

Fire Safety Indaba - Cape Town

CURRENT ORGANIZATIONAL APPROACHES TO FIRE SAFETY IN SA

23 – 25 Oct 2013

S du Rand (Executive Manager: Proactive Services DEMS, Ekurhuleni)



Ekurhuleni
METROPOLITAN MUNICIPALITY

PRESENTATION OUTLINE

- **Introduction: Current organizational approaches to Fire Safety.**
- **Overview of legislative requirements**
- **Comparative study (EMM/JHB/TSHWANE)**
- **Key areas of non-compliance identified**
- **Standardization of Fire Safety practices and procedures**
- **MHI's**
- **Risk response**
- **PIER**
- **Gaps identified in current practices**
- **Comments**
- **Conclusion**
- **Recommendation**

TYPICAL CORE FUNCTIONS OF THE FIRE SERVICES TODAY

- Fire Fighting
- Rescue Services
- Hazardous Materials
- Fire Prevention and Safety
- Emergency planning
- Fire and Life Safety Education
- Auxiliary Services (*logistics, support services, HR e.g.*)
- Operation of Training Academy
- Emergency Medical Services (*where applicable*)

LEGISLATIVE MANDATE FOR FIRE SERVICES

- ❑ Constitutional Act, Act 108 of 1996 as amended
- ❑ Fire Services Brigade Act, Act 99 of 1989 as amended
- ❑ Local Government Municipal System Act, Act 32 of 2000
- ❑ National Veld and Forest Fire Act, Act 101 of 1998
- ❑ Gauteng Ambulances Services Act, Act 6 of 2002
- ❑ Health Act, Act 61 of 2003
- ❑ Medical, Dental and Supplementary Health Services Act, Act 56 of 1974
- ❑ National Environmental Management Act, Act 56 of 2002
- ❑ Occupational Health and Safety Act, Act 85 of 1993 as amended
- ❑ National Building Regulations Act, Act 103 of 1997
- ❑ Major Hazardous Installations Regulation Act
- ❑ EMM By-Law and Regulations (Emergency Services)

FIRE BRIGADE SERVICES ACT, Act 99 of 1987

PURPOSE OF THE ACT

- To provide for the establishment, maintenance, employment, co-ordination and standardization of fire brigade services; and for matters connected therewith

FIRE BRIGADE SERVICES ACT, Act 99 of 1987, REFERENCE TO FIRE SAFETY

- 15(1) Regulation: The Minister may, after consultation with the Board, make regulations which are not contrary to this Act or any other law:-
 - **(d) regarding the safety requirements to be complied with on premises in order to reduce the risk of a fire or other danger, or to facilitate the evacuation of the premises in the event of such danger;**
 - **(e) regarding the use, manufacture, storage or transportation of explosives, fireworks, petroleum or any other flammable or combustible substance, gas or any other dangerous substance;**
- 18(1) Enforcement of provisions.—(1) A chief fire officer may at any reasonable time enter any premises in the area of the controlling authority concerned in order to determine whether the provisions contemplated in sections 15 (1) (a), (d), (e) and (g) and 16 are being complied with ,



FIRE BRIGADE SERVICES ACT, Act 99 of 1987, REFERENCE TO FIRE SAFETY

- 18(2) If the chief fire officer finds that such provisions are not being complied with, he may issue to the owner of those premises, or his authorized agent, a written instruction to comply with the provisions in question within the period mentioned therein.
- 18(3) If an instruction contemplated in subsection (2) is not carried out within the period mentioned therein, the controlling authority concerned may cause the necessary steps to be taken in order to comply with the provisions in question on behalf of the owner concerned and to recover the costs in connection therewith from the owner.
- 18(4) For the purposes of this section “owner” means the registered owner of the premises or in relation to a sectional title scheme, the body corporate established in terms of the Sectional Titles Act, 1986 (Act No. 95 of 1986).

SANS 10090: 2003

REFERENCE TO FIRE SAFETY

- This standard outlines a system of determining the requirements for the operational and fire safety functions of emergency services rendered to communities
- Ekurhuleni Emergency Services for example has adopted the SANS 10090 as the official document to be used via a Council Resolution
- Fire prevention is an important feature of the fire service and it has been proved that in brigades where this division of the service is efficiently organized fire losses have been reduced by more than 20 %
- The purpose of fire prevention measures is to prevent, eliminate, or reduce hazards that contribute to the occurrence and spread of fire

SANS 10090: 2003

REFERENCE TO FIRE SAFETY

- Authorities should conduct fire safety inspections in response to:
 - complaints or requests or both to assist owners, occupiers, and developers
 - satisfy local requirements for scheduled routine inspection of all occupancies other than dwellings as given in by-laws or other applicable legislation
- Departments should regulate the storage, transportation, processing sale and handling of flammable liquids and gases and other dangerous goods that could lead to the existence of dangerous conditions that could affect life safety or property loss, or both
- A suitable system should be in place for the evaluation of building proposals and plans to ensure compliance with the relevant parts of T1 and T2 of SANS 10400 or rational designs

SANS 10090: 2003

REFERENCE TO FIRE SAFETY

- Fire safety officials should ensure suitable inspections are carried out during construction and prior to occupation to ensure compliance
- A formal pre-fire plan should be available for key special risks and other premises as deemed necessary by brigade management. Accurate records should be kept of the latest revisions and details of emergency exercises involving the brigade
- Risk visits to all special risk areas and other specific industrial or commercial risk areas scheduled by brigades should be conducted by operational staff for familiarisation purposes with regard to the layout of the premises, processes or contents and fire protection features
- Risk visits should be a planned function with accurate records of visits conducted and staff involved

SHORTCOMINGS FROM ACT & SANS 10090 TOWARDS FIRE SAFETY

- No fire safety regulations have been passed since implementation of the Act
- No regulations passed regarding the use, storage, manufacturing & transportation of Dangerous Goods in terms of the Act
- Implementation of SANS 1157:2013 as a regulation is an example where time has failed the service



SHORTCOMINGS FROM ACT & SANS 10090 TOWARDS FIRE SAFETY

- Lack of adequate staff compliment have the result that more complaints and requests are addressed in relation to a schedule for routine inspections
- Guidelines are provided for amount of operational staff members, but not for fire safety related activities

MOTIVATION FOR ADDITIONAL FIRE SAFETY POSITIONS

- Positions required were based upon the various Customer Care Areas and relevant risks in that specific area.
- Time it takes to inspect a premises.
- Re-inspection and new developments.
- Average inspections takes up to 2 hours and bigger sites like the OR TAMBO International Airport takes up to weeks.
- Increased development due to GDS initiatives e.g. Aerotropolis

NATIONAL OUTCOMES FOR FIRE SAFETY

- **STRATEGIC INFORMATION**

- Good Governance
- Increased implementation of pre-disaster risk and emergency reduction measures to prevent and mitigate consequences of disasters and emergencies
- GDS 2055.
- Provision of Fire Services and the maintenance thereof.
- Government need the partnership of local authorities in order to enhance sustainable partnerships.
- Business, industry and non-governmental NGO's and academic institutions must support fire services
- Must promote the expansion of PIER
- Develop policies, procedures and strategies related fire risk reduction, pre-fire planning, fire investigation and research at Local Authorities.

