



CITY OF VINCENT

Closed Circuit Television (CCTV) Strategy 2013-2018



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Council held on 9 April 2013

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INTRODUCTION

The City of Vincent CCTV Strategy was first developed in 2010 when the City of Vincent, aided by a grant from the then Office of Crime Prevention (now WA Police), obtained 8 CCTV cameras and installed them in a number of locations in Leederville. In 2013 the City is now into its second stage in developing a much larger CCTV system, with 45 cameras installed in Beaufort Street, in the suburbs of Perth, Highgate and Mount Lawley. This was to a large extent funded through a 'Criminal Proceeds of Crime' grant from the WA State Government, Attorney General Department, although the city of Vincent also provided funding. The expansion of these systems along with increasing requests for more cameras at hotspot locations has necessitated a review of the City's existing CCTV strategy to cater for strategic expansion, with funding linked to existing City of Vincent capital and works programs.

The City has learned a number of lessons from the implementation of the existing CCTV cameras and this knowledge and experience has been utilised in the development of this document. CCTV is a valid and acceptable tool which can be used to contribute to overall community safety and security. A recent online survey of businesses, through the Beaufort Street Network, demonstrated that 98% of respondents supported CCTV as an effective community safety strategy.

Closed-circuit TV (CCTV) systems use a variety of methods of data transmission, including coaxial cable, wireless technology and fibre-optic cable. It has been established that the most efficient, future-proof and reliable transmission method, uses fibre-optic technology, but the corresponding expenditure for its roll-out is substantial. As a result, for the Beaufort Street system, the City has made use of alternative technologies, including Cat 6 cabling, wireless and 4G transmission methods.

It is acknowledged that CCTV is only one tool in helping to combat crime and it should be utilised as an adjunct to other safety and crime prevention initiatives. As such, the guiding principal of this strategy is that CCTV should only be considered where the system proposed can justify a clear business plan for its implementation. Ideally this should be based on specific and identified levels of crime and anti social behaviour, and where other methods of crime reduction have been tried and were unsuccessful.

AIMS OF THIS STRATEGY

The aims of this strategy are to;

- Provide the framework and criteria for the strategic development and ongoing management of internal CCTV and external mobile CCTV systems that are owned, leased and/or operated by the City of Vincent.
- To ensure the financial sustainability of CCTV systems, seeking further external funding where appropriate.

OBJECTIVES OF CCTV

The use of CCTV within the City of Vincent will be guided by Western Australia Closed Circuit Television (CCTV) Guidelines, WA State Government, Office of Crime Prevention which outline CCTV general purpose as:

- Detection – indicating that something is happening in the field of interest;
- Recognition – determining exactly what is happening; and
- Identification – determining who is involved in the activity.

LINKS TO POLICY:

The revised CCTV Strategy should be read in conjunction with the City's Closed Circuit Television Policy 3.9.15 and will replace the *City of Vincent CCTV Strategy 2010*.

The revised CCTV Strategy has been developed to align with the City's;

- Strategic Community Plan 2011-2021 (Plan For the Future) and Corporate Business Plan 2011-2016 at Objective 3 - *Community Development and Wellbeing* –
 - “3.1 Enhance and promote community development and wellbeing
 - 3.1.2 Promote and foster community safety and security.”
- Safer Vincent Community Safety and Crime Prevention Plan 2011-2014 at Strategy 3 - *Contribute to and promote safe physical environments:*
 - Action 3.3 in safety plan states:*
 - “Implementation of proactive projects/strategies to promote safe physical environments; and
 - City purchase of CCTV cameras to City/ WA Police identified hotspots.”

IDENTIFICATION OF PRIORITY LOCATIONS

Using statistics from a number of sources the City has determined areas where CCTV camera coverage would assist in the reduction of crime and offences. These locations have been further prioritised to provide a graduated timeline, to assist in future budget preparation. The following table shows the Priority Locations, in the order that is recommended.

The Priority Locations for the cameras, thus far, have been selected in close conjunction with WA Police. They primarily focus on hotspot areas, along with areas of concern, identified by businesses, residents, State Government and Non-government Agencies, WA Police and City of Vincent officers. High risk areas are identified as public space locations, where there is a higher proliferation of business and people and where an adverse impact, from criminal activities is prevalent.

