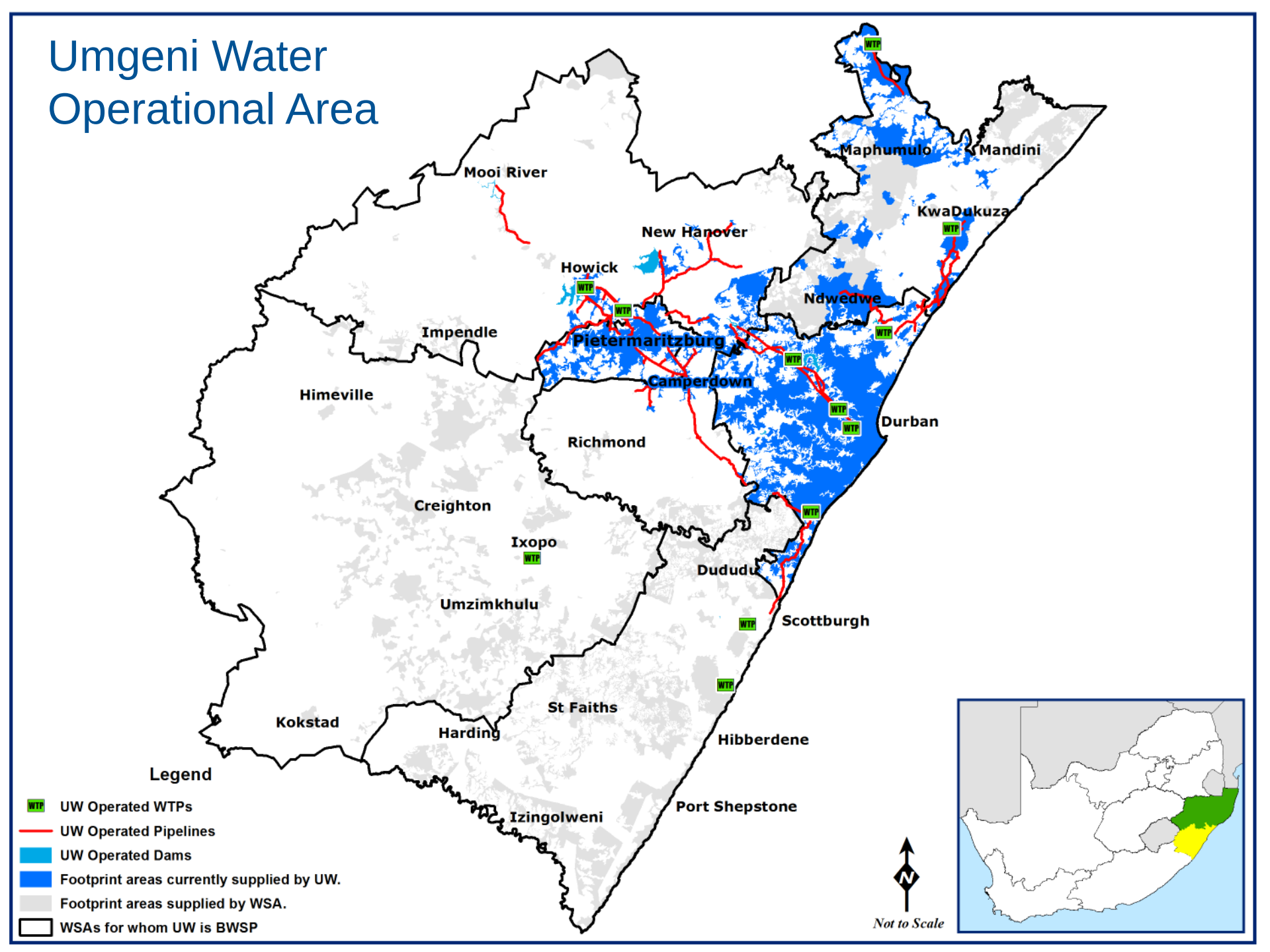
40th ANNIVERSARY 1974 - 2014

KZN reconciliation strategy

Contents:

- Umgeni Water Master Planning
- Lower Tugela Bulk Water Supply System
- Hazelmere Supply System
- Lower uMkhomazi BWSS
- East Coast Desalination

Umgeni Water Operational Area



UMGENI WATER SALES (Ml/d)

• eThekwini Metro	868
• Mzunduzi LM	177
• Ugungundlovu DM	42
• Ilembe DM & SSW	48
• Ugu DM	26
• Harry Gwala DM	3
• Other	10
• **TOTAL**	**1204**

AVAILABLE YIELD (Ml/d)

• Mgeni System (MMTS1)	1079
• Hazelmere	55
• South Coast	12
• Other (approx)	20
• **TOTAL**	**1156**
TOTAL SALES	**1204**

CAPEX Budget

- 30-year Capex Budget for all infrastructure projects

  R 13 635 million

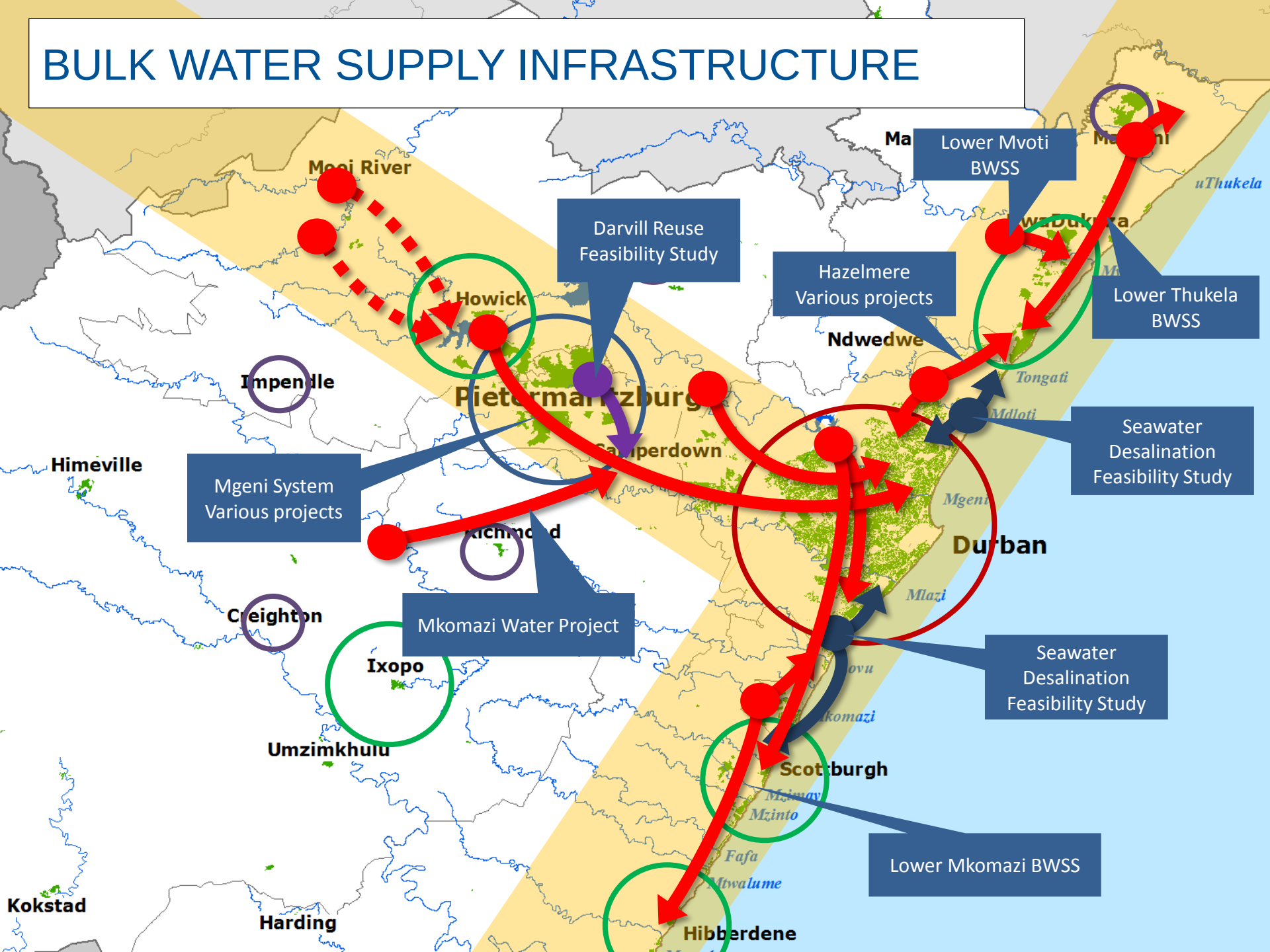
- 5-year Capex Budget for all infrastructure projects

