10. List of projects

10.1 Introduction

The ZDM water master plan comprises of 10 back to back regional schemes, as follows:

- Nkonjeni
- Usuthu
- Mandlakazi
- Mkhuze
- Simdlangentsha East
- Simdlangentsha Central
- Simdlangentsha West
- Coronation
- Khambi
- Hlahlindlela

Each regional scheme footprint has a sustainable water source from where infrastructure is progressively being rolled out to all households within the supply area. The supply footprints have been identified in such a way that water can be provided to all households within the area in a sustainable manner and at the lowest possible cost (R/kl).

Sanitation in the rural areas is being provided in the form of dry-pit VIP toilets and the strategy is to implement these simultaneously with the roll-out of water services. This ensures a more effective impact with health and hygiene awareness training.

The list of communities to be served with water and sanitation over the next five years is listed below. The communities have been grouped per regional scheme.

10.2 Critical Issues

The regional schemes of ZDM are experiencing various challenges that either impact on the sustainability of existing infrastructure or influence the roll-out of new infrastructure to communities yet to be served. Critical issues related to the above have been identified for each regional scheme and are discussed in more detail below:

10.2.1 Nkonjeni

- The Nkonjeni regional scheme is in the privileged position of having a well developed and sustainable water source. Therefore the bulk of the available funding can be applied towards the progressive roll-out of water services to the respective communities.
- The sustainability of the scheme is however threatened by water losses in existing networks and excessive water usage from unmetered consumers. A water audit was done in 2006 (Ulundi Water Audit – October 2006) that indicated the inefficiency of water usage in Ulundi town to be 68% of the volume of water put into the system. Urgent attention must be given to the development of a water loss and demand management strategy that can be systematically implemented throughout the scheme. If no attention is given to the above then water supply problems elsewhere in the scheme and the costly and premature upgrading of bulk infrastructure will be the result.

10.2.2 Usuthu

- The Usuthu regional scheme is the largest water supply scheme in the district and also represents the biggest portion of the total backlogs. The scheme requires the development of a new water source from the Black Mfolozi river and expensive bulk infrastructure to be rolled out over vast distances to scattered rural communities. The biggest challenge with this scheme is the funding of the enormous capital investment of more than R500m that is required to provide the required infrastructure.
- The huge capital investment required eradicating the backlogs through the regional scheme infrastructure and the resulting slow progress with the roll-out of services requires an intermediate solution to be developed to alleviate immediate water supply needs. The existing rudimentary supply programme, whereby local groundwater sources are developed within 800m walking distance from households, was hampered in Usuthu area due to difficulty in finding reliable and good quality water sources close to communities. Possible solutions could include the targeting of more sustainable production boreholes throughout the scheme that could be used as intermediate water sources and later be replaced by the regional scheme infrastructure.
- The sustainability of the main water source of Nongoma town is under severe strain and no longer sustainable during drought periods. This necessitated a change in the prioritised roll-out of the scheme by fast-tracking the installation of a bulk pipeline from the Black Mfolozi river to Nongoma.
- Nongoma town frequently experiences intermittent water supply to consumers and businesses, even outside of drought periods. Excessive water usage by unmetered consumers and high water losses contribute to the problem. A water loss study conducted in 2003 indicated that unaccounted water supply in Nongoma was in excess of 41%. Therefore the need exists for the implementation of a water loss and water demand strategy for the town to ensure the long-term sustainability of the scheme.

10.2.3 Mandlakazi

- The Mandlakhazi regional scheme represents the second largest supply area in the district and also the second biggest portion of the total backlogs of the municipality. There are no towns in the supply area and the communities are sparsely scattered and vast distances apart. The provision of water services to all communities are therefore extremely expensive and will take a long time to conclude.
- Water supply problems in the neighbouring Hlabisa area has resulted in a change of priorities and the construction of a bulk supply pipeline to supply the eastern side of Mandlakazi and eventually reach the Hlabisa communities.
- The Mandlakazi area is also in need of an intermediate solution to accelerate the provision of services to households until the regional scheme bulk infrastructure can eventually reach all the communities. Drought problems are frequent in the area and the rudimentary programme has also had limited success. However, success has been achieved in finding good production boreholes throughout the scheme and this could be targeted and developed as intermediate water sources.
- The scheme is supplied with raw water from a privately owned dam outside of the Zululand municipal area. The privately owned dam is supplied by the owner from the Pongolapoort Dam, which is a very reliable water source. Bulk water supply agreements are in place with the owner and the supply is secured. Long-term security of supply could however be improved by ZDM obtaining an individual allocation and raw water abstraction permit from DWA for abstraction from the dam.

10.2.4 Mkhuze

- The Mkhuze regional scheme area comprises of mostly formal farm areas and a small number of sparsely scattered rural communities. The construction of a single regional scheme to supply the entire footprint is not feasible, but rather individual schemes from local sources.
- An existing land reform project at the Gumbi settlement has resulted in a dramatic influx of families that settled without any water or sanitation infrastructure being in place. This resulted in the construction of an emergency supply from the neighbouring Pongolapoort Dam. The project is almost completed. The abstraction point at the dam is however not ideal and in future a second abstraction point from a more ideal position should be investigated.
- There is huge potential for economic development on the western side of the Pongolapoort Dam but abstraction on that side of the dam is unfortunately very difficult. Groundwater sources in the area are also of poor quality and insufficient yield to sustain large scale development. Therefore there is a need to investigate the provision of a sustainable supply from the dam to the area.

10.2.5 Simdlangentsha East

- The Simdlangentsha East regional scheme is a well served area and consist of the lowest backlogs in the district. The scheme supplies Pongola town as well as a vast rural area. Water is abstracted from irrigation channels next to the Pongola river and with an emergency supply that is available further down at the Pongola river. The irrigation channels are managed by DWA and the supply is mostly reliable, except when the channels are closed for maintenance. ZDM also must pay DWA a raw water charge for water abstracted from the channels.
- Water supply in the rural areas is under severe pressure with frequent interruptions to the supply. Excessive water usage and high water losses due to illegal and unmetered connections are the main contributors to the problem. Apart from the above problems the bulk infrastructure is also in need of upgrade as a result of population growth since the inception of the scheme. The challenges on the scheme therefore require a combination of water demand management interventions and the upgrade of bulk infrastructure to address the long-term sustainability of the scheme.
- Pongola town has experienced significant development over the recent years and this was hampered by especially the absence of waterborne sanitation throughout the town. There is a need to compile a sewerage master plan for the area and plan upgrade requirements systematically.

10.2.6 Simdlangentsha Central

- The planning of the Simdlangentsha Central scheme is complete and the first phases of the bulk infrastructure have been completed. The project also requires a substantial investment in bulk infrastructure before communities will be reached with water supply. The area is however quite well served with localised schemes from local sources. The challenge is to keep these schemes operational until the bulk scheme can reach all the areas.
- The Simdlangentsha Central scheme is also under pressure to alleviate water supply problems in the far reaching ends of the Simdlangentsha East scheme. A bulk pipeline is being constructed from the Simdlangentsha Central waterworks to the Simdlangentsha East scheme for this purpose.
- The Simdlangentsha Central scheme contributes a small portion to the total backlogs of the ZDM and therefore also receives a small portion of the available capital funds, although a substantial capital investment is still required to provide the necessary infrastructure.

10.2.7 Simdlangentsha West

- The current capacity of the rising main line from the existing weir in the Pongola River to the existing Water Treatment Works at Frischgewaagd Township is 2ML/day. (Supplies Frischgewaagd and Mangosuthu with raw water)
- The Current capacity of the existing Water Treatment works at Frischgewaagd town is 3Ml/day.
- New networks were installed at Frischgewaagd during 2007/2008. The water demand was reduced from the maximum possible supply of 2ML/day to 0.7Ml/day.
- The balance of the water (1.3ML/day) is consumed by Mangosuthu (with only 20% of the population of Frischgewaagd). High water losses are evident.
- The construction of new networks at Mangosuthu is currently being constructed. Construction includes metered yard connections and consumers will be restricted to 200 litres per household. Consumers will be able to register for a higher level of service, but will be billed for the balance. The estimated cost to complete the networks at Mangosuthu is R31M. Currently funding of only R6M per year is available.
- In the near future Frischgewaagd will also be restricted to 200 litres per day, with the option to register and pay for a higher level of service.
- Once the networks at Mangosuthu are completed, a new rising main line from the Pongola weir to Frischgewaagd will be constructed.
- The Frischgewaagd Water Treatment Works will be relocated to the Pongola River Weir.
- Treated water will be distributed to Ezimbomvu, Tholakela, Mangosuthu and Opuzane.

The biggest challenge is to obtain funding for the proposed developments. Funding of more than R120M will be needed just to supply Frischgewaagd and Mangosuthu with treated water. Currently only R6M per year is available for the development of Simdlangenstha West.

10.2.8 Khambi

- Several small stand alone schemes were implemented within the Khambi Tribal Authority during the recent years. (Esihlengeni, Kwamakweshe, Ngenetsheni, Cibilili and Ntumbane Community Water Supply schemes).
- None of these schemes have had a sustainable water source. The Clinic at Ntumbane is often without water during the dry winter periods.
- An interim weir was constructed in the KwaMthazi River and a new water treatment works was constructed. This will supply water on the medium term to the Khambi Tribal Authority and will integrate all the stand alone schemes. Currently only Kwamakweshe and Ngenetheni are supplied from the Khambi Water treatment works. The long-term planning is to supply water from the Coronation Dam to the Khmabi area, but an in-depth study needs to be conducted to determine if Coronation Dam is sustainable for this additional demand.
- The integration of the remaining stand alone schemes will be completed within the next two to three years, after which the focus will be on the implementation of stand-alone schemes to the Land Reform Areas of Khambi.