The City's entertainment precincts are Leederville, Mount Hawthorn, North Perth, Perth, Highgate and Mount Lawley. The rationale of this report proposes that appropriate camera locations continue to be identified, by following the processes already used and set out in the current and CCTV Policy. This report also supports the interests of community safety and security, as well as providing for an equitable access to community safety initiatives and resources. The expansion of camera network should be adopted 'City wide', but confined, initially, to identified high risk areas in the established entertainment precincts.

The following table shows an indicative annual cost for the installation of cameras, using fibre optic technology. In the first instance, it will be necessary to terminate the fibre optic cable at the end of the street being monitored and to use alternative methods of transmission of data, as a short term measure.

ITEM 9.4.1









Location	Rationale	Approx. number of cameras	Current Priority	Distance in Metres	Cost of cabling	Cost of Cameras Plus Transmission Mode	Total Cost plus CPI Increases of 3%	Implementation Year
Oxford Street, Leederville	Currently no cameras are installed on Oxford Street with high graffiti, billposting and anti social behaviour reported incidence. These will supplement 8 cameras already installed covering aspects of Avenue Car Park, Frame Court and Newcastle Street. <i>This should be incorporated as part of the Leederville Master Plan.</i>	8	High	875	\$87,500	\$33,600	\$128,475	2013-2014
Stirling Street and adjoining streets – Highgate - nib Stadium/Birdwood Square	This would cater for investigations into the issues of street prostitution and kerb crawlers, as well as anti-social behaviour, drunkenness, etc	9	High	400	\$40,000	\$37,800	\$85,014	2014-2015
William Street, Perth	This would cover the restaurant strip on William Street which is nearby to Northbridge and with associated high incidence of anti social behaviour graffiti, billposting reported there. <i>Initially via wireless link until fibre is installed.</i>	8	High	875	\$87,500	\$33,600	\$128,475	2015-2016
Fitzgerald Street, North Perth	This would cover busy pedestrian, vehicle and business strip with reported high incidence of anti social behaviour there.	6	Medium	550	\$55,000	\$25,200	\$90,266	2016-2017
Oxford Street, Mount Hawthorn	This would cover problems in the Oxford Street and Scarborough Beach Road areas, including the Paddington Alehouse, Axford Park.	8	Medium	550	\$55,000	\$33,600	\$102,712	2017-2018

The proposed establishment of a fibre optic “backbone” can be used to link new cameras to existing cameras and will allow for an expansion of the network, Fibre Optic cabling, because of its high reliability, is the preferred method of transmission and is depicted in the map below;

MAPPED IDENTIFIED CURRENT CCTV AND PROPOSED CCTV PRIORITY LOCATIONS



KEY

-  8 wireless cameras already installed at this location
-  45 camera installation, utilising wireless and 4G technology will be installed by the end of the 2012-2013 year. This was made possible by a State Government Criminal Property Confiscation Grant, which will promote the “Safer Vincent on Beaufort Project in 2013”
-  Priority future locations- Subject to funding as proposed by this strategy and supplemented where possible by grant funding
-  Proposed Fibre Optic transmission Link from Leederville to Perth, Highgate and Mount Lawley areas (Vincent Street)
-  Proposed Fibre Optic transmission Link to Mount Hawthorn (Oxford Street)
-  Proposed Fibre Optic transmission Link to North Perth (Fitzgerald Street)
-  Proposed Fibre Optic transmission Link to integrate Beaufort Street cameras
-  Proposed Fibre Optic transmission Link to William Street cameras

EXISTING CAMERA SYSTEM AND PROPOSED EXPANSION:

The City of Vincent has installed a CCTV Network in the Leederville area. This project uses wireless technology as the means to transmit images to a central storage point within the City's Administration and Civic Centre. While the system provides adequate coverage, at this time, it does not have the same reliability factors as some other systems and restricts the opportunity to expand.

The City is in the process of installing a second CCTV system in Beaufort Street, Perth, Highgate and Mount Lawley and this will be completed by 30 June 2013. This system uses a combination of wireless and 4G technologies, which provides a more reliable transmission than that used at Leederville.

The decision by the City of Vincent to expand the CCTV network will align with the City's broader strategic objectives of fostering safer environments and promoting positive perceptions of community safety in Vincent.