  R 5 539 million

- 5-year Capex Cashflow for all infrastructure projects

2014/15	**R 1 652 million**
2015/16	**R 1 500 million**
2016/17	**R 1 201 million**
2017/18	**R 780 million**
2018/19	**R 407 million**

BULK WATER SUPPLY INFRASTRUCTURE



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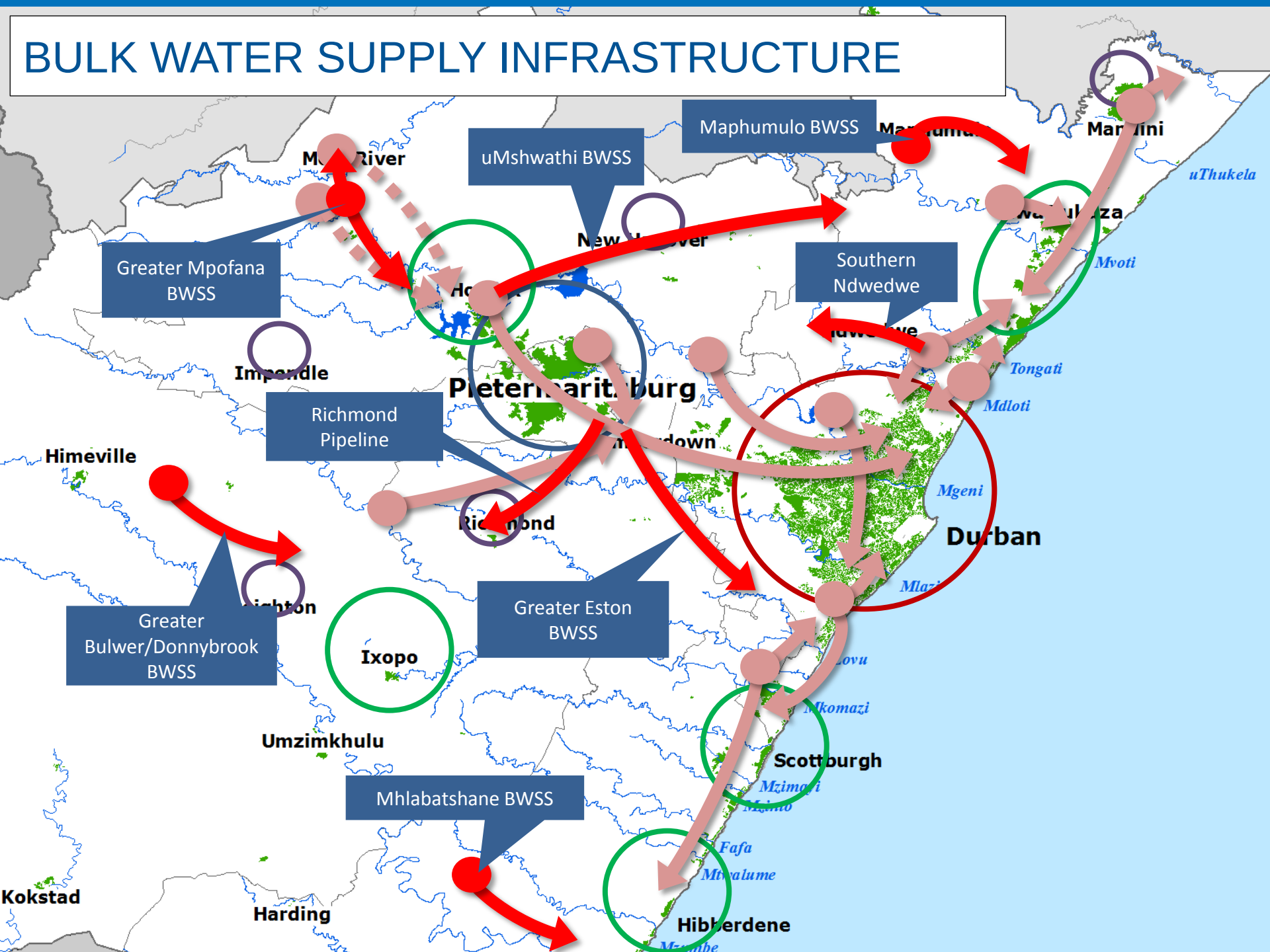
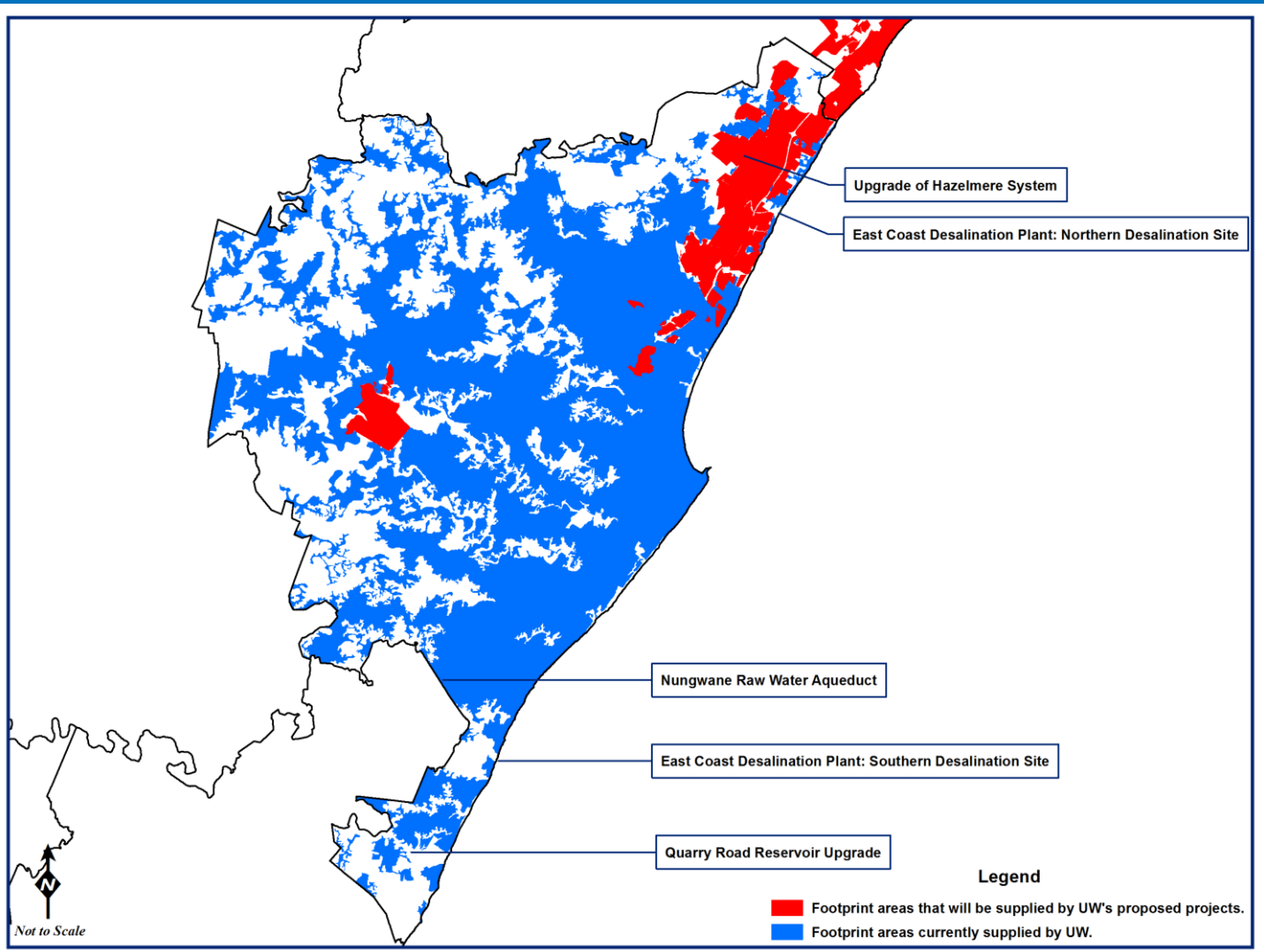
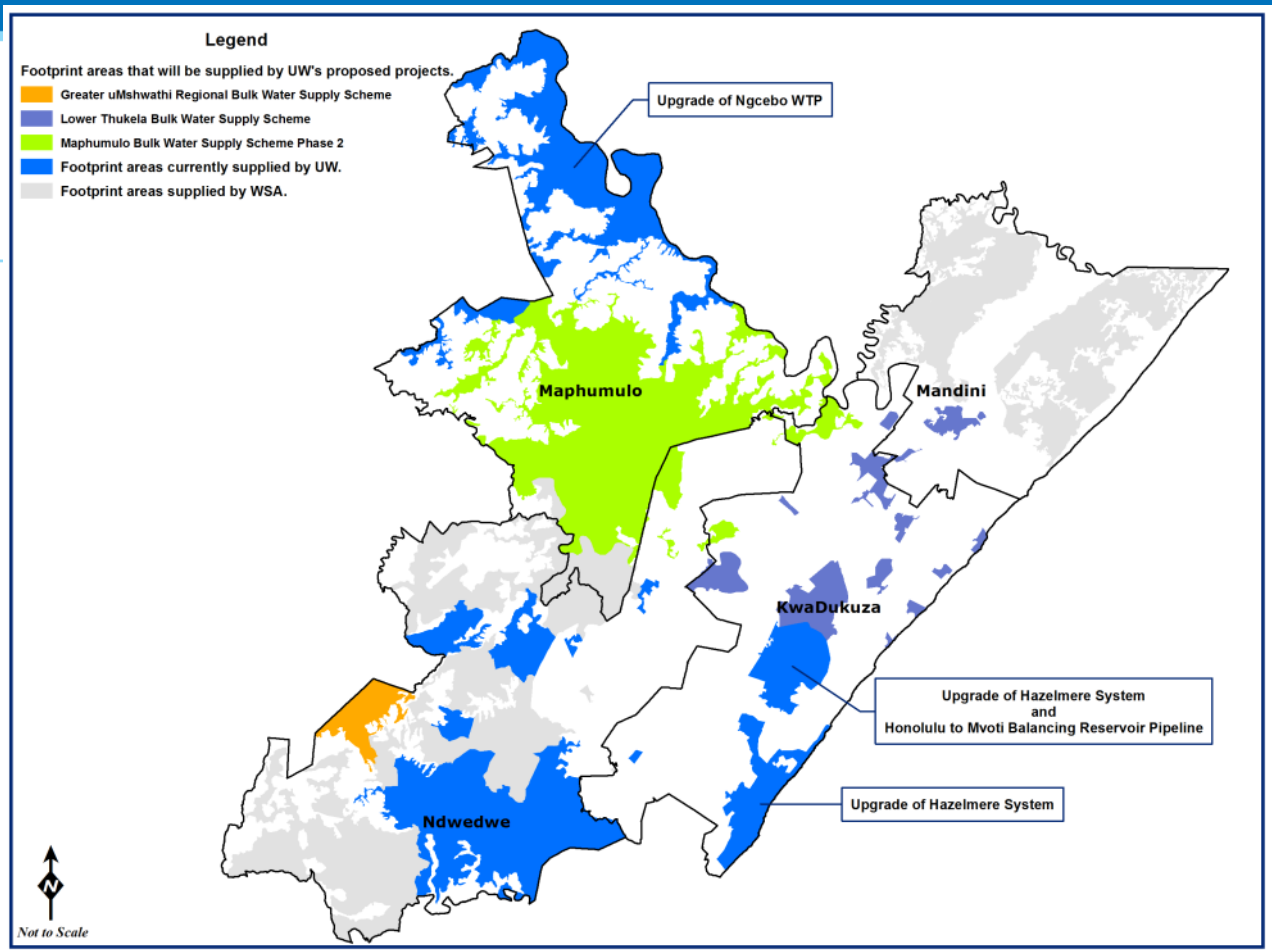


