provided to specific individuals or groups. Transport services include passenger transfer services by the Department of Health, and learner transport services for children that reside more than 5 km from their nearest school.

In addition, more sustainable regional trips include the distribution of goods and services of a more specialised nature from higher order towns. The distinction between regional trips that are sustainable and those that are not, lies with the ability of the end user to afford the cost of transport. In general, subsidising non-sustainable trips are typically warranted when the benefit to the community whose benefits exceed the value of the subsidy.

3.5.2.3 Impacts of Sprawl on the Cost of Transport

The PSDF Specialist Study applied a Municipal Services Financial Model (MSFM) to seven municipalities in the Western Cape. It demonstrated that existing settlement patterns will impact severely on households, specifically those who earn lower incomes. These low income households could be required to pay up to 18% more for transport than they do currently. At present, households spend close to 40% of their income on transport in the Western Cape, leaving little to no money for education, training, housing and food. This spatial pattern of sprawl continues to make the poor, poorer and stifles the growth of the economy.

This study showed that existing spatial patterns cost approximately 22% more than a compact urban form. This amount equates to R24 billion in additional capital that will be required to be spent by the Western Cape over the next ten years. This cost does not include the added and persistent social, efficiency and environmental cost of sprawl that negatively impacts on households.

3.5.2.4 Modal Options

Different modal options for goods and passenger travel creates choice. Some modal options are more sustainable than others, largely depending on population densities

The railway system in the District is in decline - rail connectivity between settlements is poor, and although a freight service operates between Mossel Bay and Cape Town, there is currently no operating day-to-day passenger rail service other than the Diaz Rail in Mossel Bay. The line between George and Knysna along the Kaaimans pass was damaged in 2006 from landslides and any attempts to fund its reconstruction have failed to date.

3.5.2.5 Aviation

Regional connectivity to the national grid is critical for economic competitiveness. Therefore, the aviation infrastructure in the District is key in this regard.

The George airport is serviced by most of the operating airlines in the country and receives domestically operated flights, although limited to Cape Town, Port Elizabeth, Bloemfontein, Durban and Johannesburg. It is also used to export locally produced goods, such as fresh cut flowers, oysters, herbs and ferns. Passenger transport at the airport has increased significantly over the past few years up to 700 000 per annum. As a result, the present terminals are becoming too small and are being enlarged. The runway is 2 km long and needs to be expanded to at least 3 km in the future. The present handling of cargo presents a problem as services are required as early as 4h30 which would require additional staff.

The George Airport is the centre of aviation activities in Eden District. It is managed by the Airports Company South Africa (ACSA) and serves both passengers and freight. The airfields of Mossel Bay, Oudtshoorn and Bitou are municipal owned and also play active roles in aviation in the area. Furthermore, there are landing strips at Riversdale and Stillbaai, as well other landing strips used for disaster management. Commercial flights were introduced from the Plettenberg Bay airport during 2016. Limited flights are available to Johannesburg and Cape Town.

The airfields in Mossel Bay and Oudtshoorn have been identified for expansion. These facilities are economically very active and create economic spin-offs for the local economy and in the case of George airport, the regional economy.

3.5.2.6 Institutional Coherence

The transport sector is governed in a highly fragmented manner. This makes co-ordinated planning, and integrated implementation challenging and problematic. The various legislation, policy and strategy documents that govern the transportation system include:

National Level

- National Land Transport Act
- National Land Transport Strategic Framework 2015-2020
- Rural Transport Strategy for South Africa

Provincial Level

- Provincial Land Transport Framework
- Provincial Sustainable Transport Programme

District Level

- Eden District Integrated Transport Plan (including an Operating Licensing Strategy)
- Eden District Mobility Strategy

The core thread running through these documents is that the transport system should be planned for and operated in an integrated manner. The appropriate transport mode should be employed for different aspects of demand, that would result in financial and environmental sustainability. In reality, the mandates of different authorities sometimes compete, or preclude co-ordination and integration. For example, road authorities typically plan for projected growth in traffic volumes, in the absence of rail planning, to accommodate the same growth in demand. Road authorities receive funding from the general fiscus and do not collect the full cost of infrastructure from operators (specifically the road freight industry). In contrast, Transnet receives no government funding and has to

recover the cost of rail infrastructure and operations from operating revenue.

While the policy of promoting a shift from road to rail is echoed throughout legislation and policies at all levels, the mandates and funding structures are not geared to give effect to these. Integrated planning that results in the selection of the appropriate mode for future demand is therefore unlikely to occur while the current governance regime persists.

The fragmentation of the authorities that plan, implement infrastructure and operate services are indicated below:

- SANRAL for National Roads.
- Provincial Department of Roads and Transport for the secondary road network.
- Eden District Municipality Roads Department maintains certain roads as an agent of the provincial department.
- Transnet (under the national Department of Public Enterprises) owns the rail infrastructure and operates freight rail services by itself and passenger rail services through concession.
- The road freight industry has been deregulated and is operated by the private sector.
- Public transport services (bus and minibus taxis) are licenced through the Provincial Regulatory Entity and is mainly provided by private operators. PRASA has a mandate to provide subsidised road and rail-based passenger services, but offers a limited long-distance bus service through its Translux and City-to-City brands.
- While public passenger transport is typically not subsidised, exceptions include the Department of Health transporting qualifying patients for specific trips and the Department of Education providing learner Transport Services throughout the district.
- Funding for GoGeorge is provided by the National Public Transport Operating Grant (PTOG), but channeled via the Provincial Transport Department.

3.5.3. Current Accessibility Patterns

What are current accessibility challenges and strengths?

3.5.3.1 Transport Networks and Services

The road network plays the predominant role in the movement of both passengers and freight to, from and within the District. Eden District has a total road length of 7200 km (25.5% surfaced and 74.5% gravel roads), 3066 km are divisional and main roads and 2400 km are minor roads.

The N2 and R62 are two major corridors traversing the District in an east-west direction. They are major distributors of people, goods and services from the District to other regions in the Western Cape, as well as the Eastern Cape and beyond. The N9 and N12 serve as the key routes from Eden District to the north of the country.

The modal split of transport in the District is:

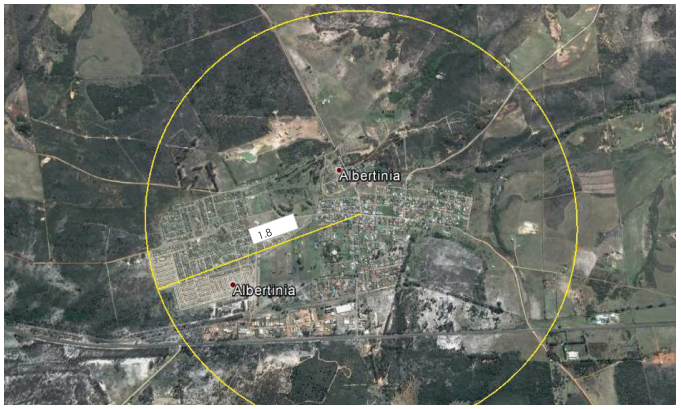
- 33% NMT;
- 26% private; and
- 41% public transport (excluding rail) .

More than two thirds of learners (67.6%) walk to school, with 18.2% using public transport and 12.5% using private transport. The most popular mode of public transport used by learners is by bus at 18% while 7.1% of learners make use of taxis. The Western Cape Government Department of Educationnoperates approximately 119 Learner Transport Contracts in the District.

Commercial buses play a significant role in long distance. However, there is no passenger rail service in the area. The local public transport services in most areas allow people to access destinations in their local area or settlement to which they travel regularly, but which cannot be reached on foot or by other non-motorised means.

Of the public transport trips, 86% consist of minibus taxi's (MBT's), which operate predominantly in larger towns such as George, Mossel Bay, Knysna and Oudtshoorn.

Figure 40. The Walkability of Towns within Eden District (Eden District Municipality ITP, 2016)



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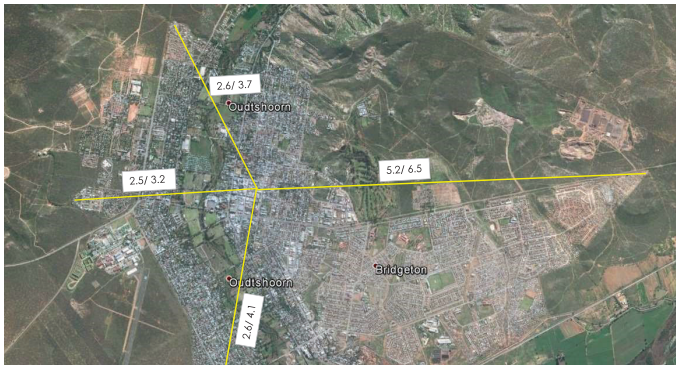


Oudtshoorn

Plettenberg Bay

Although there are a large number of registered formal operators within the District, there is still a large number of informal operators, which are mainly functional during peak times.

The revealed demand for commuter type trips appears to be low between all towns. However, commuter voyages between Wilderness and George, and Dysselsdorp to Oudtshoorn are possible exceptions. A more detailed assessment of the demand for public transport services along the N2, between Mossel Bay and Bitou revealed that some form of scheduled public transport services may be viable when planned and implemented incrementally.

The Eden District Mobility Strategy (2012) envisaged that the an assortment types of transport services would be required to make connections between rural settlements and economic centres of Eden District. These are indicated diagrammatically in Figure 40. These transport services include:

- Passenger rail services
- Express long distance services
- Inter-Urban services
- Urban services
- Rural services

The express long distance service caters for passengers who require transport over significant distances within the district, province or country. It serves the area at a regional level. The inter-urban service serves travellers moving at a district level. The urban service will cater for passengers travelling within towns and provide access to town centres, medical facilities and shopping opportunities. This service type offers a distribution and community function at a local level. Rural Services cater for passengers travelling from rural settlements to higher order towns and settlements either directly or via transfers onto other services. An overview of scholar transport and the scholar transport per municipality is indicated in Table 6 and Table 5.

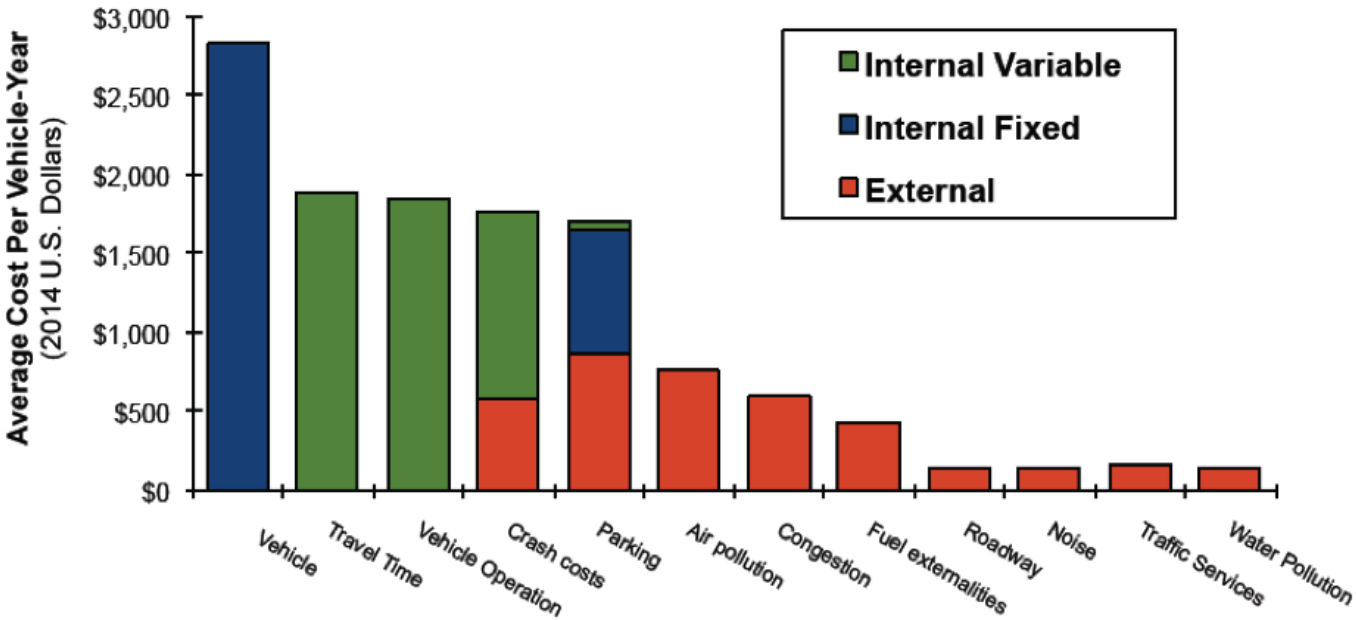


Figure 41. The Cost of Travel

3.5.3.2 Multi-Modal Sustainability

The majority of towns in the District are still small enough so that most daily trips could be made on foot or bicycle. However, this is being compromised by the continual expansion of the towns on their peripheries at low densities, building on the apartheid legacy with the same consequences. The current pattern of people from low-income areas typically walking the longest distances and the short car trips from high-income areas, exacerbates inequity in the District's settlements. Where households are unable to afford motorised transport, the distances many people are compelled to walk takes up a substantial amount of time. This time has a cost - the social effect of not spending more time with family, leisure, sporting of cultural activities is significant. The inability to travel freely to a variety of activities can lead to complete social exclusion in extreme cases. Affordable public transport services are compromised by the distances, mono-functional distribution of land uses and low densities.

