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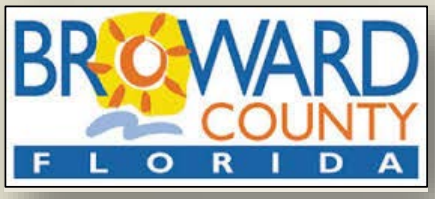
Radio Channel Workload and Staffing Needs: Optimizing Efficiencies



Assessment of Broward County's Regional E911 Consolidated Communication Systems – Phase 3

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CONSULTANT CONFIDENTIAL DRAFT REPORT

Radio Channel Workload and Staffing Needs: Optimizing Efficiencies
Broward County, Florida

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Executive Summary

Drawing from *FITCH's* Phase 2 Report, this current effort builds on the efficiencies identified previously in the prior reports. As has been noted before, Broward's 911 efforts over the past years has been less of a consolidation, and more of a co-location. That premise best characterizes the reason why sought-after efficiencies have yet to be fully obtained.

In this Report, a focus was placed on the primary radio channels for both fire and law – and modelling their performance in a true consolidated environment. Base levels of service were identified – and limits identified where additional resources are required. The results show that consolidation of radio channels can occur completely for certain fire radio channels. In addition, both fire and law radio channels have an opportunity to consolidate overnight when workload drops significantly – though each is handled differently based on their specific needs. Finally, three law radio channels were found to exceed recommended workloads, and therefore resources are shifted from nighttime hours to daytime hours when needed.

Overall, the total demand for staffing of call intake, radio and supervisor positions can be reduced between 11.1% to 9.7% depending on the option selected. This translates to an estimated reduction on FTEs required to staff positions from a current level of 404 FTEs for call takers, radio positions and supervisors (duty officers), to a level of 358 FTEs under Option 1, and to a level of 365 FTEs under Option 2. Because of current vacancies, and the estimated 1-year plus implementation schedule, no layoffs should be needed to achieve these efficiencies.

Introduction

Subsequent to the delivery of *FITCH's* Phase 2 report, stakeholders had ongoing questions regarding specific recommendations. Requests were made to further clarify what was meant by 'base level of service', and how should potential consolidation of specific radio channels be accomplished. Broward County sought FITCH's assistance in answering these and other related questions. This current Phase 3 report is built upon *FITCH's* earlier work.

As models were developed to meet the current need, the perspective of analysis changed from Phase 2 where we identified efficiencies across 3 PSAPs to the Phase 3 analysis that needed to address the existing 28 main radio channels used by fire and law enforcement. This changing perspective resulted in a loss of efficiency as calculated in our earlier work. Nonetheless, as will be shown later in this report, there are still significant efficiencies to be achieved in the current system.

As this work is intended to clarify/expand on recommendations from Phase 2, it is appropriate to summarize those issues and assess their current status.

Phase 2 Recommendations

FITCH's Phase 2 Report, delivered in December 2016, contained a series of 21 recommendations regarding the Broward Regional 911 Communications System. The efforts of this Phase 3 additional work are intended to further assist Broward County, Broward Sheriff's Office and municipal partners to more closely realize the original intent of the consolidation's efforts.

Accordingly, it is appropriate to briefly assess the status of Phase 2 recommendations. The figure below provides an overview of the original Phase 2 recommendations, and the current status of those initiatives. As will be noted, a number of the recommendations have already been fully completed, while others are in process or addressed more fully herein to permit implementation in the near future.

Figure 1: Phase 2 Recommendations & Status[1]

Number	Recommendation - Phase 2	Current Status
1	The County needs to insure the missions of technology development and technology sustainment have different focuses and roles. Therefore, the County should provide for a Technology Development Team and a Technology Sustainment Team over the next few years as new technologies are implemented and the system continues to stabilize.	COMPLETED: In the past two fiscal years, the County has added 8 new positions to ORCAT. This has allowed a greater focus on technology needs versus those required for administration and longer-term development.
2	An absolute priority for the County is to develop a link between 911 phone records and the associate CAD incident records.	IN PROCESS: County has implemented the next generation CAD System, implemented version release upgrades to the phone system (VIPER), and implemented the Universal Call Identifier (UCID), all prerequisites for this item. Two more tasks are pending: Establish a replicated 911 phone database, and custom report development.
3	BSO should maintain EMD certification training for all call takers through the International Academies of Emergency Dispatch (IAED). Call taker personnel should also be trained and certified as Emergency Fire Dispatchers (EFD) and in the system, implement EFD in the near future. These certifications are considered industry best practice.	IN PROCESS: EMD continues to be maintained. Emergency Fire Dispatch (EFD) has been endorsed by the Broward Fire Chiefs Association and County has allocated funds in the FY18 budget for the procurement and implementation of EFD.

[1] Status was determined either by direct on-site observations or from County staff feedback.

Number	Recommendation - Phase 2	Current Status
4	Finally, law enforcement agencies should consider and evaluate the efficacy of Emergency Police Dispatch (EPD) being utilized in the future. This system is emerging as an industry best practice.	IN PROCESS: Emergency Police Dispatch (EPD) has been endorsed by the Broward Police Chiefs Association and County has allocated funds in the FY18 budget for the procurement and implementation of EPD. Contract negotiations are in progress. EPD is planned to be implemented after EFD.
5	Operational Oversight and System Governance should be redefined to strengthen the role of end-users while balancing the logistical concerns of the Operator (BSO), and the financial and system governance responsibilities of Broward County.	IN PROCESS: County has clarified roles & responsibilities within ORCAT. The Police and Fire Chiefs Associations have established an Operational Review Team (ORT) in support of the Engagement Process for issues related to operational procedures and processes. Work continues to finalize a framework for the ORT Team. The current 4C structure in scheduled to sunset in January 2018.
6	Alternative work schedules are available and should be considered. Attachment A, Scheduling Matrix Sample, provides sample schedules for consideration. Filling vacant positions in a timely manner with the goal of maintaining full staffing will reduce excessive mandatory overtime and the associated stress. This will allow resources to align more closely to demand patterns, thereby improving efficiency in the system.	PHASE 3 DELIVERABLE: Provide alternative work schedules.
7	Supervision on the PSAP dispatch floors should be at a ratio of six to one as opposed to the current ten to one ratio. Greater quality assurance processes are to be handled by BSO dispatch floor supervisors.	IN PROCESS: County has allocated FY18 Budget funding to provide a 6:1 supervision ratio within the next two years.
8	Resources for dispatcher training should be increased through reallocation of current funding.	IN PROCESS: County has allocated FY18 Budget funding of $2.5M in support of dispatcher and call taker training. County has committed to continue to assess training needs through quality assurance initiatives, and to allocate funds necessary for additional dispatcher and call taker training as technologies and emergency call processing procedures are implemented and as quality assurance reviews specify.

Number	Recommendation - Phase 2	Current Status
9	A "base level of 911 services" funded by the County should be more clearly defined by utilizing the current interlocal agreements and *FITCH's* modelling of performance levels as noted in call taking and radio positions. Individual agencies desiring higher levels of service should be able to fund additional staffing hours or technology in order to receive services specific to their jurisdictional needs. The Regional System's management and technology should facilitate these additional services as long as they do not disrupt the base services.	PHASE 3 DELIVERABLE: 1. Provides operational targets for both law and fire radio dispatch positions. Call-taker position operational targets were provided in Phase 2. Combined, these recommendations represent the base levels of service for 911 services.
10	The County should modify the current monthly performance report format and replace it with a monthly report that focuses solely on data and provides no commentary.	COMPLETED: Broward County has fully implemented this recommendation.
11	The "busy hour" is to be redefined in a prospective manner based on historical data and is to be reassessed in no less than 12-month intervals. These changes allow for meaningful and actionable information exchanges and provide user agencies with a needed level of oversight.	COMPLETED: Broward County has fully implemented this recommendation.
12	The County should purchase a performance measurement software package that will provide agencies with ready access to the activities and performance of their respective field units, and simultaneously allow the County and BSO to evaluate system performance at the micro and macro levels.	IN PROCESS: As part of the implementation of the next generation CAD system, County implemented the Report Data Warehouse (RDW) for agencies to access the activities and performance of their respective field units, and to allow stakeholders to evaluate system performance at the micro and macro levels. Standardized reports were collaboratively developed with stakeholders, and the RDW provides for highly parameterized ad-hoc reporting and dash boarding.
13	Only the performance on emergency/911 incidents should be included in the performance reports. The current practice of evaluating duplicate 911 calls on a single incident skews measurement. The true structure of the report should be to present the numbers in a way that highlights the calls where response time is important. Some thought should be given to present response times starting with the call receipt to emergency service arrival on scene. This will give the proper presentation of the caller's experience. Special attention should be paid to high priority incidents.	IN PROCESS: Broward County has partially implemented this recommendation. Separate metrics are reported for higher priority (Delta & Echo) medical calls. Further custom report development is in progress.

Number	Recommendation - Phase 2	Current Status
14	Regarding reporting performance for various call processing time intervals, once the technology issues are resolved, the P2 and P3 intervals should be reported separately and as a combined metric. The reasoning is that, particularly for fire and emergency medical Delta and Echo life-threatening calls, fast and effective dispatch performance contributes to positive outcomes. Monthly reports should also report P4 (turn-out times) for fire rescue incidents and P5 (travel time) for both fire rescue and law high priority incidents.	COMPLETED: Broward County has fully implemented this recommendation.
15	In general, dispatch center performance metrics are to focus on optimizing dispatch processes as much as possible, with the end result being to get help moving to emergencies as quickly as possible. The primary objective is to contribute to the potential for positive outcomes for patients and properties.	COMPLETED: County revised the monthly performance report to align with the recommended Monthly Performance Report Format. County has also allocated funds for the procurement and implementation of independent quality assurance assessments to routinely measure the system's capability regarding positive outcomes for patients and properties.
16	Call processing staffing should be adjusted to achieve P1/call-taking performance of between three to five seconds at the 90th percentile by adopting the recommended workstation functional reorganization as detailed in the report section titled, Dispatch Operations Models – Options. This adjustment, in conjunction with the already implemented single que for call intake, provides significant efficiencies in the call taking process while maintaining high levels of performance.	IN PROCESS: Comparing Jan. 2016 to Jan. 2017 there has been significant efficiencies achieved by adjusting call-taker hours to achieve 11.2% greater efficiency. Performance at the 90th percentile has moved from 1.42 to 1.90 seconds. BSO should continue to adjust call-taker hours to affect this metric to achieve the previously recommended 301 hours per day.
17	Fire-rescue agencies should develop, approve and implement countywide nearest unit response protocols that apply irrespective of jurisdictional boundaries in those incidents involving high priority incidents (e.g. Delta & Echo level EMD calls).	PENDING: The Broward County Fire Chiefs have indicated they agree in principal. Specific implementation plans from the Fire Chiefs are pending.
18	Recommended process changes to radio channel usage include requiring increased usage of Mobile Data Terminals (MDTs) by field responders.	PHASE 3 DELIVERABLE: Research on MDT best practices are presented.

Number	Recommendation - Phase 2	Current Status
19	Once the CAD is upgraded to allow automatic computer assignment / recommendation of response units for fire/rescue calls, a single "gatekeeper" function / fire rescue alert channel can be implemented to manually approve the assignment consistent with Option 2. Upon dispatch, pre-defined tactical radio channels would be used for more routine fire incidents and EMS incidents. More significant incidents (structure fires, major/multiple unit responses) would be assigned a dedicated tactical channel. This change in fire rescue radio operations provides significant efficiencies while maintaining high levels of performance.	PHASE 3 DELIVERABLE: Revised fire dispatch channel modelling provides significant efficiencies.
20	Law enforcement radio positions should be consolidated to increase efficiency consistent with Option 2.	PHASE 3 DELIVERABLE: Consolidations of appropriate law dispatch channels are recommended.
21	Long-term capital budgeting programs should be considered as soon as practical to include two new purpose-specific 911 facilities.	COMPLETED: Broward County provided funding in the FY17 Capital Improvement Program for initial analysis and design specifications for a new purpose-built facility.

Methodology

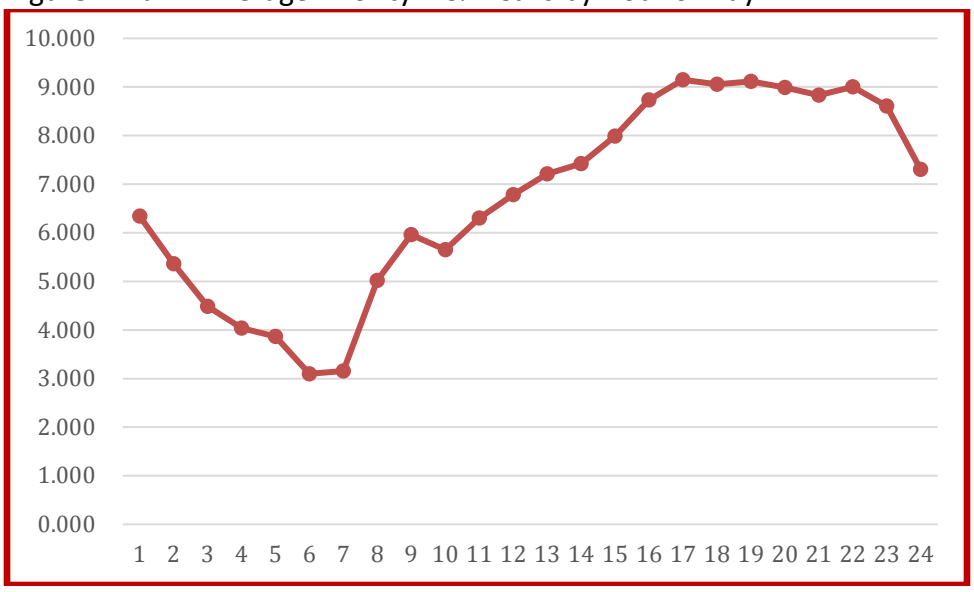
To ensure consistency with findings and recommendations from the Phase 2 Report, data for this effort utilized summary radio data and incident level data as already obtained and processed into database files. Two main sources of information were utilized for modelling of radio dispatch workloads.

CAD Data

The export and integration of CAD data into a working database was more fully explained in the Phase 2 report. Computer-aided dispatch (CAD) database files, as previously processed, permitted analyses by hour of day, day of week, month and by agency was utilized. This CAD information was used to model current performance of Broward County's radio system by integrating CAD workload data into the modelling of radio dispatch workstations. CAD data was used to allocate hour-by-hour workload across a typical 24-hour day. CAD data, for each agency, was aggregated in the same configuration as radio channel assignments are utilized in the Broward system. This allowed modelling of radio channel workloads to occur using the same configuration in use currently.

During this engagement, questions arose regarding the frequency with which high priority law enforcement calls occur by hour of day. The concern was any impact higher priority incidents may have should radio channels be reduced during overnight hours. CAD data was also examined to answer this question and is reflected in the graphic below. As can be seen, most significant law incidents, as defined as Priority 1 & 2, occur between noon and midnight hours.

Figure 2: Law - Average Priority 1 & 2 Calls by Hour of Day



Radio Data

Actual utilization information for the entire radio system was provided to FITCH and allowed for analysis by radio channel. Technically, the proper term for a single radio communication

pathway for a single group of users is referred to as a talkgroup. However, for purposes of this report we will also utilize the more commonly used and understood moniker of radio channel or channel.

Broward County staff informed *FITCH* that they were unable to export raw data from the radio logs. The only information they could provide was a 611-page PDF of a year-end summary report titled "Talkgroups at Zone Summary 150101 – 151231". *FITCH* utilized this document as the basis for building the radio channel workloads for all fire and law main radio dispatch channels. This represented 9 primary fire dispatch positions currently used in the system and 19 main law radio channels – in essence the 28 current radio channels that are currently staffed on a 24-hour basis by BSO. The other remaining 941 talkgroups contained in the 611-page PDF were not modelled, as they are not used as a primary radio channel for public safety dispatching. While they represent a myriad of other talkgroups, including various public safety tactical and administrative channels, they are not considered here for any consolidation. The same holds true for the larger number of general radio channels utilized by non-public safety purposes.

Therefore, the remaining focus of the modelling involves the main radio channels used for dispatching public safety personnel. The following two Figures reflect those channels and their characteristics for 9 fire channels and 19 law enforcement channels.

Figure 3: Main Radio Channels - Fire

Broward E911 Consolidated Communications System
Talkgroups at Zone Statistics CY2015

Discipline & TalkGroup ID ##		Channel Abreviation	Annual Air-Time [sec / yr]	Annual Incidents	Annual Xmit/Rcv's [PPT/2]	Air-Time per Xmit/Rcv [sec]	Xmit/Rcv's per Incident	Air-Time per Incident [sec]	Agencies Served
FIRE	80001651	BCF-D1	4,161,542	32,237	1,011,799	8.226	15.69	129.09	OP + SN + LH
FIRE	80000513	BCF-D2	4,671,511	43,740	1,124,710	8.307	12.86	106.80	CC + DN + DR + BC + LL + PK + PE + WP +
FIRE	80000517	BCF-D3	2,008,058	18,675	433,026	9.275	11.59	107.53	HD + MM
FIRE	80000577	BCF-D4	1,539,092	12,800	334,737	9.196	13.08	120.24	DV + SW
FIRE	80000515	BCF-D5	3,160,509	28,086	748,747	8.442	13.33	112.53	LS + LP + PB
FIRE	80002687	BCF-D6	3,456,751	29,639	830,850	8.321	14.02	116.63	CK + MG + NL + TM
FIRE	80001569	FLF-DISP1	5,252,965	49,611	1,298,906	8.088	13.09	105.88	FL + WM
FIRE	80003359	BCF-D8	4,070,692	28,239	940,253	8.659	16.65	144.15	HW
FIRE	80002655	BCF-D9	2,525,851	20,478	628,383	8.039	15.34	123.34	PP

Figure 4: Main Radio Channels - Law

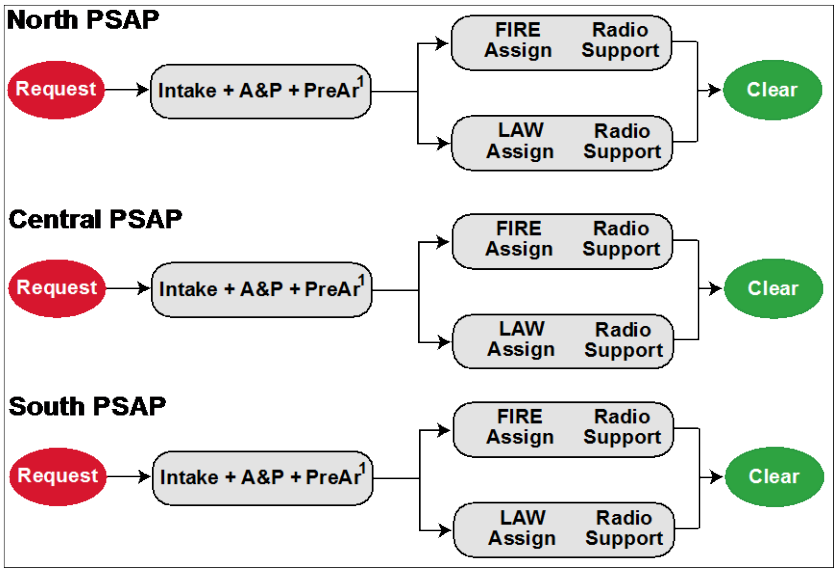
Broward E911 Consolidated Communications System Talkgroups at Zone Statistics CY2015									
Discipline & TalkGroup ID ##		Channel Abreviation	Annual Air-Time [sec / yr]	Annual Incidents	Annual Xmit/Rcv's [PPT/2]	Air-Time per Xmit/Rcv [sec]	Xmit/Rcv's per Incident	Air-Time per Incident [sec]	Agencies Served
LAW	80001635	SNP-DISP	7,195,082	38,282	1,759,000	8.181	22.97	187.95	Agn42
LAW	80002673	CKP MAIN	8,310,381	43,586	1,999,228	8.314	22.93	190.67	Agn30 + Agn37
LAW	80001825	FLP-DIST-1	8,304,910	52,978	2,010,966	8.260	18.98	156.76	0.333* Agn34 + Agn43
LAW	80001827	FLP-DIST-2	7,388,925	45,056	1,828,597	8.082	20.29	163.99	0.333* Agn34
LAW	80001829	FLP-DIST-3	7,398,485	45,055	1,844,836	8.021	20.47	164.21	0.333* Agn34
LAW	80003311	HWP-A1	9,798,831	42,174	2,248,559	8.716	26.66	232.34	0.5933 * Agn33
LAW	80003331	HWP-A2	6,716,101	28,906	1,503,949	8.931	26.01	232.34	0.4067 * Agn33
LAW	80002631	PPP-MAIN	9,362,099	52,454	2,366,789	7.911	22.56	178.48	Agn25
LAW	80000277	BSO-09-DISP	6,811,261	34,030	1,728,784	7.880	25.40	200.15	Agn10
LAW	80000423	BSO-11-Area2	6,705,586	37,523	1,628,181	8.237	21.70	178.71	0.5145 * Agn11
LAW	80000259	BSO-02-DISP	6,571,478	37,318	1,601,387	8.207	21.46	176.09	Agn02 +Agn 03 + Agn14
LAW	80000261	BSO-03-DISP	7,212,269	41,993	1,799,881	8.014	21.43	171.75	Agn28 + 0.4485*(Agn19 + Agn01)
LAW	80000263	BSO-04-DISP	4,794,358	27,915	1,188,048	8.071	21.28	171.75	Agn16+Agn08+0.5515* (Agn19 + Agn01)
LAW	80000269	BSO-06-DISP	7,364,307	42,650	1,719,839	8.564	20.16	172.67	Agn29
LAW	80000273	BSO-07-DISP	10,128,828	58,808	2,552,006	7.938	21.70	172.24	AgnBS + Agn04 + Agn12
LAW	80000275	BSO-08-DISP	7,975,457	46,725	1,923,523	8.293	20.58	170.69	Agn07 + Agn15 + Agn17
LAW	80000279	BSO-10-DISP	8,527,021	63,054	2,179,866	7.823	17.29	135.23	Agn23
LAW	80000421	BSO-11-Area1	7,851,381	43,935	1,894,712	8.288	21.56	178.70	0.4855 * Agn11 + Agn 13 + Agn36 + Agn26
LAW	80000265	BSO-05-DISP	7,145,394	62,913	1,726,000	8.280	13.72	113.58	Agn21

Work Stations

The first step in the construction of an Erlang model of BSO dispatch operations is to identify which types of workstation to include in the model. This process is straightforward for BSO dispatch operations. There are three PSAP locations. At each PSAP there is a group of 911 intake workstations. This is the first type of workstation. There are also a group of LAW assignment and FIRE assignment workstations.[2] These are the second and third types of workstations. The organization of workflows is diagrammed below.

[2] The use of FIRE in this report refers to fire suppression and emergency medical services dispatch processes.

Figure 5. Workflows and Workstations in the BSO Dispatch System



[1]Pre-Arrival Instructions only on EMS incidents with Echo-Delta determinants

The rounded rectangles above, represent types of workstations. The text inside each rounded rectangle represents the functions that are executed at that type of workstation. "Intake" refers to the function of determining what is the emergency and where is it located. "A&P" refers to assessment of acuity and prioritization of response. "FIRE Assignment" is the functions of identifying a suitable unit for the response and notification of that unit. "Radio Support" refers to radio communication with units in the field on incidents in-progress. "LAW Assignment" is the functions of identifying a suitable unit for the response and notification of that unit. "Radio Support" refers to radio communication with units in the field on incidents in-progress.

The consultants recognize that the LAW and FIRE Assignment workstations in each PSAP are now further subdivided by main dispatch channels for fire and law. These 28 specific radio channels, as reflected above, form the basis for our analysis. The calculation of Erlangs from three PSAPs as done in Phase 2, to the calculation of Erlangs across 19 law and 9 fire channels, adds inefficiency into the system and therefore require more hours to be tasked for law and radio workstations. The change in granularity has exponential impacts which had to be accounted for in this modelling.

The consultant was also asked to consider prior efforts at radio channel consolidation as outlined in feedback provided by the Police Chiefs Association – specifically dealing with Fort Lauderdale & Hollywood, and also some efforts related to Lauderhill. Discussions with County staff and others knowledgeable of the radio system's evolution from the 1990s recognized there were some limited prior efforts. However, those prior efforts were substantively different than the analysis conducted here. First, the use of Erlang modeling was never utilized in any prior discussions, and certainly not on an hour-by-hour basis. Second, and perhaps more important, is that prior efforts only considered consolidation for the entire 24-hour period each

day. *FITCH* agrees with the limitation of 24-hour consolidation for law channels and stated so in an earlier draft of this report. *FITCH* found with law enforcement specifically, the demands do not allow for consolidation on a 24-hour period. In fact, the modelling here demonstrates the need to provide additional resources during daytime hours for certain law agencies. The methodology utilized here, in fact, avoids the very problems that may have been present during any prior attempts to consolidate radio channels.

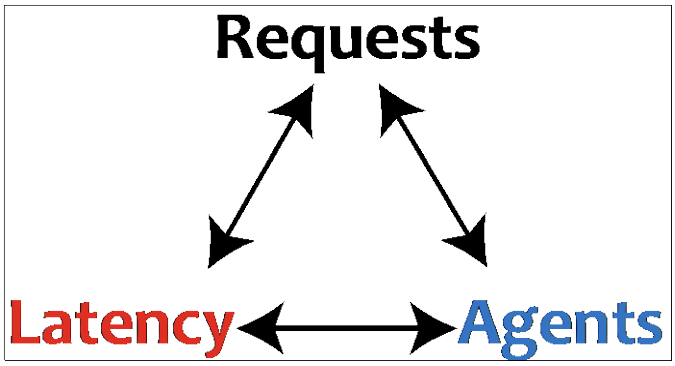
Models of Dispatch Operations

The rationale for a model of dispatch operations is that it permits FITCH, as well as stakeholders, to pose questions that otherwise could not be addressed in the real world. Computer time is inexpensive compared to conducting the same experiments using the real stream of incoming calls, actual dispatchers and real PSAPs. The model becomes a cost-effective and timely tool for predicting the behavior of the real system.

It must be emphasized that the performance of a dispatch system has two distinct components that are so tightly intertwined that it is easy to confuse the difference. The first component is the length of time it takes to execute each function of the dispatch process. The second component to performance is how long it takes before a dispatcher can begin executing the next request in the queue.

FITCH's approach to the modelling and analyses of dispatch operations is to conduct exhaustive Erlang calculations by hour-of-day at each workstation. The goal of Erlang queueing analysis is to calculate the number of agents required to satisfy demands for service without over-provisioning. Erlang's queueing theory makes it possible to quantify the three-cornered relationship between requests for service, number of agents, and latency as depicted in the Figure below.

Figure 6. Queueing Theory Triangle



Latency is the average delay between when a request for service is presented to an agent and when the agent is able to begin processing this next request for service. Latency at the Intake workstations has the special name, "Answer Delay". This is the interval between ring-in and dispatcher pick-up. Latency also occurs at the radio support workstations. In this case, latency

is the interval between a field responder keying a transmit and the radio dispatcher acknowledging reception of the transmit.

The mathematics and logical assumptions underlying Erlang queueing theory are presented in Appendix A, Erlang Mathematics and Assumptions. The first step in applying Erlang queueing analyses is to identify the types of workstations used to execute the dispatch functions in the particular system. The second step is to quantitate all of the workloads that comprise the functions executed at each type of workstation in the Dispatch Center.

In queuing theory, workloads are measured in units of "Erlangs". An Erlang is simply the ratio of the summed durations of all the activities at a type of workstation per one hour on the clock. In the modelling that follows, both Erlangs and workloads will be expressed as decimal hours. For example, a workload duration of 15 minutes (00:15:00 hh:mm:ss) will appear as 0.250 Erlang.

Calculation of Radio Workloads in Current Dispatch Operations

FITCH's approach to analyses of dispatch operations is to conduct exhaustive Erlang calculations by hour-of-day at all PSAP workstations. As FITCH already reported on 911 Intake workstations in the Phase 2 report, the remainder of this section shall focus on radio assignment workstations for fire and law enforcement.

The total workloads flowing to these radio workstations, as captured by the CAD database reflecting incidents for fire and law enforcement, were tallied for each hour of the day, by agency, and as required for each radio channel serving a single agency, a subset of a single agency, or the aggregate of multiple agencies utilizing a single radio channel. Hour-by-hour staffing was then added to the models. The queueing probabilities were then calculated using the Erlang-C formula. In this way, the consequences of staffing decisions at a radio channel workstation can be examined hour-by-hour during the day. An example of this is shown in the Figure below.

Figure 7: Typical Radio Dispatch Workstation

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80002631 LAW	PPP-MAIN	South	+ 0.00 σ

surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performanc		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		4.52	102.02	0.224	1	77.58	4.77
	0100		3.53	79.61	0.175	1	82.50	3.50
	0200		2.74	61.77	0.136	1	86.43	2.59
	0300		3.06	69.12	0.152	1	84.81	2.96
	0400		2.47	55.68	0.122	1	87.76	2.30
	0500		2.33	52.57	0.116	1	88.45	2.16
	0600		2.70	61.01	0.134	1	86.59	2.56
	0700		4.50	101.61	0.223	1	77.67	4.75
	0800		5.85	132.06	0.290	1	70.98	6.75
	0900		6.62	149.38	0.328	1	67.17	8.07
	1000		7.14	161.08	0.354	1	64.60	9.04
	1100		8.36	188.56	0.414	1	58.56	11.68
	1200		8.55	192.97	0.424	1	57.59	12.15
	1300		8.85	199.70	0.439	1	56.11	12.91
	1400		8.99	202.79	0.446	1	55.43	13.27
	1500		9.51	214.54	0.471	1	52.85	14.72
	1600		8.66	195.48	0.430	1	57.04	12.43
	1700		8.53	192.35	0.423	1	57.73	12.08
	1800		8.45	190.55	0.419	1	58.12	11.89
	1900		7.35	165.89	0.365	1	63.54	9.47
	2000		6.53	147.41	0.324	1	67.60	7.91
	2100		6.01	135.67	0.298	1	70.19	7.01
	2200		5.50	124.14	0.273	1	72.72	6.19
	2300		5.01	113.11	0.249	1	75.14	5.46

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
7.911 sec	0.00	6.07	137.04	0.301	24	65.38 %	9.31

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	65.38 %	9.31
non-Contig			0	? %	?

