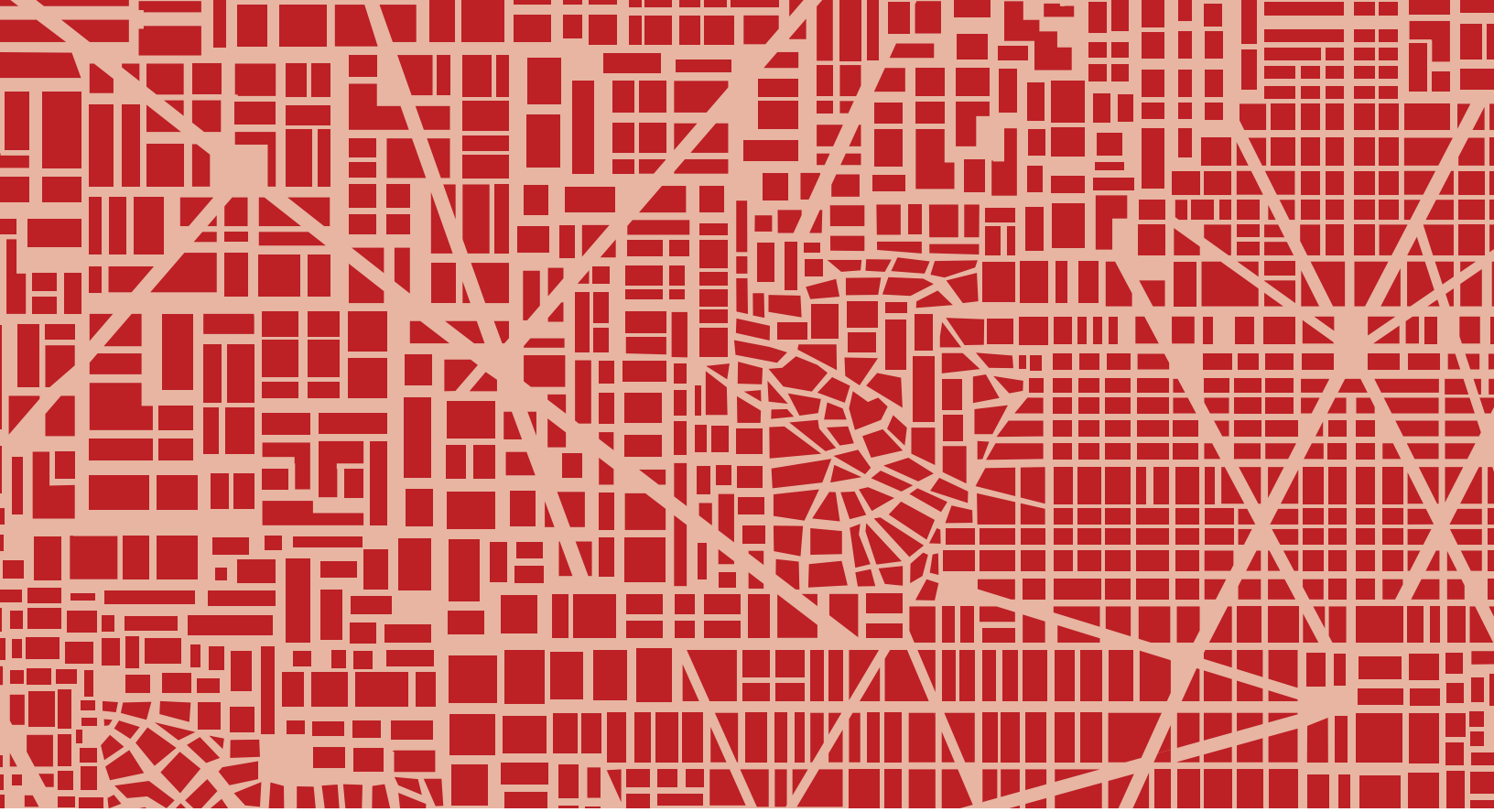


DEVELOPMENT CONTRIBUTIONS CITY OF JOHANNESBURG "DIEPSLOOT NODE"