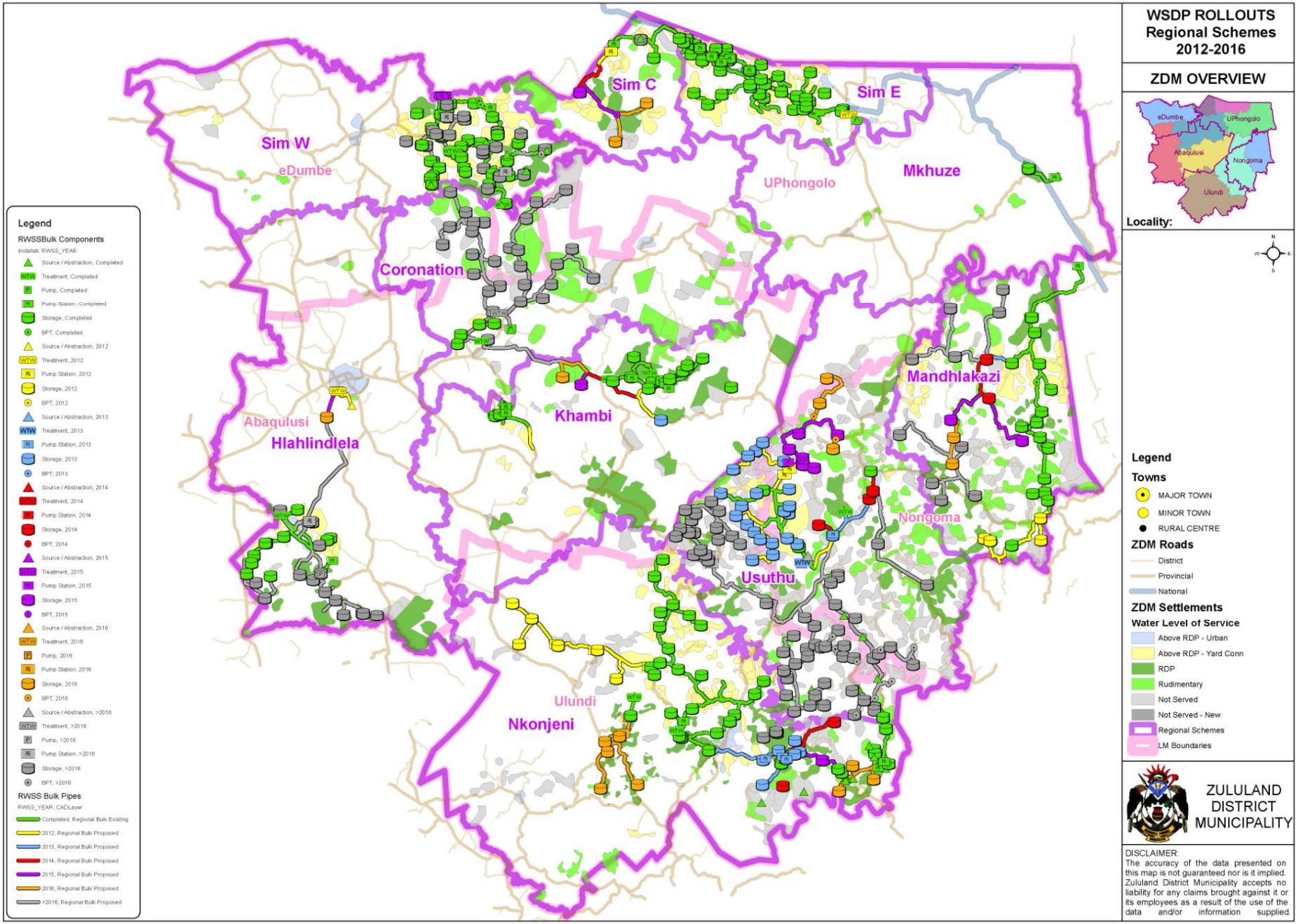
10.2.9 eMondlo/Hlahlindlela

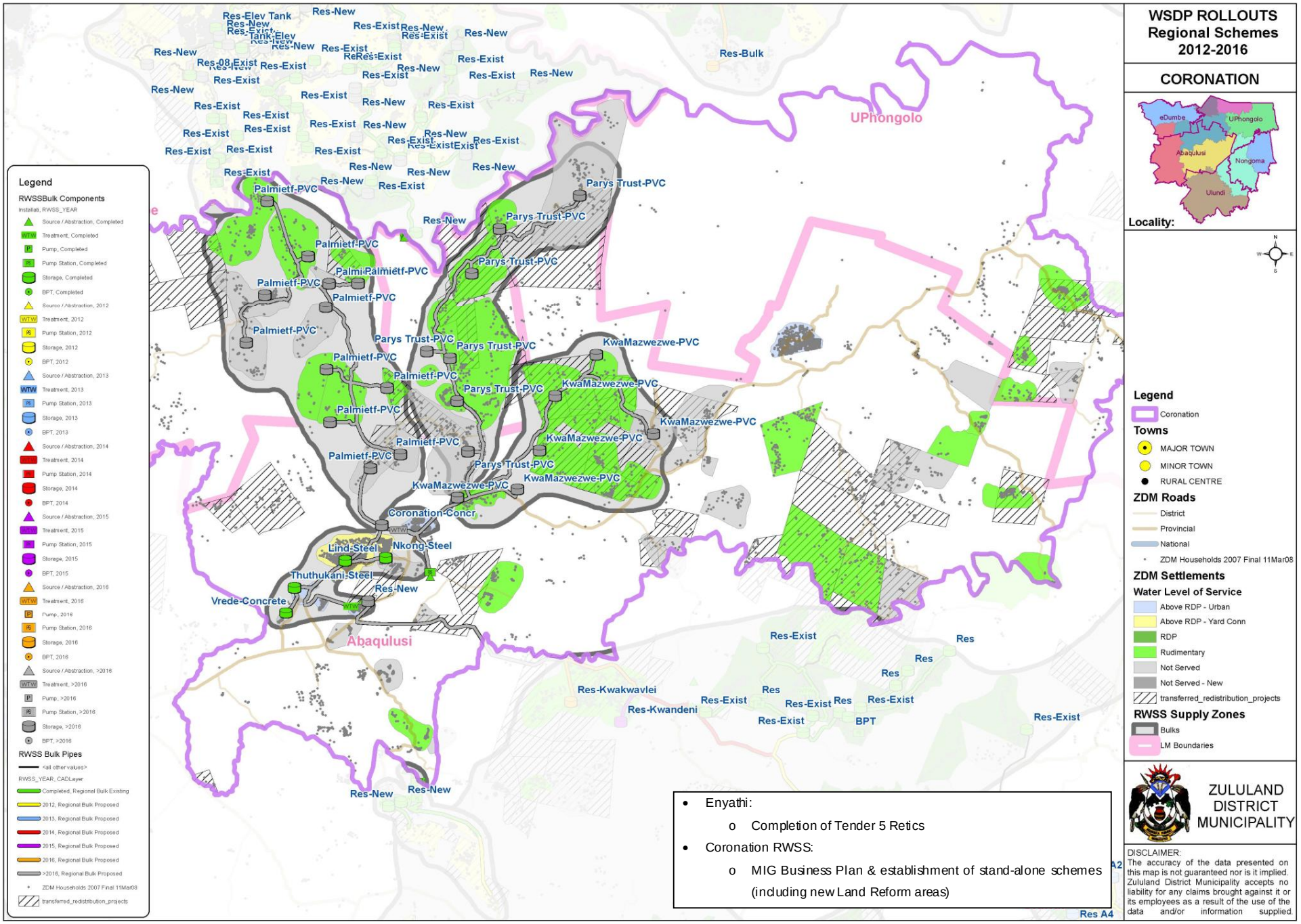
- During 2000 a new water reticulation network at eMondlo A and B was installed in order to lessen the water demand from 12 Ml/day to 4 Ml/day. The eMondlo water treatment works can supply 8 Ml/day. This meant that 4 Ml/day would have been available towards the settlements surrounding eMondlo A and B after the installation of the new networks. Networks were installed at these settlements and connected to eMondlo A and B.
- The old network at Emondlo A and B was never decommissioned and the savings of 4Ml/day never realised. The residents of eMondlo also connected the new network to the old network with pipes in their yards.
- Currently the eMondlo water treatment works is being refurbished and upgraded to supply 12Ml/day.
- The water demand has grown from 8Ml/day in 2000 to 16 Ml/day currently. After the refurbishment there will still be a shortfall of 4 Ml/day.
- The existing rising main line from Mvunyane Dam to eMondlo Water Treatment works can only supply 12 Ml/day.
- The Mvunyane dam has is silting up and has a limited lifespan.
- In future water will be supplied from Klipfontein Dam to Vryheid Water Treatment works. Water will then be pumped from the Vryheid Water Treatment works to Hlahlindlela (including eMondlo Township).
- A water loss programme needs to be implemented at eMondlo A and B. This is crucial towards the sustainability of water supply to the area. All connections must be metered and consumers must pay for water consumed. Consumers must be responsible for water losses in their own yards.
- The funding available to implement the Hlahlindlela Regional water supply is not adequate. The estimated cost to implement the water supply from Klipfontein Dam to eMondlo is estimated at well over the R200M. The current yearly budget available is R5M per year.

10.2.10 Coronation

- The Coronation regional scheme consists of a few small and isolated towns and a number of scattered and very isolated rural settlements within formalised farm areas.
- The towns have a high level of service but the infrastructure is very old and urgent refurbishment is required in most cases. The Coronation scheme however is a small contributor to the total backlogs of the district and receives a small portion of the total capital funds. Refurbishment needs are competing with new infrastructure requirements for limited available funds. There is a need for refurbishment funding over and above funding for the eradication of backlogs.
- The town of Louwsburg within the Coronation regional scheme area have a water resource challenge that will not be easy to solve. The existing dam has a limited catchment and groundwater is difficult to find due to the locality of the town. Any possible solutions will be very costly and there is insufficient funding at this stage to address the issue. The town is also in need of waterborne sewage but the water problems need to be dealt with first.