Conversely, GoGeorge, the bus rapid transit system implemented in George has been successful and the District should build on this success. However, the subsidisation levels of this service are substantial and sustainability will be key to maintaining and extending this service. A cost-effective and environmentally sustainable transport system consists of a low percentage of cars, with the majority of trips made on foot, bicycle or by public transport. This is dependent on a compact settlement form with short distances and a high quality NMT network to enable walking and cycling, and higher densities to ensure viability of quality public transport. The distribution and mix of land uses will ensure the viability of a reformed and inclusive public transport system. The critical need for a shift in urban form is supported by the District's existing Integrated Transport Development Plan.

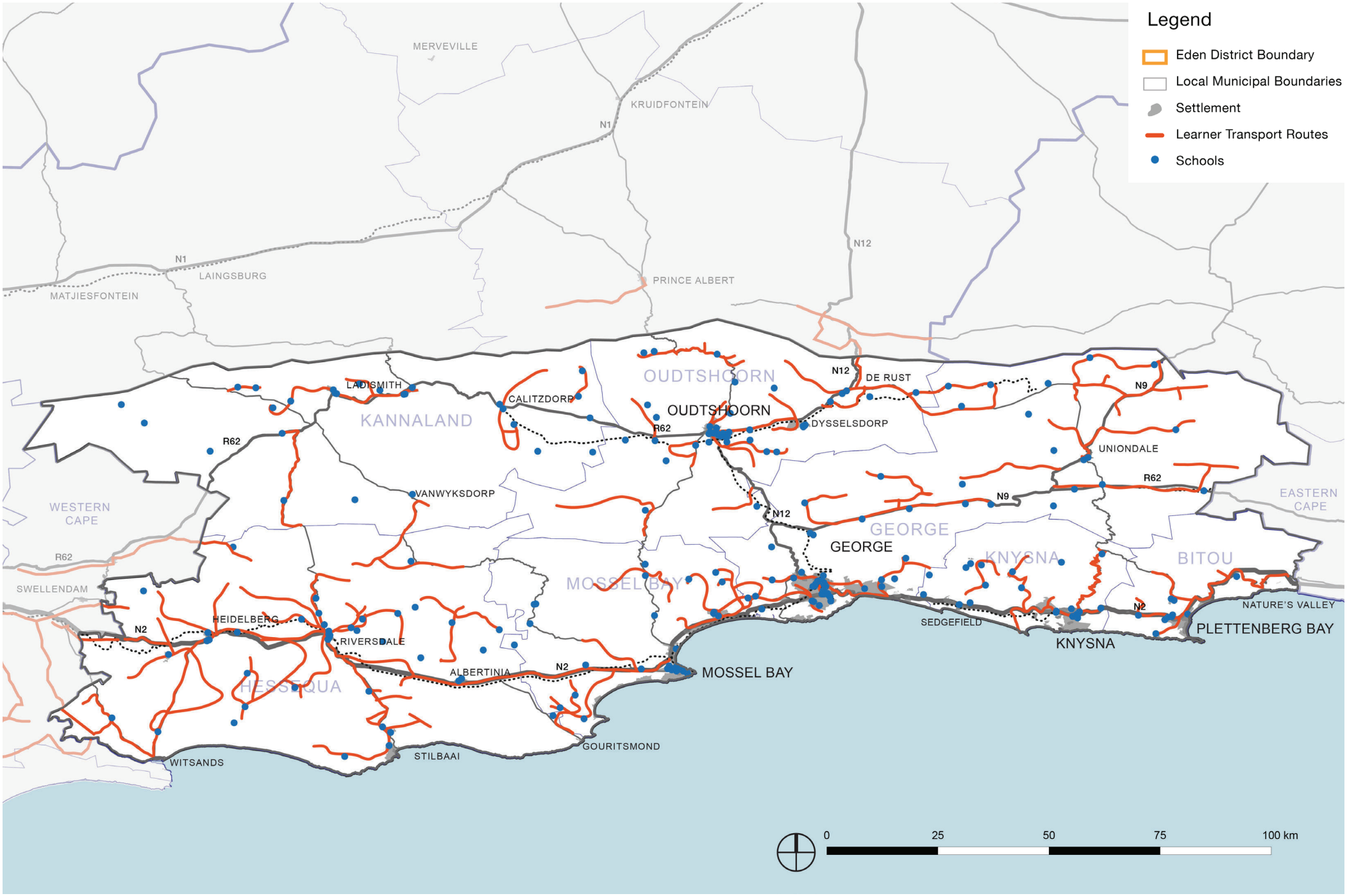


Figure 42. Learner Transport Routes in Eden District

3.5.3.3 Need for Clarity on the Future of Major Transport Infrastructure

The N2 Bypass

The question of an alternative alignment of the N2 (where it passes Knysna and Plettenberg Bay) has been discussed in the transport sector for many decades. This issue is again on the agenda. One key reason for its construction is that the congestion during holiday periods in these towns becomes excessive. In addition, speed restrictions have been extended to reduce the conflict between access to sprawling suburbs along the route. These factors reduce the ability of the road to optimally fulfill its regional mobility function.

To promote the bypass as a solution to the problem assumes that land development cannot be controlled. It accepts that the function of the current alignment is changing from regional mobility to local access. However, from the perspective of the SPLUMA principles, controlling land use potentially provides a much more sustainable and equitable solution to this problem.

Firstly, if land development continues to crawl towards higher mobility routes, it is a matter of time before the same pressures will be experienced along the bypass. Secondly, the very fact that sprawling suburbs are threatening the integrity of the higher order road highlights the need for a new approach to spatial planning and urban development.

The N2 plays an important role in regional mobility, which is to ensure safe, high speed travel over long distances. Reduced speeds and conflicts between vehicles and pedestrians and vehicles turning into local accesses reduces the economic efficiency of these high order roads. Simultaneously, it poses a threat to local communities who are exposed to this conflict. Occasionally reducing speed along a long-distance route has a marginal impact on overall travel time. However, the proliferation of low-speed stretches has the potential to severely undermine the integrity of a high order route.

An alternative to the bypass would be to separate local trips from long-distance through trips. According to the SPLUMA principles, this should be achieved by developing integrated, mixed land use zones at higher densities. Such land use patterns (also referred to as “smart growth”) has been shown to enable viable public transport operations, and increase the attractiveness of non-motorised transport. The impact of “smart growth” is that it reduces the settlement footprint to accommodate the same population by a substantial margin, reduces the number of access points to higher order roads, like the N2, and significantly reduces the number of pedestrians and cyclists from having to access higher order roads.

The R62 route through Langkloof could used as an another alternative to balance the conflicting needs of local and long-distance traffic. This long-distance, mobility route, may stimulate economic development of towns along the route. The road would require widening, and with that probably improvements to the vertical alignment and pavement strength. However, the socio-economic costs and benefits should be compared to the cost and environmental impact the N2 bypasses through indigenous forests.

The potential of bypass alignments to threaten and impact negatively on the environment, means that the alternatives should be considered. The best short-to-medium term solution lies in a combination of diverting some long-distance trips to the R62, while also applying smart growth principles to settlements in lieu of continuing to allow sprawling development.

The Railway Network

While the rail line between Cape Town and Mossel Bay is functional and being used, Transnet does not prioritise the movement of break bulk in its operational offering. Therefore, it is likely that a substantial portion of contestable freight that should be on rail, is currently transported by road. This is in contrast to national and provincial transport policy that strongly promotes the shift of contestable freight from road to rail. Substantial work has been done by the Provincial Transport Department’s Freight unit in this regard. The long-term benefits on environmental impacts and the cost of infrastructure by shifting to rail has been demonstrated for freight trips that exceed about 400 km. However, the full cost of road freight is not internalised in the cost, while for rail it is. For example, the road system is subsidised through the general fiscus, while Transnet is responsible for the provision and maintenance of the rail network.

Table 5. Scholar Transport per Local Municipality

Local Municipality	Number of Routes	Number of Learners
Kannaland	7	334
Oudtshoorn	14	858
Hessequa	23	986
Mossel Bay	9	525
George	10	967
Knysna	12	2855
Bitou	7	310

Table 6. Overview of Scholar Transport in the Eden District

Operators	Schools Served	Total Distance per Day	Total Scholar’s Primary Schools	Total Scholar’s Secondary Schools
36	101	4724	5475	2662

In addition, the decision to expand road capacity, to alleviate traffic congestion when volumes grow, is taken in isolation from creating the alternative rail capacity to deal with growing volume.

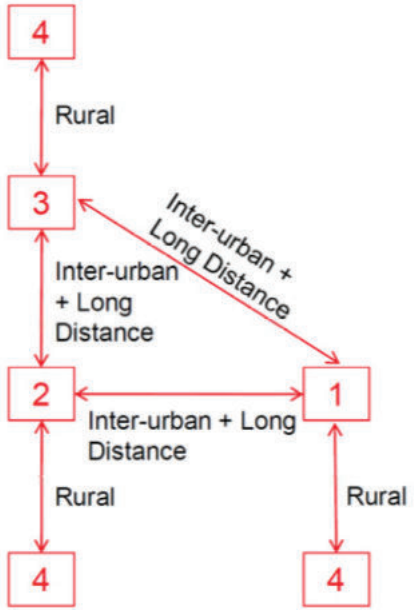


Figure 43. Passenger Desire Lines by Settlement Hierarchy

Mossel Bay Port

Mossel Bay Port is the smallest of nine national ports that fall under the custodianship of Transnet National Ports Authority (TNPA). It is the only active harbour in Eden District, servicing both the fishing and oil and gas industries. Besides this Stilbaai Harbour, it is one of 12 proclaimed fishing harbours in the Western Cape.

Mossel Bay is classified as a district harbour which provides a major access point to markets within the District. This harbour accommodates a range of uses (sea and land based) and can accommodate the transportation of freight. The current infrastructure capacity is sufficient to meet demand forecasts over the next 30 years.

Mossel Bay has always been a fishing harbour of substance with limited commercial cargo activity, but the development of Mossgas and PetroSA has played a major role in the development of the port. The port also serves the oil industry as an oil rig supply boat base and is the only South African port that operates two offshore mooring points within port limits. However, the harbour has a relatively limited capacity due to its entrance depth of only 8 m.

Changes in the utilization of the port affected the accessibility of the port frontage and the sea along its quays. Public access to Quays 3 and 4 was prohibited after the development on Quay 3 and PetroSA using Quay 4. National security legislation and measures caused the Transnet National Ports Authority to introduce a security system in and around the properties of Transnet. Access by the public is restricted to the northern area and yacht owners have difficulty moving to and from their yachts.

Fishermen from the local disadvantaged communities that traditionally used to fish at well-known sites along the quays are prohibited from doing so since the security system was put in place. In recent years, South Africa's largest fishing company, Irvin and Johnson, closed regional fish factories serving inshore trawl operations in Port Elizabeth and Mossel Bay. Technological innovations over the years such as on-board fishing processing and freezing of demersal fish also contributed to the scaling back of shore based operations. A significant decrease in overall demand for use of the Mossel Bay Port is expected up until the year 2033. The port is seen as too small for export purposes.

Broadband

The District is also part of a provincial roll out of broadband infrastructure connecting social facilities. This is a critical investment as fibre optic networks are increasingly considered as "basic services". Whether Eden District is able to optimise the opportunity new technology brings to overcome physical distance in the delivery of services and facilitation of economic opportunity, will depend a great deal on whether it can connect its population to fast, affordable internet.

3.5.4. Future Accessibility Risks and Prospects

What accessibility risks and prospects do we need to mitigate or optimise into the future?

Transport is recognised as a derived demand, in that current infrastructure and operational characteristics are the result of strategic choices, which can and should be

Type of Service	Number and type of vehicle		Annual cost (R)	Annual revenue (R)	Shortfall % by service	
	Seats	Number				
Inter-urban	22/26	26	23 700 000	28 000 000	-4 300 000	-18%
Urban	14	98	55 300 000	28 500 000	26 800 000	48%
	22/26	307	169 000 000	142 700 000	26 300 000	15%
Rural-weekly	14	66	6 900 000	1 700 000	5 200 000	74%
Rural-periodic	People mover	27	1 700 000	100 000	1 600 000	94%
TOTAL			**256 600 000**	**201 000 000**	**55 600 000**	**21%**

Table 7. Operational Costs and Revenue per Service Type

reviewed by the relevant authority. The transport sector, similar to many other sectors, is highly interdependent with almost all other sectors. However, historic transport decisions are often accepted as a *fait accompli*, and are not re-evaluated from first principles. For example, how the role of the R62 is defined and accordingly how the R62 is maintained and managed, can create or inhibit opportunities on the landward side for economic development, as well as opportunities to relieve challenges faced by the N2.

The perceived role of the R62 and the opportunity it presents is flagged in how unregulated development is taking place alongside the route. This can result in unsustainable development patterns that compromise the very qualities that make the R62 an economic asset in the first place, such as its scenic quality. To manage this effectively the role of the route in the regional network should be reviewed together with the role of settlements along this route, their growth potential and the attributes of the route that offer an economic resource.

3.5.4.1 Transport Network Resilience

In the event of a natural disaster, there is a risk of major logistical routes in the District being cut off. There needs to be clarity on the secondary level of major access routes in the regional network and maintenance of these routes as "back up routes" to support resilience in the transport accessibility system in the District.