In recent years, given the global terrorist threats, there has been a significant paradigm shift from 'big brother watching' concerns of CCTV cameras, to an increasing acceptance of visual monitoring, as a means of supporting safety, security and policing actions. This has coincided with an increasing demand and expectation of residents, visitors and businesses that cameras will be installed in public places for personal and infrastructure protection. There have been significant improvements in technology and the quality of cameras being offered to agencies such as local government and WA Police and this has assisted in the management of behaviour in some public spaces and has acted as a deterrent to anti social behaviour, graffiti and other offences.

In conjunction with WA Police and other stakeholders, the City of Vincent has identified a number of "Priority Locations", where anti-social behaviour, graffiti and other problems are prevalent. Local Businesses have been approached and asked to co-host CCTV cameras on the exterior of their premises. A great deal of Positive feedback has been received from businesses indicating they are very supportive of CCTV initiatives, recognising that cameras can assist in promoting safer environments which enhances the local environment and makes it conducive to attracting and retaining customers.

Since their installation, the cameras in the Leederville area have been particularly successful in deterring graffiti. The incidence of graffiti has measurably decreased in the Leederville area and WA Police regularly seek copies of recorded footage, to assist them with their enquiries.

The primary outcomes for the expansion of the current network are:

1. There is significant business and community support for the existing CCTV project, which can be used to drive the expansion of cameras into other areas;
2. WA Police are supportive of cameras, with an increasing demand from local Police Stations for footage of crime incidents;
3. Businesses are generally prepared to co-host and some have indicated that they may be prepared to co-fund cameras, in the future. This will require further consultation with business to assess the extent of the support and the willingness to contribute financially;

4. While fibre-optic cabling is the most effective transmission method, financial constraints will continue to require cost/benefit analyses for all future projects. Wireless technology, while it is a less expensive option, can be unreliable where lines of sight cannot be guaranteed. 4G technology uses the mobile telephone network to transmit data, but there is an ongoing cost associated with large packets of data, which needs to be considered; and
5. Camera technology is continuously evolving and products are often superseded almost before they are installed. As a result, the City must be cognisant of the need to maintain currency with regard to these technology improvements and to factor into the annual budget, general maintenance, regular servicing, software upgrades and replacement hardware.

There are a great deal of different styles and types of cameras available for use and they fall into a number of different categories. In some cases long range, high resolution cameras work better than short range low resolution ones, but there are disadvantages with both. As a result, the areas identified as Priority Locations, will need to be assessed at the time of installation to ensure that the most appropriate types are chosen.

ALTERNATIVE TRANSMISSION SYSTEMS

While the hardware is fairly standard equipment, there are a number of alternative options available to get the visual data back to the storage server. These methods include:

- Fibre Optic Cabling;
- Wireless Transmission;
- Nodal transfer, using 4G; and
- Combination of the above.

Fibre Optic Cabling

By far, the most effective and future-proof method of data transfer is using fibre optic cable. However, this is also the most expensive method, because it entails trenching the roads to install conduits and to then draw the fibre optic cables through the conduits. As a general estimate, for the installation of fibre optic cable, an amount of \$100 per linear metre needs to be set aside as capital expenditure item in the annual budget.

It may be practical for the City to make use of the infrastructure that already exists and is used by the national Telecommunication companies, such as Telstra, Optus, etc. However, at this time this is an expensive option, but with the current National roll-out of the National Broadband Network, these costs may decrease in time.

National Broadband Network (NBN) Rollout Implications

The NBN will be Australia's first national, wholesale-only, open access, high-speed, broadband network. While aspects of the NBN will utilise fixed wireless and next-generation satellite hardware and software, a large component of NBN will be to establish an extensive fibre optic network. The National Broadband Network (NBN) does not show that access will be available in the City of Vincent for at least 3 years, so there is no opportunity to utilise this for the existing CCTV projects, (see <http://www.nbnco.com.au/rollout/rollout-map.html>). At this time, the City's existing service providers have indicated that they may be able to provide access to secure private data networks, which are currently in place. It may also be an option for the City of Vincent to link to the NBN, when it becomes available.