Consolidations
BSO-10P-DISP

The result is a coherent picture of the consequences of staffing decisions for the whole dispatch center over the course of the whole day. The starting point for this process is to quantitate all of the workloads that comprise the operations at these workstations.

Staffing a radio communications workstation must address the question of how much traffic can be accommodated on a single channel monitored by a single dispatcher. There is a follow-on to this question. If some threshold of traffic is exceeded, then the geographic area of service responsibility must be subdivided and a second radio channel with its own dedicated radio operator must be activated.

FITCH examined the maximum radio channel workload question with significant effort. There is no widely accepted, or even identified, standard for radio channel workload from a dispatcher perspective. Therefore, an analysis was undertaken to evaluate the actual demand within the current system. Broward County was questioned if radio channel workload was an issue raised by either BSO or end users – it was not. FITCH noted during its engagements starting back in 2016, the issue was not identified as a problem for stakeholders. Accordingly, the current demand on radio channels can reasonably be assumed to generally be within an acceptable level.

As noted earlier, hour-by-hour Erlang calculations were done for each radio channel used by fire and law enforcement for primary dispatch. The results are shown in the two Figures below. A casual observer will note that workload demand, as expressed by Erlangs, has a distinct temporal distribution. The demand is dramatically lower at 4:00AM then at 4:00PM. This is more pronounced in law enforcement radio channels than fire radio channels. For both fire and law, the middle of the night has similar demand – dropping below 0.15 Erlangs for all channels. Fire workload as calculated by Erlangs never exceeds 0.25 for any hour of the day, while law enforcement has several channels that slightly exceed 0.40 Erlangs for a number of hours each day.

Two conclusions can be immediately derived from a review of the hour-by hour analysis of Erlangs across the various law enforcement and fire main radio channels. First, there are select fire radio channels that can be fully consolidated across a 24-hour day. Second, there are additional opportunities to consolidate select fire and law radio channels during the low demand overnight hours.

Figure 8: Erlang Demand by Hour of Day – Law Enforcement Main Channels

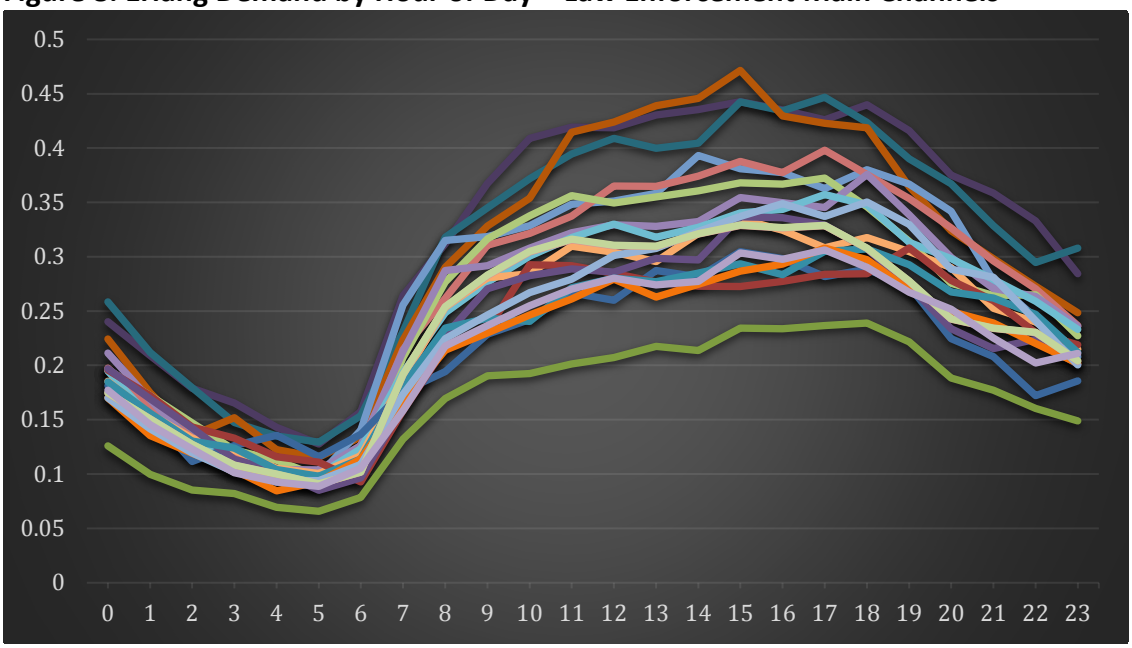
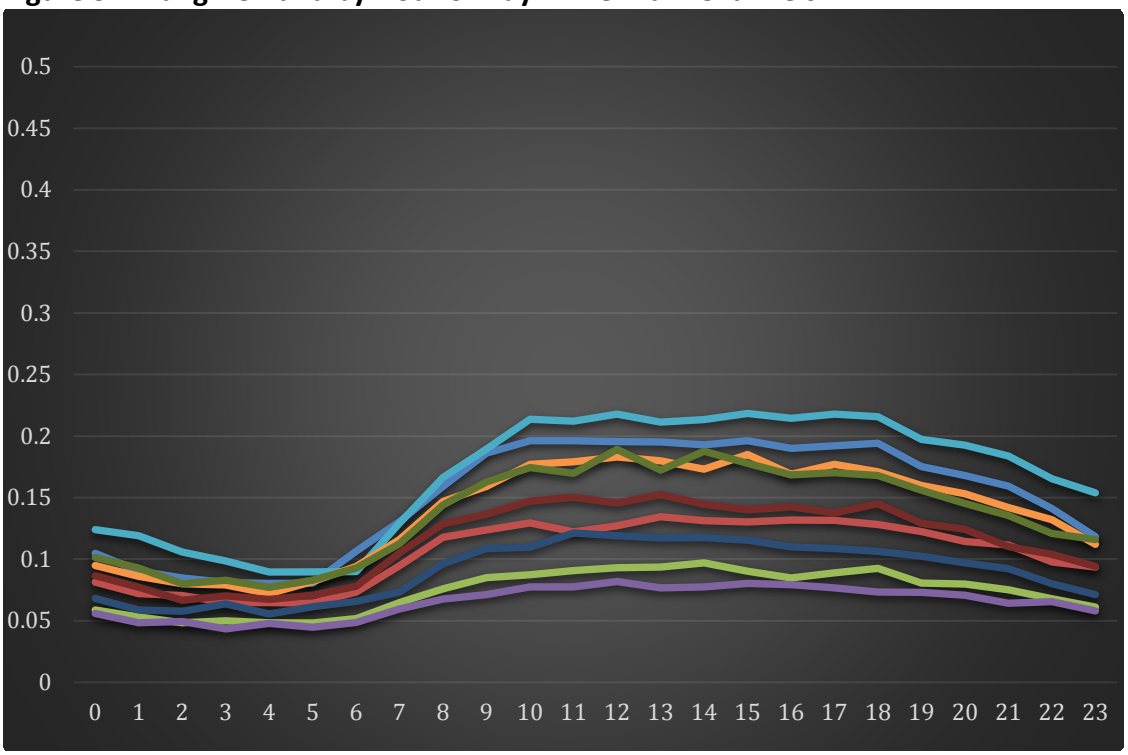


Figure 9: Erlang Demand by Hour of Day – Fire Main Channels



Answer Delay at Radio Workstations

To further define the base level of service for radio workstations, FITCH took note of a guidance document from the Office of the Canadian Minister of Industry (Industry Canada) titled "Spectrum Management and Telecommunications Policy Guidelines, Channel Loading Guidelines"[3]. This document is formally intended to assess the need for radio spectrum – essentially the determination of how many radio channels (talkgroups) can be accommodated with an allocation of "x" spectrum. However, this document is also insightful for framing the question asked herein – how much workload can a single radio operator handle?

The Ministry specifies that the channel loading analysis of a system that places blocked calls in queue will be based on a traffic theory model that uses a probability of delay and will be normally calculated using the Erlang C formula. Exactly this approach was used in the preparation of these analyses.

The Grade of Service (GOS) for systems with queues is the probability of a response to a call being delayed by busy radio dispatchers and is associated with a latency. The Grade of Service is expressed as a decimal multiple of the Holding Time (HT) on the channel. The Holding Time is the average duration that the radio dispatcher is busy on the call. In the context of radio channels, Holding Time is equivalent to the average duration of the Xmit/Rcv communication cycles on the channel in question. Overall, this is between 8 to 10 seconds in the Broward system.

The Ministry of Industry recommends for public safety services using queued systems the grade of service should be:

GOS = 0.03 @ 1 HT

What the recommended GOS means in the context of the Broward's radio channels is that responses to 97% of field initiated transmits be responded to by the radio dispatcher in less than the duration of the average Xmit/Rcv cycle on the channel, or within 10 seconds.

Operational Targets for Radio Workstations

Evaluation of the 911 system's current workload performance as expressed in Erlangs was the primary criteria for determining maximum radio workstation performance. This was further tempered by consideration of the maximum Answer Delay as framed in the Ministry of Industry document. This approach is intuitively appropriate as Erlangs are strongly correlated with Answer Delay. Finally, the following operational target for radio workstations are evaluated within any sequential 4-hour period. Applying criteria on an hour-by-hour basis is not practical from a scheduling perspective. Accordingly, the following target is recommended as the base level of service for radio workstations:

[3] Office of the Canadian Minister of Industry. (2003). Spectrum Management and Telecommunications Policy Guidelines, Channel Loading Guidelines. Author. Downloaded from https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/gl004e.pdf/$FILE/gl004e.pdf July 13, 2017

A single radio talkgroup, staffed with a single radio operator, should not exceed during any 4-hour block a weighted 0.4 Erlangs and during that same 4-hour block a weighted Answer Delay of 10 seconds or greater at the 97th percentile.

Application of Targets to Broward County

Application of the radio workstation operational targets was conducted separately for fire and law enforcement main radio channels. First were the Erlang calculations for each radio channel by hour of day. This was then examined for opportunities to consolidate similar main radio channel, with consideration of existing PSAP location and balancing of workload. These potential consolidations were then separately modeled using the same metrics to explore if performance remained within the operational targets.

Several iterations of modelling determined that it was possible to full consolidate six (6) fire radio channels into three (3). Further, two (2) additional fire radio channels could be consolidated for 8-hours overnight into a single channel.

For law enforcement channels, there is no opportunity to fully consolidate any channels over a 24-hour period. However, there is an ability to consolidate 17 main law channels into 8 channels for a 6-hour period overnight. Unlike fire radio activity, law channels maintain higher levels of activity later into the evening and early morning hours. Therefore, the modelling was adjusted, based on stakeholder feedback, to consolidate channels overnight only for a 6-hour period from 0100 until 0700 hrs. However, three radio channels were also found to exceed the operational target defined above during daytime hours. Accordingly, the recommendation includes addressing these overloaded channels by adding three additional law workstations for an 8-hour period each day, unless other offloading techniques can be employed.

The summary of recommended radio channel consolidations is reflected in the following two Figures. Appendix B provides the full output of these analyses.

Figure 10: Gross Change in Radio Workstation Staffing - 24-Hour Period

Workstations	Hours	Notes
Fire - Current	216	9 radio positions X 24 hrs.
Fire - Modeled	136	6 radio channels X 16 hrs. and 5 radio channels X 8 hrs.
Law - Current	456	19 radio positions X 24 hrs.
Law - Modeled	432	22 radio positions X 8 hrs.; 19 radio channels X 10 hrs.; 11 radio channels X 6 hrs.

Figure 11: Recommended Changes in Radio Channel Staffing

FIRE Radio Main Channel Staffing	Current	Recommendation	% Change
Current - 9 talkgroups staffed 24-hours per day	216		
FLF-DISP1 Fort Lauderdale remains unchanged from current		24	
BCF-D3 (Hallandale/Miramar) & BCF-D4 (Davie) consolidate for 24-hours per day		24	
BCF-D5 (Lighthouse Point/Pompano) & BCF-D6 (Margate/Coconut Creek/N. Laud./Tamarac) consolidate for 24-hours per day		24	
BCF-D8 (Hollywood) & BCF-D9 (Pembroke Pines) consolidate for 24-hours per day		24	
BCF-D1 (Sunrise/etc.) & BCF-D2 (BSO Fire) consolidate for 8-hours per day overnight (from 2300 till 0700)		40	
Fire Total Staffing Hours/Day	**216**	**136**	**-37.0%**
LAW Radio Main Channel Staffing	**Current**	**Recommendation**	**% Change**
Current - 19 talkgroups staffed 24-hours per day	456		
PPP-MAIN remains unchanged from Current		24	
CPK-MAIN remains unchanged from current		24	
Hollywood consolidates their 2 channels to a single channel for 6-hours per day overnight (from 0100 till 0700)		42	
Fort Lauderdale consolidates their 3 channels to 2 channels for 6-hours per day overnight (from 0100 till 0700)		66	
BSO-06-DISP (Lauderhill) & SNP-DISP (Sunrise) for 6-hours per day overnight (from 0100 till 0700)		42	
BSO-11-Area1 & BSO-11-Area2 (Pompano) consolidate to a single channel for 6-hours per day overnight (from 0100 till 0700)		42	
BSO-10-DISP (Miramar) & PPP-MAIN (Pines) for 6-hours per day overnight (from 0100 till 0700)		42	
BSO-08-DISP (N.Laud/Parkland/Tamarac) & BSO-09-DISP (Deerfield Beach) for 6-hours per day overnight (from 0100 till 0700)		42	
BSO-02-DISP (Dania/Ports) & BSO-05-DISP (Davie) for 6-hours per day overnight (from 0100 till 0700)		42	
BSO-03-DISP (Cooper City/Weston) & BSO-04-DISP (Pembroke Park/West Park) for 6-hours per day overnight (from 0100 till 0700)		42	
PPP-MAIN additional radio hours needed		8	
BSO-7 additional radio hours needed		8	
HWD-A1 additional radio hours needed		8	
Law Total Staffing Hours/Day	**456**	**432**	**-5.3%**
Total of Fire & Law Main Dispatch Channels	**672**	**568**	**-15.5%**

Conversion to Staffing & FTEs

The modelling of workstations in the three PSAPs is framed in terms of dispatchers Hours on Task, that is, dispatchers actively on-duty at their workstations – with that modelling employing the use of Erlang calculations. Having modeled the required hours on task requirements for each main radio workstation, a conversion to shift staffing requirements and then full-time equivalents (FTEs) is required. The Figure below presents the steps that must be executed in order to convert dispatchers Hours on Task to Full Time Equivalents (FTE's).

Figure 12. Conversion of Dispatchers on Task to Full Time Equivalents

Manpower Descriptor	Source
Dispatcher Hours on Task	Erlang modelling of the main radio dispatch workstations at the three PSAPs provides the needed number of hours of dispatchers actively on duty at their workstations.
Dispatchers on Shift	Calculated from dispatchers on task by providing for local work rules, break time policies while on shift, and local contractual obligations.
Full Time Equivalents (FTE) (Dispatchers on Staff)	Calculated from dispatchers on shift by providing for local personnel policies, work rules, and contractual obligations.

Dispatchers on Shift

As can be seen, a detailed knowledge of local work rules, break time policies while on shift, and local contractual obligations is necessary before dispatcher hours on task can be translated to FTE's. The conversion of dispatchers-on shift to dispatchers on staff, likewise depends on a myriad of details. Both of these conversions are best carried out by the local governing authority with an intimate knowledge of these details.

To determine staffing needs, many governing authorities utilize a staffing estimator and retention rate calculator known as RETAINS, a product of the Association of Public-Safety Communications Officials (APCO). The RETAINS title stands for Responsive Efforts to Assure Integral Needs in Staffing. The estimator is respected as a tool for estimating FTE needs, but ***only after*** the required level of frontline staffing on shift has been otherwise determined. This limitation of RETAINS is not widely understood.

A further limitation of the RETAINS estimator is that it is silent regarding the performance to be obtained from any level of staffing. The RETAINS estimator provides no guidance to policy makers regarding how specific changes in staffing will translate to changes in absolute performance, whether staffing is being under-provisioned or over-provisioned against performance targets.

BSO has utilized RETAINS to assist in determining its staffing needs. Of specific interest in this analysis is the summary of hours worked by a single employee. That calculation, as defined by the RETAINS model, is shown in the Figure below.

Figure 13: BSO RETAINS Worksheet - Summary

STAFFING ESTIMATION WORKSHEETS

A six step process for estimating the number of employees needed:

Step 1: Identify the type of position you wish to analyze;

Step 2: Determine employee availability (Worksheet A, NAWH)

Step 3: Determine your turnover rate (Worksheet B)

Step 4: Select the appropriate formula and analyze all positions (Worksheets C, D, E)

Step 5: Compare the number of staff you have with the number you need (Worksheet F)

Step 6: Do a reality check using quality indicators.

Worksheet A: Determining Employee Availability

Determine Net Available Work Hours (NAWH)		
Position:		
A	2080	Total hours for one full time employee
B	202	Average vacation and holiday leave (total hours)
C	94	Average sick leave (total hours)
D	11	Average personal leave (total hours)
E	86	Average training leave (total hours)
F	39	Average military, FMLA leave, etc. (total hours)
G	264	Average lunch and break (total hours)
H	3	Average other (meetings, light duty, special assignments, etc.)
I	699	Total unavailable time = Total B through H
J	1381	Net Available Work Hours (NAWH) = A – I

1381 = Net Available Work Hours per employee (NAWH from J above)

APCO Project RETAINS: Responsive Efforts To Address Integral Needs in Staffing 1 of 6
Developed by The University of Denver Research Institute August, 2005

FITCH elected to utilize this current assessment of work hours, however with one adjustment to the assumptions used by BSO's RETAINS worksheet. Lunch and breaks are already addressed in FITCH's staffing model, thereby allowing the adjustment of net available work hours to move from the current assumption of 1,381 hours per year to 1,645 hours per year.

BSO Dispatch Communications Current Work Schedule

BSO Dispatch Communications shift schedule is currently based on an 8-hour work schedule. Each of the three centers is divided into an "Alpha", "Bravo" and "Charlie" 8-hour periods. The

8-hour schedule is subdivided into two four (4) hour blocks. This further division allows managers to move personnel between their discipline-specific (either fire or law enforcement) positions, as well as 911 call taking positions during a tour of duty. This process continuously ensures staff maintain their high level of proficiency that is required in both dispatch (radio) and call taking positions. The four-hour adjustments also enable BSO to control minimum mandatory staffing needs within the 8-hour day by allowing for an increase or decrease every four (4) hours. The objective is to have staffing balanced amongst the three shift which will support the required personnel to meet the level of demand every 4 hours.

BSO Work Rules

1. Staff are on an 8-hour day, 5 days per week as a routine schedule. Personnel cannot be mandated to work beyond a 12-hour day. Staff can voluntarily agree to work a 16-hour day within a 24-hour period as the maximum, however this is voluntary and nothing that management can mandate. Personnel must also have an eight (8) hour minimum period of off duty in between work schedules.

2. Per the Collective Bargaining Agreement, staff are required to have 1 hour of breaks during an 8.25-hour day. Note that the staff reports .25 hours before the start of the shift for a required roll call session. The breaks are site driven, and can be divided into 15-30-15, 45-15, or 30-30 break periods during an 8-hour day. Staff schedules for 12 hours are required to have 1.25 hours of break time. Staff scheduled for 16 hours are required to have 2 hours of break time.

3. Schedules are created automatically via Telestaff (Kronos). The schedule rules consider the following conditions per site:
    a. All staff are 911 trained and are also required to have a dispatch discipline (either fire or law enforcement). Hence, all staff members will rotate among 911 and their dispatch discipline routinely.
    b. Staff are not trained in both disciplines. The Figure below provides dispatch discipline by PSAP breakdown.
    c. Currently dispatch positions are static and do not change, therefore required to be scheduled 24/7. There is only one exception - Pompano Area 2 will "close down" and combine with Pompano Area 1 on the Alpha shift at the North site from 0200 - 0700 hours daily. As such, Telestaff will not seek to schedule anyone in that position.
    d. Telestaff seeks to rotate staff every 4 hours on an 8-hour day considering their current schedule, schedule within the past 24 hours, and schedule within the past 48 hours.
    e. 9-1-1 staffing numbers are considered monthly and have been reduced numerous times since regionalization began. The 9-1-1 PSAP Call Analysis provides the foundation for when staffing numbers are reduced based upon call volume and expected call processing time. Call processing time is considered annually as part of Project RETAINS and is taken from VIPER MIS reporting statistics which represent call taker activity.

Figure 14: Current Dispatch Assignments to PSAP by Discipline[4]

Dispatch Center	Dispatch Law Enforcement	Dispatch Fire/Rescue
North	86	40
Central	58	37
South	52	39

Shift Assignment

To continuously maintain correct staffing balances BSO will annually reset shift assignments through a shift bid procedure. Probationary staff members are at will and are manipulated to different schedules as required.

During annual shift bidding, the total site staff is divided into the three shifts, and allowances are added or removed to account for the natural shift count needs, with the Alpha shift (midnights) naturally requiring far less staff than the Charlie shift (afternoons). The shifts are then compared against a scheduling mark-up, which breaks down the staff into their regular day off (RDO) slots and removes the required Collective Bargaining Agreement (CBA) annual leave allowances expected, ending in a projected final headcount available. This count is then compared to the known minimum mandatory daily counts to determine if the allowances per shift per site is reasonable against the requirements. The following Figure provides the current minimum mandatory dispatch personnel per site.

Figure 15: Minimum Mandatory Dispatch Personnel per Site

	ALPHA SHIFT		BRAVO SHIFT		CHARLIE SHIFT	
	2300 – 0300	0300 – 0700	0700 – 1100	1100 – 1500	1500 – 1900	1900 - 2300
NORTH	20	19	22	23	25	22
CENTRAL	28	25	28	31	33	31
SOUTH	20	19	22	23	24	22

Dispatch Communications Recommended Work Schedule

Determining a recommended work schedule involves definition of all needed shift positions. We start with the hour-by-hour needs for call intake workstations as reflected in the Phase 2 Report. We then incorporate the radio workstation main channel utilizing the consolidation recommendations. Additional static positions are included for tactical and other specialized channels, as well as the required supervisory positions at the recommended levels from Phase 2 of a ratio of one supervisor per 6 intake/dispatch positions. With the exception of supervisors, the Figure below reflects the number of 'seats' that must be occupied during each hour and does not yet consider any relief factor that must be accommodated for lunch and other break requirements. These relief factors are built into the work schedules described later. The figures below reflect Option 1 staffing without the use of a single fire alert channel and Option 2, the recommended option, that does utilize a single fire alert channel.

[4] As of August 2, 2017, 11 new hires have not determined dispatch discipline.

A careful reading of the hours required below, versus those summarized in the Phase 2 report, shows some degree of variance. This is explained by the change in perspective from 3 PSAPs, as was done in Phase 2, compared to the 28 channels used here. The loss in efficiency is almost exponential when changing the lens from 3 dimensions to 28 dimensions. Nonetheless, there is still a significant efficiency that is identified in this more detailed analysis.

Figure 16: Hour-by-Hour Staffing Requirements – Option 1 (without use of a single fire alert channel)

Hour-by-Hour Requirements	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
Call Intake	11	10	9	8	7	7	8	10	12	14	14	15	15	15	16	16	16	17	16	15	14	13	12	11	301
Law - Main Radio Channels	19	11	11	11	11	11	11	19	19	19	22	22	22	22	22	22	22	22	19	19	19	19	19	19	432
Law - DLE-HQ	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Law - Tactical	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	72
TTY	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	72
Fire - Main Radio Channels	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	184
Fire - MEDCOM	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Fire - BCF Info	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Fire - Tactical	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	96
Total w/o Supv	50	41	40	39	38	38	39	50	52	54	57	58	58	58	59	59	59	60	56	55	54	53	52	50	1,229
Supervisor (set @ 6:1)	9	7	7	7	7	7	7	9	9	9	10	10	10	10	10	10	10	10	10	10	9	9	9	9	214
Total	**50**	**41**	**40**	**39**	**38**	**38**	**39**	**50**	**52**	**54**	**57**	**58**	**58**	**58**	**59**	**59**	**59**	**60**	**56**	**55**	**54**	**53**	**52**	**50**	**1,443**

Figure 17: RECOMMENDED: Hour-by-Hour Staffing Requirements – Option 2 (with use of a single fire alert channel)

Hour-by-Hour Requirements	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
Call Intake	11	10	9	8	7	7	8	10	12	14	14	15	15	15	16	16	16	17	16	15	14	13	12	11	301
Law - Main Radio Channels	19	11	11	11	11	11	11	19	19	19	22	22	22	22	22	22	22	22	19	19	19	19	19	19	432
Law - DLE-HQ	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Law - Tactical	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	72
TTY	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	72
Fire - Main Radio Channels	7	7	7	7	7	7	7	8	10	10	10	10	10	10	10	10	10	11	11	10	10	10	8	8	215
Fire - MEDCOM	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Fire - BCF Info	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24
Fire - Tactical	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	96
Total w/o Supv	50	41	40	39	38	38	39	50	54	56	59	60	60	60	61	61	61	63	59	57	56	55	52	51	1,260
Supervisor (set @ 6:1)	9	7	7	7	7	7	7	9	9	10	10	10	10	10	11	11	11	11	10	10	10	10	9	9	221
Total	**50**	**41**	**40**	**39**	**38**	**38**	**39**	**50**	**54**	**56**	**59**	**60**	**60**	**60**	**61**	**61**	**61**	**63**	**59**	**57**	**56**	**55**	**52**	**51**	**1,481**

Dispatch Communications Shift Schedule Staffing Requirements.

Applying the hour-by-hour analysis reflected above, a scheduling optimization program was utilized to develop alternate shift schedules, and thereafter determine FTEs requirements for each alternative. Alternative shifts were considered in this analysis, including the use 10-hour and 12-hour shifts mixed in with the existing 8-hour shifts. Because of the hour-by-hour requirements reflected above, 12-hour shifts were found to be generally inefficient. The modelling therefore focused on either 8-hour shifts or the use of 8-hour and 10-hour shifts in combination. The two alternative approaches were then applied to each of the three different roles required in the PSAPs.

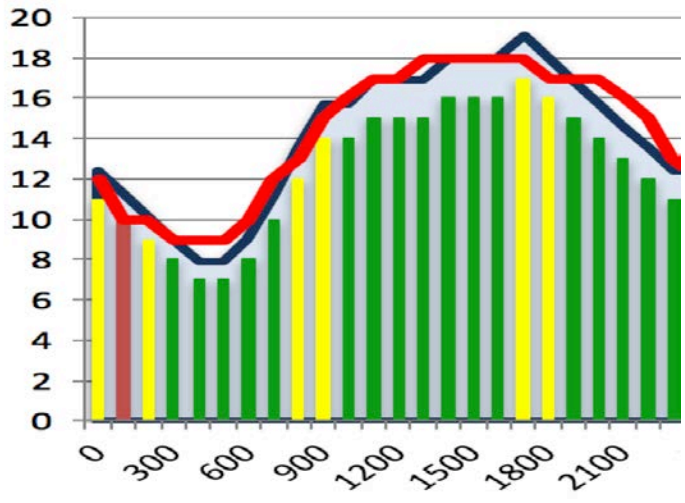
The first model utilized the existing 8-hour only schedule currently employed by BSO. For each type of shift workstation requirements – call intake, fire, and law – the daily hours on task were modeled over a 7-day week. These models are summarized below in a graphical format. A more detailed tabular schedule for all workstation types can be found in Appendix C.

The graphical representation reflects the required seats with 24 vertical bars, each representing an hour of the day and are color-coded. Green reflects good coverage, yellow reflecting minimally meets the coverage requirement, and red reflecting a deficit in coverage. The solid red line reflects the actual staffing level provided by the corresponding schedule, while the black line reflects the required staffing that includes both lunch and break periods allowed under contract.

As will be seen for the recommended schedules, start times and / or shift length vary by the workstation type. For example, call intake positions begin to 'ramp up' with start times beginning at 6:00AM. This practice more closely aligns resources to demand.

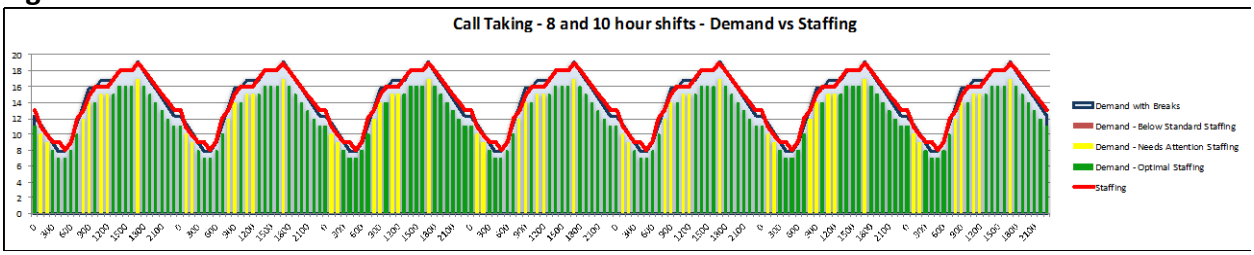
Call Intake Shift Staffing Requirements

Figure 18: Call Intake - 8 Hour Shifts Only



For example, as noted in the Figure above, call-intake position utilizing only 8-hour shifts reflect problems during 0100 hours. Rather than simply adding more resources than required, an alternate schedule was considered that employed both 8-hour and 10-hour shifts for the given workstation type. By optimizing call intake scheduling with combination of these two shift lengths, the ability exists to provide better coverage with slightly fewer hours – from 2,408 hours per week on an 8-hour only shift to 2,380 hours per week for the combination schedule. Annualized, this allows for a reduction of 0.9 FTEs.

