WildfireReady Community Risk Assessment Report

Overkloof, Hout Bay

Assessment Requested by:
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Community:
Overkloof CID, Hout Bay

Assessment Period:
February/March 2019

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Introduction

The suburb of Overkloof, Hout Bay is positioned in what is known as the Wildland Urban Interface (WUI). This is an area where homes and properties are exposed to wildfire risks due to their proximity to areas of vegetation such as veld, mountains, plantations, wilderness, green belts etc.

Vulcan Wildfire Management has developed a WildfireReady process to assess and report on community wildfire risks and compile recommendations. Wildfires can occur throughout the year, with periods of higher frequency and intensity, and can pose a significant threat to residents, property, infrastructure and assets. This report looks at prioritising community actions through:

- Heightened awareness and understanding of the risks from wildfires.
- Creating resilience to structure ignitions.
- Preparation and response strategies.
- Vegetation management strategies.

By becoming WildfireReady, a community is creating a strategic plan to prepare, respond, stabilise and recover from wildfire.

#WildfireReady Statement of Intent

The intent of being WildfireReady is to enhance the safety of residents, workers and first responders during wildfires. Furthermore, an essential component includes minimising the risks which can lead to the damage and destruction of property and infrastructure. #WildfireReady helps individuals and communities coexist successfully with wildfires, by developing knowledge, systems and processes which foster preparedness and acceptance of wildfires.

Taking Action to be WildfireReady

Overkloof is located in a wildfire environment. It is surrounded by both natural and alien invasive fuels which catch alight and burn with high intensity and have a rapid rate of spread. The homes and suburb are not isolated from their surrounding environment; they are actually part of a continuous path of fuels from the mountains, forests and green belts into the suburb. It is very appealing to live in a 'green suburb' and a big attraction to live within, and in close proximity, to a natural environment. Living in harmony with nature can be maintained however it's also important to consider that successfully co-existing with nature means understanding and planning for risks such as wildfire.

It is very encouraging to see the Overkloof community taking the necessary proactive steps to safeguard their community from wildfire incidents. We commend you for taking the important step of having a community risk assessment done so you can better understand how to reduce the impact of wildfires in order to prevent or limit loss and damage at a community level.

The scope of this report means that it is at a community or macro level assessment. It provides a strategic area risk analysis along with the appropriate recommendations. Specific assets, infrastructure and individual property assessments have not been included as part of this process as this falls outside of community control as it becomes each individual property and home owner's responsibility. Owners and residents within Overkloof will need to take action and responsibility for their own wildfire risks and prepare their homes for wildfires. The benefit of this strategic report is that it can help guide this next stage and provide a framework which they can reference take guidance from.

What does this Community Report Aim to Achieve?

The measures recommended in this report are aimed at alerting the Overkloof community to potential risk areas so that the required steps to reduce risk can be planned for and action can be taken. This report therefore forms the beginning of a focused action plan. Acting on this report and preparing your community for wildfire is going to involve a number of steps. This important first step involves taking a close look at the community wildfire risks. The better you prepare, the better your chance of co-existing with wildfire and limiting loss and damage.

Glossary

Ember attack
During a wildfire, burning matter such as bark, sticks, leaf matter etc. can be lifted into the air by the convective updraft of the fire and then the wind can carry this burning matter for some distance, even hundreds of meters, depending on the wind strength and the size/weight of the material. Spotting or spot fires (ignitions of new fires) caused by embers have been recorded kilometres away from flaming fronts. Burning debris or embers can ignite a building through direct contact, igniting combustible gases, entering through small gaps in the building structure or igniting something near the building. An ember attack can see hundreds of embers bombarding a home or area with a high risk of ignition being the result.

Firebreak (sometimes referred to as a "break")
An area where all vegetation and organic matter is removed down to mineral soil, thereby removing the fuel leg of the fire triangle. (Fire triangle: Oxygen, Heat, Fuel).

FuelBreak
This is a strip of land where fuel has been modified or reduced to limit the fire's ability to spread rapidly, normally cut down to ankle height level and regularly maintained. Often mistakenly called 'Firebreaks'.

Fuel load
The mass of combustible materials available for a fire.

Incident
An occurrence or event, natural or human-caused that requires an emergency response to protect life or property. Incidents can for example include major disasters, emergencies, terrorist attacks, wildfires, urban fires, floods, hazardous materials spills, nuclear accidents, aircraft accidents, earthquakes, public unrest, weather-related disasters, public health and medical emergencies and other occurrences requiring an emergency response.

Integrated Fire Management
A comprehensive and holistic approach to managing wildfire. This includes prescribed burning, stack burning, fuel reduction, fire breaks, risk assessments and risk reduction, operational planning, proactive interventions, intelligence gathering, awareness via education and wildfire suppression.

Preparedness
The range of deliberate, critical tasks and activities necessary to build, sustain, and improve the operational capability to prevent, protect against, respond to, and recover from emergency incidents.

Spotting (Spot Fires)
Behaviour of a wildfire producing embers that are carried by the wind and which start new fires, (spot fires), beyond the zone of direct ignition by the main fire.

Wildfire
Also referred to as "veldfire" meaning a veld, forest , mountain or vegetation fire. They occur in areas where there is an abundance of fuel (vegetation) and they can burn into populated areas known as the Wildland Urban Interface. They are caused by human and natural ignitions and are driven by three primary factors; weather, fuels and topography.

Wildland Urban Interface (WUI)
Refers to the zone of transition or area between unoccupied land and human development. This zone is not measured by a specific or predetermined geographic distance but rather by the area of land in which human development co-exists with unoccupied or rural land, this includes the any vegetation paths that can extend from the unoccupied land into the urban sprawl.

Contents

Guide to Making use of this Report

This report is designed to firstly help you understand wildfires in a broader context and to visualise how they might have an impact on your community. This is covered by Section A: Understanding Wildfires. The second part of the report goes into more specific detail in Section B: Planning For Wildfires. We provide analysis of your localised wildfire concerns and offer advice and recommendations.

Section A
Understanding Wildfires

The goal is for relationships, systems and strategies to be adopted and improved in order to positively change the outcome of future wildfire incidents

- Vulcan Wildfire Management

Basic Wildfire History

Wildfires occur on an annual basis in the region of Hout Bay, although none in the recorded or known history have directly impacted the Overkloof Suburb. It follows that there has been no loss to life, property or assets from wildfires reported in the Overkloof area. It must be noted however that there has been the potential for wildfires to directly affect Overkloof and there still is an ever present risk for wildfires to have an impact on the suburb. This will be discussed in subsequent sections.

Annual Fires in Hout Bay

Wildfires typically occur in the summer months from November to April when the weather and dryness of the vegetation allow ignitions to take hold and spread. Wildfires can occur through the year however and there have been instances where wildfires have occurred outside of the typical fire season period. In winter when there are warm and dry conditions, such as has been experienced in the Western Cape with the drought, wildfires have been occurring more readily in the winter months.

The greatest frequency of wildfires have occurred on the eastern side of the valley from Constantia Nek to Chapmans Peak. The geographical hotspot every year is the mountain slopes directly above and surrounding Imizamo Yethu. The next area in terms of frequency of wildfires would be the Sentinel and Karbonkelberg areas which have less frequent but occasional wildfires. An area of great concern, especially given the type, age and continuity of fuels stretches from Constantia Nek to Orange Kloof to Suikerbossie and Little Lions Head. The absence of wildfire from this area has created a large area which, under extreme fire weather conditions, has the potential for widespread loss and damage to occur.

Notable Wildfires in the Past 10 Years:

Area above Bokkemanskloof /Overkloof - estimated 9-10 years ago

The wildfire started near the jeep track and burned up the slopes in an easterly direction. The fire was slope driven (as opposed to wind driven). Fortunately the head of the fire was contained on the top ridge line and the flanks of the wildfire were contained by firefighters before the burn area became too large. Crews prevented the fire from entering the blue gums area on the northern flank and the southern flank was also contained before it could spread around to Bokkemanskloof. If there was a strong down slope wind, this could have pushed smoke, and possibly embers and fire, into the Overkloof Suburb.

The Cape Fires - March 2015

During some of the hottest days in Cape Town's recorded history a wildfire which began on the slopes above Boyes Drive in Muizenberg was fanned by gale force south easterly wind towards Hout Bay, and days later a north westerly wind shifted the wildfire into Tokai (which resulted in the loss of homes and structures). With a calming of weather conditions, combined with suppression efforts, this wildfire came close to Overkloof but it did not reach the area (the fireline was held at the top of the mountain preventing it from spreading down the slopes into Overkloof). If extreme conditions prevailed the wildfire would have certainly threatened the suburb.

Hout Bay Heights / Karbonkelberg - February 2017

This was an area that had largely gone unburned for a considerable period. While this area of Hout Bay has little impact on Overkloof it must be noted that this wildfire was incredibly hard to contain given the age of the vegetation and the difficult terrain.

The Twelve Apostles Fire - October 2017

This wildfire began above Victoria Road on the Oudekraal side of Bakoven. It took hold in thick and old vegetation which was a mix of dense invasive aliens and fynbos. The fire burned for a number of days as was fanned by Northerly winds. It burned over the back Table and down into upper parts of Orange Kloof.

Had this wildfire occurred in the hotter summer months the outcome could have been a lot more devastating. The weather was cool with high humidity the day the fire burned into Orange Kloof which assisted greatly with suppression efforts. Had it been a hot, dry and windy summer's day, the fire behaviour would have been a lot more extreme. In this instance the possibility for the wildfire to spread and generate embers affecting the homes and suburbs in the area would have been highly likely. There is also potential for this type of wildfire to spread around to Contantia Nek and towards Overkloof. It is a notable wildfire, not so much because of where it did burn, but under different weather conditions, how it might have burned.

The Importance of Gathering Intelligence from Wildfire Incidents Over Time

As a community which seeks to be prepared for wildfires we highly recommend you observe, gather and record information about wildfires which occur in your area. We recommend that you gather the following type of information.

Date of wildfire	...
Area effected	...
Type/s of Vegetation Burned	...
Fire Behaviour Observations	...
Weather Conditions	...
What preparation efforts were effective / ineffective?	...
What suppression efforts were effective / ineffective?	...
Was there any loss/damage?	...
What were the lessons learned?	...

Creating a database of this knowledge will assist you in your preparedness and response to future wildfires. Often historic wildfire information and lessons from wildfires fade away and the same mistakes are repeated. If you can get to a point where you can document generations worth of knowledge, this will greatly enhance WildfireReady activities for future residents.

The Twelve Apostles Fire - October 2017: Wildfire coming over into Hout Bay

Local Wildfire Weather

Understanding your local weather and how it has an impact on fire behaviour and fire spread as a resident is important for a number of reasons.

- It can help guide the preventative actions you take around your suburb and the properties within. i.e. what direction wildfires will likely come from and therefore impact your area.
- It can help you anticipate the possible severity of the wildfire and guide what actions you take to prevent ember attack on homes and what evacuation options you will follow for example.
- Sharing local weather knowledge with fire resources arriving in your area can assist with safety and effectiveness of their operations.

Here is a summary of notable weather observations in your area:

Time of Year with Highest Regional Occurrence of Wildfire:	Summer: November to March (However, wildfires have occurred throughout the year, especially in periods of drought and dry winter months)
Summer Prevailing Wind Direction	South easterly (But watch out for the occasional north westerly winds. Fires can be very dangerous in these conditions as well).
Summer Local Wind	With the south easterly wind there is a turbulence effect as the wind comes over the top of the eastern mountain slopes. The local wind tends to push down valley and is very gusty and unpredictable. Firefighters have noted how fighting fires on the eastern mountain slopes of Hout Bay are difficult with the wind shifting between south east, northerly and southerly at different times and coming in gusts. This is due to the turbulence created by the prevailing wind over the top of the mountain. It has been observed that the same effect does occur on the western slopes of the valley in a north westerly prevailing wind.
Factors Affecting Wind	There are directional effects of local and surface winds due to the influence of the mountainous terrain and the valley. If there is no prevailing wind there can be the typical up valley wind during the day and down valley wind at night.
Winter Prevailing Wind Direction	North westerly (South easterly)
Dangerous Winds	Berg Winds – These dry out the vegetation and create conditions for more extreme wildfire behaviour. 30km/h + wind speeds create conditions for extreme fire behaviour especially in combination with temperatures of 30°C or higher and relative humidity of 30% or lower.
Thunderstorms	Be aware of lightning strike fires. The top of Table Mountain and Cape Point are two areas which have experienced lighting ignition wildfires in the past ten years.
Drought	There has been an extended period of drought conditions. This creates low fuel moisture conditions which in turn creates more extreme fire behaviour conditions and wildfires burn in areas which typically don't burn i.e. such as Orange Kloof and the western slopes of Hout Bay *(Observation at time of report, 2019)*

Potential for Wildfires to Impact Your Community

How wildfires start and spread

Ignition sources of wildfires are broadly categorised as either natural ignitions or anthropogenic (man-made) ignitions. Anthropogenic ignitions can be further subdivided into accidental ignitions or ignitions with malicious intent. Natural ignitions: The overwhelming majority of wildfires caused by natural ignitions are started by lightning strikes.