Map 10.1: Roll-out of regional water services in the district over the next 5 years




WSDP ROLLOUTS
Regional Schemes
2012-2016
CORONATION
Locality:
eDumbe
UPhongolo
Abaqulusi
Nongoma
Ulundi
Legend
RWSSBulk Components
RWSS Bulk Pipes
Coronation
Towns
MAJOR TOWN
MINOR TOWN
RURAL CENTRE
ZDM Roads
District
Provincial
National
ZDM Households 2007 Final 11Mar08
ZDM Settlements
Water Level of Service
Above RDP - Urban
Above RDP - Yard Conn
RDP
Rudimentary
Not Served
Not Served - New
transferred_redistribution_projects
RWSS Supply Zones
Bulks
LM Boundaries
UPhongolo
Abaqulusi
Res-Bulk
Parys Trust-PVC
Palmietf-PVC
KwaMazwezwe-PVC
Coronation-Concr
Lind-Steel
Nkong-Steel
Thuthukani-Steel
Vrede-Concrete
Res-New
Res-Exist
Res-Kwakwavlei
Res-Kwandeni
BPT
Enyathi:
Completion of Tender 5 Retics
Coronation RWSS:
MIG Business Plan & establishment of stand-alone schemes (including new Land Reform areas)
ZULULAND DISTRICT MUNICIPALITY
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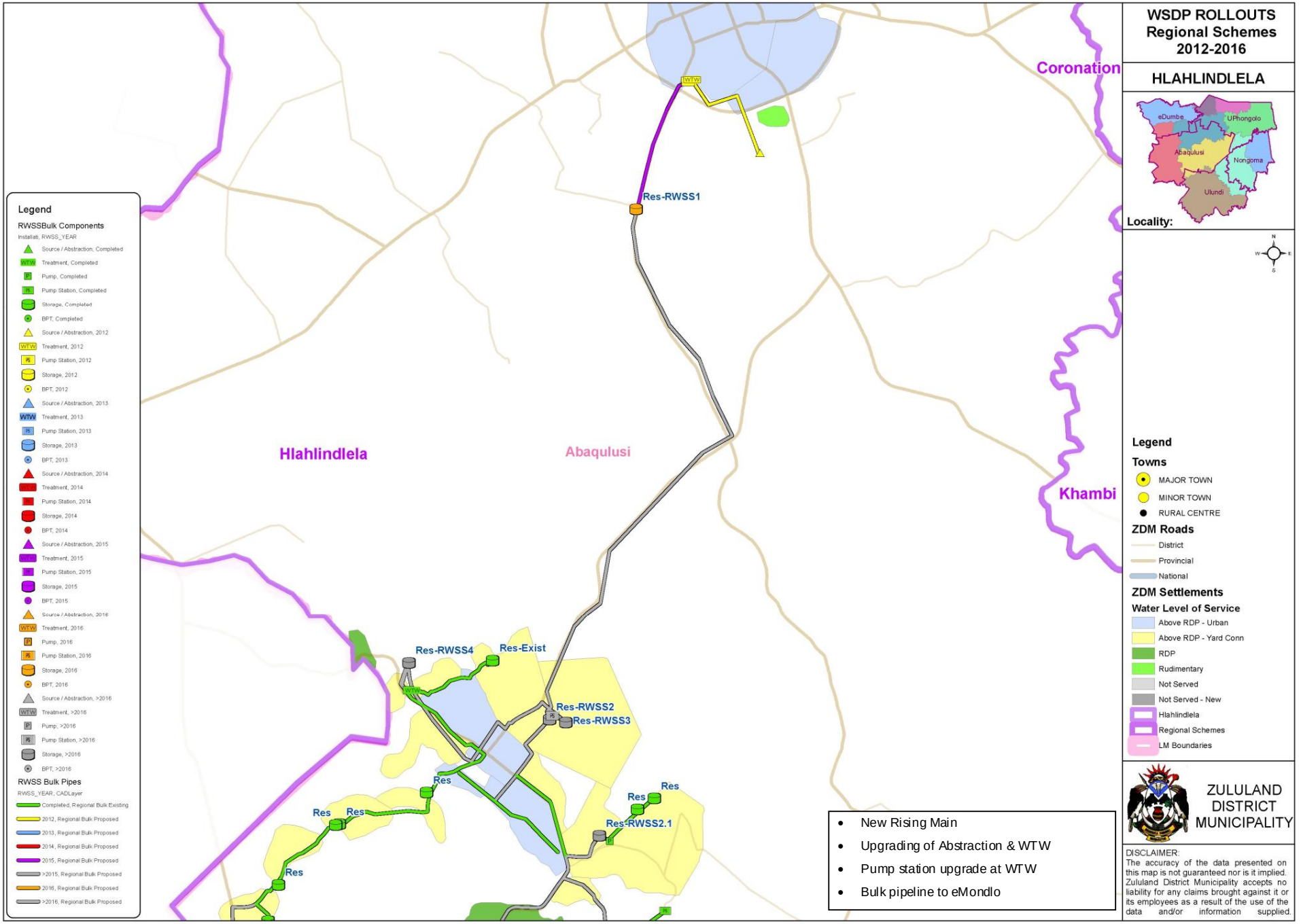
WSDP ROLLOUTS
Regional Schemes
2012-2016
HLAHLINDLELA
Locality:
eDumbe
UPhongolo
Abaqulusi
Nongoma
Ulundi
Coronation
Hlahlindlela
Abaqulusi
Khambi
Res-RWSS1
Res-RWSS4
Res-Exist
Res-RWSS2
Res-RWSS3
Res-RWSS2.1
Res
WTW
Legend
RWSSBulk Components
Installati, RWSS_YEAR
Source / Abstraction, Completed
Treatment, Completed
Pump, Completed
Pump Station, Completed
Storage, Completed
BPT, Completed
Source / Abstraction, 2012
Treatment, 2012
Pump Station, 2012
Storage, 2012
BPT, 2012
Source / Abstraction, 2013
Treatment, 2013
Pump Station, 2013
Storage, 2013
BPT, 2013
Source / Abstraction, 2014
Treatment, 2014
Pump Station, 2014
Storage, 2014
BPT, 2014
Source / Abstraction, 2015
Treatment, 2015
Pump Station, 2015
Storage, 2015
BPT, 2015
Source / Abstraction, 2016
Treatment, 2016
Pump, 2016
Pump Station, 2016
Storage, 2016
BPT, 2016
Source / Abstraction, >2016
Treatment, >2016
Pump, >2016
Pump Station, >2016
Storage, >2016
BPT, >2016
RWSS Bulk Pipes
RWSS_YEAR, CADLayer
Completed, Regional Bulk Existing
2012, Regional Bulk Proposed
2013, Regional Bulk Proposed
2014, Regional Bulk Proposed
2015, Regional Bulk Proposed
>2015, Regional Bulk Proposed
2016, Regional Bulk Proposed
>2016, Regional Bulk Proposed
New Rising Main
Upgrading of Abstraction & WTW
Pump station upgrade at WTW
Bulk pipeline to eMondlo
Legend
Towns
MAJOR TOWN
MINOR TOWN
RURAL CENTRE
ZDM Roads
District
Provincial
National
ZDM Settlements
Water Level of Service
Above RDP - Urban
Above RDP - Yard Conn
RDP
Rudimentary
Not Served
Not Served - New
Hlahlindlela
Regional Schemes
LM Boundaries
ZULULAND
DISTRICT
MUNICIPALITY
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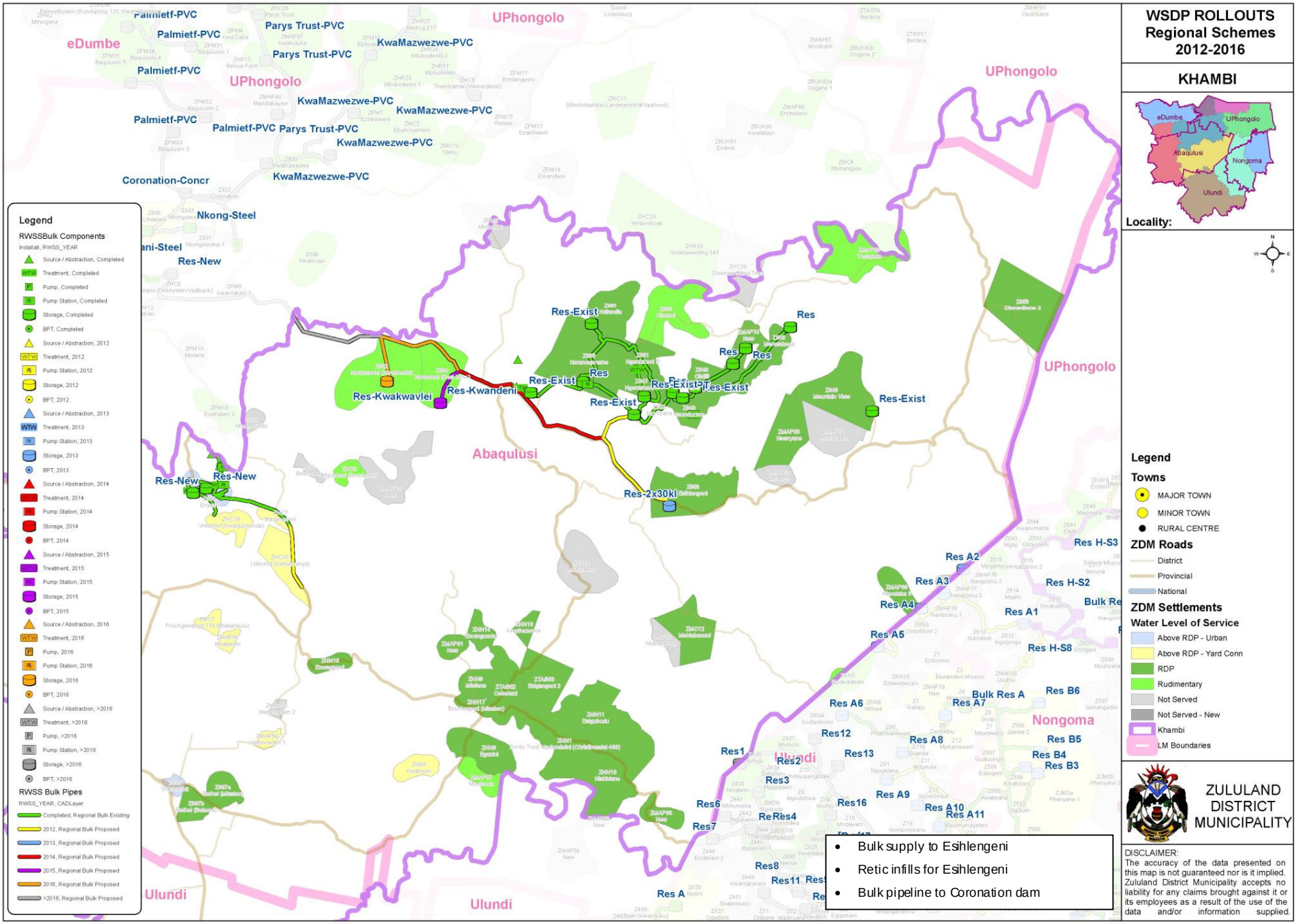