CURRENT & PROPOSED APPROACHES TO FIRE SAFETY

- Culture of fire prevention
- Integrated development
- Equitable services
- Must be based on consultation
- Compliance with the SDBIP/IDP
- Risk based, which relates to prevailing local risks
- Fire Prevention and Fire Safety must form core component of fire services

CURRENT & PROPOSED APPROACHES TO FIRE SAFETY

- Educate public regarding fire safety and empower them to take the necessary precautions to prevent fires
- Fire safety refers to precautions to prevent fires
- The evolution of Building Regulations contribute to the reduction of fires in formal structures
- Concerted and sustainable effort to enforce compliance with relevant codes

KEY AREAS OF NON- COMPLIANCE IDENTIFIED

- Emergency preparedness e.g. Emergency evacuation plans and procedures, First aid and emergency equipment (the General Safety Regulations
- Poor house-keeping (Environmental Regulations for Workplaces)
- Non compliance to National Building Regulations
- MHI' s
- Risk assessments
- Fines/Bylaw enforcement
- Research

RISK RESPONSE

- National and Provincial Plans (Manifesto)
- EMM Priorities
- GDS 2055 focus
- Provision of basic services and maintenance thereof
- Ward Priorities
- Sustainable development.
- Development in Informal Settlement/Human Settlement

CITY OF EKURHULENI EMERGENCY SERVICES

The DEMS has four directorates:

- Disaster Management
- Operations
 - Fire, rescue, hazmat and Emergency Medical Services
- Proactive services
 - Codes (fire safety)
 - Emergency Planning (Risk Management and PIER)
- Logistics & Training
 - Fleet, equipment and building maintenance
 - Training academy



CITY OF TSHWANE EMERGENCY SERVICES

The department is headed by the Chief of Emergency Services and divided into the following divisions, each headed by an Executive Director:

- Fire Brigade Services
- Disaster Management Services
- Emergency Medical Services
- Support & Administrative Services
- ICT & 24/7 Operational Control Centre
- Specialist Task Force

CITY OF JOHANNESBURG EMERGENCY SERVICES

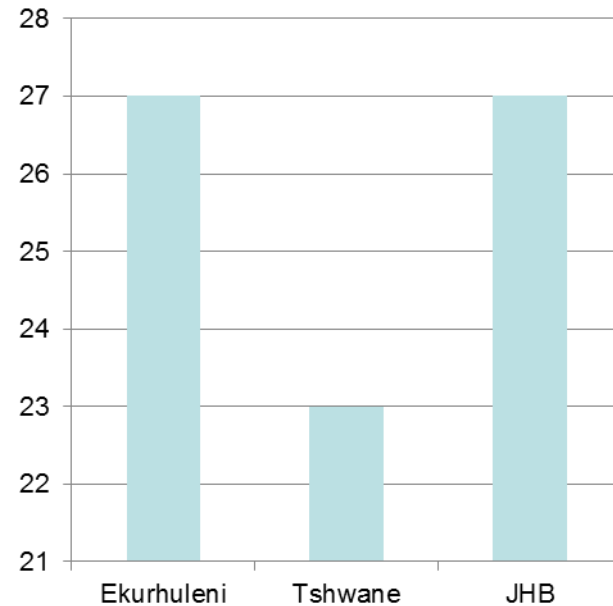
The EMS has five directorates:

- Operations
- Disaster management and PIER
- Corporate services and academy
- Management support
- Proactive services and fire safety
 - Code Application - Scrutinizes Building Plans
 - Code Enforcement - Regulates registration of Flammable liquids
 - Events - Management of events
 - Admin and R&D - Maintain records of work done, actively engage various stakeholders such as SABS, LPGSASA, GPG etc.

COMPARISON BETWEEN THE 3 METRO'S IN GAUTENG

NUMBER OF FIRE STATIONS

- **CITY OF EKURHULENI**
 - 27 Fire stations
- **CITY OF TSHWANE**
 - 23 Emergency Service stations
- **CITY OF JOHANNESBURG**
 - 27 Fire stations



COMPARISON BETWEEN THE 3 METRO'S IN GAUTENG

PRO ACTIVE SERVICES 2013 COMPARISON (includes Fire Safety, By-Law Enforcement, PIER, Emergency Planning, Risk Management and Media etc.)

| PREVIOUS RANKS | SIMILAR RANKS | Ekurhuleni (includes Fire Safety, Pier & Media) | | | | Tshwane | | | | FIRE SAFETY ONLY | | | | PIER / DISASTER ONLY | | | |
|--|---------------------------|---|------------------|------------------|------------------|--------------------|------------------|------------------|------------------|--------------------|------------------|------------------|------------------|----------------------|------------------|------------------|------------------|
| | | Approved Structure | Funded Positions | Frozen Positions | Filled Positions | Approved Structure | Funded Positions | Frozen Positions | Filled Positions | Johannesburg | | | | | | | |
| | | | | | | | | | | Approved Structure | Funded Positions | Frozen Positions | Filled Positions | Approved Structure | Funded Positions | Frozen Positions | Filled Positions |
| Chief Fire Officer | Director | 0 | 0 | 0 | 0 | 0 | | | 0 | | | | | | | | |
| Deputy Chief Fire Officer | Executive Manager | 1 | 1 | 0 | 1 | 2 | | | 1 | | | | 0 | ? | | | 1 |
| Assistant Chief Fire Officer | Regional Manager | 0 | 0 | 0 | 0 | 7 | | | 1 | | | | | ? | | | 1 |
| Senior Divisional Officer | Senior District Manager | 2 | 2 | 0 | 2 | | | | | 5 | | | 4 | ? | | | 3 |
| Divisional Officer | District Manager | 6 | 5 | 1 | 4 | 15 | | | 5 | 2 | | | 0 | | | | |
| Senior Station Officer | | 0 | 0 | 0 | 0 | | | | | | | | | | | | |
| Station Officer | Station Manager | 15 | 12 | 3 | 11 | 66 | | | 42 | 35 | | | 32 | ? | | | 6 |
| Sub Officer | | 0 | 0 | 0 | 0 | | | | | | | | | | | | |
| Leading Fireman | Shift Manager | 45 | 12 | 33 | 11 | | | | 5 | 108 | | | 21 | ? | | | 26 |
| Senior Fireman | Crew Commander | 0 | 0 | 0 | 0 | | | | | | | | | | | | |
| Fireman | Fire Fighter | 0 | 0 | 0 | 0 | | | | | | | | | | | | |
| Junior Fireman | | 0 | 0 | 0 | 0 | | | | | | | | | | | | |
| Recruit | | 0 | 0 | 0 | 0 | | | | | | | | | | | | |
| Secretary | Senior Clerical Assistant | 14 | 5 | 9 | 5 | 14 | | | 10 | 15 | | | 14 | ? | | | 14 |
| Any other positions *please explain function | | 0 | 0 | 0 | 0 | | | | | | | | | | | | |
| | | 83 | 37 | 46 | 34 | 104 | 0 | 0 | 64 | 166 | 0 | 0 | 71 | 0 | 0 | 0 | 51 |