- CASE STUDY

URBAN REGENERATION KSB

WORLD BANK GROUP
Urban, Disaster Risk Management, Resilience & Land

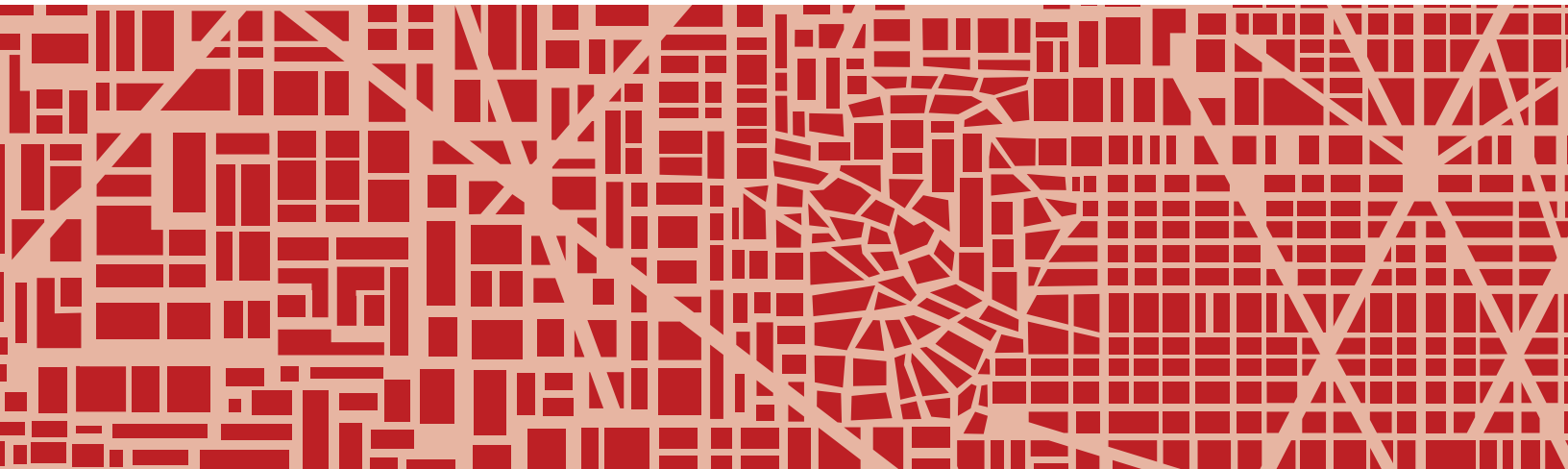


TABLE OF CONTENTS

Introduction 4

Definition of Development Contributions 5

The rationale for using Development Contributions in South Africa 6

Preconditions for the use of Development Contributions 7

- Legal, policy and administration 7
- Adequate market demand 8

The calculation of Development Contributions 8

- Calculation of the capital unit cost 9
- Calculation of unit of impact 10

Key legal and policy considerations 10

- Appropriate application of DCs 10
- Threasholds and Exemptions 10
- The applications of Development Contribution to all suppliers of infrastructure 11
- Components of urban infrastructure that should be paid for through Development Contributions 11
- Where Development Contributions should be spent 11
- Provision of infraestructure in lieu of DC payment 12
- Reimbursement for excess capacity 12

History of Development Contributions in South Africa 13

The application of Development Contributions in the Diepsloot Node 14

Lessons learnerd 15

References 17

1 INTRODUCTION

The “Diepsloot Node” is a mixed-income, predominantly residential area located between the City of Johannesburg and the suburbs of Midrand and Centurion (in the City of Tshwane) to the north. The Diepsloot Node is bounded to the south by an upmarket, gated development known as Dainfern and the low-income suburb of Diepsloot to the north.

MAP 1
Diepsloot Node

Prior to 1990, the area was mainly rural with very low levels of infrastructure. However, the northern expansion of Johannesburg and the development of Dainfern and Diepsloot in the 1990s stimulated market demand to develop the remaining land in between for urban use. Around this time, three large property developers proposed to construct over 30 000 residential units across three sites in the area, ranging from affordable, government subsidised housing to up-market housing estates.