Accidental anthropogenic ignitions: It is believed that most anthropogenic ignitions are accidental. There are many kinds of accidental human ignition sources. A non-exhaustive list includes:

- informal mountain dwellers: cooking or warming fires escape control
- religious ceremonies in the mountains (candles)
- vehicle accidents or roadside vehicle fires igniting vegetation
- sparks generated by power tools
- electrical power lines: downed lines, lines in contact with vegetation or apparatus failures
- out-of-control prescribed-burning operations
- braai or camping fires escaping control, and
- structural or informal settlement fires spreading to vegetation

Anthropogenic ignitions with malicious intent: It is difficult to quantify the number of wildfires ignited with malicious intent as formal investigations are not common practice. A challenge experienced in prosecuting perpetrators is in finding evidence that directly links the accused to the crime. Possible motives for igniting wildfires with malicious intent include:

- arson (for psychological reasons)
- children are known to light fires as a form of entertainment in the Western Cape (they enjoy seeing helicopters and fire engines)
- political motives, and
- land-clearing for informal-settlement expansion

Once a wildlife ignition has occurred, a rapid initial response is vital to limit the spread of the wildfire. With a delayed response and as the wildfire grows:

- the amount of resources required to suppress the fire increases
- the fire behaviour and complexity increases
- the cost and time of the suppression operation increases, and
- the probability of damage to property and infrastructure increases

For a rapid initial response to take place, the following needs to occur or be in place:

- Early detection of wildfire ignitions
- A capacity to respond (knowledge, personnel, equipment, training)
- Access to the ignition site
- Predetermined strategic plans and standard operating procedures for responding to different types of ignitions in different locations

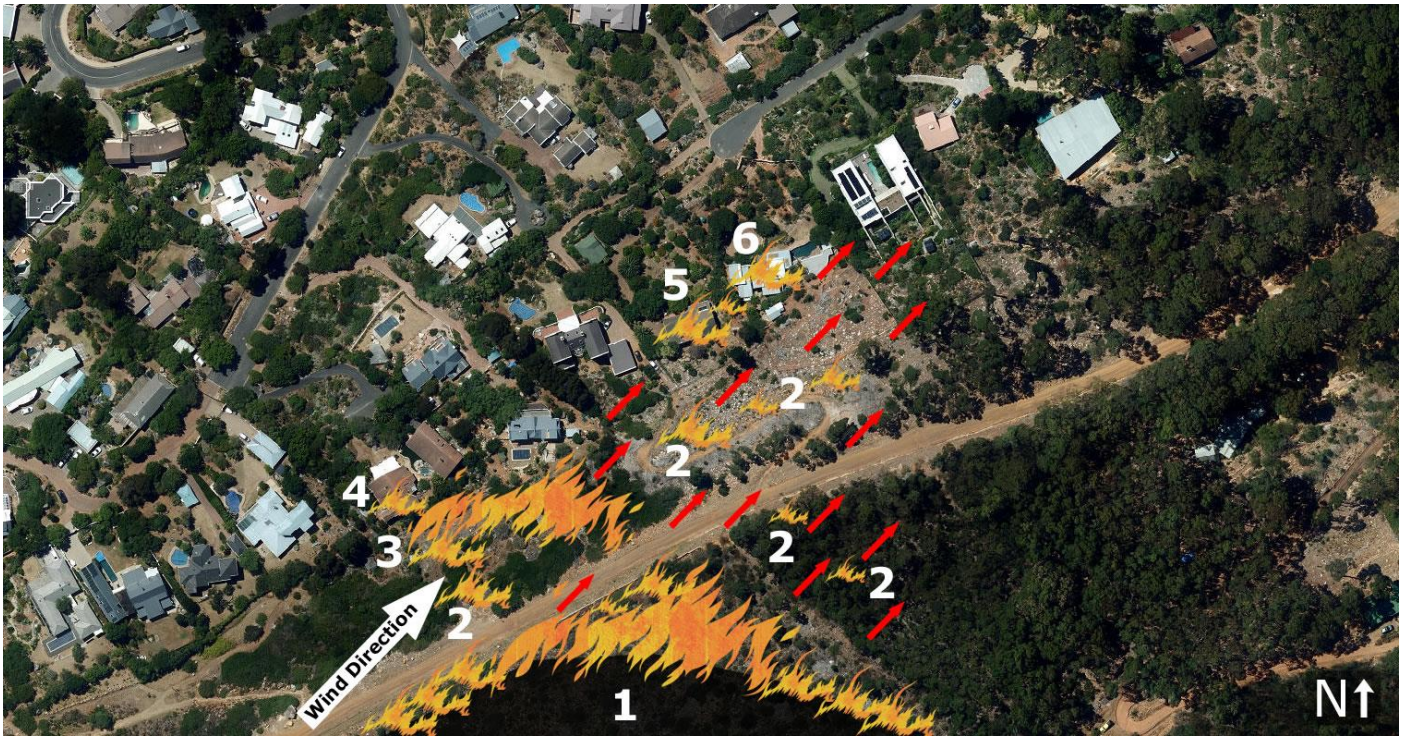
Looking at the wildfire history of your area, wildfires which start locally (such as on the jeep track above Overkloof) or wildfires which start further away and spread into your area (such as the March 2015 wildfire which started in Muizenberg and spread into Hout Bay) have the potential to threaten the Overkloof area.

Wildfire should never be underestimated. It is a force of nature over which we have limited control. When weather, topography and fuel conditions become extreme, wildfire behaviour can be deadly, destructive and unstoppable. Having respect for this power is essential.

Once you have an ignition, the weather conditions, fuel characteristics and topography will determine how a fire behaves and spreads. These three elements form the Wildfire Behaviour Triangle. Particular elements which contribute to a wildfire with an exceptionally high rate of spread and extreme wildfire behaviour include:

- drought conditions
- berg winds
- cold front winds
- high wind speeds
- shifting wind directions
- low relative humidity
- high temperatures
- atmospheric instability
- valleys, gullies, ridgelines, slope
- heavy fuel loading
- alien fuels
- light and heavy fuels
- horizontal and vertical continuity of fuels
- low fuel moisture content
- high fuel temperature
- volatile fuels (high natural chemical content).

When looking at your community as a whole with regards to the spread of wildfire towards buildings, assets and open areas within, there are different fundamental mechanisms of fire spread to consider. The illustration below (just a hypothetical wildfire situation) is followed by explanations which are used to explain the principles of how fire can spread into and have an effect on your community.



1. Wildfire Spreads from Ignition Source
2. Embers Cause New Fires / Spot Fires
3. Burning Vegetation Close to Homes
4. Heat Causes Home Ignition
5. Embers Cause Home Ignition
6. Structure to Structure Ignition

1. **Wildfire Spreads from Ignition Source:** A wildfire starts in vegetation and spreads towards your community. This could have started locally or started outside of Hout Bay.
2. **Embers Cause New Fires / Spot Fires:** During a wildfire, burning matter such as bark, sticks, leaf matter etc. can be lifted into the air by the convective updraft of the fire and then the wind can carry this burning matter for some distance, even hundreds of meters, depending on the wind strength and the size/weight of the material. Spot fires (ignitions of new fires) caused by embers have even been recorded kilometres away from flaming fronts. If these burning embers land on a fuel that will ignite easily this can result in a new fire forming. Embers pose a threat to vegetation but also to homes and buildings where embers can land on dry timber, in gutters, in roofs etc. They can easily travel over roads, FuelBreaks or Firebreaks and make containing a wildfire very difficult.
3. **Burning Vegetation Close to Homes:** When a pathway of vegetation is continuous right up to the home it allows the radiant heat from the wildfire to compromise the safety of the home and significantly raise the risk level of a home ignition. Homes or structures which are exposed to direct flame contact and radiation heat are very difficult for firefighters to defend.

This is why having a Home Ignition Zone (HIZ) of at least 30m is so important. The HIZ is a plan for vegetation within the area around the home to be carefully positioned and evaluated for flammability and ability to reduce or not impact a home.

4. **Heat Causes Home Ignition:** The home ignites from the exposure to radiant heat from the burning vegetation which is too close to the home.
5. **Embers Cause Home Ignition:** The threat of an ember attack to homes in Overkloof is very real. Burning debris or embers can ignite buildings by entering through small gaps in the building structure or igniting something near the building. A number of scientific studies have been conducted in the USA and Australia. The results of which point to the highest percentage of damage and loss of structures coming from ember attack. This percentage is far higher than any other ignition source, (e.g. direct flame contact). The threat of ember attack must not be underestimated. In a building, all it takes is one ember to land in the wrong place for the entire structure to be lost.

"In Wildfires, Big Flames Attract Attention
But Watch Out For The Embers"
Dr. Jack Cohen, a pre-eminent fire scientist

The image below is a graphic depicting how burning material, (embers), are carried from a fire towards a structure. The structure can then ignite if there are vulnerable areas which have not been addressed. If you minimise any gaps, cracks or areas where embers and fuel can lodge, it will significantly increase the structures resistance to ember attack.

'Post bushfire surveys in Australia have consistently found that most houses ignite and burn due to wind borne embers. Unlike direct flame exposure and radiant heat flux… ember attack is a high threat. Measures designed to prevent ignition by embers are key measures across the board. Research consistently identifies that over 85 per cent of houses destroyed by bushfire were due to ember attack.'

The Victorian Bushfires Royal Commission 2009

6. Structure to Structure Ignition:

All homes in the Overkloof area have the potential to be bombarded by embers. Homes on the mountain slopes as well as in close proximity to vegetation carry a further risk of radiant heat and direct flame exposure, especially those which do not have any defendable space around them. Once any home in a community starts to burn you then have the risk of structure-to-structure ignitions. When a home burns it causes prolonged periods of extreme heat exposure to surrounding areas and neighbouring homes. They can catch alight from this structure to structure ignition risk.

Below: The graphic below shows a home which is burning. Due to the extreme heat which is normally fanned by a strong wind, radiant heat and embers from the burning home cause the neighbouring home to catch fire. (This can set off a chain reaction, resulting in all homes in close proximity catching fire).

Below: Analysis of the Knysna Fires in 2017 gives us an example of a likely structure to structure ignition. Home A was determined to catch fire due to embers. Due to the proximity of home B and prevailing wind direction, home B likely caught fire and burned down due to a structure to structure ignition.

Below: (With reference to the top right image) Home A was determined to most likely have ignited from embers landing in the vegetation or a weak point on the structure. As can be seen from the image below, this home burned down producing an extreme amount of heat.

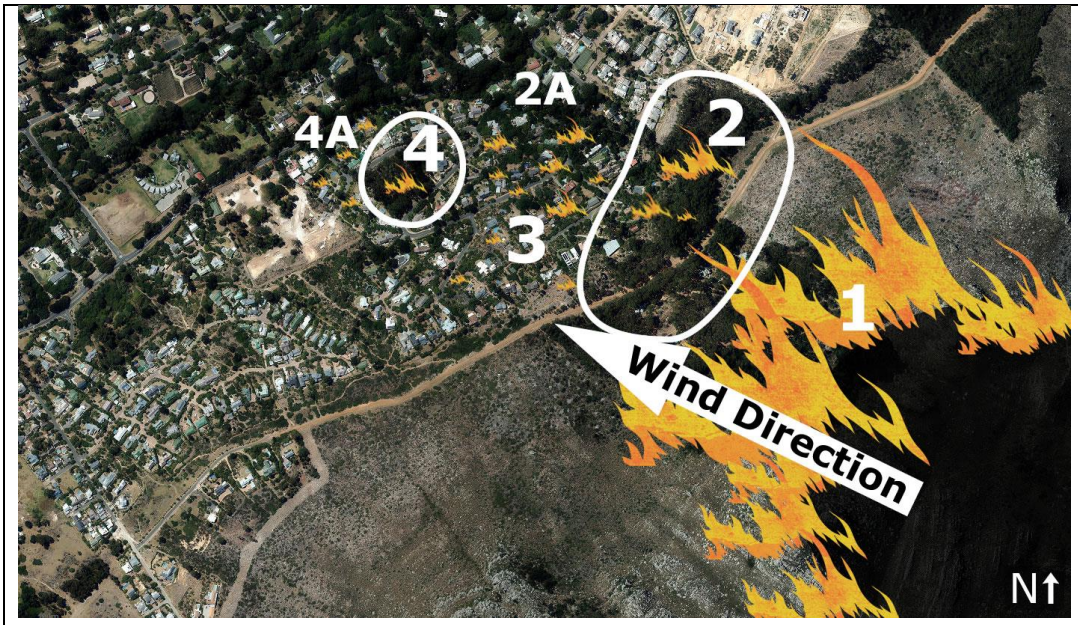
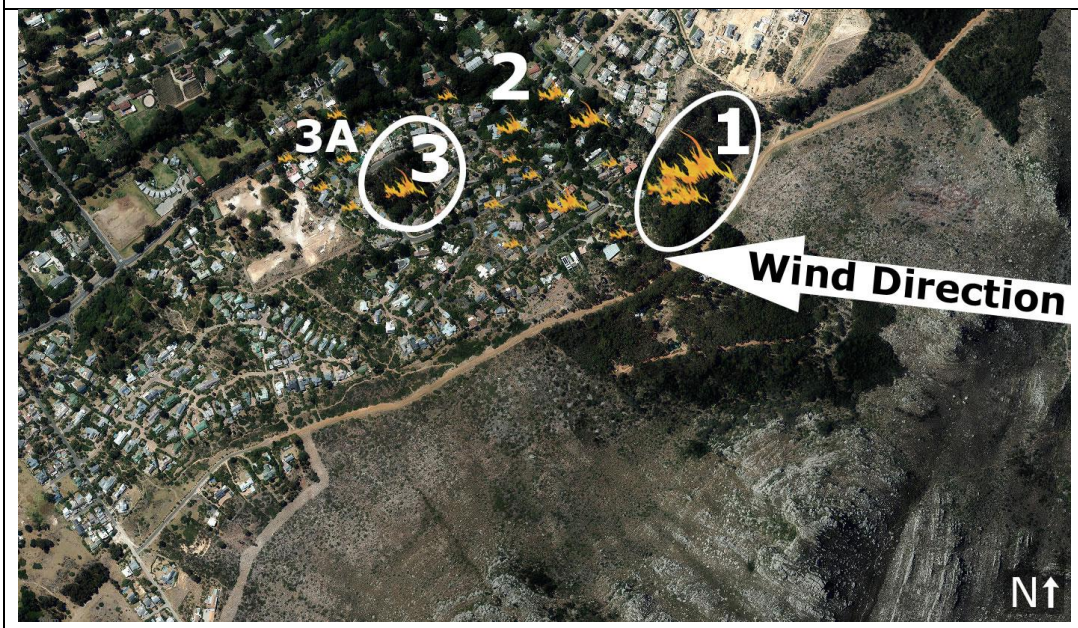
Below: (With reference to the top right image) Home B shows the results of exposure to extreme heat from home A. Home B was most likely lost due to a structure to structure ignition.

