6.0 BUSINESS PROCESSES AND BACKLOGS - OVERVIEW

6.1 Background

The provision of forensic services to the criminal justice system is shared between two agencies – QPS and QH.

While much of the QPS involvement is field-based through the collection of evidence from crime scenes and persons, QHSS is almost exclusively laboratory based. However each agency does have some specific roles in the other agency's principal domain.

6.2 Queensland Police Service

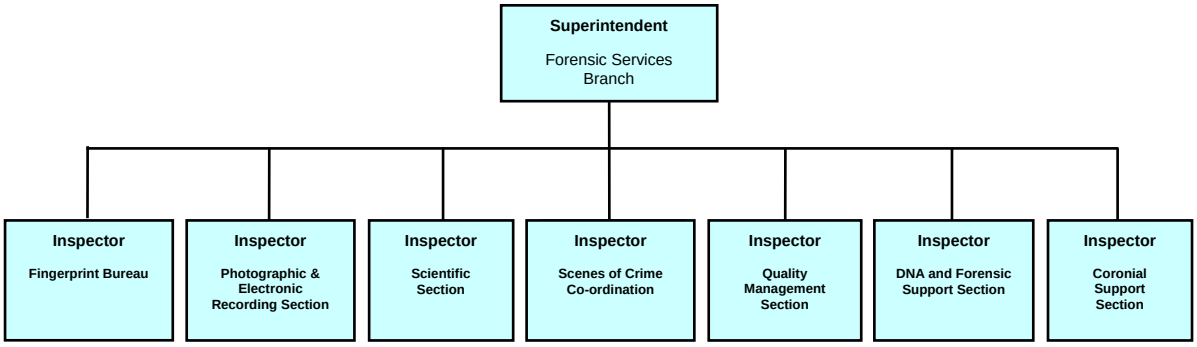
QPS's forensic capability can be categorised into three distinct groupings. The most significant in terms of numbers are Scenes of Crime Officers (SOCO's). They are police officers who have undertaken forensic training in accordance with the competencies outlined in the Diploma of Public Safety (Forensic Sciences). They are located in all regions throughout the State and their prime role is attendance at volume crime scenes to collect a range of forensic evidence including photographic, fingerprint and DNA evidence. They also do some presumptive testing (e.g. testing for the presence of blood).

There are also two classifications of scientists within QPS – sworn and unsworn. Most police scientists are located within the Forensic Services Branch (FSB), although they are becoming more prevalent across a number of regions. They are required to have a Bachelor of Science as a minimum qualification and are able to progress to the rank of sergeant upon completion of a Masters degree and the necessary competencies in police scientific examinations.

Police scientists attend the scenes of major crimes and are responsible for the collection of evidence. In addition, they do presumptive testing for the presence of substances such as blood or semen and analysis such as blood splatter patterns.

The final group are the unsworn scientists in the laboratories at Police Headquarters. Much of their work relates to the analysis of materials from fires, and chemical testing of a range of paints and other substances. This group has previously been discussed in Section 4.3.2.

The structure of FSB, QPS is as follows:



The Fingerprint Bureau performs numerous functions such as maintaining criminal records, identifying unknown deceased or amnesia victims, and processing fingerprint forms for civil purposes, including visa applications. One of the primary roles is the identification of latent fingerprints from crime scenes. In their own right, latent fingerprints can inextricably link a person to a crime scene or exhibit and, in many circumstances, provide the only positive identification

evidence relating to a specific case. Through its database and the National Automated Fingerprint Identification System, the Bureau is able to provide a 24 hour turnaround to QPS investigative staff across the State.

The Photographic Section operates one of the most technically advanced laboratories in Australia. It provides a photographic, video and digital imaging service which includes photography, video, film processing and printing laboratory, COMFIT (Computer Facial Identification Techniques), Interactive Crime Scene Recording, digital imaging, offender photograph management and historical and public relations recording.

The Electronic Recording Section enhances audio recordings, enhances and prepares video evidence for investigative and prosecution purposes and provides authenticity analysis of recorded information. The workload of this section has increased significantly with the proliferation of Closed Circuit TV in public spaces.

