

MODELLING CALCULATIONS

In endeavouring to establish a scientific basis, upon which to consider potential models for the provision of fingerprint services in Scotland, the CMRT have applied the following logic.

1. CALCULATING THE NUMBER OF FINGERPRINT OFFICERS

During the period of research, the CMRT were directed by Peter Ablett (Director of the NTCSSCI) to a forthcoming publication by Helen McCulloch and Nick Tilley of the Home Office Policing and Reducing Crime Unit. Professor Tilley kindly authorised the application of his research in advance of publication. The paper, entitled 'Report on Effectiveness and Efficiency in Obtaining Fingerprint Idents.' aims, through statistical analysis, to establish a series of ratios linking:

- the number of scenes of crime officers,
- the number of fingerprint officers;
- their respective work rates or throughput; and
- reported crime levels.

The research considers fingerprint identification in terms of:

- effectiveness;
- efficiency; and
- effectiveness and efficiency,

ultimately proposing a theoretical model which determines the ratio of fingerprint officers and SOCOs to the level of recorded crime, for the optimum achievement, in terms of effectiveness and efficiency. In concluding, the researchers suggest that to increase output from this suggested optimum, then a disproportionate level of additional investment would be required.

During discussion with Professor Tilley, it was established that the research had considered fingerprint bureaux as a whole. The calculations, therefore, included principals, seniors, fingerprint officers and trainees and the full remit of their work - identification, administrative, supervisory and ancillary duties alike.

In summarising the determinations, as they could be applied to a national fingerprint model for Scotland, a ratio of **18 fingerprint officers per 100,000 crimes** was established.

Whilst it is accepted that the research applies a series of conditions relating to SOCOs, likely yield, communication infrastructure and selective attendance at scenes, it is believed that the research, as an academic theory, provides a defensible basis for the purpose of the modelling exercise. Nonetheless, the subsequent calculations were tested against the professional expertise of bureaux managers, who concluded that both the structure and staffing levels appeared to provide for an appropriate level of service, given the known level of crime in Scotland.

2. 1998 – 1999 CRIME STATISTICS (GROUP 1 – 5 CRIMES)

Central Scotland Police	17331
Dumfries and Galloway Constabulary	8475
Fife Constabulary	23298
Grampian Police	45813
Lothian and Borders Police	73341
Northern Constabulary	12157
Strathclyde Police	220858
Tayside Police	32646

3. SUPERVISORY RATIO FOR FINGERPRINT IDENTIFICATION TEAMS

As a 'working rule', and consequent to the consultation phase, the following hierarchical ratio was used as a basis for the modelling exercise:

1 Principal : 2 Seniors : 8 Fingerprint Officers; 2 Trainees

4. SUPERVISORY RATIO FOR FINGERPRINT VERIFICATION TEAMS

In considering the introduction of 'verification teams' (see Section 13.4) the following working ratio was applied:

Verifiers - 1:10 – Identifiers (seniors, fingerprint officers and trainees)

5. WEEDING OFFICERS

The calculation as follows, was based on a scoping study undertaken by SCRO in 1995, the basis of which, it is believed, still applies today:

- 5000 bundles @ 3.5 hours per bundle = 17500 hours work
- 6 clerks @ 35 hours per week (and allowing for 20% abstraction rate)
- requires 104 weeks at GS1 (top point salary scale of £11217 p.a.) for 6 clerks
- = £67302 pa

6. SALARY GRADINGS

Given the long standing of the majority of fingerprint experts in Scotland, it was decided to apply all salary gradings at the top point on each scale. Although this will undoubtedly represent an over provision, it was felt that it would be more reflective than applying the mid-point or mean.

COMMENTARY ON THE MODELS

CURRENT AUTHORISED STAFF SCOTLAND

The tabulated information on authorised staff was determined as a basis for comparison. It is a fulsome attempt at sizing the staff commitment to fingerprint examination in Scotland.

However, given that a large proportion of the personnel outwith the SCRO Fingerprint Bureau undertake a dual role, it has been necessary to estimate, with the assistance of local bureaux managers, the whole post equivalents of each bureau.

OPTION 1, PHASE I AND OPTION 2, PHASE I

In recognising that the first stage in any development of the fingerprint service in Scotland is the reinstatement of the SCRO Fingerprint Bureau as an efficient and effective service, in terms of the HMIC's determination, Phase 1 is identical in the case of both Option 1 (National Service – 3 Centres of Delivery) and Option 2 (National Centralised Service).