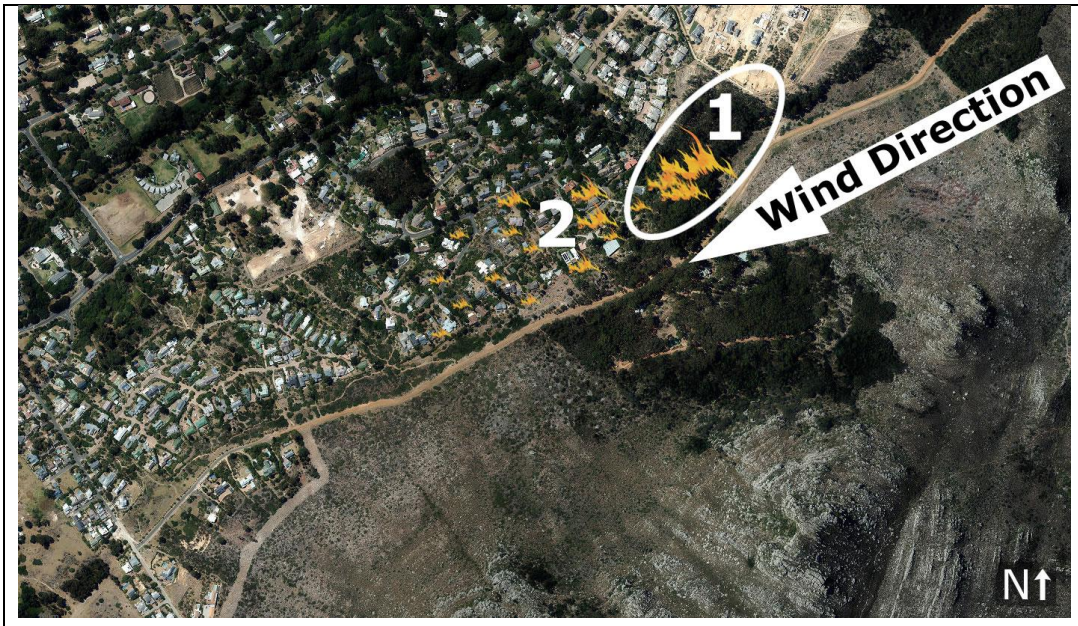
Wildfire Scenarios

The following are potential wildfire scenarios to get you thinking about possible wildfires situations that could impact on Overkloof. They cover the most likely fire spread possibilities but they are not an exhaustive list as nature can be very unpredictable and it is impossible to illustrate all eventualities. The purpose of bearing these scenarios in mind is twofold.

1. The first is to help you think about how you should go about preparing for wildfires and what pre-emptive measures you should have in place.
2. The second is to allow you to start thinking about how you will react if and when these wildfires do occur. Things you will need to consider include… when you will evacuate, if it's necessary to evacuate, how to prepare your home for embers, which part of community will be threatened etc.

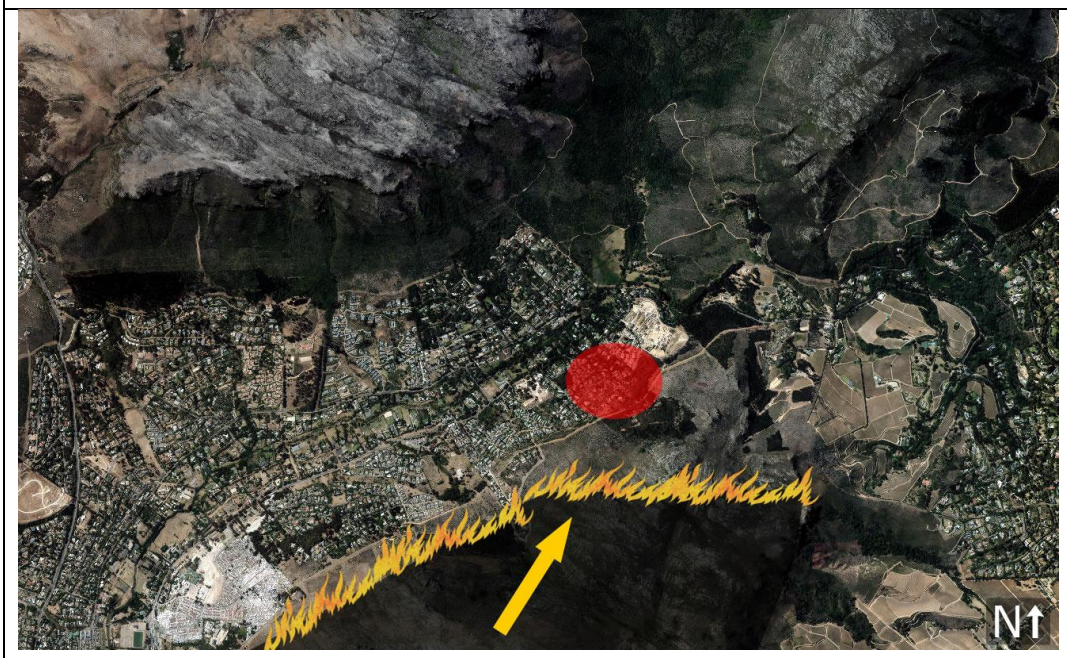
Note: We will discuss specific recommendations in the next section of the report.

	1. Wildfire spreads from the mountains towards Overkloof 2. High risk fuel area ignites from an ember and begins to burn with intensity, producing more embers 2a 3. Embers from the wildfire rain down on the suburb starting more fires. 4. A second High risk area easily catches alight from embers. This begins to burn with intensity, producing more embers 4a
	1. High risk fuel area ignites and builds in size and intensity in a short period of time given the fuel loading of this area. Due to the heat and type of fuels a large amount of embers are produced. 2. Embers from area 1 rain down on the suburb igniting vegetation and homes. 3. High risk area two easily catches alight from embers. This begins to burn with intensity, producing more embers 3a

	1. High risk fuel area ignites and builds in size and intensity in a short period of time. A large amount of embers are produced. 2. Embers from risk area 1 rain down on the suburb igniting vegetation and homes. Air born embers travel as far as the wind carries them. New fires starting in the suburb will also produce more embers and further contribute to the fire spreading.
	1. High risk fuel area ignites and builds in size and intensity. Due to the heat and type of fuels a large amount of embers are produced. 2. Embers from area 1 rain down on the suburb igniting vegetation and homes. 3. Home and gardens begin to burn and once this occurs structure to structure ignitions become a real threat.
	1. Wildfire spreads from the mountains towards Overkloof. The fire produces embers which are carried by the wind. 2. Embers easily fly over the jeep track road and firefighting resources. The new spot fires combine and continue the fire spread into the community. 3. Embers and radiant heat from spot fires begin to threaten homes, assets and infrastructure.

1. A wildfire is ignited from within the Overkloof area and spreads into the mountains. This highlights the importance of considering fire spread from this aspect as well.
2. Fire spreads from embers as well as through vegetation where there are no fuel breaks
3. Spot fires cause the fire to jump the jeep track and spread into the mountains.

Wildfire can travel a great distance, especially when driven by strong winds through large areas of uninterrupted fuels. These fires burn with great intensity and are very difficult to control. Resources are strained due to wildfire complexity and large areas affected.
This first image shows a possible scenario of a north westerly spreading a large wildfire towards Overkloof



This image shows a possible scenario of a South Westerly spreading a large wildfire towards Overkloof.
In this this and the previous scenario the area will be affected by smoke exposure, embers and possible urban ignitions of vegetation and structures.
Furthermore, with large area affected access roads could get cut off.
Evacuations must be planned for ahead of time.

Section B
Planning For Wildfires

Be inspired to seek innovative solutions to overcome existing challenges

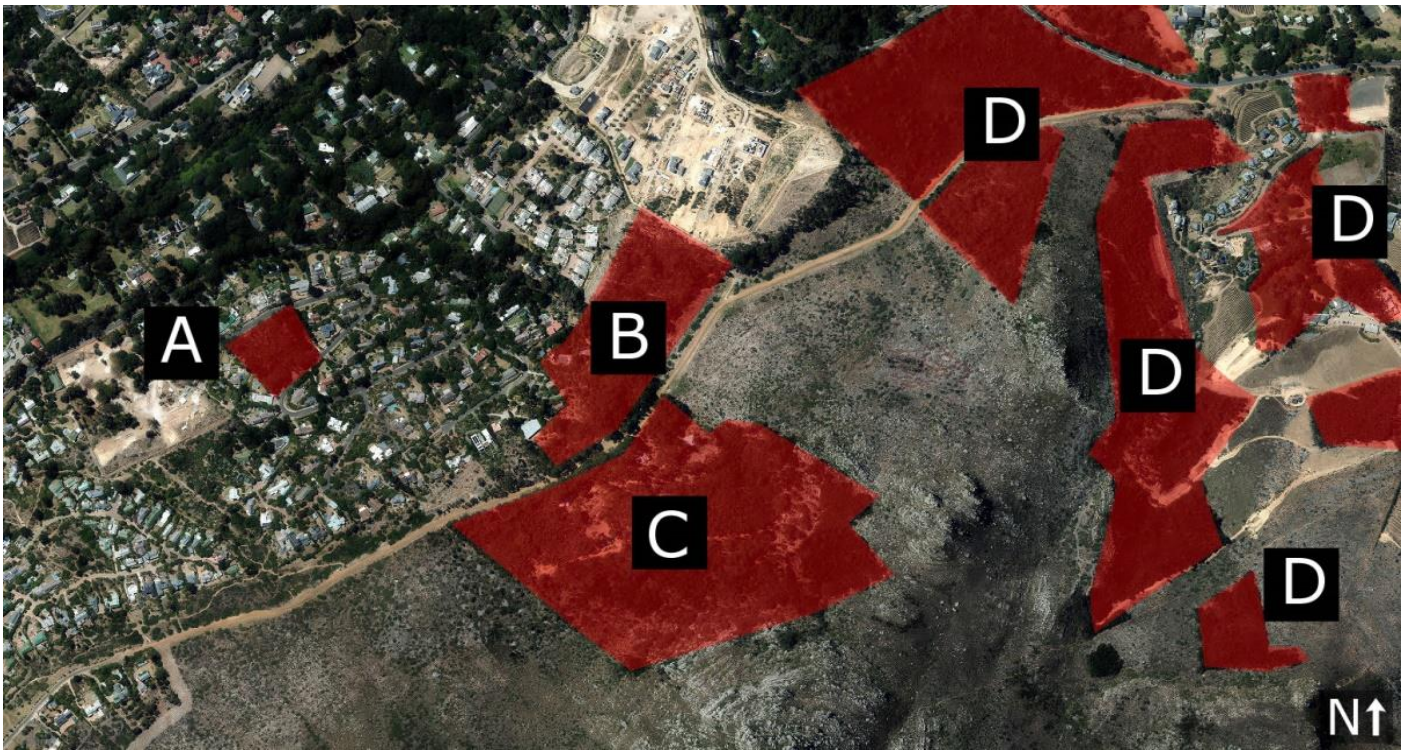
— Vulcan Wildfire Management

Hazard Identification, Analysis & Recommendations

Fuel Hazard Analysis

High Risk Areas

The following areas A-D have been identified as fuel zones which pose a significant threat to Overkloof. If wildfires start or spread into in these areas fire intensity and the chance of spot fires (embers) will increase.



