PARAS 0055: Airport Law Enforcement Staffing Tool User Guide

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1 Overview of Tool

Traditional law enforcement staffing strategies are designed and tailored to meet the needs of city, county, or state law enforcement departments. However, these models have limited use in the airport environment because airports have different considerations than their neighboring communities (e.g., federal security and safety transportation requirements, population, calls for service types, threats, risks, size of response area). Additionally, traditional strategies do not account for airport-specific considerations such as the terminal layout; number of passenger screening checkpoints; outlying facilities on the airport property such as rental car facilities, maintenance/hangars, warehouses, etc.; agreements with city, county, state, and federal partners; compliance with FAR 139, 49 CFR § 1542, and other regulatory requirements affecting law enforcement responsibilities at airports; and irregular and emergency operations.

The PARAS 0055 *Airport Law Enforcement Staffing* research project includes a guidance document that discusses law enforcement staffing strategies and a framework to help airports assess their individual staffing needs, and a tool to help the airport analyze and calculate their individual law enforcement officer (LEO) and Full-Time Equivalent (FTE) staffing levels under different constraints and conditions. The guidance document consolidates the information, recommendations, technology solutions, and lessons learned from the literature review and interviews conducted with airport law enforcement agencies across the country and mission-specific policing models applicable to airport policing. The staffing tool was developed in Excel to reach the widest possible audience, and will allow the airport user to determine the appropriate LEO/FTE staffing level for their operation.

This User Guide provides step-by-step guidance for using the Staffing Assignment and Workload Analysis Tools and analyzing the results. Links to video tutorials are also included where available.

1.1 Staffing Assignment Tool

The Staffing Assignment Tool calculates the number of annual LEOs/FTE staff needed to cover assigned patrols and posts at the airport. Two versions of the tool are available: one uses a one-week shift schedule and the other uses a two-week shift schedule to accommodate different shift patterns. The user will need to input information on FTE ranks, shifts, and assignments to accurately reflect the police department's current operations.

The tool provides separate tabs for the User to account for multiple FTE requirements. Calculations on the Patrol, Non-Sworn, Canine, and Special Units tabs are the same and can be used to represent any unit or team based on the airport's needs. The tabs can be renamed to more accurately reflect the department's terminology.

If the user does not have a need for one or more of the tabs, the example data on these tabs should be deleted, and all assigned hours should be set to zero (0). **Do not delete any tabs, as this will break the tool's calculations.**

If the user has more than four units or teams with unique non-duty relief factors, the tool development team recommends using multiple copies of the tool to calculate each unit individually and then combining the results.

Jump to: **Staffing Assignment Tool Instructions**

1.2 Workload Analysis Tool

The Workload Analysis Tool calculates the reactive workload burden for each job type based on historical data from the department's calls for service. Officers with a higher workload percentage are responding to calls for service much more frequently, which can cause burnout. The Workload Analysis Tool allows the user to adjust the workload percentage to help understand the number of FTEs required to perform the daily assignments and respond to calls for service.

Note: **It is not necessary to complete the Workload Analysis in order to use the Staffing Assignment Tool.** The Workload Analysis Tool is an accessory to the Staffing Assignment Tool that enhances the department's ability to make informed decisions, optimize resource allocation, and ensure that its staffing levels align with the reactive and proactive demands of the airport and law enforcement command staff.

Jump to: **Workload Analysis Tool Instructions**

2 Staffing Assignment Tool Instructions

Video Tutorial →	https://youtu.be/MU5qjFa1Dlg

The staffing assignment tool is designed to help determine the number of annual FTEs that an airport requires to cover all assignments and shifts by using:

- A standard weekly/biweekly schedule of assignments showing the hours that will need to be covered during a typical week or two-week period for each job type.
- The average annual relief factor (non-duty hours) per FTE expected by job type (e.g., vacation, sick time, or holidays).

2.1 Tool Assumptions

The tool makes certain assumptions when calculating the staffing requirement:

- The tool predefines job types as Patrol, Non-Sworn, Canine, Special Units, and Command Staff to represent the most common units. The tabs can be renamed to more accurately reflect the department's terminology.
- Annual FTEs required is calculated by subtracting the total number of relief factor hours per FTE from the total available hours that FTE is available to work (number of hours per week multiplied by the number of weeks worked in a year).
- All annual calculations are based on 7 days x 52 weeks (= 364 days per year).
- The tool does not calculate overtime; however, the difference between forecasted required FTEs and current or budgeted FTEs can approximate expected overtime.

2.2 Uses for the Tool

The Staffing Assignment Tool expects the user to complete worksheets to reflect the department's operations more accurately. The tool development team recommends first completing the tool using current department data as a validation measure. The results of the tool's calculations should estimate the current staffing levels at the airport, and the first run of the tool can help identify the cause(s) of current overtime challenges.

Once the baseline of current staffing level is determined, the input fields can be adjusted to test various "what if" scenarios; for example, testing new shift lengths or adding/removing assignments.

The tool can also be used to help the department understand the impact of special events. Once the baseline of current staffing is established and the typical weekly/biweekly hourly requirement is determined, the user can adjust the inputs to show coverage needs for special events, peak periods, or other special requirements. The hourly requirements generated can be compared to the baseline requirements to understand the additional coverage needed.

2.3 Relief Factor

The Staffing Assignment Tool uses shift relief factors to calculate the required annual FTEs to complete the assignments defined by the user. Shift relief accounts for any non-duty paid time where the FTE is

not available to work. This may include requirements from the officer's Collective Bargaining Agreement (CBA). Examples of non-duty paid time include vacation, sick leave, and holidays.

After the initial baseline is established, users may consider modifying the relief types to more accurately reflect how non-duty paid time off is used by the FTEs. For example, patrol officers may be able to take four weeks of vacation, but the majority only take two weeks; the user could change the vacation time from 160 hours (four weeks) to 80 hours (two weeks) to see how that impacts the required FTEs.

Using the relief factor often results in an FTE number with a decimal point, indicating a need for management to decide whether to use overtime to cover the extra or to hire another FTE. The decision will be based on many factors, but as a general rule:

- *.1–*.3: Round down to the nearest whole number and use overtime to cover the difference
- *.4–*.6: Round down and pay necessary overtime, or round up to the nearest whole number and hire another FTE, depending on the department's unique needs
- *.7–*.9: Round up to the nearest whole number and it may be more cost effective to hire another FTE than pay for the overtime needed to cover those hours

ABC Airport FTE Calculation Example

Each patrol officer at ABC airport has a total of 468 hours a year allotted for non-duty paid time off hours (time off, sick leave, holidays, etc.). Subtracting this number from the patrol officers' maximum annual hours (2,080) leaves each officer with 1,612 assignable hours throughout the year (not including overtime).

2080 max annual hours
- 468 non-duty hours
=1612 assignable hours

ABC Airport requires a minimum of one LEO patrolling the baggage claim hall for 12 hours a day, 7 days a week. To meet the minimum, the airport will require 84-labor hours each week, or 4,368 hours a year.