WSDP ROLLOUTS
Regional Schemes
2012-2016
KHAMBI
Locality:
eDumbe
UPhongolo
Abaqulusi
Nongoma
Ulundi
Legend
RWSSBulk Components
Installati, RWSS_YEAR
Source / Abstraction, Completed
Treatment, Completed
Pump, Completed
Pump Station, Completed
Storage, Completed
BPT, Completed
Source / Abstraction, 2012
Treatment, 2012
Pump Station, 2012
Storage, 2012
BPT, 2012
Source / Abstraction, 2013
Treatment, 2013
Pump Station, 2013
Storage, 2013
BPT, 2013
Source / Abstraction, 2014
Treatment, 2014
Pump Station, 2014
Storage, 2014
BPT, 2014
Source / Abstraction, 2015
Treatment, 2015
Pump Station, 2015
Storage, 2015
BPT, 2015
Source / Abstraction, 2016
Treatment, 2016
Pump, 2016
Pump Station, 2016
Storage, 2016
BPT, 2016
Source / Abstraction, >2016
Treatment, >2016
Pump, >2016
Pump Station, >2016
Storage, >2016
BPT, >2016
RWSS Bulk Pipes
RWSS_YEAR, CADLayer
Completed, Regional Bulk Existing
2012, Regional Bulk Proposed
2013, Regional Bulk Proposed
2014, Regional Bulk Proposed
2015, Regional Bulk Proposed
2016, Regional Bulk Proposed
>2016, Regional Bulk Proposed
Palmietf-PVC
Parys Trust-PVC
KwaMazwezwe-PVC
Coronation-Concr
Nkong-Steel
Res-New
Res-Exist
Res-Kwakwavlei
Res-Kwandeni
Res-2x30kl
Res
Res A1
Res A2
Res A3
Res A4
Res A5
Res A6
Res A7
Res A8
Res A9
Res A10
Res A11
Res H-S2
Res H-S3
Res H-S8
Res B3
Res B4
Res B5
Res B6
Bulk Res A
Res1
Res2
Res3
Res4
Res6
Res7
Res8
Res11
Res12
Res13
Res16
Res A
Bulk Re
Legend
Towns
MAJOR TOWN
MINOR TOWN
RURAL CENTRE
ZDM Roads
District
Provincial
National
ZDM Settlements
Water Level of Service
Above RDP - Urban
Above RDP - Yard Conn
RDP
Rudimentary
Not Served
Not Served - New
Khambi
LM Boundaries
Bulk supply to Esihlengeni
Retic infills for Esihlengeni
Bulk pipeline to Coronation dam
ZULULAND
DISTRICT
MUNICIPALITY
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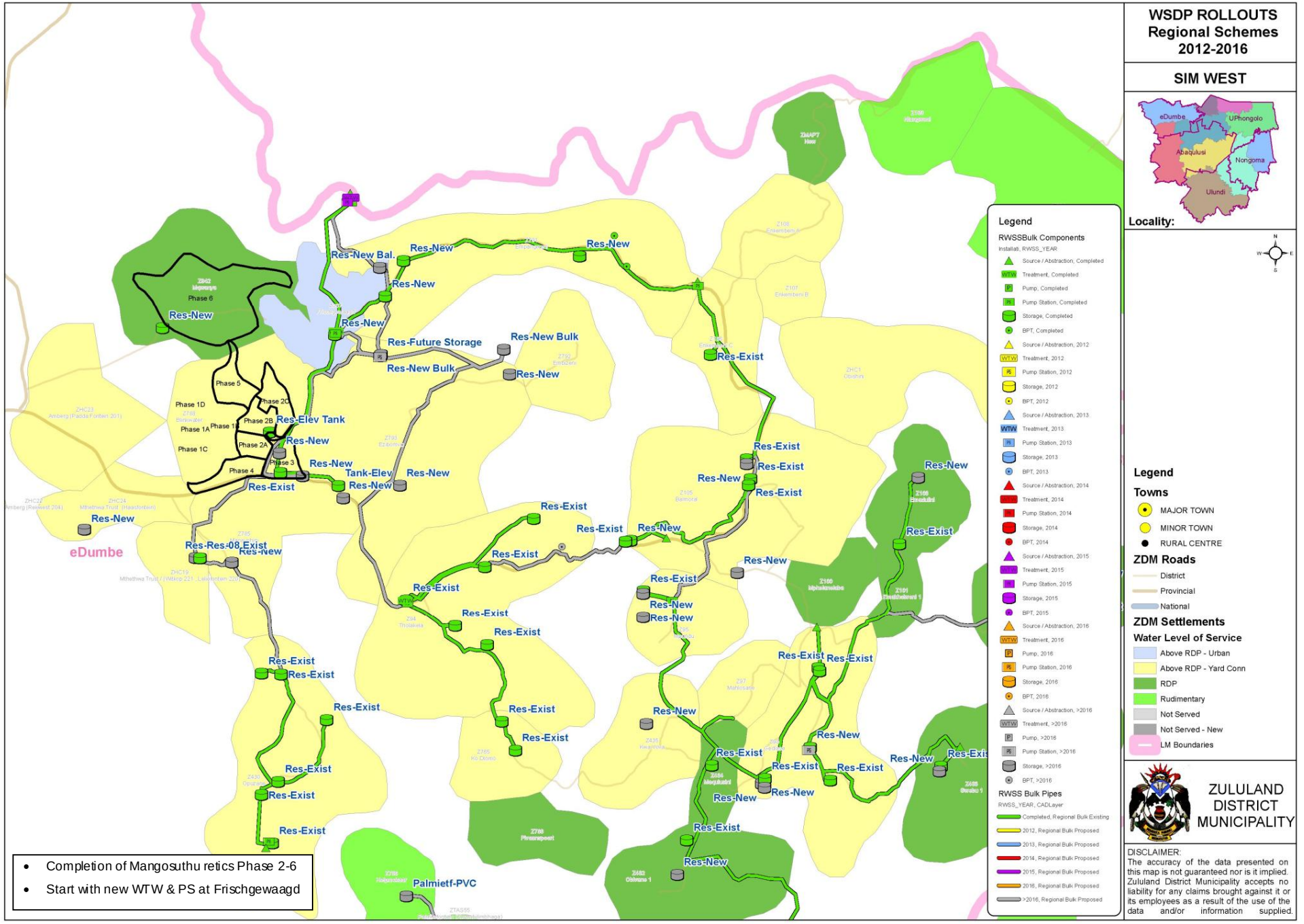
WSDP ROLLOUTS
Regional Schemes
2012-2016
SIM WEST
Locality:
eDumbe
UPhongolo
Abaqulusi
Nongoma
Ulundi
Legend
RWSSBulk Components
RWSS Bulk Pipes
Legend
Towns
MAJOR TOWN
MINOR TOWN
RURAL CENTRE
ZDM Roads
District
Provincial
National
ZDM Settlements
Water Level of Service
Above RDP - Urban
Above RDP - Yard Conn
RDP
Rudimentary
Not Served
Not Served - New
LM Boundaries
ZULULAND
DISTRICT
MUNICIPALITY
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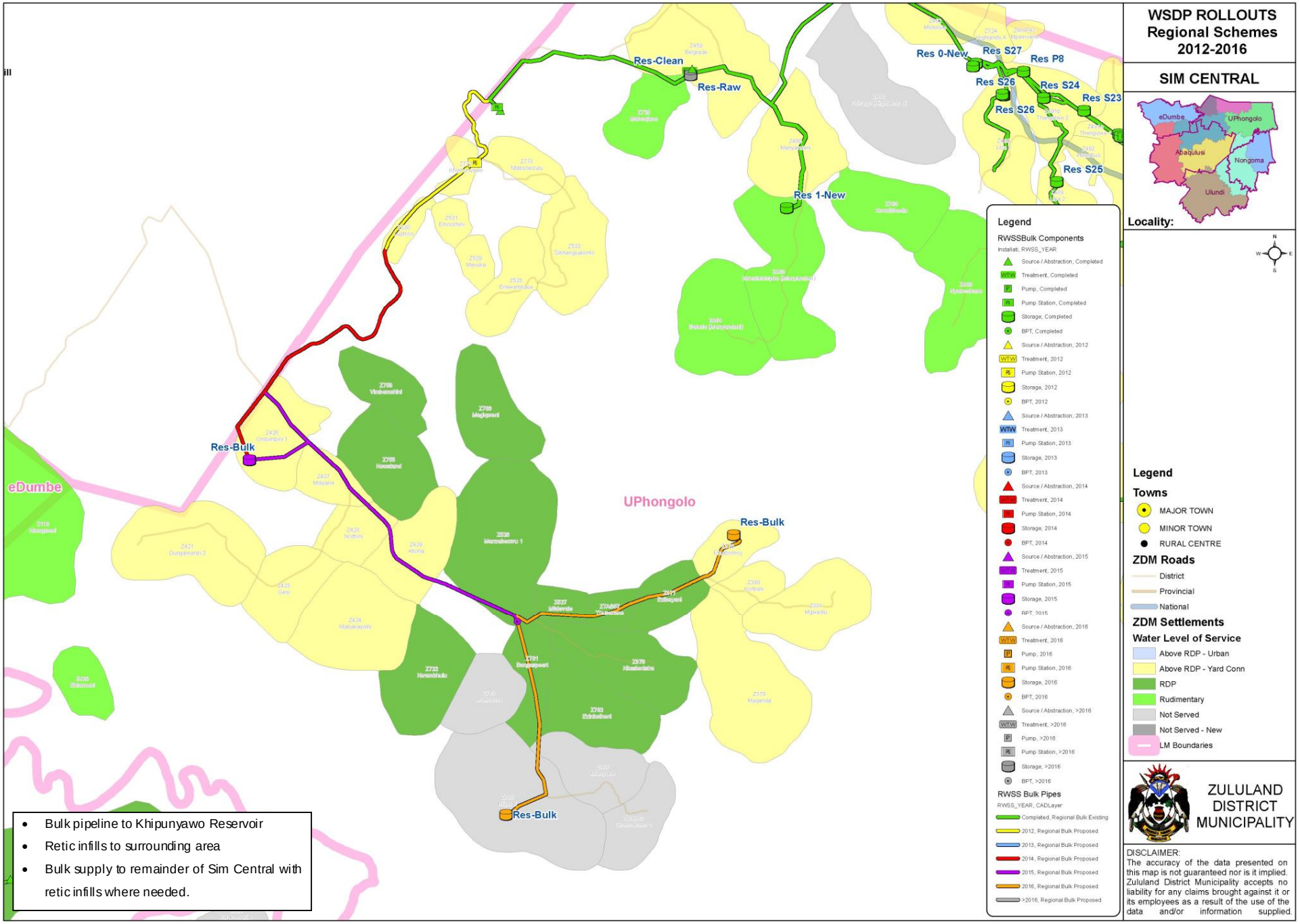
Res-New Bal.
Res-New
Res-Future Storage
Res-New Bulk
Res-Elev Tank
Tank-Elev
Res-Exist
Res-Res-08_Exist
eDumbe
Palmietf-PVC
Phase 1A
Phase 1B
Phase 1C
Phase 1D
Phase 2A
Phase 2B
Phase 2C
Phase 3
Phase 4
Phase 5
Phase 6
Completion of Mangosuthu retics Phase 2-6
Start with new WTW & PS at Frischgewaagd