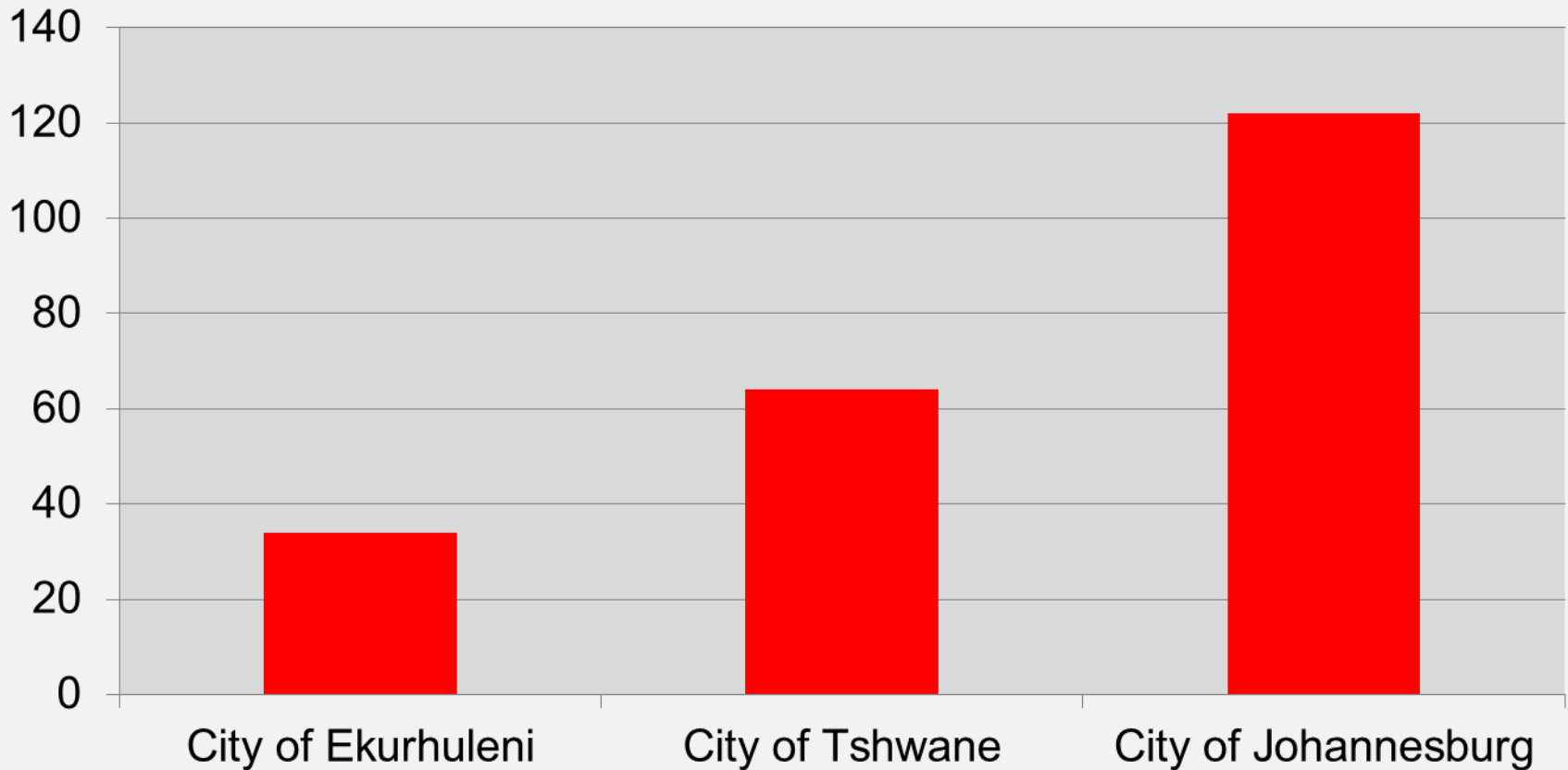
PRO ACTIVE SERVICES 2011 COMPARISON (includes Fire Safety, PIER, Emergency Planning, Risk Management and Media)

| EKURHULENI RANK | Ekurhuleni (Original Organogram) | City of Tshwane | City of Johannesburg |
|--|----------------------------------|-----------------|----------------------|
| Executive Manager: Pro-Active Services | 1 | 2 | 1 |
| Senior District Manager: Pro-Active Services | 2 | 4 | 5 |
| District Manager: Pro-Active Services | 6 | 12 | 2 |
| Station Manager: Pro-Active Services | 15 | 80 | 35 |
| Shift Manager: Pro-Active Services | 45 | 20 | 108 |
| Hydrant Offices | 0 | 8 | 0 |
| Administrative Support | 15 | 29 | 16 |
| Total Personnel Complement | 84 | 147 | 167 |