12 hours a day
x 7 days a week
=84 weekly hours to be covered

x 52 weeks per year
=4368 annual hours to be covered

To cover the annual schedule, the airport needs three full-time patrol officers, or two with expected overtime to cover the patrol assignment and the non-duty paid time off hours.

$$\frac{\text{4368 annual hours to be covered}}{\text{1612 assignable hours per patrol officer per year}} = \text{2.7 FTE required}$$

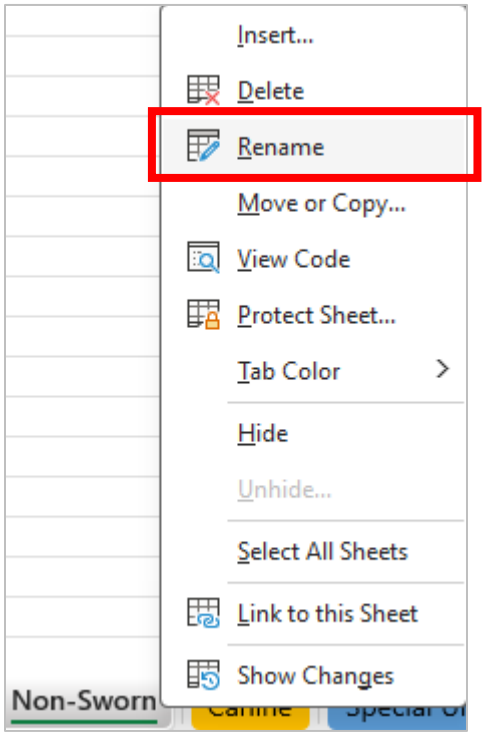
2.5 Renaming Tabs

The Staffing Assignment Tool consists of the following tabs:

- **Read First** – provides guidance for using the tool
- **Example** – provides a simple example using fictional data that the user can change
- **Shifts** – user inputs the start and end time for each shift
- **Patrol** – user inputs data for patrol FTEs
- **Non-Sworn** – user inputs data for non-sworn resources
- **Canine** – user inputs data for canine teams
- **Special Units** – user inputs data for special units
- **Command Staff** – user inputs data for command staff
- **Output Summary** – provides the calculation results based on the user input on the previous tabs

Assigning a separate tab for each job type allows the user to define non-duty relief factors, which may vary between the various units; for example, Special Units may have fewer compensatory hours than patrol officers. The separate tabs also provide a clearer understanding of the breakdown of the FTE requirements.

Figure 1. Rename Tab Function



Calculations on the Patrol, Non-Sworn, Canine, and Special Units tabs are the same and can be used to represent any unit or team based on the airport's needs.

The tabs can be renamed to more accurately reflect the department's terminology by right-clicking on the tab at the bottom of the page and choosing "Rename" (Figure 1).

If the user does not have a need for one or more of the tabs, these tabs should be left blank, and all assigned hours should be set to zero. **Do not delete any tabs, as this will break the tool's calculations.**

If the user has multiple units or teams with unique non-duty relief factors, the tool development team recommends using multiple copies of the tool to calculate each unit individually, and then combining the results.

Figure 2. Excel's Table Function

Non-Duty Paid Time	Average Annual Hours
Vacation	148
Training	40
Holidays	96
Sick time	60
Compensatory	0
Bereavement	20
Floating Holidays	32

2.6 Adding and Deleting Rows in Tables

The Staffing Assignment Tool was built in Microsoft Excel using the application's native table functionality (Figure 2). This allows the User to add rows to be included in the calculations, or remove rows without breaking the tool's calculations. The alternating colors of the rows in the Excel

tables will help identify if the new row has been added to the table. **If the row is not included in the table, it will not be included in the tool's calculations.**

To add rows to a table,* pull down the resizing handle in the lower right corner of the table (circled in Figure 2). **Only add rows; adding columns could break the tool.** The User can also enter data in the empty row below the last row. The new row will be added to the table and the background color changed to conform to the table's color scheme.

Users should remove rows using Excel's "Delete Table Row" function. Move the cursor to the left edge of the first cell in the row to be deleted until the cursor changes to an arrow (Figure 3). Right click on the cell, choose Delete > Table Rows (Figure 4). This will remove the extra rows without breaking the tool's calculations.

Alternatively, cells can be left blank or the hours set to zero. These cells will not be included in the tool's calculations. The user can also use the resizing handle* to remove rows at the end of the table. If the cell is not part of the table (i.e., in a colored row) it will not be included in the tool's calculation.

Figure 3. Cursor Changed to Table Arrow

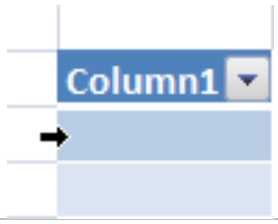
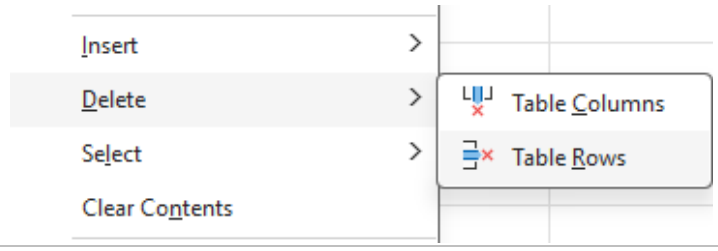


Figure 4. Delete Table Row Function



Do not delete sheet rows, as this can break the tool's calculations.

2.7 Shifts Tab

Video Tutorial →	https://youtu.be/MU5qjFa1Dlg?feature=shared&t=178

The Shift Descriptions Table is designed to make the input on subsequent tabs easier to understand, and to provide more descriptive output regarding the number of FTEs scheduled to be on duty at any given time during the week.

The information included in columns B, C, and D is for example only. Users should overwrite the examples or delete the information in these columns before starting data entry.
The Shift Name will not affect the tool calculations but should be descriptive to the department's terminology. Only the shift name will show up in the pull-down menus on subsequent tabs; the shift lengths will be used in the tool's calculations.

Shift times must be entered in a 24-hour format. Any 24-hour shift should be defined as a shift of 23 hours and 59 minutes. For example, a shift that starts at 06:00 and ends 24 hours later should be entered

* For all tables except the Shifts table

to start at 06:00 and to end at 05:59. Shift lengths longer than 24 hours should be entered as two separate shifts with one 24-hour shift and a second that accounts for the remaining part of the shift.

Complete the Shift Description Table (Figure 5) by entering a descriptive Shift Name and the shift's start and end times. The shift length will be automatically calculated. Up to 48 unique shift types can be added to the table which is indicated by the numbers in Column A.

Figure 5. Complete the Shifts Table

	A	B	C	D	E
1	**Shifts**				
2		All times should be entered in 24-hour format			
3		Up to 48 unique shifts can be accommodated			
4		**Shift Descriptions**			
5	Shift #	Shift Name	Start	End	Shift Length in Hours
6	1	Day 10 04:00	0:00	23:59	23.98
7	2	Day 12 04:30	0:00	23:00	23.00
8	3	Day 12 05:00	5:00	17:00	12.00
9	4	Day 6 06:00	6:00	12:00	6.00
10	5	Day 12 06:00	6:00	18:00	12.00
11	6	Day 12 07:00	7:00	19:00	12.00
12	7	Day 9 08:00	8:00	17:00	9.00
13	8	Day 12 10:00	10:00	22:00	12.00
14	9	Day 6 12:00	12:00	18:00	6.00
15	10	Night 6 00:00	0:00	6:00	6.00
16	11	Night 12 16:30	16:30	4:30	12.00
17	12	Night 12 17:00	17:00	5:00	12.00
18	13	Night 6 18:00	18:00	0:00	6.00
19	14	Night 12 18:00	18:00	6:00	12.00
20	15	Night 12 19:00	19:00	7:00	12.00
21	16	Night 15 20:00	19:00	7:00	12.00

Calculated by the tool

Shift name can be any descriptive name to conform with the user's terminology

Enter the start and end times of each shift in 24-hour format

Calculated by the tool

To add a row, enter data in the empty row below the last row. The new row will be added to the table and the background color changed to conform to the table's color scheme.