Area A: High Risk to Overkloof

Area B: Extreme Risk to Overkloof

Area C: High Risk to Overkloof

Area D: Moderate to High Risk to Overkloof

Area D: Moderate to High Risk to Overkloof

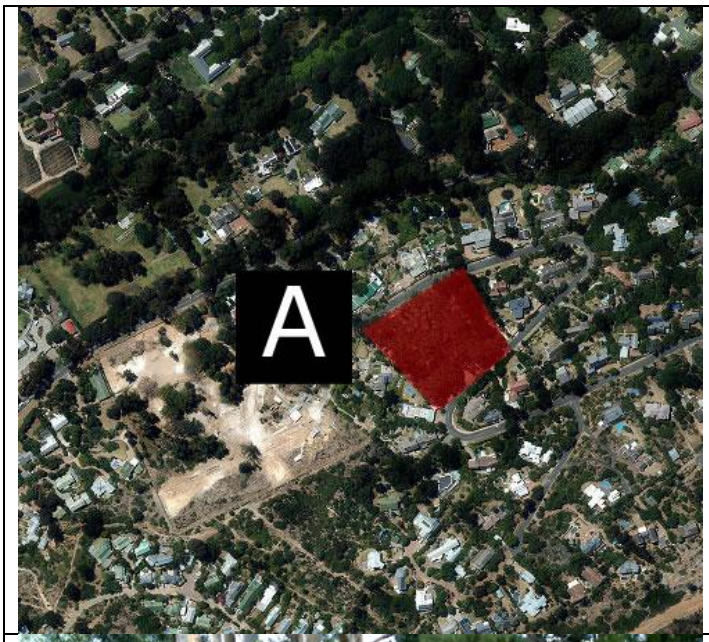
In terms of areas designated as D, these areas are further away from Overkloof. It must be said that if fires get into areas D they will be hard to control and as a result they may be hard to supress and result in the wildfire spreading through the mountains and towards Overkloof.

Area D: Recommendations

- Fire spread must be closely monitored if a wildfire occurs in areas D. If the direction of spread is towards Overkloof, or there are weather forecasts which indicate the wind direction will cause the fire to travel towards Overkloof, the community must be put on alert to prepare for a wildfire.
- Engage with the Cape Peninsula Fire Protection Association (CPFPA) in order to gain an understanding of what action these landowners are undertaking to clear this vegetation and what plans they have for wildfires in these areas.
- Develop a relationship with surrounding landowners to put pressure on them to reduce the risks posed by heavy fuel loads but importantly to also develop a positive working relationship where everybody is working in synergy to lower wildfire risk and enhance wildfire preparation tactics.

In terms of areas A-C we are now going to discuss these areas in more detail and they pose a more localised risk to the Overkloof area.

Area *A: High Risk to Overkloof*

	This is an isolated area within Overkloof. It contains a large amount of ground fuels such as bark, leaves, logs and sticks which are predominantly from the gum trees. This highly flammable fuel can pose a risk if a wildfire starts in this area but it also creates an island of vegetation that can become problematic if there is larger wildfire in the area. Spot fires can easily take hold in this vegetation which will cause this block to ignite if there is no immediate suppression.
	High accumulations of fuels which pose a significant threat to the area if this were to catch fire. The fire would quickly spread and produce a large amounts of embers which, if there is a moderate to strong wind blowing can put properties at risk.
	There are patches where there are ground fuels as well as young trees and bushes. If these smaller trees are left to grow any further they will create ladder fuels which will allow a wildfire to transition from ground fuels, through these ladders fuels and into the canopy of the trees. If this occurs this will create a significant threat to the surrounding homes and likely result in a large ember shower. These embers could carry the fire deeper through the suburb and surrounding vegetation.

	On the borders of this area there is a large build up of fuels. Because of the slope, as indicated by the arrow, a wildfire burning through this area would threaten the homes along this boundary line. Direct radiant heat and embers would pose a threat to these homes. It was also observed that residents have been dumping garden refuge in and around this area. This must be addressed and stopped as it is adding to the fire risk.
	Similar to the above image, this is another area where there is a large build up of fuels. Because of the slope, as indicated by the arrow, a wildfire burning through this area would threaten the homes along this boundary line. There is a wooden fence indicated by the circle which would easily ignite and pose another threat to the home. Direct radiant heat and embers would pose a threat to these homes.
	- A large build up of fuels close to homes. - Wooden fence which would easily ignite. Direct radiant heat and embers would pose a threat to these homes along this boundary line. Homes in the general area would also be at risk from embers.

Area A High Risk to Overkloof: Recommendations

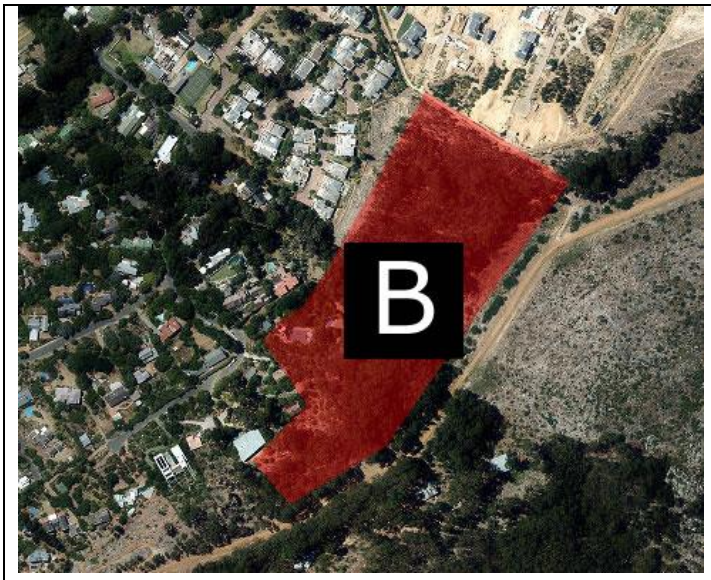
Community Actions

- Develop a rapid reporting and response plan for any wildfires occurring in this area with the aim to supress wildfires and prevent the spread. If the community doesn't have any capabilities to supress the wildfire (this requires appropriate training and equipment) then immediate reporting of the fire is critical to ensure fire services respond immediately. Hout Bay Fire Station 021 480 7700 or 107.
- If there are wildfires in the area which are generating embers, post someone to keep an eye on this area so that if any spot fires begin they are immediately reported to fire services.
- Engage with the landowner, presumed to be the City of Cape Town to see if the area can be used for alternative purposes such as a community park or housing estate or a combination of these.
- We identified that there has been dumping of garden fuel debris in this area. This adds to the fuel build in the area, adding to the fire risk, and this must be strictly prohibited.

Long Term (Actions the responsible Landowner should take)

- If possible, remove all the gum trees and allow indigenous vegetation to return to the area. If this is done, prevent fuel build up around the entire perimeter for at least 10m (If restored to fynbos). Alternatively thin the number of gum trees in this area by felling at least 40% of the trees and embark on a plan to remove and maintain the ground and surface fuels.
- Rake and remove all ground fuels such as bark, leaves, logs and sticks from the entire area and cut down and remove all the young gum trees which are creating ladder fuels. This will require an ongoing maintenance plan to prevent fuel build up over time.

Area B: Extreme Risk to Overkloof

	This is an area above and adjacent to Overkloof. It contains a significant amount of ground fuels such as bark, leaves, logs and sticks which are predominantly from the gum trees. There are also trees and bushes creating vertical continuity of fuels making the high likelihood of crown fire developing. All this highly flammable fuel will pose a significant risk to surrounding homes and areas of vegetation if a wildfire starts in this area, or spreads through this area. Ignitions and spot fires can easily take hold in this vegetation which will cause this block to ignite if there is no immediate suppression. Given the difficult access to the area as well as being positioned on a steep slope, suppression efforts and control will be difficult and problematic. Even suppression from aerial resources may be less effective due to the tree canopy.
	Extremely high accumulation of fuel which poses a significant threat to the area if this was to catch fire. The fire would quickly spread and produce a large amount of heat, smoke and embers which, if there is a moderate to strong wind blowing it will put properties at risk. Given this fuel load, suppression efforts will be very difficult especially on the Overkloof side where there is no FuelBreak in place. If a wildfire were to burn through this area under extreme fire weather conditions there is a high probability of a wildland urban interface disaster occurring with <u>significant threat to life and property</u>.
	A Vulcan Wildfire Management consultant standing in the fuels. This gives an indication of the horizontal and vertical continuity of the fuels which will promote the spread of wildfire through the area as well as into the blue gums canopy. A canopy/crown fire will produce extreme amount of heat and embers which will have a significant detrimental effect on the surrounding suburbs. A canopy fire in this area will be uncontrollable.

	This gives another view of the horizontal and vertical continuity of the fuels.
	On the upper end of this block the arrows indicate the direction of heat and flames if the wildfire were slope driven. Getting into the tree canopy a wildfire would easily jump the jeep track and affect the blue gum block above the road as well as the surrounding mountains. If a wildfire were to begin in this area, it would be highly probable that it would spread to surrounding areas. Suppression efforts and containment of this area would be extremely difficult and have a low likelihood of success.

Area B Extreme Risk to Overkloof*: Recommendations*

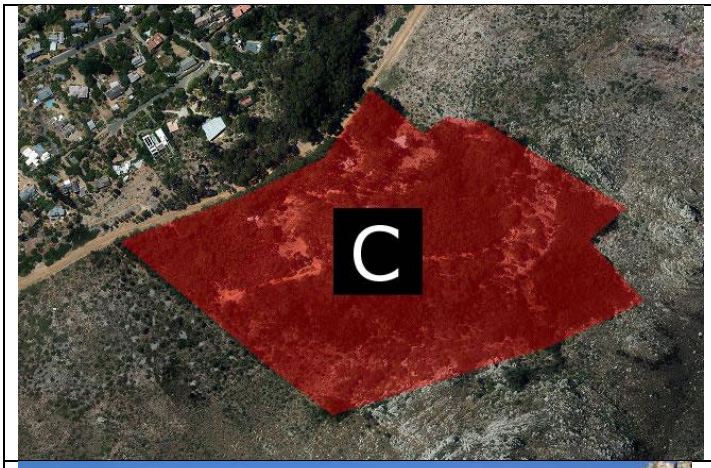
Community Actions

- Develop a rapid reporting and response plan for any wildfires occurring in this area with the aim to supress wildfires and prevent their spread. If the community doesn't have capabilities to supress the wildfire (this requires appropriate training and equipment) then immediate reporting of the fire is critical to ensure fire services respond immediately. Hout Bay Fire Station 021 480 7700 or 107.
- If there are wildfires in the area which are generating embers, post someone to keep an eye on this area so that if any spot fires begin they are immediately reported to fire services.
- Engage with the landowner to see if the area can be used for alternative purposes which may be more financially viable for them to clear the land of aliens.
- Engage with the Cape Peninsula Fire Protection Association (CPFPA) in order to gain an understanding of what action these landowners are undertaking to clear this vegetation and what plans they have for wildfires in this area.
- Develop a relationship with surrounding landowners to put pressure on them to reduce the risks posed by heavy fuel loads but importantly to also develop a positive working relationship where everybody is working in synergy to lower wildfire risks and enhance wildfire preparation tactics.

Long Term (Actions the responsible Landowner should take)

- If possible, remove all the gum trees and allow indigenous vegetation to return to the area. If this is done, prevent fuel build up around the entire perimeter for at least 20m (if restored to fynbos). Alternatively thin the number of gum trees in this area by felling at least 40% of the trees and embark on a plan to remove and ensure ground and surface fuels are cleared.
- Rake and remove all ground fuels such as bark, leaves, logs and sticks from the entire area and cut down and remove all the young gum trees which are creating ladder fuels. This will require an ongoing maintenance plan to prevent fuel build up over time.
- Create as many paths and access areas to this block as part of the process when clearing the area of fuels as this will help access the area for fire services and limit fire spread.

Area C: High Risk to Overkloof

	This is an area above Overkloof which is predominantly blue gum and there are some houses within this area. It appears that the landowner has been, and is currently working, to rake and stack the ground fuels into heaps as well as creating FuelBreaks on either side. This has reduced the continuity of the ground fuels which will assist in limiting ignitions and containing fire. If the heaps do catch alight they will burn with intensity and produce embers so this is something to watch out for.
	As a whole it appears the landowner is in the process of taking proactive steps to prepare for wildfire. The area does however increase the wildfire risk to Overkloof as there is still a large amount of ground fuel such as bark, leaves, logs and sticks which are predominantly from the gum trees. If a wildfire were to burn through this area under extreme fire weather conditions there is a high probability of wildfire spreading from and/or through this area. Embers and spot fires are a particular concern if the wind direction blows from this area towards Overkloof.
	There is a high probability of wildfire jumping the jeep track due to the close proximity of fuels.

