

OCONEE COUNTY DETENTION CENTER

STAFFING NEEDS ASSESSMENT REVIEW

AND

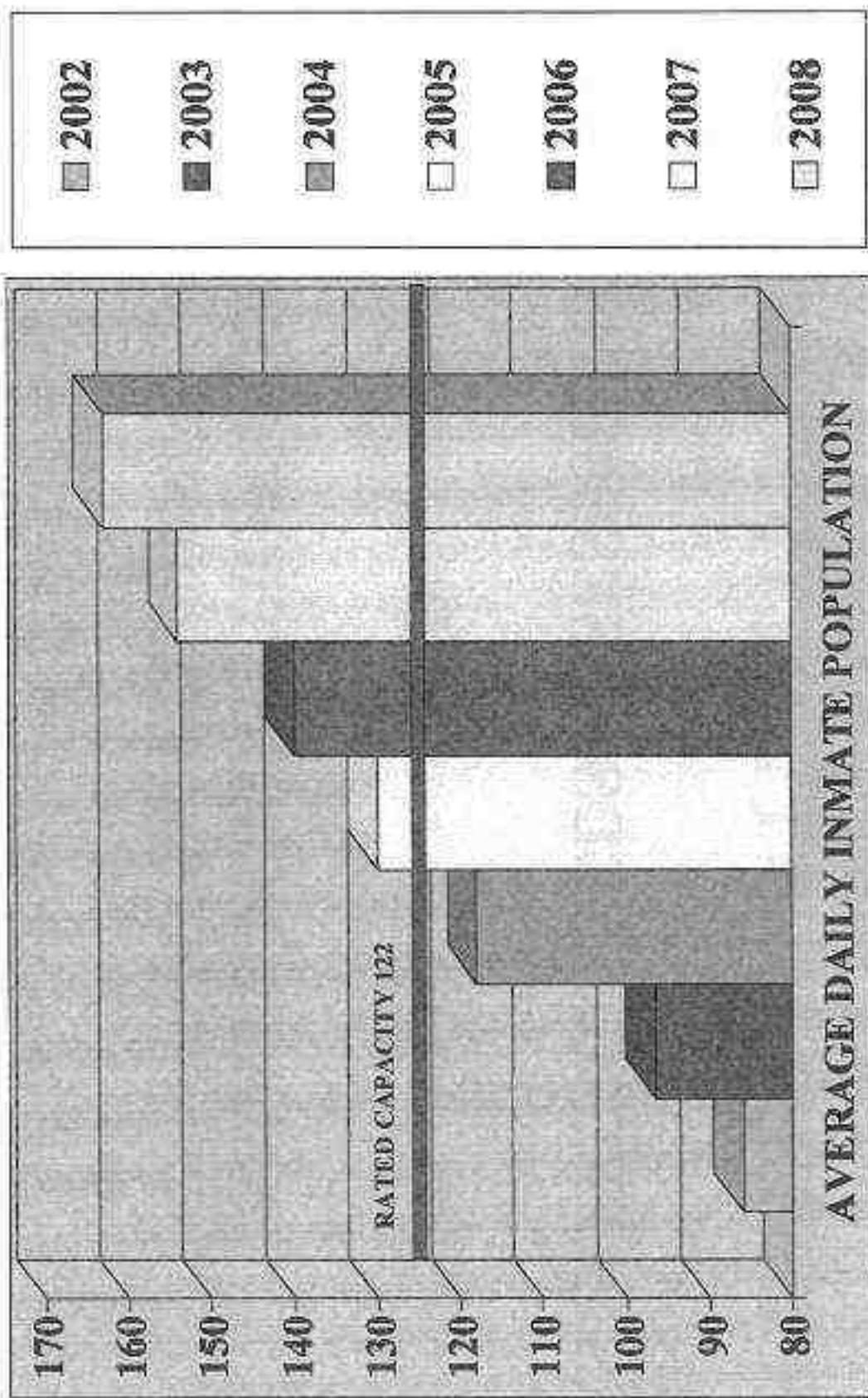
INMATE POPULATION CONTROL STRATEGIES

PRESENTED BY: ROBERT E. BENFIELD, ARM