eThekwini



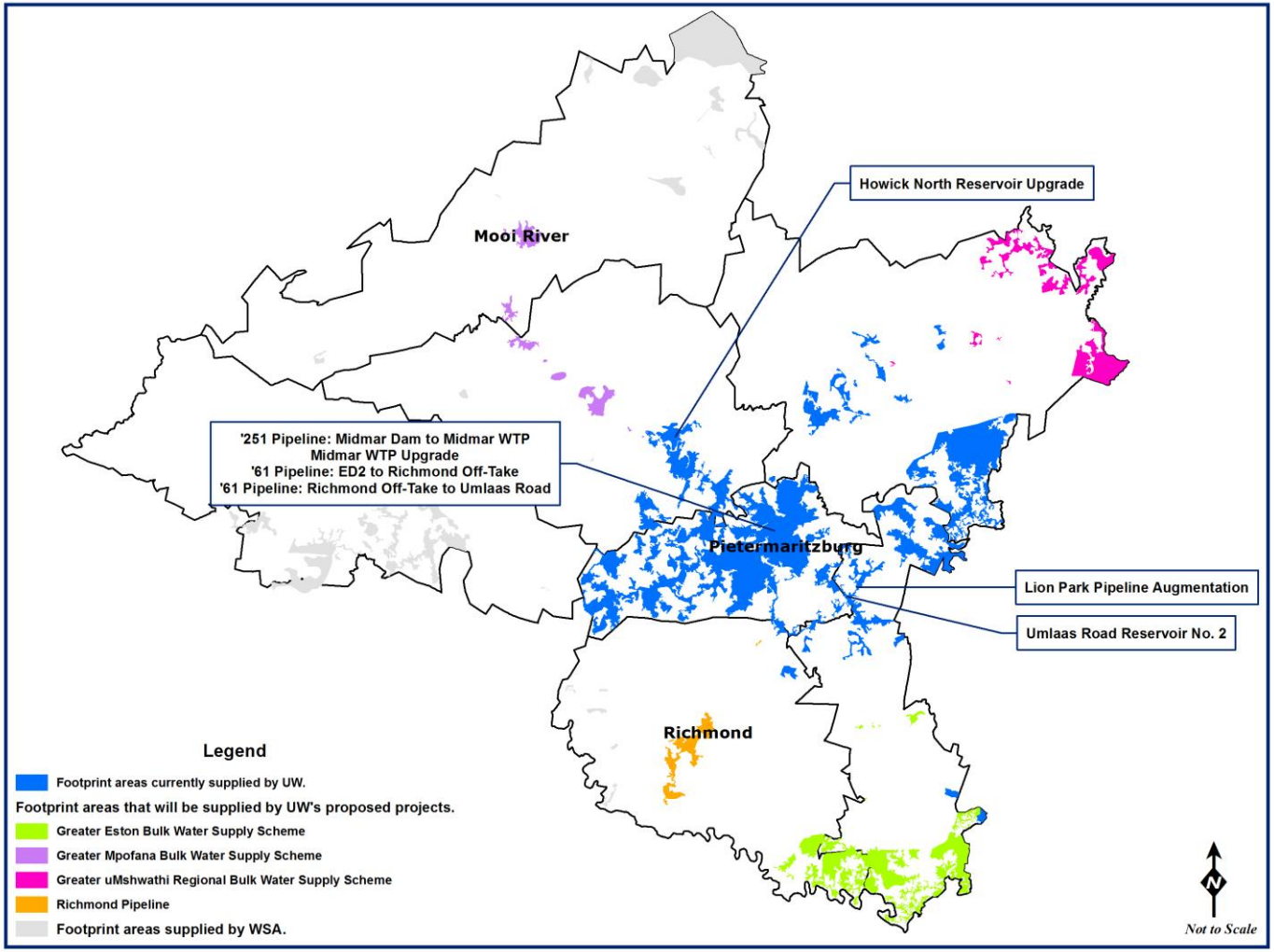
Objective	Major Project Description	F15 (Rm)	5-Year (Rm)
Consolidation	Durban Heights WW – Upgrade & Rehabilitation	45	477
Asset Condition	Nagle Aqueducts 3 & 4 - Refurbishment	112	112
	Total	**157**	**589**
Consolidation	Hazelmere various	16	**81**