3.5.4.2 Shared Services

As mentioned previously, the Western Cape Government Department of Education provides transport services to bring learners to and from schools. The Health Department provides a similar service. How can such services work together to achieve cost efficiencies? The Provincial Transport Department, under their Provincial Sustainable Transport Programme (PSTP) is investigating the potential to integrate and co-ordinate diverse subsidised services into a coherent public transport offering. While the implementation phase commences in the Stellenbosch Municipal area, the Eden District Municipal region has also been identified as a priority.

MODE	LOCAL MUNICIPALITY							
	Kannaland	Oudtshoorn	DMA	Hessequa	Mossel Bay	George	Knysna	Bitou
On foot	80.89%	43.66%	32.63%	45.85%	17.72%	19.10%	19.44%	21.13%
By bicycle	0%	3.21%	1.66%	2.00%	0.27%	n/a	0.59%	0.87%
By motorbike	0%	0.79%	0.32%	0.07%	0%	n/a	0.33%	0.71%
By car as a driver / passenger	13.3%	18.85%	22.44%	16.08%	33.99%	26.42%	21.76%	21.45%
By car as a passenger		15.65%	23.21%	22.54%	27.45%		21.03%	36.06%
By minibus taxi & bus	1.77%	17.53%	17.01%	4.38%	18.46%	39.39%	36.43%	18.23%
Other	4.04%	0.23%	2.71%	9.10%	2.11%	15.09%	0.4%	1.49%
By train	0%	0.08%	0.03%	0%	0%	n/a	0%	0.00%

Table 8. Population Distribution per Mode for Each Local Municipality

3.5.4.3 Mossel Bay Port

The terminal facilities required at the port for the import of liquefied gas is a key port development opportunity. The Port Development Framework Plan (PDFP) of TNPA has proposed a large extension to the quays in the long-term (beyond 2044). However, this time frame may have to be shortened if the requirements for terminals for the import of liquefied natural gas is taken into consideration.

A portion of the port's land is vacant, but is earmarked for waterfront development including residential, recreation and commercial development. This land is an asset of which the development could boost the long-term viability of the Mossel Bay Central Business District (CBD). It would also enhance more tourist mobility in the town by linking the port and CBD through movement systems, which are currently lacking. Leases of TNPA land of up to 90 years will be required for such projects.

The Mossel Bay CBD and Port Precinct Plan indicates that the current mooring facilities at the port do not allow for large passenger liners, with the result that they have to moor at sea. Passengers are being transported by small sea vessels to the shore. This creates a negative perception of Mossel Bay as a destination with tourists on passenger liners who are used to friendly and comfortable reception in ports throughout the world. If the mooring facilities of the port could be extended to allow for large passenger liners, the impact on tourist facilities in the port and the CBD would be enormous. It might lead to more visits from the passenger ships and an increase in tourism.

The need has been expressed for mooring facilities for yachts and private boats on the north-western, seaward

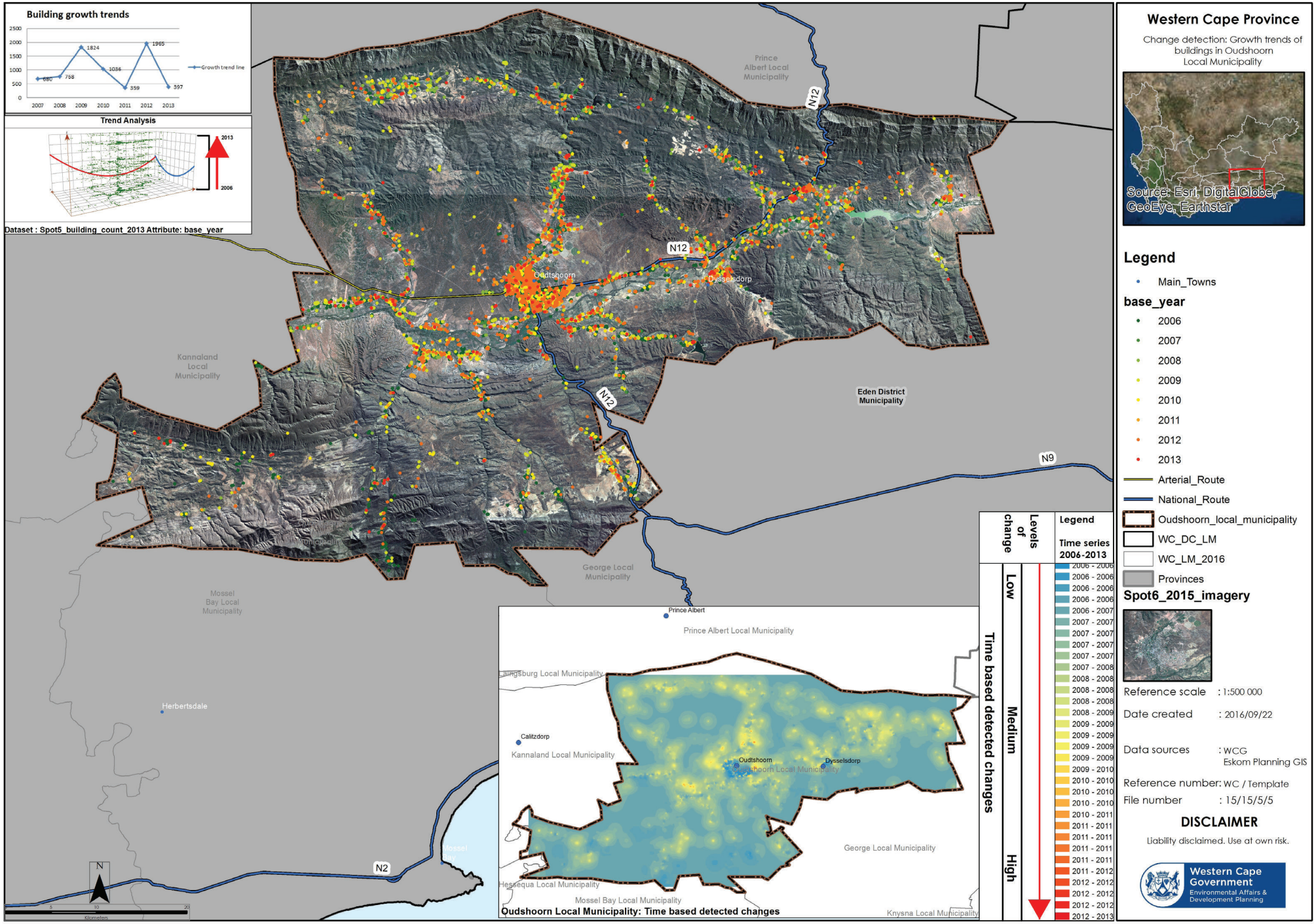


Figure 44. Growth Trends of Buildings in Oudtshoorn Municipality from 2006 - 2013 (Source: WCG, 2016)

of the port. This would create better linkage with the slipways for boats and a future waterfront development on that side of the port.

The above off-shore needs and proposed developments indicate that facilities have to be planned in a co-ordinated manner. The SDF should support plans to investigate the development and expansion of the Mossel Bay port /harbour in the light of the economic opportunity that this presents for the Eden District Municipal area and infill opportunity for Mossel Bay.

3.5.5. Implications for the SDF

It is necessary to consider the aforementioned spatial implications of managing accessibility framed by the district scale and mandate. Therefore, this SDF seeks to address the following:

1. Redress past accessibility legacy issues mistakes.
2. Address current accessibility challenges and optimise current opportunities.
3. Mitigate and Future accessibility risks and optimise future opportunities.

3.5.5.1 District Accessibility Plan

Eden District is in need of an accessibility plan that rationalizes the regional versus urban transport linkages. The hierarchy of the regional linkages must also be identified to ensure there is a resilient mobility system. There is also need for an affordable and accessible integrated transport system that provides linkages across municipal boundaries within the region.

At the urban scale a cost-effective and environmentally sustainable transport system consists of a low percentage of cars, with the majority of person trips made on foot, bicycle or public transport vehicles. This in turn, is dependent on a compact settlement form with short distances to enable walking and cycling, and higher densities to ensure viability of quality public transport.

The plan should provide guidance on ways to promote the walkability of the towns in support of the District's Integrated Transport Plan. Development emphasis across income bands should be placed on multi-story and multi-use buildings, together with the provision of walking and cycling infrastructure. Another key factor in improving walkability is the improvement of the public environment so that there are safe and inviting places for people, rather than cars.

3.5.5.2 Clarify Aviation Hierarchy

All of the aviation facilities in Eden District have potential for growth and are significant contributors to the regional and/or local economies. However, the investment required to realise this growth is significant and must prove viable. From Eden District's perspective, all of the prospective projects associated with these airports and airfields are likely competing with one another from a limited pool of investors. Therefore, they should be prioritised on the basis of an assessment of their prospects for growth within their host settlements, the impact on these settlements and which project will realise the most economic benefit.

3.5.5.3 Provide Clarity on the Future of Major Transport Infrastructure: National Road and Rail

There is need for a policy framework in support of compact settlements that is served by public transport. This would provide an opportunity to reduce the cost of transport. This would also allow for greater inclusivity in the socio-economic development in the District. However, if there are fundamental constraints to the revival of the railway line, for freight and/or provincial use, these implications need to be considered. It is necessary to provide clarity and certainty to unlock shorter term investment opportunities. There is a danger in the absence of clarity and clear time frames, on the future of road and rail infrastructure, that municipalities in Eden District will be unable to realise alternative opportunities that could create jobs.

3.5.5.4 Fibre Optic Network

The fibre optic network must be spatialised in relation to the broader accessibility network and hierarchy of urban nodes (Figure 45). Additionally, key spatial responses must be identified to optimise the socio-economic benefit of this investment.

The following section will discuss the SDF smart urban growth and the associated actions needed to allow for an urban form that is supportive of more viable local accessibility systems. The intention is that these systems will be inclusive to those who are most in need, which will contribute to the quality of place of the settlements in Eden District.

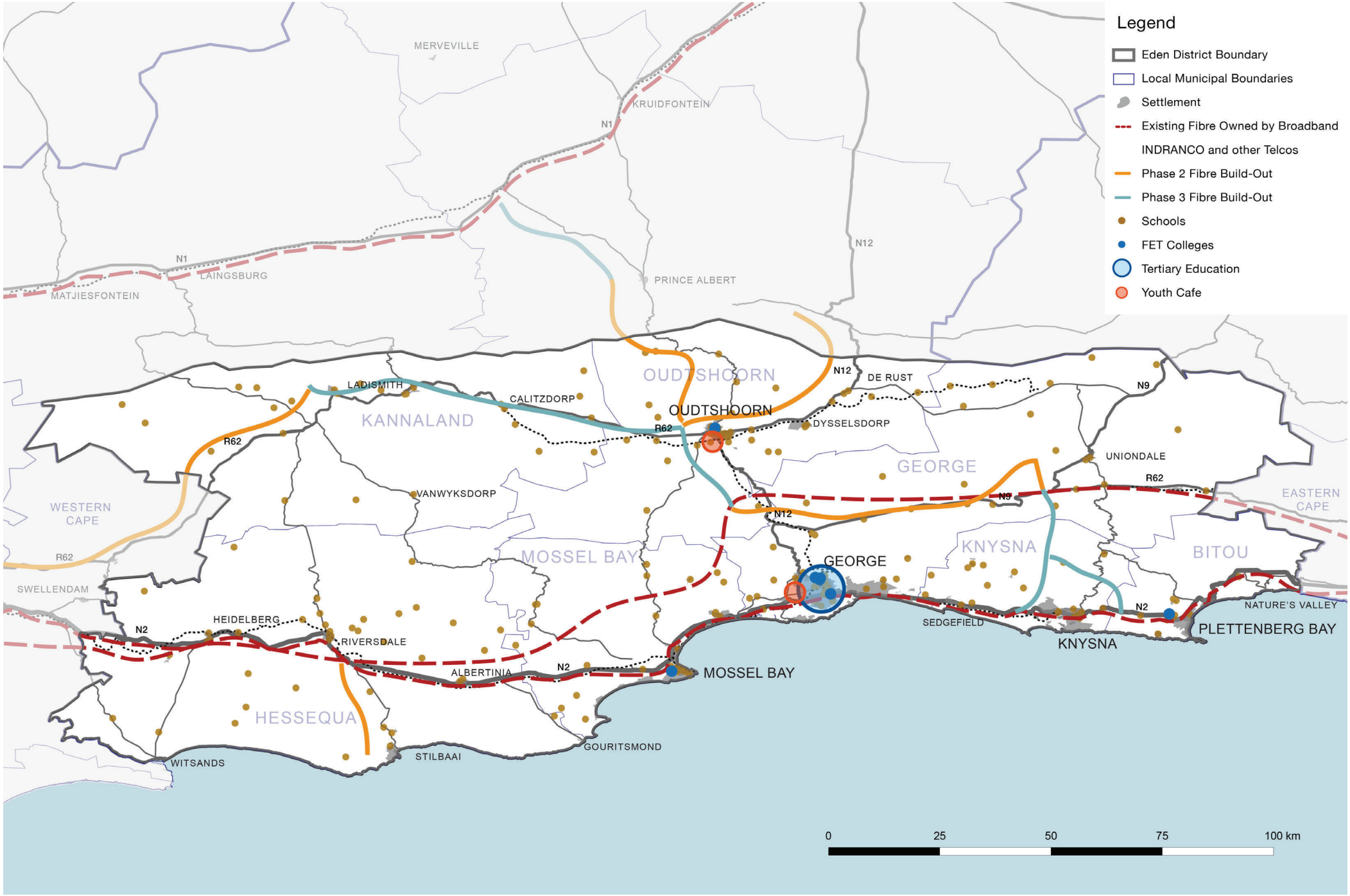


Figure 45. Broadband in Eden District

3.6. Co-ordinated Growth Management is Key to Financial Sustainability

We have to manage growth and meet needs holistically to do more with less

3.6.1. Overview

In a context of increasing fiscal austerity, it is necessary to embrace smart growth management – business as usual cannot be sustained. The District's infrastructure and social services are under severe pressure and cannot sustain projected population growth with current technologies, settlement patterns and practices. Backlogs are unlikely to be met using business as usual practices within a context of declining government funding.