Remove rows using Excel's "Delete Table Row" function. Move the cursor to the left edge of the first cell in the row to be deleted until the cursor changes to an arrow (Figure 6). Right click on the cell,

choose Delete > Table Rows (Figure 7). This will remove the extra rows without breaking the tool's calculations.

Figure 6. Cursor Changed to Table Arrow

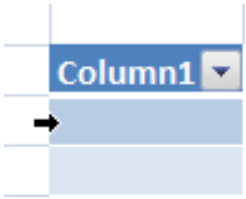


Figure 7. Delete Table Row Function

Do not delete sheet rows as this can break the tool's calculations.

2.8 Patrol Tab

Video Tutorial →	https://youtu.be/MU5qjFa1Dlg?feature=shared&t=361

The Patrol Tab presents information about the number of FTEs needed to staff the various patrol assignments at the airport. In the tool, Patrol refers to the patrol officers, deputy sheriffs, etc., that typically make up the main body of the police force. This may also include their direct management, such as sergeants and corporals. The tab can be renamed to more accurately reflect your department's terminology.

Note: Canine Teams should not be included on this tab, even if they are considered part of the patrol group. The Canine Tab can be used to determine this unit's staffing requirements.

Ensure all Patrol shifts are included in the **Shifts Tab**.

2.8.1 Complete the Patrol FTEs Table

Video Tutorial →	https://youtu.be/MU5qjFa1Dlg?feature=shared&t=361

Complete the Patrol FTEs Table (Figure 8). List all ranks or job classes. The table contains some common rank and job class examples that can be overwritten or deleted to reflect the department's terminology and structure.

It is assumed that all ranks or job classes assigned have the same relief factors. If ranks have different relief factors, these should be calculated in a separate tab.

Figure 8. Patrol FTEs Table

Patrol FTEs		
(FTEs used for output comparison only)		
Ranks/Job Classes	Current FTEs	Budgeted FTEs
Sergeant	6	6
Deputy	34	34

List every FTE patrol rank in this column

Enter the current number of FTEs for each rank

Enter the number of budgeted FTEs for each rank

Enter the current number of FTEs for each rank and then enter the number of budgeted FTEs for each rank.

Jump to: **Adding and Deleting Rows in Tables**

2.8.2 Complete the Patrol Assignments Table

Complete the Patrol Assignments Table (Figure 9).

The information in the table offers examples of common assignments and can be edited or removed to accommodate all Patrol FTE assignments. Assignments should reflect the department's terminology and division of activities; for example, Front of House Patrol may represent the patrol area that includes ticket counters and curbs.

Each possible assignment (patrols and posts) should be listed. To add more entries, use the resizing handle in the lower right corner (circled) to add extra rows.

Jump to: **Adding and Deleting Rows in Tables**

Figure 9. Patrol Assignments Table

Patrol Assignments
Assignments
Ticket Counter Patrol
Baggage Claim Patrol
Baggage Makeup Area Patrol
Screening Checkpoint Post
Perimeter Patrol
Terminal Patrol
Curbside Traffic Control
Sterile Area (AOA) Patrol
VIP Escorting
Parking Lot Patrol
Long Gun / Rifle Patrol
Vehicle Gate Checkpoint Post
Exit Lane Post
Desk
FIS Support
Cargo Area Patrol
Roadway Patrol
Proactive patrolling
High visibility public area patrolling

List every patrol assignment

2.8.3 Complete the Required Patrol Non-Duty / Relief Factoring Table

Complete the Patrol Non-Duty / Relief Factoring Table (Figure 10).

Jump to: **Relief Factor**

The table contains some common non-duty paid time off examples that can be overwritten or deleted to reflect your department's terminology. Include all non-duty paid time off types.

Enter the Average Annual Hours for one FTE for each non-duty paid time off type.

Jump to: **Adding and Deleting Rows in Tables**

Figure 10. Patrol Non-Duty / Relief Factoring Table

Patrol Non-duty / Relief Factoring (in average annual hours)	
Non-Duty Paid Time Categories	Average Annual Hours
Vacation	148
Training	32
Holidays	96
Sick time	60
Compensatory	80
Bereavement	20
Floating Holidays	32

List every type of non-duty paid time offered to Patrol FTEs

Fill in the average annual hours for each type of non-duty paid time for one Patrol FTE

Enter the number of hours each Patrol FTE is expected to work each year in the Total Annual Hours box (Figure 11). For many departments and units, this number is 2,080 (40 hours per week times 52 weeks a year). If this number is different, change the default 2,080 to the appropriate number of hours.

Figure 11. Total Annual Hours

Total Annual Hours:
2080

2.8.4 Complete the Patrol Weekly Schedule / Assignments Table

Complete the Patrol Weekly Schedule / Assignments Table (Figure 12).

This table uses pull-down menus to offer options created in the previous tables. The example information in the table should be deleted before beginning data entry in the table. **Do not delete anything in the Total column as this will break the tool's calculations.**

Use the pull-down menu to select a rank or job class, which is extracted from the Patrol FTEs Table.

Use the pull-down menu to select an assignment for each FTE from the list created in the Patrol Assignments Table.

Use the pull-down menu to select a shift for each FTE from the Shifts Description Table on the Shifts Tab.

If you are using the one-week schedule, complete the schedule for a 7-day period to reflect how many hours per day the selected rank performs their assignment during the selected shift. The tool automatically calculates the total number of hours for each row. The two-week schedule should be completed with the same method for a 14-day period.

Jump to: **Adding and Deleting Rows in Tables**

If your department has a large number of rank, assignment, and shift combinations, it may be easier to complete the schedule using a single line for each FTE assigned. The shift names can be changed to the FTE's name on the Shifts Tab and then chosen from the pull-down menu.