The Scientific Section provides a range of specialist laboratory examinations, i.e.:

- The Ballistics Unit consists of three specialist areas of Bullet Recovery Room, Ballistics Examination Area and the Microscope Room. Activities include comparing bullets and cartridge cases, testing the function of firearms, estimating the distance between a discharged firearm and a target, certifying firearms and firearm components and reconstructing shooting incidents. There is a large exhibit room of weapons for comparison purposes.
- *Cannabis sativa* certification is carried out by appropriately qualified QPS scientists either at the scene, at police facilities or within the QPS laboratories.
- The Document Examination Unit is a specialist area within FSB. A large percentage of the work undertaken involves examining handwriting and signatures to determine whether or not a particular person wrote a specific piece of writing.
- The Analytical Services Unit is responsible for the examination and chemical testing of flammable fluids, chemical testing of flammable fluids, paint, polymers, glass and gun shot residue.

In addition to the scientific services, there are a number of sections within FSB which support the provision of forensic services, i.e.:

- The Quality Management Section is responsible for the development of forensic standards and procedures, manages training and proficiency testing and ensures compliance with the Forensic Quality Manual.
- The Coronial Support Section provides assistance, support and advice to the Coroner on coronial investigations, autopsies, Disaster Victim Identification (DVI) co-ordination and training issues for QPS staff.
- The DNA and Forensic Support Section liaise with QHSS in relation to the collection, prioritisation and destruction of DNA samples as well as the management of DNA results.

A permanent QPS DNA and Forensic Sample Management Unit is currently being established at QHSS. This unit has been staffed with temporary personnel over recent years and has provided considerable assistance in the prioritisation of casework, the recording and identification of samples in the backlog and a liaison role prior to the establishment of Forensic Sciences Liaison Unit (FSLU).

The Kessels Road Police Annex (KRPA) was built by QPS and is under the corporate governance of State Crime Operations Command. The facility has been designed to enable personnel from the Illicit Drug Investigation Team (ILIT) to store physical evidence from clandestine drug laboratories (clan labs). Case scientists from Forensic Chemistry (QHSS) are able to conduct initial examinations and sampling in the facility. The facility is staffed by QPS property officers.

6.3 Queensland Health Scientific Services

The QHSS campus currently has two distinct operational components – Forensic Sciences and Public Health Sciences. An indication of their workload and staffing over the past 3 years is shown in Appendix 9.

6.3.1 Forensic Biology

Forensic Biology provides analytical DNA services to the criminal justice system and analyses approximately 25,000 DNA profiles each year to assist criminal and coronial investigations. Crime scene samples from major crimes (including homicides and sexual assaults) and from volume crimes (including unlawful entries and stolen vehicles) are submitted by police forensic officers and operational police for analysis and comparison to known suspects (on the recently established Queensland and National DNA database). Approximately 15,000 DNA person profiles are added to the database each year, with a total of approximately 61,000 profiles uploaded onto the National DNA database by 30 June 2005.

The main clients of Forensic Biology are QPS, the criminal justice system, including the Courts, DPP, LAQ, other defence counsel, and the coronial system.

6.3.2 Forensic Chemistry

Forensic Chemistry provides services in illicit drug analysis, clan lab analysis and physical evidence examinations (including fibre, soil and explosives analysis).

The main clients of Forensic Chemistry are QPS and the criminal justice system, including the Courts, DPP, LAQ and other defence counsel.

6.3.3 Forensic Toxicology

Forensic Toxicology provides services to confirm or eliminate the possibility that alcohol, drugs or poisons may have contributed to behavioural impairment, a criminal offence, accident or death. This includes analysis of drugs or alcohol in blood or urine in drink or drug driving matters.

The main clients of Forensic Toxicology are QPS, the criminal justice system, including the Courts, DPP, LAQ and other defence counsel, the coronial system, Corrective Services Department, Transport Department and Forensic Pathologists.

6.3.4 Forensic Pathology

Forensic Pathology provides services on the cause and circumstances of deaths reported to a Coroner under the *Coroners Act 2003*. QHSS Pathologists perform approximately 1,200 – 1,300 coronial autopsies each year from deaths that occur in Brisbane and its surrounds as well as complex matters from other parts of the State.

Services include coronial autopsies, histology, forensic dentistry, forensic skeletal examinations, disaster victim identification, coronial and grief counselling, assistance with tissue donation, training of Pathology Registrars and advice on ethics and legislation related to autopsies.

The main clients of Forensic Pathology are the office of the State Coroner and other Coroners throughout the State, QPS and the criminal justice system, including the Courts, DPP, LAQ and other defence counsel.