Regional economic competitive advantage is constrained by a lack of clarity on the economic role of towns. This is eroding the District's economic potential and does not optimise the strategic role of settlements within the region.

Sprawling low-density settlements are undermining the sustainability of the District, limiting equitable provision of public services, threatening public health and safety, eroding the natural environment and increasing socio-economic fragmentation.

Dominant models of infrastructure provision, coupled with public and private housing development patterns are driving sprawling, low density, and peripheral developments in Eden District. This pattern creates a demand for new schools, public facilities, roads and services, putting pressure on already overburdened infrastructure maintenance funds of both local and provincial government. This is illustrated in the 2015 housing spot counts that have been analysed by DEA&DP to reflect the extent and intensity of change across the District. This analysis of spatial change within Mossel Bay is shown in Figure 53.

3.6.2. Growth Management Legacies

What are the spatial implications of growth management challenges and assets that have been inherited from the past?

3.6.2.1 Spatial and Socio-economic Fragmentation

The apartheid spatial form persists within the District and is exacerbated by current housing and social service delivery patterns. Apart from the proliferation of spatial form it remains difficult to facilitate integration between communities. A far more strategic and values-based approach needs to be established in the distribution and provision of government services and facilities, including location-based criteria for delivery.

3.6.2.2 Property Speculation

Since 2000, developments around and between the coastal towns of Eden District have perpetuated the dispersed pattern of settlements. However, following the property market dip in 2008 many properties within these developments remain underdeveloped with some developers applying to subdivide unsold erven to improve affordability.

While data indicates that the value of building plans in growing municipalities has increased somewhat in the past six years, there has been a decline in the number building plan applications since 2011, especially for non-residential development. This is associated with very marginal increases (and sometimes decreases) in the rates income. This divergence can be ascribed to a combination of construction cost inflation and collapsing planning management systems (where occupation certificates are not issued and rates valuations are not adjusted with property values). In some areas, such as Bitou, there has been an absolute decline in property values.

3.6.2.3 Social Facility Provision

The recent history of dispersed settlements has resulted in a fragmented pattern of social facilities in the District, and poor access to services where the supply of services has not caught up with development. This applies to education and health facilities and other services related to safety and security. It also refers to social amenities such as care for the elderly and municipal service points. Smaller and more remote settlements have even lower quality facilities due to the economy of scale. Residents may be required to travel elsewhere for schooling, health care and other social services.

While social and community service departments are shifting their focus to prevention, some level of basic service will always be required with respect to health, social welfare, safety and security and education. Therefore, it is necessary to optimise current infrastructure, align settlement planning with existing facilities and provide affordable, quality services to present communities.

"One of the **major investments have been in housing and infrastructure.** This provision has tended to take the form of large-scale housing projects, consisting of free standing housing units. This has colloquially been called 'RDP' or Breaking New Ground (BNG) housing, but in fact draws on a range of subsidy and infrastructure programmes. These projects are often on the edge of urban areas, adjacent to historical townships and far from urban centres. They are a **driving force in the spatial expansion of towns and cities**. They represent a huge effort to improve the conditions within which people in the Western Cape live and to prepare for future generations of residents.

However, it is widely recognised that the state's investments have not **created sustainable human settlements as envisaged by guiding policy documents** such as the Breaking New Ground, the National Development Plan, and One Cape Vision 2040. Neither of these investments have been able to keep pace with the need and demand" (WCHSF, 2017).

3.6.3. Current Growth Management Patterns

What are current growth management and financial sustainability challenges and strengths?

3.6.3.1 Role and Potential of Towns

Eden District is highly urbanised with 75% of the population concentrated in the three principal regional centres: George, Mossel Bay and Knysna. Growth within the coastal settlements is contrasted with declining populations in the Little Karoo.

The Western Cape Growth Potential Study (GPS) is a qualitative evaluation study that is based on the following information: population size, income, community facilities (especially schools and health facilities), type of settlement and growth potential of the town or settlement. The 2015 GPS identified Eden District, and the coastal towns along the Garden Route as a high growth potential zone within the Western Cape. The hierarchy of settlements and towns in the GPS is listed below:

- Regional Towns (Ranked 1): These towns have a population in excess of 20 000 (for the purposes of this ranking, Plettenberg Bay, Kwanokuthula and Kranshoek were considered as one settlement). They offer a wide range of schools and health facilities including a district hospital, have a large catchment area and play a regional function. Towns in this ranking have high development potential and offer a significant number of job opportunities.
- Secondary towns (Ranked 2): These settlements play a significant role in the municipality. Their sphere of influence is smaller than regional towns and they serve the immediate surroundings. They generally have a population between 10 000 and 20000. Most of these towns have medium human need and medium growth potential.
- Local Towns (Ranked 3): These settlements generally have a population between 1 000 and 10000. Many of these towns are fairly well established holiday towns (high development potential and low human need) or rural dormitory towns with low development potential and high human need.
- Local Settlements (Ranked 4): These small settlements generally have less than 1 000 inhabitants and very low development potential. The spatial frameworks do not encourage much development within these types of hamlets and settlements (Eden Mobility Strategy, 2012).

The 2009 Eden District SDF made recommendations relating to the respective role and relationship between the service centres, towns, villages and hamlets within the District. While this functional classification was not updated in the 2014 GPS, the 2010 GPS categorised the functional role of towns within the District as follows:

1. Agricultural Service Centres: Calitzdorp, Ladismith, Riversdale, Uniondale.
2. Regional Centre :George, Oudtshoorn, Mossel Bay.
3. Residential: Dysseldorp; Kranshoek, Kurland
4. Residential / Tourism: Groot Brakrivier, Herolds Bay, Sedgefield, Stilbaai, Wilderness.
5. Tourism: De Rust, Knysna, Nature's Valley.

The accessibility drivers have highlighted the importance of understanding the economic and functional role of towns in formulating appropriate responses to regional access issues. The settlement hierarchy and function is also an important informant to the nature and scale of public and private investment strategies. This also informs how best to manage growth in relation to the capacity and potential of the town so that maximum benefit is derived from limited investment.

3.6.3.2 Current Drivers and Impacts of Sprawl

The costs of "urban sprawl" are demonstrated to show the impact on municipal financial viability, household economic wellbeing and the environment. The medium and long-term capital and operating impacts on infrastructure, social facility provision and service delivery are unaffordable and will become more so as government funding continues to decline. Within Eden District urban sprawl is widespread and has been driven by patterns

Figure 46. Fragmented Towns and Hamlets in Eden District

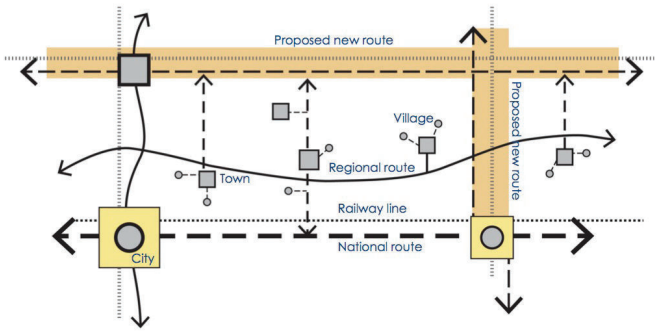


Figure 47. Develop a Coherent and Sustainable Regional Accessibility Framework

of dispersed, low-density greenfield higher-income development, in addition to low-income settlements located on the outskirts of the current settlement footprint. This perpetuates the socially and spatially fragmented urban form.

It is a misconception that all new development improves the rates base of a municipality. The costs of urban sprawl have been demonstrated to impact negatively on municipal financial viability, household economic wellbeing and the environment. Lateral growth does not increase the rates base sufficiently to cover long-term operating costs and provides no new income to provincial departments to provide social services such as schools, libraries and health care facilities.

3.6.3.3 Housing Need

According to the 2011 census, the majority of households in the Eden District area reside in formal dwellings (85.7%) whilst 14.3% of the households reside either in informal, traditional and other dwellings. Access to formal dwellings increased by 18.1% from 137 447 households in 2011 to 162 325 households in 2016 and by 21.3% across the province over the same period. Housing need in the Western Cape Province is shown in Figure 51).

According to the WCG Department of Human Settlements (DoHS), the housing backlog in Eden District is estimated at 65 000 households. The breakdown of the backlog per municipality is indicated in Figure 48. This backlog figure is an assembly of housing waiting lists and is unverified. The disparity of figures indicates the backlog figures in relation to informal shack counts and eligible beneficiary numbers that are significantly lower. This chart also highlights the "pipeline opportunities" that indicate where projects are forecast for implementation. It is concerning to note that these projects are being directed to low growth, low capacity and under-served municipalities that will be financially stressed by the operating burden resulting from the completed projects. Big project pipeline figures are also indicated in the municipalities with the highest school overcrowding and backlogs. According to the 2016/17 WCG Department of Education User Asset Management Plan (UAMP), "under-provision is predominant... with accommodation needs in Knysna and Plettenberg Bay".

Planning and budgeting is currently informed by unclear and contradictory growth and demand forecasts. The existing housing backlog figures quoted for Eden District vary depending on the source of the data and the agency reporting on the data. Different agencies are motivated by competing objectives in the formulation of their estimates of demand. Higher backlog figures increase the allocation of subsidies and the Equitable Share to local government, while service delivery agencies that are measured on reducing backlogs benefit from lower estimates. For example, household spot counts are commonly used as a baseline for housing and service demand estimates (Figure 53). However, it is widely known that informal settlements in remote rural areas that are costly to service are overlooked in these counts (DEA&DP Spatial Intelligence Unit).

Short-term demand driven approaches, responding to unreliable backlog data are driving project identification and prioritisation. The ease of availability of unencumbered land is one of the key criteria informing the location of projects and so "priority" housing projects are typically poorly located, mono-functional and

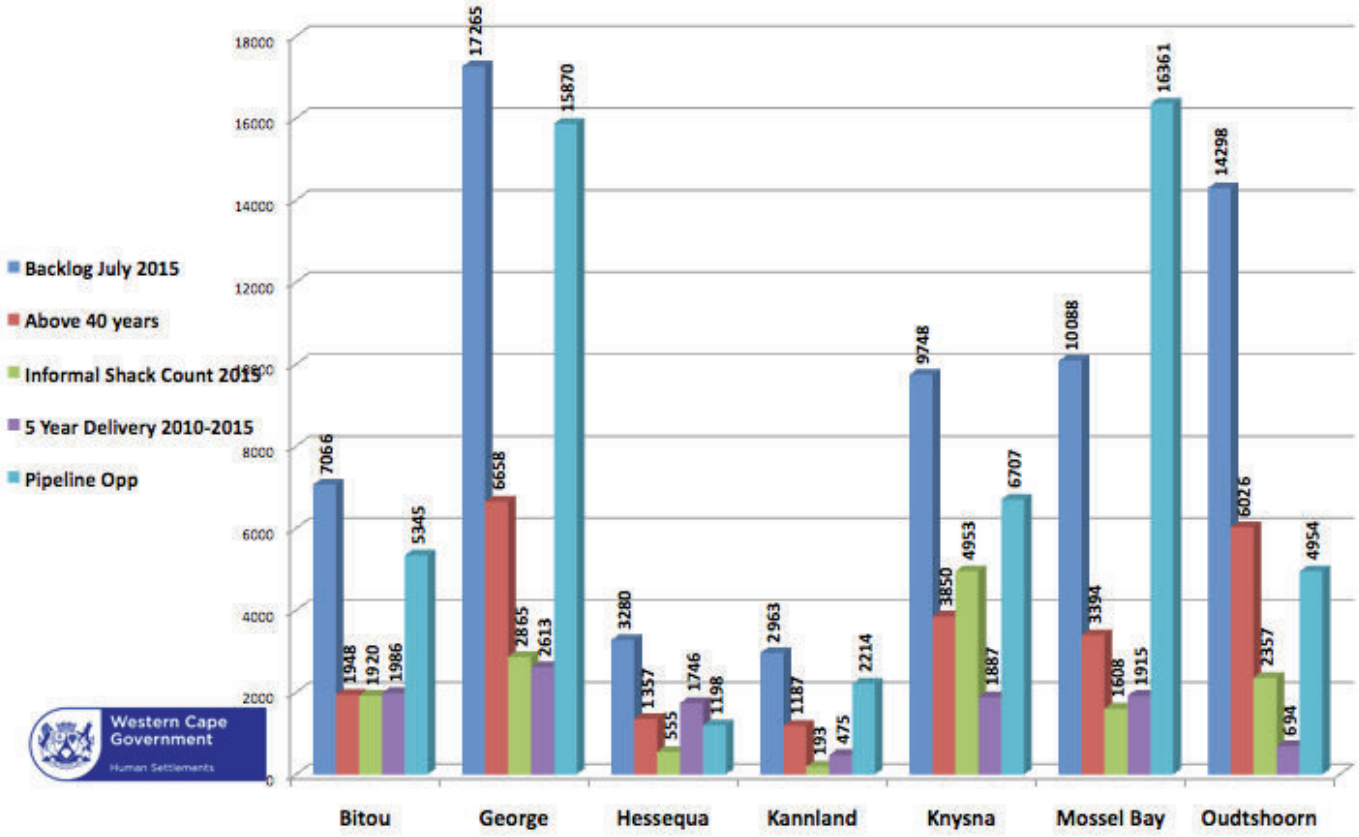


Figure 48. Housing Backlog in the Eden District (Source: WCG Human Settlement, 2016)

uniformly low income. Once completed they generate a host of negative impacts, including:

- The increase of operating and maintenance demands on already stressed municipalities, with no revenue generation;
- Trapping the poor in remote locations far from jobs and decreasing access to services and amenities;
- Increasing the demand for social services such as schools and health facilities; and
- Increasing disaster risks.