COMPARISON BETWEEN THE 3 METRO'S IN GAUTENG

"Pro Active" Positions Filled

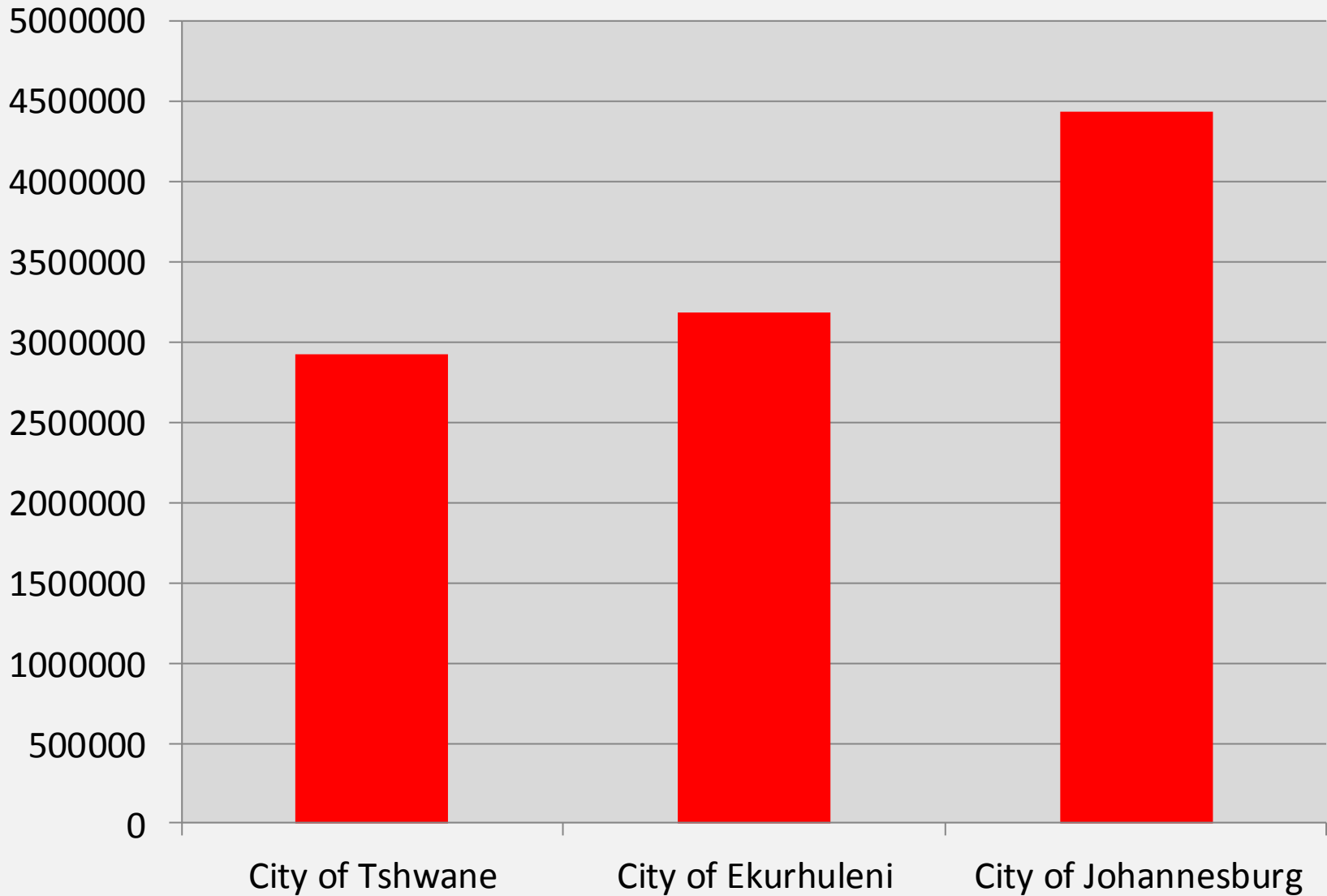


COMPARISON BETWEEN THE 3 METRO'S IN GAUTENG

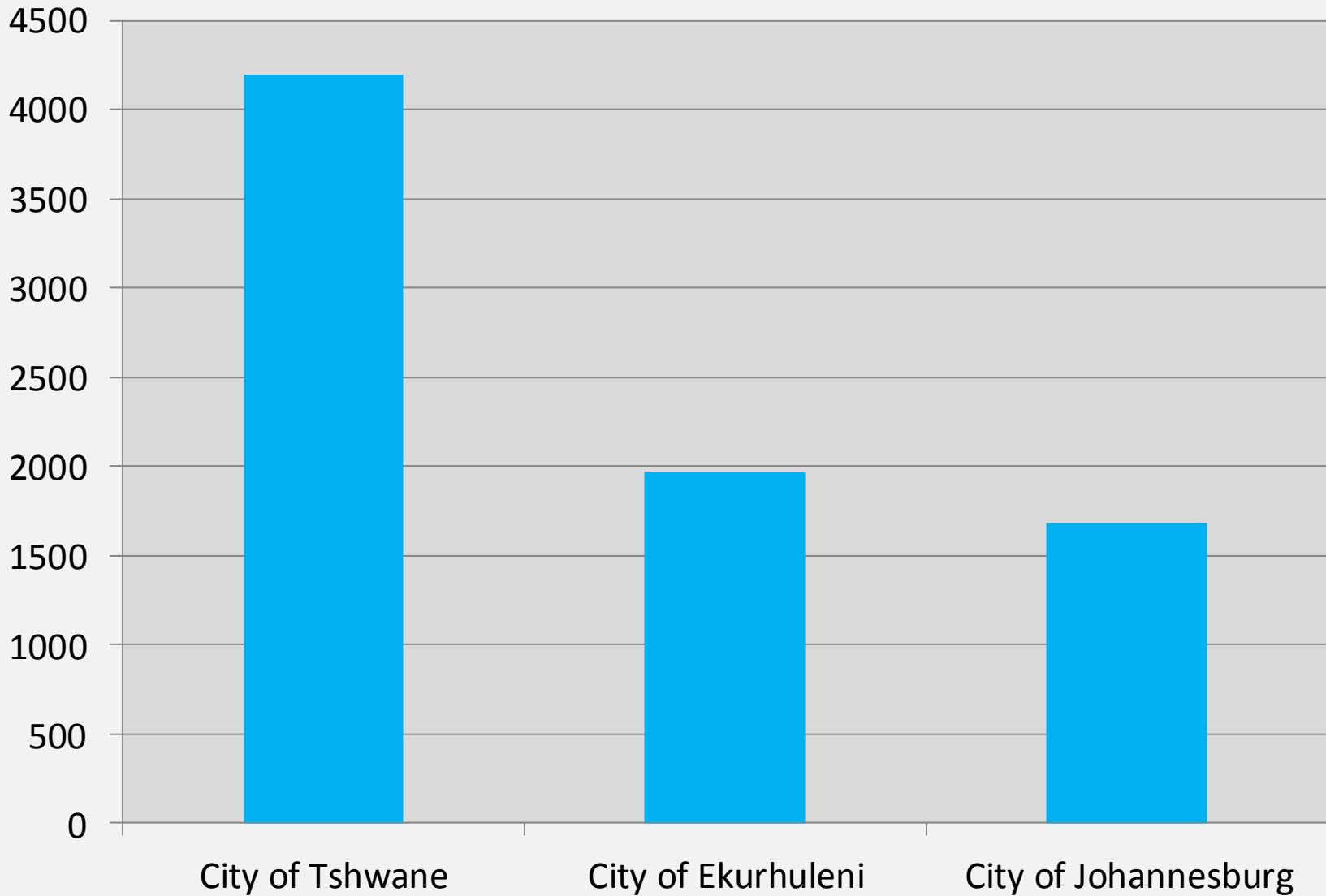
Population/Geography Area

| | Population | Geography Area | Population / Area |
|----------------------|------------|----------------|-----------------------|
| City of Tshwane | 2 921 488 | 4200 km/sq | 695 persons/km/sq |
| City of Ekurhuleni | 3 178 470 | 1976 Km/sq | 1608 persons/km/sq |
| City of Johannesburg | 4 434 827 | 1680 km/sq | 1920.13 persons/km/sq |