6.3.5 Forensic Sciences Liaison Unit

This Unit has recently been established to assist case scientists to enhance communication with the courts, investigating police and forensic officers to assist in establishing inter-case and intra-case priorities. The Unit has access to DJAG's QWIC (Queensland-Wide Interlinked Court) system to monitor court dates. Consequently scientists are able to appropriately allocate their time to casework rather than following up or receiving inquiries on the status of cases from police or court officers. This has been a productive initiative and has continued to enhance business processes and communication across Forensic Sciences, and with stakeholders such as police and the justice system.

The Central Property Point is part of the FSLU structure and has also been established in recent times as a one stop shop to receive samples for Forensic Sciences. This has also been a productive initiative.

6.3.6 Public Health Sciences

Public Health Sciences offers analytical, research, consultation and interpretative advice services in four main fields of expertise: health investigations, environmental contaminants, food and nutrition, and water quality. These services are provided across a range of disciplines including Bacteriology, Inorganic Chemistry, Investigative Chemistry, Organic Chemistry and Virology.

The operation of Public Health Sciences is quite separate from Forensic Sciences even though some aspects of the science and equipment used have similarities.

Various sections of this report focus on the business processes in the areas of Forensic Biology and Forensic Chemistry where the current backlog problem exists.

6.4 Backlog Project

6.4.1 Background

As part of the Government's 2004 election commitment, provision was made for an additional $11M in new funding over 3 years from 2004/05 to 2006/07. This funding, under the auspice of the Backlog Project, was intended to clear the DNA profiling and crime scene samples backlog in QHSS over the impending 3 years.

The Project Proposal developed in April 2004 for the Backlog Project indicated the existing backlog in Forensic Biology would be eliminated by 30 June 2005. This was an unrealistic expectation given the lead time required to recruit and train staff, procure capital equipment, refurbish accommodation and undertake the analysis of a large backlog of samples. QHSS scientists have indicated that this estimation was done by the Office of the Executive Director, QHPSS without consultation with them. Data supplied by QHSS management indicates the backlog has increased significantly during 2004/5.

6.4.2 Backlog Definition

The definition of the term "backlog" is unclear. Many of the statistics provided by QHSS relate to all current cases on hand at QHSS. Recent Ministerial Briefs refer to cases older than 3 months. The proposed selection of DNA backlog samples to be outsourced relates only to those samples pre-dating July 2004.

There is a lack of performance criteria in terms of a benchmarked time required to complete the process from receipt through initial testing procedures, testing leading to the identification of a DNA profile and the subsequent report required to be completed. A consultant has been contracted to undertake a business process review of Forensic Biology and Forensic Chemistry. This is called the Business Enhancement Project and should provide the basis for the development of performance data.

There are a number of options to define the term backlog. A backlog could refer to samples not started within a specified time frame from arrival at QHSS. However this could lead to a situation where the sample might proceed through the initial phase of the testing process only, and that any subsequent analysis might be delayed. Another option is for "backlog" to relate to the time taken to complete the entire process through to reporting. However, where the profile is not able to be linked to any suspect, no report is completed. The Taskforce believes that the definition of the term backlog should relate to the number of cases for which testing has not been completed within an agreed turnaround time. This turnaround time should be determined through consultation between QPS or other clients and QHSS.

The lack of a comprehensive Service Level Agreement (SLA) with the QPS has meant that these issues have not been addressed. Client expectations should be clearly incorporated in the development of any performance criteria for a SLA.

In recent times QHSS has been required to report to government on backlog numbers. While considerable data is collected through both the AusLab system and the QPS Forensic Register, it is

difficult to accurately ascertain the true situation. The AusLab system has inconsistencies in the data, resulting in different statistics being produced on subsequent access to the same sets of data. Appendix 9 outlines the backlog within Forensic Biology over the last 3 years. Further discussion of the AusLab system is provided in Section 13.2.

Data recorded on AusLab categorises the workload as Cases Received, Cases Started, Cases Reported, Cases Not Required and Cases Outstanding. There is no reference to Cases Analysed where "no report is required", i.e. where Police do not have a suspect. It is anticipated that this statistic would form a considerable part of the total workload. When questioned about the apparent increase in the backlog for person samples (a DNA sample taken from an arrested person, prisoner or consenting person under the authority of the *Police Powers and Responsibilities Act 2000*), the Chief Scientist, Forensic Biology advised that there was no backlog, as records on Auslab had not been updated due to a lack of administrative support.

The data on Auslab also indicates a significant backlog in Major Crime, with many cases more than 12 months old despite having been categorised as a high priority. When questioned by the Taskforce about this, management were unable to indicate whether this was a true backlog, whether there had been a failure to update records, whether Forensic Biology had conducted all relevant tests and were waiting for further information from police or whether the case could in fact be written off due to the offender having been prosecuted.