However, these three developments were constrained by the lack of bulk infrastructure (including roads, water, sewerage and electricity) and a lack of funds to install this infrastructure. Development contributions, a form of land-based financing, were used by the City of Johannesburg to address this challenge and resulted in the infrastructure being installed and the developments being built. This case-study examines how these charges were applied and the issues related to their use.

2 DEFINITION OF DEVELOPMENT CONTRIBUTIONS

Development Contributions (also known in some countries as Impact Fees) are a one-time payment by a landowner to a municipality to recover either the estimated or actual costs of external infrastructure required to service the development. Development Contributions (DCs) are calculated on a pro-rata basis, in terms of how much of the external infrastructure[1] a new greenfield or brownfield development uses. In South Africa, DCs are triggered by a development application that results in the intensification of the use of land and the additional need for bulk infrastructure.

Ideally, the policy and regulatory framework guiding application of DCs should be:

- **Administratively simple and practical to implement.**
- **Allows the municipality to levy and recover fees, charges or tariffs.**
- **Allows a municipality to enter into an agreement with a developer to install the necessary infrastructure in lieu of paying DCs. Clearly defines the different components of the infrastructure system and clearly outlines who is responsible for the provision thereof.**

1. External or "Bulk" infrastructure refers to infrastructure outside of a development such as a water treatment plant.

3 THE RATIONALE FOR USING DEVELOPMENT CONTRIBUTIONS IN SOUTH AFRICA OUTCOME

Urban infrastructure in South Africa is predominantly funded through public financial resources such as national grants, surpluses on municipal operating budgets (capital reserves) and municipal borrowings. However, the ability of national government to fund municipal infrastructure through national transfers has been constrained by declining national revenue collection because of low economic growth, declining commodity prices and lower tax collection. Faced with intensifying and competing demands, municipalities are also frequently unable to fund local infrastructure adequately. Consequently, the use of locally based financing instruments such as DCs has increased over the years.

An additional motivation for the use of DCs is that the incidence of the cost is more accurately and equitably assigned to those developments that directly benefit from the infrastructure, rather than being spread amongst all taxpayers. Furthermore, in South Africa, over the past ten years, increasing municipal operating expenses and the fact that most municipalities have reached their borrowing limits has reduced the ability of local authorities to fund infrastructure from existing capital reserves or by issuing bonds. In this context, municipalities have been motivated to find ways to access external, private sector capital to ensure the provision of infrastructure to support economic growth.

4 PRECONDITIONS FOR THE USE OF DEVELOPMENT CONTRIBUTIONS

Legal, policy and administrative preconditions

The cost of the Porto Maravilha for the 15 years of the project was estimated in 2011 at around 7.6 billion Brazilian reais for the urban infrastructure renovation (the PPP contract) and about 400 million reais for the historical heritage recovery, social development, and administration (CDURP and other operational costs) totaling to 8 billion reais, or about US$2.8 billion at that time.

Development Contributions require a legislative and policy framework that:

- Allows a municipality to impose conditions on land-use application approvals.
- Allows the municipality to levy and recover fees, charges or tariffs.
- Allows a municipality to enter into an agreement with a developer to install the necessary infrastructure in lieu of paying DCs.
- Clearly defines the different components of the infrastructure system and clearly outlines who is responsible for the provision thereof.
- Establishes a clear and consistent method of calculating the DCs.
- Clearly states how the DCs received will be used to finance infrastructure.

In addition, administrative capabilities and capacities need to be in place that ensure:

- An understanding of current infrastructure capacity through, for example, a municipal infrastructure master plan.
- The development of a methodology to determine the number of units of infrastructure a development will utilise.
- That the municipality and developer know the current cost of the infrastructure
- The state can implement the required infrastructure upfront
- The state is able to enter into service level agreements where a developer can install the infrastructure in lieu of DC payments.

Adequate market demand

DCs create an additional cost to developments, and as such a municipality's application of DCs will only work if sufficient market demand exists for the proposed development and the development remains viable even with the imposed DCs.

The extent of the market demand needed to cover the costs of infrastructure will vary depending on how the infrastructure is funded:

Where the municipality can fund the infrastructure upfront with existing capital reserves and recoup costs over time through DCs, this demand can be smaller and more incremental in nature.