ilembe



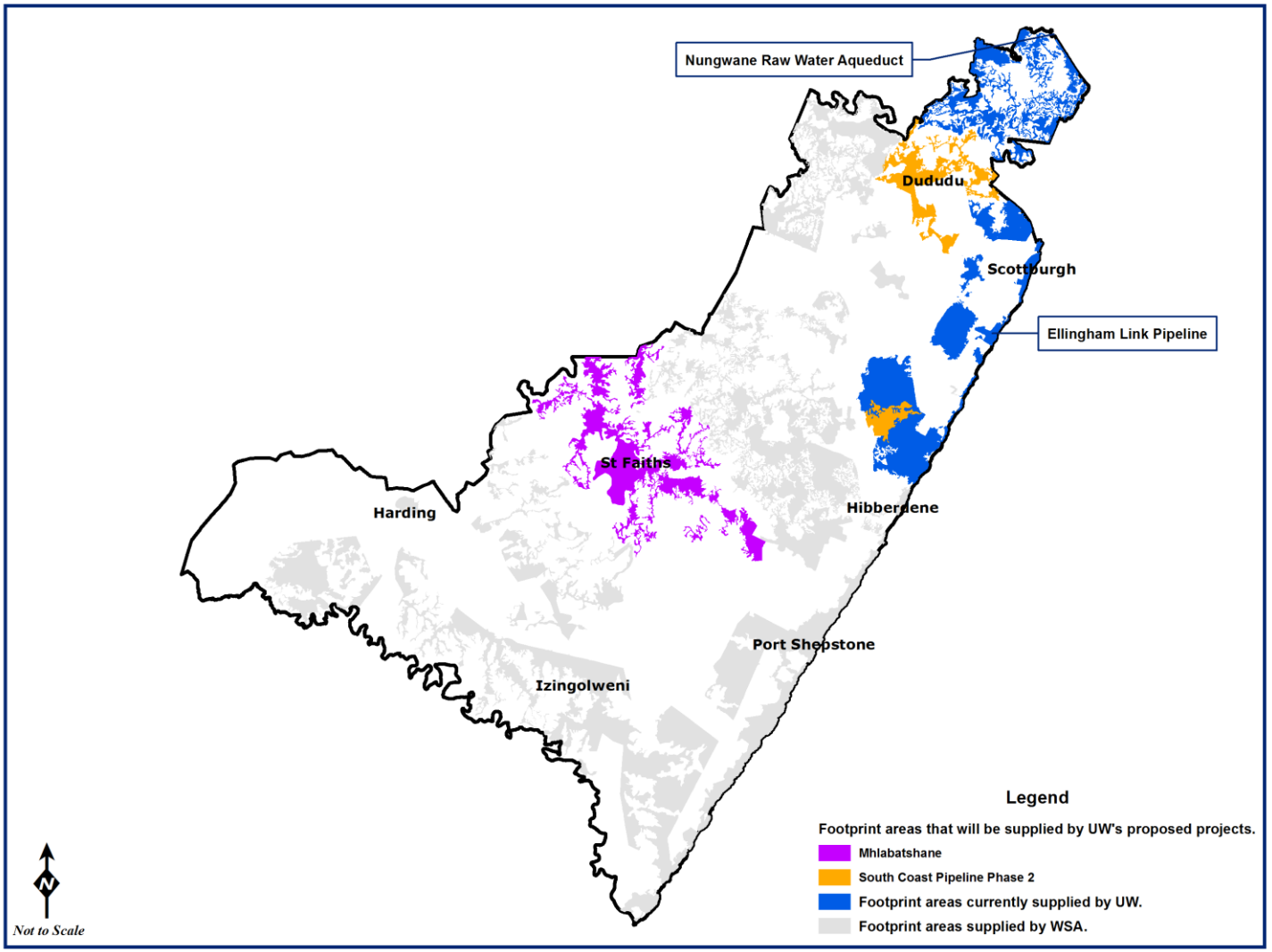
Objective	Major Project Description	F15 (R'm)	5-Year (R'm)
Consolidation	Hazelmere various	16	81
Development	uMshwathi BWSS Phase 1-3	117	970
Development	Maphumulo BWS Scheme Phases 1&2	60	118
Development	Lower Thukela + Fawsley Park	416	1019
	Total	**609**	**2188**