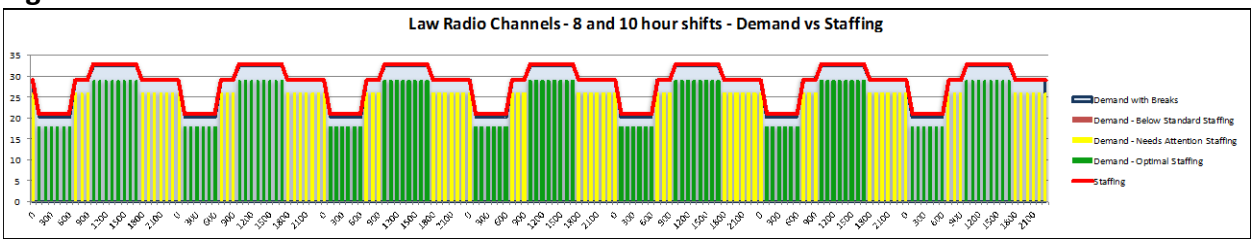
Figure 19: Call Intake - 8 Hour and 10 Hour Shifts



Law Enforcement Radio Workstation Shift Staffing Requirements

Law radio channels represented a special problem as some channels are recommended to be consolidated for a 6-hour period only overnight. As such, when employing a 24-hour day, minus 6-hours overnight leaves 18-hours of coverage required during the other hours. Versus an 8-hour shift only, a combination of 8-hour and 10-hour shifts works quite well as shown below.

Figure 20:Law Workstations: 8 and 10 Hour Shifts

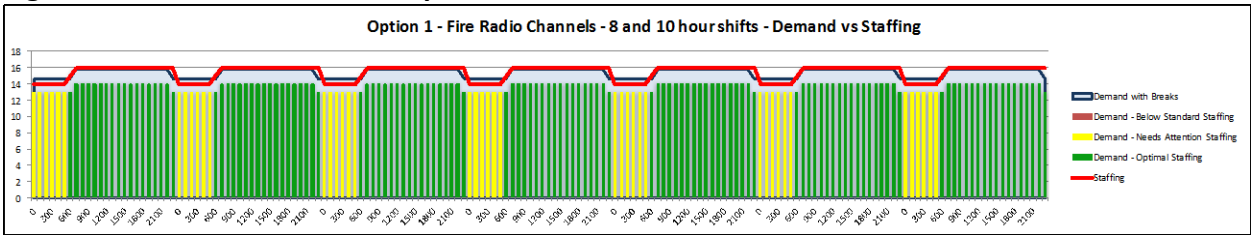


Fire Radio Workstation Shift Staffing Requirements

Unlike law radio channels, recommendations for fire radio channel consolidation overnight employs an 8-hour, rather than 6-hour period. Therefore, depending on the option selected, either a combined 8 & 10 hour shift schedule, or the existing BSO 8-hour shift schedule, provides the best coverage for fire workstations. These options are highlighted below.

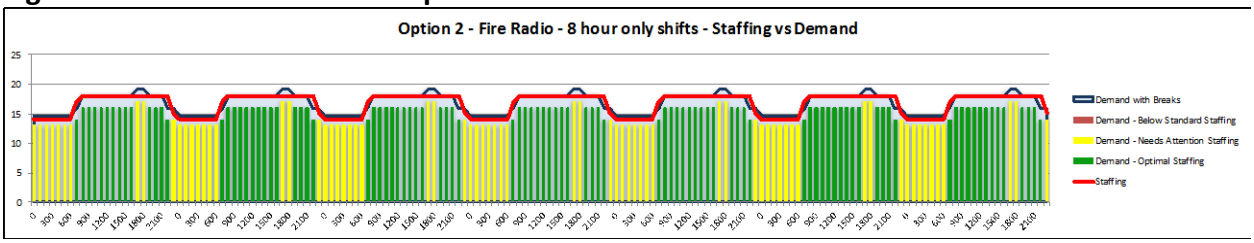
The Figure below reflects the staffing requirements for maintaining main dispatch channels that continue to alert/dispatch the units under their area of responsibility. In our prior report, this was referred to as Option 1.

Figure 21: Fire Workstations - Option 1 w/ 8 and 10 Hour Shifts



An alternative dispatch configuration for Fire workstations was defined in the prior report, whereby a single alert operator was used to notify appropriate fire units. By utilizing this process, all resources are largely under the control and a single operator, thereby preventing the 'hunting' for resources observed among fire dispatchers when the system becomes busy and available units on one or more channels may become diminished. The figure below reflects the optimization of this alternative approach employing a standard 8-hour shift and the use of a single dispatch channel – previously defined in our earlier prior work as Option 2. This Option does require slightly more resources on a daily basis as reflected in the addition of 29 more hours for radio channel coverage. However, the benefits of a single alert channel process outweigh the cost of slightly increased time on task.

Figure 22: Fire Workstations - Option 2 with 8 Hour Shifts



Supervisor/Duty Officer Shift Staffing Requirements

The recommendation has been made to provide a greater level of supervision through duty officer within the communications centers – established at a ratio of approximately front-line positions to each supervisor. With slightly different staffing required under Option 1 and Option 2, there is a need to align supervisory requirements with the selected option. The figures below reflect supervisory needs under each of these options.

Figure 23: Supervisory Staffing Requirements - Option 1

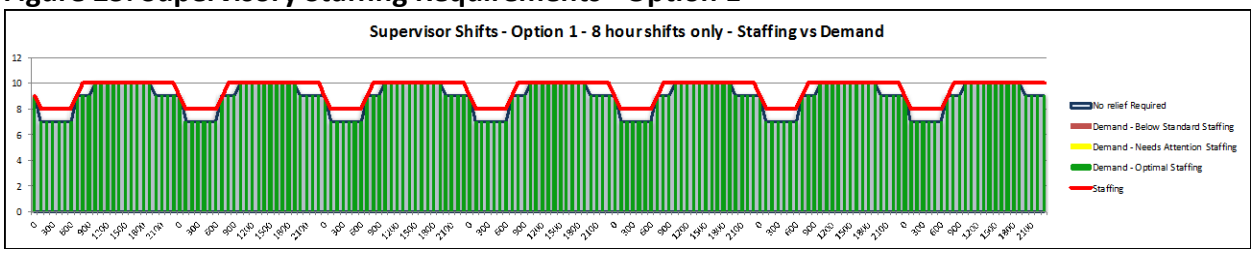
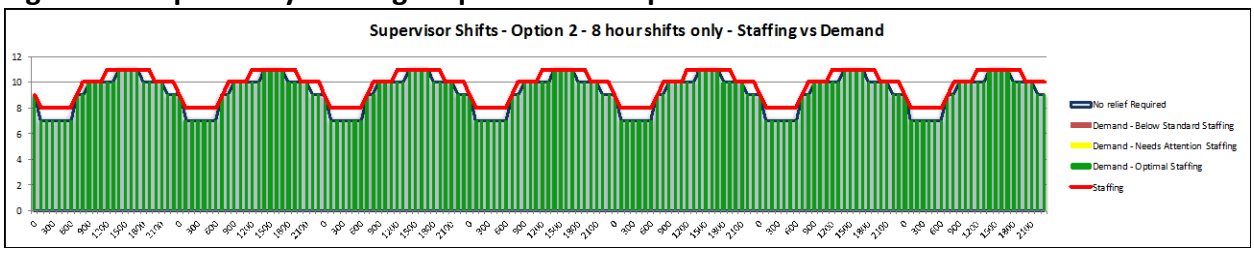


Figure 24: Supervisory Staffing Requirements - Option 2



Summary Tables for Shift Staffing Requirements

The Figures below summarize, under both Option 1 and Option 2, the recommended Time on Task on weekly and annual basis and the needed FTEs required to meet these Time on Task demands.

As noted earlier, Option 1 assumes a dispatch configuration for fire alert where the appropriate fire channel notifies those resources under their area of responsibility. Option 2 assumes a consolidated fire alert channel. The slight increase in fire channel staffing under Option 2 also requires an adjustment to supervisory staffing levels. These are reflected below under each Option.

Figure 25: FTE Requirements by Workstation – Option 1

Estimated FTE Count		Personnel Hours/Wk	PH/Yr	Annual Scheduled Hours	FTE's Required
Call Intake	Demand with Breaks	2370	123260	1645	74.9
	Demand	2107	109564	1645	66.6
	Suggested Staffing	2380	123760	1645	75.2
Law	Demand with Breaks	4725	245700	1645	149.4
	Demand	4200	218400	1645	132.8
	Suggested Staffing	4760	247520	1645	150.5
Fire Option 1	Demand with Breaks	2583	134316	1645	81.7
	Demand	2296	119392	1645	72.6
	Suggested Staffing	2597	135044	1645	82.1
Supervisor Option 1	Demand with Breaks	1498	77896	1645	47.4
	Demand	1498	77896	1645	47.4
	Suggested Staffing	1582	82264	1645	50.0
			Est. FTE Count	Demand with Breaks	353.3
				Demand	319.3
				Suggested Staffing	357.8

Figure 26: FTE Requirements by Workstation - Option 2

Estimated FTE Count		Personnel Hours/Wk	PH/Yr	Annual Scheduled Hours	FTE's Required
Call Intake	Demand with Breaks	2370	123260	1645	74.9
	Demand	2107	109564	1645	66.6
	Suggested Staffing	2380	123760	1645	75.2
Law	Demand with Breaks	4725	245700	1645	149.4
	Demand	4200	218400	1645	132.8
	Suggested Staffing	4760	247520	1645	150.5
Fire Option 2	Demand with Breaks	2827	147011	1645	89.4
	Demand	2513	130676	1645	79.4
	Suggested Staffing	2800	145600	1645	88.5
Supervisor Option 2	Demand with Breaks	1547	77896	1645	47.4
	Demand	1547	77896	1645	47.4
	Suggested Staffing	1638	82264	1645	50.0
			Est. FTE Count	Demand with Breaks	361.0
				Demand	326.2
				Suggested Staffing	364.2

Currently, BSO's budget includes 404 FTEs assigned to these same roles as outlined above. By employing a combination of 8-hour and 10-hour shifts, and simultaneously adjusting shift start times in a more dynamic temporal pattern, the results demonstrate the opportunity for efficiencies available in the current system. Specific schedules that align with the above recommendations are provided in Appendix C.

Dispatch Personnel Work Schedule Comparison

FITCH conducted a telephone survey of large 911 dispatch centers to benchmark dispatch line personnel work schedules. The survey included six (6) of the largest centers by population in the State of Florida and five (5) additional centers by population across the continental United States. The survey focused on Primary Safety Answer Point (PSAP) work schedules. These PSAPs would provide the largest volume of calls received, which would in turn require the largest number of line personnel. Most of the PSAPs identified themselves as law enforcement centric. Schedules varied depending on job description, location of center and available staffing. The results can be observed in the following Figure. The most *prevalent* schedule for PSAP personnel is an eight-hour work schedule followed by twelve-hour then ten-hour schedule. One agency worked a combination 8-10 hour schedule. In this instance, a limited number personnel worked a 10-hour schedule only if all the 8-hour watch positions could be staffed. The respondent remarked that very few personnel worked a 10-hour schedule due to continued staffing issues. One county's work schedule was dependent on the center's location and the law enforcement personnel work schedule. Only one center worked a 10-hour schedule which theoretically would provide six (6) hours of overlap at the start of each shift. Unfortunately, due to staffing shortages the benefits of the overlap are seldom achieved. Most of the centers did not have overlapping shifts within the work day.

Figure 27: Dispatch Center Staffing Patterns: Comparative Analysis

Largest Counties in the State of Florida					
Department	**Law**	**Fire**	**EMS**	**Population**[5]	**Schedule**
Miami-Dade County Police/Sheriff	X	-	-	2,712,945	Dispatcher-8-hour Call takers 8 and 10 hour 10-hour schedule staffed only if all 8 hour positions staffed.
Broward County Regional 911 Communications Center	X	X	X	1,909,632	All personnel-8 hour
Palm Beach County Sheriff	X	-	-	1,443,810	Dispatchers & Call Takers-8 hours Communication Training Officers 10 hours Supervisors 12 hour
Hillsborough County Sheriff	X	-	-	1,376,238	All personnel 12 hour
Orange County Sheriff	X	-	-	1,134,367	All personnel-12 hours
Pinellas County, Regional Communications Center	X	*	*	960,730	All personnel-12 hours
Largest Counties in the Continental United States					
Department	**Law**	**Fire**	**EMS**	**Population**	**Schedule**
Los Angeles County Sheriff, California	X	-	-	10, 137,915	8, 10 and 12 hours. Schedule mirrors the work schedule deputies at each of the 23 sheriff's stations
New York City**[6] Separate Center for each Discipline	X	X	X	8,537,674	NYPD- 8 hour FDNY-12 hour EMS- 8 and 12 hour
Cook County Sheriff, Illinois	X	*	*	5,203, 499	Call takers and Dispatchers 8 hours Supervisors-10 hours
Harris County Sheriff Texas	x	-	-	4,589,928	All personnel-8 hours
Maricopa County Sheriff, Arizona	X	-	-	4,242,997	All personnel-8 hours
San Diego County Sheriff, California	X	-	-	3,317,749	All personnel-10 hours

*Dependent on location of incident

**The City of New York is a combination of five boroughs. The State of New York is made up of counties. Each City borough is also State county.

Base Levels of Service

In Phase 2, Fitch made a recommendation that the "base level of 911 services" funded by the County should be more clearly defined by utilizing the current interlocal agreements and *FITCH's* modelling of performance levels as noted in call taking and radio positions. It was

[5] http://www1.nyc.gov/nyc-resources/service/2123/new-york-city-countiesAccessed August 11,2017

[6] http://www1.nyc.gov/nyc-resources/service/2123/new-york-city-countiesAccessed August 11, 2017

further recommended, to permit greater flexibility by participating agencies, those desiring higher levels of service should be able to fund additional staffing hours or technology in order to receive services specific to their jurisdictional needs. These additional / higher levels of service should be permitted as long as they do not disrupt the base services.

Several recommendations from the Phase 2 report directly define this base level of 911 services. These include:

- The system maintains EMD certification training for all call takers through the International Academies of Emergency Dispatch (IAED).
- The County should provide Emergency Fire Dispatch (EFD), and upon recommendation of the police chiefs, Emergency Police Dispatch (EPD).
- Supervision on the PSAP dispatch floors should be at a ratio of six to one as opposed to the current ten to one ratio.
- Call intake staffing should be adjusted to achieve P1/call-taking performance of between three to five seconds at the 90th percentile.

However, not addressed in the Phase 2 report with specificity was the performance of radio positions. For that, a more detailed modelling was required. While the methodology and output of the modelling is discussed in greater detail elsewhere, the additional base level performance for radio positions is recommended as:

- A single radio talkgroup, staffed with a single radio operator, should not exceed during any 4-hour block a weighted 0.4 Erlangs and during that same 4-hour block a weighted Answer Delay of 10 seconds or greater.

The modelling FITCH employed in this report follows this radio operator base level of service. Employing this base level of service results in the recommendations reflected in the figure below.

Figure 28: Base Levels of Service

Quantitative	
911 call answer performance	Call intake staffing should be adjusted to achieve P1/call-taking performance of between three to five seconds at the 90th percentile
Radio operator (law & fire) workloads	A single radio talkgroup, staffed with a single radio operator, should not exceed during any 4-hour block a weighted 0.4 Erlangs and during that same 4-hour block a weighted Answer Delay of 10 seconds or greater
PSAP supervision levels	Supervision on the PSAP dispatch floors should be scheduled at a ratio of six to one.
Qualitative	
Call-taking	The system should maintain EMD certification for all call takers through the International Academies of Emergency Dispatch (IAED), and implement and achieve certification in both EFD and EPD.
Radio operators	Independent QA/QI for call-taker, fire and law positions should be addressed through existing MPDS systems or similar methodologies.

Mobile Data Terminals / Mobile Computer Devices (MDT/MDC) Usage

The use mobile data terminals / mobile computer devices (collectively referred to as MDT/MDC) in public safety is now common place. Those serving populations of more urban or suburban populations have been shown to utilize MDT/MDC at rates of 90% or higher.[7]

Similarly, while Broward County law and fire rescue vehicles are largely equipped with MDT/MDC technology, there was a surprising finding from the Phase 2 Report on Broward County's Regional 911 System. Radio system data found that "radio traffic utilization, by both fire/EMS and law enforcement units, is comparatively high. MDTs (mobile data terminals) and MCDs (mobile computing device) are not effectively utilized to reduce radio traffic". The report further recommended that "process changes to radio channel usage include requiring increased usage of Mobile Data Terminals (MDTs) by field responders." The following discussion further expands on these findings and recommendations.

Recent research from the National Institute of Justice found that mobile broadband data has produced various benefits for law enforcement officers in the field and allows increased access to timely information, increased information flow, and improved quality of information.[8]

[7] Police Executive Research Forum. (2009). *Law Enforcement Technology Needs Assessment: Future Technologies to Address the Operational Needs of Law Enforcement.* Author, Washington, D.C.

[8] National Institute of Justice, "Mobile Broadband Data Access Has Positive Impact on Police Operations," September 12, 2017, from NIJ.gov: https://nij.gov/topics/lawenforcement/operations/Pages/mobilebroadbanddataaccesshaspositiveimpactonpoliceoperations.aspx

The International Association of Chiefs of Police (IACP) has also identified various benefits to increased use of MDTs/MDCs, which include the following[9]:

- **Reduced Radio Congestion:** The use of computers for queries, dispatch, sending messages, and doing checks cuts down on voice traffic up to 40 percent, opening up voice channels for emergencies.
- **Lighter Dispatch Workload**: Utilizing one-button status changes on the computer aided dispatch (CAD) system and performing NCIC queries.
- **Easier Resource Management, Allocation, and Supervision:** Mobile technology combined with CAD allows supervisors to monitor what call their units are assigned to, revise assignments on the fly, and override a dispatch assignment for more efficient use of resources. When automated vehicle location (AVL) technology helps pinpoint vehicle locations, it helps the dispatcher or dispatch system direct the closest possible resource to a scene.
- **Officer Safety:** Mobile data communications (MDC) technology that allows officers to access police databases may help warn an officer if he has encountered a potentially dangerous situation. AVL software can also locate an exact location of a vehicle of a distressed or unresponsive officer, thereby allowing aid to be dispatched to his/her location.
- **Reduced Data Transformation Time and Improved Record Quality**: Officer data entry cuts down on transcription errors and cuts the time it takes for data to get into the computer and back out to investigators, thereby increasing the probability that the case will be solved. Higher report quality is also a resulting benefit.

Other benefits identified included improved intradepartmental communications, support for community-based policing, lower training costs, increased officer confidence, and improved professional image for the department.

Notwithstanding these identified benefits, more recent concerns have arisen on law enforcement's over usage of MDT/MDC technology that could impact officer safety. This includes distracted driving and loss of situational awareness.

A study[10] published in 2015 examined the impact of distractions on vehicle operations by police officers. Utilizing experienced police officers during which they drove a high-fidelity driving simulator twice immediately following, and then 72 hours after, five consecutive patrol shifts. Multiple simulations were conducted both with and without distraction tasks. The findings showed that officers' distracted driving performance had significantly greater lane deviation, instances of unintentionally leaving assigned driving lane, and braking latency than during non-

[9] International Association of Chiefs of Police (nd) TTAP: Mobile Computing Technologies. Author, Alexandria, VA.
[10] Stephen M. James, (2015) "Distracted driving impairs police patrol officer driving performance", Policing: An International Journal of Police Strategies & Management, Vol. 38 Issue: 3, pp.505-516, https://doi.org/10.1108/PIJPSM-03-2015-0030

distracted drives. These increased measures found during distracted driving are leading indicators for collision risk.

To address situational awareness concerns, some law enforcement professionals[11] have suggested officers "don't look at their MDT/MDC for more than a few seconds" when either in their vehicle, or out and about in a public area. When parked and needing to use their MDT/MDC, it is recommended officers place their vehicle where they cannot be approached unseen, and still observe their overall surroundings frequently.

These concerns, related to distracted driving and situational awareness, has led to some agencies to strongly limit use of MDTs/MDCs while driving. For example, the Los Angeles County Sheriff's Department ordered its officers in February 2015 to refrain from using in-vehicle laptops for routine functions while driving. The policy permits laptop usage while driving only in case of emergency, encouraging officers to rely on their radios instead.[12] Other agencies limit the use of MDTs/MDCs while driving to only one-button status messages reflecting 'enroute', 'on-scene', etc. Still many other agencies frame safety issues for MDT/MDC use, but their policy permit usage to be ultimately guided by officer judgement.[13]

To address concerns with distracted driving and situational awareness, law enforcement agencies should adopt or revise their MDT/MDC policies to limit use of mobile technology while driving, except for the use of single-button status changes on all incidents except Priority 1 and 2. For higher priority calls, officer may utilize either voice or MDT/MDC to maximize situational awareness for other responder officers. For all lower priority incidents, use of mobile technology should be restricted to when the vehicle is not moving (e.g. stopped at traffic lights) or is parked.

Broward County fire rescue agencies would not generally be impacted by issues of distracted driving or loss of situational awareness – in large part because of the multi-person crews in engines, rescue or ladder companies. Therefore, to reduce demand on radio operators, fire rescue agencies should adopt a policy that only the first due unit announce their enroute and arrival status on multi-unit responses. Other responding apparatus should be required to use their MDT/MDC for status changes, further clearing the talkgroup for the first arriving apparatus provide their initial size-up.

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[11] Avery, R. (2015). Officer safety in the modern age: 10 critical lessons to live by. PoliceOne.com. Downloaded at https://www.policeone.com/police-products/firearms/training/articles/8540571-Officer-safety-in-the-modern-age-10-critical-lessons-to-live-by on September 28, 2017.

[12] Rubin, B. (2015) Policies & Programs to Reduce Distracted Driving. Downloaded October 11, 2017 at http://www.government-fleet.com/channel/safety-accident-management/article/story/2015/06/policies-programs-for-a-safer-driving-future.aspx

[13] For example, see Tarrent County, TX policy on mobile communications devices available at https://media.nbcbayarea.com/documents/Tarrant+County+-+MDC.pdf and Austin, TX policy on Radio and Mobile Data Computer Use available at https://media.nbcbayarea.com/documents/Austin+-+Radio+and+Mobile+Data+Computer+Use.pdf.

Florida's Governor recently 'opted-in' the state to the Federal FirstNet initiative. FirstNet is an outgrowth of September 11th and the finding that first responders did not have an effective ability to share information, especially with responders from outside New York City. FirstNet's goal is to build the first high-speed broadband wireless data network dedicated to public safety. This initiative demonstrates the importance of high-speed data for public safety, and is consistent with the recommendation that greater use of MDT/MDC technology will benefit Broward County's 911 system.

To more fully achieve the goal of less dependence on radio traffic, and greater use of MDT/MDCs, several actions should be undertaken. First, agencies should adopt policies that emphasize greater use of MDT/MDCs, especially for routine or lower priority incidents. Second, existing feedback processes should be used to identify limitations in current technology – both mobile devices and the underlying infrastructure. This includes problems reported by a number of end-users during this engagement, not independently observed by the consultants, including the failure of MDT/MDCs to accurately report GPS coordinates, failure of devices to effectively report status changes, and reported failures of current technology that requires a technology refresh of MDT/MDCs. Existing ORT groups for both fire and law enforcement should focus on these issues and accurately assess the prevalence of issues that impede effective use of MDT/MDCs in their respective agencies. ORCAT and ORT should then develop strategies to mitigate the identified issues.

Implementation of Recommendations

The recommendations contained herein are significant – both in the efficiency they offer and in their operational aspects. Accordingly, a thoughtful implementation plan should be employed. *FITCH* suggests the implementation of recommendations related to main radio channel consolidations and dispatch shift assignments be completed over a minimum of an 18-month period, which includes planning, radio programming and operational implementation. The exact timing will depend on a number of factors outlined below.

BSO Work Schedules

As noted in the survey of large 911 programs both within Florida and the U.S., a variety of work schedules are employed – including 8-hour, 10-hour and 12-hour shifts. Our Phase 2 report found low levels of employee satisfaction among BSO 911 personnel. It is further noted that today, BSO only employs fixed 8-hour shifts with a high degree of overtime often required. The experience in other 911 center reflects that alternate work schedules can be successfully employed.

The Broward Sheriff's Office should closely work with their workforce to add 10-hour shift schedules as reflected herein. Special attention should be given to allow line personnel to select the schedule (i.e. 8-hour or 10-hour) that best meets their needs when the System has those needs. Generally, having alternative shift lengths and start times can improve dispatcher moral when compared to a static schedule that cannot adjust to various needs of individual employees.

Call Intake Schedules

Call intake schedules should be adjusted first. While BSO has implemented staffing changes at this position, the full impact has not been realized because of a static start time for the current three shifts. More closely aligning staffing with demand will allow staffing to mirror the hour-by-hour recommendations. This should be accomplished within a 60-day period under the assumption that shift length and start times have been addressed previously.

Concurrent with these call intake adjustments, there should be adjustments to ensure a supervisory level of 1:6 as recommended previously. The incremental adjustments that follow, in both fire and law workstations, require proper levels of supervision to ensure a smooth transition.

Fire Radio Workstations

The Fire radio workstation changes are repeated below for clarity. Upon completion of the call intake schedule changes, fire workstations should be adjusted as shown. The effort should occur with one consolidation at a time, starting with the least busy channels of BCF-3 and BCF-4. After a 30-day period, the next two channels can be consolidated. After an additional 30-day period, the final two channels can be fully consolidated. Finally, the 8-hour consolidation overnight with BCF-1 and BCF-2 can occur after the other adjustments. In total, this process should take approximately 4 months. At each iteration, both BSO and ORCAT staff must review performance both preceding and after the adjustment.

FIRE Radio Main Channel Staffing	Current	Recommendation	% Change
Current - 9 talkgroups staffed 24-hours per day	216		
FLF-DISP1 Fort Lauderdale remains unchanged from current		24	
BCF-D3 (Hallandale/Miramar) & BCF-D4 (Davie) consolidate for 24-hours per day		24	
BCF-D5 (Lighthouse Point/Pompano) & BCF-D6 (Margate/Coconut Creek/N. Laud./Tamarac) consolidate for 24-hours per day		24	
BCF-D8 (Hollywood) & BCF-D9 (Pembroke Pines) consolidate for 24-hours per day		24	
BCF-D1 (Sunrise/etc.) & BCF-D2 (BSO Fire) consolidate for 8-hours per day overnight (from 2300 till 0700)		40	
Fire Total Staffing Hours/Day	**216**	**136**	**-37.0%**

Law Radio Workstations

Special attention is required for the reallocation of staffing required on three existing radio channels for an 8-hour period. In all three cases, the workload identified exceed the targets established here. In each case, the channels involve only a single agency. By reallocating existing resources, three additional radio channels for BSO, Pembroke Pines and Hollywood should be staffed during an 8-hour period each day.

BSO and ORCAT should consult with those impact agencies (Pembroke Pines, Hollywood and BSO Channel 7) on how best to handle these workloads. Consideration may be given to offload some existing traffic onto less busy channels. In that case, it may not require an additional dispatcher for the 8-hours proposed. Should that not be possible, an additional law workstation is needed for this 8-hour period and the existing workload must be logically divided. These additional channels should be addressed first, before overnight consolidation. All three adjustments can be completed concurrently and evaluated for 30-days.

As with fire workstations, changes to law radio workstations should happen incrementally, 1 group at a time. In that there are no 24-hour consolidation of radio channels, the focus will be on the 6-hour overnight periods spelled out earlier, and repeated below for clarity.

LAW Radio Main Channel Staffing	Current	Recommendation	% Change
Current - 19 talkgroups staffed 24-hours per day	456		
PPP-MAIN remains unchanged from Current		24	
CPK-MAIN remains unchanged from current		24	
Hollywood consolidates their 2 channels to a single channel for 6-hours per day overnight (from 0100 till 0700)		42	
Fort Lauderdale consolidates their 3 channels to 2 channels for 6-hours per day overnight (from 0100 till 0700)		66	
BSO-06-DISP (Lauderhill) & SNP-DISP (Sunrise) for 6-hours per day overnight (from 0100 till 0700)		42	
BSO-11-Area1 & BSO-11-Area2 (Pompano) consolidate to a single channel for 6-hours per day overnight (from 0100 till 0700)		42	
BSO-10-DISP (Miramar) & PPP-MAIN (Pines) for 6-hours per day overnight (from 0100 till 0700)		42	
BSO-08-DISP (N.Laud/Parkland/Tamarac) & BSO-09-DISP (Deerfield Beach) for 6-hours per day overnight (from 0100 till 0700)		42	
BSO-02-DISP (Dania/Ports) & BSO-05-DISP (Davie) for 6-hours per day overnight (from 0100 till 0700)		42	
BSO-03-DISP (Cooper City/Weston) & BSO-04-DISP (Pembroke Park/West Park) for 6-hours per day overnight (from 0100 till 0700)		42	
PPP-MAIN additional radio hours needed		8	
BSO-7 additional radio hours needed		8	
HWD-A1 additional radio hours needed		8	
Law Total Staffing Hours/Day	**456**	**432**	**-5.3%**

The consolidation of channels overnight has a lower risk profile, and therefore may occur at a slightly different pace than fire workstations. With eight such adjustments to overnight staffing, it is reasonable to make these two sets at a time – taking 30-days after each to evaluate the impact, if any. Therefore, to complete all adjustments a 4-month period is adequate.