However, if the state finances the upfront infrastructure using borrowings that need to be repaid with DCs within a specific period, then larger, more immediate land and larger scale demand is required to ensure the adequate and timely collection of the DCs required to repay the loans.

Similarly, if the infrastructure is installed by a developer in lieu of DC payments, then the demand needs to be larger and more immediate. This is because any development will need to be of a sufficient scale to cover the high capital costs usually associated with infrastructure provision.

The calculation of DCs, and the timing of their payment are therefore critical, as they could undermine viable developments if they are too expensive.

5 THE CALCULATION OF DEVELOPMENT CONTRIBUTIONS

Generally, municipalities use their capital budgets to develop infrastructure based on an infrastructure master plan and then recoup these costs through pro rata DC payments from developers over time as the surrounding sites are developed.

To determine the pro-rata costs, one needs to be able to determine the number of units of the different types of infrastructure that a development will use (demand rates) and the cost of each unit. Once these are known, the pro-rata costs can be calculated by multiplying the number of units of infrastructure a development would use by the unit cost of the infrastructure.

In South Africa, DC calculations are based on a simple formula, which multiplies a standard 'unit of impact' of a specific land use with a capital unit cost to produce an amount per service, which are summed together to obtain a final DC amount to be paid to a municipality by a developer. This can be expressed by the following formula:

DEVELOPMENT CHARGE $= \sum_{i=1}^{N} (Wi \times Mi)$

Where:

W = unit capital cost per unit of impact for the municipal infrastructure service

M = unit of impact for the municipal infrastructure service

N = number of municipal infrastructure services being considered

Calculation of the capital unit cost

Table 1 below outlines the different ways of calculating the capital unit cost.

	METHODOLOGY	Advantages	Percentage
1	The total cost of the new infrastructure required is calculated and then divided by the number of consuming units e.G. Land plots.	Actual costs Are calculated.	Difficulties in determining what bulk infrastructure is specific to the development as some infrastructure networks will extend beyond the "catchment" of the development.
2	An infrastructure master plan is developed for a municipality based on existing uses and projected growth of uses. The plan reflects existing infrastructure and the required infrastructure to accommodate the growth. The infrastructure costs required to accommodate the growth is calculated and divided by the number of projected consuming units.	Actual costs are calculated. The "catchment" difficulties stated in option 1 are overcome.	Municipalities must have the expertise and capacity to develop infrastructure master plans. Existing capacity in the system available to accommodate growth may not be accounted for.
3	The replacement cost of the existing infrastructure is calculated and then this unit rate is applied to any additional infrastructure required to accommodate new development.	Future costs do not have to be calculated. The "catchment" difficulties stated in option 1 are overcome.	It is assumed that future infrastructure costs will be similar to the replacement costs of the existing infrastructure. Infrastructure costs are location specific and therefore an average unit cost may not be accurate in specific cases.
4	Infrastructure required for a particular development based on industry norms is determined and then current industry-defined unit costs are used to calculate the total infrastructure cost	Current unit costs can be applied.	Infrastructure costs are location specific and therefore an average unit cost may not be accurate in specific cases. Difficulties in determining what bulk infrastructure is specific to the development as some infrastructure networks will extend beyond the "catchment" of the development. Industry-defined unit costs need to be accurate and up to date.

TABLE 1
Capital Unit Cost Calculation Methodologies

Weighing up the advantages and disadvantages of the different methodologies in Table 1, option 2 is the best method because the actual location-specific costs and the total network costs are considered. However, this methodology is dependent on the municipality having the ability to undertake an infrastructure master planning exercise.

Calculation of unit of impact

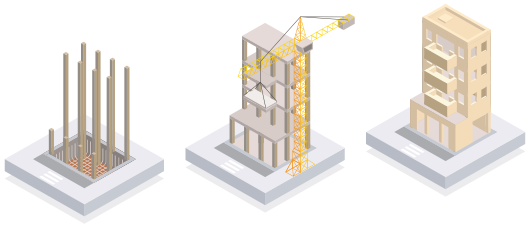
In South Africa, municipalities usually calculate the unit of impact by analysing historical demands and impacts. For example, reviewing how much infrastructure capacity has historically been used by a certain number of residential units. However, the utilization of infrastructure capacity is more than a function of the scale of a development. It is also a function of the type of user. For example, higher income residents generally consume more services than lower income residents and will therefore have a higher impact. However, this is difficult to factor into the calculation as the type of user is not reflected in development applications.