Area C High Risk to Overkloof : Recommendations

Community Actions

- Develop a rapid reporting and response plan for any wildfires occurring in this area. Hout Bay Fire Station 021 480 7700 or 107 as well as obtain the landowners contact details so you can inform them of a wildfire on their property.
- Engage with the Cape Peninsula Fire Protection Association (CPFPA) in order to gain an understanding of what action the landowners are undertaking to clear this vegetation and what plans they have for wildfires in this area.
- Develop a relationship with surrounding landowners to put pressure on them to reduce the risks posed by heavy fuel loads. This is ultimately their responsibility. Importantly, work on developing a positive working relationship where everybody is working in synergy to lower wildfire risk and enhance wildfire preparation tactics.
- If there are wildfires in the area which are generating embers, post someone to keep an eye on this area, and the area within Overkloof, so that if any spot fires begin they are immediately reported to fire services.

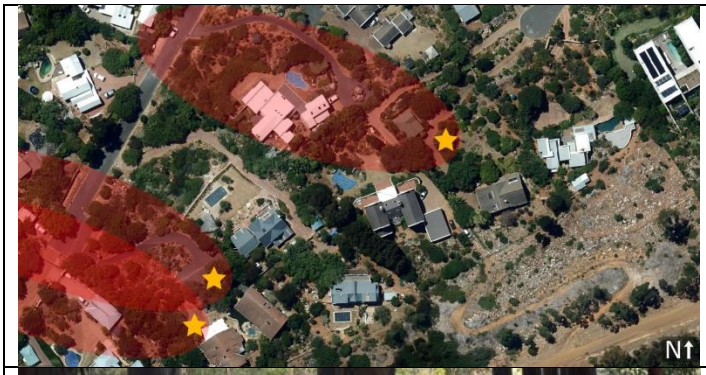
Long Term (Actions the responsible Landowner should take)

- If possible, remove all the gum trees and allow indigenous vegetation to return to the area. If this is done, prevent fuel build up around the entire perimeter for at least 20m (if restored to fynbos). Alternatively thin the number of gum trees in this area by felling at least 40% of the trees and embark on a plan to remove and ensure ground and surface fuels are cleared.
- Rake and remove all ground fuels such as bark, leaves, logs and sticks from the entire area and cut down and remove all the young gum trees which are creating ladder fuels. This will require an ongoing maintenance plan to prevent fuel build up over time.
- Create as many paths and access areas to this block as part of the process when clearing the area of fuels, as this will help access the area and limit fire spread.
- Create a minimum 20m Firebreak around the perimeter of the property.

Other Problematic Vegetation

	The previous section dealt with the high fuel load areas. The surrounding fynbos also poses a different kind of wildfire risk. This is a natural, fire driven ecosystem which requires wildfire intervals to remain a healthy environment. Living alongside this area you will be exposed to wildfires in this area. There is also the vegetated area below the road which will burn. The fire severity compared to the gum trees is less, however wildfires in this area will still produce heat and embers which will threaten the Overkloof area.
	The dirt road cannot be relied upon to stop a wildfire. It offers good access for firefighting vehicles to attempt to hold a wildfire but if there is a strong wind blowing across the road, either upslope or downslope, the fire will likely cross the road. This means, a wildfire burning in this area, driven downslope at the community becomes a very real threat. The vegetation below the road will carry the wildfire right onto the property line and heat and embers will fill the neighbourhood. This highlights the need for all properties to be WildfireReady and hardened against these threats. We provide a document for homeowners along with this report to guide them as to how to mitigate against wildfire risks.

	This is an example of one home on the edge of the suburb and the mountain. There are large fuel stacks which can put the home at risk during a wildfire. These will burn with great intensity and are likely to produce embers. A wind blowing towards the home will push these embers through any gaps in the windows, up against the eaves of the roof and into any gutters filled with leaves. If this area was clear of the wood stacks as well as the dead tree log and the grass was cut short, this would increase the survivability of the home during a wildfire. There are a number of examples of this across the top property line of Overkloof and this provides just one example.
	Above Overkloof there is a section under the gum trees where we can observe the ground fuels are being cleared and stacked. This measure will help to reduce the chance of spot fire ignitions and will help prevent the spread of wildfires through this area. If the does burn, it will do so with less intensity. The fuel stacks should ideally be removed. If they burn they will produce lots of heat, smoke and embers, which, if the wind is blowing downslope, will blow down into the community as indicated by the arrows. If fire gets into these stacks it must be quickly supressed, controlled and monitored, as well as the embers monitored to prevent new ignitions.
	Palm trees in a wildfire environment are extremely problematic. They catch alight easily from embers, and the leaves and bark burn for long periods of time. They become a flaming torch and throw a steady stream of embers into the air. All homes and vegetation downwind of a burning palm are then exposed to a significant amount of hot burning embers which are likely to cause new ignitions in any vulnerable areas such as gutters, roofs, flower beds etc.
	This is an example of a burned palm tree from a neighbourhood in Knysna 2017 wildfire disaster. It was determined that a number of homes ignited from the embers coming from this palm tree.

	This illustration shows the location of three palms in the Overkloof suburb (there are many more). If they were to catch alight, the red areas simplistically show a possible ember debris path as the burning hot bark and leaves carry in the wind and land on homes and gardens causing them to ignite.
	Another example of high risk palms in the Overkloof area. You can see the dry leaves of the palm which are like 'firelighters' that result in a very easy ignition of the tree.
	The stacks of wood will promote the spread of wildfire and become problematic areas that produce lots of heat and embers. They are also positioned along a strategic point, the road, which firefighters would want to use to contain a wildfire. Having them here complicates this operation. They should be removed.
	Another example of a fuel stack that will catch fire easily, burn hot and produce lots of embers which can be blown on to the properties below.

	There are many examples of fuel risks around homes in the Overkloof suburb. Our report scope did not include individual home assessments (this is an additional service we can offer) however we wanted to point out the vulnerability of homes such as this to embers. This home is set back off the mountain, with other homes in-between, but all it takes is one or a number of embers to land in this vegetation and the home could easily ignite. The proximity of the chimney is also a noted concern.
	This thatch roof can easily catch alight during a wildfire. Given its elevated position, like a palm tree, it will cause homes and vegetation downwind to be at risk from burning ember showers (if it caught fire). During a wildfire it is advised to have a sprinkler system keeping it wet and someone should monitor it for ignitions.

Problematic Vegetation: Recommendations

- The jeep track should have a FuelBreak created from the houses up until the jeep track. This area doesn't have to be void of all fuels like a Firebreak but rather the continuity of fuels needs to be broken up and all the dead fuels need to be removed, and the grass kept short. The aim would be to easily supress a fire if it were to get into this area.
- With a Fuelbreak as recommended below the road, a Fuelbreak with all fuels cut to ankle height for 10m above the road would also strengthen the ability to hold a wildfire above the road.
- Remove all fuels stacks from the jeep track area, as this increases the chance of a wildfire crossing over the road.
- Clear a FuelBreak above houses, especially removing all fuel stacks in close proximity to homes.
- All homes and properties need to be made WildfireReady. They need to create defendable space around the homes and prevent embers from causing home ignitions.
- Palm trees catch alight easily, and when alight throw new embers which cause ignitions. Their bark and dead material have an ability to burn hot and stay alight for a long duration making them extreme fire hazards in an urban environment. Remove palm trees from the area. If this is not accepted as a recommendation, ensure all the dead leaves are pruned and removed. During a wildfire have a plan of action to put water on the palm to prevent ignition, and if one were to catch alight, pay close and constant attention to all homes and properties downwind.
- It has been observed that dumping of garden fuel debris occurs in some open space areas. This adds to the fuel build up as must be prohibited.

FuelBreaks and Firebreaks

Firebreak (sometimes referred to as a "break")
An area where all vegetation and organic matter is removed down to mineral soil, thereby removing the fuel leg of the fire triangle. (Fire triangle: Oxygen, Heat, Fuel).

FuelBreak
This is a strip of land where fuel has been modified or reduced to limit the fire's ability to spread rapidly, normally cut down to ankle height level and regularly maintained. Often mistakenly called 'Firebreaks'.

The individual property owners must be responsible for taking actions to harden their homes and gardens from wildfires. The WildfireReady documentation included with this report will provide advice and guidelines to assist them in the process or we can provide them with an individual homes assessment and recommendations.

In terms of your neighbouring properties which may include private, municipal and state landowners you will need to discuss your concerns with them and motivate them to be proactive in creating and maintaining Firebreaks and FuelBreaks as well as applying other risk reduction measures to prepare and respond to wildfire risks. As a community we recommend that you develop a working relationship with the Cape Peninsula Fire Protection Association (CPFPA). They represent all large landowners who should be members of their organisation. They can assist in dialogue with the appropriate landowners and help provide support for action to take place in terms of the National Veld and Forest Fire Act No. 101 of 1998. Vulcan Wildfire Management met with Riaan on-site to highlight the concerns as discussed in this report.

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What should responsible landowners being doing with regard to FuelBreaks and Firebreaks?

The reduction of fuel loading in an area has the ability to slow down and prevent a wildfire from gaining in intensity and creates an environment where it is safer for fire services or firefighting resources to operate. A FuelBreak or Firebreak alone will not stop a wildfire but it creates the opportunity to do so. The successful creation of this space is reliant on more than just removing the hazardous and dry vegetation; you can also consider planting fire-resistant plants or homes are adjacent to the break they can install sprinkler systems nearby to structures that can wet down the structure and the vegetation nearby.

Compliance with the National Veld and Forest Fire Act, 1998

If there is an injury or loss of life, damage to property or assets or spread of fire from a property to a neighbouring property there is most likely going to be an investigation of some kind. One of the key areas examined will be compliance to the National Veld and Forest Fire Act, 1998.

Overkloof can discuss their neighbouring properties compliance with the act with the Cape Peninsula Fire Protection Association. The act looks at steps to deal with fire on property but also has a large focus on controlling measures and procedures to prevent the spread of fire. Chapter 4 of the National Veld and Forest Fire Act, 1998 places a duty on land owners to prepare and maintain Firebreaks.

Included below are key exerts from the National Veld and Forest Fire Act, 1998.
"12. (1) Every owner on whose land a veldfire may start or burn or from whose land it may spread must prepare and maintain a Firebreak on his or her side of the boundary between his or her land and any adjoining land.
Requirements for Firebreaks
13. An owner who is obliged to prepare and maintain a Firebreak must ensure that, with due regard to the weather, climate, terrain and vegetation of the area—
(a) it is wide enough and long enough to have a reasonable chance of preventing a veldfire from spreading to or from neighbouring land;
(b) it does not cause soil erosion; and
(c) it is reasonably free of inflammable material capable of carrying a veldfire across it.
[Section 13 came into effect on 2 July 1999]"

FuelBreak Maintenance

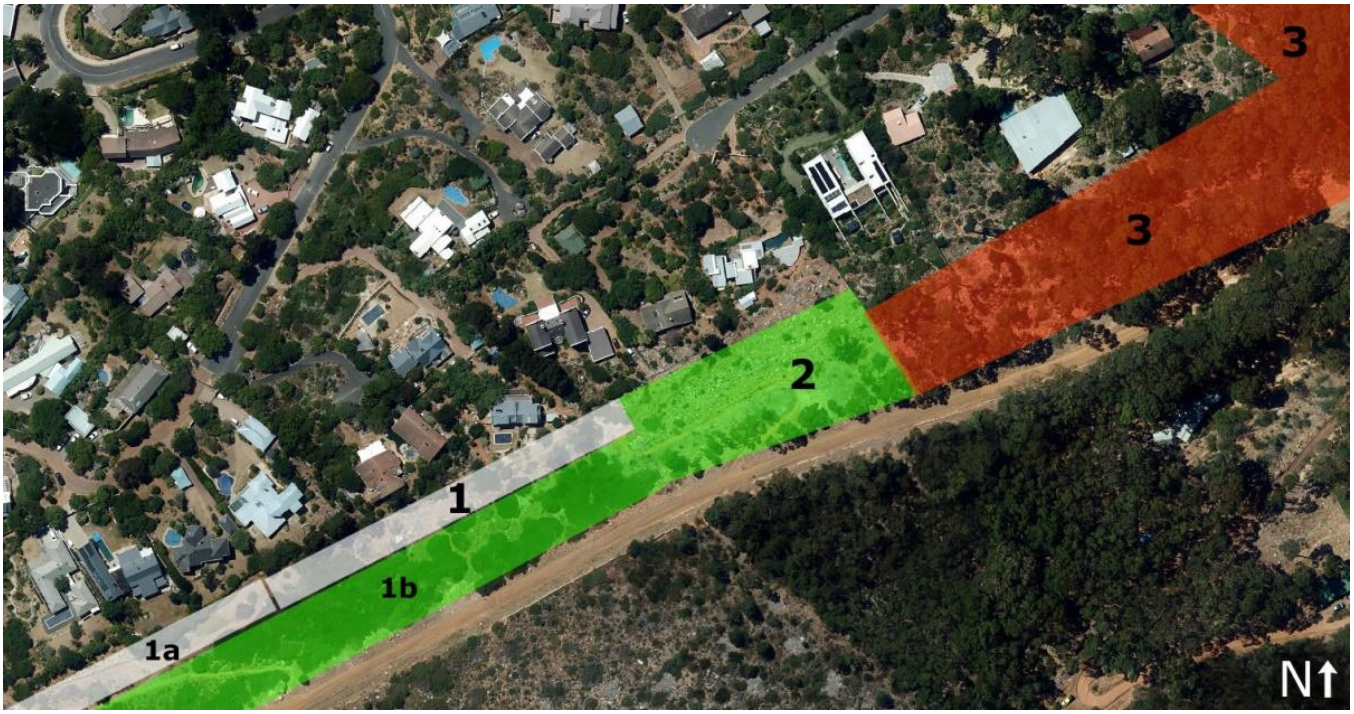
To retain the integrity of FuelBreaks it is essential to maintain them regularly. There are different factors which will affect the growth of vegetation returning to a FuelBreak that has been cleared. All breaks should undergo an annual assessment to determine their suitability for each upcoming fire season. Regular maintenance of a FuelBreak is going to ensure your FuelBreak is effective and it is much easier and less costly than reinstating a break after years of growth.