Figure 12. Patrol Weekly Schedule / Assignments Table

Use the pull-down menu to select a rank or job class

Complete the schedule using the required number of hours for each day of the week for each rank/assignment/shift combination

Patrol Weekly Schedule / Assignments (in hours)										
Rank/Job Class	Assignment	Shift	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
Sergeant	Screening Checkpoint Pc	Day 10 04:00	10	10	10	10	0	0	0	40
Sergeant	Desk	Day 12 04:30	12	12	0	12	12	0	0	48
Sergeant	Long Gun / Rifle Patrol	Day 12 04:30	0	12	12	0	12	12	0	48
Deputy	Ticket Counter Patrol	Day 12 05:00	0	0	12	12	0	12	12	48
Deputy	Baggage Claim Patrol	Day 12 05:00	12	0	0	12	12	0	12	48
Deputy	Screening Checkpoint Pc	Day 12 05:00	12	12	0	0	12	12	0	48
Deputy	Perimeter Patrol	Day 12 07:00	0	12	12	0	0	12	12	48
Deputy	Baggage Makeup Area F	Day 12 07:00	0	0	12	12	0	12	12	48
Deputy	Curbside Traffic Control	Day 12 07:00	12	0	0	12	12	0	12	48
Deputy	Roadway Patrol	Day 12 07:00	12	12	0	0	12	12	0	48
Sergeant	VIP Escorting	Night 12 16:30	12	0	12	12	0	0	12	48
Deputy	Ticket Counter Patrol	Night 12 17:00	0	0	12	12	0	12	12	48
Deputy	Exit Lane Post	Night 12 17:00	12	12	0	0	12	12	0	48
Deputy	Vehicle Gate Checkpoint	Night 12 17:00	0	12	12	0	0	12	12	48
Deputy	Parking Lot Patrol	Night 12 19:00	12	0	0	12	12	0	12	48
Deputy	Cargo Area Patrol	Night 12 19:00	0	12	12	0	12	12	0	48
Deputy	Perimeter Patrol	Day 6 12:00	12	12	0	12	12	0	0	48

Use the pull-down menu to select an assignment for each rank/job class

Use the pull-down menu to select a shift for each rank/assignment combination

Total weekly hours are automatically calculated

2.8.5 Review the Output Summary

Review the Output Summary in the green table (Figure 13).

The table shows the total number of hours it takes to perform all assignments each day of the week. The table adds these hours to show the total weekly hours, which is then divided by seven to show the average number of hours needed every day to complete all of the patrol assignments.

If you are using the two-week schedule, the table will show the same information but with an additional seven-day period.

The last column shows the number of FTEs required to cover the assignment hours for an entire year, including coverage for non-duty paid time off.

Do not delete any data in the Output Summary as this will break the tool.

Figure 13. Patrol Output Summary

Total number of working hours of all assignments for each day of the week

Weekly hours / 7

Patrol Output								Total			
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Hours		Average Daily Hours Assigned	Annual FTEs Required Including Relief Factors
Total hours	118	118	106	118	120	120	108	808		57.7	26.1

Total number of working hours needed to complete all assignments for the entire week (or two weeks)

Number of Patrol FTEs needed to cover all assignment hours and non-duty paid time hours

2.9 Non-Sworn Tab

Video Tutorial →	https://youtu.be/0HXZTKOxceo

The Non-Sworn Tab uses the same tables and calculations as the Patrol Tab. For the purposes of this tool, the non-sworn tab has been designated for other FTEs who are not LEOs but may be part of the staffing requirement. The terminology will differ from department to department.

This tab can be used to calculate the annual number of Non-Sworn FTEs or any other unit or team with significantly different relief factors from the Patrol FTEs. The tab can be renamed to more accurately reflect the department's terminology.

Jump to: **Renaming Tabs**

The tab is completed with the same steps described for the **Shifts Tab** and **Patrol Tab**.

If you do not have a need for one or more of the tabs, these tabs should be left blank, and all assigned hours should be set to zero.

Do not delete any tabs as this will break the tool's calculations.

If your department has more than four units or teams with unique non-duty relief factors, it is recommended to use multiple copies of the tool to calculate each unit individually, and then combine the results.

2.10 Canine Tab

Video Tutorial →	https://youtu.be/0HXZTKOxceo

The Canine Tab uses the same tables and calculations as the Patrol Tab. For the purposes of this tool, canine units are included in a separate tab due to the unique requirements of these units, such as extra training and particular care for the dogs.

This tab can be used to calculate the annual number of Canine FTEs or any other unit or team with significantly different relief factors from the Patrol FTEs. The tab can be renamed to more accurately reflect the department's terminology.

Jump to: **Renaming Tabs**

The tab is completed with the same steps described for the **Shifts Tab** and **Patrol Tab**.

If you do not have a need for one or more of the tabs, these tabs should be left blank, and all assigned hours should be set to zero.

Do not delete any tabs as this will break the tool's calculations.

If your department has more than four units or teams with unique non-duty relief factors, it is recommended to use multiple copies of the tool to calculate each unit individually, and then combine the results.

2.11 Special Units Tab

Video Tutorial →	https://youtu.be/0HXZTKOxceo

The Special Units Tab uses the same tables and calculations as the Patrol Tab. For the purposes of this tool, the Special Units Tab is targeted at other potential groups that are better represented separately because of atypical non-duty requirements and/or uncommon schedules. Examples include SWAT, Explosive Ordnance Disposal, or Detective/Investigations Units.

This tab can be used to calculate the annual number of Special Unit FTEs or any other unit or team with significantly different relief factors from the Patrol FTEs. The tab can be renamed to more accurately reflect the department's terminology.

Jump to: **Renaming Tabs**

The tab is completed with the same steps described for the **Shifts Tab** and **Patrol Tab**.

If you do not have a need for one or more of the tabs, these tabs should be left blank, and all assigned hours should be set to zero.

Do not delete any tabs as this will break the tool's calculations.

If your department has more than four units or teams with unique non-duty relief factors, it is recommended to use multiple copies of the tool to calculate each unit individually, and then combine the results.

2.12 Command Staff Tab

Video Tutorial →	https://youtu.be/psCtUReVJZg

The Command Staff Tab is slightly different from the four previous tabs. For the purposes of this tool, Command Staff refers to management ranks that are not typically backfilled to cover non-duty time. For example, the Police Chief would be included in this tab because the department is not likely to hire a second chief to cover the first chief's vacation time.

For many departments, the command staff or management ranks do not perform patrol-type duties, and they have significantly different relief factors. For that reason, there is no Assignment Table for the command staff, and they are assumed to be performing management tasks and activities during their shift.

2.12.1 Complete the Command Staff FTEs Table

Complete the Command Staff FTEs Table (Figure 14).

Enter each command or management rank and the current and budgeted number of FTEs for each rank. The table contains some common command ranks as examples that can be overwritten or deleted to reflect your department's terminology and structure.

Jump to: **Adding and Deleting Rows in Tables**

Figure 14. Command Staff FTE Table

Command Staff FTEs		
(FTEs used for output comparison only)		
Rank/Job Class	Current FTEs	FTE Budget
Commander	1	1
Captain	1	1
Lieutenant	1	1

List every command rank in this column

Enter the current number of FTEs for each rank

Enter the number of budgeted FTEs for each rank

2.12.2 Complete the Command Staff Non-Duty / Relief Factoring Table

Complete the Command Staff Non-Duty / Relief Factoring Table (Figure 15).

The table contains some common non-duty paid time examples that can be overwritten or deleted to reflect your department's terminology. Include all non-duty paid time types.

Enter the Average Annual Hours for one Command Staff FTE for each non-duty paid time type.

Jump to: **Adding and Deleting Rows in Tables**

Figure 15. Command Staff Non-Duty / Relief Factoring Table

Command Staff Non-duty / Relief Factoring (in average annual hours)	
Non-Duty Paid Time	Average Annual Hours
Vacation	148
Training	40
Compensatory	0
Bereavement	20
Floating Holidays	32
Holidays	96
Sick time	60

List every type of non-duty paid time offered to command staff

Fill in the average annual hours per FTE for each type of non-duty paid time

Enter the number of hours each Command FTE is expected to work each year in the Total Annual Hours Box. For many departments and units, this number is 2,080 (40 hours per week times 52 weeks a year). If this number is different, change the default "2,080" to the appropriate number of hours.