UMDM



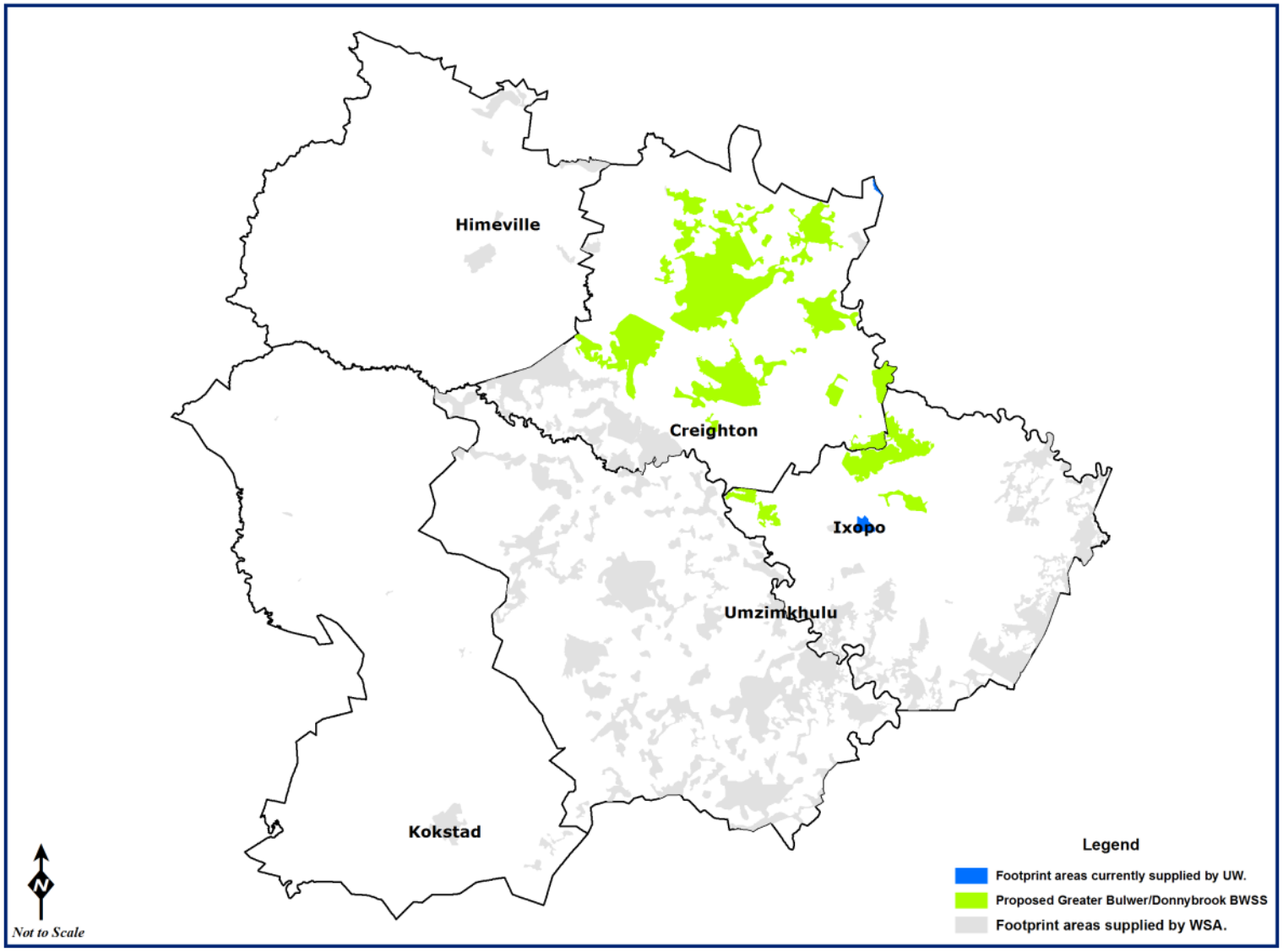
Objective	Major Project Description	2013 (R'm)	5-Year (R'm)
Development	Greater Mpofana BWS Scheme	97	455
Development	uMshwathi BWSS Phase 1-3	117	970
Development	Richmond Pipeline (75l pp/d)	15	15
Development	Greater Eston BWS Scheme	21	51
	Total	**250**	**1491**

Ugu



Objective	Major Project Description	F15 (R'm)	5-Year (R'm)
Consolidation	Ellingham Link and SC Pipeline	33	195
Development	Mhlabatshane BWS Scheme Phase 1 & 2	2	42
Development	Lower mKhomazi BWSS	3	83
Asset Condition	Nungwane Raw Water Aqueduct Upgrade	15	75
	Total	**53**	**395**

Harry Gwala



Objective	Major Project Description	F15 (R'm)	5-Year (R'm)
Development	Harry Gwala Regional Planning	1	20

Lower Tugela Bulk Water Supply System

Background

- Coastal towns in iLembe DM fall along economic corridor
- Increase in demand due to improvement of level of service
- Two future options proposed to meet future demand:
  - Lower Tugela BWSS
  - Regional Bulk Water Supply Scheme on the Mvoti River
- LTBWSS initiated first as it has greater impact on meeting future demand.

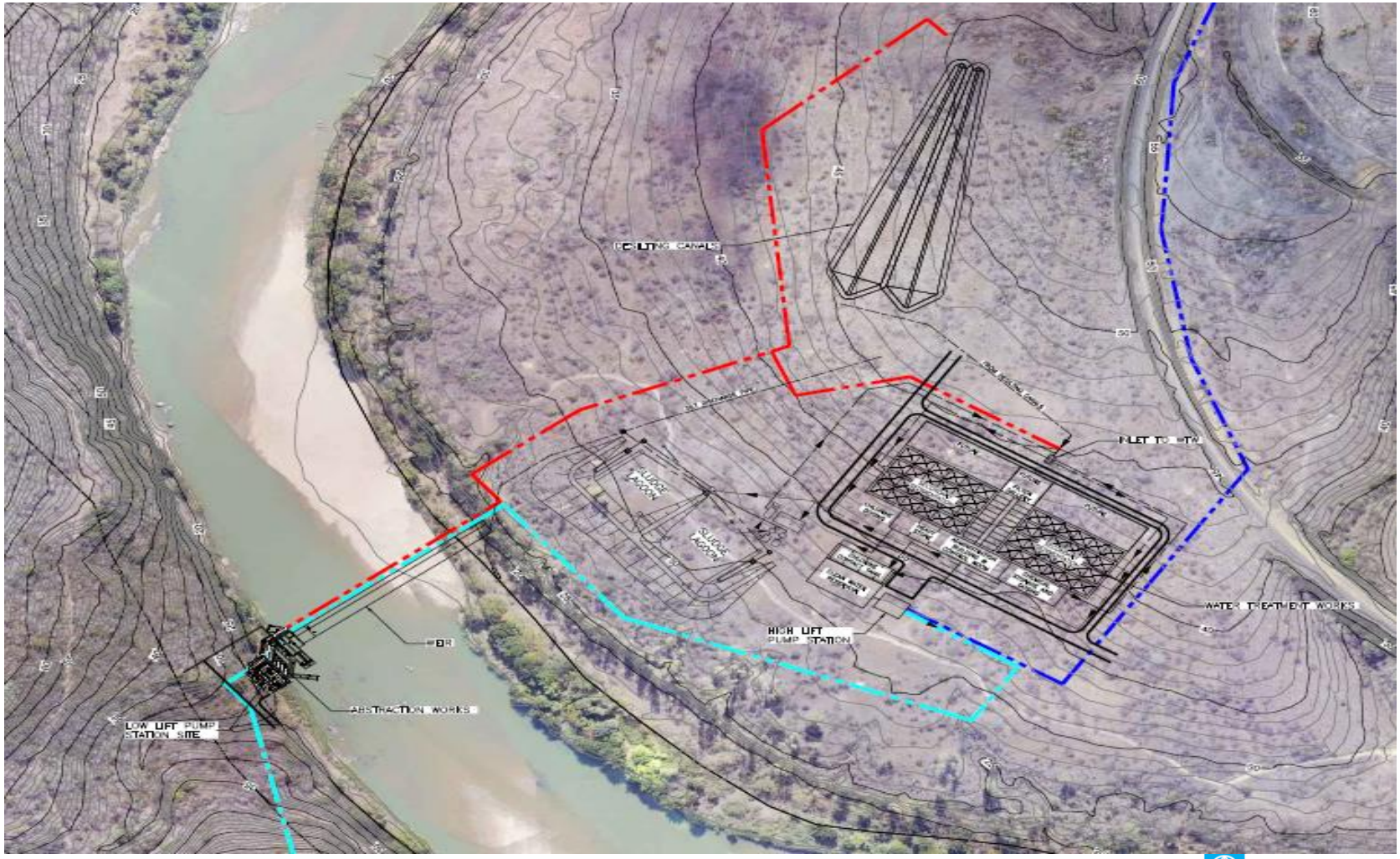
Lower Tugela Bulk Water Supply System

Phasing of LTBWSS

- Construction of Phase 1 started in February 2014 and will comprise of:
  - An abstraction works and low lift pump station located on the banks of the Lower Thukela River with a capacity of 110 Ml/day
  - A de-silting works with the possible addition of a balancing dam
  - A 55 Ml/day water treatment works
  - A 55 Ml/day high-lift pump station at the water treatment works linked to bulk supply pipelines running north and south of the WTW and associated potable water storage reservoirs.

