PAM – Police Personnel Allocation Manual

Overview – what it is and how it works
The Scottsdale Police Department uses the “Police Personnel Allocation Manual” (AKA Police Allocation Manual or PAM) for patrol deployment calculations.

It is one of several Patrol Allocation Methods or Models (also referred to as PAM).

The Police Allocation Manual (PAM) is a widely used and reputable method for determining the number and allocation of personnel for patrol and traffic services for municipal law enforcement agencies.
The “Police Allocation Manual” was developed by the Traffic Institute of Northwestern University for the National Highway Traffic Safety Administration (NHTSA) during the late 80’s and early 90’s.

In 2004 Scottsdale contracted with Northwestern to evaluate our staffing and scheduling and provide recommendations, including a Patrol Allocation Model.

Northwestern provided an extensive study and recommended the Police Allocation Manual as the method Scottsdale should use for determining correct staffing requirements and allocation for patrol services.
PAM uses time-based mathematical queuing models to calculate the estimated number of officers needed for patrol services.

The mathematical models used in PAM were evaluated and validated by Anacapa Sciences Inc. in 2007. An updated database version was provided by NHTSA in 2008.

PAM requires extensive data collection from Computer Aided Dispatch, personnel and training records, Payroll and Geographic Information Systems.
Police Allocation Manual

PAM requires the input of:

- “Workload Data” (CFS/admin time etc),
- “Personnel Data (medical and vacation use)”,
- “Operations Data (Shift length, weekly work hours)”,
- “Roadway Data” (Roadway types and miles),
- “Performance Objectives” (Admin time, Proactive SI/COP time, travel time, Patrol interval etc),

and “Policy Decisions” (Non-preemptable CFS, immediate response availability, minimum staffing levels, etc)
PAM calculations are based on the Inputs for a specific time period and a specific geographic region.

PAM is one tool only, just like a map, compass or GPS are tools used for navigation.

Other factors to consider when determining the number of officers required are community expectations, municipal government expectations, economic conditions, and operational processes.
PAM can be used to estimate the number of officers needed (allocation) but it does not tell where and when those officers should be assigned (deployment).

PAM does not estimate staffing requirements for administrative or investigative components.
PAM is a “Prescriptive” model but not a “Predictive” model. It can prescribe how many officers are needed but cannot predict performance levels (i.e. response times, patrol intervals etc.) based on entering a set number of officers.

It only works going forward, not backward.
PAM uses two time categories

Patrol: Broken into 4 subcategories:
- Reactive (responding to CFS)
- Proactive Self Initiated (observed violations and community policing)
- Proactive uncommitted (visibility and availability)
- Administrative (Meals, court, training etc)

Non-Patrol:
- All off-duty time
- Non patrol related on-duty time (special assignments, full shift training etc.)
REACTIVE

Refers to patrol time spent on activities that can be described as service-on-demand. These are usually calls for service (CFS) that are assigned by radio dispatch. The total time spent answering CFS is referred to as “obligated time”.
PROACTIVE
Self-Initiated and Community Oriented

- Refers to patrol time spent on officer-initiated activities. Time spent on CFS and administrative activities are not included in this category. Per PAM, proactive activities may include the issuance of citations and warnings for driving violations, assisting motorists, providing traffic direction and control, conducting field interrogation, and time spent on community-oriented policing activities.
PROACTIVE
UNCOMMITTED PATROL

Refers to time spent patrolling both on and off-road in the jurisdiction but not spent on reactive, self-initiated, or admin activities. Uncommitted patrol provides two benefits: “visibility” for the general deterrence and detection of traffic and criminal violators, and “availability” for self-initiated activities and for the timely response to CFS.
ADMINISTRATIVE

Refers to patrol activities that do not fall into the reactive, self-initiated or uncommitted patrol time categories. Admin includes on-duty court time, personal time (meals/breaks), patrol car maintenance, training, and agency admin duties. **On-duty time spent on non-patrol activities such as extended training or special assignments are accounted for in the calculation of the shift relief factor for the agency.**
Shift Relief Factor

Shift relief factor (SRF) indicates the average number of personnel needed to provide one on-duty officer for one shift every day. SRFs for agencies with 8 hour shifts are usually between 1.6 and 1.9. The SRF is multiplied by the average number of on-duty personnel required per day to determine the total patrol staff size. SRFs depend on the shift length, average work week, benefit time off policies of the agency, and the amount of on-duty, non-patrol time per officer.
PAM calculates one of two paths based on the performance objectives, data inputs, and policy decisions.

- The visibility path is determined by number of roadway miles, patrol speeds and patrol interval performance objectives and Calls For Service data.

- The response path is determined by emergency and non-emergency travel time and immediate response performance objectives and Calls For Service data.
Diagram

High Level Diagram

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Diagram