Fuel Management

There are isolated sections adjoining the Overkloof area where fuel reduction needs to take place in order to reduce the risk before a fire takes hold of these areas. Almost all of these areas include neighbouring properties but we have included guidelines and recommendations in this report so you are aware of what should be undertaken to lower the risk to your area. **Your part as a community is to ensure each home and garden within your suburb is WildfireReady and homes are hardened especially to the risk of embers.**

Fuel reduction is a function that needs to be carefully planned. This work should ideally take place in the cooler winter months when you can go into areas and remove the fuel safely. The fuel needs to be taken out and not left. It can be removed by truck, it can be chipped and then removed or it can be stacked and burned. For any of these options the right types of skilled resources are essential and the landowner will need to apply for a burn permit for any burn operations to remove fuels.

Dead fuels must be removed



1	Reduce the fuel in this area and create a path upon which firefighters can have access to defend properties. This should be at least a 10m FuelBreak area (fuels to ankle height).
1a	This should be at least a 10m FuelBreak area with a path for firefighters.
1b 2	A FuelBreak area, i.e. reduction of fuels should be created here to limit fire spread and severity potential. (aim is to reduce the horizontal continuity of fuels)
3	This area requires significantly more work as it contains higher fuel loads as identified in the High Risk Areas of this report. A FuelBreak area must be created, i.e. reduction of fuels should be created here to limit fire spread and severity potential.

	This is the area where we recommend creating at least a 10m FuelBreak (cut to ankle height) as well as a FuelBreak (reduce continuity of fuels) for the remaining area up until the jeep track. An access path for firefighters will also be beneficial along the housing line for the defence of properties.
	This is an example of the limited access and fuel build up against the fence line. This poses a significant threat to fire spread to this property and the Overkloof area. An access path for firefighters would also go along this line.

	Looking at this section you can see a clear path or line of vegetation leading from the jeep track to the homes. A FuelBreak is required.
	Areas within the suggested FuelBreak where logs and stacks have accumulated. These need to be removed from this area which is in close proximity to homes.
	The fuel stacks should ideally be removed. If they burn they will produce lots of heat and embers, which, if the wind is blowing downslope, will blow down into the community. If fire gets into these stacks it must be quickly supressed, controlled and monitored, as well as the embers monitored to prevent new ignitions.
	This area requires the grass to be trimmed and some of the leaf and bark matter to be removed. The young gum trees should also be cut down. Once this is completed, this area acts as a good FuelBreak zone between the road and the houses.

	In order for this area to be improved to an adequate FuelBreak: 1: Dead fuels need to be raked up and removed 2: Young trees need to be cut and removed 3: Fuel reduction and thinning of tress required

FuelBreaks: Recommendations

As a community we recommend that you develop a working relationship with the Cape Peninsula Fire Protection Association (CPFPA). They represent all large landowners who should be members of their organisation. They can assist in dialogue with the appropriate landowners and help provide support for action to take place in terms of the National Veld and Forest Fire Act No. 101 of 1998.

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Vulcan Wildfire Management met with Riaan on-site to highlight the concerns as discussed in this report.

Access from Mountain to Houses and Vice Versa

The Overkloof area has to take into account many risks and security is a major consideration. As such homes have locked gates and fences which restrict access from the home to the mountain and vice versa. During a wildfire operation we must highlight the importance of fire services having quick access around properties.

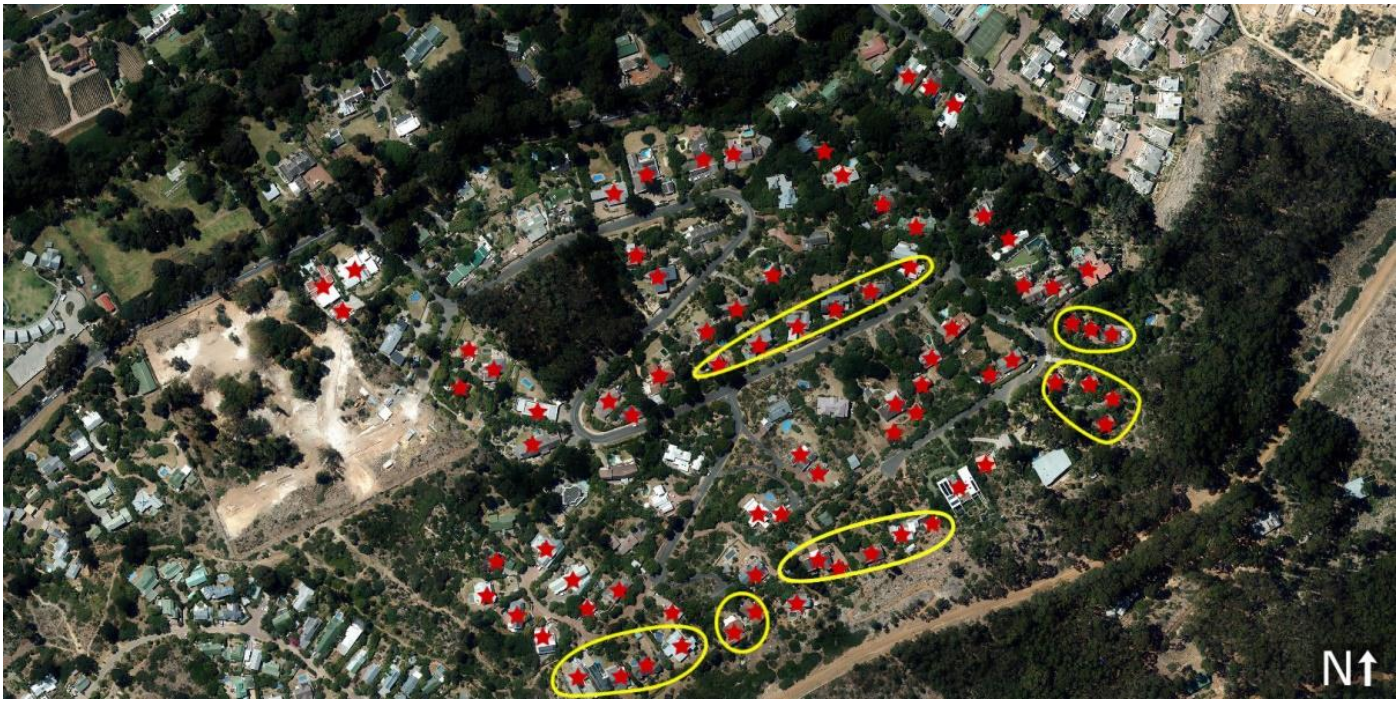
- Make sure fire services can access back garden areas through any gates or fences which are normally used to restrict this access.
- During wildfires put out a ladder so fire services can access your roof if required.
- Set up hoses and sprinklers in your garden. If you cannot leave them on due to water supply, leave them out in the garden and have them available so firefighters can use them if necessary. (The do have their own water and hoses but having additional options is always beneficial)

	This is a very simplistic diagram just to illustrate that fire services will require multiple access routes to supress any fires that move into or from the Overkloof community. You need to think about what access can be opened during wildfires and how this process of opening locked gates and fence lines will take place.

	Example of a good access point for firefighters along the fence line if the gate is left unlocked.

	If this home (and other homes with pools) had a portable pump and hoses the swimming pool could be used to wet down the house and surrounding vegetation. It could also serve as a water supply for firefighting teams with their own equipment. Discuss these options with fire services and indicate to them which homes they can access water from. In times of drought this might prove to be an essential resource to safeguard the community.

Home Proximity



Above: Illustration showing homes within 15m of another home or structure (indicated by red star). The yellow highlighted areas show examples of clusters that would be particularly vulnerable if one or more homes caught fire.

This report highlights the potential of homes in the Overkloof area to catch fire from embers and from structure to structure ignitions. There are a large number of homes in your area that are positioned within 15m of another home or structure (such as a garage car port). The proximity of these structures, should they catch alight, puts other homes at risk. The homes downwind of a burning house fire are exposed to severe radiant heat as well as embers and they can easily catch on fire.

As a community your main objective is to prevent home ignitions from occurring in the first place by paying particular attention to risk reduction from ember showers and reducing vegetation around the home. If a home were to catch fire, we want you to be aware of the structure to structure risk factor and ensure you have alerted fire services of this. (Refer to the WildfireReady document provided with this report to find out more about how to reduce risk around homes).

Hydrants and Water Pressure

It was brought to our attention during the assessment that there are areas of Overkloof with very low water pressure. This will affect the flow of water from hydrants and we want to highlight this as a fire risk for the area; not only a risk for wildfires but a risk for urban structure fires. The area has houses 10m - 30m apart as well as houses 3m - 10m apart. In terms of (SANS: 10090, 2003) shown in the extract from a report below, the minimum required flow rates should be 2850 - 3800 ℓ/min and this must be available based on the highest daily consumption plus the Required Fire Flow (RFF).

We recommend alerting the local fire service as well as the municipality of this risk factor in order that they can adequately address this risk.

*"2.4.1.1.6 Fire Flow
The water flow rates required for firefighting, as well as the required duration for each of the risk areas, is given in Table 19. The fire flows are based on possible partition sizes for buildings as described in the SABS 0400. The fire flow calculations are based on the RFF of the Insurance Survey Office (ISO) suppression rating schedule. It is important to ensure that sufficient fire flow is available when the firefighting teams arrive at the scene. It would be ideal if a liaison between the water suppliers and the fire departments could be sustained, ensuring that if a fire was to occur during a peak demand period, or any other problems might occur, the water supply could be augmented towards the area where the fire is.

Table 19: Minimum required fire flow (SANS: 10090, 2003)

Risk Category	Possible Fire Size	Flow in ℓ/min	Required duration
A	Non-residential buildings with divisions < 5 000 m2	13000	4h
B	Non-residential buildings with divisions < 2 500 m2	9000	4h
C	Non-residential buildings with premises < 1 250 m2	6000	4h
D1	Houses > 30m apart	1900	
D2	Houses 10m - 30m apart	2850	
D3	Houses 3m - 10m apart	3800	
D4	Houses < 3m apart	5700	2h
E	As determined by risk assessment		

As has already been mentioned, the minimum amount of water that must be available should be based on the highest daily consumption plus the RFF. This supply must be maintainable for a minimum duration at the required residual pressure of at least 200 kPa."

*Evaluating Methods For Fire Protection And Related
Fire Risk Categories In Rural Towns Of The Western Cape, South Africa
By Erena Myburgh
Extract from Page 70
Source and Full Report Downloaded at:
https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=2ahUKEwj_7K2rzPrgAhVG3aQKHTHID0YQFjAAegQIChAC&url=http%3A%2F%2Fscholar.sun.ac.za%2Fbitstream%2Fhandle%2F10019.1%2F20066%2Fmyburgh_evaluating_2012.pdf%3Fsequence%3D1%26isAllowed%3Dy&usg=AOvVaw0nDQr_uCFdKvGUNa2OaciQ

	Vulcan Wildfire Management inspected the hydrants by opening the covers and checking the state of the hydrants. We are not legally allowed to test the water flow of the hydrants so this element will need to be addressed with the municipality.
	We opened a number of hydrant covers and the sample that we looked at appeared to be clean and have all the required fittings.
	This hydrant was filled with leaf matter which we removed. As a good pre-fire season task it would be recommended to open the covers and check each hydrant is clear of debris. Also make sure the paint to indicate where all the hydrants are located is visible and advise the municipality if it begins to fade.

Residents and Road Congestion

When there is a wildfire incident that affects your area, there will be increase traffic flow in and out of the area. With only two roads leading in and out we suggest you establish a system with fire services and emergency vehicles coming into the area where they enter via the one road and depart via the other road which essentially creates a one way system and eliminates the need to turn their large vehicles around. When reporting a wildfire to the emergency services, it is recommended that you include this quick information in your call. i.e. "For best access enter via Blackwood Drive and exit via Chestnut drive".

Residents should also attempt where possible to ease traffic flow and keep the roads clear for emergency services. Residents who are not involved in co-ordinating the incident should either evacuate or stay to defend their properties. They must give the firefighters and vehicles room to manoeuvre in the suburb.

Keep an eye on low hanging branches encroaching on the roads that you wish fire service trucks to travel on. Check all your roads prior to each fire season and make sure there is sufficient clearance. (Vulcan recommends an easy to remember, 5m-wide x 5m-height clearance).