Lower Tugela Bulk Water Supply System

Schematic layout of the LTBWSS



Lower Tugela Bulk Water Supply System

- Progress to date:

Lower Tugela Bulk Water Supply System

Lower Tugela Bulk Water Supply System

Excavations for Clarifloculator

Excavations for on-site storage

Excavations for Pulsator

Hazelmere Supply System

Background

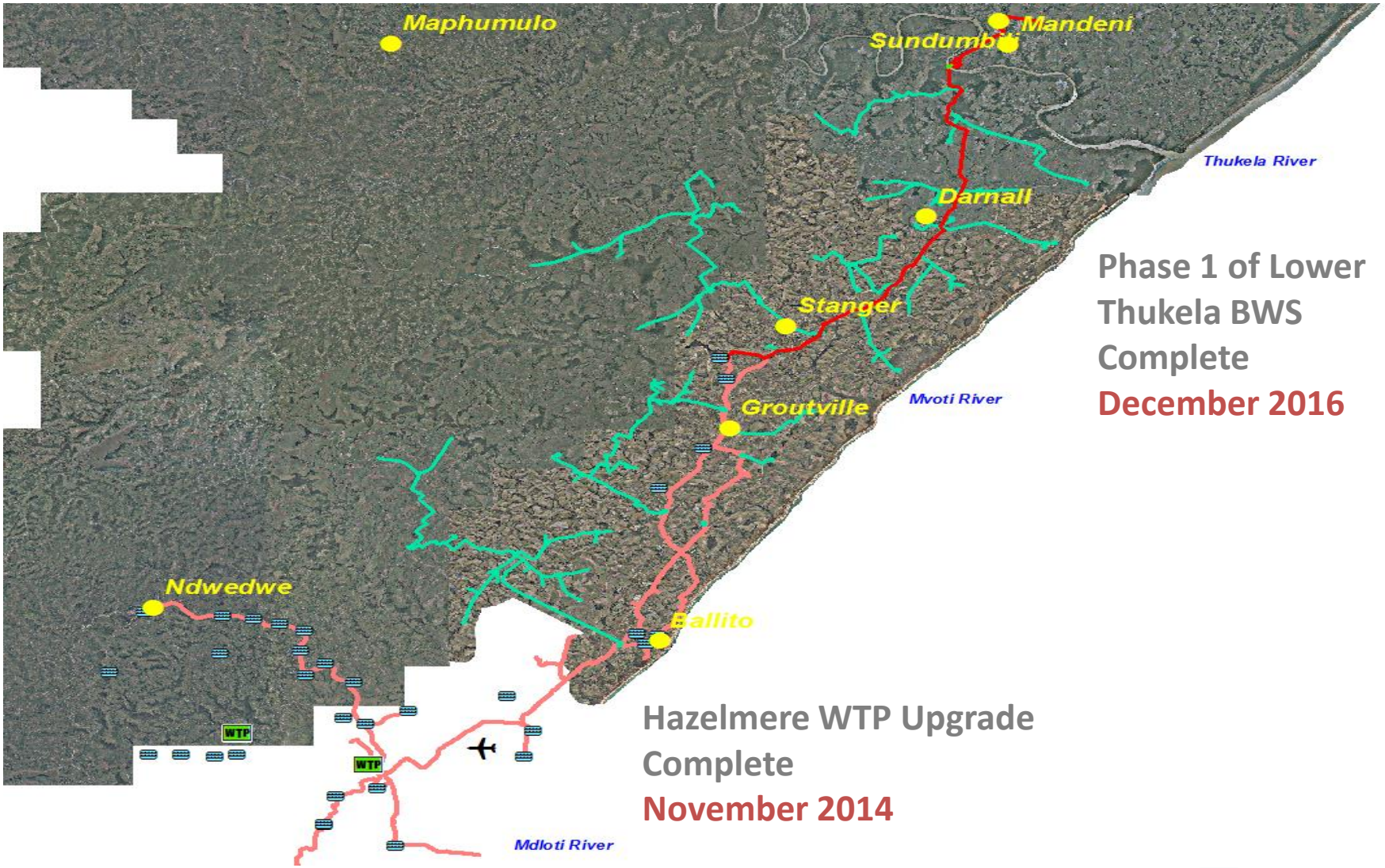
- Extensive current and future developments necessitated the upgrade of the entire North Coast Supply System and comprise of:
  - Upgrade of the Hazelemere to bifurcation pipeline (complete)
  - Upgrade of Hazelmere WTP from 45 Ml/day to 75 Ml/day (in progress)

Hazelmere Supply System

Progress to date

Hazelmere Supply System

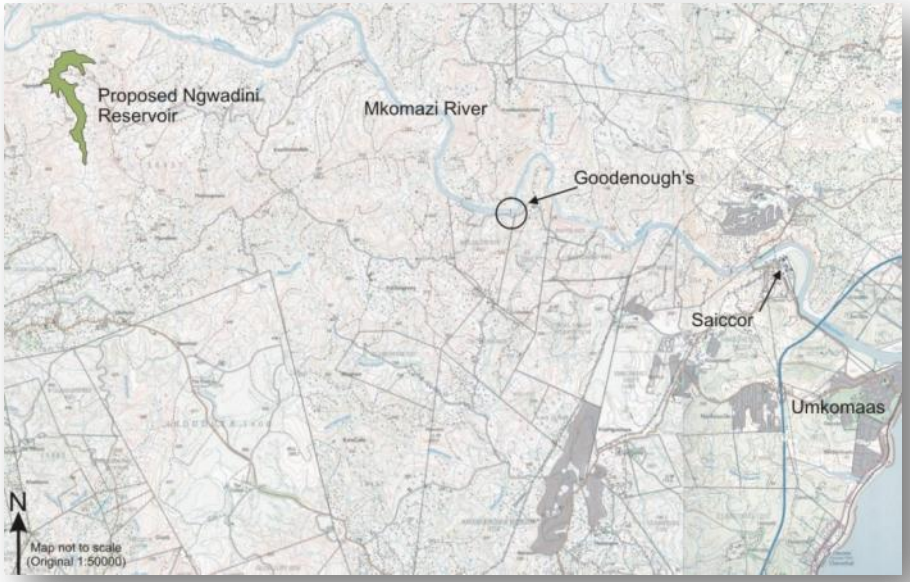
Integration of Lower Tugela BWSS to the North Coast Supply System