Total Implementation Schedule

An appropriate period of planning will be required for the recommended changes. A critical component will be all parties having a shared vision of 'where they are going' – in essence a roadmap of the final destination. For example, the opportunity does exist for individual agencies to request a higher level of service and pay the incremental cost for such a decision. Should a police agency not desire to consolidate channels during a 6-hour period, they could elect to pay the cost for continued staffing of that position. These issues need clarity before radio programming and staffing decisions are made by Broward County and BSO.

Issues such as noted above must be clarified before the actual implementation steps begin. It would not be unusual for these preliminary steps to take up to 6 months before ORCAT could begin to undertake the planning and programming that is a prerequisite for BSO staffing and operational changes. A secondary question emerges related to the current deployment of a new fire alerting system, and more specifically, the County's deployment of an updated P25 radio system. Recognizing these factors, Broward County should consult with Motorola on the best path to handle the required radio programming needs. Concurrently with the above responsibilities of ORCAT, BSO will require time to address human resource issues, including any potential collective bargaining impacts.

As EFD and EPD are being implemented, both fire and law operational review teams (ORTs) will need to ensure that terms and procedures are defined and clarified to allow a common operating environment for these tools.

Once the radio programming needs have been addressed, then BSO will have the significant role of concurrently modifying their various staff schedules while coordinating the cutover of radio channel assignments as outlined above. Upon commencement of this operational phase, the cutovers should be able to be accomplished within a 1-year timeframe, as outlined below:

• Call intake (includes defining and bidding new schedules)	2 months
• Fire workstations	4 months
• Law Workstations (added capacity)	1 month
• Law Workstations (overnight consolidation)	4 months
Total Implementation	11 months

Appendix A:
Erlang Mathematics and Assumptions

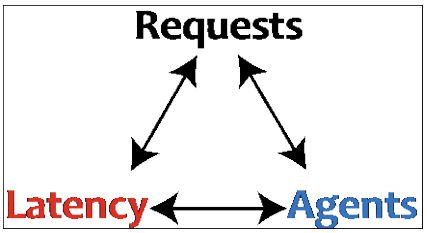
FITCH
& ASSOCIATES

Appendix A. Erlang Mathematics and Assumptions

History

Agner Krarup Erlang was a Danish mathematician, statistician, and engineer who invented the field of telephone networks analysis while working for the Copenhagen Telephone Company from 1908 through 1929. The goal of Erlang's queuing analyses is to determine how many service providers should be made available to satisfy users, without over provisioning. Mr. Erlang quantified the three-cornered relationship between requests for service, number of agents, and latency (Figure 1).

Figure 1. Queueing Theory Triangle



The concepts and mathematics introduced by Mr. Erlang have stood the test of time. In the modern world, these methods are used to analyze queuing processes in systems as diverse as shoppers using grocery store checkout cashiers to data packet switching through Internet routers at megahertz frequencies.

The article authored by Chromy, Misuth, and Kavacky is a concise introduction to the application of the Erlang C formula to analyses of emergency services call centers.[14]

Mathematics

For Erlang's analyses to apply to a system, two conditions must be met:

- Users arrive more or less at random intervals;
- Users receive exclusive service from any one of a group of agents without prior reservations

The flow of calls through the DFR Dispatch Center conforms to these requirements.

There are several versions of Erlang analyses depending on the exact model of the traffic flowing through the system. The specific model applicable to the DFR Dispatch Center has users either being served immediately, or waiting in queue until a call taker becomes available. The specific mathematical embodiment of the analysis applicable to the DFR system is referred to as the Erlang-C equation.

Erlang analyses must be conducted over a selected interval of time. In the case of emergency service communications centers experiencing the number of calls seen at DFR, this interval is most appropriately one hour. Little insight would be gained by viewing each hour of the year as a special case. The need is for the analyst to consolidate individual hours into groups that present a valid picture of the way the system functions. The consolidation process appropriate to DFR has been described above in this Report.

[14] E. Chromy, T. Misuth, and M. Kavacky, **2011**, *Advances in Electrical and Electronic Engineering*, **ISSN 1804-3119.**

The Erlang C formula calculates the probability that an arriving call will be diverted to the waiting queue rather than being served immediately. Three common sense parameters go into the Erlang C calculation:

- The average arrival rate of calls during the hours being considered.
- The average length of time the dispatcher spends processing each call.
- The number of dispatchers on duty.

For an Erlang analysis, the workload flowing through the DFR Dispatch Center must be expressed in units of erlangs, E.

$$E = \eta\,\lambda$$ **Equation 1**

E: Workload in units of erlangs

η: Average call arrival rate in calls per hour

λ: Average call processing time in decimal hours per call

The average call arrival rate and average call processing times that are required so that Equation 1 becomes specific to DFR are extracted from the historic Computer Aided Dispatch (CAD) system.

To avoid confusion, the reader should be advised that many of the time parameters appearing in the tabular data presented in this report will be formatted as decimal hours rather than as hours:minutes:seconds, hh:mm:ss. For example, 15 minutes, 00:15:00, will appear as 0.250 hr.

The probability that an arriving call will be diverted to the waiting queue, P_Q, rather than being answered immediately is calculated from the expansion of the Erlang-C equation.

$$P_Q = \frac{\left[\frac{E^N}{N!}\frac{N}{(N-E)}\right]}{\sum_{i=0}^{i=N-1}\left\{\frac{E^i}{i!}+\frac{E^N}{N!}\left[\frac{N}{(N-E)}\right]\right\}}$$ **Erlang-C Equation 2**

E: Workload in erlangs from **Eqn 1**

N: Dispatchers on duty at workstations

Discussions of queueing processes are often tabled in terms of three additional parameters:

P_A: Probability that an incoming call will be immediately answered.

W: Average answer delay. The time interval that a call in held in queue.

Q: Average number of calls waiting in queue for service.

Once the probability that an arriving call will be diverted to the waiting queue, P_Q, has been calculated using Equation 2, then these three additional parameters can be calculated using the algebraic transformations in Equations 3, 4, and 5.

$$P_A = \left(1 - P_Q \right)$$ **Equation 3**

$$W = \frac{P_Q \lambda}{(N-E)}$$ **Equation 4**

$$Q = \frac{P_Q E}{(N-E)}$$ **Equation 5**

Variables P_Q, N, and E are defined above.

Absolutely rigorous application of an Erlang-C analysis requires that three additional conditions be met:

- That callers never hang up while being held in queue.
- That all calls begin and end within a single time interval.
- That callers never call back after having hung up while in queue.

When these conditions are not met, as will be the case in the real world, then the Erlang-C formula predicts that slightly more call-takers should be used than are really needed to maintain a desired level of service. Thus, the Erlang-C analysis is generally viewed as providing an upper bound to the needed number of call-takers required to service a given flow of incoming traffic.

While this limitation of Erlang C analysis exists, in practice, it results in a negligible increase to the number of dispatchers predicted for Dallas Fire Rescue. The flow of offered traffic through the DFR system is modest and the number of dispatchers required is small. Dispatchers can be added to or subtracted from the system only in integer increments. Under these circumstances, incrementing the number of dispatchers by +1 will always result in such a large increase in answering probability that it overwhelms the propensity of a simple Erlang C analysis to slightly increase the required number of dispatchers.

Workloads, Staffing and Non-Linear Performance

A concise presentation of workload patterns and non-linear response of a queueing system is presented in the on-line PDF titled, “Call Center Basics”.[15] The following is a paraphrase of portions of this article.

A naïve approach to calculating the number of agents needed in a call center is to divide the number of calls expected per hour divided by the average length of a call. For example, if 100 calls arrive per hour and the average time to service a call is 15 minutes, then it appears that 25 agents should be able to service the workload.

The flaw in this model is that calls do not arrive in an orderly fashion, one right after the other. Callers, seeking service, act independently of each other, and their calls arrive in a random

[15] www.easyerlang.com/pdfs/call-center-basics.pdf (July 15, 2015)

pattern surrounding the average spacing between calls. Likewise, the interval required by the agents to service each call displays a random pattern surrounding its average value.

For call centers, the arrival rate is best described by a mathematical function called a Poisson distribution. The call processing interval is best described by a mathematical function called an Exponential distribution. Figures 2 and 3 illustrate the shapes of these distributions.

Figure 2. Poisson Distribution of Call Arrival Rates

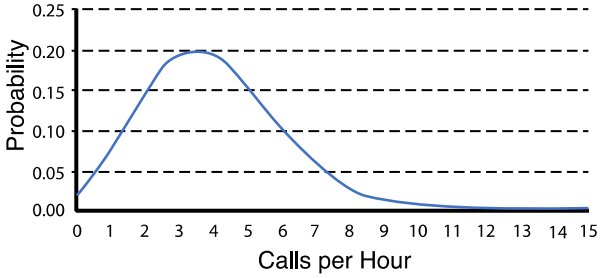
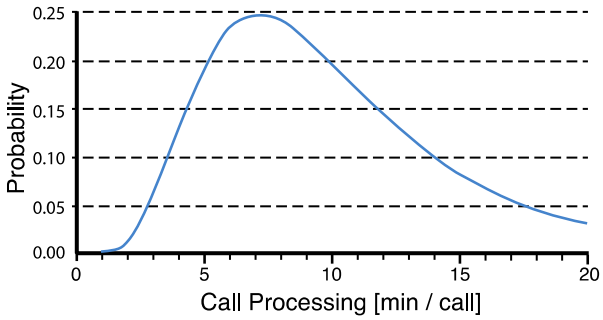


Figure 3. Exponential Distribution of Call Processing Intervals



The statistical behaviors of the call arrivals and call service intervals guarantees that changes in the number of agents will have a non-linear effect on performance of the system. In this hypothetical example, an increase of 10% in staffing will not result in a 10% decrease in the average answer delay. Rather, the average answer delay shows the behavior shown in Figure 4.

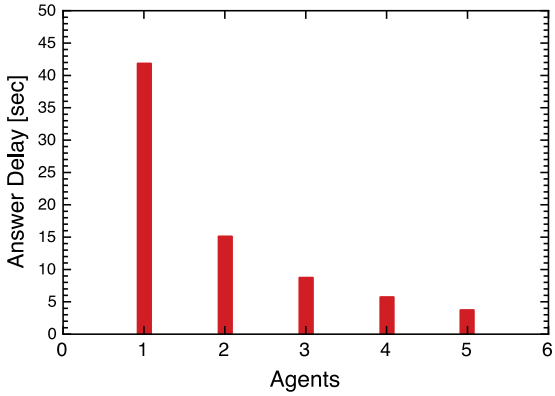
Figure 4. Average Answer Delay Versus Number of Agents

The purpose of this example is to emphasize that the performance of a queueing system changes in a very non-intuitive manner with respect to changes in both staffing and workload.

The dependence of average answer delay on the number of dispatcher is approximately hyperbolic. At constant workload, an increment or decrement of ± 1 dispatcher can result in very magnified or very compressed changes in average answer delays depending on which end of the curve in Figure 3 contains the operating point of the system. There is no substitute for running detailed calculations, using data specific to the system under consideration, in order to accurately predict its queueing behavior.

In systems with large numbers of agents, the relationship between average answer delays and the number of agents on duty is approximately a continuous function. This relationship is very different for small systems (Figure 5).

Figure 5. Answer Delays and Agents in Small Systems



The relationship remains approximately hyperbolic, but the ***accessible*** answer delays become a step function. The number of agents on duty can only be changed in integer increments or decrements of ± 1.

Similar changes in average answer delays occur when the workload is varied using a constant number of dispatchers. Again, for a constant number of agents, small changes in workload result in very magnified or very compressed changes in average answer delays. There is no

substitute for running detailed calculations, using data specific to the system under consideration, in order to accurately predict its queueing behavior.

Treatment of Surges

Theoretical

Emergency services communications centers dispatch responses to defined geographic areas, the service jurisdiction. At a given hour of the day, and from day-to-day, the number of people in the service jurisdiction will be approximately the same. In turn, this condition leads to the historic observation that the number of requests for service will tend towards some daily average in that hour of the day. The next historic observation is that the number of requests in any particular day will vary above and below this long-term average. As it turns out, the excursions to higher or lower numbers of requests really are random. The randomness of the excursions is very important because it makes the analyses of the flow of requests much simpler.

Random processes are often characterized by statisticians using a "normal" distribution. A stylized example of a normal distribution is presented in Figure 1. The interpretation of this

Figure 1. Normal Distribution of Requests per Hour

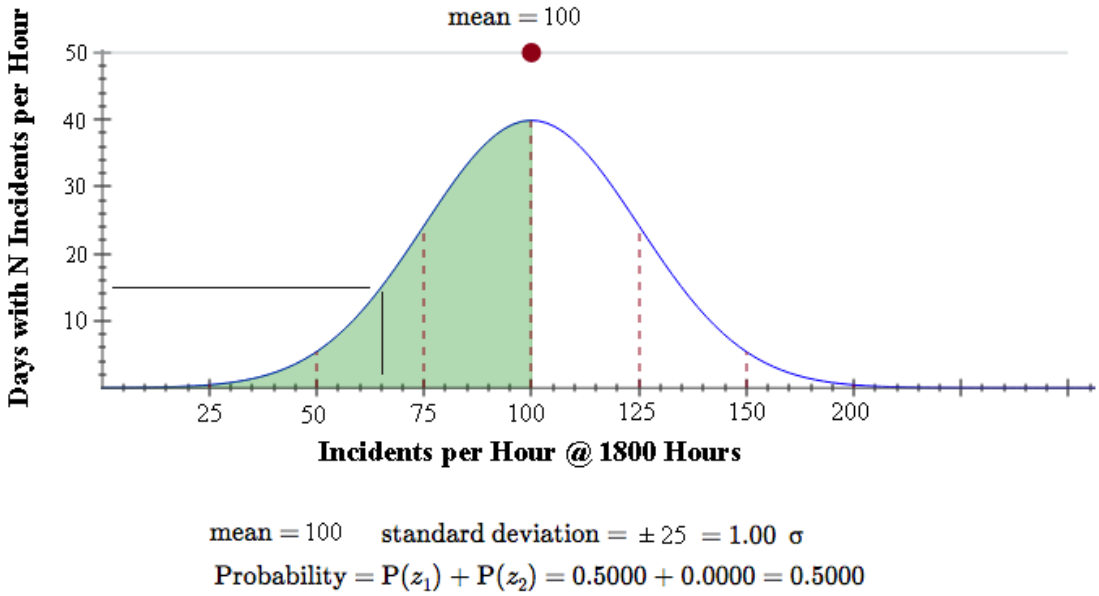


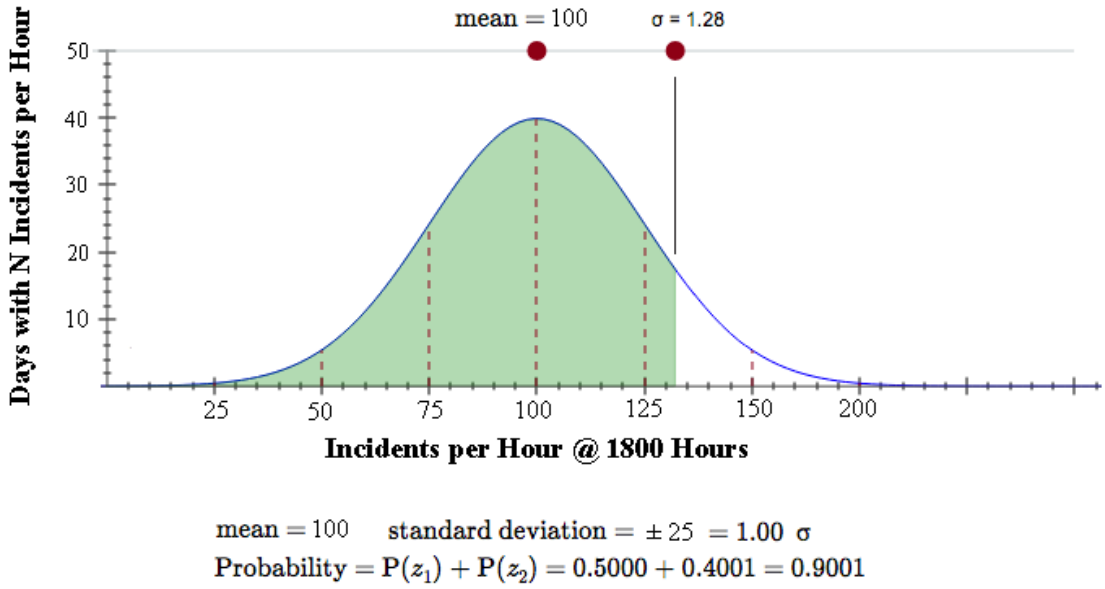
figure starts with the x-axis, which is the number of incidents per hour (go to the vertical line at 65 incidents per hour, follow it up to the blue curve). The height of the curve at 65 incidents per hour gives the number of instances, the number of days in which exactly 65 incidents were experienced in the 1800 hour. The average number of incidents per hour is 100. There are exactly 40 days in which 100 incidents occurred in the 1800 hour. The distribution curve in Figure 1 has a width. The standard deviation, symbol σ, characterizes this width. In this example, the standard deviation is 25.

The area under the normal curve from zero to the average is shaded green. The green area is one half the area under the curve. In the context of a dispatch center, the green area means

that one day out of two, there will be 100 incidents, or fewer, in the 1800 hour. Conversely, one day out of two, there will be 100 incidents, or more, in the 1800 hour.

The valuable property of the standard deviation, σ, is that it allows the extraction of the size and frequency of surges from the normal distribution. Consider Figure 2 where the green area has been extended to the right as far as [average + 1.28 σ] which happens to be 132 incidents per hour.

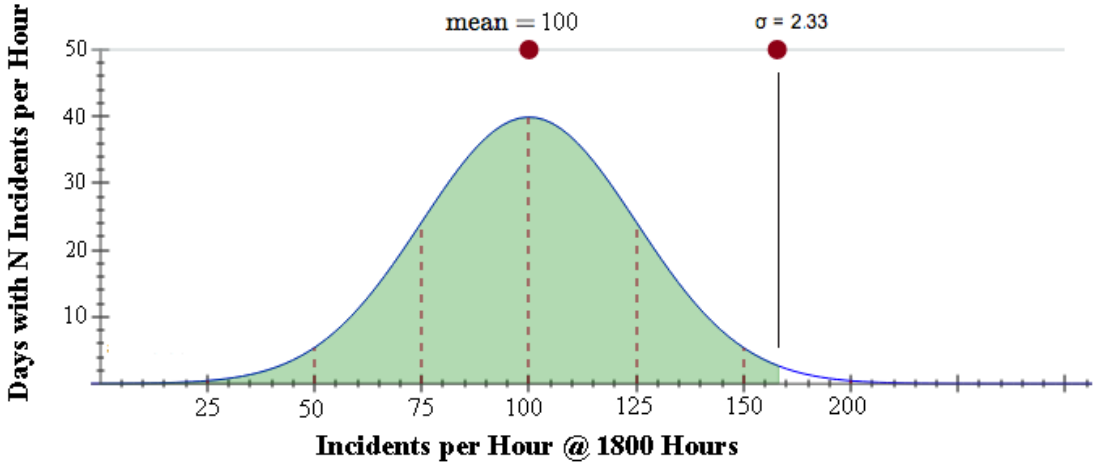
Figure 2. Normal Distribution Showing a One Day in Ten Surge.



The green area now comprises 90% of the area under the normal curve. In the context of a dispatch center, the green area means that nine days in ten there will be 132 incidents, or fewer, in the 1800 hour. Conversely, one day in ten there will be 132 incidents, or more, in the 1800 hour.

In Figure 3, below, the green area has been extended further right to [average + 2.33 σ] or 158 incidents per hour. The green area now comprises 99% of the area under the normal curve. In the context of a dispatch center, the green area now means the ninety-nine days out

Figure 3. Normal Distribution Showing a One Day in One Hundred Surge.



$$\text{mean} = 100 \quad \text{standard deviation} = \pm 25 = 1.00\ \sigma$$

$$\text{Probability} = P(z_1) + P(z_2) = 0.5000 + 0.4897 = 0.9897$$

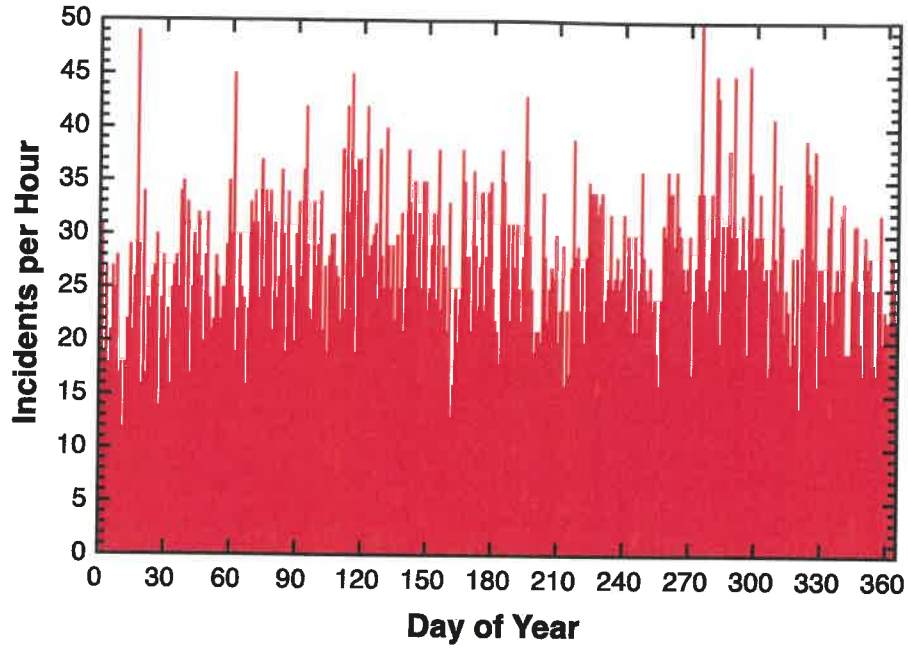
of one hundred there will be 158 incidents, or fewer, in the 1800 hour. On one day out of one hundred, there will be 158 incidents, or more, in the 1800 hour.

The preceding discussion shows the usefulness of the standard deviation to answer questions of surges in dispatch systems. Once a collection of random incident counts has been converted to an average and a standard deviation, it becomes possible to conveniently extract the frequency and sizes of surges from the original set of data, at least in theory.

Real Example

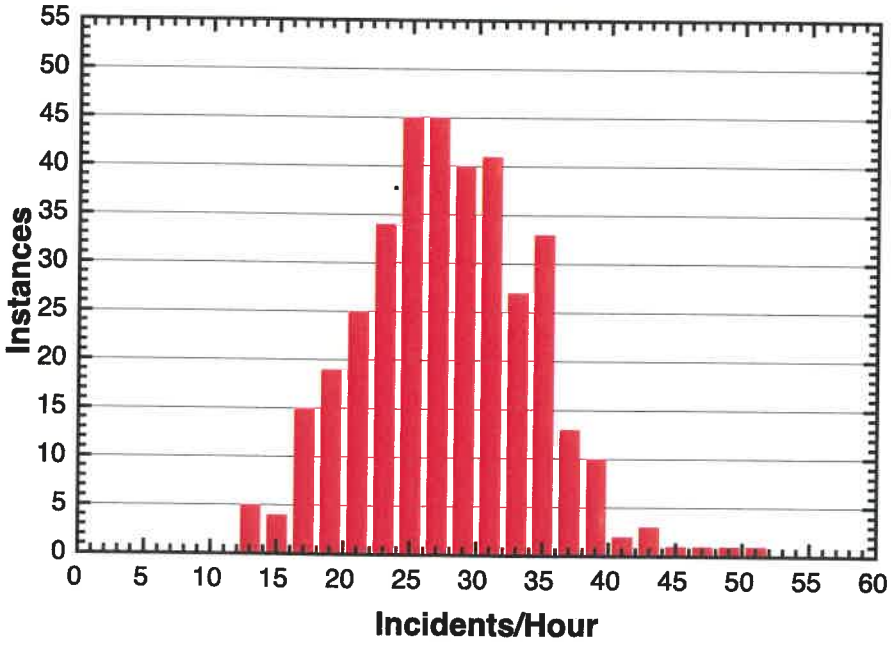
Figure 4, below, presents the number of incidents per hour experienced at a large metropolitan dispatch center at 1600 hours. One year's worth of data is included in the histogram. As can be seen, the day-to-day variability is substantial with a minimum of 12 incidents per hour to a maximum of 50 incidents per hour.

Figure 4. Incident per Hour at 1600 Hours



The data in Figure 4 was then consolidated into Figure 5. The process of this consolidation is referred to as "binning". All of the instances where 12 or 13 incidents per hour occurred were counted and the total placed in a "bin" labelled 12-13, and so forth. The outcome of this binning process results in the distribution presented in Figure 5, below.

Figure 5. Distribution of Incidents per Hour



Numerical methods were next used to calculate the normal distribution curve that most closely follows the contour of the real distribution. The calculated normal distribution is presented in

Figure 6, below. Three specific surge limits are specified in Figure 6. The values of these surge limits are presented in Table 1, below. The surge limits may also be discussed in terms of the percentile contributions to the area under the normal curve.

Figure 6. Normal Distribution Most Closely Conforming Figure 5.

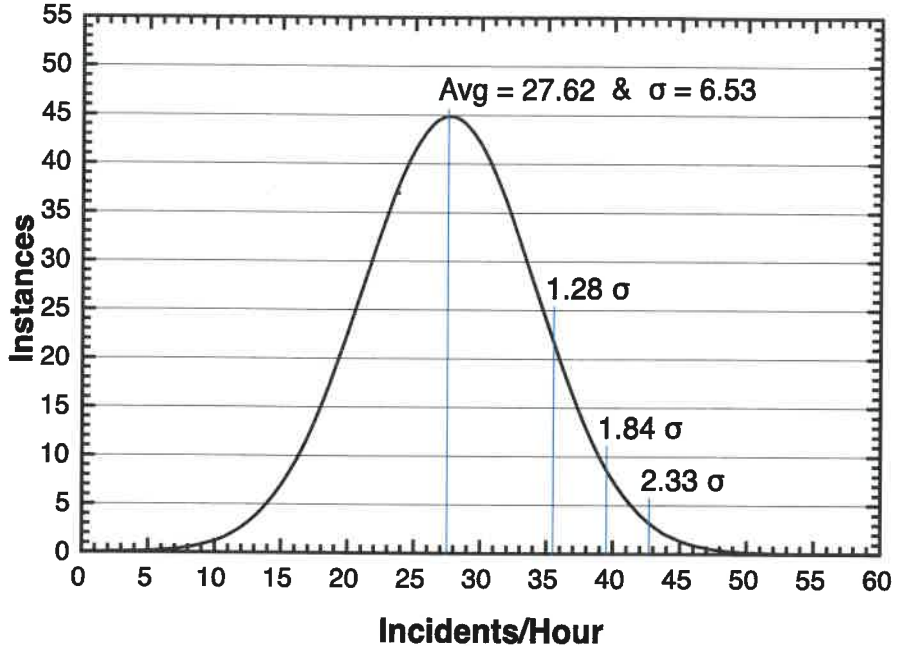
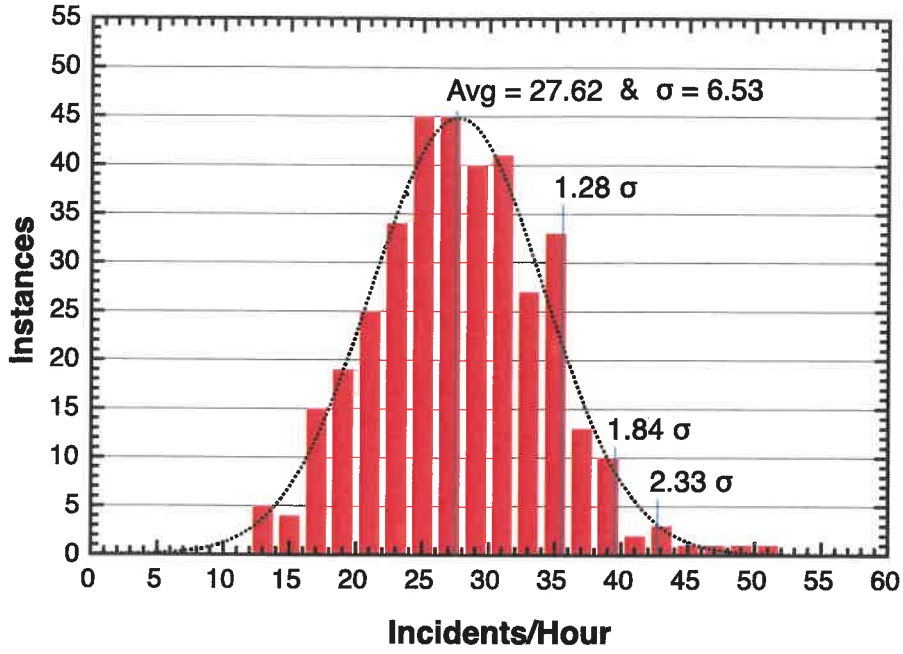


Table 1. Surge Limits Derived from Figure 6.

Frequency	Offset [σ]	Incidents per Hour			%-tile
		Average	Increment	Total	
One Day in 2	0.00 σ	27.62	0.00	27.62	50th
One Day in 10	+1.28 σ	27.62	8.36	35.98	90th
One Day in 30	+1.84 σ	27.62	12.02	39.64	97th
One Day in 100	+2.33 σ	27.62	15.21	42.83	99th

In Figure 7, the calculated normal distribution overlays the distribution of real data.

Figure 7. Comparison of the Real Distribution to a Normal Curve.



As 'lumpy" as the real distribution may appear, it is a respectable approximation of a precisely calculated normal curve. Surges calculated using the mathematical methods described in this section are a good approximation of reality.