2.12.3 Complete the Command Staff Weekly Schedule Table

Complete the Command Staff Weekly Schedule Table (Figure 16).

This table uses pull-down menus to offer options created in the previous tables. The example information in the table should be deleted before beginning data entry in the table. **Do not delete anything in the Total column as this will break the tool's calculations.**

Use the pull-down menu to select a rank or job class, which is extracted from the Command FTEs Table.

Use the pull-down menu to select a shift for each Command FTE from the Shifts Description Table on the Shifts Tab.

If you are using the one-week schedule, complete the schedule for a 7-day period to reflect how many hours per day the selected Command FTE performs their assignment during the selected shift. The tool automatically calculates the total number of hours for each row.

The two-week schedule should be completed with the same method for a 14-day period.

Jump to: **Adding and Deleting Rows in Tables**

Figure 16. Command Staff Weekly Schedule

Use the pull-down menu to select a rank or job class

Complete the schedule using the required number of hours for each day of the week for each rank/shift combination

Command Staff Weekly Schedule (in hours)									
Rank/Job Class	Shift	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
Commander	Day 12 05:00	1	9	9	9	9	9	0	46
Captain	Day 10 04:00	1	9	9	9	9	9	5	51
Lieutenant	Day 12 04:30	3	4	12	12	0	12	12	55

Use the pull-down menu to select a shift for each rank

Total weekly hours are automatically calculated

2.12.4 Review the Output Summary

Review the Output Summary in the green table (Figure 17).

The table shows the total number of hours the command staff are scheduled each day of the week. The table adds these hours to show the total weekly hours, which is then divided by seven to show the average number of hours needed every day to complete all command staff shifts.

If you are using the two-week schedule, the table will show the same information but with an additional 7-day period.

The last column shows the number of Command FTEs required to cover the schedule for an entire year, including coverage for non-duty paid time.

Do not delete any data in the Output Summary as this will break the tool.

Figure 17. Command Output Summary

Total number of working hours of the schedule for each day of the week

Weekly hours / 7

Output								Total			Annual FTEs Required
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Hours		Avg Daily Hours	Calculation NOT USED
Total hours	5	22	30	30	18	30	17	152		10.9	4.7

Total number of working hours needed to complete the schedule for the entire week (or two weeks)

Number of Command FTEs needed to cover the schedule and non-duty paid time hours

2.13 Output Summary Tab

Video Tutorial →	https://youtu.be/RE6rwWkewH0

The Output Summary Tab combines the output summaries from the previous tabs and presents the information in a table and several charts. These can be presented to management to demonstrate a need for additional FTEs, or alternate strategies to cover all required assignments.

Do not delete any data on the Output Summary Tab.

2.13.1 Annual FTE Summary Table

The Annual FTEs summary table (Figure 18) summarizes the calculations of staff required to complete all the assignments/shifts for each job type. The job type; annual assigned hours; and required, current, and budgeted FTE information is taken from each associated tab.

The last two columns demonstrate the gap between the number of FTEs budgeted to the department, the current number of FTEs available each day, and the number required to complete all assignments/shifts for each job type.

The gap between the current FTEs and required FTEs is calculated by subtracting the required number of FTEs from the current FTEs. A positive number suggests the department has enough FTEs to perform the assigned tasks each day. A negative number indicates there is likely overtime being used to cover the additional assignments or, possibly, that some assignments are not being covered. Management may consider hiring additional FTEs to cover the gap or implementing alternate strategies to cover the assignments.

The gap between the budgeted FTEs and required FTEs is calculated by subtracting the required number of FTEs from the budgeted FTEs. A positive number suggests the department has budgeted enough FTEs to perform the assigned tasks each day. A negative number indicates that the budgeted number of FTEs is not enough to perform all the assignments. Management may consider increasing the budget to hire additional FTE positions or implementing alternate strategies to cover the assignments.

Figure 18. Annual FTE Summary Table

Job type

Pulled from FTEs Table on each tab

Number of additional budgeted FTE required to complete all assignments on a weekly basis (Budgeted FTEs – Required FTEs)

Annual FTEs						
Job Type	Annual Assigned Hours	Required FTEs	Current FTEs	Budget FTEs	Gap: Current Less Req	Gap: Budget Less Required
Command Staff	152.00	4.69	3	3	-1.69	-1.69
Patrol	808.00	26.06	40	40	13.94	13.94
Non-Sworn	297.00	9.00	43	43	34.00	34.00
Canine	4.65	4.65	6	6	1.35	1.35
Special Units	144.00	4.26	4	3	-0.26	-1.26
Total Staff	**1405.65**	**48.67**	**96.0**	**95.0**	**47.33**	**46.33**

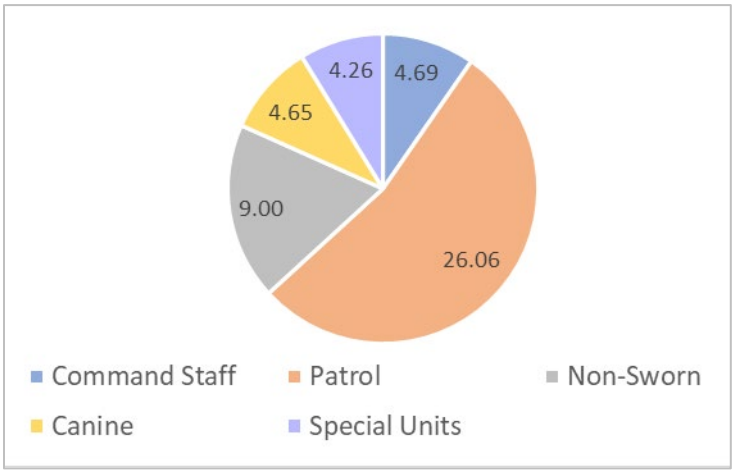
Number of hours required to complete all assignments/shifts on a weekly basis

Number of additional FTEs required to complete all assignments on a weekly basis (Current FTEs – Required FTEs)

2.13.2 Required Annual FTEs by Job Type Graph

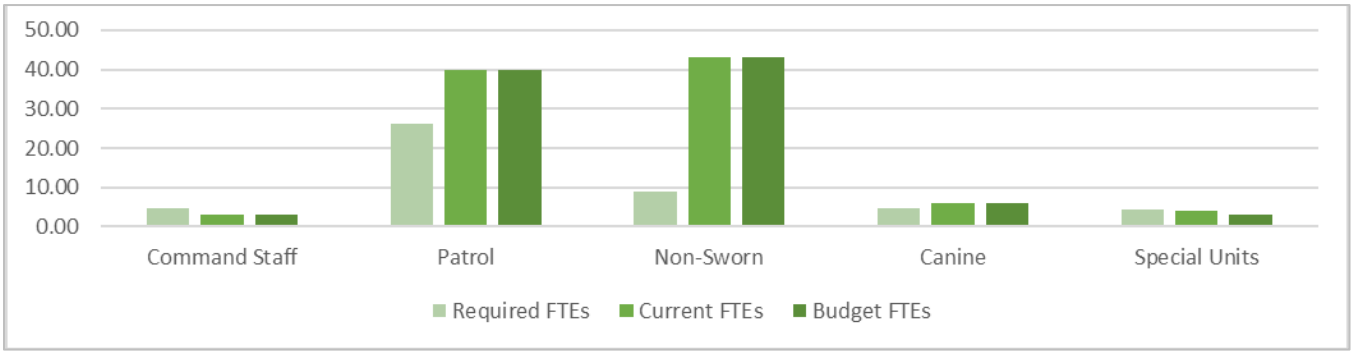
The Required Annual FTEs by Job Type Graph demonstrates the number of FTEs in each job type needed to perform the annual assignments.