Adding to the above challenges, backlog data is based on housing waiting lists, which is only verified at the time of beneficiary registration (often over two years into the project cycle). By this time, either the context has changed or people on the "waiting list" are found to be ineligible, relocated or deceased.

3.6.3.4 Land Availability

Numerous vacant land studies and investigations into suitable land for housing have been carried out within Eden District and by some of the local municipalities. As mentioned previously, the majority of the sites identified in these studies are in green field, peripheral locations which are perceived to be "easier and quicker" to develop. Together with the pressure to deliver at scale and speed, the development of new low-income settlements on these sites will exacerbate the spatial challenges of the District; worsening accessibility, spatial justice, spatial efficiency and sustainability.

The Western Cape Human Settlement Framework (WCHSF) recommends using land as a strategic asset. This framework proposes that "the state should see land as a strategic development asset which can be used to assist directly or indirectly with the creation of sustainable human settlements. This means using land which is available to meet a range of often competing strategic objectives. Within this context, the social function of land should be balanced with the financial and ecological / environmental values which it holds" (WCHSF, 2017:12).

Photo 1. Sprawling Developments Located on Prime Biodiversity on the Outskirts of Cities in Eden District (Source www.visitgardenrouteandkleinkaroo.com)

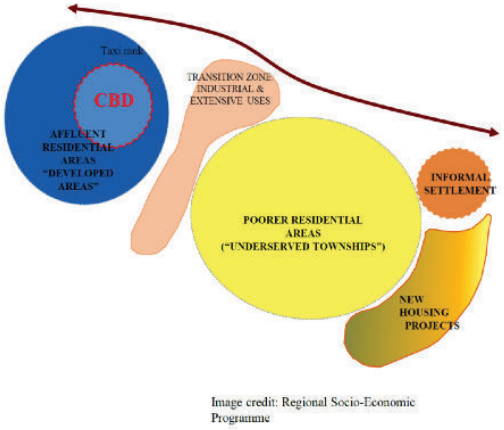
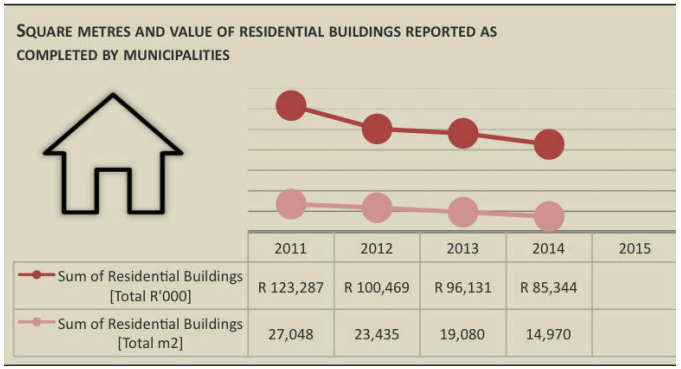


Figure 49. Fragmented Settlement Pattern Diagram

Photo 2. Township Fragmentation in Barrydale (Source: https://karooarthotel.co.za)



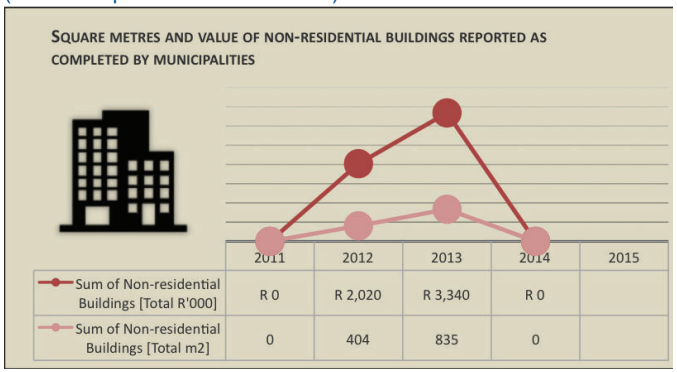


Figure 50. The Following Figures Indicate the Value of Non-residential and Residential Building Reported as Completed by the George Municipality (Work in Progress Undertaken by the Western Cape Government).

In short, the demand driven approach to human settlement planning for the poor and misconceptions about the economic multipliers of high-end residential development are shaping the spatial future of the District rather than a pro-active and integrated strategy.

Conventional subsidy housing projects and private sector development speculation contradict SPLUMA objectives of spatial sustainability, justice, resilience or efficiency and drive a downward spiral of poverty and economic exclusion, declining social service provision and public finance deficits.

3.6.3.5 Viability of Current Social Facility Provision

Access to social facilities and services for the poor is a growing challenge, particularly within the townships of the larger towns in the District. It is also a crisis within rural settlements where households lack the resources to pay for long trips to health, social welfare and other social services within the main centres of the region. This increases the social and economic exclusion of these communities and places pressure on the capacity of regional health operators to deliver adequate services.

The suburban nature and large site sizes for schools and other social facilities exacerbate lateral sprawl and tie up large tracts of land that is often underutilised, with little prospect of being developed within current budgets. Provincial norms and standards set sizes for primary schools at 2.8 ha and secondary schools at 3ha. However, many older schools exceed the norms significantly and large portions of land on the majority of sites remain unused. According to the WCG Department of Education 2016/17 UAMP, while schools in George, Oudtshoorn and Uniondale are underutlised, there is a current backlog of 13 schools in Eden District, 24 schools need to be replaced and 24 need new classrooms. These figures represent the demand for new schools that will be created by future housing projects.

Typical coverage on social facility sites ranges between 10 - 20% of the site with buildings that are predominantly 1 - 2 storeys, islanded within the site. In short, public land is not being used optimally, while housing projects are being located in the wrong places, driven by the urgency to deliver housing and a lack of well-located land.

3.6.3.6 Infrastructure Backlogs

Eden District has lower levels of access to basic service delivery than provincial averages, with the lowest levels being access to water and sanitation, particularly in Kannaland.

According to the Eden District Infrastructure Plan, the District has 16 raw water storage dams and 31 operational water treatment facilities. Desalination plants augment water supply to Mossel Bay, Sedgefield, Knysna and Bitou. Effluent re-use schemes are operational in George and Knysna. There are rural water supply schemes in Oudtshoorn and Heidelberg areas.

3.6.3.7 Water Supply

Most of the municipalities located in Eden District require additional bulk water supply infrastructure to meet the anticipated demand in the long-term. Water sources are limited, specifically in the towns of Witsands, Still Bay, Albertinia, Herbertsdale, Herold's Bay, Wilderness, Buffels Bay, Brenton-on-Sea, Plettenberg Bay and Wittedrift. There is urgent need for increased water conservation and demand management. The potential for

CASE STUDY I. Mossel Bay Growth Options Study - Land Impacts

Land required for sprawling versus compact growth scenarios (to 2035)

The Mossel Bay Growth Options Study was commissioned to evaluate the infrastructure, transport, environmental and social facility impacts of sprawling versus compact growth in the municipality.

The land area demands that are a result of a continuation of unregulated sprawling growth are contrasted with realistic growth containment based on infill and densification. The latter aligns with SPLUMA, LUPA and PSDF policies and is a prerequisite for more sustainable, spatially just, efficient, resilient and fiscally viable municipalities.

This study outlines the land required to meet the forecast population growth to 2035, but under two differing density assumptions. The compact scenario assumes a moderate increase of net density to 13.7 du/ha and reduces the forecast land requirement by 2,883 ha, housing the same population and number of units. The sprawling scenario is based on growth occurring at the current net density of 9.2 du/ha.

Comparison of Total Land Requirement Under Both Growth Scenarios (20 year Projection)

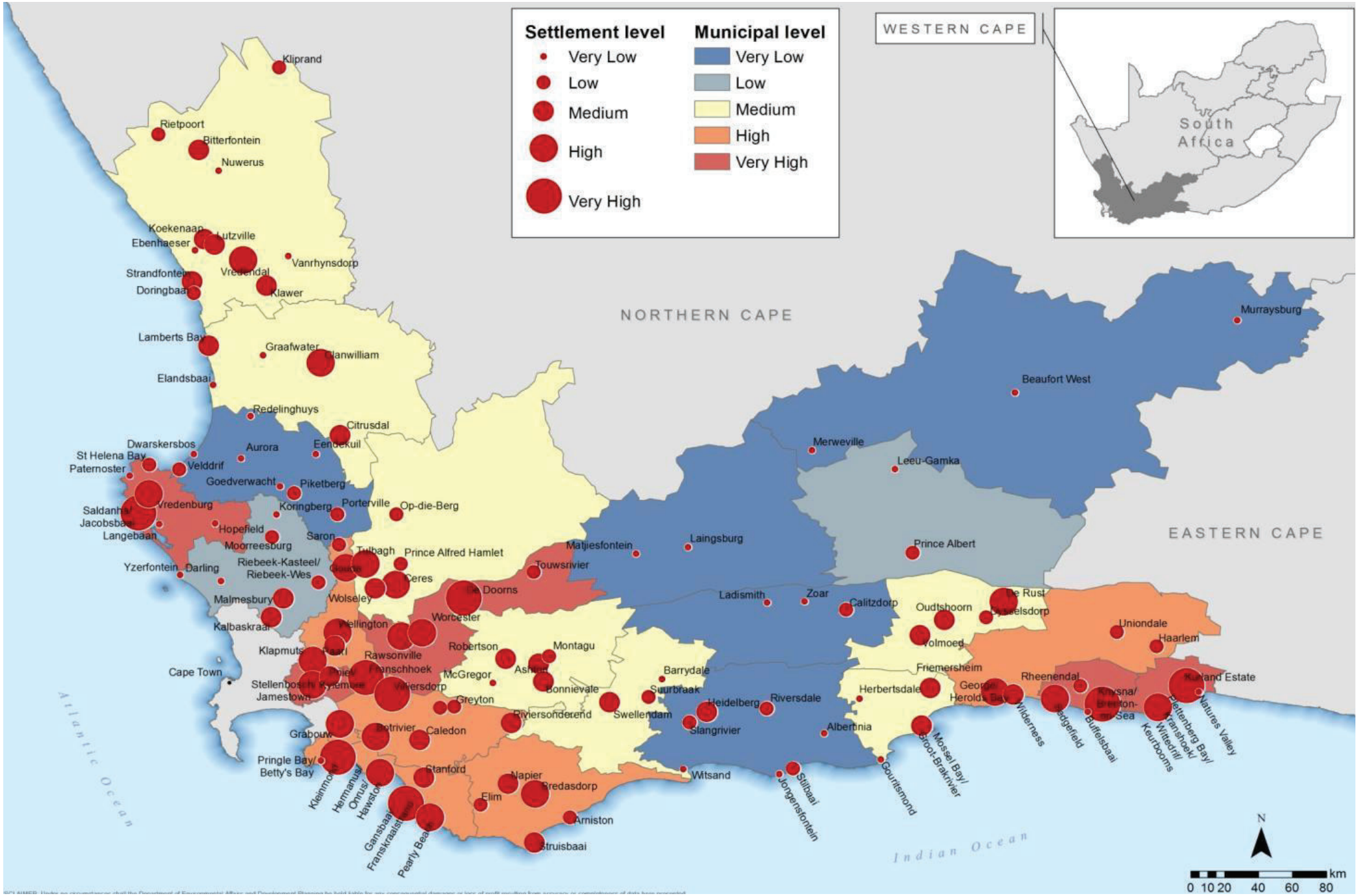


Figure 51. Growth Potential Study: Housing Need (WCG, 2014)

water re-use in the District is 21,8 million m³/a, with George, Knysna, Mossel Bay, Oudtshoorn identified as the main municipalities with re-use opportunity (WCG, 2012).

There are various forms of water re-use options available in water resource management. For example, planned and direct water re-use can be implemented. This refers to treated effluent that is taken directly to the potable reticulation system for use as a potable water source (e.g Beaufort West during recent drought conditions).

3.6.3.8 Sanitation

Sewerage infrastructure in the District is unable to keep pace with demand. A number of wastewater treatment works are non-compliant in terms of performance. Backlogs are particularly significant in Knysna and Bitou and account for approximately 54% of the total cost of bringing the infrastructure up to speed. Substantial funding will be required to refurbish and upgrade a number of wastewater treatment facilities in the region. The impact of storm water ingress and groundwater infiltration on the operation and performance of a sewer network is in many cases hugely underestimated.