The transition here can be summarised as follows:

- civilianisation of the Head Of Bureau;
- merge the role of Quality Assurance Officer and Deputy Head of Bureau;
- appointment of a Business Manager;
- civilianisation of 2 Sergeants posts;
- appointment of 3 qualified fingerprint officers;
- redistribute Livescan Development Manager's duties (diminishing responsibilities);
- appointment of 1 additional fingerprint clerk;
- appointment of 6 temp. weeding clerks, supervised by 1 new Admin Assistant post (permanent).

Estimated saving in salary terms Current to Phase I - £6754 per annum
(after provision has been made for the Temp Weeding Clerks at £67,302)

OPTION 1, PHASE II

In the incremental move to a National Service with 3 Centres of Delivery this phase would see the introduction three fingerprint bureaux in Scotland – West, East and North - under collaborative agreement between Forces. Whilst it is anticipated that the bureau at SCRO would remain largely unchanged, in terms of team structure, there would be significant changes to the managerial structure across Scotland. The transition can be summarised as follows:

- civilianisation of all police posts;
- appointment of 2 additional Heads of Bureau – North and East;
- appointment of 2 additional Training/ Quality Assurance posts – North and East;
- appointment of 4 additional Principal Posts – 2 North and 2 East;
- appointment of 2.5 additional Seniors Posts;
- reduction of 5 fingerprint officers (consequence of added resilience and greater admin support in larger bureaux and in line with calculations at 1 and 2 above);
- reduction of 2 fingerprint trainees (consequence of added resilience and greater admin support in larger bureaux and in line with calculations 1 and 2 above);
- redesignation of 2 Admin Assistants as Word Processing / Court Liaison Officers;
- appointment of 4 additional fingerprint clerks – 2 North and 2 East;
- appointment of 4 additional filing clerks – 2 North and 2 East.

Estimated increase in salary terms Phase I to Phase II - £160,429 per annum
(after provision has been made for the Temp Weeding Clerks at £67,302)

OPTION 1, PHASE III

In the incremental move to a National Service with 3 Centres of Delivery, this phase would see the introduction of a hierarchical structure to co-ordinate and manage the fingerprint service in Scotland. Whilst it is anticipated that the bureaux would remain largely unchanged, in terms of functionality, there would be significant changes to the managerial structure across Scotland. The transition can be summarised as follows:

- appointment of a Head of Scottish Fingerprint Service;
- appointment of a Business Manager - Scottish Fingerprint Service;
- appointment of a Police Liaison Officer;
- redesignation of Deputy Head of Bureau - West (removal of QA responsibility);
- removal of Business Manager – West (given role of Business Manager SFS);
- removal of 2 joint Training/ Quality Assurance posts – North and East (following centralisation of training function);
- appointment of Training Assistant (following centralisation of training function);
- appointment of QA Officer and Assistant (following centralisation of QA function);

Estimated increase in salary terms Phase II to Phase III £148,486 per annum
(after provision has been made for the Temp Weeding Clerks at £67,302)

Estimated cost in salary terms Phase I to Phase III £308,914 per annum
(after provision has been made for the Temp Weeding Clerks at £67,302)

OPTION 2, PHASE II

In the move to a National Centralised Service this phase would see the establishment of a single centre of delivery for fingerprint services in Scotland. It draws with it economies of scale and scope, particularly in terms of managerial and administrative structure, and resilience, in terms of the enlarged pool of experts. The transition from the Scottish position after Phase 1 to a centralised establishment can be summarised as follows:

- appointment of a Head of Scottish Fingerprint Service;
- reduction of 1.5 Force Heads of Bureau;
- reduction of 1 Civilian Head of Bureau (SCRO);
- appointment of a Police Liaison Officer;
- redesignation of Deputy Head of Bureau - (removal of QA responsibility);
- appointment of Training Assistant;
- appointment of QA Officer (following removal of responsibility from Deputy Head of Bureau);
- civilianisation of 1.5 Sergeants posts;
- appointment of 2 additional principles and 1.5 seniors posts (in line with the calculations at 1 and 2 above);
- reduction of 1 fingerprint officer and 4 trainee posts (consequence of added resilience and greater admin. support in larger bureaux and in line with the calculations 1 and 2 above);
- appointment of 1 admin. manager;
- reduction of 1.5 admin. assistants (consequence of added resilience and greater admin. support at lower level);
- appointment of 1 additional Word Processing Operator;
- appointment of 4 additional fingerprint clerks.

Estimated increase in salary terms Phase I to Phase II £83,556 per annum
(after provision has been made for the Temp Weeding Clerks at £67,302)

**Option 2 is £225,359 per annum cheaper than Option 1
in terms of estimated salary costs.**
(after provision has been made for the Temp Weeding Clerks at £67,302)

see attached Excell Spreadsheet 'Appendix E - Modelling Calculation Worksheets'

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