Figure 19. Required Annual FTEs by Job Type Graph



The Annual FTE Comparison by Job Type Graph compares the required, current, and budgeted FTE numbers to visually demonstrate the gaps between the three data points.

Figure 20. Annual FTE Comparison by Job Type Graph

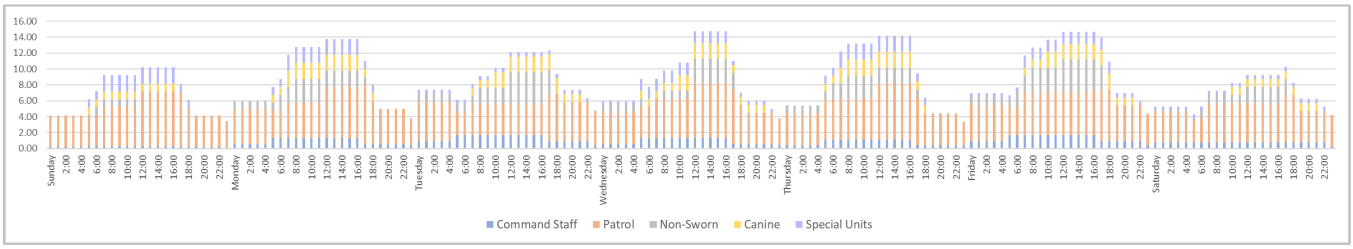


2.13.3 Staffing by Hour Graph

The Staffing by Hour Graph is a stacked bar chart showing the current total number of FTEs distributed by hour across the week based on the Weekly Schedule / Assignments Table on each tab.

The two-week graph shows the same information with an additional 7-day period.

Figure 21. Staffing by Hour Graph

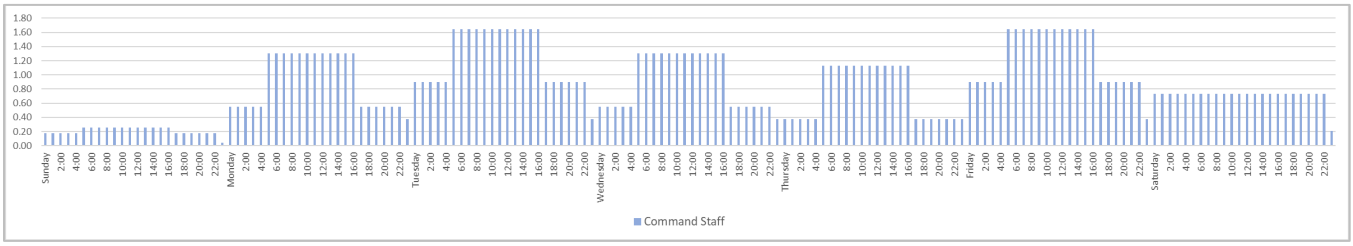


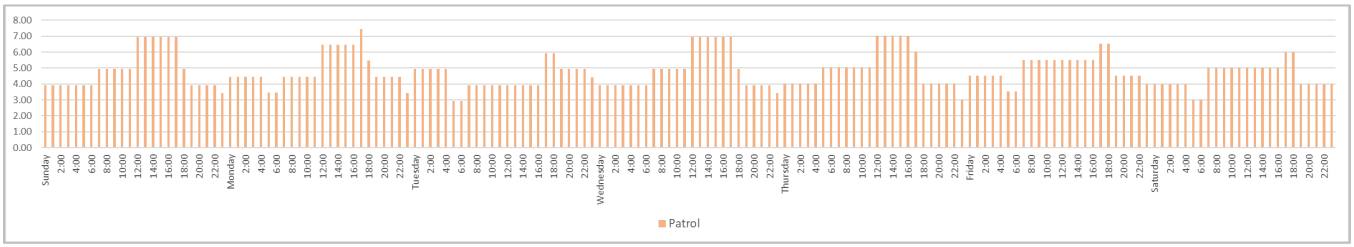
2.13.4 Staffing by Hour by Job Type Graph

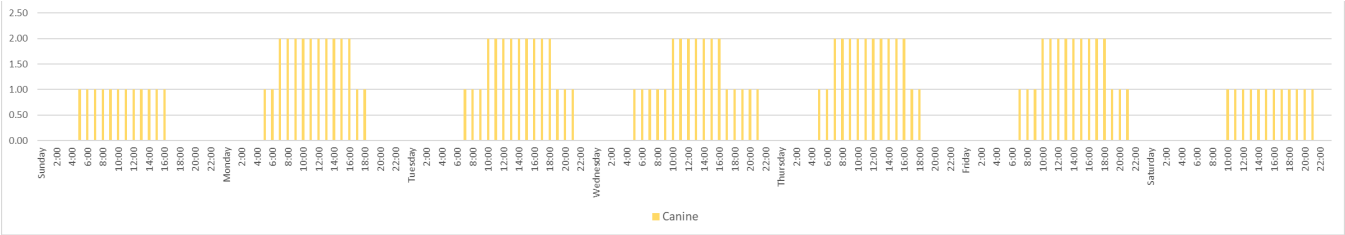
The Staffing by Hour by Job Type graphs separate the first Staffing by Hour Graph into each job type by hour across the week based on the Weekly Schedule / Assignments Table on each tab.

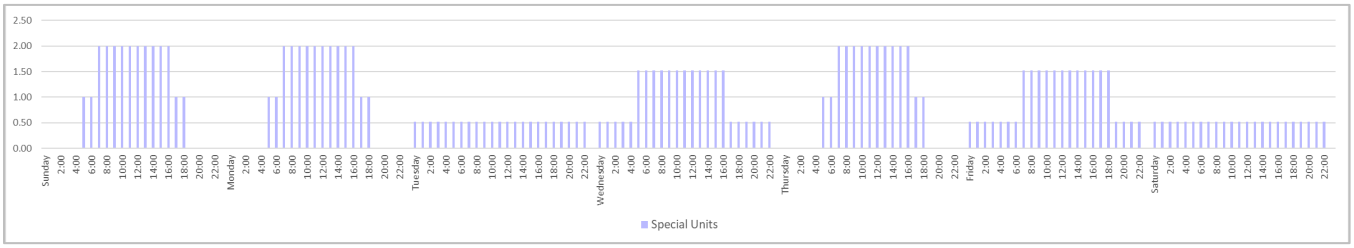
The two-week graph shows the same information with an additional 7-day period.

Figure 22 Staffing by Hour by Job Type Graphs






2.50
2.00
1.50
1.00
0.50
0.00
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Canine


2.50
2.00
1.50
1.00
0.50
0.00
Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Special Units

3 Workload Analysis Tool Instructions

Video Tutorial →	https://youtu.be/3ss1KVIw-T4

The Workload Analysis Tool is designed to help the user understand the workload distribution of the police department based on the volume of calls for service. Workload analyses use actual, historical data to determine staffing requirements to meet department-specific needs. The analysis accounts for how time is dedicated to reactive calls for service to ensure law enforcement superiors, airport officials, and governing officials have improved visibility and understanding of staffing requirements and tools that will provide greater fiscal and management control.