WSDP ROLLOUTS
Regional Schemes
2012-2016
SIM CENTRAL
Locality:
eDumbe
UPhongolo
Abaqulusi
Nongoma
Ulundi
Res-Clean
Res-Raw
Res 0-New
Res S27
Res P8
Res S26
Res S24
Res S23
Res S26
Res S25
Res 1-New
Res-Bulk
Res-Bulk
Res-Bulk
eDumbe
UPhongolo
Legend
RWSSBulk Components
Installati, RWSS_YEAR
Source / Abstraction, Completed
Treatment, Completed
Pump, Completed
Pump Station, Completed
Storage, Completed
BPT, Completed
Source / Abstraction, 2012
Treatment, 2012
Pump Station, 2012
Storage, 2012
BPT, 2012
Source / Abstraction, 2013
Treatment, 2013
Pump Station, 2013
Storage, 2013
BPT, 2013
Source / Abstraction, 2014
Treatment, 2014
Pump Station, 2014
Storage, 2014
BPT, 2014
Source / Abstraction, 2015
Treatment, 2015
Pump Station, 2015
Storage, 2015
BPT, 2015
Source / Abstraction, 2016
Treatment, 2016
Pump, 2016
Pump Station, 2016
Storage, 2016
BPT, 2016
Source / Abstraction, >2016
Treatment, >2016
Pump, >2016
Pump Station, >2016
Storage, >2016
BPT, >2016
RWSS Bulk Pipes
RWSS_YEAR, CADLayer
Completed, Regional Bulk Existing
2012, Regional Bulk Proposed
2013, Regional Bulk Proposed
2014, Regional Bulk Proposed
2015, Regional Bulk Proposed
2016, Regional Bulk Proposed
>2016, Regional Bulk Proposed
Legend
Towns
MAJOR TOWN
MINOR TOWN
RURAL CENTRE
ZDM Roads
District
Provincial
National
ZDM Settlements
Water Level of Service
Above RDP - Urban
Above RDP - Yard Conn
RDP
Rudimentary
Not Served
Not Served - New
LM Boundaries
ZULULAND
DISTRICT
MUNICIPALITY
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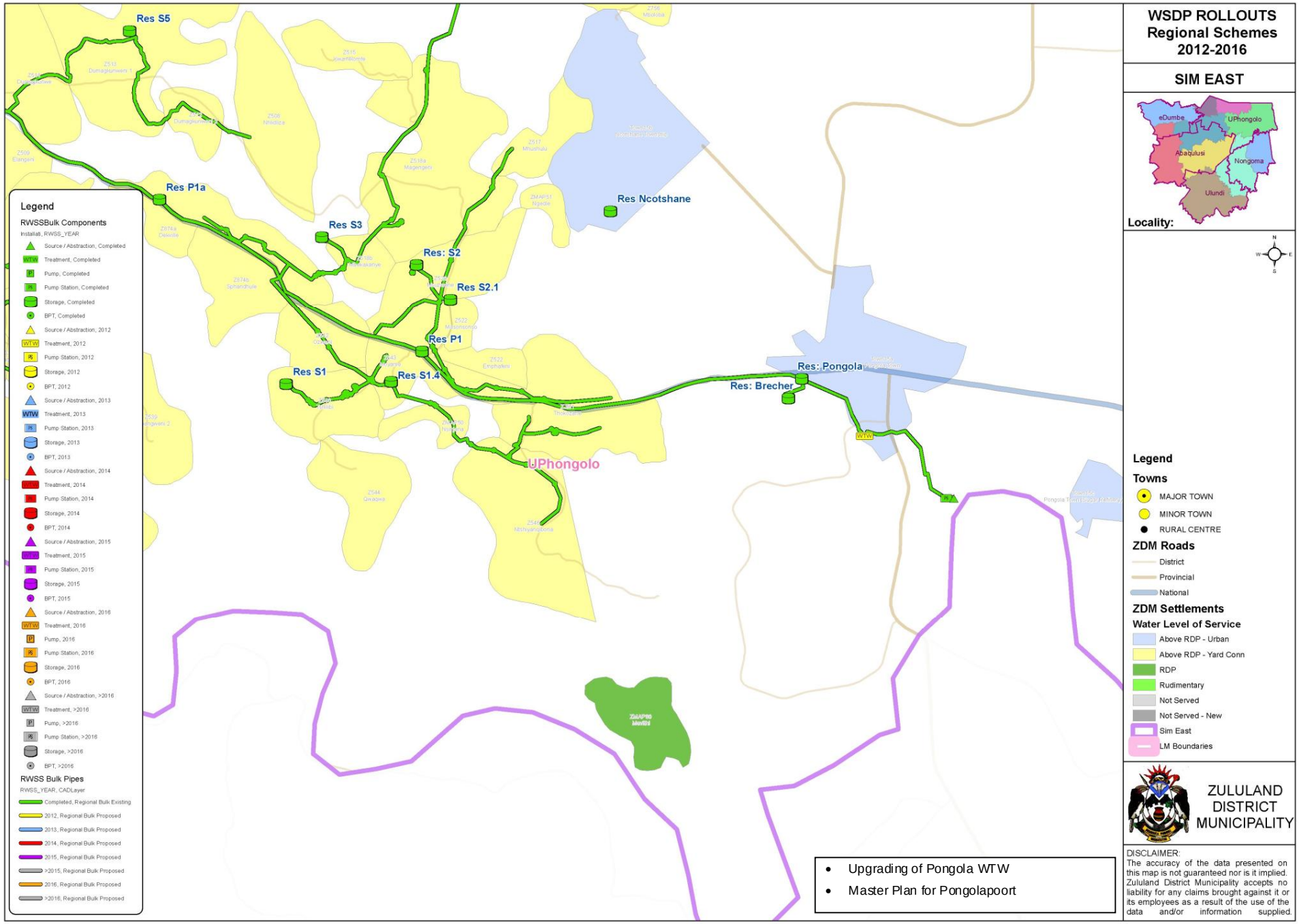
• Bulk pipeline to Khipunyawo Reservoir
• Retic infills to surrounding area
• Bulk supply to remainder of Sim Central with retic infills where needed.