Wireless Transmission Technology

The City currently uses wireless transmission for the Leederville project and the Beaufort Street project uses a combination of wireless technology and 4G transfer from a number of “Nodes”. Each “Node” accepts signals from a number of cameras, via wireless and hard-wire cabling and then uses a 4G connection to get the data to the storage server. The current drawbacks with wireless technology is that it must use a “line-of-sight” transmit/receive and the transmission is therefore subject to interference from other wireless networks in the vicinity and to trees that grow over time, or are blown by the wind, into the signal path.

4G Network Transmission Technology

4G enables multi-media services on mobile phones, including video transmission and internet access, which can also be utilised for transmission of CCTV data. 4G transmission is being used in Beaufort Street project and is available at transfer speeds of between 2Mbps and 40Mbps, throughout most of the City of Vincent.

OTHER CONSIDERATIONS

Network Reliability and Roadmap

Although optic fibre is seen as the preferred access method by the City of Vincent, this is currently out of reach at the majority of locations. Initial estimates for the City to install fibre optic cabling to the priority location, as proposed in this strategy, are estimated to costs around \$450,000.

3G and 4G are options both for communication to site for maintenance and rapid deployment. Telecommunications service providers can set up a Wireless IPVPN that allows this type of secure communication within the City of Vincent private data network. At this time, 3G WIPVPN is already available and 4G WIPVPN ETA is expected to be available by June 2013. This should be explored, primarily as a means for rapid deployment of cameras at short notice, while a fixed terrestrial link is being installed.

Sustainability of resourcing and grant funding

To achieve the camera implementation in Vincent so far, the City has been successful in obtaining grant funding from State Government, totalling \$260,000, but it is unclear as to whether this method of funding is sustainable. A number of recent grants have stipulated ‘once off’ or ‘non-recurrent’ funding, which means that the ongoing maintenance and servicing costs will need to be borne by local governments. As a result, there will need to be an ongoing commitment by the City in resourcing the operating and capital costs of developing and maintaining the CCTV network.

OPPORTUNITIES

The City of Vincent enjoys a close working relationship with WA Police who are significant stakeholders and users of the City’s CCTV network. Combined with other neighbouring local governments, who are also establishing CCTV systems, there may be opportunities to work more collaboratively to achieve possible economies of scale and reduced costs. This would need to be explored in conjunction with telecommunication providers and with WA Police and other interested local governments.

The City is probably in a unique position to adopt a pro-active approach to the expansion of the CCTV network, because of the long-term plans for streetscape upgrades, right-of-way upgrades and reinstatement of footpaths, etc when they have been dug up by utility companies. If the City was to install conduits and access pits on every occasion that they dig up a footpath, roadway or right-of-way, it would not take long before the major thoroughfares could be linked together. Depending of the cost for fibre optic cables, it may be possible to install the cabling at the same time. It is suggested that the right-of-way upgrade programme would offer an ideal opportunity for the routing of fibre optic cables, because there is less pressure to reinstate as quickly as possible.

The Technical Services staff has undertaken various works in Vincent relating to the Street Underground Power Project (SUPP) which utilise horizontal boring to establish underground power in specific local areas. Future SUPP Projects could be used to also lay conduit for potential fibre or coaxial cables for CCTV.

There may be other opportunities to integrate a more extensive fibre network that could be utilised for CCTV. These include major development such as:

- Current WA State Government proposed light rail, mooted for Fitzgerald Street; and
- The Leederville Master Plan and extensive redevelopment of Leederville precinct when implemented.

CRIME ANALYSIS

Rates of recorded crime in Vincent were lower across all selected offence categories in 2009-2010 than in the Central Metropolitan SSD and Western Australia as a whole. Offences recording the highest rates were other theft (23.9 offences per 1,000 residents), property damage (13.2) and acts intended to cause injury (7.4). As a result, CCTV coverage will be unlikely to be able to demonstrate a significant drop in the incidence of these offences. However, there is likely to be a heightened acceptance that Vincent is a safer place to live, work and recreate, which achieves the primary objective of CCTV installations.

EXTERNAL CCTV

The City of Vincent received funding (in 2009-2010 financial year) from the WA State Government, Office of Crime Prevention for CCTV implementation in the Leederville area. In 2011, the State Government approved a further grant, to implement surveillance in Beaufort Street, Perth, Highgate and Mount Lawley. The City uses these cameras as an intelligence gathering tool, for crime and anti social behaviour hotspots within the entertainment precincts. This direction has been supported by the City's Safer Vincent Crime Prevention Partnership (SVCPP), made up of WA Police, City staff, Business and other community representatives.