Note: it is not necessary to complete the Workload Analysis in order to use the Staffing Assignment Tool.

The Workload Analysis Tool is an accessory to the Staffing Assignment Tool and is designed to enhance the department's ability to make informed decisions, optimize resource allocation, and ensure staffing levels align with the reactive and proactive demands of the airport and law enforcement commanders.

3.1 Data Collection

The Workload Analysis Tool is a much more in-depth exercise than the Staffing Assignment Tool. To provide the most accurate and valuable results, the tool needs data from the department's Computer Aided Dispatch (CAD) system and Records Management System (RMS). If electronic data is not available, then hard-copy data that tracks time for each type of call for service is required (e.g., patrol log sheets, dispatchers' logbooks, etc.). The tool requires the following information:

- Job type (e.g., patrol officer, canine, non-sworn) responding to the call for service
- Service provided – typically the call type (e.g., traffic stop, trespass)
- Average number of FTEs required to complete the call
- Average time to complete the call – expressed in minutes and fractions of minutes such as 1.2 hours, or 0.75 hours
- Number of calls for that service in the last year

Ensuring there are no duplicates, miscategorized calls, or missing information will provide the most accurate representation of the department's workload. Understanding the data input is critical. **Bad or inaccurate data will create inaccurate results.**

Given the large amount of data required to complete the analysis, it may take some time to prepare the data, including removing duplicates, removing administrative tasks, and entering the data into the tool. Some departments may be able to dedicate a staff member to work with the CAD or RMS data, or they may be able to hire a consultant to conduct time studies.

The tool development team recommends taking the time to ensure the data is correct before running the tool.

3.2 Completing the Tool

The tool makes certain assumptions to complete the calculations:

- User-entered services are reactive calls for service. This may include response to door alarms on SIDA or regulatory doors, emergency or medical response, escorting Fire and EMS, and other dispatched calls for service.
- FTEs responding to reactive calls for service are not available to perform proactive tasks (e.g., patrols) or administrative tasks (e.g., report writing).

  Reactive calls for service do not include proactive activities or administrative duties. The tool is designed to calculate the work distribution to reactive calls for service.
- The annual hours calculation is

$$\begin{array}{c} 24 \text{ hours} \\ \times\ 7 \text{ days} \\ \times\ 52 \text{ weeks} \\ \hline = 364 \text{ days a year} \end{array}$$

- The user defines the reactive percentage to reflect the expected ratio of FTE reactive time to non-reactive time. This ratio is used to estimate the number of total annual hours required to respond to the reactive calls for service without overburdening the FTEs. Constantly responding to calls for service is taxing on the officer and may create overtime during shift changes as officers finish responding to calls in progress.

3.2.1 Complete the Expected Work Distribution by Job Type

Video Tutorial →	https://youtu.be/3ss1KVIw-T4?feature=shared&t=267

Complete the Expected Work Distribution by Job Type Table (Figure 23).

The job types shown in the table are examples and can be changed to reflect the department's terminology.

Note: The tool was created to only allow for five different job types. Additional lines added to this table will not be included in the output summary table.

If your department has more than five units or teams to analyze, it is recommended to use multiple copies of the tool to calculate each unit individually.

Enter the expected reactive percentage for each job type. The proactive and administrative time will be calculated automatically.

Reactive time is when the FTEs are responding to calls for service and are unable to perform proactive or administrative tasks. Higher reactive percentages can lead to burnout and potential overtime.

The PARAS 0055 research has shown that reactive time should only account for 35–60% of an officer's shift. Adjusting the reactive percentage in the table will change the results in the Output Summary Table and allow the user to test different workload distributions to understand how it affects the staffing level.

Figure 23. Expected Work Distribution By Job Type

Enter the expected reactive workload percentage for each job type.

Expected Work Distribution By Job Type

Job Type	% Reactive Time	% Proactive/Admin
Command Staff	50%	50%
Patrol Officers	43%	57%
Non-Sworn	50%	50%
Canine	50%	50%
Special Units	50%	50%

Job Type can be changed to match the department's terminology; maximum of 5 job types

Proactive/Admin percentage is automatically calculated

3.2.2 Complete the Annual Reactive Incidents by Service and Job Type Table

Complete the Annual Reactive Incidents by Service and Job Type Table (Figure 24).

The data entered in the table offers examples and should be deleted before beginning data entry in the table. **Do not delete anything in the total labor hours per year column as this will break the tool's calculations.**

Use the pull-down menu to select a job type listed in the Expected Work Distribution by Job Type table.

Enter the name of the service provided. This should reflect your department's terminology for calls for service.

Enter the average number of FTEs of the listed job type who responded to that service type.

Enter the average number of minutes required to complete the reactive call for service.

Enter the number of calls for that service in the last year.

Jump to: **Adding and Deleting Rows in Tables**

The Workload Analysis Tool calculates the total labor hours per year by multiplying the minutes per incident, incidents per year, and number of FTEs responding to the call, and then dividing by 60.

Figure 24. Annual Reactive Incidents by Service and Job Type Table

Create a row for each reactive call for service type

Enter the average number of minutes required to complete the reactive call for service; from call accepted to call complete

Enter the average number of incidents for each reactive call for service

Annual Reactive Incidents By Service And Job Type

Job Type	Reactive Service Provided	LEOs Required Per Incident	Minutes Per incident	Incidents Per Year	Total Labor Hours Per Year
Command Staff	Misc Public Service	2.1	30.0	364	382
Non-Sworn	Misc Public Service	1.0	60.0	364	364
Special Units	Misc Public Service	1.3	90.0	364	710
Non-Sworn	Misc Public Service	1.4	120.0	364	1019
Patrol Officers	Traffic Stop	1.6	16.8	15074	6738
Patrol Officers	Suspicious Person	1.8	39.7	3566	4201
Special Units	EOD Callout	1.6	34.5	3771	3465
Patrol Officers	Disturbing the Peace	1.1	42.4	2580	2005
Patrol Officers	Rental Vehicle Theft	1.2	187.0	580	2169
Patrol Officers	Suspicious Vehicle	1.2	222.3	426	1893
Patrol Officers	Accident - No Injury	2.1	31.8	2643	2937
Patrol Officers	Stranded Motorist	1.1	27.6	2557	1296
Patrol Officers	Lost/Stolen Property	1.1	63.8	1031	1207
Patrol Officers	Stolen Vehicle	1.2	106.7	591	1262
Patrol Officers	Escort	1.3	63.0	949	1295
Patrol Officers	Abandoned Vehicle	1.1	21.2	2437	947
Patrol Officers	Missing Person	1.1	54.3	751	748
Patrol Officers	Petty Theft	1.0	29.1	1309	635
Patrol Officers	Prisoner Transport	1.0	85.5	417	595

Use the pull-down menu to select a job type for each reactive call for service type

Enter the number of staff required to respond to each reactive call for service type

[(Minutes per incident) x (incidents per year) x (number of staff required)] / 60 minutes

3.2.3 Review the Output Summary Table

Once all the data has been entered, and you are confident in the data's accuracy, review the Output Summary Table (Figure 25).