Appendix B:
Radio Channel Modelling

FITCH
& ASSOCIATES

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000513 FIRE	BCF-D2	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performanc		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.54	45.47	0.105	1	89.51	1.93
	0100		3.05	39.23	0.090	1	90.95	1.64
	0200		2.86	36.76	0.085	1	91.52	1.52
	0300		2.73	35.14	0.081	1	91.89	1.45
	0400		2.71	34.83	0.080	1	91.97	1.44
	0500		2.72	34.95	0.081	1	91.94	1.44
	0600		3.59	46.16	0.106	1	89.35	1.96
	0700		4.40	56.53	0.130	1	86.96	2.47
	0800		5.36	68.99	0.159	1	84.08	3.11
	0900		6.27	80.66	0.186	1	81.39	3.76
	1000		6.61	85.05	0.196	1	80.38	4.01
	1100		6.61	85.05	0.196	1	80.38	4.01
	1200		6.59	84.74	0.195	1	80.45	4.00
	1300		6.58	84.65	0.195	1	80.47	3.99
	1400		6.51	83.66	0.193	1	80.70	3.93
	1500		6.61	85.04	0.196	1	80.38	4.01
	1600		6.41	82.41	0.190	1	80.99	3.86
	1700		6.48	83.31	0.192	1	80.78	3.91
	1800		6.54	84.12	0.194	1	80.59	3.96
	1900		5.91	75.95	0.175	1	82.48	3.49
	2000		5.66	72.83	0.168	1	83.20	3.32
	2100		5.38	69.13	0.159	1	84.05	3.12
	2200		4.76	61.22	0.141	1	85.88	2.70
	2300		3.98	51.22	0.118	1	88.18	2.20

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.307 sec	0.00	5.08	65.30	0.151	24	83.62 %	3.26

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	83.62 %	3.26
non-Contig			0	? %	?

Consolidations
BCF-D12

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000515 FIRE	BCF-D5	North	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		2.61	34.75	0.081	1	91.85	1.48
	0100		2.30	30.70	0.072	1	92.80	1.30
	0200		2.26	30.06	0.070	1	92.95	1.27
	0300		2.07	27.64	0.065	1	93.52	1.16
	0400		2.07	27.63	0.065	1	93.52	1.16
	0500		2.06	27.44	0.064	1	93.57	1.15
	0600		2.34	31.24	0.073	1	92.67	1.32
	0700		3.03	40.34	0.095	1	90.54	1.75
	0800		3.77	50.24	0.118	1	88.22	2.23
	0900		3.96	52.76	0.124	1	87.63	2.36
	1000		4.14	55.23	0.130	1	87.05	2.49
	1100		3.91	52.06	0.122	1	87.79	2.33
	1200		4.07	54.24	0.127	1	87.28	2.44
	1300		4.30	57.36	0.135	1	86.55	2.60
	1400		4.20	55.96	0.131	1	86.88	2.53
	1500		4.17	55.55	0.130	1	86.97	2.50
	1600		4.22	56.24	0.132	1	86.81	2.54
	1700		4.20	56.05	0.131	1	86.86	2.53
	1800		4.10	54.62	0.128	1	87.19	2.46
	1900		3.92	52.19	0.122	1	87.76	2.33
	2000		3.66	48.80	0.114	1	88.56	2.16
	2100		3.56	47.52	0.111	1	88.86	2.10
	2200		3.13	41.73	0.098	1	90.21	1.81
	2300		2.99	39.91	0.094	1	90.64	1.73

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.442 sec	0.00	3.38	45.01	0.106	24	88.83 %	2.11

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	88.83 %	2.11
non-Contig			0	? %	?

Consolidations
BCF-D56

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000517 FIRE	BCF-D3	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		1.97	22.80	0.059	1	94.12	1.15
	0100		1.78	20.63	0.053	1	94.68	1.03
	0200		1.62	18.78	0.048	1	95.16	0.93
	0300		1.67	19.40	0.050	1	95.00	0.97
	0400		1.62	18.75	0.048	1	95.17	0.93
	0500		1.61	18.70	0.048	1	95.18	0.93
	0600		1.73	20.04	0.052	1	94.84	1.00
	0700		2.17	25.11	0.065	1	93.53	1.27
	0800		2.54	29.49	0.076	1	92.40	1.51
	0900		2.84	32.97	0.085	1	91.50	1.71
	1000		2.92	33.87	0.087	1	91.27	1.76
	1100		3.04	35.18	0.091	1	90.93	1.83
	1200		3.12	36.11	0.093	1	90.69	1.89
	1300		3.13	36.29	0.094	1	90.65	1.90
	1400		3.25	37.64	0.097	1	90.30	1.97
	1500		3.02	35.01	0.090	1	90.98	1.82
	1600		2.84	32.93	0.085	1	91.51	1.70
	1700		2.97	34.46	0.089	1	91.12	1.79
	1800		3.10	35.96	0.093	1	90.73	1.88
	1900		2.70	31.24	0.081	1	91.95	1.61
	2000		2.67	30.99	0.080	1	92.01	1.59
	2100		2.52	29.16	0.075	1	92.48	1.49
	2200		2.27	26.35	0.068	1	93.21	1.34
	2300		2.04	23.68	0.061	1	93.90	1.19

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
9.275 sec	0.00	2.46	28.56	0.074	24	92.25 %	1.55

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	92.25 %	1.55
non-Contig			0	? %	?

Consolidations
BCF-D34

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000577 FIRE	BCF-D4	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		1.67	21.86	0.056	1	94.42	1.08
	0100		1.45	18.96	0.048	1	95.16	0.93
	0200		1.48	19.34	0.049	1	95.06	0.95
	0300		1.30	17.00	0.043	1	95.66	0.83
	0400		1.43	18.74	0.048	1	95.22	0.91
	0500		1.34	17.51	0.045	1	95.53	0.85
	0600		1.45	19.00	0.049	1	95.15	0.93
	0700		1.78	23.29	0.059	1	94.05	1.15
	0800		2.02	26.44	0.068	1	93.25	1.32
	0900		2.13	27.87	0.071	1	92.88	1.39
	1000		2.32	30.35	0.077	1	92.25	1.53
	1100		2.32	30.35	0.078	1	92.25	1.53
	1200		2.45	32.06	0.082	1	91.81	1.62
	1300		2.30	30.08	0.077	1	92.32	1.51
	1400		2.32	30.38	0.078	1	92.24	1.53
	1500		2.40	31.42	0.080	1	91.98	1.59
	1600		2.38	31.09	0.079	1	92.06	1.57
	1700		2.30	30.04	0.077	1	92.33	1.51
	1800		2.19	28.68	0.073	1	92.68	1.44
	1900		2.19	28.61	0.073	1	92.69	1.43
	2000		2.12	27.69	0.071	1	92.93	1.39
	2100		1.92	25.11	0.064	1	93.59	1.25
	2200		1.97	25.70	0.066	1	93.44	1.28
	2300		1.73	22.69	0.058	1	94.21	1.12

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
9.196 sec	0.00	1.96	25.59	0.065	24	93.22 %	1.33

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	93.22 %	1.33
non-Contig			0	? %	?

Consolidations
BCF-D34

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80001569 FIRE	FLF-DISP1	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		4.22	55.24	0.124	1	87.59	2.27
	0100		4.05	52.99	0.119	1	88.09	2.17
	0200		3.60	47.08	0.106	1	89.42	1.89
	0300		3.35	43.82	0.098	1	90.15	1.75
	0400		3.05	39.88	0.090	1	91.04	1.58
	0500		3.05	39.95	0.090	1	91.02	1.58
	0600		3.06	40.06	0.090	1	91.00	1.58
	0700		4.40	57.55	0.129	1	87.07	2.38
	0800		5.66	74.08	0.166	1	83.36	3.20
	0900		6.44	84.31	0.189	1	81.06	3.74
	1000		7.27	95.11	0.214	1	78.63	4.35
	1100		7.21	94.43	0.212	1	78.78	4.31
	1200		7.40	96.90	0.218	1	78.23	4.46
	1300		7.18	94.00	0.211	1	78.88	4.29
	1400		7.25	94.93	0.213	1	78.67	4.34
	1500		7.42	97.19	0.218	1	78.16	4.48
	1600		7.29	95.43	0.214	1	78.56	4.37
	1700		7.40	96.92	0.218	1	78.22	4.46
	1800		7.34	96.04	0.216	1	78.42	4.41
	1900		6.71	87.86	0.197	1	80.26	3.94
	2000		6.55	85.77	0.193	1	80.73	3.82
	2100		6.24	81.74	0.184	1	81.63	3.60
	2200		5.62	73.56	0.165	1	83.47	3.17
	2300		5.23	68.45	0.154	1	84.62	2.91

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.088 sec	0.00	5.71	74.72	0.168	24	81.84 %	3.60

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	81.84 %	3.60
non-Contig			0	? %	?

Consolidations

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80001651 FIRE	BCF-D1	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		2.64	41.46	0.095	1	90.52	1.71
	0100		2.40	37.64	0.086	1	91.40	1.53
	0200		2.22	34.91	0.080	1	92.02	1.41
	0300		2.21	34.62	0.079	1	92.09	1.40
	0400		2.00	31.38	0.072	1	92.83	1.26
	0500		2.27	35.67	0.082	1	91.85	1.45
	0600		2.63	41.20	0.094	1	90.58	1.69
	0700		3.23	50.67	0.116	1	88.42	2.13
	0800		4.09	64.20	0.147	1	85.33	2.80
	0900		4.44	69.71	0.159	1	84.07	3.09
	1000		4.94	77.53	0.177	1	82.28	3.51
	1100		4.99	78.32	0.179	1	82.10	3.55
	1200		5.11	80.15	0.183	1	81.68	3.65
	1300		5.02	78.71	0.180	1	82.01	3.57
	1400		4.82	75.63	0.173	1	82.71	3.41
	1500		5.15	80.84	0.185	1	81.52	3.69
	1600		4.73	74.16	0.169	1	83.05	3.33
	1700		4.94	77.45	0.177	1	82.30	3.50
	1800		4.78	74.97	0.171	1	82.87	3.37
	1900		4.45	69.89	0.160	1	84.03	3.10
	2000		4.27	66.94	0.153	1	84.70	2.94
	2100		3.96	62.14	0.142	1	85.80	2.70
	2200		3.69	57.87	0.132	1	86.77	2.48
	2300		3.12	48.88	0.112	1	88.83	2.05

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.226 sec	0.00	3.84	60.21	0.138	24	85.11 %	2.88

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	85.11 %	2.88
non-Contig			0	? %	?

Consolidations
BCF-D12

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80002655 FIRE	BCF-D9	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		1.99	30.52	0.068	1	93.18	1.16
	0100		1.72	26.35	0.059	1	94.12	1.00
	0200		1.69	25.91	0.058	1	94.21	0.98
	0300		1.86	28.55	0.064	1	93.62	1.08
	0400		1.62	24.85	0.055	1	94.45	0.94
	0500		1.80	27.54	0.062	1	93.85	1.04
	0600		1.92	29.48	0.066	1	93.42	1.12
	0700		2.14	32.81	0.073	1	92.67	1.26
	0800		2.81	43.13	0.096	1	90.37	1.70
	0900		3.17	48.61	0.109	1	89.14	1.94
	1000		3.20	49.10	0.110	1	89.03	1.96
	1100		3.54	54.29	0.121	1	87.87	2.20
	1200		3.47	53.28	0.119	1	88.10	2.15
	1300		3.42	52.48	0.117	1	88.28	2.11
	1400		3.43	52.60	0.117	1	88.25	2.12
	1500		3.37	51.72	0.116	1	88.45	2.08
	1600		3.21	49.20	0.110	1	89.01	1.97
	1700		3.18	48.71	0.109	1	89.12	1.94
	1800		3.10	47.60	0.106	1	89.37	1.89
	1900		2.99	45.84	0.102	1	89.76	1.82
	2000		2.83	43.47	0.097	1	90.29	1.71
	2100		2.70	41.34	0.092	1	90.77	1.62
	2200		2.34	35.89	0.080	1	91.98	1.39
	2300		2.08	31.86	0.071	1	92.88	1.22

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.039 sec	0.00	2.65	40.63	0.091	24	90.35 %	1.71

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	90.35 %	1.71
non-Contig			0	? %	?

Consolidations
BCF-D89

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80002687 FIRE	BCF-D6	North	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		2.67	37.44	0.087	1	91.35	1.56
	0100		2.39	33.47	0.077	1	92.27	1.38
	0200		2.06	28.84	0.067	1	93.34	1.18
	0300		2.16	30.34	0.070	1	92.99	1.24
	0400		2.08	29.14	0.067	1	93.27	1.19
	0500		2.18	30.63	0.071	1	92.92	1.25
	0600		2.41	33.75	0.078	1	92.20	1.39
	0700		3.24	45.42	0.105	1	89.50	1.93
	0800		3.97	55.69	0.129	1	87.13	2.43
	0900		4.21	59.09	0.137	1	86.35	2.61
	1000		4.54	63.71	0.147	1	85.28	2.84
	1100		4.63	64.97	0.150	1	84.99	2.91
	1200		4.50	63.05	0.146	1	85.43	2.81
	1300		4.70	65.95	0.152	1	84.76	2.96
	1400		4.46	62.53	0.144	1	85.55	2.78
	1500		4.32	60.60	0.140	1	86.00	2.68
	1600		4.39	61.61	0.142	1	85.76	2.73
	1700		4.25	59.52	0.138	1	86.25	2.63
	1800		4.48	62.78	0.145	1	85.49	2.80
	1900		3.99	55.92	0.129	1	87.08	2.44
	2000		3.83	53.72	0.124	1	87.59	2.34
	2100		3.40	47.72	0.110	1	88.97	2.04
	2200		3.21	44.95	0.104	1	89.61	1.91
	2300		2.91	40.75	0.094	1	90.58	1.71

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.321 sec	0.00	3.54	49.65	0.115	24	87.73 %	2.32

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	87.73 %	2.32
non-Contig			0	? %	?

Consolidations
BCF-D56

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80003359 FIRE	BCF-D8	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		2.53	42.14	0.101	1	89.87	1.93
	0100		2.32	38.55	0.093	1	90.73	1.75
	0200		2.00	33.30	0.080	1	91.99	1.49
	0300		2.07	34.50	0.083	1	91.70	1.55
	0400		1.93	32.08	0.077	1	92.29	1.43
	0500		2.07	34.44	0.083	1	91.72	1.55
	0600		2.32	38.57	0.093	1	90.72	1.75
	0700		2.81	46.79	0.113	1	88.75	2.17
	0800		3.60	59.91	0.144	1	85.59	2.89
	0900		4.06	67.62	0.163	1	83.74	3.33
	1000		4.36	72.56	0.174	1	82.55	3.62
	1100		4.24	70.62	0.170	1	83.02	3.51
	1200		4.72	78.65	0.189	1	81.09	4.00
	1300		4.31	71.72	0.172	1	82.75	3.57
	1400		4.69	78.06	0.188	1	81.23	3.96
	1500		4.44	73.98	0.178	1	82.21	3.71
	1600		4.20	70.00	0.168	1	83.16	3.47
	1700		4.25	70.83	0.170	1	82.97	3.52
	1800		4.19	69.83	0.168	1	83.21	3.46
	1900		3.89	64.81	0.156	1	84.41	3.17
	2000		3.63	60.46	0.145	1	85.46	2.92
	2100		3.38	56.31	0.135	1	86.46	2.69
	2200		3.02	50.29	0.121	1	87.91	2.36
	2300		2.89	48.19	0.116	1	88.41	2.25

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.659 sec	0.00	3.41	56.84	0.137	24	85.29 %	2.99

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	85.29 %	2.99
non-Contig			0	? %	?

Consolidations
BCF-D89

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000259 LAW	BSO-02-DISP	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.70	79.49	0.181	1	81.88	3.60
	0100		3.15	67.65	0.154	1	84.58	2.96
	0200		2.28	48.95	0.112	1	88.84	2.04
	0300		2.58	55.37	0.126	1	87.38	2.35
	0400		2.77	59.47	0.136	1	86.44	2.55
	0500		2.37	50.88	0.116	1	88.40	2.13
	0600		2.79	59.84	0.136	1	86.36	2.57
	0700		3.60	77.23	0.176	1	82.40	3.47
	0800		3.97	85.18	0.194	1	80.58	3.92
	0900		4.67	100.30	0.229	1	77.14	4.82
	1000		4.95	106.30	0.242	1	75.77	5.20
	1100		5.45	117.05	0.267	1	73.32	5.91
	1200		5.31	114.02	0.260	1	74.01	5.71
	1300		5.88	126.11	0.287	1	71.26	6.56
	1400		5.75	123.47	0.281	1	71.86	6.36
	1500		6.23	133.65	0.305	1	69.54	7.12
	1600		6.10	130.82	0.298	1	70.18	6.90
	1700		5.76	123.59	0.282	1	71.83	6.37
	1800		5.90	126.53	0.288	1	71.16	6.59
	1900		5.58	119.77	0.273	1	72.70	6.10
	2000		4.59	98.59	0.225	1	77.53	4.71
	2100		4.25	91.25	0.208	1	79.20	4.27
	2200		3.52	75.57	0.172	1	82.78	3.38
	2300		3.80	81.49	0.186	1	81.43	3.71

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.207 sec	0.00	4.37	93.86	0.214	24	76.78 %	5.03

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	76.78 %	5.03
non-Contig			0	? %	?

Consolidations
BSO-25-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000261 LAW	BSO-03-DISP	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		4.10	87.91	0.196	1	80.43	3.86
	0100		3.61	77.29	0.172	1	82.79	3.30
	0200		3.00	64.33	0.143	1	85.68	2.65
	0300		2.79	59.73	0.133	1	86.70	2.43
	0400		2.43	52.09	0.116	1	88.40	2.08
	0500		2.32	49.77	0.111	1	88.92	1.98
	0600		1.94	41.66	0.093	1	90.73	1.62
	0700		3.32	71.11	0.158	1	84.17	2.99
	0800		4.53	97.17	0.216	1	78.37	4.38
	0900		4.89	104.70	0.233	1	76.69	4.82
	1000		6.13	131.46	0.293	1	70.73	6.57
	1100		6.11	131.04	0.292	1	70.83	6.54
	1200		5.97	127.83	0.285	1	71.54	6.31
	1300		5.80	124.31	0.277	1	72.32	6.07
	1400		5.72	122.53	0.273	1	72.72	5.95
	1500		5.72	122.49	0.273	1	72.73	5.95
	1600		5.81	124.57	0.277	1	72.27	6.09
	1700		5.95	127.45	0.284	1	71.63	6.29
	1800		5.96	127.75	0.284	1	71.56	6.31
	1900		6.46	138.39	0.308	1	69.19	7.07
	2000		5.83	124.93	0.278	1	72.19	6.12
	2100		5.44	116.58	0.260	1	74.05	5.56
	2200		4.82	103.36	0.230	1	76.99	4.74
	2300		4.59	98.43	0.219	1	78.09	4.45

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.014 sec	0.00	4.72	101.12	0.225	24	75.52 %	5.26

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	75.52 %	5.26
non-Contig			0	? %	?

Consolidations
BSO-34-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000263 LAW	BSO-04-DISP	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		2.64	56.21	0.126	1	87.40	2.30
	0100		2.09	44.48	0.100	1	90.03	1.77
	0200		1.79	38.00	0.085	1	91.48	1.49
	0300		1.72	36.55	0.082	1	91.81	1.43
	0400		1.45	30.92	0.069	1	93.07	1.19
	0500		1.38	29.32	0.066	1	93.43	1.12
	0600		1.64	34.99	0.078	1	92.16	1.36
	0700		2.77	58.87	0.132	1	86.80	2.43
	0800		3.55	75.56	0.169	1	83.06	3.26
	0900		3.99	84.90	0.190	1	80.97	3.76
	1000		4.03	85.83	0.192	1	80.76	3.81
	1100		4.22	89.81	0.201	1	79.86	4.03
	1200		4.34	92.45	0.207	1	79.27	4.18
	1300		4.56	96.97	0.217	1	78.26	4.44
	1400		4.48	95.29	0.214	1	78.64	4.34
	1500		4.91	104.56	0.234	1	76.56	4.89
	1600		4.90	104.25	0.234	1	76.63	4.88
	1700		4.96	105.54	0.237	1	76.34	4.95
	1800		5.01	106.59	0.239	1	76.10	5.02
	1900		4.64	98.82	0.222	1	77.85	4.55
	2000		3.95	84.07	0.188	1	81.15	3.71
	2100		3.71	78.99	0.177	1	82.29	3.44
	2200		3.36	71.50	0.160	1	83.97	3.05
	2300		3.12	66.44	0.149	1	85.10	2.80

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.071 sec	0.00	3.47	73.79	0.165	24	81.43 %	3.71

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	81.43 %	3.71
non-Contig			0	? %	?

Consolidations
BSO-34-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000265 LAW	BSO-05-DISP	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		6.24	85.64	0.197	1	80.31	4.02
	0100		5.37	73.63	0.169	1	83.07	3.34
	0200		4.52	61.95	0.142	1	85.76	2.72
	0300		3.60	49.41	0.114	1	88.64	2.10
	0400		3.25	44.61	0.103	1	89.74	1.87
	0500		2.70	37.00	0.085	1	91.49	1.52
	0600		3.06	41.92	0.096	1	90.36	1.75
	0700		5.14	70.53	0.162	1	83.78	3.17
	0800		7.22	99.01	0.228	1	77.24	4.83
	0900		8.57	117.62	0.270	1	72.96	6.08
	1000		8.96	122.92	0.283	1	71.74	6.46
	1100		9.16	125.67	0.289	1	71.11	6.66
	1200		9.06	124.31	0.286	1	71.42	6.56
	1300		9.47	129.87	0.299	1	70.14	6.98
	1400		9.42	129.19	0.297	1	70.30	6.93
	1500		10.67	146.45	0.337	1	66.33	8.32
	1600		10.65	146.15	0.336	1	66.40	8.30
	1700		10.44	143.21	0.329	1	67.07	8.05
	1800		9.74	133.63	0.307	1	69.28	7.27
	1900		8.66	118.78	0.273	1	72.69	6.16
	2000		7.41	101.68	0.234	1	76.62	5.00
	2100		6.83	93.67	0.215	1	78.46	4.50
	2200		7.10	97.47	0.224	1	77.59	4.73
	2300		6.38	87.48	0.201	1	79.89	4.13

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.280 sec	0.00	7.23	99.24	0.228	24	74.49 %	5.78

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	74.49 %	5.78
non-Contig			0	? %	?

Consolidations
BSO-25-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000269 LAW	BSO-06-DISP	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.87	77.98	0.186	1	81.45	3.86
	0100		3.23	65.19	0.155	1	84.49	3.11
	0200		2.77	55.90	0.133	1	86.70	2.60
	0300		2.54	51.19	0.122	1	87.82	2.35
	0400		2.20	44.30	0.105	1	89.46	2.00
	0500		2.10	42.24	0.100	1	89.95	1.90
	0600		2.44	49.13	0.117	1	88.31	2.25
	0700		3.91	78.82	0.188	1	81.25	3.92
	0800		5.28	106.46	0.253	1	74.67	5.75
	0900		5.85	117.86	0.280	1	71.96	6.61
	1000		5.93	119.52	0.284	1	71.57	6.74
	1100		6.46	130.15	0.310	1	69.03	7.61
	1200		6.34	127.83	0.304	1	69.59	7.41
	1300		6.16	124.22	0.296	1	70.45	7.12
	1400		6.70	135.07	0.321	1	67.87	8.03
	1500		6.98	140.68	0.335	1	66.53	8.53
	1600		6.76	136.36	0.324	1	67.56	8.15
	1700		6.43	129.58	0.308	1	69.17	7.56
	1800		6.62	133.50	0.318	1	68.24	7.90
	1900		6.35	128.10	0.305	1	69.52	7.44
	2000		6.04	121.84	0.290	1	71.01	6.92
	2100		5.27	106.17	0.253	1	74.74	5.73
	2200		5.00	100.80	0.240	1	76.02	5.35
	2300		4.48	90.30	0.215	1	78.52	4.64

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.564 sec	0.00	4.99	100.55	0.239	24	73.50 %	6.29

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	73.50 %	6.29
non-Contig			0	? %	?

Consolidations
BSO-6S-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000273 LAW	BSO-07-DISP	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		5.02	108.98	0.240	1	75.97	4.97
	0100		4.37	94.77	0.209	1	79.11	4.15
	0200		3.74	81.19	0.179	1	82.10	3.43
	0300		3.45	74.97	0.165	1	83.47	3.11
	0400		2.99	64.90	0.143	1	85.69	2.62
	0500		2.67	57.89	0.128	1	87.24	2.30
	0600		3.29	71.42	0.157	1	84.25	2.94
	0700		5.52	119.74	0.264	1	73.60	5.64
	0800		6.52	141.41	0.312	1	68.82	7.12
	0900		7.68	166.64	0.367	1	63.26	9.13
	1000		8.55	185.49	0.409	1	59.10	10.88
	1100		8.76	190.13	0.419	1	58.08	11.35
	1200		8.75	189.83	0.419	1	58.15	11.32
	1300		8.99	195.18	0.430	1	56.97	11.87
	1400		9.10	197.50	0.435	1	56.46	12.12
	1500		9.25	200.77	0.443	1	55.73	12.48
	1600		9.10	197.38	0.435	1	56.48	12.11
	1700		8.90	193.15	0.426	1	57.41	11.66
	1800		9.19	199.52	0.440	1	56.01	12.35
	1900		8.69	188.64	0.416	1	58.41	11.19
	2000		7.84	170.15	0.375	1	62.48	9.44
	2100		7.49	162.60	0.359	1	64.15	8.78
	2200		6.96	151.07	0.333	1	66.69	7.85
	2300		5.94	128.99	0.284	1	71.56	6.25

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
7.938 sec	0.00	6.78	147.18	0.325	24	63.90 %	9.33

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	63.90 %	9.33
non-Contig			0	? %	?

Consolidations

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000275 LAW	BSO-08-DISP	North	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		4.46	91.71	0.211	1	78.87	4.40
	0100		3.55	73.06	0.168	1	83.17	3.32
	0200		2.72	55.93	0.129	1	87.11	2.43
	0300		2.21	45.49	0.105	1	89.52	1.92
	0400		2.20	45.25	0.104	1	89.58	1.91
	0500		2.19	45.07	0.104	1	89.62	1.90
	0600		2.66	54.84	0.126	1	87.37	2.38
	0700		4.49	92.32	0.213	1	78.73	4.44
	0800		6.06	124.72	0.287	1	71.27	6.62
	0900		6.15	126.59	0.292	1	70.84	6.76
	1000		6.50	133.71	0.308	1	69.19	7.31
	1100		6.79	139.76	0.322	1	67.80	7.80
	1200		6.95	143.05	0.330	1	67.04	8.07
	1300		6.92	142.31	0.328	1	67.21	8.01
	1400		7.01	144.29	0.332	1	66.76	8.18
	1500		7.47	153.81	0.354	1	64.56	9.02
	1600		7.37	151.75	0.350	1	65.04	8.83
	1700		7.28	149.84	0.345	1	65.48	8.66
	1800		7.92	163.06	0.376	1	62.43	9.88
	1900		7.14	146.89	0.338	1	66.16	8.40
	2000		6.31	129.96	0.299	1	70.06	7.02
	2100		5.71	117.57	0.271	1	72.91	6.10
	2200		5.55	114.31	0.263	1	73.66	5.87
	2300		4.98	102.44	0.236	1	76.40	5.07

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.293 sec	0.00	5.44	111.99	0.258	24	71.14 %	6.88

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	71.14 %	6.88
non-Contig			0	? %	?

Consolidations
BSO-89-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000277 LAW	BSO-09-DISP	North	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.32	84.39	0.185	1	81.53	3.54
	0100		2.81	71.32	0.156	1	84.39	2.89
	0200		2.35	59.61	0.130	1	86.95	2.34
	0300		2.23	56.64	0.124	1	87.60	2.21
	0400		1.87	47.52	0.104	1	89.60	1.81
	0500		1.76	44.78	0.098	1	90.20	1.70
	0600		2.05	51.98	0.114	1	88.62	2.00
	0700		3.26	82.85	0.181	1	81.87	3.46
	0800		4.22	107.08	0.234	1	76.56	4.78
	0900		4.38	111.15	0.243	1	75.67	5.02
	1000		4.32	109.81	0.240	1	75.96	4.94
	1100		4.88	123.97	0.271	1	72.87	5.81
	1200		5.04	128.05	0.280	1	71.97	6.08
	1300		4.98	126.51	0.277	1	72.31	5.98
	1400		5.13	130.21	0.285	1	71.50	6.22
	1500		5.28	134.09	0.293	1	70.65	6.48
	1600		5.10	129.46	0.283	1	71.66	6.17
	1700		5.48	139.32	0.305	1	69.51	6.85
	1800		5.52	140.33	0.307	1	69.28	6.92
	1900		5.26	133.70	0.293	1	70.74	6.46
	2000		4.81	122.25	0.268	1	73.24	5.70
	2100		4.71	119.70	0.262	1	73.80	5.54
	2200		4.44	112.84	0.247	1	75.30	5.12
	2300		3.81	96.81	0.212	1	78.81	4.20

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
7.880 sec	0.00	4.04	102.68	0.225	24	75.44 %	5.19

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	75.44 %	5.19
non-Contig			0	? %	?