INTERNAL FIXED CCTV SYSTEMS

As well as the CCTV projects at Leederville and Beaufort Street, the City currently has CCTV installed its infrastructure located at the City's;

- Administration and Civic Centre;
- Beatty Park;
- Works Depot; and
- Library.

The installation of an extensive fibre optic network will enable the existing internal CCTV Projects to integrate with all other installations.

MONITORING

Incidents of crime and anti social behaviour usually occur after hours, when there are no staff available to deal with the problems and occur in hard to access areas. These problems are sporadic in nature, but full-time dedicated monitoring is very expensive, so it has not been warranted.

Under current systems CCTV footage is kept as per WA Police funding requirement, of up to 30 days. After an event is reported, footage is downloaded according to established Standard Operating Procedures and provided to WA Police as outlined in the City's Closed Circuit Television Policy No. 3.9.15. The systems have the capacity to be monitored in real time, but this has proven to be unnecessary, at this time. As a result, it is recommend that the current process of storage and retrieval, after the event is adequate at this time.

Noting CCTV's Strengths and Weaknesses:

	Strengths		Weaknesses
1.	Recorded CCTV can be a valuable tool for police when investigating incidents.	1.	Cameras can become the target of theft or vandalism.
2.	CCTV can deter some types of crimes/offenders.	2.	Offenders may avoid the immediate areas in view of CCTV or take measures to hide their identity (e.g. By wearing hats or "hoodies").
3.	Monitored CCTV may be able to assist in identifying incidents.	3.	Crime or unwanted behaviours may be displaced by CCTV (e.g. to a different location, time, or crime-type).
4.	CCTV may assist safety perception.	4.	Offenders may learn or test response times (if CCTV systems are monitored) to avoid apprehension.
5.	CCTV works best in areas with good access control.	5.	If CCTV is not monitored (actively watched by monitoring staff) then CCTV is not likely to assist in initiating a response to prevent or manage an incident.
6.	CCTV can be a useful tool for police in gathering intelligence.	6.	If CCTV is to be used for providing information to assist investigation or for use as evidence in court generally, recorded images need to clearly show an offender's face (or similar valuable identifying information) in order to be of value.
		7.	CCTV may create a false sense of security. People may feel safer if they know, or think that the area they are in is fitted with CCTV.
		8.	CCTV in housings, and CCTV lenses outside housings, can be defeated by paint or other substances so that the cameras lose vision or the vision is seriously impaired.
		9.	CCTV becomes less effective if incidents take place and perpetrators are not apprehended, because word of the ineffective nature becomes widespread.
		10.	CCTV relies on good lighting levels to obtain clear and accurate vision.
		11.	The 'field of view' may be limited by certain camera types and positioning, creating blind-spots or the absence of surveillance within an area.
		12.	CCTV is ineffective during losses of power, unless it is connected to an uninterruptible power supply (UPS).
Western Australia Closed Circuit Television (CCTV) Guidelines, WA State Government, Office of Crime Prevention			

MANAGEMENT AND MAINTENANCE

Because of the increasing expectations of the community and the WA Police, it is important that the City of Vincent takes a leadership role in the development, improvement and ongoing upgrades of the dynamic CCTV projects. This not only requires commitment, but also requires adequate training of appointed staff to enable informed and comprehensive use of the available technology.

CCTV systems and associated security systems are highly complex, continually evolving technologies and, as such, will require an on-going service and maintenance programme, to ensure that the system operates efficiently. As a result, it is necessary to include a “CCTV Maintenance” item in the City’s Operating Budget.

Staffing Requirements

Currently, all CCTV enquiries and maintenance requirements are dealt with by the Co-ordinator Safer Vincent. At this time, it is estimated that he spends around 7 hours per week (18% of his weekly hours), reviewing, assessing and downloading CCTV footage, for use by WA Police. This relates to only 8 cameras, so when the additional 45 cameras are operational, it is thought that this task may become too time consuming in its current form. While it is recommended that this function can be maintained by the Co-ordinator Safer Vincent, it may be appropriate to consider employing a part-time officer in the future to deal with CCTV matters and to provide an appropriate level of support to the WA Police.