The Taskforce is of the view that the nature of the "real backlog" cannot be determined without the development of appropriate indicators which relate to process stages and a cleansing of the current data.

Recommendation 5:

It is recommended that the Chief Executive Officer of the Institute:

*(i) Removes from the term "backlog" all cases where no further analysis or reporting requirements can be undertaken at that time by **31 October 2005**;*

*(ii) Defines the term "backlog" as being the number of cases not completed within a time agreed with the client by **31 October 2005**; and*

*(iii) Ensures that the systems are altered to ensure the appropriate reporting reflects the definitions determined for "backlog" by **31 January 2006**.*

6.4.3 Funding

In 2004/5, $5M was allocated to QH as part of a 3 year plan to address the backlog. QPS has been allocated $3M in 2005/6 and 2006/7 to clear the DNA profiling and crime scene samples backlog. It has been verified through Queensland Treasury that the $3M allocation to QPS is recurrent.

It is not clear whether the funding has been allocated for the purchase of DNA sampling only or whether it will also apply to the purchase of other forensic services relating to a crime scene, e.g. clan labs. It is also not clear whether the funding was provided for the purpose of addressing the backlog or funding of ongoing services. QHSS has taken the broader interpretation of addressing all crime scene samples required for the criminal justice system such as:

- Forensic biology analysis associated with Major Crime and Volume Crime DNA profiling; and
- Forensic chemistry analysis associated with illicit drugs and clan labs.

As at 30 June 2005, the $5M Backlog Project funding has been expended as follows:

Labour	$1,873,886
Non-labour	$1,114,632
Capital	$10,000
TOTAL:	$2,998,518

The balance of funds has been rolled over to 2005/06 for outsourcing of DNA profiling (up to $1.5M) and acquisition of automation equipment ($500,000).

The staffing component of the backlog funding is made up of 43 positions spread across the areas of FSLU (10), Forensic Chemistry (6), Forensic Biology (22) and administrative support staff for Forensic Biology (4) and clan labs (1). A further recruitment process in 2005/6 will see additional operational staff appointed to perform the less technical duties within the Forensic Biology laboratory and thus free up scientists to progress the case load.

The Taskforce notes that the backlog funding has been instrumental in reducing turnaround times in the Illicit Drugs area to a level acceptable to clients. QHSS has also achieved this outcome in Forensic Toxicology.

While new appointees progressively commenced from September 2004, they have not been fully productive due to the training requirements. However output within Forensic Biology significantly increased in 2004/5 in the second half of the year as outlined in Table 1 below

Table 1: Forensic Biology Output

	Jul/Dec 04	**Jan/June 05**
Cases started	480	1,549
Cases reported	577	863

Source: AusLab data as per QHSS 2005 Budget Estimates Brief

Within the clan lab area, the output has decreased over the same period (Refer Table 2 below) due to the loss of experienced staff. The transfer of three Senior Forensic Chemists from the Illicit Drug team to the clan lab team recently and the recruitment of an additional chemist within a few months should have a positive impact on the backlog. In addition, Section 8 will discuss initiatives to address the clan lab problem.

Table 2: Forensic Chemistry (Clan Lab) Output

	Jul/Dec 04	**Jan/June 05**
Cases started	134	83
Cases reported	112	83

Source: AusLab data

The backlog funding expenditure has included enhancements to the AusLab system and the electronic links with QPS to support improved prioritisation of exhibits. Implementation of these enhancements is planned over the next 6-12 months.

The first of three IT development phases was implemented in June and will improve efficiency of the DNA person-to-scene and scene-to-scene linking processes with the National Criminal Investigation DNA Database (NCIDD). This release has also allowed earlier activation of inter-jurisdictional matching between WA and QLD, dating from 10 June 2005. Queensland and Western Australia are the first States to conduct inter-jurisdictional matching on the national database.

The second phase of software anticipated for activation in the near future will provide electronic image storage, allowing DNA processing efficiencies to be significantly improved by moving from a paper-based approach to electronic recording.

The final phase of software delivery anticipated in late 2005, will electronically link all current instruments in Forensic Biology, thus removing the majority of time consuming paper trails, rationalise several standalone databases in use, and overall markedly improve efficiency and effectiveness of the DNA processing area.

Work performance should also be enhanced by refurbishments which have been carried out within the DNA sampling area, the exhibit room and the work area of the Major Crime Team.