Consolidations
BSO-89-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000279 LAW	BSO-10-DISP	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		5.20	89.93	0.195	1	80.46	3.76
	0100		4.49	77.61	0.169	1	83.14	3.14
	0200		3.60	62.16	0.135	1	86.49	2.42
	0300		2.92	50.46	0.110	1	89.04	1.91
	0400		2.46	42.60	0.093	1	90.74	1.58
	0500		2.63	45.44	0.099	1	90.13	1.70
	0600		3.74	64.61	0.140	1	85.96	2.53
	0700		6.80	117.65	0.256	1	74.44	5.32
	0800		8.39	145.02	0.315	1	68.49	7.13
	0900		8.48	146.56	0.318	1	68.16	7.24
	1000		8.75	151.20	0.329	1	67.15	7.58
	1100		9.27	160.33	0.348	1	65.17	8.28
	1200		9.35	161.69	0.351	1	64.87	8.39
	1300		9.53	164.85	0.358	1	64.19	8.64
	1400		10.47	180.95	0.393	1	60.69	10.03
	1500		10.15	175.41	0.381	1	61.89	9.54
	1600		10.05	173.75	0.377	1	62.25	9.39
	1700		9.66	166.98	0.363	1	63.72	8.82
	1800		10.12	174.98	0.380	1	61.98	9.50
	1900		9.76	168.78	0.367	1	63.33	8.97
	2000		9.10	157.36	0.342	1	65.81	8.05
	2100		7.41	128.04	0.278	1	72.18	5.97
	2200		6.48	112.12	0.244	1	75.64	4.99
	2300		5.54	95.81	0.208	1	79.19	4.07

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
7.823 sec	0.00	7.26	125.60	0.273	24	68.98 %	7.25

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	68.98 %	7.25
non-Contig			0	? %	?

Consolidations
BSO-10P-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000421 LAW	BSO-11-Area1	North	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.93	84.66	0.195	1	80.51	3.97
	0100		3.06	65.89	0.152	1	84.83	2.94
	0200		2.59	55.74	0.128	1	87.17	2.42
	0300		2.28	49.05	0.113	1	88.71	2.09
	0400		1.91	41.21	0.095	1	90.51	1.72
	0500		2.00	43.03	0.099	1	90.09	1.80
	0600		2.48	53.49	0.123	1	87.68	2.31
	0700		3.89	83.96	0.193	1	80.67	3.93
	0800		5.00	107.87	0.248	1	75.16	5.42
	0900		5.57	120.05	0.276	1	72.36	6.27
	1000		6.05	130.51	0.300	1	69.95	7.05
	1100		6.40	138.01	0.318	1	68.23	7.64
	1200		6.65	143.37	0.330	1	66.99	8.09
	1300		6.40	138.07	0.318	1	68.21	7.65
	1400		6.59	142.09	0.327	1	67.28	7.98
	1500		6.85	147.79	0.340	1	65.97	8.47
	1600		6.92	149.22	0.344	1	65.64	8.59
	1700		7.20	155.15	0.357	1	64.28	9.12
	1800		7.00	150.97	0.348	1	65.24	8.75
	1900		6.31	136.07	0.313	1	68.67	7.49
	2000		6.01	129.58	0.298	1	70.17	6.98
	2100		5.62	121.18	0.279	1	72.10	6.35
	2200		5.22	112.49	0.259	1	74.10	5.74
	2300		4.70	101.24	0.233	1	76.69	4.99

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.288 sec	0.00	5.03	108.36	0.249	24	72.00 %	6.59

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	72.00 %	6.59
non-Contig			0	? %	?

Consolidations
BSO-11-Area12

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000423 LAW	BSO-11-Area2	North	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.43	74.38	0.170	1	82.98	3.34
	0100		2.73	59.17	0.135	1	86.46	2.55
	0200		2.40	52.08	0.119	1	88.09	2.21
	0300		2.09	45.29	0.104	1	89.64	1.89
	0400		1.70	36.95	0.085	1	91.55	1.51
	0500		1.87	40.65	0.093	1	90.70	1.67
	0600		2.29	49.79	0.114	1	88.61	2.10
	0700		3.37	73.18	0.167	1	83.26	3.28
	0800		4.31	93.51	0.214	1	78.61	4.44
	0900		4.63	100.51	0.230	1	77.01	4.87
	1000		4.96	107.64	0.246	1	75.38	5.33
	1100		5.26	114.12	0.261	1	73.89	5.76
	1200		5.63	122.14	0.279	1	72.06	6.32
	1300		5.29	114.89	0.263	1	73.72	5.81
	1400		5.53	120.06	0.275	1	72.54	6.18
	1500		5.78	125.38	0.287	1	71.32	6.56
	1600		5.90	128.10	0.293	1	70.69	6.76
	1700		6.20	134.62	0.308	1	69.20	7.26
	1800		5.99	130.03	0.297	1	70.25	6.91
	1900		5.43	117.79	0.269	1	73.05	6.02
	2000		5.03	109.11	0.250	1	75.04	5.43
	2100		4.82	104.49	0.239	1	76.10	5.12
	2200		4.43	96.23	0.220	1	77.99	4.60
	2300		4.07	88.21	0.202	1	79.82	4.12

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.237 sec	0.00	4.30	93.26	0.213	24	76.34 %	5.18

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	76.34 %	5.18
non-Contig			0	? %	?

Consolidations
BSO-11-Area12

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80001635 LAW	SNP-DISP	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.26	74.88	0.170	1	82.98	3.32
	0100		2.71	62.30	0.142	1	85.84	2.67
	0200		2.29	52.59	0.120	1	88.05	2.20
	0300		1.95	44.74	0.102	1	89.83	1.83
	0400		1.80	41.42	0.094	1	90.59	1.68
	0500		1.80	41.33	0.094	1	90.61	1.68
	0600		2.08	47.89	0.109	1	89.12	1.98
	0700		3.32	76.22	0.173	1	82.68	3.40
	0800		4.30	98.85	0.225	1	77.53	4.70
	0900		4.72	108.34	0.246	1	75.38	5.29
	1000		5.12	117.50	0.267	1	73.29	5.90
	1100		5.35	122.97	0.279	1	72.05	6.29
	1200		5.77	132.53	0.301	1	69.88	6.99
	1300		5.89	135.29	0.307	1	69.25	7.20
	1400		6.19	142.24	0.323	1	67.67	7.74
	1500		6.46	148.30	0.337	1	66.29	8.24
	1600		6.68	153.53	0.349	1	65.10	8.69
	1700		6.45	148.27	0.337	1	66.30	8.24
	1800		6.71	154.15	0.350	1	64.96	8.74
	1900		6.32	145.10	0.330	1	67.02	7.97
	2000		5.53	126.97	0.289	1	71.14	6.57
	2100		5.38	123.62	0.281	1	71.90	6.33
	2200		4.62	106.06	0.241	1	75.89	5.15
	2300		3.84	88.19	0.200	1	79.95	4.06

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.181 sec	0.00	4.52	103.89	0.236	24	73.10 %	6.18

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	73.10 %	6.18
non-Contig			0	? %	?

Consolidations
BSO-6S-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80001825 LAW	FLP-DIST-1	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		4.50	85.40	0.196	1	80.41	3.98
	0100		3.95	75.06	0.172	1	82.78	3.40
	0200		3.38	64.10	0.147	1	85.29	2.82
	0300		2.80	53.22	0.122	1	87.79	2.27
	0400		2.59	49.15	0.113	1	88.73	2.08
	0500		2.25	42.65	0.098	1	90.22	1.77
	0600		2.53	48.01	0.110	1	88.99	2.02
	0700		4.76	90.33	0.207	1	79.28	4.27
	0800		6.36	120.66	0.277	1	72.32	6.26
	0900		7.27	137.91	0.316	1	68.36	7.57
	1000		7.76	147.26	0.338	1	66.22	8.34
	1100		8.18	155.23	0.356	1	64.39	9.04
	1200		8.03	152.39	0.350	1	65.04	8.79
	1300		8.15	154.71	0.355	1	64.51	9.00
	1400		8.28	157.20	0.361	1	63.94	9.22
	1500		8.45	160.39	0.368	1	63.21	9.52
	1600		8.42	159.85	0.367	1	63.33	9.47
	1700		8.55	162.33	0.372	1	62.76	9.70
	1800		7.95	150.83	0.346	1	65.40	8.65
	1900		7.21	136.87	0.314	1	68.60	7.49
	2000		6.33	120.07	0.275	1	72.46	6.22
	2100		6.07	115.22	0.264	1	73.57	5.88
	2200		6.09	115.52	0.265	1	73.50	5.90
	2300		5.22	99.10	0.227	1	77.27	4.81

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.260 sec	0.00	6.04	114.73	0.263	24	70.36 %	7.15

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	70.36 %	7.15
non-Contig			0	? %	?

Consolidations
FLP-DIST

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80001827 LAW	FLP-DIST-2	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.83	77.73	0.175	1	82.55	3.38
	0100		3.31	67.07	0.151	1	84.94	2.84
	0200		2.79	56.65	0.127	1	87.28	2.33
	0300		2.37	48.14	0.108	1	89.19	1.94
	0400		2.19	44.48	0.100	1	90.01	1.78
	0500		1.99	40.46	0.091	1	90.92	1.60
	0600		2.23	45.27	0.102	1	89.84	1.81
	0700		4.20	85.23	0.191	1	80.87	3.79
	0800		5.57	113.03	0.254	1	74.62	5.44
	0900		6.21	125.91	0.283	1	71.73	6.31
	1000		6.68	135.63	0.305	1	69.55	7.01
	1100		6.93	140.59	0.316	1	68.44	7.38
	1200		6.81	138.11	0.310	1	68.99	7.19
	1300		6.79	137.76	0.309	1	69.07	7.17
	1400		7.04	142.92	0.321	1	67.91	7.56
	1500		7.22	146.44	0.329	1	67.12	7.84
	1600		7.16	145.37	0.326	1	67.36	7.75
	1700		7.21	146.29	0.328	1	67.16	7.83
	1800		6.75	137.00	0.308	1	69.24	7.11
	1900		6.09	123.52	0.277	1	72.27	6.14
	2000		5.33	108.07	0.243	1	75.74	5.13
	2100		5.14	104.27	0.234	1	76.59	4.89
	2200		5.05	102.53	0.230	1	76.98	4.79
	2300		4.48	90.82	0.204	1	79.61	4.10

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.082 sec	0.00	5.14	104.30	0.234	24	73.67 %	5.90

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	73.67 %	5.90
non-Contig			0	? %	?

Consolidations
FLP-DIST

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80001829 LAW	FLP-DIST-3	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.83	78.42	0.175	1	82.53	3.36
	0100		3.31	67.66	0.151	1	84.92	2.82
	0200		2.79	57.15	0.127	1	87.27	2.32
	0300		2.37	48.56	0.108	1	89.18	1.93
	0400		2.19	44.88	0.100	1	90.00	1.77
	0500		1.99	40.82	0.091	1	90.90	1.59
	0600		2.23	45.67	0.102	1	89.82	1.80
	0700		4.20	85.98	0.192	1	80.84	3.77
	0800		5.57	114.03	0.254	1	74.59	5.41
	0900		6.21	127.03	0.283	1	71.69	6.27
	1000		6.68	136.83	0.305	1	69.51	6.97
	1100		6.93	141.84	0.316	1	68.39	7.34
	1200		6.81	139.34	0.310	1	68.95	7.15
	1300		6.79	138.98	0.310	1	69.03	7.13
	1400		7.04	144.19	0.321	1	67.87	7.52
	1500		7.22	147.74	0.329	1	67.08	7.80
	1600		7.16	146.66	0.327	1	67.32	7.71
	1700		7.21	147.59	0.329	1	67.11	7.79
	1800		6.75	138.22	0.308	1	69.20	7.07
	1900		6.09	124.62	0.278	1	72.23	6.11
	2000		5.33	109.03	0.243	1	75.71	5.10
	2100		5.14	105.20	0.234	1	76.56	4.86
	2200		5.05	103.44	0.231	1	76.95	4.76
	2300		4.48	91.62	0.204	1	79.58	4.08

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.021 sec	0.00	5.14	105.23	0.234	24	73.63 %	5.87

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	73.63 %	5.87
non-Contig			0	? %	?

Consolidations
FLP-DIST

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80002631 LAW	PPP-MAIN	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		4.52	102.02	0.224	1	77.58	4.77
	0100		3.53	79.61	0.175	1	82.50	3.50
	0200		2.74	61.77	0.136	1	86.43	2.59
	0300		3.06	69.12	0.152	1	84.81	2.96
	0400		2.47	55.68	0.122	1	87.76	2.30
	0500		2.33	52.57	0.116	1	88.45	2.16
	0600		2.70	61.01	0.134	1	86.59	2.56
	0700		4.50	101.61	0.223	1	77.67	4.75
	0800		5.85	132.06	0.290	1	70.98	6.75
	0900		6.62	149.38	0.328	1	67.17	8.07
	1000		7.14	161.08	0.354	1	64.60	9.04
	1100		8.36	188.56	0.414	1	58.56	11.68
	1200		8.55	192.97	0.424	1	57.59	12.15
	1300		8.85	199.70	0.439	1	56.11	12.91
	1400		8.99	202.79	0.446	1	55.43	13.27
	1500		9.51	214.54	0.471	1	52.85	14.72
	1600		8.66	195.48	0.430	1	57.04	12.43
	1700		8.53	192.35	0.423	1	57.73	12.08
	1800		8.45	190.55	0.419	1	58.12	11.89
	1900		7.35	165.89	0.365	1	63.54	9.47
	2000		6.53	147.41	0.324	1	67.60	7.91
	2100		6.01	135.67	0.298	1	70.19	7.01
	2200		5.50	124.14	0.273	1	72.72	6.19
	2300		5.01	113.11	0.249	1	75.14	5.46

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
7.911 sec	0.00	6.07	137.04	0.301	24	65.38 %	9.31

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	65.38 %	9.31
non-Contig			0	? %	?

Consolidations
BSO-10P-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80002673 LAW	CKP MAIN	North	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.73	85.44	0.197	1	80.26	4.05
	0100		3.06	70.13	0.162	1	83.80	3.18
	0200		2.52	57.88	0.134	1	86.63	2.54
	0300		2.22	50.90	0.118	1	88.24	2.19
	0400		1.89	43.30	0.100	1	90.00	1.83
	0500		1.80	41.24	0.095	1	90.47	1.73
	0600		2.28	52.27	0.121	1	87.93	2.26
	0700		4.05	92.85	0.214	1	78.55	4.50
	0800		4.94	113.25	0.262	1	73.84	5.83
	0900		5.86	134.42	0.310	1	68.95	7.42
	1000		6.07	139.15	0.321	1	67.86	7.80
	1100		6.37	146.02	0.337	1	66.27	8.38
	1200		6.89	158.05	0.365	1	63.49	9.47
	1300		6.88	157.86	0.365	1	63.54	9.45
	1400		7.07	162.02	0.374	1	62.58	9.85
	1500		7.32	167.88	0.388	1	61.22	10.43
	1600		7.13	163.40	0.377	1	62.26	9.98
	1700		7.52	172.32	0.398	1	60.20	10.89
	1800		7.09	162.59	0.376	1	62.45	9.90
	1900		6.67	153.01	0.353	1	64.66	9.00
	2000		6.16	141.32	0.326	1	67.36	7.98
	2100		5.59	128.21	0.296	1	70.39	6.93
	2200		5.11	117.08	0.270	1	72.96	6.10
	2300		4.47	102.41	0.237	1	76.35	5.10

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.314 sec	0.00	5.11	117.21	0.271	24	69.14 %	7.67

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	69.14 %	7.67
non-Contig			0	? %	?

Consolidations

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80003311 LAW	HWP-A1	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		4.01	106.82	0.259	1	74.14	6.02
	0100		3.28	87.54	0.212	1	78.81	4.64
	0200		2.78	74.19	0.180	1	82.04	3.78
	0300		2.29	60.95	0.148	1	85.24	2.99
	0400		2.09	55.76	0.135	1	86.50	2.69
	0500		2.00	53.42	0.129	1	87.07	2.56
	0600		2.38	63.45	0.154	1	84.64	3.13
	0700		3.58	95.43	0.231	1	76.90	5.18
	0800		4.92	131.28	0.318	1	68.22	8.04
	0900		5.35	142.57	0.345	1	65.49	9.10
	1000		5.76	153.58	0.372	1	62.82	10.21
	1100		6.11	162.91	0.394	1	60.56	11.24
	1200		6.33	168.88	0.409	1	59.12	11.94
	1300		6.20	165.19	0.400	1	60.01	11.50
	1400		6.27	167.10	0.405	1	59.55	11.72
	1500		6.86	182.82	0.443	1	55.74	13.70
	1600		6.73	179.37	0.434	1	56.58	13.25
	1700		6.92	184.55	0.447	1	55.32	13.94
	1800		6.56	174.99	0.424	1	57.64	12.69
	1900		6.04	161.11	0.390	1	61.00	11.04
	2000		5.69	151.61	0.367	1	63.30	10.01
	2100		5.09	135.66	0.328	1	67.16	8.44
	2200		4.57	121.77	0.295	1	70.52	7.21
	2300		4.77	127.15	0.308	1	69.22	7.67

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.716 sec	0.00	4.86	129.50	0.314	24	65.15 %	9.68

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	65.15 %	9.68
non-Contig			0	? %	?

Consolidations
HWP-A12

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80003331 LAW	HWP-A2	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		2.75	71.44	0.177	1	82.27	3.81
	0100		2.25	58.55	0.145	1	85.47	3.01
	0200		1.91	49.61	0.123	1	87.69	2.48
	0300		1.57	40.76	0.101	1	89.89	1.99
	0400		1.43	37.29	0.093	1	90.75	1.80
	0500		1.37	35.73	0.089	1	91.13	1.72
	0600		1.63	42.43	0.105	1	89.47	2.08
	0700		2.45	63.82	0.158	1	84.16	3.33
	0800		3.38	87.79	0.218	1	78.22	4.93
	0900		3.67	95.35	0.237	1	76.34	5.48
	1000		3.95	102.71	0.255	1	74.51	6.05
	1100		4.19	108.95	0.270	1	72.97	6.55
	1200		4.34	112.94	0.280	1	71.98	6.89
	1300		4.25	110.48	0.274	1	72.59	6.68
	1400		4.30	111.75	0.277	1	72.27	6.79
	1500		4.70	122.26	0.303	1	69.66	7.70
	1600		4.61	119.96	0.298	1	70.24	7.50
	1700		4.75	123.42	0.306	1	69.37	7.81
	1800		4.50	117.03	0.290	1	70.96	7.24
	1900		4.14	107.75	0.267	1	73.26	6.46
	2000		3.90	101.39	0.252	1	74.84	5.95
	2100		3.49	90.73	0.225	1	77.49	5.14
	2200		3.13	81.43	0.202	1	79.79	4.48
	2300		3.27	85.03	0.211	1	78.90	4.73

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.931 sec	0.00	3.33	86.61	0.215	24	76.11 %	5.69

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	76.11 %	5.69
non-Contig			0	? %	?

Consolidations
HWP-A12

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80001825 LAW	FLP-DIST-1	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		4.50	85.40	0.196	1	0.00	0.00
	0100		3.95	75.06	0.172		0.00	0.00
	0200		3.38	64.10	0.147		0.00	0.00
	0300		2.80	53.22	0.122		0.00	0.00
	0400		2.59	49.15	0.113		0.00	0.00
	0500		2.25	42.65	0.098		0.00	0.00
	0600		2.53	48.01	0.110		0.00	0.00
	0700		4.76	90.33	0.207	1	79.28	4.27
	0800		6.36	120.66	0.277	1	72.32	6.26
	0900		7.27	137.91	0.316	1	68.36	7.57
	1000		7.76	147.26	0.338	1	66.22	8.34
	1100		8.18	155.23	0.356	1	64.39	9.04
	1200		8.03	152.39	0.350	1	65.04	8.79
	1300		8.15	154.71	0.355	1	64.51	9.00
	1400		8.28	157.20	0.361	1	63.94	9.22
	1500		8.45	160.39	0.368	1	63.21	9.52
	1600		8.42	159.85	0.367	1	63.33	9.47
	1700		8.55	162.33	0.372	1	62.76	9.70
	1800		7.95	150.83	0.346	1	65.40	8.65
	1900		7.21	136.87	0.314	1	68.60	7.49
	2000		6.33	120.07	0.275	1	72.46	6.22
	2100		6.07	115.22	0.264	1	73.57	5.88
	2200		6.09	115.52	0.265	1	73.50	5.90
	2300		5.22	99.10	0.227	1	0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.260 sec	0.00	6.04	114.73	0.263	16	54.61 %	6.55

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	67.23 %	8.07
non-Contig			8	0.00 %	0.00

Consolidations

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80001827 LAW	FLP-DIST-2	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.83	77.73	0.175	1	0.00	0.00
	0100		3.31	67.07	0.151		0.00	0.00
	0200		2.79	56.65	0.127		0.00	0.00
	0300		2.37	48.14	0.108		0.00	0.00
	0400		2.19	44.48	0.100		0.00	0.00
	0500		1.99	40.46	0.091		0.00	0.00
	0600		2.23	45.27	0.102		0.00	0.00
	0700		4.20	85.23	0.191	1	80.87	3.79
	0800		5.57	113.03	0.254	1	74.62	5.44
	0900		6.21	125.91	0.283	1	71.73	6.31
	1000		6.68	135.63	0.305	1	69.55	7.01
	1100		6.93	140.59	0.316	1	68.44	7.38
	1200		6.81	138.11	0.310	1	68.99	7.19
	1300		6.79	137.76	0.309	1	69.07	7.17
	1400		7.04	142.92	0.321	1	67.91	7.56
	1500		7.22	146.44	0.329	1	67.12	7.84
	1600		7.16	145.37	0.326	1	67.36	7.75
	1700		7.21	146.29	0.328	1	67.16	7.83
	1800		6.75	137.00	0.308	1	69.24	7.11
	1900		6.09	123.52	0.277	1	72.27	6.14
	2000		5.33	108.07	0.243	1	75.74	5.13
	2100		5.14	104.27	0.234	1	76.59	4.89
	2200		5.05	102.53	0.230	1	76.98	4.79
	2300		4.48	90.82	0.204	1	0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.082 sec	0.00	5.14	104.30	0.234	16	57.56 %	5.39

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	70.88 %	6.64
non-Contig			8	0.00 %	0.00

Consolidations
FLP-DIST

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80001829 LAW	FLP-DIST-3	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.83	78.42	0.175	1	0.00	0.00
	0100		3.31	67.66	0.151		0.00	0.00
	0200		2.79	57.15	0.127		0.00	0.00
	0300		2.37	48.56	0.108		0.00	0.00
	0400		2.19	44.88	0.100		0.00	0.00
	0500		1.99	40.82	0.091		0.00	0.00
	0600		2.23	45.67	0.102		0.00	0.00
	0700		4.20	85.98	0.192	1	80.84	3.77
	0800		5.57	114.03	0.254	1	74.59	5.41
	0900		6.21	127.03	0.283	1	71.69	6.27
	1000		6.68	136.83	0.305	1	69.51	6.97
	1100		6.93	141.84	0.316	1	68.39	7.34
	1200		6.81	139.34	0.310	1	68.95	7.15
	1300		6.79	138.98	0.310	1	69.03	7.13
	1400		7.04	144.19	0.321	1	67.87	7.52
	1500		7.22	147.74	0.329	1	67.08	7.80
	1600		7.16	146.66	0.327	1	67.32	7.71
	1700		7.21	147.59	0.329	1	67.11	7.79
	1800		6.75	138.22	0.308	1	69.20	7.07
	1900		6.09	124.62	0.278	1	72.23	6.11
	2000		5.33	109.03	0.243	1	75.71	5.10
	2100		5.14	105.20	0.234	1	76.56	4.86
	2200		5.05	103.44	0.231	1	76.95	4.76
	2300		4.48	91.62	0.204	1	0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.021 sec	0.00	5.14	105.23	0.234	16	57.53 %	5.36

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	70.85 %	6.60
non-Contig			8	0.00 %	0.00

Consolidations
FLP-DIST

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80005002 LAW	FLP-DIST-21	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		6.08	121.63	0.275		72.55	6.09
	0100		5.28	105.67	0.238	1	76.15	5.04
	0200		4.48	89.62	0.202	1	79.77	4.08
	0300		3.77	75.37	0.170	1	82.99	3.30
	0400		3.49	69.75	0.157	1	84.26	3.01
	0500		3.11	62.26	0.141	1	85.95	2.63
	0600		3.49	69.81	0.158	1	84.25	3.01
	0700		6.58	131.62	0.297		0.00	0.00
	0800		8.75	175.01	0.395		0.00	0.00
	0900		9.84	196.80	0.444		0.00	0.00
	1000		10.56	211.31	0.477		0.00	0.00
	1100		11.02	220.40	0.497		0.00	0.00
	1200		10.82	216.46	0.489		0.00	0.00
	1300		10.87	217.33	0.490		0.00	0.00
	1400		11.19	223.74	0.505		0.00	0.00
	1500		11.44	228.88	0.517		0.00	0.00
	1600		11.38	227.54	0.514		0.00	0.00
	1700		11.49	229.76	0.519		0.00	0.00
	1800		10.73	214.54	0.484		0.00	0.00
	1900		9.69	193.90	0.438		0.00	0.00
	2000		8.49	169.81	0.383		0.00	0.00
	2100		8.17	163.51	0.369		0.00	0.00
	2200		8.10	161.95	0.366		0.00	0.00
	2300		7.09	141.75	0.320		68.01	7.57

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.125 sec	0.00	8.16	163.27	0.368	8	14.55 %	0.90

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	0.00 %	0.00
non-Contig			8	77.49 %	4.82

Consolidations
FLP-DIST

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80005003 LAW	FLP-DIST-31	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		6.08	121.63	0.275		72.55	6.09
	0100		5.28	105.67	0.238	1	76.15	5.04
	0200		4.48	89.62	0.202	1	79.77	4.08
	0300		3.77	75.37	0.170	1	82.99	3.30
	0400		3.49	69.75	0.157	1	84.26	3.01
	0500		3.11	62.26	0.141	1	85.95	2.63
	0600		3.49	69.81	0.158	1	84.25	3.01
	0700		6.58	131.62	0.297		0.00	0.00
	0800		8.75	175.01	0.395		0.00	0.00
	0900		9.84	196.80	0.444		0.00	0.00
	1000		10.56	211.31	0.477		0.00	0.00
	1100		11.02	220.40	0.497		0.00	0.00
	1200		10.82	216.46	0.489		0.00	0.00
	1300		10.87	217.33	0.490		0.00	0.00
	1400		11.19	223.74	0.505		0.00	0.00
	1500		11.44	228.88	0.517		0.00	0.00
	1600		11.38	227.54	0.514		0.00	0.00
	1700		11.49	229.76	0.519		0.00	0.00
	1800		10.73	214.54	0.484		0.00	0.00
	1900		9.69	193.90	0.438		0.00	0.00
	2000		8.49	169.81	0.383		0.00	0.00
	2100		8.17	163.51	0.369		0.00	0.00
	2200		8.10	161.95	0.366		0.00	0.00
	2300		7.09	141.75	0.320		68.01	7.57

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.125 sec	0.00	8.16	163.27	0.368	8	14.55 %	0.90

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	0.00 %	0.00
non-Contig			8	77.49 %	4.82

Consolidations
FLP-DIST

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80003311 LAW	HWP-A1	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		4.01	106.82	0.259	1	0.00	0.00
	0100		3.28	87.54	0.212		0.00	0.00
	0200		2.78	74.19	0.180		0.00	0.00
	0300		2.29	60.95	0.148		0.00	0.00
	0400		2.09	55.76	0.135		0.00	0.00
	0500		2.00	53.42	0.129		0.00	0.00
	0600		2.38	63.45	0.154		0.00	0.00
	0700		3.58	95.43	0.231	1	76.90	5.18
	0800		4.92	131.28	0.318	1	68.22	8.04
	0900		5.35	142.57	0.345	1	65.49	9.10
	1000		5.76	153.58	0.372	1	62.82	10.21
	1100		6.11	162.91	0.394	1	60.56	11.24
	1200		6.33	168.88	0.409	1	59.12	11.94
	1300		6.20	165.19	0.400	1	60.01	11.50
	1400		6.27	167.10	0.405	1	59.55	11.72
	1500		6.86	182.82	0.443	1	55.74	13.70
	1600		6.73	179.37	0.434	1	56.58	13.25
	1700		6.92	184.55	0.447	1	55.32	13.94
	1800		6.56	174.99	0.424	1	57.64	12.69
	1900		6.04	161.11	0.390	1	61.00	11.04
	2000		5.69	151.61	0.367	1	63.30	10.01
	2100		5.09	135.66	0.328	1	67.16	8.44
	2200		4.57	121.77	0.295	1	70.52	7.21
	2300		4.77	127.15	0.308	1	0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.716 sec	0.00	4.86	129.50	0.314	16	49.15 %	8.72

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	61.62 %	10.94
non-Contig			8	0.00 %	0.00

Consolidations
HWP-A12

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80003331 LAW	HWP-A2	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		2.75	71.44	0.177	1	0.00	0.00
	0100		2.25	58.55	0.145		0.00	0.00
	0200		1.91	49.61	0.123		0.00	0.00
	0300		1.57	40.76	0.101		0.00	0.00
	0400		1.43	37.29	0.093		0.00	0.00
	0500		1.37	35.73	0.089		0.00	0.00
	0600		1.63	42.43	0.105		0.00	0.00
	0700		2.45	63.82	0.158	1	84.16	3.33
	0800		3.38	87.79	0.218	1	78.22	4.93
	0900		3.67	95.35	0.237	1	76.34	5.48
	1000		3.95	102.71	0.255	1	74.51	6.05
	1100		4.19	108.95	0.270	1	72.97	6.55
	1200		4.34	112.94	0.280	1	71.98	6.89
	1300		4.25	110.48	0.274	1	72.59	6.68
	1400		4.30	111.75	0.277	1	72.27	6.79
	1500		4.70	122.26	0.303	1	69.66	7.70
	1600		4.61	119.96	0.298	1	70.24	7.50
	1700		4.75	123.42	0.306	1	69.37	7.81
	1800		4.50	117.03	0.290	1	70.96	7.24
	1900		4.14	107.75	0.267	1	73.26	6.46
	2000		3.90	101.39	0.252	1	74.84	5.95
	2100		3.49	90.73	0.225	1	77.49	5.14
	2200		3.13	81.43	0.202	1	79.79	4.48
	2300		3.27	85.03	0.211	1	0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.931 sec	0.00	3.33	86.61	0.215	16	58.77 %	5.08