BUDGETARY CONSIDERATIONS

Capital Budget Allocation

In order to give some certainty to the outlay required by Council in the short term, it is recommended that Capital Budget funds be allocated for the provision of fibre optic cabling and CCTV installation, in accordance with the table shown below:

Total Cost plus CPI Increases of 3%	Implementation Year
\$128,475	2013-2014
\$85,014	2014-2015
\$128,475	2015-2016
\$90,266	2016-2017
\$102,712	2017-2018

This will enable the hotspot areas, in order of priority already identified, to proceed, effectively from the 2013-14 year. Based on the outcomes of this project, it will be easier to matrix the most effective progression of the program and assess which specific projects may represent the best value results for Council and the community.

Where possible the City will seek the use of fibre (whether installed and owned by the City or leased from a service provider) or a combination of wireless, microwave and/or 4G transmission technology. It is anticipated that once the ‘hard wiring’ of the system is guaranteed, the next phase of the program can be costed with more degree of certainty, as one of the major components of the program will be guaranteed and there will be no further reliance on external providers or the installation of significant infrastructure to further the objectives of the program.

Operational Budget Allocation

In order to cater for existing CCTV systems installed in Leederville and system that is about to be established in Beaufort Street, an annual maintenance amount will need to be allocated. While it is not possible to define how much needs to be allocated to CCTV, because there are no “past costings” to rely on for projections, it is suggested that an amount of \$200 per camera would be a reasonable figure, at least for the 2013-2014 financial year. This equates to \$10,000 per year. This maintenance figure relates to programmed maintenance of 4 quarterly visits to carry out:

- Cleaning of all cameras and mounts checked for security;
- Cameras viewed live to correct alignment;
- Cameras recordings reviewed for quality and sensitivity to motion;
- Recording servers inspected and software and manufacturer updates applied;
- Reviewing of Servers disk management and recording durations checked;
- Camera firmware updates applied;
- System health checks; and
- Written reports of findings and recommendations.

As further cameras are added these figures may need to be reviewed for future budget allocations.

Because the current Beaufort Street CCTV system requires the provision of a USB modem, an IP address, and a router for data transmission, at each “Node”, it is suggested that a further amount of \$3000 per annum be allocated

As a result of the above, it is recommended that an amount of \$13,000 be allocated in the 2013–2014 Operating Budget and be reviewed annually.

RECOMMENDATIONS

1. Council allocate Capital Expenditure amount as shown in the table below for the next 5 years, to develop and install fibre optic cables and CCTV infrastructure. It should be noted that the City will continue to apply for grant funding to expand the existing system, which will supplement the City of Vincent contribution.

Total Cost plus CPI Increases of 3%	Implementation Year
\$130,000	2013-2014
\$85,000	2014-2015
\$130,000	2015-2016
\$90,000	2016-2017
\$105,000	2017-2018

2. Council allocate Operational Expenditure amount of \$13,000 in the 2013-2014 Operating Budget (to be reviewed annually) to establish a servicing and maintenance programme;
3. The City investigates alternative methods of transmission and monitoring options as part of the CCTV expansion program in future.
4. The existing City of Vincent Policy No. 3.9.15 Closed Circuit Television (CCTV) principles, standard operational procedures and the associated Code of Practice be used to guide and direct the installation and monitoring of equipment associated with this strategy.
5. Council notes that adequate training will be provided to anyone involved in the CCTV strategy
6. The City develops an annual business plan, which will guide the future expansion of the CCTV network, which should comprise an annual maintenance, repair and upgrade plan, a capital growth fund and a staffing pool to oversee the CCTV systems.

REFERENCES;

Relevant Western Australian laws and guidelines on CCTV usage, including;

- Freedom of Information Act 1992
- State Records Act 2000
- Surveillance Devices Act 1998
- Telecommunications (Interception) Western Australia Act 1996
- WA Police Preferred Minimum CCTV System Standards.
- Western Australia Closed Circuit Television (CCTV) Guidelines.
- WA State Government Office of Crime Prevention, Community Safety and Crime Prevention Profile, City of Vincent 2007-2008.
- <http://www.nbnco.com.au/rollout/rollout-map.html>

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