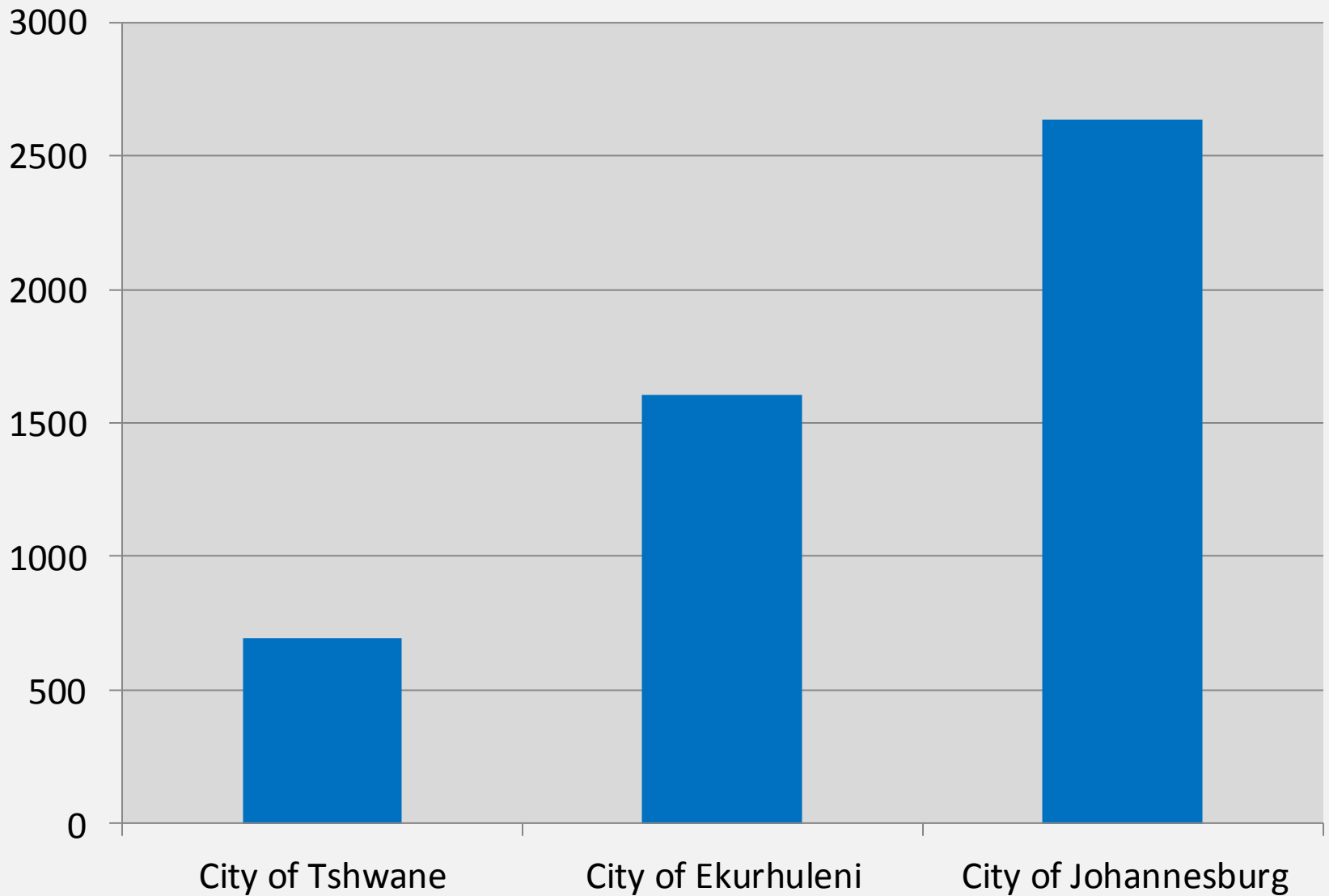
Population



Geography Area km/sq



Population/Area



Comparison between 3 Metro's in Gauteng

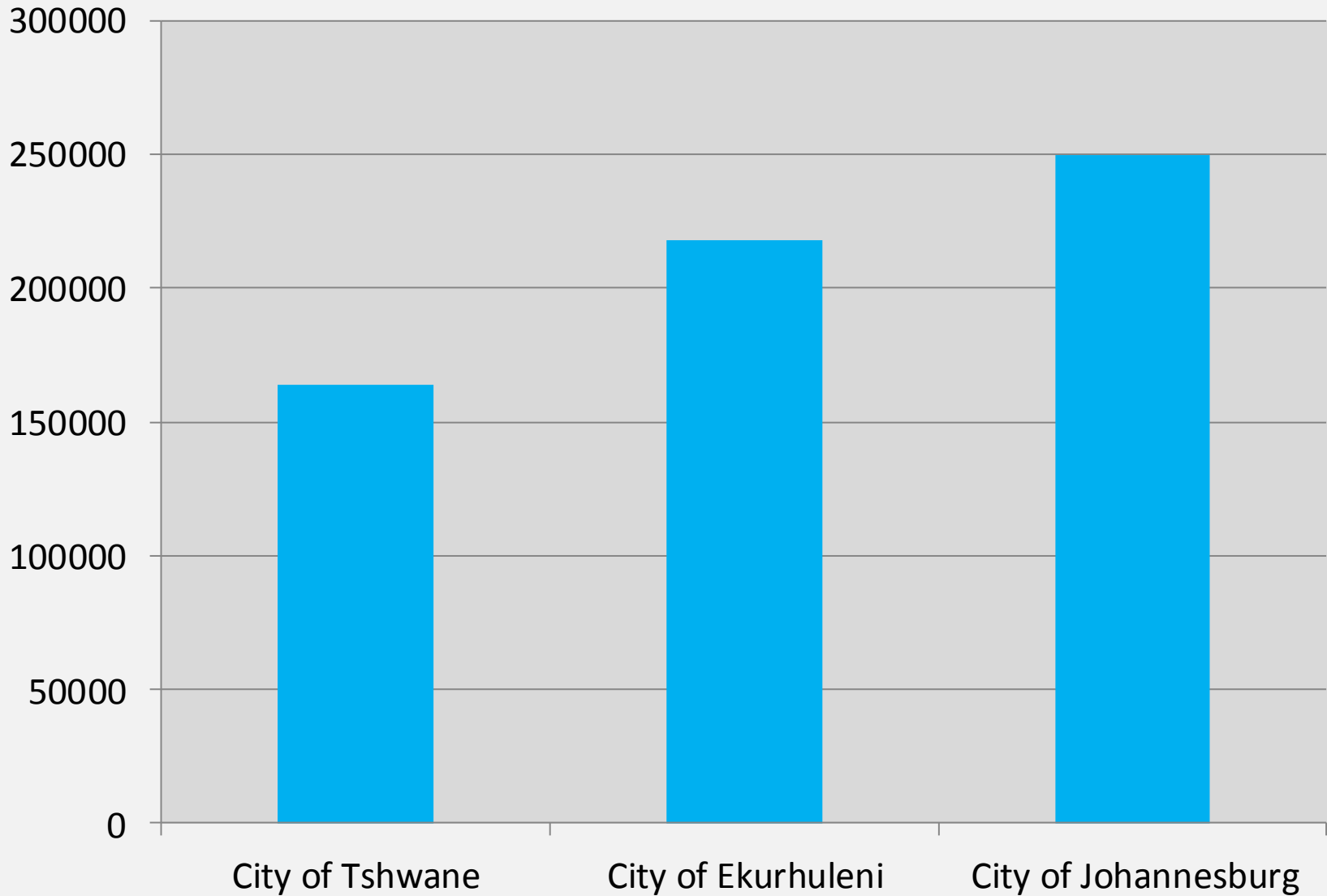
Number of Households

| | City of Tshwane | City of Ekurhuleni | City of Johannesburg |
|-------------|-----------------|--------------------|----------------------|
| Formal | 735 231 | 786 257 | 1 167 935 |
| Informal | 164 014 | 218 259 | 249 823 |
| Traditional | 3 916 | 2 500 | 5 626 |
| TOTAL | 911 536 | 1 015 465 | 1 434 856 |