6 KEY LEGAL AND POLICY CONSIDERATIONS

The following issues need to be considered when DC policies are designed:

Appropriate application of DCs

Theoretically, any change in land use that results in greater infrastructure use should attract a DC. In the cases where a land-use change does not require additional infrastructure capacity, no DC will be paid by the developer.



Thresholds and Exemptions

An impact threshold needs to be identified to determine when a new land use exceeds the infrastructure impact of existing uses. For example, a land-use change from residential to small home-based business may not result in increased demand for infrastructure capacity.

However, in South Africa, even where there is an additional impact, a municipality may choose to exempt a development paying DC when such a development results in broader socio-economic objectives being met.

The application of Development Contributions to all suppliers of infrastructure

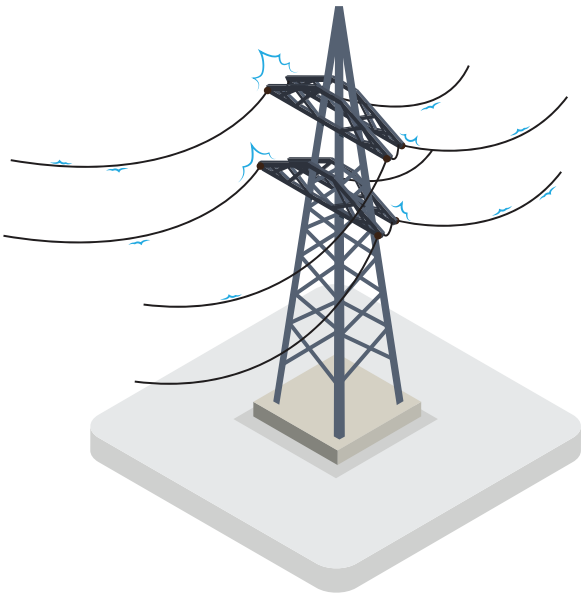
In South Africa, some types of infrastructure (e.g. electricity and higher-order roads) are provided for by other state entities such as national state-owned enterprises (SOEs) or regional authorities that are not governed by local legislation.

This can give rise to several problems: These entities may not have the legal right to impose DCs. Developers may not be able to off-set the DCs paid in lieu of installing this infrastructure themselves.

As a result, consideration should be given to extending the legislation and related polices to such entities or for inter-governmental agreements to be entered into to allow for the use of DCs across all infrastructure types and suppliers thereof.

Components of urban infrastructure that should be paid for through Development Contributions

An infrastructure system consists of external (bulk), connector (link) and internal infrastructure. Typically, in South Africa, a municipality is responsible for the provision of external infrastructure (e.g., electric substations and wastewater treatment plants) and a site developer would be responsible for provision of on-site 'internal' infrastructure (e.g., roads through a new residential community). However, it is often less clear who is responsible for the infrastructure that links the bulk and internal infrastructure. This problem can be overcome if infrastructure is treated as an internal engineering service to the extent that it only serves the land development area and as an external engineering service to the extent that it also serves other developments. Whilst not the case in South Africa, other countries that apply DCs have used this tool to fund public facilities such as schools and public transport.



Where Development Contributions should be spent

Developers in South Africa argue that DCs should be used in the area of the development. Theoretically this is correct, but this is often difficult to achieve due to the integrated nature of infrastructure networks. For example, a waste-water treatment plant that a development connects to may be located in another part of a city. In addition, municipalities argue that where surplus capacity has been provided in the past, DCs should be able to be used to offset the historic investment and be used elsewhere.

Provision of infrastructure in lieu of DC payment

The discussions above have been premised on the assumption that municipalities have the necessary capital budgets to fund the required infrastructure and to recoup the costs over time through the application of DCs. However, in many cases this is not the case either because of general funding constraints or because a proposed development was not anticipated in the broader planning process. In these cases, it may make sense for the developer to install the necessary infrastructure and off-set these costs against the DCs that would have been paid if the state had installed the infrastructure. This scenario is common in South Africa and is outlined further in the Diepsloot Node case discussed below.