Res S5
Res P1a
Res S3
Res: S2
Res S2.1
Res P1
Res S1
Res S1.4
Res Ncotshane
Res: Pongola
Res: Brecher
UPhongolo
Legend
RWSSBulk Components
RWSS Bulk Pipes
WSDP ROLLOUTS
Regional Schemes
2012-2016
SIM EAST
eDumbe
UPhongolo
Abaqulusi
Nongoma
Ulundi
Locality:
Legend
Towns
MAJOR TOWN
MINOR TOWN
RURAL CENTRE
ZDM Roads
District
Provincial
National
ZDM Settlements
Water Level of Service
Above RDP - Urban
Above RDP - Yard Conn
RDP
Rudimentary
Not Served
Not Served - New
Sim East
LM Boundaries
ZULULAND
DISTRICT
MUNICIPALITY
• Upgrading of Pongola WTW
• Master Plan for Pongolapoort
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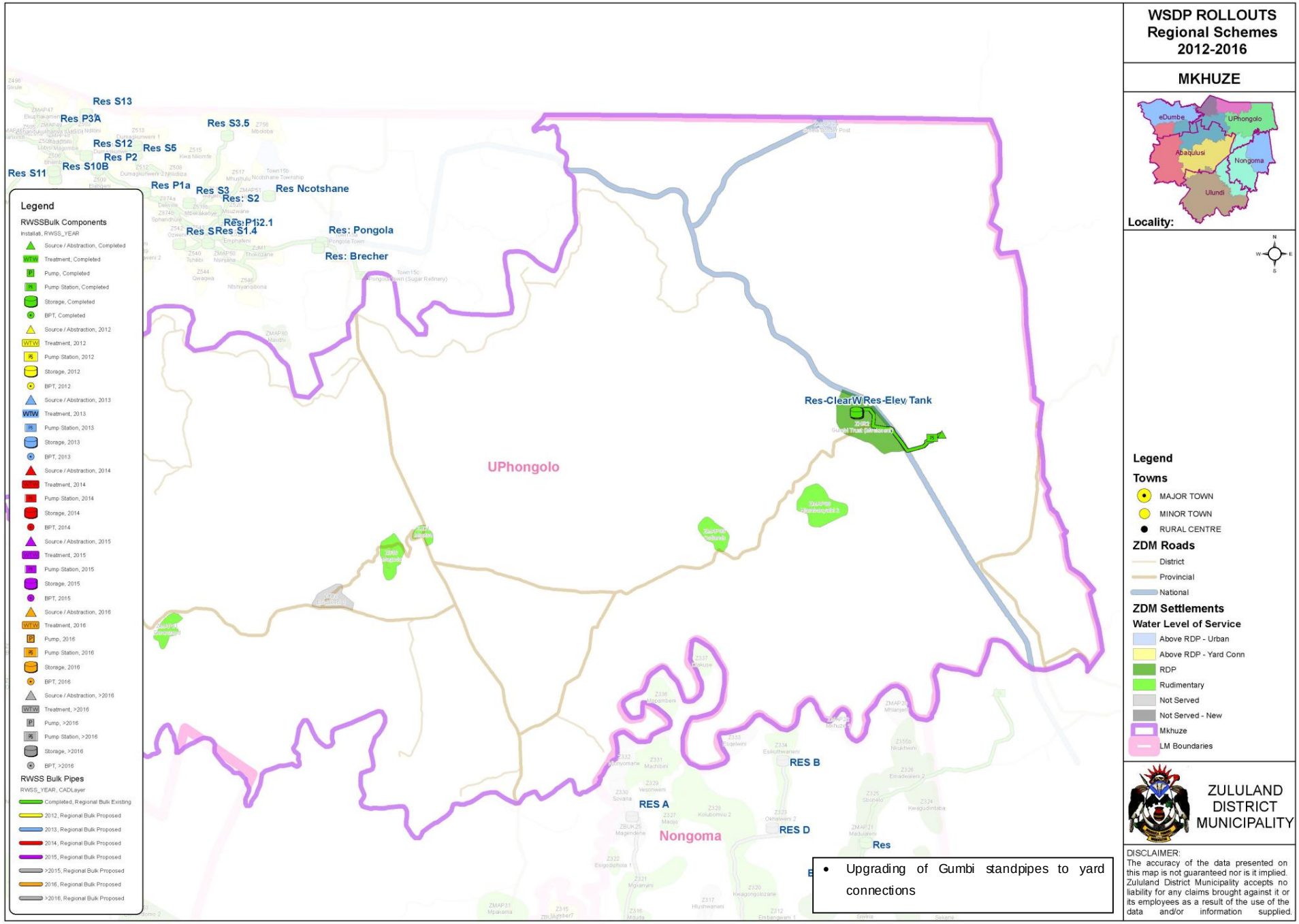
WSDP ROLLOUTS
Regional Schemes
2012-2016
MKHUZE
Locality:
eDumbe
UPhongolo
Abaqulusi
Nongoma
Ulundi
Res S13
Res P3A
Res S3.5
Res S12
Res S5
Res P2
Res S10B
Res S11
Res P1a
Res S3
Res: S2
Res Ncotshane
Res: P1.2.1
Res S
Res S1.4
Res: Pongola
Res: Brecher
Res-ClearW Res-Elev Tank
UPhongolo
RES B
RES A
RES D
Nongoma
Res
Legend
RWSSBulk Components
Installati, RWSS_YEAR
Source / Abstraction, Completed
Treatment, Completed
Pump, Completed
Pump Station, Completed
Storage, Completed
BPT, Completed
Source / Abstraction, 2012
Treatment, 2012
Pump Station, 2012
Storage, 2012
BPT, 2012
Source / Abstraction, 2013
Treatment, 2013
Pump Station, 2013
Storage, 2013
BPT, 2013
Source / Abstraction, 2014
Treatment, 2014
Pump Station, 2014
Storage, 2014
BPT, 2014
Source / Abstraction, 2015
Treatment, 2015
Pump Station, 2015
Storage, 2015
BPT, 2015
Source / Abstraction, 2016
Treatment, 2016
Pump, 2016
Pump Station, 2016
Storage, 2016
BPT, 2016
Source / Abstraction, >2016
Treatment, >2016
Pump, >2016
Pump Station, >2016
Storage, >2016
BPT, >2016
RWSS Bulk Pipes
RWSS_YEAR, CADLayer
Completed, Regional Bulk Existing
2012, Regional Bulk Proposed
2013, Regional Bulk Proposed
2014, Regional Bulk Proposed
2015, Regional Bulk Proposed
>2015, Regional Bulk Proposed
2016, Regional Bulk Proposed
>2016, Regional Bulk Proposed
Legend
Towns
MAJOR TOWN
MINOR TOWN
RURAL CENTRE
ZDM Roads
District
Provincial
National
ZDM Settlements
Water Level of Service
Above RDP - Urban
Above RDP - Yard Conn
RDP
Rudimentary
Not Served
Not Served - New
Mkhuze
LM Boundaries
ZULULAND
DISTRICT
MUNICIPALITY
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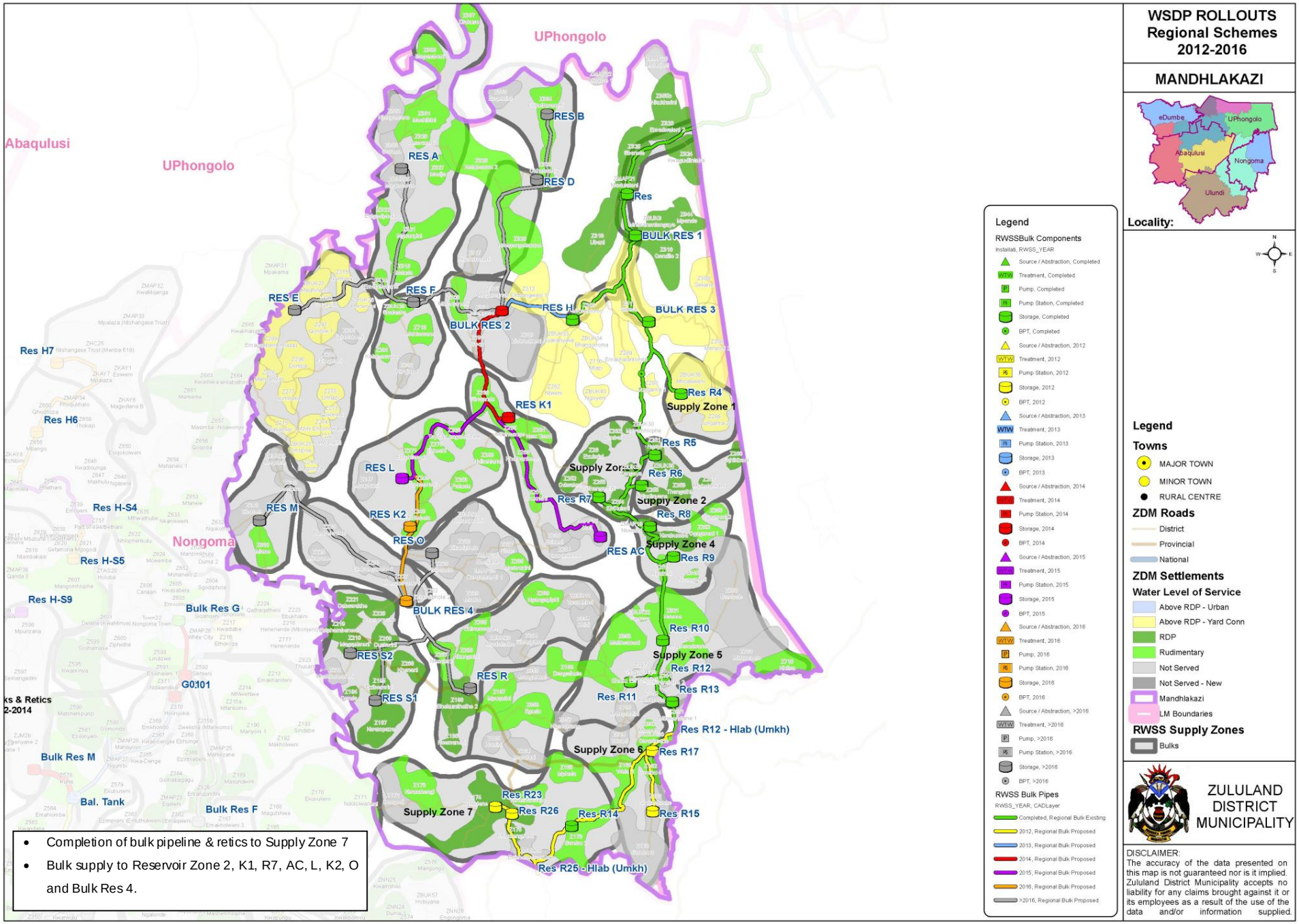
• Upgrading of Gumbi standpipes to yard connections