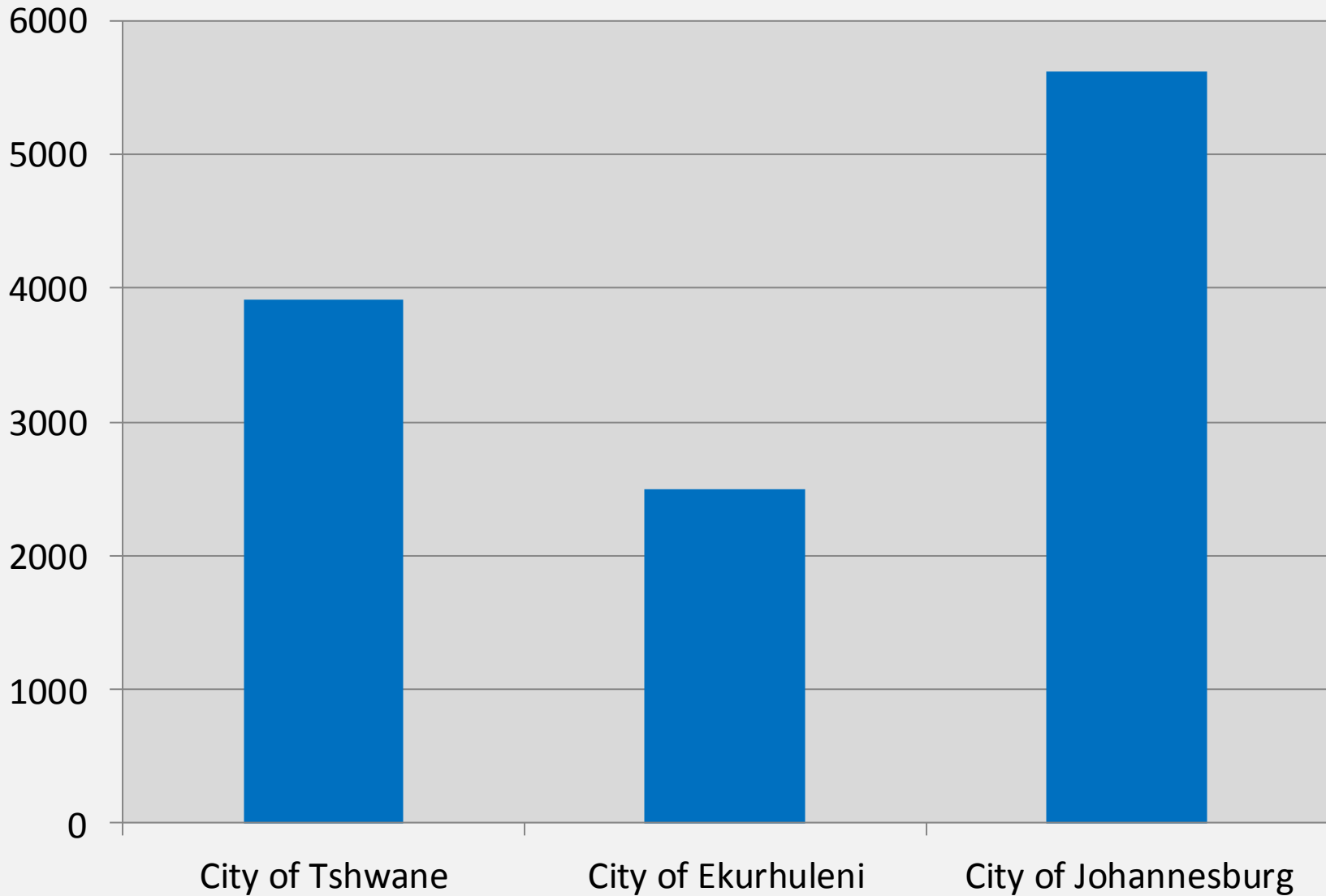
Number of Households: Formal Dwellings



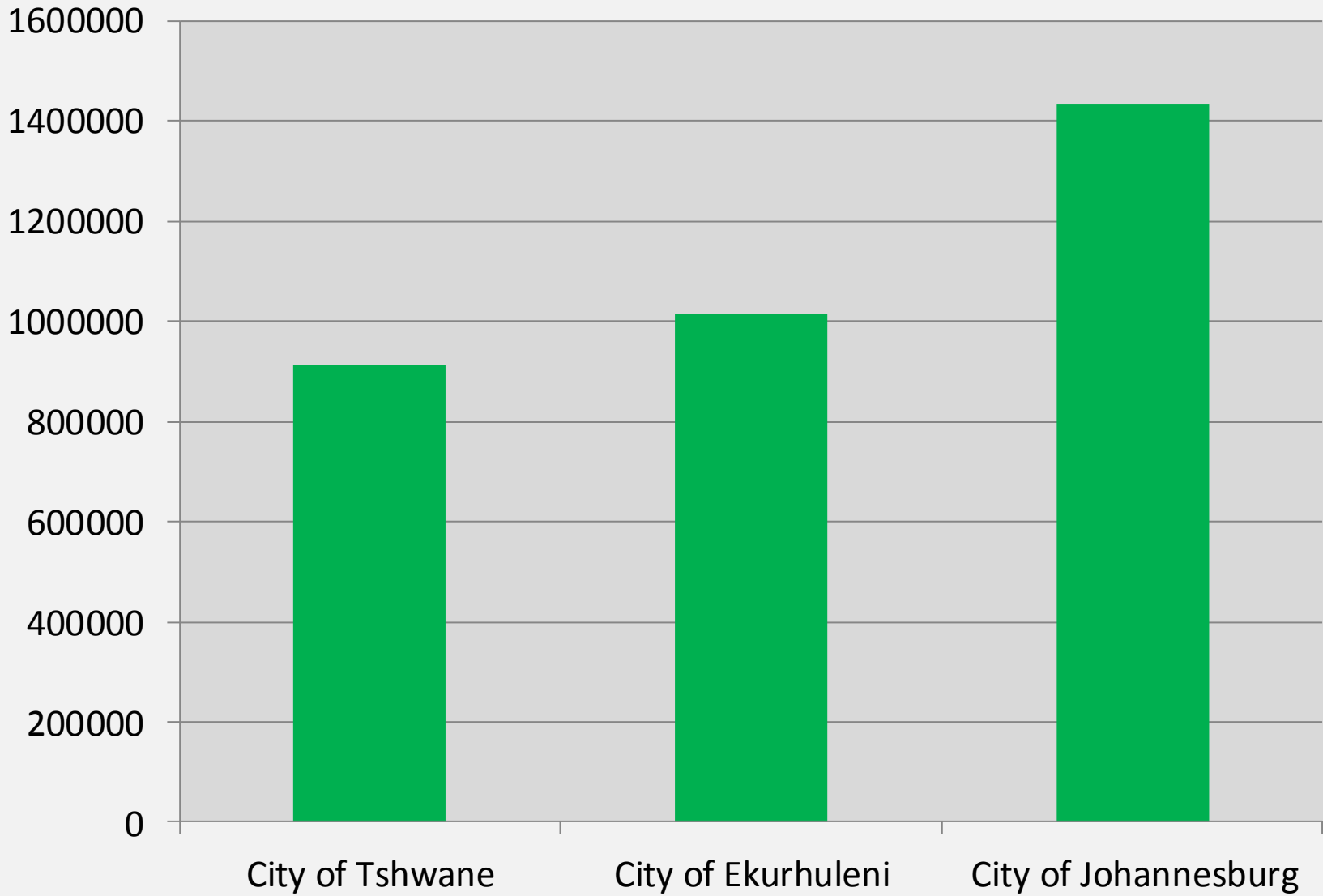
Number of Households: Informal Dwellings