While the management team at Kessels Road campus have identified the need for more laboratory space and the construction of new facilities, no strategic assessment has been conducted of laboratory needs on the campus into the future. This issue is further addressed in Section 16.

The Taskforce has identified that the ongoing $3M per annum provided to QPS, will need to be applied to the ongoing funding of staff and consumables for forensic services which were initially funded in the $5M allocated in 2004/5. The sufficiency of this funding is further discussed in Section 7.6.

As indicated in Section 4.3, an extensive body of work needs to be undertaken in the first 3 years to develop and implement fee-for-service arrangements where appropriate. At this stage it is not possible for QHSS and QPS to engage in a meaningful discussion around product costing or other fee-for-service arrangements.

In view of this, the $3M should be incorporated into the Institute's base funding pending the development of proper fee-for-service arrangements. The funding should be used consistently with how it was applied in 2004/05 (i.e. for Forensic Chemistry, Forensic Biology and FSLU).

The Business Enhancement Project will result in the development of a costing model which will enable QPS and QHSS to determine the ability of QHSS to meet DNA demands within the allocated budget. It is important that an estimation of the cost of servicing current QPS demand is done as a matter of urgency once the costing model is developed.

Recommendation 6:

It is recommended that the Commissioner, Queensland Police Service transfer the $3M of recurrent election funding from the Queensland Police Service to the Institute for the periods 2005/06 and 2006/07 by ***31 October 2005*** *pending the development of proper fee-for-service arrangements.*

6.4.4 Prioritisation

In determining what aspects of the backlog to address, QPS and QHSS have developed organisational units and processes to prioritise the workload. QPS has established the DNA and Forensic Sample Management Unit which is situated at the Kessels Road campus. This Unit administers DNA person samples, prioritises crime samples and works closely with FSLU across the Forensic Sciences. Unfortunately the resource levels of this Unit are not sufficient to review all outstanding cases with the emphasis being placed on new cases coming in. The Taskforce is of the view that additional resources for a short period would address this concern.

FSLU is staffed by QHSS staff and assists in the establishment of inter-case and intra-case priorities based on information from the Court system. A key driver for prioritisation is the Court date. Unfortunately this has meant that many cases prioritised as high by QPS (Major Crime) are not being addressed as quickly as the priority indicates due to low priority matters (Volume Crime) with a Court date being analysed first. In addition, case scientists often establish their own priorities within a case based on the likelihood of a successful outcome.

There appears to be little co-ordination between these Units and in some regard overlap exists. It is considered the role of each of these Units needs to be clearly defined to ensure they complement each other. Many QPS staff are unsure about who to contact in relation to outstanding cases.

While there has been progress made in addressing the number of DNA cases requiring testing, recent audits of samples held at QHSS by QPS staff from the DNA and Forensic Sample Management Unit have identified a significant number where testing is no longer required due to the arrest and conviction of offenders. No notification has been made by the arresting officer to QHSS of this fact and the sample remains in the backlog.

There is no comprehensive case management system whereby case scientists are actively involved in the determination of intra-case prioritisation for all forensic biology samples through liaison with police forensic officers and investigating officers, with clear guidelines for procedures and dispute resolution. A triage system is critical to forensic analysis for the purpose of prioritising cases and utilising limited resources. This view is confirmed in the NIFS Report *(Forensic Biology Automation and Future Developments – October 23 to November 15, 2004)* as well as being a feature in a number of Australian and overseas jurisdictions.

There is also scope to enhance the role of the DNA and Forensic Sample Management Unit to expand case conferencing in the areas of all Major Crime (not just significant cases) and clan labs. This will ensure priorities are collaboratively determined and resources are efficiently utilised.

In developing priorities, there are a number of factors to consider including the seriousness of the crime, the date of the offence, whether there is a suspect and whether there is an impending court date. All jurisdictions have a prioritisation process though different jurisdictions approach the issue from different perspectives. Some jurisdictions only deal with the serious or Major Crime backlog leaving the Volume Crime backlog to increase; other jurisdictions have established a descending order of priority; while others concentrate on new cases and address the backlog when time permits.

The Taskforce believes that a review of all outstanding cases should be undertaken as a matter of urgency with a view to enhancing prioritisation and facilitating the destruction of samples that are no longer required. This will require a staff member in FSLU to work with the QPS DNA and Forensic Sample Management Unit to review cases and write off those cases not considered necessary. Part of this process will also involve the cleansing of all backlog data, consistent with the proposals in Section 6.4.2.