Reimbursement for excess capacity

In the case where the developer installs the infrastructure in lieu of paying DCs, the developer may have to install bulk infrastructure capacity in excess of that required for the specific project. This may be because the municipality requires it in terms of its master planning requirements or because of the technical nature of the infrastructure (e.g., an electric substation).

Reimbursements for excess capacity can be dealt with in one of the following ways

The developer bears this additional cost without which the development would not be approved. However, in some cases this may seriously impact on the viability of the development.

The developer may offset the over-investment in one service against the cost of the DC for another service.

The municipality may reimburse the developer for the excess capacity. This reimbursement may occur upfront or over a specific period of time, often linked to the use of development rights and DCs paid by other developers in the future.

7 HISTORY OF DEVELOPMENT CONTRIBUTIONS IN SOUTH AFRICA

The use of DCs in South Africa can be traced back to the 1930s. However, municipalities in SA have applied DCs inconsistently and have often not followed the guiding principles described above. This dynamic has resulted in both a severe under-collection of funds by municipalities and resistance and frustration by the real estate developer community. Whilst the national Spatial Planning and Land-use Management Act (2013) makes specific provision for the use of DCs by local authorities, it does not specify how the DCs should be calculated and it contains several definitions that are inconsistent with other relevant legislation. As a result, in 2017, the South Africa National Treasury initiated several legislative changes and prepared draft guidelines for the standardization, development and implementation of such charges at a local level.

Although these legislative and policy amendments are still being finalised, several municipalities, such as the City of Johannesburg, have begun implementing DCs policies that attempt to be in line with these pending legal changes and guidelines.

A review of the Diepsloot case shows how DCs have been used in this fluid legislative environment to successfully fund infrastructure development that benefits a wider geographic area. This case review also highlights implementation challenges and how these were, or could be, overcome.

8 THE APPLICATION OF DEVELOPMENT CONTRIBUTIONS IN THE DIEPSLOOT NODE

Although there was market demand for a range of commercial and residential uses in the Diepsloot Node, the lack of bulk infrastructure constrained developers from building projects that could meet this demand. Furthermore, attainment of required land use and development approvals from local government authorities was preconditioned upon these infrastructure constraints being addressed. This problem was exacerbated by the fact that the various local government authorities had insufficient capital budgets to build the necessary infrastructure upfront, even if the costs could be recouped through payment by developers of DCs over time.

Specifically, several types of bulk infrastructure needed to be installed to make the developments possible. Firstly, the R511 provincial road had to be expanded. This was funded through a partnership arrangement involving the provincial road authority and two of the developments in a two thirds/ one third ratio. However, as DCs do not apply to provincial infrastructure, the two developments could not off-set their contribution towards this infrastructure against any DCs that they were required to pay the local authority to get the necessary rights to develop the sites.

Similarly, each of the three developments had to fund and build electrical sub-stations on their respective sites. As the electrical supply authority was a national state-owned enterprise – Eskom, they similarly could not offset these costs against any DCs demanded by the local authorities.

Other key pieces of urban infrastructure necessary to unlock the developments included a water reservoir, a sewer pump station and the upgrade of several municipal roads.

The water reservoir was funded by a combination of two of the developments, but both developments were able to off-set these costs against the DCs required by the municipality for this bulk infrastructure type. The sewer pump station was funded by a different combination of two of the developments and similarly were able to off-set these costs against the required municipal DCs. It appears that all three developments recognised the need to share the burden of collectively providing this key infrastructure upfront.

In addition, the different developments had to build and upgrade several municipal roads. Although they were able to off-set these against the DCs owed to the municipality, they could not off-set the total cost incurred. One of the developers argued that this was because the capital unit cost (as discussed in 5.1 above) was incorrectly calculated by the municipality such that the actual cost was 2 – 3 times higher than what was charged in terms of the DCs. Hence, by building the infrastructure upfront in lieu of DCs, the developers incurred higher costs that had to be borne by the development.