Number of Households: Traditional Dwellings



Total Number of Dwellings



CURRENT ORGANIZATIONAL APPROACH CITY OF EKURHULENI

- Codes sub-section focus on:
 - Evaluation of building plans for compliance with the SANS codes and applicable legislation
 - Registration of dangerous goods (use, storage, manufacturing and transportation)
 - Compliance inspections on premises in terms of By-Laws and applicable legislation

CURRENT ORGANIZATIONAL APPROACH CITY OF EKURHULENI

- Proactive Services focus on By-Law Compliance Inspections as well as the change of human behaviour relating to fire safety issues through public education
- The Current DEMS Proactive Services consists of 2 sub-sections
 - Codes (Fire Safety) and
 - Emergency Planning (PIER and Risk Management).

CURRENT ORGANIZATIONAL APPROACH CITY OF EKURHULENI

- Emergency Planning sub-section focus on:
 - Compliance of designated premises in terms of the Emergency Services By-Laws and relevant national legislation to e.g. NEMA & MHI regulations
 - Management of Special Events
 - PIER related activities
 - CERT program and training

CURRENT ORGANIZATIONAL APPROACH eTHEKWINI

- Competency levels of fire safety personnel?
 - Is the current training available sufficient for the future “Fire Safety Officer”?
- Primary role should be to prevent fires
 - Oversight as some fires which occurred could have been prevented
- Utilization of Operational staff members in the Fire Safety Section to enhance fire safety inspections
 - Duty and shift rosters to be considered to ensure service delivery
- Fire Investigation and Rational Designs of complex projects
 - Proposed that this function, including the review and application of legislation be identified as a “Fire Risk Function”

CURRENT ORGANIZATIONAL APPROACH

eTHEKWINI

- Effective utilization of daylight operational duty hours
 - Training, maintenance of equipment and other activities that are “in-house” are questioned in this time?
- Engagement with the public
 - Inspections, pre-planning, fire safety awareness and associated activities could have a greater impact on reduction of deaths by fire and property loss by fire.
- Contracted private services
 - Assist fire safety branches in meeting their inspection functions, particularly at the lower less technical end of the inspection spectrum.
- Statistical reporting and the collection, analysis of empirical data must be reviewed.