A general set of general guidelines for fire brigade vehicle access that can be applied:

- 4m-road width
- 10m radius where 90 degree turns are required
- 25m turning circle
- 4.5m tall clearance
- A person available to unlock gates, and disable electric fences and gates.

Wildfire Detection and Reporting

What information to provide Emergency Services?

- Call without delay.
    - While dialling think about the critical details you need to convey.
- Begin with your name and phone number.
- What is the situation; i.e. wildfire.
- Exact location of wildfire.
- Best access for emergency responders to reach the wildfire safely.
- Potential of the fire; i.e. lives threatened, property in danger.
- Any other critical information.
- Follow the dispatcher's instructions that are given.

Contact the relevant authorities:

Cape Town Fire and Rescue Services:
Hout Bay Fire Station 021 480 7700 or 107

Table Mountain National Park
Fire Dispatch (office hours): 021 689 7439
Emergencies: 0861 106 417

Land Owners
Inform your large neighbouring landowners or community groups about the fire.

Karbonkelberg - February 2017. Fire grows rapidly after ignition.

Reduce the Probability of Home Ignitions

Wildfire suppression is only a small component of a much larger and more comprehensive strategy which is required to prevent disasters in the Wildland Urban Interface (WUI). There are community driven initiatives and community responsibilities to ensure that you are prepared for wildfire incidents. This highlights the importance of strategic and tactical planning. Effective wildfire preparedness requires proactive measures to ensure that when an incident occurs you are ready to deal with it. A comprehensive and holistic approach to managing wildfire and dealing with the risk of wildfire is needed. Residents and the community need to take action.

We have supplied a WildfireReady document along with this report. This contains additional information which we encourage you to read and apply to your circumstances. This information includes:

- **Stay Informed**
  - Reporting a wildfire
  - Your emergency numbers
  - Questions to ask/Actions to take
  - Fire Danger Ratings explained
  - Main weather factors impacting fire
  - Other factors which may influence fire behaviour
- **Check**
  - General wildfire preparedness
  - Prepare your Home from Wildfire Risks
  - Prepare your Property (Garden) from Wildfire Risks
- **Protect**
  - Community Protection Plan and Wildfire Risk
  - Quick Evacuation Checklist
  - Pets and Wildfire
  - Horses and Wildfire
  - Livestock and Wildfire
  - Defending your Property from Wildfire
- **Survive**
  - Evacuate from Wildfire
  - Surviving being Trapped by Wildfire
- **Extras**
  - Emergency Kit
  - Quick Evacuation Checklist

The measures prescribed in this report are aimed at alerting you to potential risk areas so that you can take the steps required to reduce risk. There is no way to completely eliminate risk however having an action plan and performing the necessary preparations ahead of fire season, and maintaining them during fire season, will help guide you through a wildfire incident and dramatically reduce the chance of damage or loss.

WildfireReady document supplied along with this report.

Community Wildfire Incident Response (Who, What, Why, How, When)

Status of Wildfire	Who	Within your Control
Before	Community: Residents and Groups	***Proactive Measures Before a Wildfire Occurs:*** - Community wildfire and all hazard strategic plan. - Wildfire awareness initiatives such as risk reduction measures homeowners can put in place around their property, homes & assets. - A community fire readiness day to raise awareness. - Initiate a good working relationship with Table Mountain National Park, CPFPA and Fire and Rescue Services by showing how Overkloof wants to put in place measures to create the best possible environment which will aid in the successful reaction and suppression of wildfires. - Develop a community incident response team with training in the Incident Command System which can provide support to large wildfire incidents which affect the community. - Intelligence gathering and putting together a plan for wildfires.
How Wildfires Start	Community Groups	Limiting ignition risks through education about the risk of human ignition sources within your community.
When a Wildfire Spreads	Community: Residents and Groups	- Rapid identification that a wildfire has started and fast and accurate reporting of wildfire to relevant resources to deal with wildfire. - Pre-planning and mitigations measures are in place to reduce the spread of fire within your areas of control. - Fuel reduction areas and controls within your community green belts and natural vegetative areas. - Defendable space and risk reduction measures around homes and assets in community. - Fuel reduction initiatives such as alien vegetation control and fuel management.
Wildfire Operations	Community: Residents and Groups	Structured and well organised community relationship with local Municipality and Fire Suppression agencies in order to provide intelligence and support: - Location of working water points, hydrants. - Best access routes. (Maps of your area). - Knowledge about previous fire behaviour. - Community representation at the Incident Command Post (Agency Representative) - Basic logistical support: staging area location, office area for Incident Command, internet connection, refreshments for fire crews.
Evacuations	Community Groups	- Voluntary evacuation of the young, frail, infirm, sick etc. well before a wildfire impacts the community. - Community must plan for when an evacuation is ordered. - Community rally points can assist to gather community. - Have a community led communication plan for evacuations but also ensure you obey official orders from the emergency services.

General Guidelines for Wildfires

Keep non-essential people away from the fire

The only people who should be in close proximity of a wildfire are those who are trained to deal with wildfires. All non-essential members of the community must be kept away from a fire scene. It is a dangerous and rapidly changing environment. Wildfires are especially fast moving. Bystanders who think they are far away from a fire can get compromised very quickly. You need to try and implement measures to keep all non-essential people away from fires especially visitors to Overkloof who are not accustomed to wildfires and the risk they pose.

Be aware of weather

No fire is ever the same and this is largely due to the variables that effect fire. Weather is one of the critical variables you need to be aware of. Make sure you have a forecast for the day of a wildfire occurring as well as look at subsequent days so you can anticipate what you might be dealing with.

Be aware of the condition of your fuels, grass

Fuels are constantly in a state of change. Their moisture levels will have a role to play in how readily they ignite and spread. Currently the fuels are very dry due to the drought and you can expect them to burn easily and there to be a high rate of spread.

Fire spread and direction can change rapidly

Due to the nature of fynbos which is a very flashy fuel, it will ignite and burn very quickly. It will move faster when burning upslope as well as with the wind. The flank of a fire can rapidly turn into the head with a shift in wind direction. You need to be mindful of this if you are in an area that is burning.

Do not underestimate the danger of wildfire smoke.

The smoke which comes from a wildfire can turn day into night. It can be incredibly thick and result in difficulty in breathing, headaches, nausea, dizziness and even death. Do not spend prolonged periods of time in smoke and avoid areas of smoke if at all possible.

Image Above: Firefighters working in smoke. Even with protective gear they will need to plan to reduce exposure time

Communication Guidelines

Cell Phone:
There is good coverage in the area. However, wildfires in mountain areas where cell phone towers are often positioned can go down. This can result in a loss of signal.

Local WhatsApp Group:
There is a WhatsApp group for community members to communicate with each other. When there is an incident taking place this is a great channel to communicate with the community. We recommend establishing a group where only admins can send messages and a separate group where the community can ask questions. Trying to achieve both on one group can become problematic to communication during an incident as the flow of communication becomes too difficult to follow. Having one group just for official alerts is vital.

Radio Communication:
This communication method works well during active incidents. If you have community radios which you use for security, use them for all essential communication during incidents including wildfires.

Facebook/Twitter:
It is highly recommended that Overkloof establish (if you have not already) a Twitter and Facebook account to which they can release relevant and accurate information at the time of incidents. This information can take the format of incident status summaries at designated time. i.e. every hour, every 2 hours, every day at 18:00 and 06:00 or whatever frequency the Overkloof Team deem necessary. This additional communication channel can form a vital communication link.

The following is a Briefing Checklist which operational emergency crews often use to ensure that when they give instructions during an incident it covers all the relevant topics. This may be useful to the Overkloof team and we have therefore included it.

Briefing Checklist

Situation
□ Fire name, location, map orientation, other incidents in area
□ Terrain influences
□ Fuel type and conditions
□ Fire weather (previous, current, and expected)
□ Winds, RH, temperature, etc.
□ Fire behaviour (previous, current, and expected)
Time of day, alignment of slope and wind, etc.

Mission/Execution
□ Command
Incident Commander/immediate supervisor
□ Leader's intent
Overall objectives/strategy
□ Specific tactical assignments
□ Contingency plans
□ Medevac plan
Personnel, equipment, transport options, contingency plans

Communications
□ Communication plan
Tactical, command, air-to-ground frequencies
Cell phone numbers

Service/Support
□ Other resources
Working adjacent and those available to order
Aviation operations
□ Logistics
Transportation
Supplies and equipment

Risk Management
□ Identify known hazards and risks
□ Identify control measures to mitigate hazards/reduce risk
□ Identify trigger points for re-evaluating operations

Ask if there are any Questions or Concerns?

Evacuation Planning

Overkloof is in a wildfire area where being put in a position where you have to make a decision about evacuating is highly likely. The process of evacuations is complex and you need to assess whether or not evacuations are necessary for an incident. As a community organisation, you can help guide the process and initiate voluntary early evacuations however when it comes to mandatory evacuations, this will be in the charge of the official authorities. The importance however, is that:
a) Overkloof has a plan for all types of evacuations and,
b) You involve and inform the authorities through good channels of communication as to what processes you are following.

Always

- Contact the relevant authorities, such as Hout Bay Fire Station 021 480 7700 or 107 to seek approval for your plan to voluntarily evacuate. This is of critical importance as they may have crucial information or instructions for you, which may assist or guide your actions.
- Be sure to know who the relevant authority is to contact (Hout Bay Fire Station Commander) and speak to them about your plans before a wildfire occurs in your area. Tell them about your plans for evacuations.

Making the Decision

With wildfire you have to look at the location of the wildfire, the potential paths it can burn based on forecast weather, the fuels and the topography and determine if your residents, workers or community will be in harm's way or under threat in any way. Take into account the Fire Danger Index and be aware of severe fire behaviour with regards to temperature, wind and relative humidity. Be cognisant of these factors as well as drought conditions to determine your community risk level based on the severity of the wildfire potential.

Set trigger points which will determine when evacuation of areas will begin. Trigger points may be:

- when a wildfire reaches a specific geographic location.
- when the smoke from the wildfire starts to come across the suburb.
- right at the outbreak of any fires in close proximity to people and homes.

Every situation will be different and you will need to make an assessment and then set an appropriate trigger point.

Have a plan for evacuation procedures

An evacuation is a stressful process to undergo so before activating this process you need to be prepared and have a plan and make sure community members know the plan. Important to the process is:

- Communication channels/methods you will use.
- Workers/Residents understanding of what is expected of them.
- Travel arrangement to get from their current location to a safe area.
- Locations to house the evacuees.
- Safety and security consideration for the area once it has been evacuated.

How will the alarm be raised? What communication method/s will you make use of?

It is important to consider all your communication options and consider what method or methods of communication will:
a) Be effective and reliable.
b) Reach your intended workers/residents.
You may need a combination of communication methods to cover different scenarios. With the possible threat of cell phone signal being lost due to wildfire, consider alternative, less high-tech solutions as well.

Possible Stages of Evacuation

Before you arrive at a situation where you suddenly have to evacuate the suburb all at once, it would be preferable to initiate a staggered process. This will hopefully bring some calm to a highly stressed situation but also importantly prevents a gridlock on the roads and exit points of the suburb.

The only way a staggered evacuation can occur is if you are proactive and alert to a potential wildfire threat in its early stages so that you have the time to initiate all phases. The possible phases include:

(Note: You can add or subtract stages from this process based on your knowledge of your area or the specific needs of the incident).

a. **Evacuation Alert**
b. **Early Voluntary Evacuation of High Risk Areas**
c. **Secondary Voluntary Evacuation of Community**
d. **Mandatory Evacuations**

Evacuation Alert

Before evacuating you may wish to issue an evacuation alert. The purpose of this alert is to inform the people concerned of potential or impending danger. An evacuation alert may allow for the affected workers and residents to begin an orderly preparation to leave the area while also affording you the opportunity to inform them of the evacuation routes and procedures they might need to follow.

Communication with the community is important prior to any incident or evacuation to ensure the following is understood:

- Individual roles and responsibilities.
- Threats, hazards, and protective actions they might need to consider.
- Notification, warning, and communications procedures.
- Means for locating family members in an emergency.
- Procedures to run through prior to evacuation.
- Evacuation, rally points, shelter procedures.

Early Voluntary Evacuation of High Risk Areas

- Alert the relevant authorities you are going forward with an Early Voluntary Evacuation of High Risk Areas.
- An early evacuation should focus on the most vulnerable in the community first. Well before the wildfire reaches Overkloof this evacuation must prioritise the young, old, infirm, sick and vulnerable.
- Include the evacuation of high risk, high exposure areas and homes/buildings in your early evacuations. These are your properties with the highest wildfire exposure bordering the mountain or isolated homes in vegetated areas.

Secondary Voluntary Evacuation of Community

- Alert the relevant authorities you are going forward with a Secondary Voluntary Evacuation of workers, residents or communities at risk.
- This process takes into account the rest of the community that has not evacuated in the Early Evacuation phase.
- At this stage the evacuations are still voluntary as you cannot force resident to leave their property unless mandatory evacuations have been ordered.