The calculation of the capital unit cost raises some debate. In the City of Johannesburg, the actual cost of the infrastructure provided by the developer is used in determining the amount that can be off set against the DCs (as per option 1 in Table 1) . Whilst this can be more accurate, it can be administratively cumbersome and can result in protracted negotiations, the outcomes of which can be difficult to predict and hence to factor into the viability study of the development.

Other municipalities, such as the Municipality of Tshwane, apply a standard unit cost rate (as per option 4 in Table 1) regardless of the actual costs, which may differ substantially depending on the local conditions. For example, the costs to develop a road may be lower if the required material is nearby, but equally may be higher if a bridge needs to be constructed due to the topography. However, it was felt that over time it balances out – "you win on one project and lose on another" as one developer said. Furthermore, this approach was seen by the developers to be simpler, quicker and more predictable.

In addition, the upfront development of the bulk infrastructure by the developers raised the issue discussed in 6.7 above. In some instances, the bulk infrastructure had to be delivered at a scale that was greater than what was needed by the developments (for example, an electrical sub-station comes in standard sizes and hence additional capacity beyond the requirements of the developments was provided). This raised two problems:

Firstly, the cost of this additional capacity was high, putting pressure on the developments to bear these costs upfront. Secondly, a mechanism needed to be put in place for the developers to recoup the cost of the excess capacity over time. In this case the City of Johannesburg did not have a mechanism in place for this to happen and therefore an additional burden was placed on the developments.

A possible solution may have been to apply the City of Tshwane policy, which allows the cost of any excess capacity provided by the developer to be recouped through the future DCs paid by subsequent developments that utilise this capacity. In this case, the developer providing the excess capacity would enter into a service level agreement, whereby the municipality would pay the developer the DCs paid to it by the subsequent developers.

This agreement would usually be limited to a time period of 5 – 10 years and therefore the initial developers would run the risk that no subsequent development takes place. Notwithstanding this, this approach was seen by the developers to be more equitable and viable.

Though complicated to execute, the funding of key bulk water, sewer and road infrastructure using DCs enabled commercial centres and over 30 000 houses, of which 4500 were affordable, to be developed in the area.

9 LESSONS LEARNED

The Diepsloot case represents an example of when a developer installs infrastructure in lieu of payment of DCs and reveals several lessons:

MARKET DEMAND

This approach to funding infrastructure was successful because the key pre-conditions discussed in 4.2, namely sufficient market demand and development scale, were in place. Significant capital-intensive infrastructure needed to be installed upfront by the different developers. This was only possible because the developments were of a large scale, consisting of 30 000 residential units and other commercial uses and there was market demand for the developments of this nature.

NOT ALL INFRASTRUCTURE TYPES COULD BE FUNDED USING DCS

Some elements of the infrastructure (E.g. regional roads and electricity) were not the responsibility of the municipality and therefore were not included in the existing DC policies. This meant that this infrastructure had to be funded through a combination of grant funding and the developers themselves, without there being a mechanism by the state to recoup these funds and the developers to off-set these payments against DCs. This highlights the need for DC policies to include all forms of infrastructure and the suppliers thereof.

DEVELOPMENT CONTRIBUTION CALCULATION

In some cases, the unit cost of the infrastructure was incorrectly calculated and therefore the offset of the payment of the DC was insufficient to cover the cost of the infrastructure and the developers had to absorb these higher costs. This is contrary to the principle that DCs should be "equitable and fair".

EXCESS CAPACITY

In some cases, the design standards and capacity of the infrastructure installed by the developers exceeded what was required for their developments. Unfortunately, the municipality did not have a policy and methodology to reimburse the developers when other developers utilised this excess capacity for subsequent developments. This is clearly not "equitable and fair" and placed a significant burden on the developments. The fact that these developments were able to absorb these additional costs further highlights the precondition that this approach is only likely to be successful when developments are of a significant scale in areas with high market demand.

Many South African municipalities are unable to fund infrastructure development upfront even if they can recoup the costs through DCs and therefore the approach used in the Diepsloot Node case presents a useful alternative approach. However, the case also highlights improvements that could be made to the administration and implementation of DCs:

> DCs could be applied to a broader range of infrastructure types and suppliers thereof – for example electricity infrastructure or provincial roads.
>
> The unit costs of infrastructure, and the creation of excess infrastructure capacity could be more accurately calculated and accounted for.
>
> A method to reimburse developers for excess capacity created through their infrastructure provision could be implemented.