3.6.3.9 Solid Waste

In 2013, Eden District had 22 general waste disposal sites (many operating at full capacity), 5 transfer stations, 2 recycling facilities, 1 treatment plant and 1 hazardous storage site. In 2016, Eden District produced 8% (229 520 tonnes a year) of the Western Cape's waste volumes. This was largely due to the dispersed settlement form. The District's access to refuse removal services is low at 86.5%.

At a local level, waste collection services are provided to formal properties and recycling programmes are in place in two of the seven municipalities. While Eden District has made significant strides towards more sustainable waste management, there is a need for more concerted efforts in waste avoidance so that landfill capacity challenges can be mitigated. It is extremely challenging to provide and sustain waste collection and recycling services to remote rural villages and hamlets.

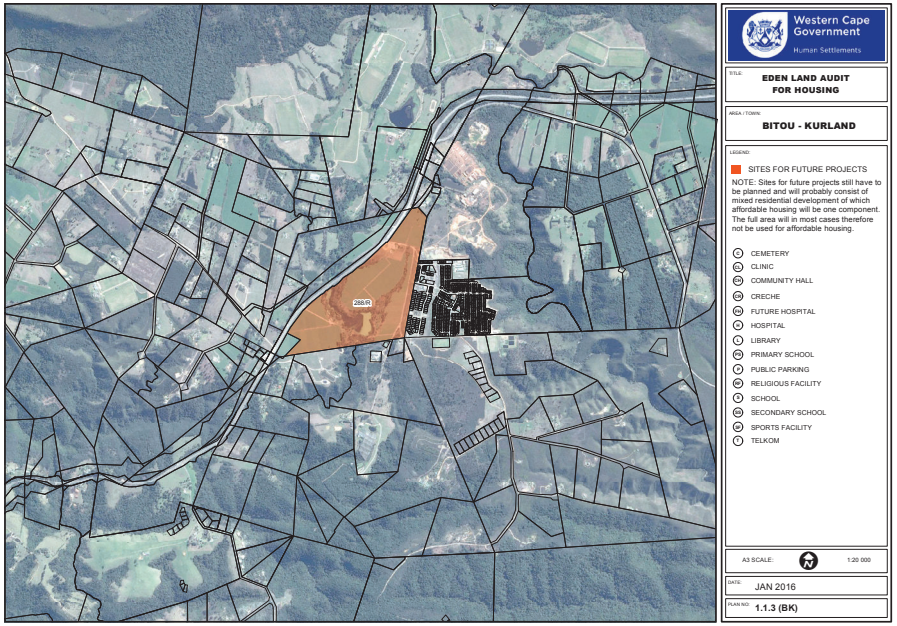
The current regional waste site is almost at capacity and pressure to secure a new regional landfill site is growing. However, due to funding constraints and lack of agreement between local municipalities, this process is being delayed. This reality needs to be considered when there is demand for new growth in areas with already limited infrastructure capacity.

3.6.3.10 Urban – Rural Relationships

The challenge of providing quality facilities and education to remote rural schools is becoming more acute as budgets are constrained. Alternative formats of teaching and facility management need to be explored to overcome the challenges of distance and to enable the children of poor, rural communities access to decent education and a route out of the entrapments of poverty.

The Vacant Land Audit for Subsidy and Affordable Housing in the Eden District (2016) identified potential land for housing in the major centres and small towns in the District. The long-term impacts of new housing projects in small towns such as Calitzdorp, and the declining population in areas such as Oudtshoorn, should be very carefully assessed. Housing projects in these areas would impact on economic survival, social service provision and municipal infrastructure capacity and finances.

Innovative ways need to be found to connect existing residents of rural villages and hamlets



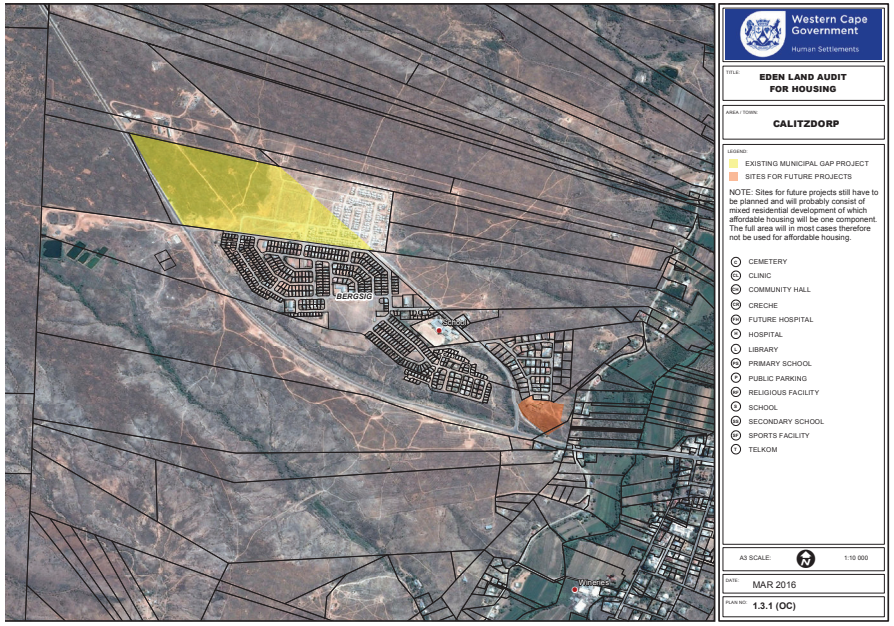


Figure 52. Vacant Land for Housing in Kurland and Calitzdorp, Showing Poorly Located Peripheral Sites for Housing

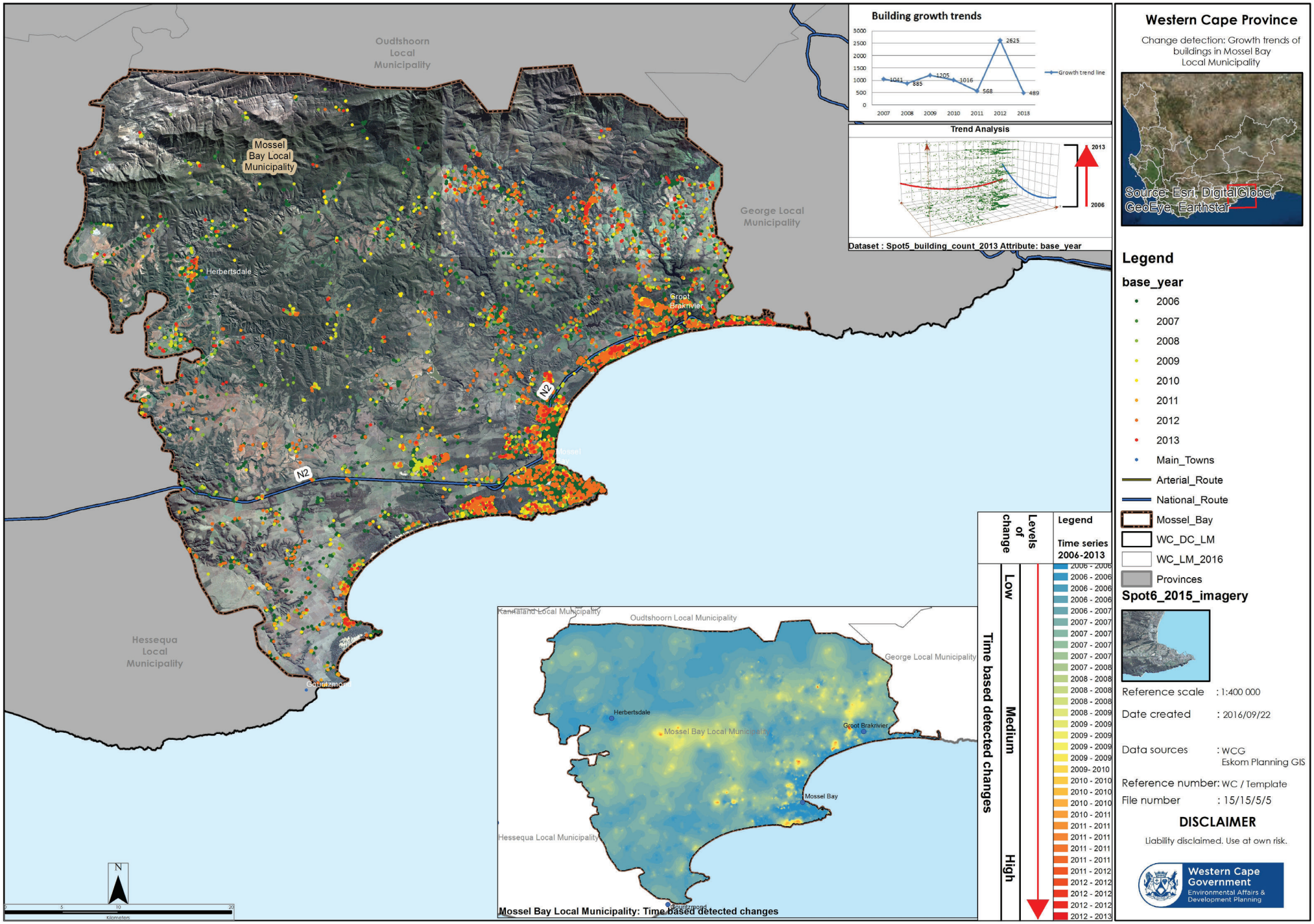


Figure 53. Growth Change of Buildings from 2006-2013 in Mossel Bay Municipality (Source: WCG, 2016)

with social services, high quality education and access to the space economy so that these communities can find a way out of the poverty cycle in which they find themselves.

3.6.4. Future Growth Management Risks and Prospects

What are the anticipated future growth management risks and opportunities in the Eden District?

What are the spatial implications of Eden District's growth management and financial sustainability future risks and prospects?

3.6.4.1 Unmanaged Growth Driving a Collapse of Service Delivery

If uncontained sprawl continues, this will increase the capital and operating costs of facility provision and operations. This will reduce the quality and accessibility of social service provision. Decline in government funding is already forecast. This means that the intensity of competition for funding between sectors and between new infrastructure, urgent maintenance and provision will increase. As maintenance continues to decline, infrastructure lifespans will decrease and replacement costs will increase in the future. In a contracting economy and reduced government spending, the downward spiral is inevitable.

3.6.4.2 Future Demand for Social Facilities

By 2040, based on population growth forecasts, using current provision standards and growth patterns (low density sprawling development), the SCRSIF has estimated that the Eden District will require a significant number of new social facilities. These are detailed in Table 9.

Presently 25% of the Emergency Maintenance Budget for Schools is used to repair acts of vandalism. In the current financial period there is no funding for fences. As a result, the costs of vandalism are likely to increase. This will take away from the already constrained budgets to improve schools and in turn, this will negatively impact on the quality of education.

The long-term sustainability of health services relies on the consolidation and location of facilities, shared management and the reduction of distances that people need to travel to reach tertiary facilities. Viable health care provision is directly linked with prevention (through improved living conditions) and the containment of settlement size. The health sector will similarly be placed under severe and unsustainable pressure if lateral settlement growth and the development of mono-functional, low-income townships continues.

3.6.4.3 Increasing Disaster Risk:

Disaster Management risks are increasing without adequate capacity or authority to deal with the causes of these risks. The 2013 Eden Disaster Risk Assessment identified the following infrastructure impacts of disaster events:

- Increased demand for storm water and rain water management systems;
- Redesign and update of storm water systems;
- Increased demand on potable water resources (human and animal);
- Increased groundwater depletion, land subsidence, reduced recharge;
- Reduced water in the rivers will impact on wetlands and estuaries;
- Increased stress to endangered species;
- Increased risk to soil erosion and desertification;
- Loss of wetlands;
- Reduction and degradation of marine and wildlife habitat;
- Increase in pest infestation; and disease outbreaks (animal and human);
- Increased fire danger, which calls for increased fire prevention programmes and response resources.