Phase 1 of Lower Thukela BWS Complete
December 2016

Hazelmere WTP Upgrade Complete
November 2014

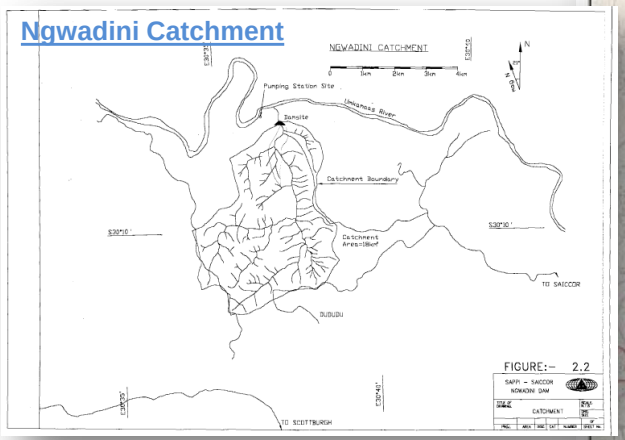
BACKGROUND

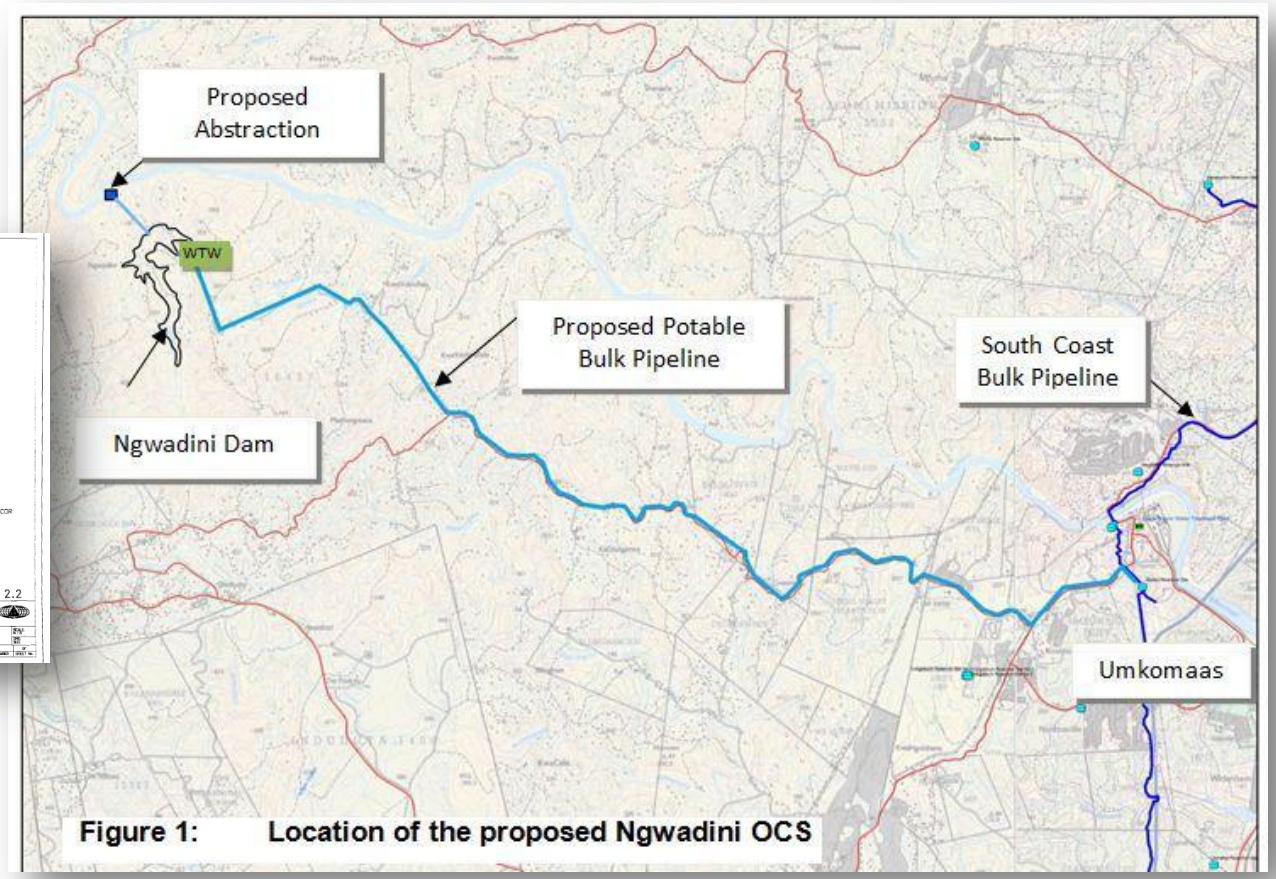


The purpose of the study is to investigate, at a **detailed feasibility** level, the optimum configuration, sizing, phasing and costing of all infrastructure required for the proposed Lower Umkhomazi Bulk Water Supply (BWS) of the scheme, including:

- **Abstraction works**
- **Pumpstations and associated works**
- **Review designed off-channel storage dam holding 10 million m^3 of raw water**
- **100Ml/d WTW**
- **Bulk water supply infrastructure**
- **Deliver water at the lowest possible overall cost, and with the least environmental impact to the South Coast area**

INFRASTRUCTURE





FEASIBILITY STUDY

Start Date: 1 August 2014, Duration: 18 months

Site Selection

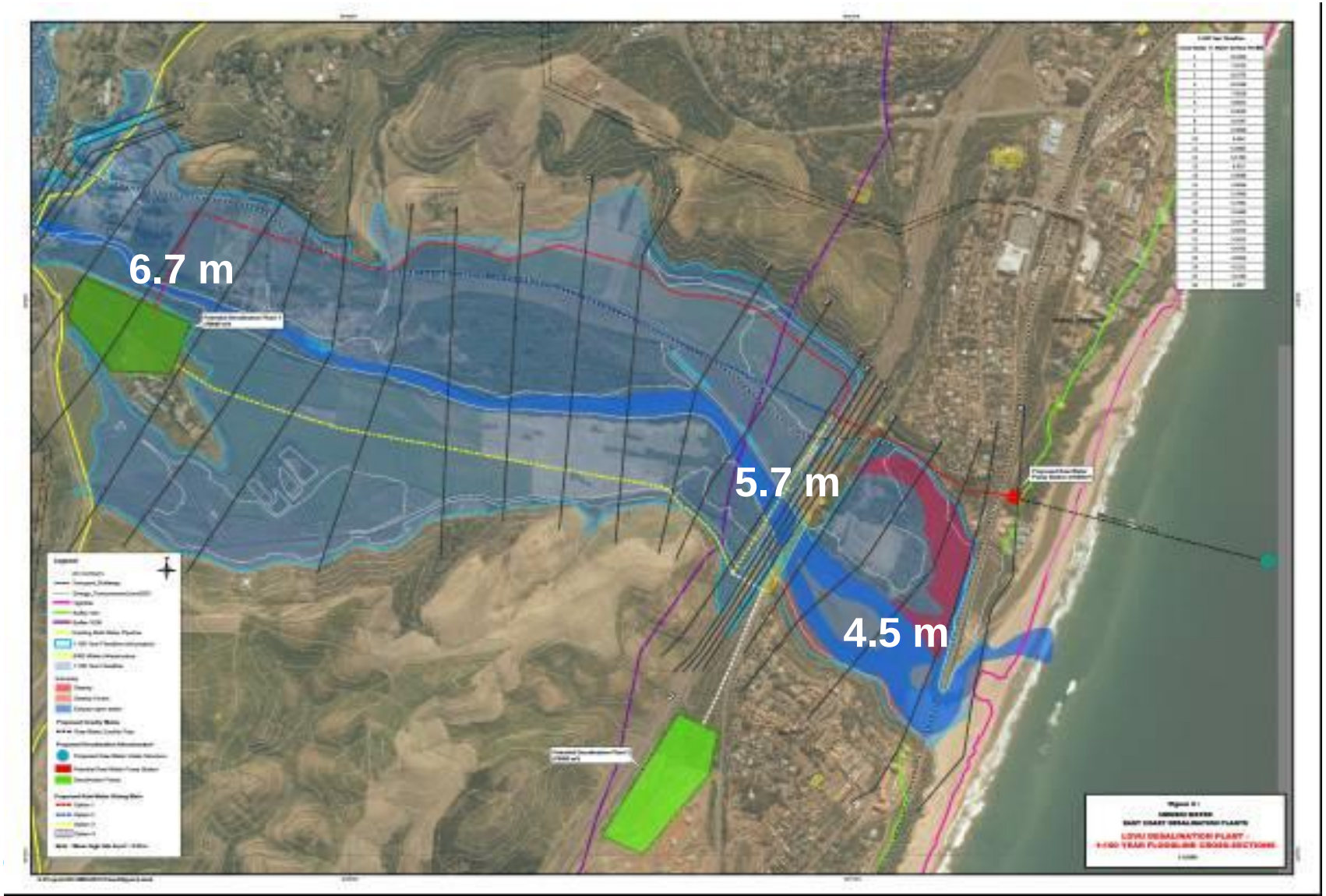
- Lovu and Mdloti sites (both estuarine)
- Tongaat site subsequently included
- Additional consulting services:
  - Site visit to Tongaat (2 April)
  - Geotechnical assessment at Tongaat
  - Marine biological assessment of Tongaat
  - Extended environmental screening (all three sites):
    - Botanical, Estuarine and Social