The first column in the Output Summary Table summarizes the total annual labor hours assigned to each job type based on the service type they are assigned.

The second column expands the annual labor hours to account for the reactive percentage. In other words, the expanded annual hours show the number of labor hours needed to complete all the reactive calls for service for one year if the FTE only dedicates the specified reactive percentage of their time completing reactive calls for service. A lower reactive percentage will create a higher staffing requirement because each FTE would respond to fewer calls for service.

The third and fourth columns convert the total annual hours to weekly and daily hours.

The last two columns show how many shifts would be needed to cover the total daily hours. Column L shows the number of 10-hour shifts required each day to respond to the calls for service based on the reactive percentage assigned to them. Column M shows the number of 12-hour shifts required each day to respond to the calls for service based on the reactive percentage assigned to them.

If your department is using another shift length, such as 8-hour or 24-hour, you can divide the expanded daily hours by the number of hours in the shift.

The user can test different scenarios by adjusting the reactive percentage to increase or decrease the response to calls for services for each job type or assigning different job types to select services. For example, assigning low level door alarms and escorting activities to non-sworn staff to see how many hours can be shifted from patrol FTEs.

Do not delete any data in the Output Summary.

Figure 25. Workload Analysis Output Summary

Sum total minutes per year for each job type / 60

Expanded annual hours / 52

Expanded daily hours / 8

Output	Reactive Incident Hours	Time Expanded For Expected Work Distribution Percentage (Includes Both Reactive And Proactive)				
	Total Annual Manhours	Expanded Annual Hours	Expanded Weekly Hours	Expanded Daily Hours	Daily 8-hour shifts	Daily 12-hour shifts
Patrol Officers	26627	61922	1191	170.1	21.3	14.2
Non-Sworn	8736	17472	336	48.0	6.0	4.0
Canine	0	0	0	0.0	0.0	0.0
Special Units	6550	13101	252	36.0	4.5	3.0

Total annual hours / associated reactive %

Expanded weekly hours / 7

Expanded daily hours / 12

3.3 Linking the Results of the Tools

With the results of the Workload Analysis, the user is able to more accurately determine the number of shifts and staff necessary to complete the assignments defined in the tools.

Output from the Workload Analysis tool should provide insight into the number of daily shifts that will need to be scheduled on a daily basis in order to cover the historical reactive workload.

XYZ Airport Analysis Example

XYZ Airport has just completed the Staffing Assignment and Workload Analysis Tool.

The results of the Staffing Assignment Tool Output Summary from the Patrol tab when the FTEs work 12-hour shifts are as follows:

Figure 26. Staffing Assignment Tool Patrol Tab Output Summary – Baseline

Patrol Output								Total		
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Hours	Average Daily Hours Assigned	Annual FTEs Required Including Relief Factors
Total hours	118	118	106	118	120	120	108	808	115.4	26.1

The Patrol FTEs use a 43% reactive workload. The airport will use the following results from the Workload Analysis:

Figure 27. Workload Analysis Output Summary – Reactive at 43%

Output	Reactive Incident Hours	Time Expanded For Expected Work Distribution Percentage (Includes Both Reactive And Proactive)				
	Total Annual Manhours	Expanded Annual Hours	Expanded Weekly Hours	Expanded Daily Hours	Daily 8-hour shift	Daily 12-hour shifts
Patrol Officers	26627	61922	1191	170.1	21.	14.2

Comparing the Total Weekly Hours from the Patrol tab and the Expanded Weekly Hours from the Workload Analysis Tool (outlined in red) indicates that the Patrol Officers spend far more than 43% of their shift responding to calls for service.

Below are the results when the reactive percentage is changed to 63%. The weekly hours (outlined in red) are much closer, indicating the Patrol Officers are spending around 63% of their time responding to calls for service and 37% of their time patrolling or performing administrative tasks.

Figure 28. Workload Analysis Output Summary – Reactive at 63%

Output	Reactive Incident Hours	Time Expanded For Expected Work Distribution Percentage (Includes Both Reactive And Proactive)				
	Total Annual Manhours	Expanded Annual Hours	Expanded Weekly Hours	Expanded Daily Hours	Daily 8-hour shift	Daily 12-hour shifts
Patrol Officers	26627	42264	813	116.1	14.	9.7

Reviewing the Patrol Weekly Schedule / Assignments Table shows that nine Patrol FTEs are assigned a 12-hour schedule each day of the week, and one sergeant is assigned a 10-hour shift.

Figure 29. Patrol Weekly Schedule / Assignments Table

Patrol Weekly Schedule / Assignments (in hours)										
Rank/Job Class	Assignment	Shift	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
Sergeant	Screening Checkpoint Pc	Day 10 04:00	10	10	10	10	0	0	0	40
Sergeant	Desk	Day 12 04:30	12	12	0	12	12	0	0	48
Sergeant	Long Gun / Rifle Patrol	Day 12 04:30	0	12	12	0	12	12	0	48
Deputy	Ticket Counter Patrol	Day 12 05:00	0	0	12	12	0	12	12	48
Deputy	Baggage Claim Patrol	Day 12 05:00	12	0	0	12	12	0	12	48
Deputy	Screening Checkpoint Pc	Day 12 05:00	12	12	0	0	12	12	0	48
Deputy	Perimeter Patrol	Day 12 07:00	0	12	12	0	0	12	12	48
Deputy	Baggage Makeup Area F	Day 12 07:00	0	0	12	12	0	12	12	48
Deputy	Curbside Traffic Control	Day 12 07:00	12	0	0	12	12	0	12	48
Deputy	Roadway Patrol	Day 12 07:00	12	12	0	0	12	12	0	48
Sergeant	VIP Escorting	Night 12 16:30	12	0	12	12	0	0	12	48
Deputy	Ticket Counter Patrol	Night 12 17:00	0	0	12	12	0	12	12	48
Deputy	Exit Lane Post	Night 12 17:00	12	12	0	0	12	12	0	48
Deputy	Vehicle Gate Checkpoint	Night 12 17:00	0	12	12	0	0	12	12	48
Deputy	Parking Lot Patrol	Night 12 19:00	12	0	0	12	12	0	12	48
Deputy	Cargo Area Patrol	Night 12 19:00	0	12	12	0	12	12	0	48
Deputy	Perimeter Patrol	Day 6 12:00	12	12	0	12	12	0	0	48

This is in alignment with the “Daily 12-hour shifts” (outlined in blue) calculation at the 63% reactive time (Figure 28).

If XYZ Airport’s goal was for Patrol FTE to only dedicate 43% of their shifts responding to calls for service, the results of this comparison indicate that more Patrol FTEs are required or alternate strategies for assignments

should be considered. Adding 4–5 additional 12-hour shifts every day would provide the necessary FTE hours to cover assignments and spend 43% of the shift responding to reactive calls for service.

Figure 30. Staffing Assignment Tool Patrol Tab Output Summary – Additional Shifts

Patrol Output								Total		Annual FTEs Required
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturda	Hours	Average Daily Hours Assigned	Including Relief Factors
Total hours	178	178	166	166	180	168	15	1192	170.3	38.5

4 Questions on How to Use the Tools

If you are having trouble understanding how the tools work or you are receiving an error message, we encourage you to reach out to us directly at feedback@transsolutions.com. A member of the Tool Development Team will reach out as soon as possible to assist.