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	73.69 %	6.37
non-Contig			8	0.00 %	0.00

Consolidations
HWP-A12

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80005001 LAW	HWP-A12	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		6.75	177.59	0.436		56.41	13.52
	0100		5.53	145.54	0.357	1	64.28	9.72
	0200		4.69	123.33	0.303	1	69.73	7.60
	0300		3.85	101.33	0.249	1	75.13	5.79
	0400		3.53	92.71	0.228	1	77.25	5.15
	0500		3.38	88.81	0.218	1	78.20	4.88
	0600		4.01	105.48	0.259	1	74.11	6.11
	0700		6.03	158.65	0.389		0.00	0.00
	0800		8.30	218.24	0.536		0.00	0.00
	0900		9.01	237.03	0.582		0.00	0.00
	1000		9.71	255.33	0.627		0.00	0.00
	1100		10.30	270.84	0.665		0.00	0.00
	1200		10.68	280.76	0.689		0.00	0.00
	1300		10.44	274.63	0.674		0.00	0.00
	1400		10.56	277.80	0.682		0.00	0.00
	1500		11.56	303.93	0.746		0.00	0.00
	1600		11.34	298.20	0.732		0.00	0.00
	1700		11.67	306.81	0.753		0.00	0.00
	1800		11.06	290.92	0.714		0.00	0.00
	1900		10.19	267.84	0.657		0.00	0.00
	2000		9.58	252.05	0.619		0.00	0.00
	2100		8.58	225.54	0.554		0.00	0.00
	2200		7.70	202.44	0.497		0.00	0.00
	2300		8.04	211.38	0.519		48.12	18.87

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.802 sec	0.00	8.19	215.30	0.528	8	13.10 %	2.11

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	0.00 %	0.00
non-Contig			8	64.70 %	10.40

Consolidations
HWP-A12

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000269 LAW	BSO-06-DISP	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.87	77.98	0.186	1	0.00	0.00
	0100		3.23	65.19	0.155		0.00	0.00
	0200		2.77	55.90	0.133		0.00	0.00
	0300		2.54	51.19	0.122		0.00	0.00
	0400		2.20	44.30	0.105		0.00	0.00
	0500		2.10	42.24	0.100		0.00	0.00
	0600		2.44	49.13	0.117		0.00	0.00
	0700		3.91	78.82	0.188	1	81.25	3.92
	0800		5.28	106.46	0.253	1	74.67	5.75
	0900		5.85	117.86	0.280	1	71.96	6.61
	1000		5.93	119.52	0.284	1	71.57	6.74
	1100		6.46	130.15	0.310	1	69.03	7.61
	1200		6.34	127.83	0.304	1	69.59	7.41
	1300		6.16	124.22	0.296	1	70.45	7.12
	1400		6.70	135.07	0.321	1	67.87	8.03
	1500		6.98	140.68	0.335	1	66.53	8.53
	1600		6.76	136.36	0.324	1	67.56	8.15
	1700		6.43	129.58	0.308	1	69.17	7.56
	1800		6.62	133.50	0.318	1	68.24	7.90
	1900		6.35	128.10	0.305	1	69.52	7.44
	2000		6.04	121.84	0.290	1	71.01	6.92
	2100		5.27	106.17	0.253	1	74.74	5.73
	2200		5.00	100.80	0.240	1	76.02	5.35
	2300		4.48	90.30	0.215	1	0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.564 sec	0.00	4.99	100.55	0.239	16	56.77 %	5.68

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	70.72 %	7.07
non-Contig			8	0.00 %	0.00

Consolidations
BSO-6S-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80001635 LAW	SNP-DISP	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.26	74.88	0.170	1	0.00	0.00
	0100		2.71	62.30	0.142		0.00	0.00
	0200		2.29	52.59	0.120		0.00	0.00
	0300		1.95	44.74	0.102		0.00	0.00
	0400		1.80	41.42	0.094		0.00	0.00
	0500		1.80	41.33	0.094		0.00	0.00
	0600		2.08	47.89	0.109		0.00	0.00
	0700		3.32	76.22	0.173	1	82.68	3.40
	0800		4.30	98.85	0.225	1	77.53	4.70
	0900		4.72	108.34	0.246	1	75.38	5.29
	1000		5.12	117.50	0.267	1	73.29	5.90
	1100		5.35	122.97	0.279	1	72.05	6.29
	1200		5.77	132.53	0.301	1	69.88	6.99
	1300		5.89	135.29	0.307	1	69.25	7.20
	1400		6.19	142.24	0.323	1	67.67	7.74
	1500		6.46	148.30	0.337	1	66.29	8.24
	1600		6.68	153.53	0.349	1	65.10	8.69
	1700		6.45	148.27	0.337	1	66.30	8.24
	1800		6.71	154.15	0.350	1	64.96	8.74
	1900		6.32	145.10	0.330	1	67.02	7.97
	2000		5.53	126.97	0.289	1	71.14	6.57
	2100		5.38	123.62	0.281	1	71.90	6.33
	2200		4.62	106.06	0.241	1	75.89	5.15
	2300		3.84	88.19	0.200	1	0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.181 sec	0.00	4.52	103.89	0.236	16	57.44 %	5.70

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	70.21 %	6.96
non-Contig			8	0.00 %	0.00

Consolidations
BSO-6S-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80005004 LAW	BSO-6S-DISP	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		6.73	144.59	0.336		0.00	0.00
	0100		5.39	115.77	0.269	1	73.08	6.11
	0200		4.38	94.08	0.219	1	78.13	4.64
	0300		3.70	79.53	0.185	1	81.51	3.76
	0400		3.23	69.37	0.161	1	83.87	3.19
	0500		3.21	68.89	0.160	1	83.98	3.16
	0600		3.91	84.00	0.195	1	80.47	4.02
	0700		6.99	150.33	0.350		0.00	0.00
	0800		9.48	203.85	0.474		0.00	0.00
	0900		10.48	225.29	0.524		0.00	0.00
	1000		11.00	236.36	0.550		0.00	0.00
	1100		11.79	253.43	0.589		0.00	0.00
	1200		12.09	259.91	0.604		0.00	0.00
	1300		12.02	258.32	0.601		0.00	0.00
	1400		12.87	276.69	0.643		0.00	0.00
	1500		13.42	288.35	0.670		0.00	0.00
	1600		13.41	288.23	0.670		0.00	0.00
	1700		12.88	276.87	0.644		0.00	0.00
	1800		13.30	285.76	0.664		0.00	0.00
	1900		12.62	271.22	0.631		0.00	0.00
	2000		11.56	248.37	0.577		0.00	0.00
	2100		10.62	228.23	0.531		0.00	0.00
	2200		9.47	203.62	0.473		0.00	0.00
	2300		8.14	174.89	0.407		0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.370 sec	0.00	9.28	199.41	0.464	6	8.50 %	0.46

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	0.00 %	0.00
non-Contig			8	48.92 %	2.67

Consolidations
BSO-6S-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80005005 LAW	BSO-11-A12	North	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		7.35	160.39	0.365		63.49	9.33
	0100		5.78	125.95	0.287	1	71.33	6.52
	0200		4.97	108.43	0.247	1	75.32	5.32
	0300		4.34	94.75	0.216	1	78.43	4.46
	0400		3.60	78.61	0.179	1	82.11	3.54
	0500		3.86	84.14	0.192	1	80.85	3.84
	0600		4.76	103.87	0.236	1	76.36	5.03
	0700		7.26	158.27	0.360		0.00	0.00
	0800		9.31	203.08	0.462		0.00	0.00
	0900		10.20	222.44	0.506		0.00	0.00
	1000		11.01	240.19	0.547		0.00	0.00
	1100		11.66	254.29	0.579		0.00	0.00
	1200		12.26	267.43	0.609		0.00	0.00
	1300		11.70	255.12	0.581		0.00	0.00
	1400		12.12	264.39	0.602		0.00	0.00
	1500		12.63	275.50	0.627		0.00	0.00
	1600		12.82	279.68	0.637		0.00	0.00
	1700		13.40	292.23	0.665		0.00	0.00
	1800		12.99	283.39	0.645		0.00	0.00
	1900		11.74	256.02	0.583		0.00	0.00
	2000		11.04	240.73	0.548		0.00	0.00
	2100		10.44	227.58	0.518		0.00	0.00
	2200		9.65	210.49	0.479		0.00	0.00
	2300		8.76	191.06	0.435		56.51	12.49

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.194 sec	0.00	9.32	203.25	0.463	8	13.68 %	1.40

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	0.00 %	0.00
non-Contig			8	70.47 %	7.21

Consolidations
BSO-11-Area12

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000421 LAW	BSO-11-Area1	North	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.93	84.66	0.195	1	0.00	0.00
	0100		3.06	65.89	0.152		0.00	0.00
	0200		2.59	55.74	0.128		0.00	0.00
	0300		2.28	49.05	0.113		0.00	0.00
	0400		1.91	41.21	0.095		0.00	0.00
	0500		2.00	43.03	0.099		0.00	0.00
	0600		2.48	53.49	0.123		0.00	0.00
	0700		3.89	83.96	0.193	1	80.67	3.93
	0800		5.00	107.87	0.248	1	75.16	5.42
	0900		5.57	120.05	0.276	1	72.36	6.27
	1000		6.05	130.51	0.300	1	69.95	7.05
	1100		6.40	138.01	0.318	1	68.23	7.64
	1200		6.65	143.37	0.330	1	66.99	8.09
	1300		6.40	138.07	0.318	1	68.21	7.65
	1400		6.59	142.09	0.327	1	67.28	7.98
	1500		6.85	147.79	0.340	1	65.97	8.47
	1600		6.92	149.22	0.344	1	65.64	8.59
	1700		7.20	155.15	0.357	1	64.28	9.12
	1800		7.00	150.97	0.348	1	65.24	8.75
	1900		6.31	136.07	0.313	1	68.67	7.49
	2000		6.01	129.58	0.298	1	70.17	6.98
	2100		5.62	121.18	0.279	1	72.10	6.35
	2200		5.22	112.49	0.259	1	74.10	5.74
	2300		4.70	101.24	0.233	1	0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.288 sec	0.00	5.03	108.36	0.249	16	55.97 %	6.00

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	69.11 %	7.41
non-Contig			8	0.00 %	0.00

Consolidations
BSO-11-Area12

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000423 LAW	BSO-11-Area2	North	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.43	74.38	0.170	1	0.00	0.00
	0100		2.73	59.17	0.135		0.00	0.00
	0200		2.40	52.08	0.119		0.00	0.00
	0300		2.09	45.29	0.104		0.00	0.00
	0400		1.70	36.95	0.085		0.00	0.00
	0500		1.87	40.65	0.093		0.00	0.00
	0600		2.29	49.79	0.114		0.00	0.00
	0700		3.37	73.18	0.167	1	83.26	3.28
	0800		4.31	93.51	0.214	1	78.61	4.44
	0900		4.63	100.51	0.230	1	77.01	4.87
	1000		4.96	107.64	0.246	1	75.38	5.33
	1100		5.26	114.12	0.261	1	73.89	5.76
	1200		5.63	122.14	0.279	1	72.06	6.32
	1300		5.29	114.89	0.263	1	73.72	5.81
	1400		5.53	120.06	0.275	1	72.54	6.18
	1500		5.78	125.38	0.287	1	71.32	6.56
	1600		5.90	128.10	0.293	1	70.69	6.76
	1700		6.20	134.62	0.308	1	69.20	7.26
	1800		5.99	130.03	0.297	1	70.25	6.91
	1900		5.43	117.79	0.269	1	73.05	6.02
	2000		5.03	109.11	0.250	1	75.04	5.43
	2100		4.82	104.49	0.239	1	76.10	5.12
	2200		4.43	96.23	0.220	1	77.99	4.60
	2300		4.07	88.21	0.202	1	0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.237 sec	0.00	4.30	93.26	0.213	16	59.15 %	4.65

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	73.90 %	5.80
non-Contig			8	0.00 %	0.00

Consolidations
BSO-11-Area12

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000279 LAW	BSO-10-DISP	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		5.20	89.93	0.195	1	0.00	0.00
	0100		4.49	77.61	0.169		0.00	0.00
	0200		3.60	62.16	0.135		0.00	0.00
	0300		2.92	50.46	0.110		0.00	0.00
	0400		2.46	42.60	0.093		0.00	0.00
	0500		2.63	45.44	0.099		0.00	0.00
	0600		3.74	64.61	0.140		0.00	0.00
	0700		6.80	117.65	0.256	1	74.44	5.32
	0800		8.39	145.02	0.315	1	68.49	7.13
	0900		8.48	146.56	0.318	1	68.16	7.24
	1000		8.75	151.20	0.329	1	67.15	7.58
	1100		9.27	160.33	0.348	1	65.17	8.28
	1200		9.35	161.69	0.351	1	64.87	8.39
	1300		9.53	164.85	0.358	1	64.19	8.64
	1400		10.47	180.95	0.393	1	60.69	10.03
	1500		10.15	175.41	0.381	1	61.89	9.54
	1600		10.05	173.75	0.377	1	62.25	9.39
	1700		9.66	166.98	0.363	1	63.72	8.82
	1800		10.12	174.98	0.380	1	61.98	9.50
	1900		9.76	168.78	0.367	1	63.33	8.97
	2000		9.10	157.36	0.342	1	65.81	8.05
	2100		7.41	128.04	0.278	1	72.18	5.97
	2200		6.48	112.12	0.244	1	75.64	4.99
	2300		5.54	95.81	0.208	1	0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
7.823 sec	0.00	7.26	125.60	0.273	16	54.16 %	6.75

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	65.68 %	8.18
non-Contig			8	0.00 %	0.00

Consolidations
BSO-10P-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80002631 LAW	PPP-MAIN	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		4.52	102.02	0.224	1	0.00	0.00
	0100		3.53	79.61	0.175		0.00	0.00
	0200		2.74	61.77	0.136		0.00	0.00
	0300		3.06	69.12	0.152		0.00	0.00
	0400		2.47	55.68	0.122		0.00	0.00
	0500		2.33	52.57	0.116		0.00	0.00
	0600		2.70	61.01	0.134		0.00	0.00
	0700		4.50	101.61	0.223	1	77.67	4.50
	0800		5.85	132.06	0.290	1	70.98	6.41
	0900		6.62	149.38	0.328	1	67.17	7.66
	1000		7.14	161.08	0.354	1	64.60	8.59
	1100		8.36	188.56	0.414	1	58.56	11.09
	1200		8.55	192.97	0.424	1	57.59	11.54
	1300		8.85	199.70	0.439	1	56.11	12.25
	1400		8.99	202.79	0.446	1	55.43	12.60
	1500		9.51	214.54	0.471	1	52.85	13.98
	1600		8.66	195.48	0.430	1	57.04	11.80
	1700		8.53	192.35	0.423	1	57.73	11.47
	1800		8.45	190.55	0.419	1	58.12	11.29
	1900		7.35	165.89	0.365	1	63.54	8.99
	2000		6.53	147.41	0.324	1	67.60	7.51
	2100		6.01	135.67	0.298	1	70.19	6.66
	2200		5.50	124.14	0.273	1	72.72	5.88
	2300		5.01	113.11	0.249	1	0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
7.911 sec	0.00	6.07	137.04	0.301	16	50.48 %	8.22

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	61.63 %	10.04
non-Contig			8	0.00 %	0.00

Consolidations
BSO-10P-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80005006 LAW	BSO-10P-DISP	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		9.66	190.07	0.415		58.45	11.08
	0100		7.69	151.38	0.331	1	66.91	7.71
	0200		5.91	116.40	0.254	1	74.56	5.32
	0300		5.49	108.08	0.236	1	76.37	4.82
	0400		4.38	86.30	0.189	1	81.14	3.62
	0500		4.48	88.16	0.193	1	80.73	3.72
	0600		6.04	118.90	0.260	1	74.01	5.47
	0700		11.17	219.89	0.481		0.00	0.00
	0800		14.17	278.88	0.610		0.00	0.00
	0900		15.04	296.08	0.647		0.00	0.00
	1000		15.87	312.26	0.683		0.00	0.00
	1100		17.53	345.09	0.754		0.00	0.00
	1200		17.88	351.89	0.769		0.00	0.00
	1300		18.39	361.86	0.791		0.00	0.00
	1400		19.45	382.89	0.837		0.00	0.00
	1500		19.65	386.83	0.846		0.00	0.00
	1600		18.69	367.85	0.804		0.00	0.00
	1700		18.18	357.87	0.782		0.00	0.00
	1800		18.57	365.42	0.799		0.00	0.00
	1900		17.12	336.84	0.736		0.00	0.00
	2000		15.64	307.73	0.673		0.00	0.00
	2100		13.42	264.10	0.577		0.00	0.00
	2200		11.91	234.45	0.512		0.00	0.00
	2300		10.47	206.09	0.450		54.95	12.78

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
7.869 sec	0.00	13.20	259.80	0.568	8	11.61 %	1.34

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	0.00 %	0.00
non-Contig			8	67.97 %	7.82

Consolidations
BSO-10P-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000275 LAW	BSO-08-DISP	North	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		4.46	91.71	0.211	1	0.00	0.00
	0100		3.55	73.06	0.168		0.00	0.00
	0200		2.72	55.93	0.129		0.00	0.00
	0300		2.21	45.49	0.105		0.00	0.00
	0400		2.20	45.25	0.104		0.00	0.00
	0500		2.19	45.07	0.104		0.00	0.00
	0600		2.66	54.84	0.126		0.00	0.00
	0700		4.49	92.32	0.213	1	78.73	4.44
	0800		6.06	124.72	0.287	1	71.27	6.62
	0900		6.15	126.59	0.292	1	70.84	6.76
	1000		6.50	133.71	0.308	1	69.19	7.31
	1100		6.79	139.76	0.322	1	67.80	7.80
	1200		6.95	143.05	0.330	1	67.04	8.07
	1300		6.92	142.31	0.328	1	67.21	8.01
	1400		7.01	144.29	0.332	1	66.76	8.18
	1500		7.47	153.81	0.354	1	64.56	9.02
	1600		7.37	151.75	0.350	1	65.04	8.83
	1700		7.28	149.84	0.345	1	65.48	8.66
	1800		7.92	163.06	0.376	1	62.43	9.88
	1900		7.14	146.89	0.338	1	66.16	8.40
	2000		6.31	129.96	0.299	1	70.06	7.02
	2100		5.71	117.57	0.271	1	72.91	6.10
	2200		5.55	114.31	0.263	1	73.66	5.87
	2300		4.98	102.44	0.236	1	0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.293 sec	0.00	5.44	111.99	0.258	16	55.16 %	6.25

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	68.19 %	7.73
non-Contig			8	0.00 %	0.00

Consolidations
BSO-89-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000277 LAW	BSO-09-DISP	North	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.32	84.39	0.185	1	0.00	0.00
	0100		2.81	71.32	0.156		0.00	0.00
	0200		2.35	59.61	0.130		0.00	0.00
	0300		2.23	56.64	0.124		0.00	0.00
	0400		1.87	47.52	0.104		0.00	0.00
	0500		1.76	44.78	0.098		0.00	0.00
	0600		2.05	51.98	0.114		0.00	0.00
	0700		3.26	82.85	0.181	1	81.87	3.46
	0800		4.22	107.08	0.234	1	76.56	4.78
	0900		4.38	111.15	0.243	1	75.67	5.02
	1000		4.32	109.81	0.240	1	75.96	4.94
	1100		4.88	123.97	0.271	1	72.87	5.81
	1200		5.04	128.05	0.280	1	71.97	6.08
	1300		4.98	126.51	0.277	1	72.31	5.98
	1400		5.13	130.21	0.285	1	71.50	6.22
	1500		5.28	134.09	0.293	1	70.65	6.48
	1600		5.10	129.46	0.283	1	71.66	6.17
	1700		5.48	139.32	0.305	1	69.51	6.85
	1800		5.52	140.33	0.307	1	69.28	6.92
	1900		5.26	133.70	0.293	1	70.74	6.46
	2000		4.81	122.25	0.268	1	73.24	5.70
	2100		4.71	119.70	0.262	1	73.80	5.54
	2200		4.44	112.84	0.247	1	75.30	5.12
	2300		3.81	96.81	0.212	1	0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
7.880 sec	0.00	4.04	102.68	0.225	16	57.76 %	4.61

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	72.94 %	5.82
non-Contig			8	0.00 %	0.00

Consolidations
BSO-89-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80005007 LAW	BSO-89-DISP	North	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		7.46	168.67	0.379		62.06	9.80
	0100		5.96	134.68	0.303	1	69.71	6.97
	0200		4.47	101.00	0.227	1	77.28	4.71
	0300		3.77	85.24	0.192	1	80.83	3.80
	0400		3.38	76.38	0.172	1	82.82	3.33
	0500		3.24	73.33	0.165	1	83.51	3.17
	0600		4.16	94.14	0.212	1	78.83	4.31
	0700		7.48	169.13	0.380		0.00	0.00
	0800		10.11	228.61	0.514		0.00	0.00
	0900		10.44	236.05	0.531		0.00	0.00
	1000		10.77	243.48	0.548		0.00	0.00
	1100		11.59	262.01	0.589		0.00	0.00
	1200		11.96	270.56	0.609		0.00	0.00
	1300		11.84	267.77	0.602		0.00	0.00
	1400		12.12	274.15	0.617		0.00	0.00
	1500		12.71	287.41	0.646		0.00	0.00
	1600		12.39	280.28	0.630		0.00	0.00
	1700		12.73	287.78	0.647		0.00	0.00
	1800		13.43	303.76	0.683		0.00	0.00
	1900		12.35	279.23	0.628		0.00	0.00
	2000		11.06	250.17	0.563		0.00	0.00
	2100		10.34	233.82	0.526		0.00	0.00
	2200		9.84	222.41	0.500		0.00	0.00
	2300		8.63	195.16	0.439		56.10	12.55

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.097 sec	0.00	9.26	209.38	0.471	8	13.01 %	1.34

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	0.00 %	0.00
non-Contig			8	70.40 %	7.25

Consolidations
BSO-89-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000259 LAW	BSO-02-DISP	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.70	79.49	0.181	1	0.00	0.00
	0100		3.15	67.65	0.154		0.00	0.00
	0200		2.28	48.95	0.112		0.00	0.00
	0300		2.58	55.37	0.126		0.00	0.00
	0400		2.77	59.47	0.136		0.00	0.00
	0500		2.37	50.88	0.116		0.00	0.00
	0600		2.79	59.84	0.136		0.00	0.00
	0700		3.60	77.23	0.176	1	82.40	3.47
	0800		3.97	85.18	0.194	1	80.58	3.92
	0900		4.67	100.30	0.229	1	77.14	4.82
	1000		4.95	106.30	0.242	1	75.77	5.20
	1100		5.45	117.05	0.267	1	73.32	5.91
	1200		5.31	114.02	0.260	1	74.01	5.71
	1300		5.88	126.11	0.287	1	71.26	6.56
	1400		5.75	123.47	0.281	1	71.86	6.36
	1500		6.23	133.65	0.305	1	69.54	7.12
	1600		6.10	130.82	0.298	1	70.18	6.90
	1700		5.76	123.59	0.282	1	71.83	6.37
	1800		5.90	126.53	0.288	1	71.16	6.59
	1900		5.58	119.77	0.273	1	72.70	6.10
	2000		4.59	98.59	0.225	1	77.53	4.71
	2100		4.25	91.25	0.208	1	79.20	4.27
	2200		3.52	75.57	0.172	1	82.78	3.38
	2300		3.80	81.49	0.186	1	0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.207 sec	0.00	4.37	93.86	0.214	16	57.75 %	4.40

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	74.36 %	5.66
non-Contig			8	0.00 %	0.00

Consolidations
BSO-25-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000265 LAW	BSO-05-DISP	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		6.24	85.64	0.197	1	0.00	0.00
	0100		5.37	73.63	0.169		0.00	0.00
	0200		4.52	61.95	0.142		0.00	0.00
	0300		3.60	49.41	0.114		0.00	0.00
	0400		3.25	44.61	0.103		0.00	0.00
	0500		2.70	37.00	0.085		0.00	0.00
	0600		3.06	41.92	0.096		0.00	0.00
	0700		5.14	70.53	0.162	1	83.78	3.17
	0800		7.22	99.01	0.228	1	77.24	4.83
	0900		8.57	117.62	0.270	1	72.96	6.08
	1000		8.96	122.92	0.283	1	71.74	6.46
	1100		9.16	125.67	0.289	1	71.11	6.66
	1200		9.06	124.31	0.286	1	71.42	6.56
	1300		9.47	129.87	0.299	1	70.14	6.98
	1400		9.42	129.19	0.297	1	70.30	6.93
	1500		10.67	146.45	0.337	1	66.33	8.32
	1600		10.65	146.15	0.336	1	66.40	8.30
	1700		10.44	143.21	0.329	1	67.07	8.05
	1800		9.74	133.63	0.307	1	69.28	7.27
	1900		8.66	118.78	0.273	1	72.69	6.16
	2000		7.41	101.68	0.234	1	76.62	5.00
	2100		6.83	93.67	0.215	1	78.46	4.50
	2200		7.10	97.47	0.224	1	77.59	4.73
	2300		6.38	87.48	0.201	1	0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.280 sec	0.00	7.23	99.24	0.228	16	57.34 %	5.18

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	71.88 %	6.50
non-Contig			8	0.00 %	0.00

Consolidations
BSO-25-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80005008 LAW	BSO-25-DISP	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		9.83	163.12	0.374		62.64	9.74
	0100		8.21	136.25	0.312	1	68.79	7.41
	0200		6.30	104.65	0.240	1	76.03	5.15
	0300		5.80	96.26	0.220	1	77.95	4.62
	0400		5.54	91.98	0.211	1	78.93	4.36
	0500		4.56	75.70	0.173	1	82.66	3.42
	0600		5.43	90.13	0.206	1	79.36	4.25
	0700		8.55	141.97	0.325		0.00	0.00
	0800		11.11	184.40	0.422		0.00	0.00
	0900		13.25	219.87	0.504		0.00	0.00
	1000		13.91	230.93	0.529		0.00	0.00
	1100		14.56	241.66	0.553		0.00	0.00
	1200		14.32	237.61	0.544		0.00	0.00
	1300		15.33	254.39	0.583		0.00	0.00
	1400		15.17	251.80	0.577		0.00	0.00
	1500		16.88	280.27	0.642		0.00	0.00
	1600		16.75	277.99	0.637		0.00	0.00
	1700		16.20	268.85	0.616		0.00	0.00
	1800		15.64	259.53	0.594		0.00	0.00
	1900		14.21	235.84	0.540		0.00	0.00
	2000		11.97	198.64	0.455		0.00	0.00
	2100		10.92	181.27	0.415		0.00	0.00
	2200		10.51	174.44	0.400		0.00	0.00
	2300		10.00	165.99	0.380		61.99	10.01

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.245 sec	0.00	11.46	190.15	0.435	8	14.47 %	1.38

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	0.00 %	0.00
non-Contig			8	71.43 %	6.80

Consolidations
BSO-25-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000261 LAW	BSO-03-DISP	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		4.10	87.91	0.196	1	0.00	0.00
	0100		3.61	77.29	0.172		0.00	0.00
	0200		3.00	64.33	0.143		0.00	0.00
	0300		2.79	59.73	0.133		0.00	0.00
	0400		2.43	52.09	0.116		0.00	0.00
	0500		2.32	49.77	0.111		0.00	0.00
	0600		1.94	41.66	0.093		0.00	0.00
	0700		3.32	71.11	0.158	1	84.17	2.99
	0800		4.53	97.17	0.216	1	78.37	4.38
	0900		4.89	104.70	0.233	1	76.69	4.82
	1000		6.13	131.46	0.293	1	70.73	6.57
	1100		6.11	131.04	0.292	1	70.83	6.54
	1200		5.97	127.83	0.285	1	71.54	6.31
	1300		5.80	124.31	0.277	1	72.32	6.07
	1400		5.72	122.53	0.273	1	72.72	5.95
	1500		5.72	122.49	0.273	1	72.73	5.95
	1600		5.81	124.57	0.277	1	72.27	6.09
	1700		5.95	127.45	0.284	1	71.63	6.29
	1800		5.96	127.75	0.284	1	71.56	6.31
	1900		6.46	138.39	0.308	1	69.19	7.07
	2000		5.83	124.93	0.278	1	72.19	6.12
	2100		5.44	116.58	0.260	1	74.05	5.56
	2200		4.82	103.36	0.230	1	76.99	4.74
	2300		4.59	98.43	0.219	1	0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.014 sec	0.00	4.72	101.12	0.225	16	57.12 %	4.59

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	73.13 %	5.87
non-Contig			8	0.00 %	0.00

Consolidations
BSO-34-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000263 LAW	BSO-04-DISP	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		2.64	56.21	0.126	1	0.00	0.00
	0100		2.09	44.48	0.100		0.00	0.00
	0200		1.79	38.00	0.085		0.00	0.00
	0300		1.72	36.55	0.082		0.00	0.00
	0400		1.45	30.92	0.069		0.00	0.00
	0500		1.38	29.32	0.066		0.00	0.00
	0600		1.64	34.99	0.078		0.00	0.00
	0700		2.77	58.87	0.132	1	86.80	2.43
	0800		3.55	75.56	0.169	1	83.06	3.26
	0900		3.99	84.90	0.190	1	80.97	3.76
	1000		4.03	85.83	0.192	1	80.76	3.81
	1100		4.22	89.81	0.201	1	79.86	4.03
	1200		4.34	92.45	0.207	1	79.27	4.18
	1300		4.56	96.97	0.217	1	78.26	4.44
	1400		4.48	95.29	0.214	1	78.64	4.34
	1500		4.91	104.56	0.234	1	76.56	4.89
	1600		4.90	104.25	0.234	1	76.63	4.88
	1700		4.96	105.54	0.237	1	76.34	4.95
	1800		5.01	106.59	0.239	1	76.10	5.02
	1900		4.64	98.82	0.222	1	77.85	4.55
	2000		3.95	84.07	0.188	1	81.15	3.71
	2100		3.71	78.99	0.177	1	82.29	3.44
	2200		3.36	71.50	0.160	1	83.97	3.05
	2300		3.12	66.44	0.149	1	0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.071 sec	0.00	3.47	73.79	0.165	16	64.35 %	3.36

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	79.47 %	4.15
non-Contig			8	0.00 %	0.00

Consolidations
BSO-34-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80005009 LAW	BSO-34-DISP	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		6.51	139.20	0.311		0.00	0.00
	0100		5.32	113.64	0.254	1	74.63	5.41
	0200		4.43	94.63	0.211	1	78.87	4.26
	0300		4.01	85.66	0.191	1	80.88	3.76
	0400		3.38	72.19	0.161	1	83.88	3.06
	0500		3.18	67.98	0.152	1	84.82	2.85
	0600		3.18	67.88	0.152	1	84.85	2.84
	0700		5.85	124.98	0.279		0.00	0.00
	0800		7.95	169.85	0.379		0.00	0.00
	0900		8.78	187.64	0.419		0.00	0.00
	1000		10.12	216.22	0.483		0.00	0.00
	1100		10.31	220.38	0.492		0.00	0.00
	1200		10.27	219.56	0.490		0.00	0.00
	1300		10.35	221.08	0.494		0.00	0.00
	1400		10.16	217.10	0.485		0.00	0.00
	1500		10.60	226.53	0.506		0.00	0.00
	1600		10.70	228.63	0.510		0.00	0.00
	1700		10.89	232.79	0.520		0.00	0.00
	1800		10.92	233.26	0.521		0.00	0.00
	1900		11.10	237.24	0.530		0.00	0.00
	2000		9.74	208.08	0.465		0.00	0.00
	2100		9.10	194.50	0.434		0.00	0.00
	2200		8.10	173.13	0.387		0.00	0.00
	2300		7.54	161.04	0.360		0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.037 sec	0.00	8.02	171.38	0.383	6	9.84 %	0.47

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	0.00 %	0.00
non-Contig			8	50.43 %	2.43

Consolidations
BSO-34-DISP

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80004001 FIRE	BCF-D34	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		2.75	33.60	0.086	1	91.38	1.73
	0100		2.40	29.31	0.075	1	92.48	1.49
	0200		2.22	27.02	0.069	1	93.06	1.36
	0300		2.03	24.81	0.064	1	93.63	1.24
	0400		2.08	25.42	0.065	1	93.47	1.28
	0500		2.02	24.64	0.063	1	93.68	1.24
	0600		2.34	28.50	0.073	1	92.69	1.44
	0700		3.16	38.52	0.099	1	90.11	2.01
	0800		3.93	47.97	0.123	1	87.69	2.57
	0900		4.36	53.19	0.137	1	86.35	2.89
	1000		4.74	57.86	0.149	1	85.15	3.19
	1100		4.86	59.25	0.152	1	84.79	3.28
	1200		5.10	62.26	0.160	1	84.02	3.48
	1300		5.01	61.08	0.157	1	84.32	3.40
	1400		4.99	60.91	0.156	1	84.36	3.39
	1500		4.95	60.33	0.155	1	84.51	3.35
	1600		4.80	58.52	0.150	1	84.98	3.23
	1700		4.73	57.75	0.148	1	85.18	3.18
	1800		4.80	58.56	0.150	1	84.97	3.24
	1900		4.28	52.25	0.134	1	86.59	2.83
	2000		4.17	50.84	0.130	1	86.95	2.75
	2100		3.65	44.55	0.114	1	88.57	2.36
	2200		3.61	44.05	0.113	1	88.69	2.33
	2300		3.02	36.84	0.095	1	90.54	1.91

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
9.240 sec	0.00	3.75	45.75	0.117	24	87.23 %	2.70

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	87.23 %	2.70
non-Contig			0	? %	?