Mdloti

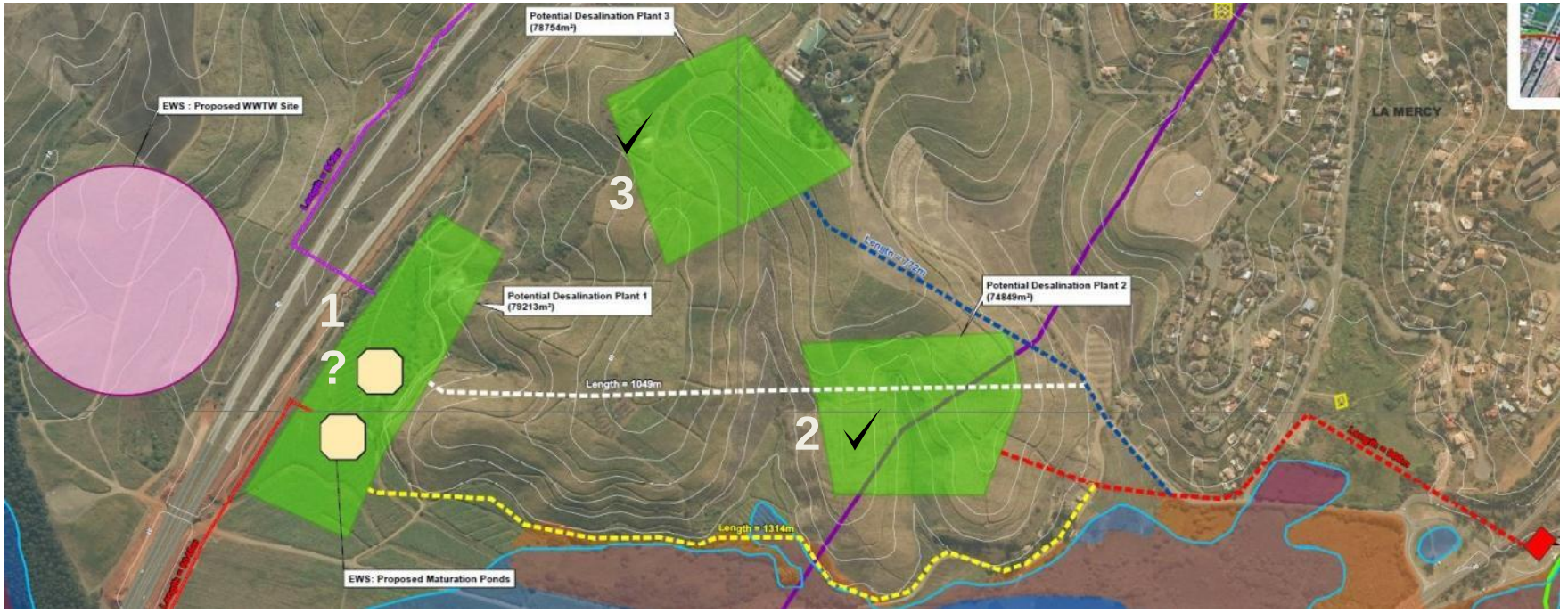
Lovu

Tongaat

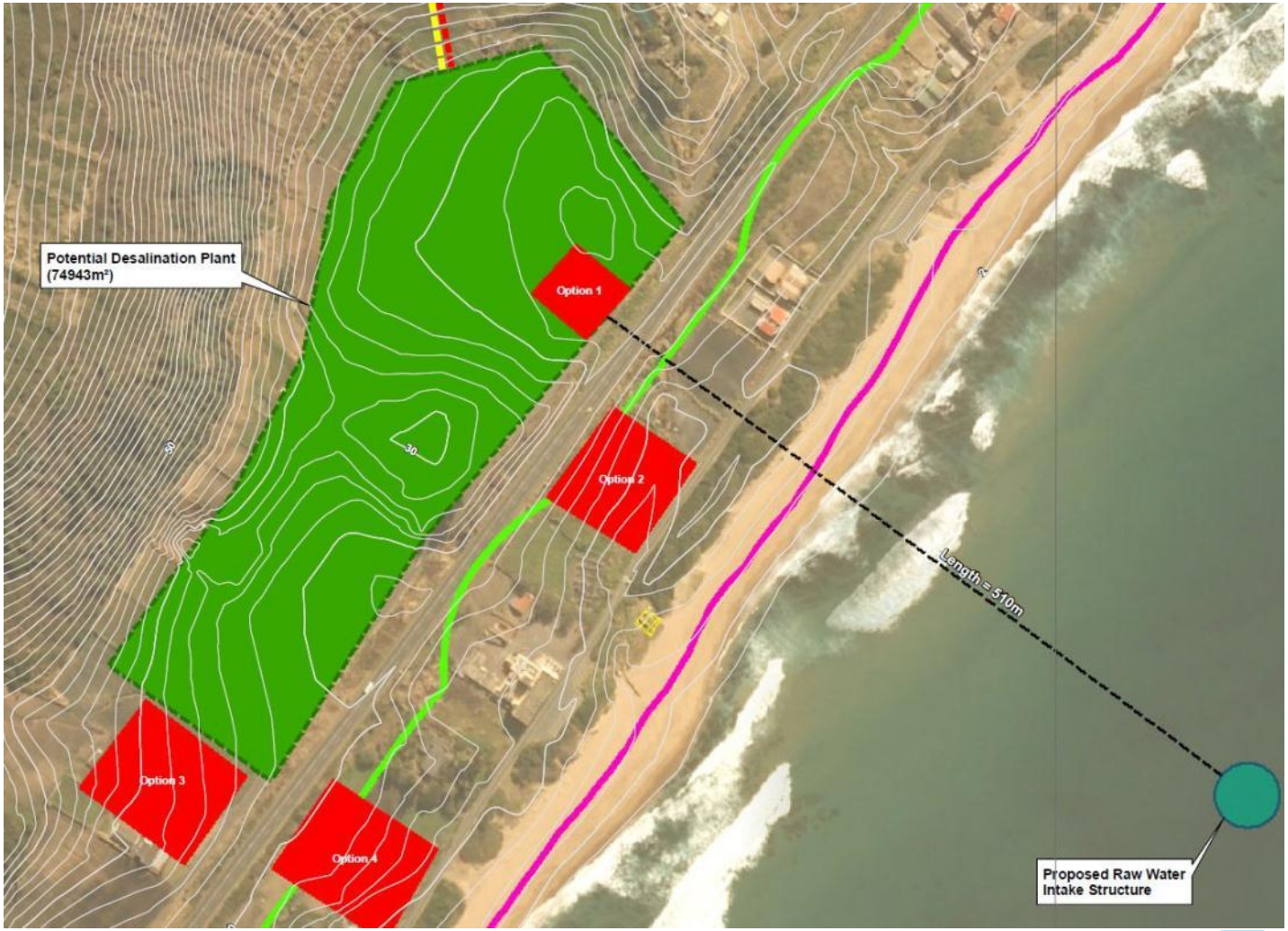
Lovu Site



Mdloti Site


Potential Desalination Plant 3
(78754m²)
EWS : Proposed WWTW Site
LA MERCY
3
1
?
Potential Desalination Plant 1
(79213m²)
Potential Desalination Plant 2
(74849m²)
Length = 1049m
2
Length = 1314m
EWS: Proposed Maturation Ponds

Tongaat Site



East Coast Desalination Details

- Plant Size - 150 Ml/d
- Energy Use – 3.86 kwh/kl (Total 24MW)
- Total cost of infrastructure – R 2 800 million
- Annual O&M costs – R 295 million / annum

- Feasibility study complete – December 2014
- Northern plant not feasible in the short to medium term
- Further phases on southern plant dependent on financial analysis against the Lower uMkhomazi Detailed Feasibility Study

UMGENI WATER · AMANZI

Thank you.

Celebrating 40 years of safe potable water

40th ANNIVERSARY 1974 - 2014