The Eden Disaster Risk Assessment identified the following social impacts of disaster events:

- "Increased poverty;
- Reduced quality of life which leads to changes in lifestyle;
- Social misbehaviour;
- Loss of human life from food shortages, heat, suicides, violence;
- Water use conflicts;
- Job losses and social conflict;
- Public dissatisfaction with government response;
- Inequity in relief actions; and
- Mental and physical stress (family, employers and workers)" (2013:16)

3.6.4.4 Finding New Ways to Meet the Challenges

In an uncertain and financially constrained future, sustainable growth management will not be feasible by continuing to use current practices and following existing

Education & Health		Government & Welfare Services		Community Facilities	
48	Early Childhood Dev Centres	2	Municipal Offices	23	Community Sports Fields
38	Primary Schools	2	Fire stations	11	Local Libraries
19	Secondary Schools	5	Police Stations	11	Community Halls / Centres
6	Community Health Care Centres	3	Children's Homes	57	Public Open Spaces
0	District Hospital	2	Home's for the Elderly	23	Cemeteries

Table 9. Future Demand for Social Facilities in Eden District

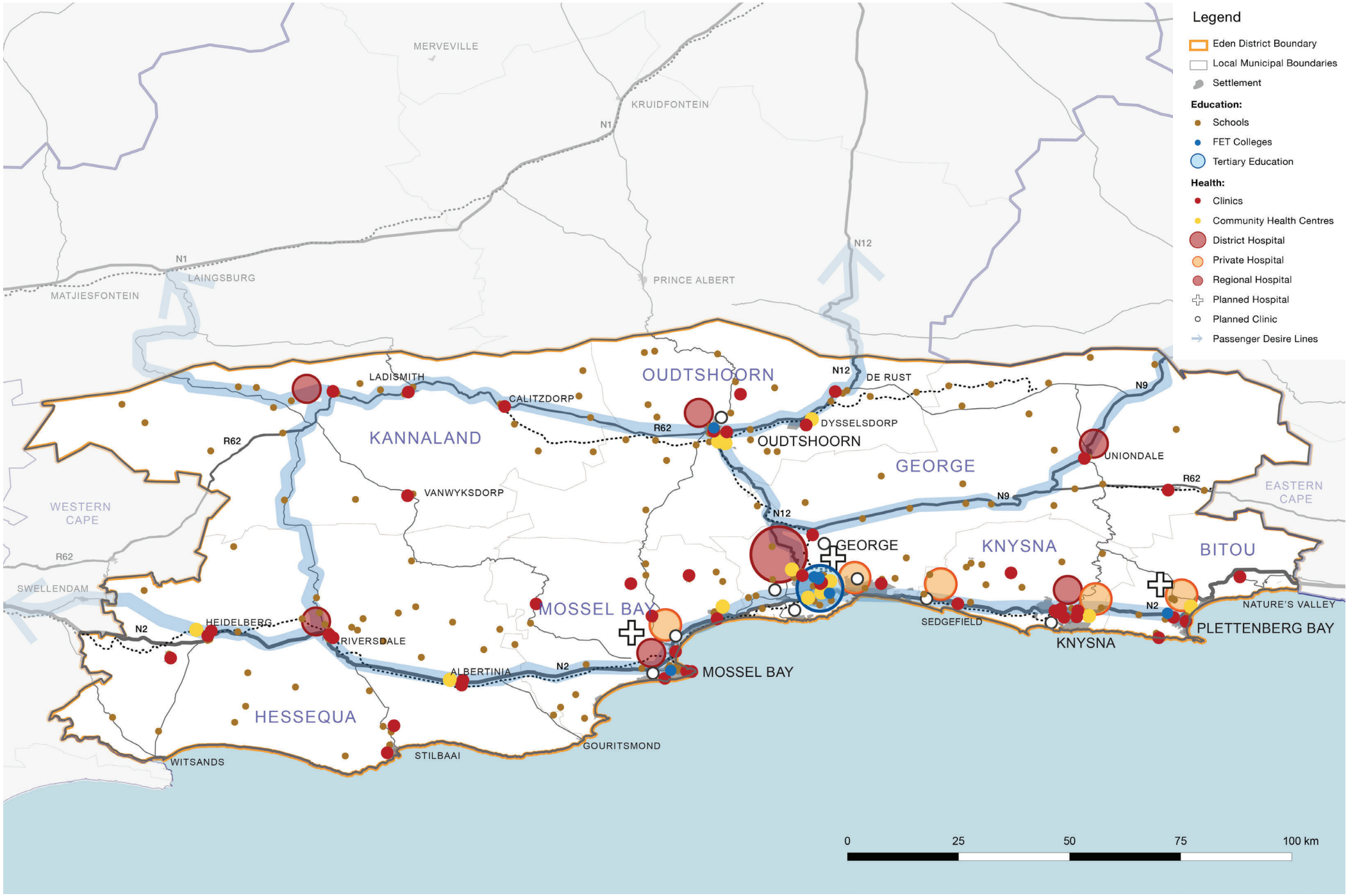


Figure 54. Settlement Services in Eden District

development patterns. However, with integrated planning and collaboration, there is a real prospect to address backlogs and improving service delivery in Eden District (while congruently benefiting the economy, environment and optimising limited government finances). The higher than national average income, and lower unemployment indicates real opportunities to build rental housing in the social, gap and bonded housing markets.

In response, the property development sector could be diversified and broadened by deliberately enabling small scale construction industry property developers to access and co-ordinate small scale projects. Opportunities exist in a range of contexts including:

- Small harbour developments
- Gap housing projects
- School infill projects

One of the central legs of the Western Cape Human Settlement Framework is to direct new housing projects to better locations through the optimisation of underutilised public land within the control of the WCG. This refers specifically to school sites. This shift offers a resource efficient way to address housing backlogs, make schools safer and more cost effective, and free up resources currently tied up in unproductive emergency maintenance so that the quality of schools can be improved.

This concept is also in support of the DTPW initiative to cluster provincial facilities. It is underpinned by two key principles which have great relevance to the Eden District SDF and the need for a more efficient, sustainable and just approach to growth management. These are:

- Integrated investment: achieving the shift relies on integrated thinking and truly co-ordinated investment across sectors and spheres of government, in partnership with non-governmental agencies and the private sector. This shift by implication enables real integration of the social fabric, introducing affordable housing into areas already served by public facilities and are closer to economic opportunities. This shift also improves municipal financial viability by containing the extent of infrastructure networks that must be maintained.
- Improved resource management: the squeeze on provincial budgets should trigger where money is being spent unproductively. Addressing the unproductive, fragmented spending of both capital and maintenance budgets on schools (or other land and social facilities) could allow cost savings to be redirected to improving the quality of existing infrastructure and services. This would ultimately improve educational outcomes, while releasing well located, free land for human settlements (WCHSF, 2017).

3.6.5. Implications for the SDF

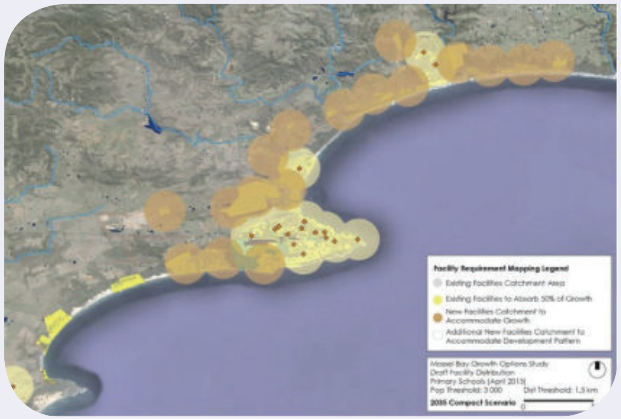
It is necessary to consider the following spatial implications of managing growth framed by the district scale and mandate. The following actions have been identified as priorities for this SDF:

1. Redress past growth management legacy issues and mistakes.
2. Address current growth management challenges and optimise current opportunities.
3. Mitigate growth management risks and optimise future opportunities.

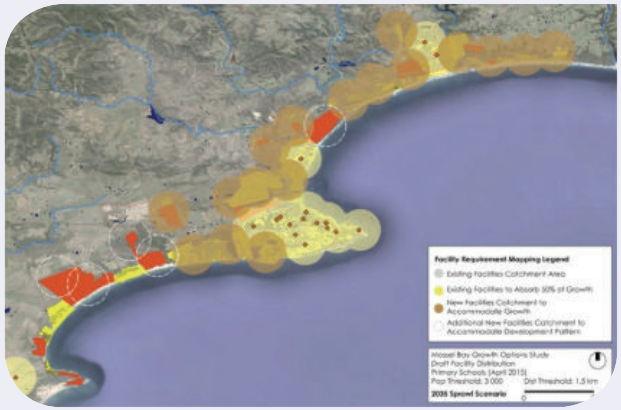
Without a new complex and transformative approach, the low density and sprawling settlement growth will

CASE STUDY II. Mossel Bay Growth Options - Impacts of Sprawl on Schools: Future Demand for Educational Facilities

The cost of providing additional schools was informed by an analysis of the demand generated by both population and distance thresholds. Since the current backlog of education facilities remains the same in both scenarios, backlog eradication is not modeled separately, only the total cost implications under each scenario are compared. The cost analysis is based on actual asset valuation of schools in the Mossel Bay area for which data was available. These schools (which accounted for approximately 70% of the schools in the area) were used to generate average costs for the schools for which there is no existing data.



Public Facilities Distribution – Compact Scenario



Public Facilities Distribution – Sprawling scenario

continue. This will exacerbate the threats that impact negatively on the majority of the population, the financial viability of local municipalities, the economic prospects and functioning of Eden District.

3.6.5.1 Disaster Risk

According to the Eden Disaster Risk Assessment the "question of land-use change also amplifies the risk profile of the region because alternative and new inventions need to be explored and developed to ensure sustainable economic development and sustainable livelihoods" (2013:16).

3.6.5.2 Infrastructure

Water security, sanitation and waste management are of great concern in the District. There should be a drive towards using renewable energy resources. This can be achieved through incentives as well as introducing design standards that require building designs to improve energy efficiency and become more ecologically sustainable. It is important to note that spatial considerations can contribute to the integration of development with growth. Green development principles are underpinned by the notion of self-reliance.

3.6.5.3 Waste Management

Spatial planning in the District should support the significant waste minimization, recycling and management initiatives planned and underway in the Eden District Integrated Waste Management Plan (2014). The District should strategically move towards a sustainable waste management system whereby the focus will shift to the avoidance and reduction of waste rather than waste collection and disposal.

With the fast-dwindling landfill airspace and demand for a new regional landfill site, air quality must be taken into account when a new landfill site is selected. This is required so that no development takes place without ensuring that the air quality is suitable for that development or that the air quality will not be affected negatively by the development (Eden District Municipality, 2013).

3.6.5.4 Developing a Resilient Approach to Growth Management

The Western Cape Department Human Settlements Framework that is currently in preparation has indicated that its central purpose is "to ensure that all investment in sustainable human settlements is maximised, yielding as much social and economic value as possible. It is imperative that human settlements investment work to both meet the material needs of Western Cape residents and build a sense of belonging and citizenship" (2017:4).

Aligning with these intentions, it is necessary to recognise and adapt to the reality of diminishing financial resources and provide spatial direction that mitigates future risks and optimises future opportunities. This implies a shift to more strategic and financially sustainable forms of development to address the real needs and backlogs in the District. This requires appropriate intervention in the appropriate locations (in terms of economy, environment and accessibility). Eden District can provide shared service support and guidance in many areas, some of these may include:

- Supporting integrated social service provision at the District level by promoting and providing guidance on the planning, location, budgeting, implementation and management of social facilities. This should align with the emerging provincial protocol for social facility clustering and co-ordinated land acquisition.
- Supporting and enabling integrated, inclusionary developments in well-located areas. Contain the lateral spread of settlements that increase disaster risk, pressure on local municipal infrastructure asset maintenance and provincial social facility provision.
- Developing a coherent supply driven model of growth management that ensures integrated planning and investment in areas with current or latent economic potential so that the aims of spatial justice, sustainability, resilience and efficiency.
- Optimising existing land and infrastructure assets by co-ordinating the rationalisation and use well-located public land such as schools to meet development needs (especially human settlements).
- Reviewing and verifying housing and social services backlogs so that planning and future investment addresses real and current needs rather than inferred "backlogs".
- Partnering with other agencies to optimise the developmental potential of a range of sector department projects such as the National Public Works Fishing harbour proposals. Projects that offer densification and infill opportunities in locations that can optimise existing infrastructure, assist in meeting backlogs and improve overall accessibility should be actively pursued.

In summary the SDF needs to provide direction on the following:

- Outline spatial implications for a long term, bulk capacity framework.
- Define the spatial limits of growth within the region both in terms of absolute capacity but also identifying smart growth opportunities to do more with less.

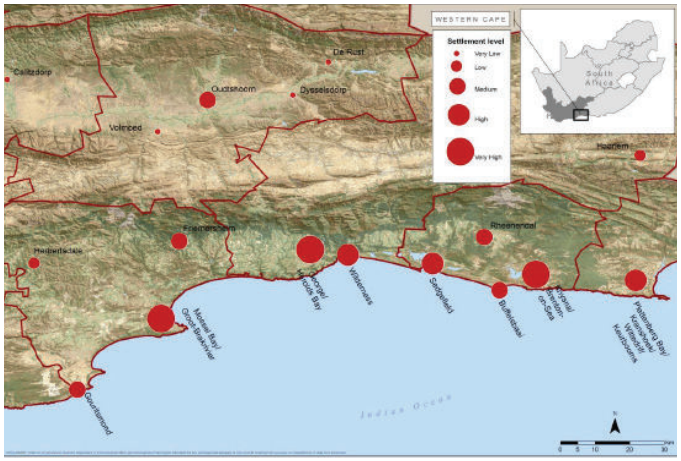


Figure 55. Growth Potential of Towns Study in Eden District

- Support demand management through appropriate urban form.
- Highlight spatial implications of capacities (where growth can and should be supported or constrained), as well as potential alternative resources.
- Provide clear guidance on the role and hierarchy of towns within the regional space economy (as per the PSDF).
- Set clear policy position and criteria on how to transform current patterns across the District and mitigate impacts of the past.
- Provide a clear policy position on public investment in existing, remote (low income) settlements.
- Provide criteria for the approval of applications for private (high income) settlements in remote rural locations.