Recommendation 7:

It is recommended that the Chief Executive Officer of the Institute and the Superintendent, Forensic Services Branch, Queensland Police Service:

*(i) Review the role of the Forensic Sciences Liaison Unit and the DNA & Forensic Sample Management Unit to ensure they are complementary by **31 January 2006**;*

*(ii) Expand the role of the DNA & Forensic Sample Management Unit and Forensic Sciences Liaison Unit to facilitate case conferences under clear guidelines with relevant parties on all major crime and clandestine laboratory cases by **31 January 2006**; and*

*(iii) Ensure that the DNA and Forensic Sample Management Unit, in conjunction with the Forensic Sciences Liaison Unit, review all outstanding cases and cleanse all backlog data by **31 January 2006**.*

6.4.5 Automation

Approximately $500,000 from backlog funding has been set aside for the purchase of robotics, the automation of processes and the complete automation of the process relating to person samples.

Tenders have closed and are currently being assessed. Selection of a successful tenderer is anticipated in the latter part of 2005. Implementation of this technology in other jurisdictions has led to significant efficiencies, for example a reduction in staff from 450 to 110 in the DNA unit of FSS in the United Kingdom and significant increases in output over their non-automated laboratories.

The purchase of this equipment will not have an immediate effect due to the time required to validate the instruments, change the practices within the laboratory and train staff. The validation can take up to 12 months if the process is started anew, however according to expert sources, can be shortened to four to six weeks by utilising the validation experience of other jurisdictions. It is anticipated that implementation will be a special project with a scientist being taken off-line to manage the project. This will have a short term impact on productivity within Forensic Biology.

Recommendation 8:

*It is recommended that the Chief Executive Officer of the Institute ensures that when validating future equipment the validation work undertaken by other jurisdictions to introduce equipment and/or automation processes is utilised to minimise validation time whilst maintaining scientific accountability and integrity by **31 October 2005**.*

6.4.6 Outsourcing

In May 2005, the Health Minister approved the release of DNA outsourcing tender documents. Approximately $1.5M has been carried over from 2004/05 Backlog funding for the outsourcing.

As well as being published in the national press, the tender documents were also released to 11 laboratories in Australia, New Zealand and Canada that expressed interest. The tender closed on 4 July 2005. It is not yet known whether any of the tenderers has the capacity to process all backlog samples within a 12 month period.

Following the close of the tender, an extensive evaluation process will be undertaken on the entire outsourcing process including chain-of-evidence, analysis and reporting. It is intended that an audit of the preferred tenderer's facility and processes will be conducted by the Evaluation Committee.

The assessment and prioritisation of actual case samples to be outsourced is currently being determined by QPS in conjunction with QHSS. Only Volume Crime samples will be outsourced and only cases prior to 1 July 2004 were to be considered. Many of the Volume Crime matters may be able to identify an offender but may not result in a prosecution due to the minor nature of the offence and the lapse of time since that offence. There was no strategy in place to deal with Volume Crime since July 2004. As a result of the intervention of the Taskforce, those samples have now been included in the outsourcing.

Implementation of the outsourcing of DNA profiling will have an impact on workflows within Forensic Biology. Sampling is required to be done as part of the selection of cases to be outsourced to address potential integrity and custody issues. In addition, where samples are returned from the successful tenderer indicating a positive result, QHSS scientists and administrative staff will be required to check and enter the result onto the national DNA database and also into AusLab. It will however, increase the overall number of cases able to be reported on to QPS. Additional results management work will be required to process any links from the database and to test evidence samples as required.

6.5 Backlog Project – Next Steps

While the Backlog Project has not yet been successful in reducing the number of outstanding cases in all areas of Forensic Sciences, there has been a number of positive achievements which should assist in addressing the problem over the coming years.

There are a number of factors which will influence the number of cases outstanding:

- The resolution of the application of the $3M funding provided to QPS in the 2005/06 budget;
- The sufficiency of the staffing increase;
- The effectiveness of QHSS management of outsourcing implications;
- The impact of automation, including the possible higher rate of positive samples;
- The benefits of the Business Enhancement Project;
- Enhanced performance management;
- An increase in samples forwarded by QPS due to improved response times;
- A decrease in crime due to the arrests based on DNA results; and
- Implementation of the recommendations within this report.

Each of these issues is dealt with in further detail, in relation to Forensic Chemistry (clan labs) and Forensic Biology, in Sections 7 and 8.