WSDP ROLLOUTS
Regional Schemes
2012-2016
MANDHLAKAZI
Locality:
eDumbe
UPhongolo
Abaqulusi
Nongoma
Ulundi
Abaqulusi
UPhongolo
Nongoma
RES A
RES B
RES D
RES E
RES F
RES H
BULK RES 1
BULK RES 2
BULK RES 3
RES K1
RES K2
RES L
RES M
RES O
RES AC
BULK RES 4
RES S1
RES S2
RES R
Res H7
Res H6
Res H-S4
Res H-S5
Res H-S9
Bulk Res G
G0101
Bulk Res M
Bal. Tank
Bulk Res F
Res R4
Supply Zone 1
Res R5
Res R6
Supply Zone 2
Res R7
Res R8
Supply Zone 4
Res R9
Res R10
Supply Zone 5
Res R11
Res R12
Res R13
Res R12 - Hlab (Umkh)
Supply Zone 6
Res R17
Supply Zone 7
Res R23
Res R26
Res R14
Res R15
Res R25 - Hlab (Umkh)
• Completion of bulk pipeline & retics to Supply Zone 7
• Bulk supply to Reservoir Zone 2, K1, R7, AC, L, K2, O and Bulk Res 4.
Legend
RWSSBulk Components
Installati, RWSS_YEAR
Source / Abstraction, Completed
Treatment, Completed
Pump, Completed
Pump Station, Completed
Storage, Completed
BPT, Completed
Source / Abstraction, 2012
Treatment, 2012
Pump Station, 2012
Storage, 2012
BPT, 2012
Source / Abstraction, 2013
Treatment, 2013
Pump Station, 2013
Storage, 2013
BPT, 2013
Source / Abstraction, 2014
Treatment, 2014
Pump Station, 2014
Storage, 2014
BPT, 2014
Source / Abstraction, 2015
Treatment, 2015
Pump Station, 2015
Storage, 2015
BPT, 2015
Source / Abstraction, 2016
Treatment, 2016
Pump, 2016
Pump Station, 2016
Storage, 2016
BPT, 2016
Source / Abstraction, >2016
Treatment, >2016
Pump, >2016
Pump Station, >2016
Storage, >2016
BPT, >2016
RWSS Bulk Pipes
RWSS_YEAR, CADLayer
Completed, Regional Bulk Existing
2012, Regional Bulk Proposed
2013, Regional Bulk Proposed
2014, Regional Bulk Proposed
2015, Regional Bulk Proposed
2016, Regional Bulk Proposed
>2016, Regional Bulk Proposed
Legend
Towns
MAJOR TOWN
MINOR TOWN
RURAL CENTRE
ZDM Roads
District
Provincial
National
ZDM Settlements
Water Level of Service
Above RDP - Urban
Above RDP - Yard Conn
RDP
Rudimentary
Not Served
Not Served - New
Mandhlakazi
LM Boundaries
RWSS Supply Zones
Bulks
ZULULAND
DISTRICT
MUNICIPALITY
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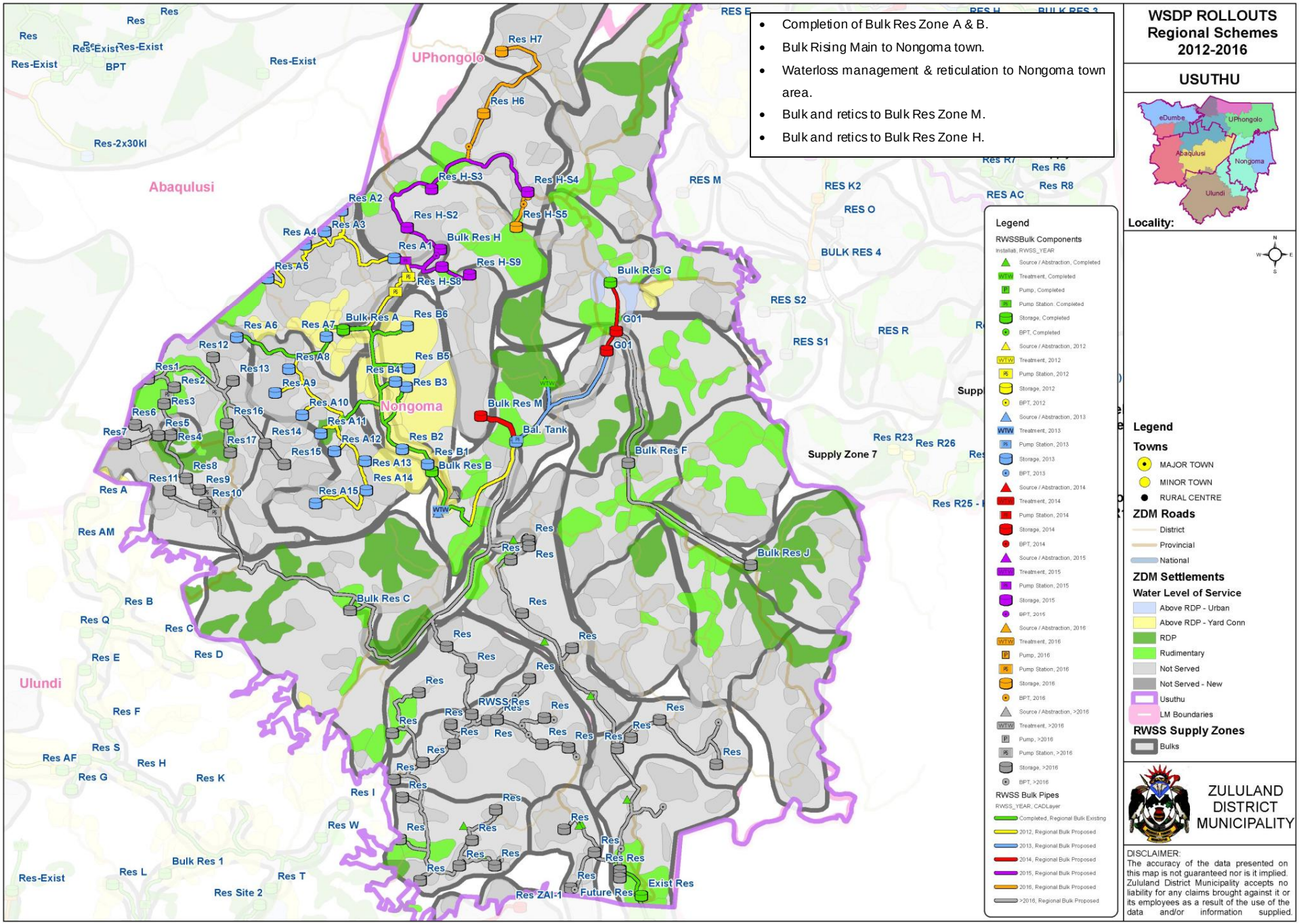
Completion of Bulk Res Zone A & B.
Bulk Rising Main to Nongoma town.
Waterloss management & reticulation to Nongoma town area.
Bulk and retics to Bulk Res Zone M.
Bulk and retics to Bulk Res Zone H.
WSDP ROLLOUTS
Regional Schemes
2012-2016
USUTHU
Locality:
eDumbe
UPhongolo
Abaqulusi
Nongoma
Ulundi
Legend
RWSSBulk Components
RWSS Bulk Pipes
Legend
Towns
MAJOR TOWN
MINOR TOWN
RURAL CENTRE
ZDM Roads
District
Provincial
National
ZDM Settlements
Water Level of Service
Above RDP - Urban
Above RDP - Yard Conn
RDP
Rudimentary
Not Served
Not Served - New
Usuthu
LM Boundaries
RWSS Supply Zones
Bulks
ZULULAND
DISTRICT
MUNICIPALITY
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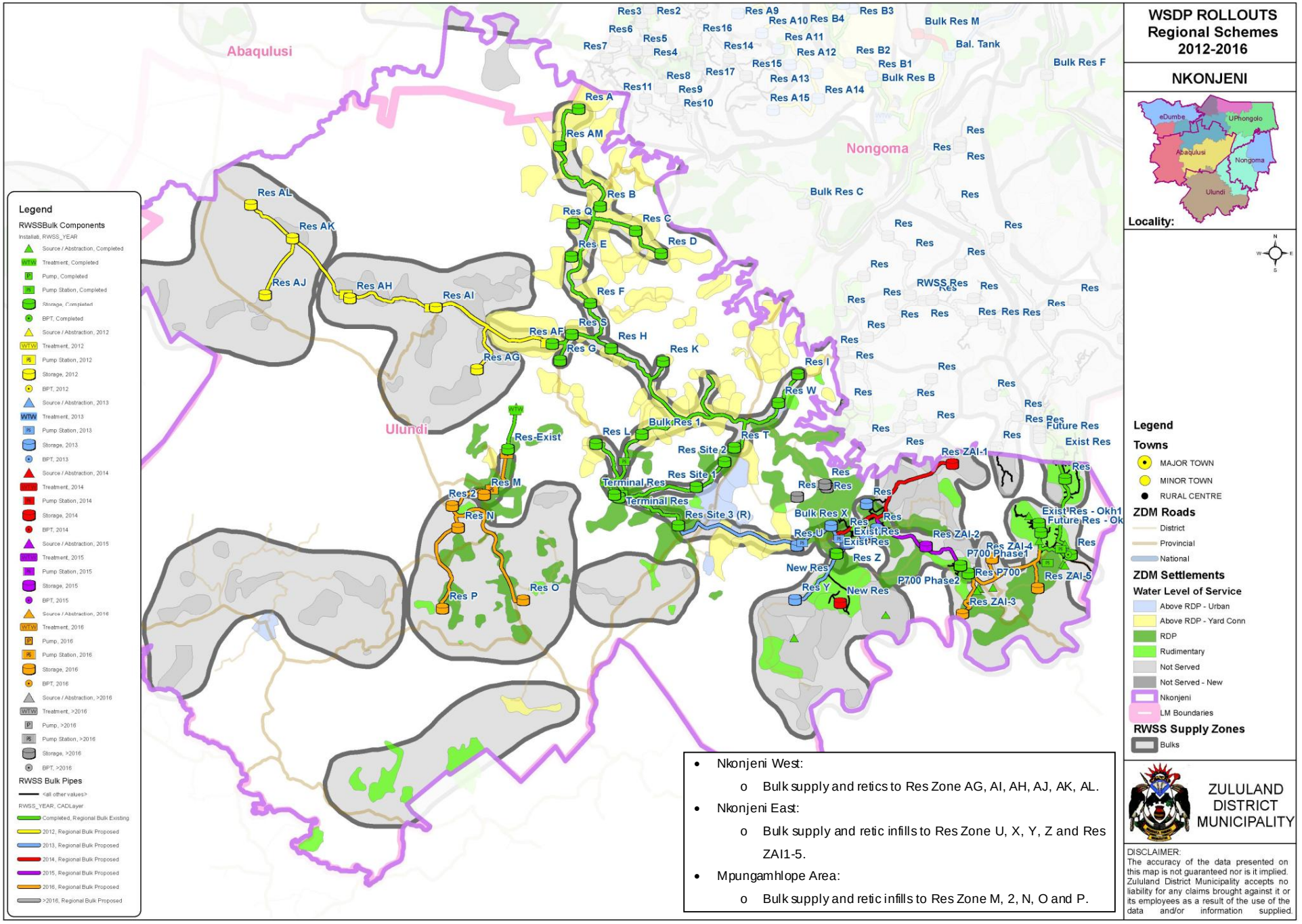
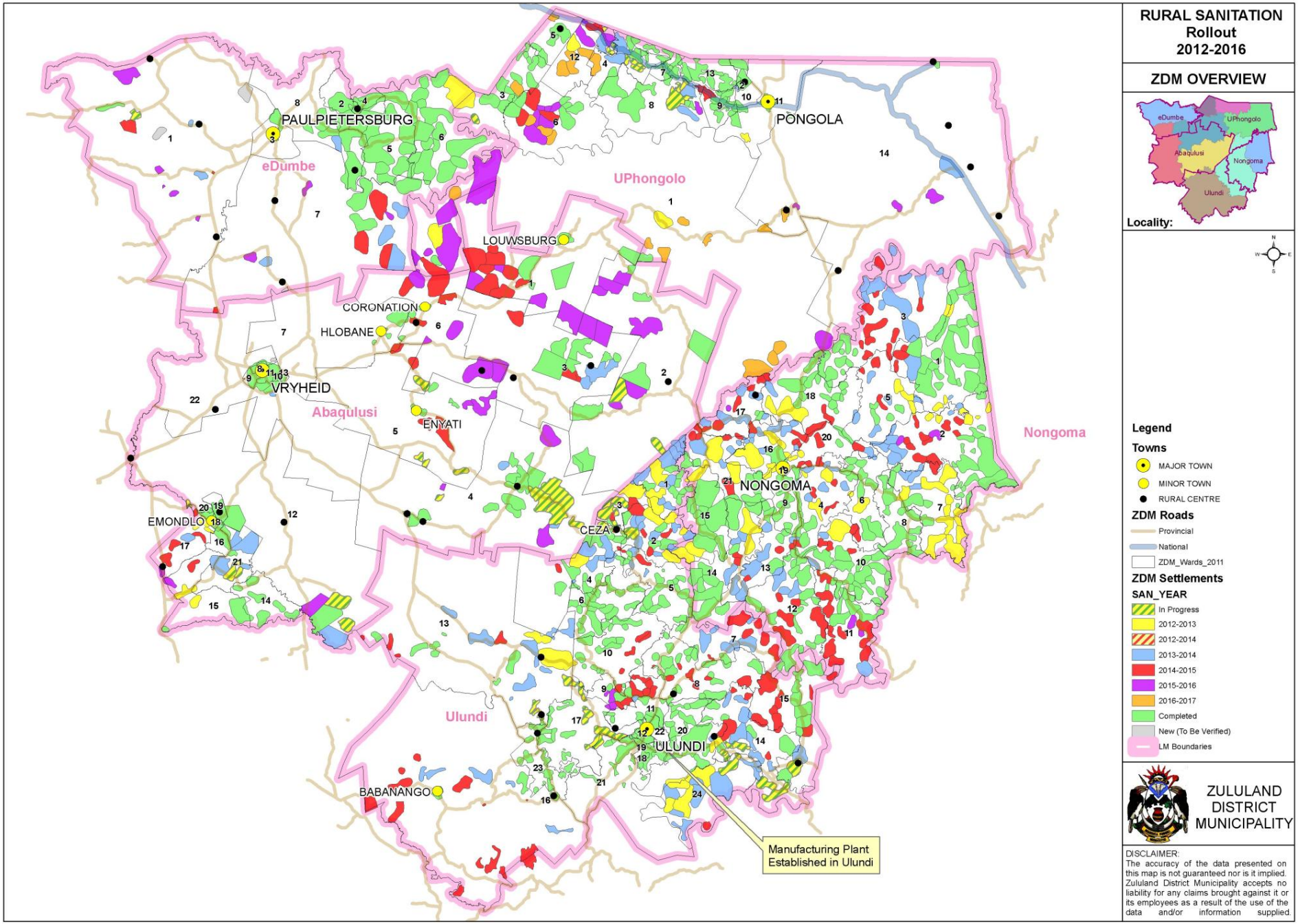
Abaqulusi
UPhongolo
Nongoma
Ulundi
Supply Zone 7
Bulk Res A
Bulk Res B
Bulk Res C
Bulk Res F
Bulk Res G
Bulk Res H
Bulk Res J
Bulk Res M
Bulk Res 1
Bal. Tank
Future Res
Exist Res
RWSS Res
Res-Exist
Res-2x30kl
BPT
RES M
RES K2
RES O
RES AC
BULK RES 4
RES S2
RES S1
RES R
Res R6
Res R8
Res R23
Res R26
Res R25 -