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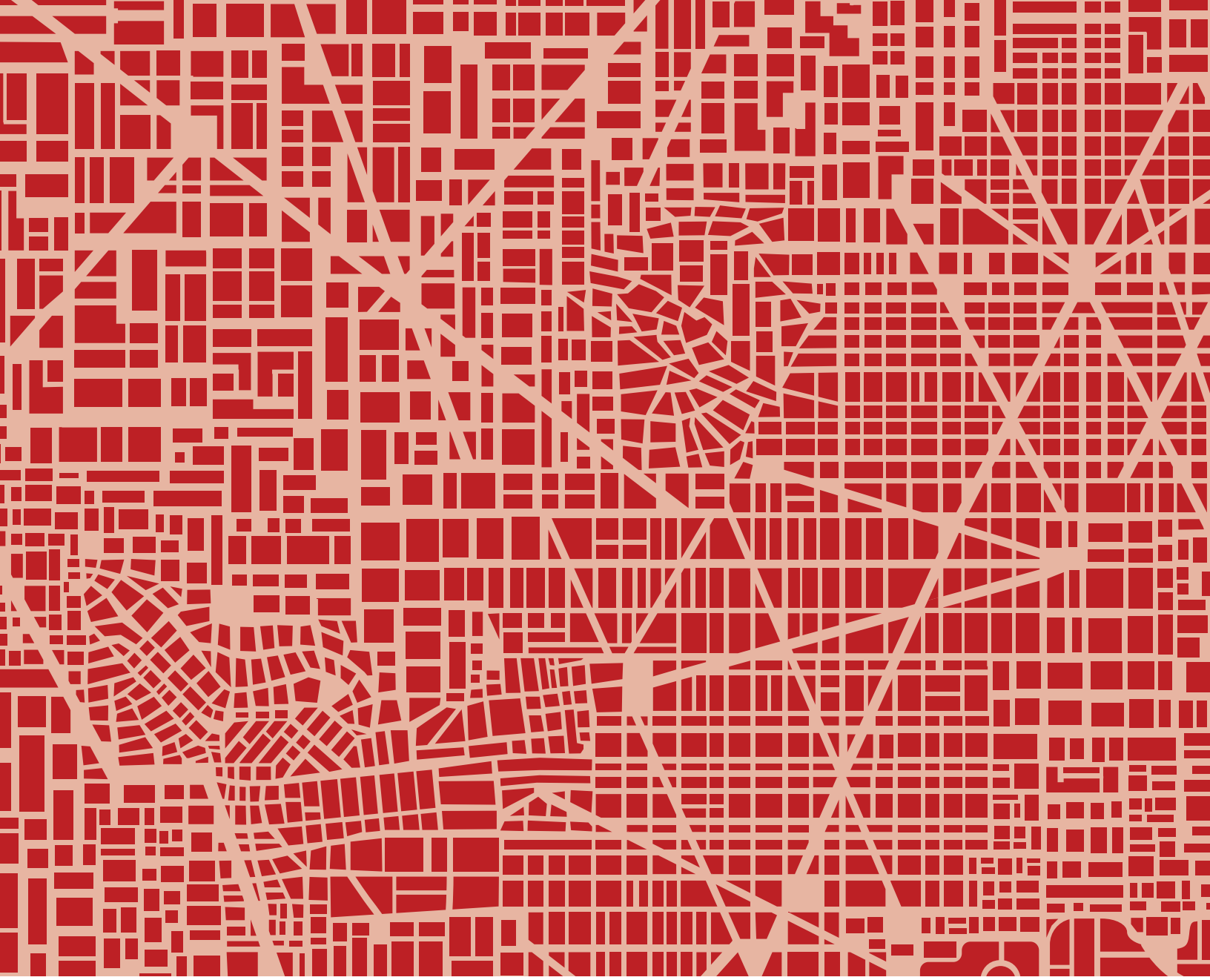

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