Mandatory Evacuations

- By establishing good working relationships and communications with the Hout Bay Fire Station Commander you will hopefully receive forewarning when these types of evacuations are about to take place.
- You will be in a position to inform them of what areas and who has already evacuated.
- You will be in a position to assist with communicating this to the community.
- Forcing anyone to leave the area or their home is only a function that can be performed by the relevant authorities.

Reminder of Evacuation Decisions

- Careful consideration of the roads or routes you choose to use when evacuation occurs is important. Give clear instructions as to which are the safest routes to travel.
- You will want to evacuate away from any danger or risk towards a rally point. This rally point must be communicated in the evacuation order.
- Ensure the evacuees are informed and prepared for the evacuation process before an incident occurs to allow for this process to be as calm as possible.
- Each homeowner can have a predetermined location for where they will go. This is something we advise you put in place and practice for your community.
- Have an official communication method to activate evacuations.
- As you are evacuating early or in stages you should not hamper the emergency services incoming 'traffic' however be mindful of this factor.

Rally Points and Evacuations

- Consider evacuating the community to pre-determined Rally Point areas, from which you can then determine the appropriate actions. This could be within a safe area of Hout Bay or outside of Hout Bay. You may need to think about multiple options such as community halls that are situated in different areas. If you only have one option you run the risk of that also being affected by a wildfire.
- Constantly assess your rally points for suitability based on the incident severity and location.

Community members and residents who choose not to evacuate and stay to defend their property

- These members do so at their own risk.
- They must have done proactive planning and work around their home to safely commit to this option. *WildfireReady principles must be applied, such as creating defendable space, having water capabilities etc. and they must be adequately prepared with the right personal protective equipment to defend their homes. They must also be physically fit to do so.

*We have supplied a WildfireReady document along with this report. This contains information about evacuation and 'what-to-do' in different eventualities. We do not wish to duplicate this content in this report.

Community Wildfire Awareness Initiatives

Kick off your Fire Management plans with community buy in. Devise a Fire Readiness Day with a strong focus on community wildfire preparedness. Use this day to highlight the mitigation work planned and completed as well as the ongoing necessity for all homeowners play their role in completing this work.

Campaign Strategy and Planning

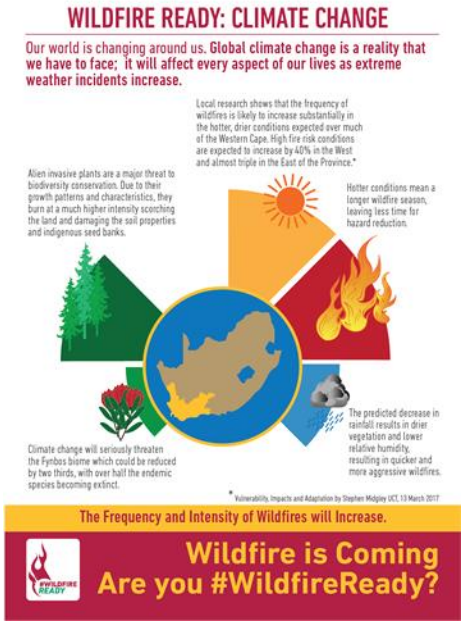
- Design an awareness campaign strategy.
- Conceive a catchy name for the day, (which will become the name for all future campaigns).
- Source a community location in which this day can take place.
- Create a plan for the day which includes fire readiness information for the upcoming fire season.
- Invite local fire brigade, firefighting volunteers etc. (Use the day to build/enhance good relationships).
- Have photographs or videos of work completed in the community to prepare for the upcoming fire season. Use the opportunity to also communicate what to do in the event of a fire and explain how evacuations will happen.
- Support the costs of organising and running an awareness day with proceeds from food stalls, kid's activities, entertainment, sale of fire resistant plants etc.

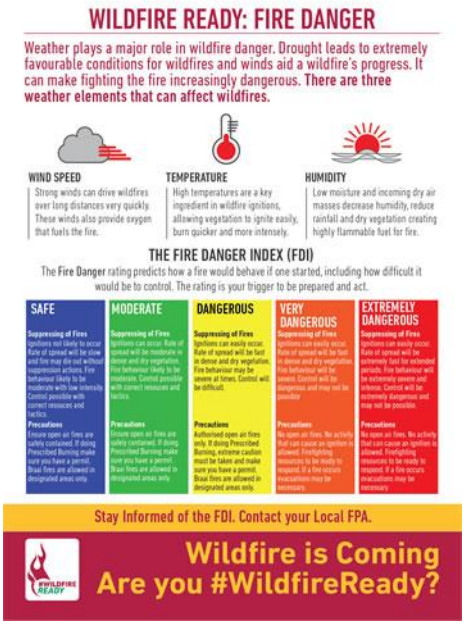
Remember to Promote Your Day

- Design Flyers, Lamp-Post Boards, E-Flyers
- Write Advertorials for Local Media Publications

#WILDFIRE READY

Visit www.wildfireready.org.za to download free information flyers and wildfire videos. Share these with your community. These are some examples of the flyers that you will find:





The Importance of Multi-Agency Relationship Building

Mutual Aid, Assistance, Coordination

The efforts by Overkloof will be strengthened by support from all the homeowners who live, own a property or run a business within the area. The reduction of risk and planning for incidents requires leadership to guide the processes but it also requires the buy in and support from the greater community. This plan has everyone's best interest in mind and it is important to involve the community in whatever aspect you can. This may be in a very limited format with some or a more active involvement with others, which can be expected. When an incident strikes your ideal scenario is that everyone:

- knows the plan
- knows who is in charge and respects the chain of command
- understand their role or action required of them
- there is no conflict with regards to the plan and response

This will only happen if engagement and support from the community is established prior to any incident occurring.

It is in everyone's interest to work together to lay down strategies for incidents. Historically, there is a great sense of community spirit and coming together at times of need, so this process aims to capitalise on this and help create a better response and reduce crisis management when an incident occurs.

What will further strengthen the Overkloof community plan and risk reduction initiatives is co-operation and co-ordination with surrounding landowners and suburbs who are in a similar position in Hout Bay. Involve the other groups and organisations in the Hout Bay area in your community planning. There is great strength in numbers and you will perhaps have different skill sets you can draw on. Having a plan to support one another when they are struck by a wildfire incident will strengthen the relationship and enhance cohesion.

It is also incredibly important to meet with and engage the Fire & Rescue Services to let them know what you, the community of Overkloof, have put in place and are willing to do. Remember that by mitigating risk and providing this incident support Overkloof strengthens any response actions however if this is not integrated with the Municipality and other Fire Services, then it can become a source of conflict.

Community Wildfire Response Capabilities

Capabilities, Training and Equipment Recommendations

Firefighters

Based on the basic assessment of the area there are currently no community personal tasked as firefighters. The focus is therefore on incident support.

Incident Support

Overkloof has the capability and human resources to support formal Incident Command with a Community Incident Team. We highly recommend that in order for this process to work effectively Overkloof sends selected community members on Incident Command System training. Vulcan Training, www.vulcantraining.co.za offers online courses which can be done part time.

Personal Protective Equipment (PPE)

Although no member of the Overkloof team will be actively engaged in formal firefighting operations it is still important however that they have appropriate fire personal protective equipment as they will potentially expose themselves to active wildfire incidents and situations. They may also be in the position to stop a small wildfire from spreading by containing it while fire services are on route. For this reason the appropriate amount of stock of the following PPE items could be kept:
- Leather Gloves (Elbow length leather welding gloves are a cost effective solution).
- Leather Boots (Full Leather Boots).
- Full length cotton or fire resistant overalls or full length cotton pants and shirt
- Firefighting Goggles. (Note they must be heat rated. You cannot use any goggles).
- Flash Hood
- Helmet
- Headlamp
- Bottles of drinking water (Not a PPE requirement but essential nevertheless)

Note: All PPE items should be checked prior to each fire season.

Equipment Recommendations

Fire Beaters and Rake Hoes: We advise you to have some fire beaters and rake hoes as tools on your CID Team can use. Putting out small spot fires, containing a small fire as it starts or mopping up after a fire are all tasks that can be done. Having basic hand tools gives you the ability to deal with low risk situations. (Note: These tasks must only be conducted by capable and trained personal for obvious safety reasons).

Water Support Kit: There are a number of water supply options for fire operations. Water turnaround times for refilling are an important consideration for operational planning. The concept around this water kit is to set up a constant water supply for fire service vehicles for larger incidents. You can set up a portable pool or make use of swimming pools and water tanks as water sources. A portable pump is set up next to the pool. A hose line then runs from the pump and is used to fill fire service vehicles or wet down homes and areas of vegetation before a wildfire strikes. Basic training of community members as to how to carry this operation out will be required. (If this equipment is not used for this purpose it can be loaned to fire crews or fire services while they are working in the Overkloof area which will also prove very useful).

Water Delivery Equipment Suggestions

1-3 x Portable Pump: (Honda GX 160 engine or above with suitable pump)
1 x Hydrant Stand Pipe and Key
1 x 5000ltr Portable Pool
8 x 25mm Fire Hose
4 x 45mm Fire Hose
2 x Fire Branch/Nozzle
2 x Adaptors for hoses
Note: This is very dependent on budget, how often you will use the equipment etc. Please contact us if you are considering equipment purchases so we can assist you in this decision making process.

Knapsacks: These are backpack water sprayers usually in 20 litres capacity. These are great for dealing with spot fires and embers that fall within the community. A few could be purchased and can be stored in strategic locations.

Generator: A fuel powered generator will be incredibly useful and is highly recommended as the chance of a power outage is highly probable in wildfire incidents.

Hout Bay Heights / Karbonkelberg Wildfire - February 2017

Conclusion

It is not a question of if, but rather a question of when, the next wildfire will occur. They key is to ensure that you and your community are prepared for when that happens. If you know what the risk factors are and what wildfire is capable of in your area you can put in place plans to reduce the impact.

This report has set out to explain what the wildfire risk factors are and
a) how you can go about preparing as a community as well as
b) the actions that are necessary on neighbouring properties to reduce the risk to your area.

This creates two separate work streams for you. Even though there is a lot of work to be done in the area surrounding your community we must emphasize the importance of focusing internally to harden the homes within Overkloof to embers showers. Overkloof is a very green suburb and is an extension of the natural surroundings which makes it a beautiful place to live in but also a place that has very real elements of wildfire danger.
The high risk, high fuel load areas of your neighbouring properties may take some time to be sorted out, and to a large degree this process is very difficult for you to control. Focus on building a WildfireReady community from within while continuing the work and communication with your surrounding areas.

We have taken a look at wildfire risk and frequency to identify where you are most vulnerable to risk. There are four areas of risk and frequency to consider in any matrix.

- Low Risk / Low Frequency incidents are less problematic because the consequences are not that severe.
- High Frequency / (High Risk/Low Risk) events generally do not cause significant problems except when complacency, fatigue, distraction, apathy etc. are involved.
- The area which requires the most focus is High Risk / Low Frequency wildfire incidents. These are situations that have life threatening consequences. They occur so infrequently emergency resources and communities lack experience in dealing with them, and do not have information or ability to help guide decisions.

There are two aspects which you need aware of in this regard

1. **Low Risk / High Frequency Wildfire Incidents:** Every year wildfires occur in Hout Bay but due to their relatively small size and the rapid response from fire agencies, they are dealt with before they spread to the Overkloof area. This risk profile must not allow complacency to set in as there is always some risk Overkoof will face.

2. **High Risk / Low Frequency Wildfire Incidents:** This is a category of wildfires where there is potential for loss of life, property, infrastructure and assets in the Overkloof and surrounding suburbs. The threat can come from a small wildfire or a large wildfire, but in both cases the extreme nature of the incident and the extreme fire behaviour is the factor that will put the incident into a High Risk / Low Frequency category. When certain factors align such as drought, high fuel loads, extreme weather, elements of topography, location of ignition, direction of fire spread, location of suburb in fire path, close proximity of structures, stretched resources, rapid escalation of the incident etc. …disaster can strike. This has the potential to occur and the best you can do is to be prepared as best you can to deal with the worst case scenario.

There is no way to completely eliminate risk however having an action plan and performing the necessary preparation before wildfires occur in your area will help guide you through an incident and significantly reduce the chance of damage or loss. Acting on this report and preparing your community is an important ongoing task. A big part of the challenge is also having a positive influence on your neighbouring suburbs and landowners, where a lot of the risk sits. Regardless of what challenges you face there are proactive steps you can take in safeguarding your community.

This report is aimed at increasing your awareness about the risks and providing the possible solutions, however no report can guarantee complete protection. There are a multitude of variables that can have an impact on a community, and the properties within your area during a wildfire. Even if all the recommendations are implemented, loss and damage from wildfire is still a possibility which you must plan for. Vulcan Wildfire Management can therefore accept no liability for any loss or damage in the event of wildfires.

We have done our best to highlight the variables that could be identified at the time of the assessment and we suggest that you update and refresh your wildfire risk planning on an annual basis.

The Vulcan Wildfire Management Team wishes you all the best on your path to becoming WildfireReady. Should you have any questions about your report or need any further advice, please contact your WildfireReady, Vulcan Wildfire Management Assessor.

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