- Nkonjeni West:
  - Bulk supply and retics to Res Zone AG, AI, AH, AJ, AK, AL.
- Nkonjeni East:
  - Bulk supply and retic infills to Res Zone U, X, Y, Z and Res ZAI1-5.
- Mpungamhlope Area:
  - Bulk supply and retic infills to Res Zone M, 2, N, O and P.

Map 10.1: Roll-out of rural sanitation services in the district over the next 5 years



Map 10.13: Roll-out of rudimentary services in the district over the next 5 years

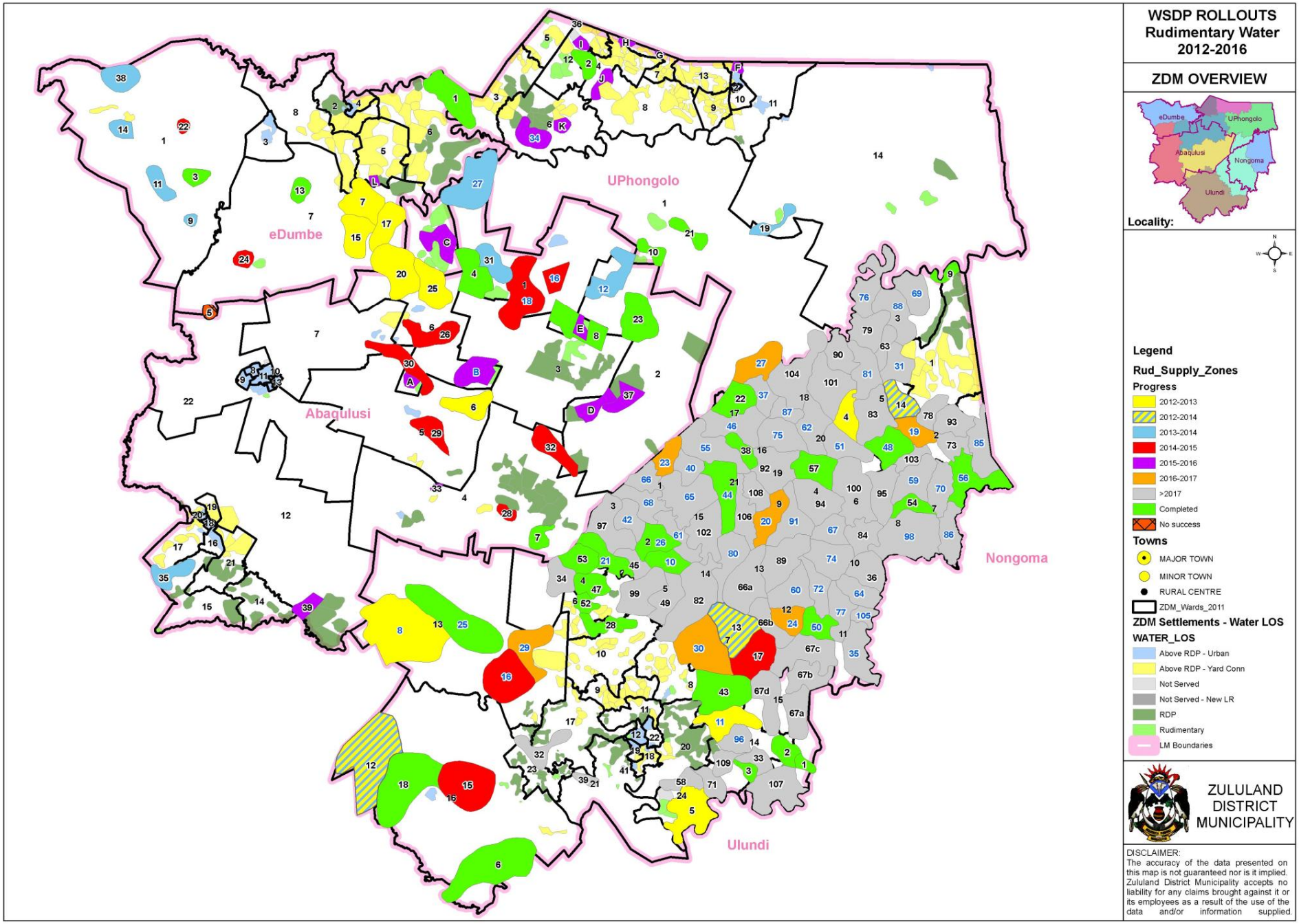


Table 10.1: Roll-out of Regional Water Infrastructure

Table 10.2: Roll-out of Rural Sanitation Services

Table 10.3: Roll-out of Rudimentary Water Services