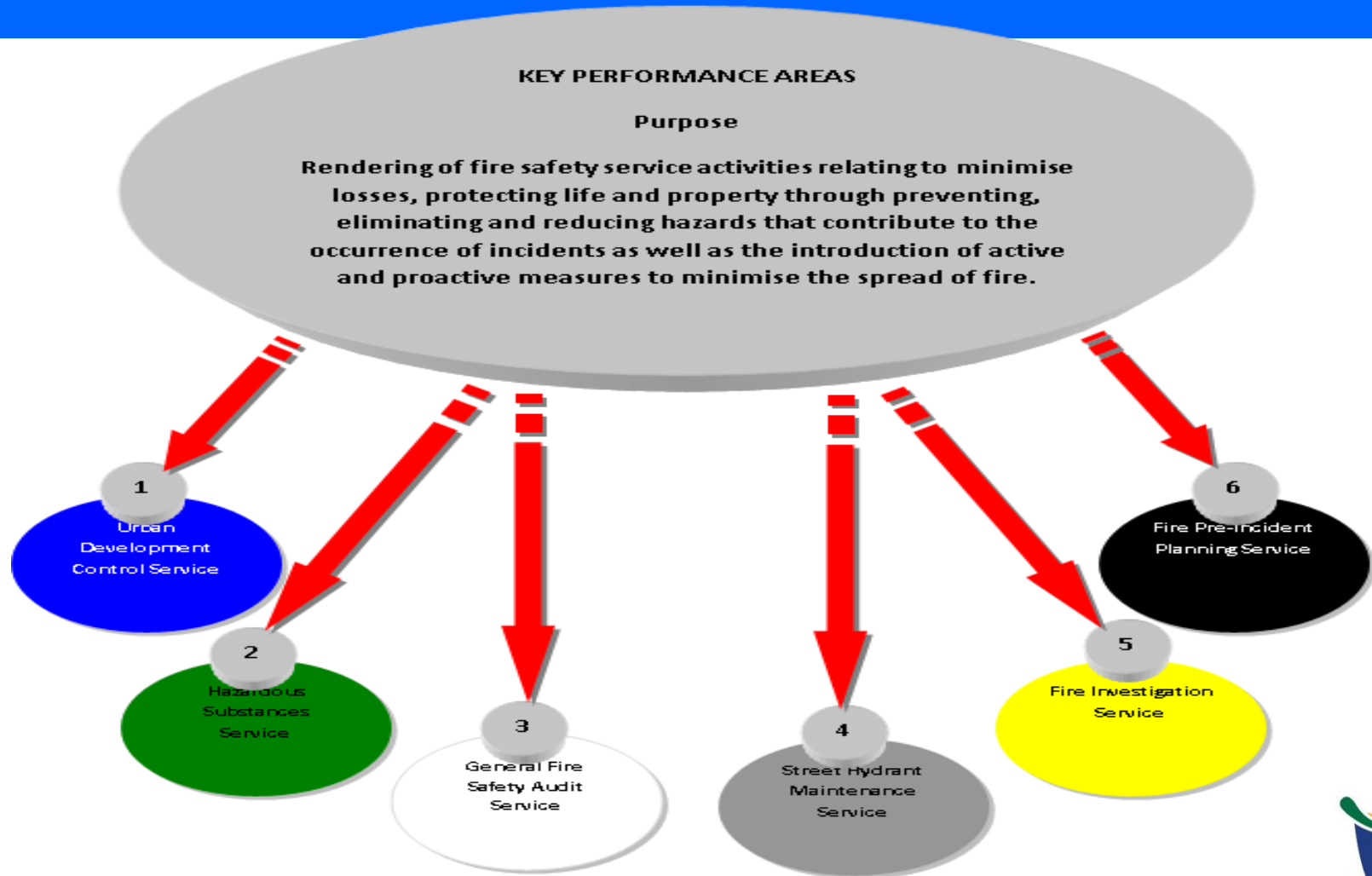
CURRENT ORGANIZATIONAL APPROACH- NELSON MANDELA BAY

- To promote and Administer the Fire Brigade Services Act.
- Bylaws are promulgated
- Strive to achieve a fire-safe environment in both formal and informal sectors.
- Responsible for affordable and sustainable service delivery.
- Approval of building plans.
- Development, co-ordination and implementation of Fire Safety By-Laws.
- Registration of premises storing dangerous goods.
- Approval of MHI's.
- Conducting fire safety inspections, fire investigations and issues controlled burning permits.
- Joint operations with relevant stakeholders such as Traffic and Police Services.
- Huge workload as a result of development in the Coega Industrial Development and the Deep Water Port.
- Lack of manpower.
- Identify and focus on problematic areas.

CURRENT ORGANIZATIONAL APPROACH - MIDVAAL

- All fire safety related duties
- Support the view that building plans and fire protection plans be required for all occupation classifications
- Support the view that should a fire risk assessment or health and safety gap analysis be required, the onus remain on the owner to appoint an expert

CURRENT ORGANIZATIONAL APPROACH-TSHWANE



CURRENT ORGANIZATIONAL APPROACH-TSHWANE

KPA 1: URBAN DEVELOPMENT CONTROL SERVICE

- Activities relating to deal with the conditions as pertained in section 6(2) of the National Building Regulations and Standards Act, 1977 (Act 103 of 1977) in relation to plan analyzing, inspections and site meetings.

CURRENT ORGANIZATIONAL APPROACH-TSHWANE

KPA 2: HAZARDOUS SUBSTANCES SERVICE

- Activities relating to enforce delegations in terms of the Hazardous Substances Act (Act 15 of 1973), Explosives Act (Act 26 of 1956) and the applicable regulations promulgated in terms of sections 15 and 16 of the Fire Brigade Services Act (Act 99 of 1987) as well as the Occupational Health and Safety Act (Act 85 of 1993).



CURRENT ORGANIZATIONAL APPROACH-TSHWANE

KPA 3: GENERAL FIRE SAFETY AUDIT SERVICE

- Activities relating to routine-, follow-up, specialised inspections and law enforcement at premises and to advise the community in fire safety and fire prevention.

CURRENT ORGANIZATIONAL APPROACH-TSHWANE

KPA 4: STREET HYDRANT MAINTENANCE SERVICE

- Activities relating to execute the conditions of the sub clause on hydrants of SANS 10090, namely to service hydrants and measure the flow thereof annually for establishing if it still conforms

CURRENT ORGANIZATIONAL APPROACH-TSHWANE

KPA 5: FIRE INVESTIGATION SERVICE

- Activities relating to the investigation of fires and their subsequent cause of origin, consultation with loss adjusters and insurance companies as well as testifying in court.

CURRENT ORGANIZATIONAL APPROACH-TSHWANE

KPA 6: PRE-INCIDENT PLANNING SERVICE

- Activities relating to assist in formulating and implementing pre-incident plans at buildings and other premises as well as to comment on procedures to execute operational services at building fires.

CURRENT ORGANIZATIONAL APPROACH- JOHANNESBURG

- The EMS mandate is to provide a leading world class emergency management services that will lead in the provision of a world class African emergency service through the development of human resources ability, modern equipment resourcing and community empowerment

CURRENT ORGANIZATIONAL APPROACH- JOHANNESBURG

- In the light of the mandate, the strategic objectives of EMS are crafted in line with the priorities and the 2040 strategy as follows:
 - To be a proactive and well - capacitated disaster management and emergency response service, with a sustained 100% state of readiness.
 - To provide community awareness on dangers and empowerment of communities in the mitigation of disasters (PIER & Disaster Management)
 - To provide efficient and effective response to emergency incidents
 - To be a vigilant custodian of safety prescripts (Pro-Active Services i.e. Fire Safety)



BYLAW ENFORCEMENT – FINE SYSTEM

- By-Laws have been drafted and implemented in most of the municipal areas in South Africa
- Approved fines as used by Fire Safety Officials have been confirmed for the following services:
 - City of Ekurhuleni
 - City of Tshwane
 - City of Cape Town
 - City of Johannesburg
 - Nelson Mandela Bay Metropolitan Municipality
 - eThekweni Metropolitan Municipality
 - Midvaal Municipality

GAPS IDENTIFIED IN CURRENT PRACTICES

- The incorporation of the execution function of fire safety inspections within operational structures at Regional or Local levels
- Fire Investigation and rational designs of complex projects - proposed that this function, including the review and application of legislation be identified as Fire Risk Function
- MHI's
- Standardization
- Development of policies and procedures on National level still outstanding

NAFSAC COMMENTS RECEIVED

- Standardization of name; Fire Services, Fire Brigade,
- Areas of jurisdiction varies
- Categorization of incidents
- Profession more professional
- Paid/vs. volunteer service
- Use National Building Regulations
- Career path
- Fire Services becomes more involved with the SDBIP/IDP
- Sufficient budget and organizational structure to be provided .
- Fee structure
- Benchmarking
- Involvement of ACSA

COMMENTS CONTINUE

- Municipal Courts
- Funding models
- Equitable share
- Fee structure for the rendering of services
- Contain Fire Services Board
- UK Legislation
- Standard to benchmark against

COMMENTS

- Discussion between COGTA and DAFF
- Gaps in Legislation
- FBB and CAP's to perform oversight role
- SANS 10900 no not include informal settlements
- NFPA 550 /551 refers to Fire Safety and Risk Profiling
- Nationalization?

COMMENTS

- Specific function to fire safety and fire prevention
- Alignment and cooperative function- Local Authority.
- Oversight role on dangerous goods

CONCLUSION

- Improve organization structure
- Fire Prevention : function of many fire departments, aims to educate the public to take the necessary precautions to prevent harmful fires
- Fire Safety : relates to precautions to prevent or reduce the likelihood of a fire that might result in death, injury and includes all fire safety precautions which are taken during the building construction phase

RECOMMENDATION

- Local Government must implement best practices on fire safety principles related to informal structures and low cost housing
- Public education programs should be enhanced
- Ensure accessibility to research data such as SANS Codes
- Legislative policy on fire cause and origin determination.
- Bylaw enforcement
- Fire Marshalls
- Fire safety administration
- Relevant technology

RECOMMENDATION

- Competent, sufficient and effective human resources must be maintained to ensure service delivery.
- Conduct a risk and vulnerability study to identify shortfalls
- The current structure must be reviewed and compared to risk assessment reports to highlight deficiencies as reflected by risk assessments
- Availability of funds to fill all unfunded position
- Implement development programmers / projects to achieve standards in accordance with SANS 10090