Consolidations
BCF-D34

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80004002 FIRE	BCF-D56	North	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		4.74	64.86	0.151	1	84.91	2.95
	0100		4.16	56.91	0.132	1	86.76	2.53
	0200		3.71	50.81	0.118	1	88.17	2.23
	0300		3.61	49.39	0.115	1	88.50	2.16
	0400		3.45	47.24	0.110	1	89.00	2.05
	0500		3.61	49.32	0.115	1	88.52	2.15
	0600		4.23	57.83	0.135	1	86.54	2.58
	0700		5.95	81.42	0.189	1	81.05	3.88
	0800		7.52	102.90	0.239	1	76.05	5.22
	0900		7.96	108.89	0.253	1	74.66	5.63
	1000		8.52	116.62	0.271	1	72.86	6.18
	1100		8.45	115.57	0.269	1	73.10	6.10
	1200		8.49	116.22	0.270	1	72.95	6.15
	1300		8.92	122.01	0.284	1	71.60	6.58
	1400		8.60	117.63	0.274	1	72.62	6.25
	1500		8.41	115.06	0.268	1	73.22	6.07
	1600		8.51	116.39	0.271	1	72.91	6.16
	1700		8.38	114.67	0.267	1	73.31	6.04
	1800		8.45	115.55	0.269	1	73.11	6.10
	1900		7.71	105.47	0.245	1	75.45	5.40
	2000		7.33	100.27	0.233	1	76.66	5.05
	2100		6.76	92.47	0.215	1	78.48	4.55
	2200		6.10	83.48	0.194	1	80.57	4.00
	2300		5.45	74.59	0.174	1	82.64	3.49

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.378 sec	0.00	6.63	90.65	0.211	24	77.08 %	5.04

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	77.08 %	5.04
non-Contig			0	? %	?

Consolidations
BCF-D56

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80004003 FIRE	BCF-D89	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.92	63.03	0.147	1	85.27	2.88
	0100		3.37	54.24	0.127	1	87.33	2.42
	0200		2.98	48.01	0.112	1	88.78	2.10
	0300		3.09	49.82	0.116	1	88.36	2.19
	0400		2.76	44.42	0.104	1	89.62	1.93
	0500		3.06	49.23	0.115	1	88.50	2.16
	0600		3.51	56.46	0.132	1	86.81	2.53
	0700		4.40	70.86	0.166	1	83.45	3.30
	0800		6.04	97.31	0.227	1	77.27	4.90
	0900		7.04	113.40	0.265	1	73.51	6.00
	1000		7.30	117.50	0.275	1	72.55	6.30
	1100		7.55	121.54	0.284	1	71.60	6.61
	1200		8.04	129.50	0.303	1	69.75	7.23
	1300		7.54	121.43	0.284	1	71.63	6.60
	1400		7.87	126.76	0.296	1	70.39	7.01
	1500		7.63	122.80	0.287	1	71.31	6.70
	1600		7.21	116.00	0.271	1	72.90	6.19
	1700		7.24	116.56	0.272	1	72.77	6.23
	1800		6.97	112.26	0.262	1	73.77	5.92
	1900		6.60	106.21	0.248	1	75.19	5.50
	2000		6.16	99.25	0.232	1	76.81	5.03
	2100		5.62	90.55	0.212	1	78.85	4.47
	2200		4.85	78.06	0.182	1	81.76	3.72
	2300		4.29	69.13	0.161	1	83.85	3.21

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.411 sec	0.00	5.63	90.60	0.212	24	76.61 %	5.22

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	76.61 %	5.22
non-Contig			0	? %	?

Consolidations
BCF-D89

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80001651 FIRE	BCF-D1	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		2.64	41.46	0.095		0.00	0.00
	0100		2.40	37.64	0.086		0.00	0.00
	0200		2.22	34.91	0.080		0.00	0.00
	0300		2.21	34.62	0.079		0.00	0.00
	0400		2.00	31.38	0.072		0.00	0.00
	0500		2.27	35.67	0.082		0.00	0.00
	0600		2.63	41.20	0.094		0.00	0.00
	0700		3.23	50.67	0.116	1	88.42	2.13
	0800		4.09	64.20	0.147	1	85.33	2.80
	0900		4.44	69.71	0.159	1	84.07	3.09
	1000		4.94	77.53	0.177	1	82.28	3.51
	1100		4.99	78.32	0.179	1	82.10	3.55
	1200		5.11	80.15	0.183	1	81.68	3.65
	1300		5.02	78.71	0.180	1	82.01	3.57
	1400		4.82	75.63	0.173	1	82.71	3.41
	1500		5.15	80.84	0.185	1	81.52	3.69
	1600		4.73	74.16	0.169	1	83.05	3.33
	1700		4.94	77.45	0.177	1	82.30	3.50
	1800		4.78	74.97	0.171	1	82.87	3.37
	1900		4.45	69.89	0.160	1	84.03	3.10
	2000		4.27	66.94	0.153	1	84.70	2.94
	2100		3.96	62.14	0.142	1	85.80	2.70
	2200		3.69	57.87	0.132	1	86.77	2.48
	2300		3.12	48.88	0.112		0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.226 sec	0.00	3.84	60.21	0.138	16	65.83 %	2.55

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	83.50 %	3.23
non-Contig			8	0.00 %	0.00

Consolidations
BCF-D12

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80000513 FIRE	BCF-D2	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		3.54	45.47	0.105		0.00	0.00
	0100		3.05	39.23	0.090		0.00	0.00
	0200		2.86	36.76	0.085		0.00	0.00
	0300		2.73	35.14	0.081		0.00	0.00
	0400		2.71	34.83	0.080		0.00	0.00
	0500		2.72	34.95	0.081		0.00	0.00
	0600		3.59	46.16	0.106		0.00	0.00
	0700		4.40	56.53	0.130	1	86.96	2.47
	0800		5.36	68.99	0.159	1	84.08	3.11
	0900		6.27	80.66	0.186	1	81.39	3.76
	1000		6.61	85.05	0.196	1	80.38	4.01
	1100		6.61	85.05	0.196	1	80.38	4.01
	1200		6.59	84.74	0.195	1	80.45	4.00
	1300		6.58	84.65	0.195	1	80.47	3.99
	1400		6.51	83.66	0.193	1	80.70	3.93
	1500		6.61	85.04	0.196	1	80.38	4.01
	1600		6.41	82.41	0.190	1	80.99	3.86
	1700		6.48	83.31	0.192	1	80.78	3.91
	1800		6.54	84.12	0.194	1	80.59	3.96
	1900		5.91	75.95	0.175	1	82.48	3.49
	2000		5.66	72.83	0.168	1	83.20	3.32
	2100		5.38	69.13	0.159	1	84.05	3.12
	2200		4.76	61.22	0.141	1	85.88	2.70
	2300		3.98	51.22	0.118		0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.307 sec	0.00	5.08	65.30	0.151	16	64.93 %	2.91

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	81.83 %	3.66
non-Contig			8	0.00 %	0.00

Consolidations
BCF-D12

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80004004 FIRE	BCF-D12	Central	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		5.80	81.62	0.187	1	81.25	3.78
	0100		4.95	69.56	0.160	1	84.02	3.11
	0200		4.55	63.92	0.147	1	85.32	2.82
	0300		4.31	60.60	0.139	1	86.08	2.65
	0400		4.10	57.58	0.132	1	86.77	2.50
	0500		4.49	63.13	0.145	1	85.50	2.78
	0600		5.78	81.23	0.187	1	81.34	3.76
	0700		7.47	105.05	0.241		0.00	0.00
	0800		9.35	131.40	0.302		0.00	0.00
	0900		10.65	149.73	0.344		0.00	0.00
	1000		11.47	161.33	0.371		0.00	0.00
	1100		11.56	162.60	0.373		0.00	0.00
	1200		11.63	163.48	0.375		0.00	0.00
	1300		11.59	162.89	0.374		0.00	0.00
	1400		11.27	158.44	0.364		0.00	0.00
	1500		11.69	164.37	0.378		0.00	0.00
	1600		11.10	156.01	0.358		0.00	0.00
	1700		11.33	159.28	0.366		0.00	0.00
	1800		11.21	157.67	0.362		0.00	0.00
	1900		10.26	144.30	0.331		0.00	0.00
	2000		9.79	137.64	0.316		0.00	0.00
	2100		9.24	129.89	0.298		0.00	0.00
	2200		8.30	116.72	0.268		0.00	0.00
	2300		6.78	95.30	0.219	1	78.11	4.59

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.269 sec	0.00	8.69	122.24	0.281	8	16.22 %	0.66

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	0.00 %	0.00
non-Contig			8	83.07 %	3.36

Consolidations
BCF-D12

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80003359 FIRE	BCF-D8	South	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		2.53	42.14	0.101		0.00	0.00
	0100		2.32	38.55	0.093		0.00	0.00
	0200		2.00	33.30	0.080		0.00	0.00
	0300		2.07	34.50	0.083		0.00	0.00
	0400		1.93	32.08	0.077		0.00	0.00
	0500		2.07	34.44	0.083		0.00	0.00
	0600		2.32	38.57	0.093		0.00	0.00
	0700		2.81	46.79	0.113	1	88.75	2.17
	0800		3.60	59.91	0.144	1	85.59	2.89
	0900		4.06	67.62	0.163	1	83.74	3.33
	1000		4.36	72.56	0.174	1	82.55	3.62
	1100		4.24	70.62	0.170	1	83.02	3.51
	1200		4.72	78.65	0.189	1	81.09	4.00
	1300		4.31	71.72	0.172	1	82.75	3.57
	1400		4.69	78.06	0.188	1	81.23	3.96
	1500		4.44	73.98	0.178	1	82.21	3.71
	1600		4.20	70.00	0.168	1	83.16	3.47
	1700		4.25	70.83	0.170	1	82.97	3.52
	1800		4.19	69.83	0.168	1	83.21	3.46
	1900		3.89	64.81	0.156	1	84.41	3.17
	2000		3.63	60.46	0.145	1	85.46	2.92
	2100		3.38	56.31	0.135	1	86.46	2.69
	2200		3.02	50.29	0.121	1	87.91	2.36
	2300		2.89	48.19	0.116		0.00	0.00

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
8.659 sec	0.00	3.41	56.84	0.137	16	65.21 %	2.60

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	65.21 %	2.60
non-Contig			0	? %	?

Consolidations
BCF-D89

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80006001 FIRE	BCF-G1-Assgn	Broward	+ 0.00 σ

Surge	Hour of Day	Gatekeeper Traffic				Workstation Staffing & Performance		
				Incidents	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000			20.78	0.052	1	94.80	0.98
	0100			18.23	0.046	1	95.44	0.85
	0200			16.23	0.041	1	95.94	0.75
	0300			15.40	0.039	1	96.15	0.71
	0400			14.48	0.036	1	96.38	0.67
	0500			15.38	0.038	1	96.16	0.71
	0600			18.24	0.046	1	95.44	0.85
	0700			25.14	0.063	1	93.72	1.20
	0800			32.36	0.081	1	91.91	1.57
	0900			36.38	0.091	1	90.90	1.78
	1000			39.20	0.098	1	90.20	1.94
	1100			39.55	0.099	1	90.11	1.96
	1200			40.63	0.102	1	89.84	2.02
	1300			40.14	0.100	1	89.97	1.99
	1400			39.95	0.100	1	90.01	1.98
	1500			39.99	0.100	1	90.00	1.98
	1600			38.86	0.097	1	90.28	1.92
	1700			38.99	0.097	1	90.25	1.93
	1800			38.72	0.097	1	90.32	1.91
	1900			35.48	0.089	1	91.13	1.73
	2000			33.94	0.085	1	91.51	1.65
	2100			31.36	0.078	1	92.16	1.52
	2200			28.23	0.071	1	92.94	1.35
	2300			24.44	0.061	1	93.89	1.16
Avg Air-Time per Xmit/Rcv				Incidents	Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
sec		0.00	0.00	30.09	0.075	24	91.72 %	1.62

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	91.72 %	1.62
non-Contig			0	? %	?

Consolidations

Assumes 1.5 sec for computer selection of units.
Assumes 7.5 sec for dispatcher review of computer selected units.

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80006002 FIRE	BCF-MSR	Broward	+ 0.00 σ

Surge	Hour of Day	Tactical Traffic				Workstation Staffing & Performance		
				Incidents	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000			1.56	0.484	2	91.39	125.90
	0100			1.31	0.406	2	93.58	89.29
	0200			1.14	0.354	2	94.94	68.19
	0300			1.12	0.349	2	95.06	66.27
	0400			1.00	0.310	2	96.00	52.40
	0500			1.11	0.346	2	95.15	65.00
	0600			1.52	0.472	2	91.74	119.87
	0700			1.98	0.615	3	97.33	24.84
	0800			2.81	0.875	3	93.64	66.37
	0900			3.63	1.129	3	89.00	130.23
	1000			3.66	1.139	3	88.81	133.29
	1100			3.78	1.174	3	88.14	144.00
	1200			3.60	1.118	3	89.20	127.22
	1300			3.72	1.156	3	88.48	138.46
	1400			3.84	1.195	3	87.72	150.74
	1500			3.62	1.126	3	89.05	129.47
	1600			3.36	1.044	3	90.61	106.46
	1700			3.53	1.098	3	89.59	121.29
	1800			3.60	1.120	3	89.17	127.72
	1900			3.22	1.001	3	91.41	95.20
	2000			2.96	0.920	3	92.86	76.04
	2100			2.70	0.838	3	94.24	59.07
	2200			2.25	0.700	3	96.28	35.86
	2300			1.76	0.546	2	89.52	159.78

Avg Air-Time per Xmit/Rcv	Hourly Averages			Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
			Incidents				
sec	0.00	0.00	2.62	0.813	64	90.91 %	108.82

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0700	2200	16	90.48 %	110.58
non-Contig			8	93.01 %	100.09

Consolidations

For MSR incidents:
Chute time = 135.06 sec @ 50th %-tile
Time-on-Task = 00:24:52.30 (1492.30 sec) @ 50th %-tile
tac Dispatcher processing = 75% of Time-on-Task

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80006003 FIRE	BCF-SSR-A1	Broward	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		9.61	80.46	0.188	1	81.24	3.84
	0100		8.46	70.82	0.165	1	83.49	3.29
	0200		7.52	62.96	0.147	1	85.32	2.86
	0300		7.14	59.76	0.139	1	86.07	2.69
	0400		6.74	56.43	0.132	1	86.84	2.52
	0500		7.13	59.69	0.139	1	86.09	2.69
	0600		8.36	69.96	0.163	1	83.69	3.24
	0700		11.58	96.93	0.226	1	77.41	4.85
	0800		14.77	123.63	0.288	1	71.18	6.73
	0900		16.38	137.05	0.319	1	68.05	7.80
	1000		17.77	148.70	0.347	1	65.34	8.82
	1100		17.89	149.72	0.349	1	65.10	8.91
	1200		18.52	154.97	0.361	1	63.87	9.40
	1300		18.21	152.41	0.355	1	64.47	9.16
	1400		18.05	151.10	0.352	1	64.78	9.04
	1500		18.18	152.20	0.355	1	64.52	9.14
	1600		17.75	148.57	0.346	1	65.37	8.81
	1700		17.73	148.41	0.346	1	65.40	8.79
	1800		17.56	146.96	0.343	1	65.74	8.66
	1900		16.13	134.99	0.315	1	68.53	7.63
	2000		15.49	129.66	0.302	1	69.77	7.20
	2100		14.33	119.96	0.280	1	72.04	6.45
	2200		12.99	108.71	0.253	1	74.66	5.64
	2300		11.34	94.94	0.221	1	77.87	4.72

Avg Air-Time per Xmit/Rcv				Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
sec	0.00	13.74	114.96	0.268	24	70.61 %	7.15

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	70.61 %	7.15
non-Contig			0	? %	?

Consolidations	AirTime per Xmt/Rcv averaged over all ssr incidents = 8.392 sec

Broward E911 Consolidated Communications System
Radio Channel Performance by Hour-of-Day

Year	TalkGroup ID# & Discipline	Channel Name	PSAP	Surge
2015	80006004 FIRE	BCF-SSR-A2	Broward	+ 0.00 σ

Surge	Hour of Day	Radio Channel Traffic				Workstation Staffing & Performance		
			Incidents	Xmit/Rcv	Σ Erlangs	OnTask	Immediate Answer [%]	Ans Delay @ 97 %-tile [sec]
	0000		9.61	80.46	0.188	1	81.24	4.04
	0100		8.46	70.82	0.165	1	83.49	3.46
	0200		7.52	62.96	0.147	1	85.32	3.01
	0300		7.14	59.76	0.139	1	86.07	2.83
	0400		6.74	56.43	0.132	1	86.84	2.65
	0500		7.13	59.69	0.139	1	86.09	2.83
	0600		8.36	69.96	0.163	1	83.69	3.41
	0700		11.58	96.93	0.226	1	77.41	5.11
	0800		14.77	123.63	0.288	1	71.18	7.09
	0900		16.38	137.05	0.319	1	68.05	8.22
	1000		17.77	148.70	0.347	1	65.34	9.29
	1100		17.89	149.72	0.349	1	65.10	9.39
	1200		18.52	154.97	0.361	1	63.87	9.90
	1300		18.21	152.41	0.355	1	64.47	9.65
	1400		18.05	151.10	0.352	1	64.78	9.52
	1500		18.18	152.20	0.355	1	64.52	9.63
	1600		17.75	148.57	0.346	1	65.37	9.28
	1700		17.73	148.41	0.346	1	65.40	9.26
	1800		17.56	146.96	0.343	1	65.74	9.12
	1900		16.13	134.99	0.315	1	68.53	8.04
	2000		15.49	129.66	0.302	1	69.77	7.58
	2100		14.33	119.96	0.280	1	72.04	6.80
	2200		12.99	108.71	0.253	1	74.66	5.94
	2300		11.34	94.94	0.221	1	77.87	4.98

Avg Air-Time per Xmit/Rcv				Average Erlangs	Req'd Hrs OnTask	Wt'd 24 Hr % Immed Ans	Wt'd 24 Hr Ans Delay
		Incidents	Xmit/Rcv				
sec	0.00	13.74	114.96	0.268	24	70.61 %	7.53

	Hours Included in Block			Parameters Weighted Over Block Lengths	
	From First	Thru Last	Block Length	% Immed Ans	Ans Delay @ 97 %-tile [sec]
Contiguous	0000	2300	24	70.61 %	7.53
non-Contig			0	? %	?

Consolidations	AirTime over all ssr incidents = 8.392 sec per Xmt/Rcv (avg)

Appendix C:
Detailed Staffing Requirements

FITCH
& ASSOCIATES

For each of the following tables, a beginning of tour (BOT) and end of tour (EOT) are defined. Rows labeled as "24 hours A, B, C Rotation" indicate these workstations that need to be staffed in a similar manner as is the current practice.

For both fire workstations and supervisor positions, schedules for provided under both options.

A close examination of these tables will reflect many seats will continue to be staffed as is current practice. The use of 10-hour shift lengths is limited and intended only to optimize the schedule to demands as required.

Figure 29: Detailed Schedule for Call Intake

	Week 1														Week 2													
Call Taking	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT
24 hours A, B, C Rotation	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500
24 hours A, B, C Rotation	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500
24 hours A, B, C Rotation	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500
24 hours A, B, C Rotation	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500
24 hours A, B, C Rotation	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500
24 hours A, B, C Rotation	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500
24 hours A, B, C Rotation	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500
24 hours A, B, C Rotation	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500
24 hours A, B, C Rotation	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300
24 hours A, B, C Rotation	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300
24 hours A, B, C Rotation	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300
24 hours A, B, C Rotation	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300
24 hours A, B, C Rotation	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300
24 hours A, B, C Rotation	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300
24 hours A, B, C Rotation	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300
24 hours A, B, C Rotation	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300
24 hours A, B, C Rotation	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700
24 hours A, B, C Rotation	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700
24 hours A, B, C Rotation	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700
24 hours A, B, C Rotation	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700
24 hours A, B, C Rotation	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700
24 hours A, B, C Rotation	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700
24 hours A, B, C Rotation	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700
24 hours A, B, C Rotation	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700	2300	700
10 hourshift	600	1600	600	1600	600	1600	600	1600	600	1600	600	1600	600	1600	600	1600	600	1600	600	1600	600	1600	600	1600	600	1600	600	1600
8 hour shift	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500
10 hourshift	700	1700	700	1700	700	1700	700	1700	700	1700	700	1700	700	1700	700	1700	700	1700	700	1700	700	1700	700	1700	700	1700	700	1700
10 hourshift	700	1700	700	1700	700	1700	700	1700	700	1700	700	1700	700	1700	700	1700	700	1700	700	1700	700	1700	700	1700	700	1700	700	1700
10 hourshift	800	1800	800	1800	800	1800	800	1800	800	1800	800	1800	800	1800	800	1800	800	1800	800	1800	800	1800	800	1800	800	1800	800	1800
10 hourshift	900	1900	900	1900	900	1900	900	1900	900	1900	900	1900	900	1900	900	1900	900	1900	900	1900	900	1900	900	1900	900	1900	900	1900
10 hourshift	900	1900	900	1900	900	1900	900	1900	900	1900	900	1900	900	1900	900	1900	900	1900	900	1900	900	1900	900	1900	900	1900	900	1900
10 hourshift	1000	2000	1000	2000	1000	2000	1000	2000	1000	2000	1000	2000	1000	2000	1000	2000	1000	2000	1000	2000	1000	2000	1000	2000	1000	2000	1000	2000
8 hour shift	1300	2100	1300	2100	1300	2100	1300	2100	1300	2100	1300	2100	1300	2100	1300	2100	1300	2100	1300	2100	1300	2100	1300	2100	1300	2100	1300	2100
10 hourshift	1400	2200	1400	2200	1400	2200	1400	2200	1400	2200	1400	2200	1400	2200	1400	2200	1400	2200	1400	2200	1400	2200	1400	2200	1400	2200	1400	2200
8 hour shift	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300	1500	2300
8 hour shift	1600	200	1600	200	1600	200	1600	200	1600	200	1600	200	1600	200	1600	200	1600	200	1600	200	1600	200	1600	200	1600	200	1600	200
8 hour shift	1700	100	1700	100	1700	100	1700	100	1700	100	1700	100	1700	100	1700	100	1700	100	1700	100	1700	100	1700	100	1700	100	1700	100
8 hour shift	1700	100	1700	100	1700	100	1700	100	1700	100	1700	100	1700	100	1700	100	1700	100	1700	100	1700	100	1700	100	1700	100	1700	100
10 hourshift	1700	300	1700	300	1700	300	1700	300	1700	300	1700	300	1700	300	1700	300	1700	300	1700	300	1700	300	1700	300	1700	300	1700	300
10 hourshift	1900	500	1900	500	1900	500	1900	500	1900	500	1900	500	1900	500	1900	500	1900	500	1900	500	1900	500	1900	500	1900	500	1900	500

Figure 30: Detailed Schedule for Law Workstations

Figure 31: Detailed Schedule for Fire Workstations - Option 1

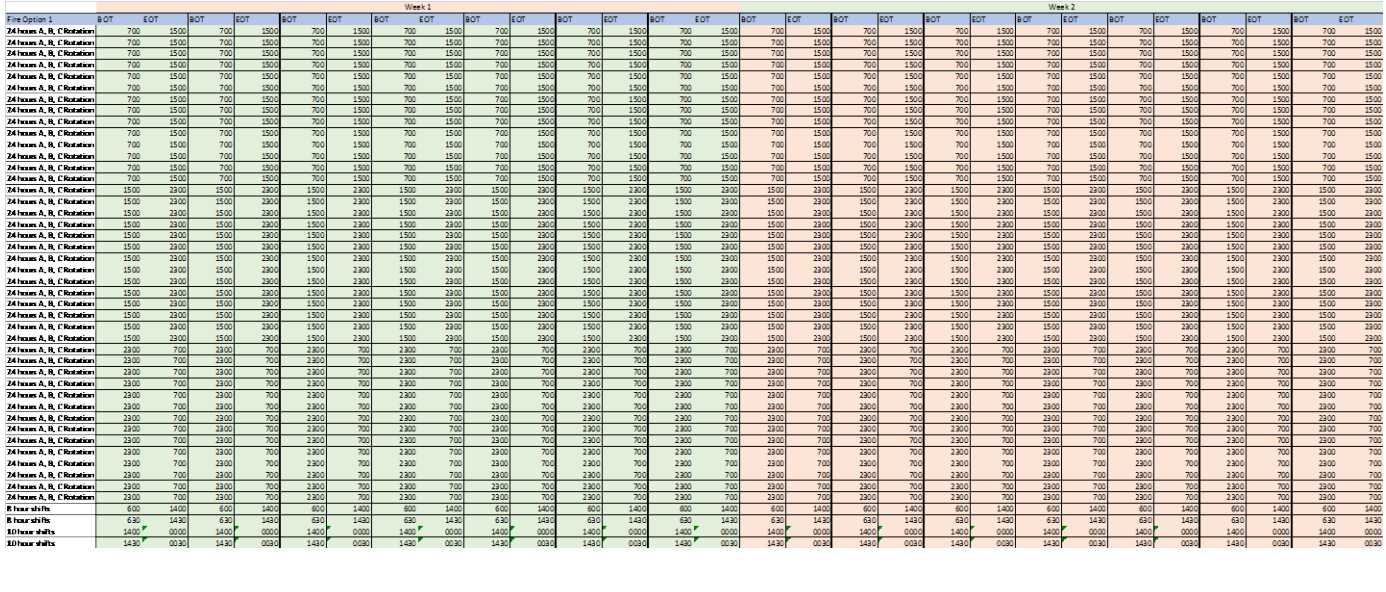


Figure 32: Detailed Schedule for Fire Workstations - Option 2

	Week 1																Week 2													
Fire Option 2	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT	BOT	EOT
24 hours A, B, C Rotation	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500	700	1500

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