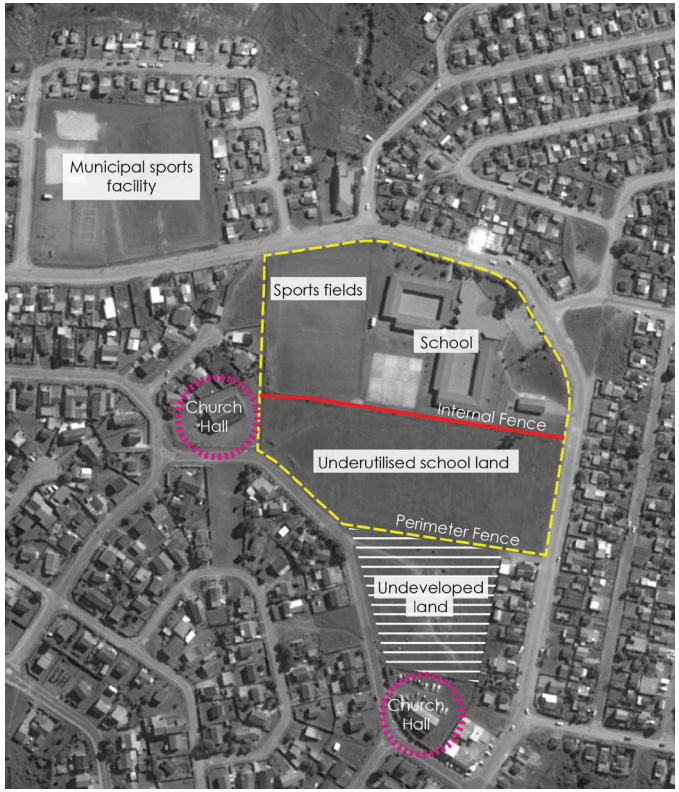


Figure 56. Underdeveloped School Sites

In seeking to address the current and future human settlements' needs in the province, there are three interlocked challenges which must be addressed. These challenges include:

- The delivery challenge: the inability of the prevailing human settlements model to address the scale of demand.
- The modality challenge: the outcome which the prevailing human settlements model has had on the urban and spatial form of towns and cities.
- The governance challenge: the complexity of the decision-making frameworks that underpin the prevailing human settlements model.

These three challenges are the crux of the Human Settlements Problem statement.

(WCHSF, 2017)

3.7. We Need to Plan, Budget and Manage as One Government

Institutional co-ordination is essential to achieving spatial transformation objectives

3.7.5.1 Municipal Financial Performance

The current and future financial status of the municipalities within the District is a key consideration in framing the focus, proposals and implementation capacity for proposals made in the SDF.

National Treasury data (https://municipaldata.treasury.gov.za) indicates that the municipal finances of Mossel Bay, Knysna, Hessequa and George are satisfactory. In contrast, Bitou is performing adequately, with pressure on its infrastructure and service delivery increased by steady transmigration from the Eastern Cape and on to Cape Town. Whereas, Kannaland and Oudtshoorn are performing poorly. Kannaland has significant capacity challenges and is currently receiving by capacity support via MISA. Oudtshoorn has been impacted by political and institutional instability which has hampered its ability to meet its municipal mandate. Oudtshoorn is unique in the District, as it has had a decline in total population.

Given the financial status of some of the municipalities in the District, it is necessary to investigate the regional opportunities for co-operation and alignment between municipalities that can improve the institutional performance and the competitive advantage of the region as a whole.

3.7.5.2 Municipal Sustainability: PSDF Specialist Study Findings and Evidence

The PSDF Specialist study aimed to assess municipal sustainability with regard to the financial impacts of spatial growth patterns through running the Municipal Services Financial Model (MSFM) for seven case study municipalities, including George.

Spatial growth patterns were assessed in terms of impacts on the net operating account of the municipality (and hence its ability to build up capital reserves or borrow), as well as the overall capital expenditure required over ten years.

A significant finding is that the operating accounts of all the case study municipalities are extremely vulnerable. Increasing operating costs associated with sprawling spatial growth worsens the negative trend of municipal operating losses. For all municipalities, the theoretical capital expenditure that is required to reduce infrastructure backlogs, satisfy demand for new infrastructure and provide for renewal of existing infrastructure is far higher than the available funding.

3.7.5.3 Working Together and Sharing Resources

The environmental, resource, economic systems and to some extent, the infrastructure systems that support the health and wealth of the Eden District do not follow jurisdictional boundaries. If they are not managed and supported as systems they will experience significant dysfunctionalities. The urban–rural relationship adds another dynamic in the Eden District context. These systems are under pressure and cannot sustain the projected population growth and enable corresponding economic growth while using the current models of governance, conventional technologies and practices. This compels Eden District and its associated municipalities to work as one and share resources to ensure these systems are supported to work at their best.

It is necessary to support bulk service planning and co-ordination through articulating a long-term bulk capacity and demand framework that supports sustainability and works within a realistic affordability envelope.

- Key concerns are across municipal water supply issues, especially between capacity constrained Knysna, Hessequa and Bitou.

CASE STUDY III. PSDF Municipal Financial Sustainability Study

For George the total capital saving for a compact growth scenario is estimated at R740 million over 10 years – 24% lower than the sprawling business as usual (BAU) scenario.

While the capital saving is marginal for water, sanitation and roads, it is approximately **50%-60%** for public services, electricity and solid waste. In the compact scenario, the capital costs for land and housing are cumulatively more than 20% higher than the BAU scenario, indicating the higher capital cost of higher density housing solutions on well-located land (however, if land costs are eliminated then this additional cost is neutralised).

The operating account shows the greatest net improvement due to compaction on the sanitation account, while electricity shows a net decline for the same reasons as described above.

Savings on Capital Expenditure due to Compaction By Sector for George

Cumulative Improvement in Operating Account Position for a Compact Development Scenario for George

- Regional waste management solutions and associated regional infrastructure and transport capacity.
- Disaster risks are increasing without adequate capacity or authority to deal with causes which relate to how development is managed at the local municipal scale.

Eden District must become an integral part of the decision-making system on development applications. Working examples of innovation in the District that can be built upon include: the Waste Minimisation Programmes and the Waste to Energy initiative in Mossel Bay.

3.7.5.4 Making Choices and Not Being Afraid to Think Small …. Massive Small

As discussed in the section above the future is a constrained one – in terms of resources, human capacity and finances. The local government in Eden District shares this pool of resources. This means that investments must be co-ordinated so that they are mutually reinforcing, spatially targeted and prioritised based on an equitable framework that ensures efficiency and sustainability. Furthermore, it is necessary that it is couched within an evidence-based understanding of the economic realities. The scope for the implementation of big ideas is limited and these are most likely competing for the same investment pool – not everyone's big idea will come to fruition and the effort to land the most important catalytic project will require the efforts beyond one municipality. Choices will need to be made.

At the same time we should not be afraid to think small…..

The Smart Urbanism Movement in the United Kingdom advocates new ways to manage urban development to achieve better and improved urban environments. Their Massive Small Initiative is exploring ways to enhance the connection between top-down management by government and the involvement of "bottom-up" community, private sector and individuals that together create cities.

The movement has three core principles:

- Minimalism - 80/20 principle
- Balancing top down policy and enabling infrastructure with bottom up / emergent energies
- Developing Ideas - Tools – Tactics

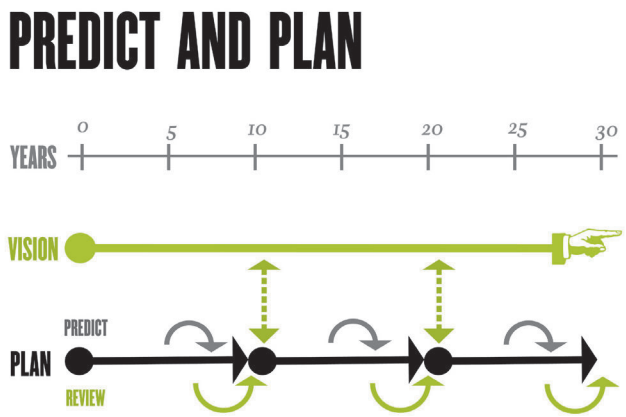
"Our 'place-making' models that look to predict and plan every outcome with absolute certainty, determine what we do, forcing us down the narrow corridors of complete compliance. In this world, people cannot be trusted to do the right thing. Do it our way or else! There is no room for experimentation, no room for creativity, and no room to learn! Firmly nailing things down, we operate our planning system with 'command-and-control' as the watchwords - reactive, restricting and limiting. The unintended consequences of this kind of 'top down' is 'bigness': big sites, big players, big processes - big plans that demand big outcomes" (Massive Small, 2014).

This notion is starkly illustrated in the human settlement planning and delivery conundrum, where demand driven housing programmes, based on imperfect data, drives the investment of infrastructure in locations that make households poorer. This places municipalities at a long-term financial risk and makes the sustainable provision of social services increasingly improbable given financial austerity.

The bigger the plan the more complicated it is, the greater the risks of them not being implemented. In the meantime, there may be smaller ideas that, if they succeed, can gain momentum and grow organically, taken up by multiple players at a scale and cost that is within the means of these players. The solutions may be more lasting, and may in fact achieve change at scale in time. Eden District's Waste Minimisation efforts in co-operation with its municipalities, is an excellent example of this kind of approach in action.

"Complexity science is a growing subject. In many spheres of life, new research and development has given us different ways of looking at complex issues: giving us new ideas, tools and operating systems to deal with their complexity. In areas such as business, economics, computational studies and social networks, we can see how multiple agents, working collectively within a framework of simple rules, can bring about phenomenal change. This is now a science that is being taken seriously with some of the most influential thinkers leading the way" (Massive Small, 2014).

> *"Solutions in society will not come from the left or the right or the north or the south. They will come from people with integrity who want to do something right."*
>
> *Karl Henrik Robert, The Natural Step*



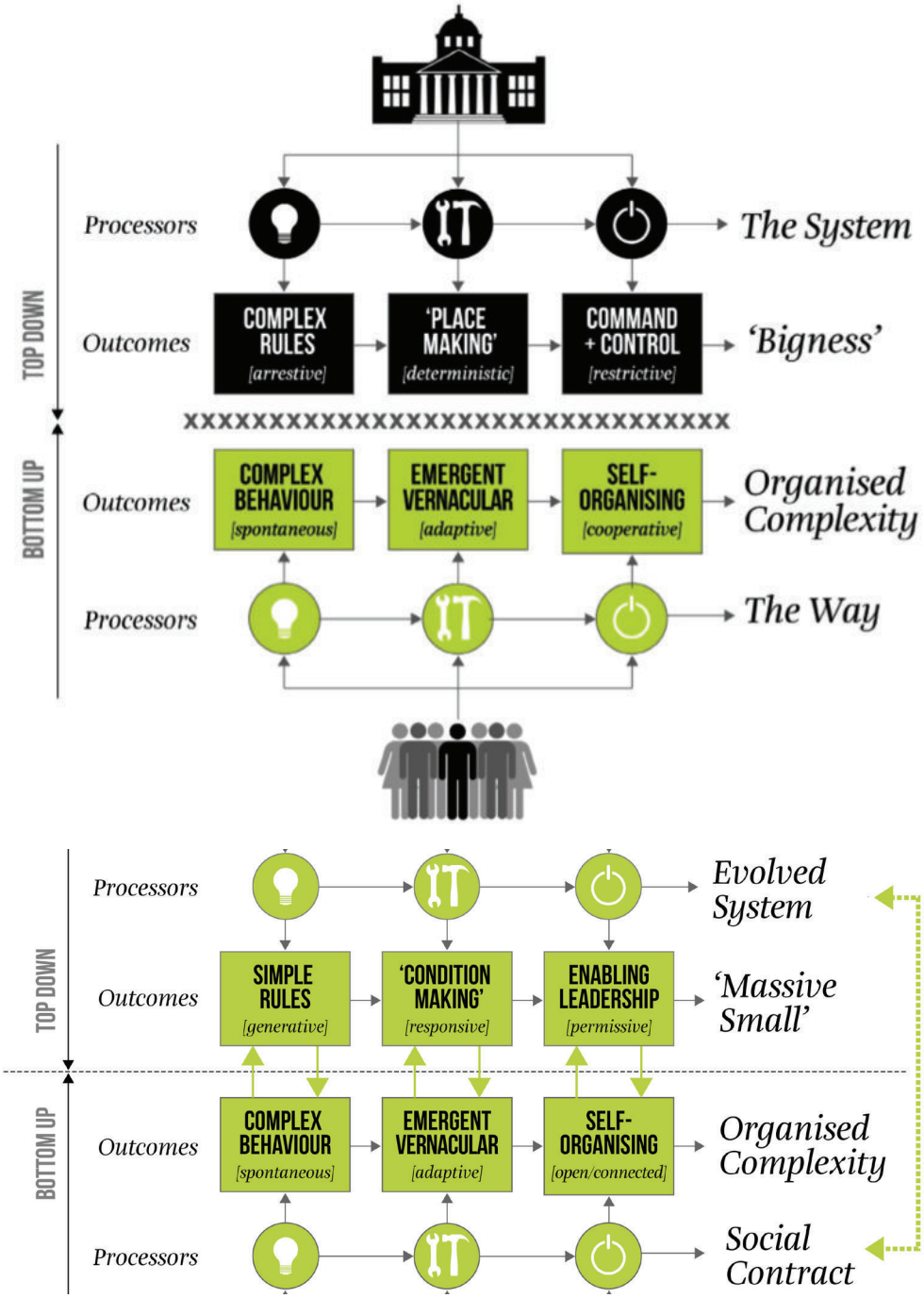


Figure 57. The Massive Small