RISK MANAGER
SOUTH Carolina ASSOCIATION OF COUNTIES
October 21, 2008

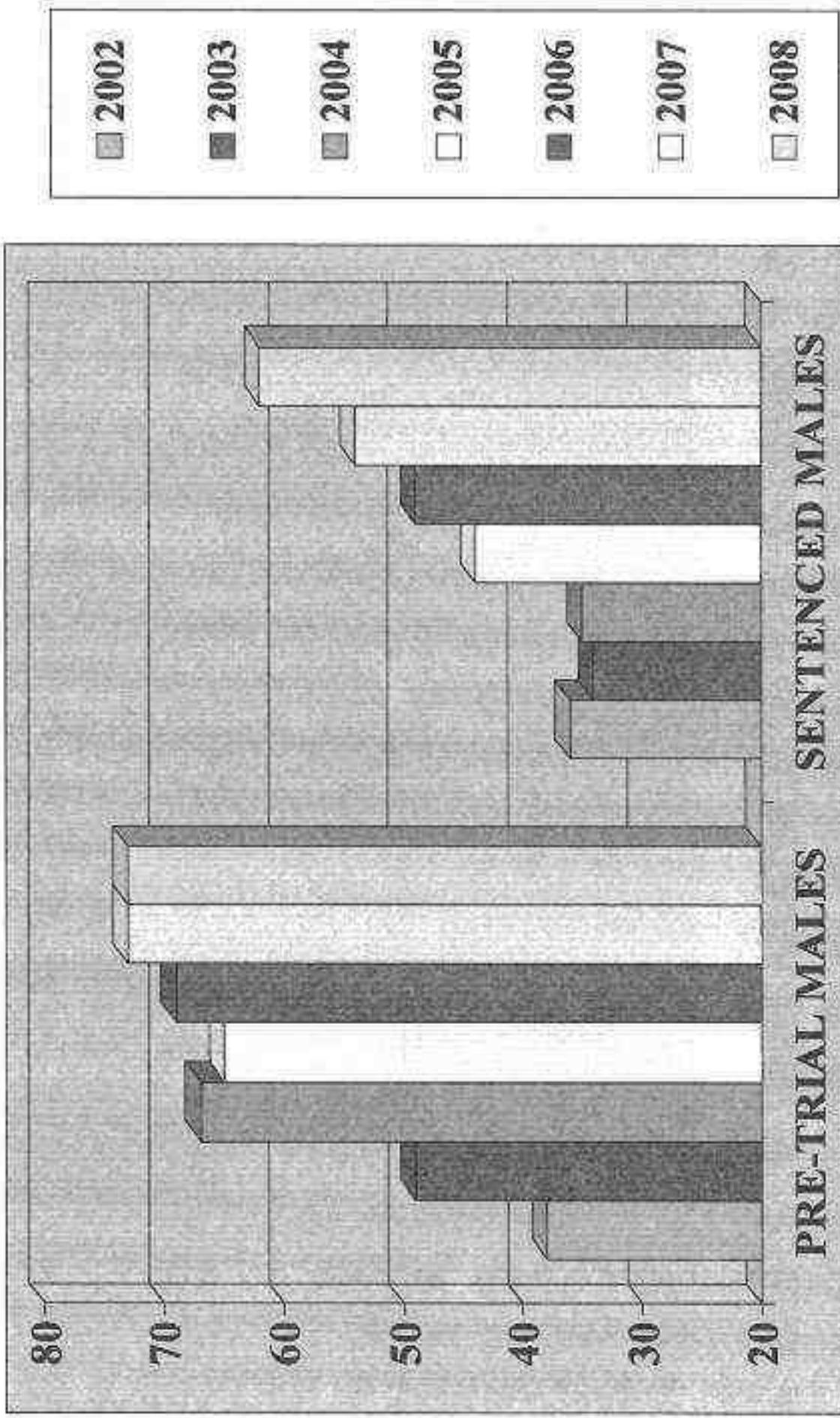
OCONEE COUNTY DETENTION CENTER

AVERAGE DAILY POPULATION

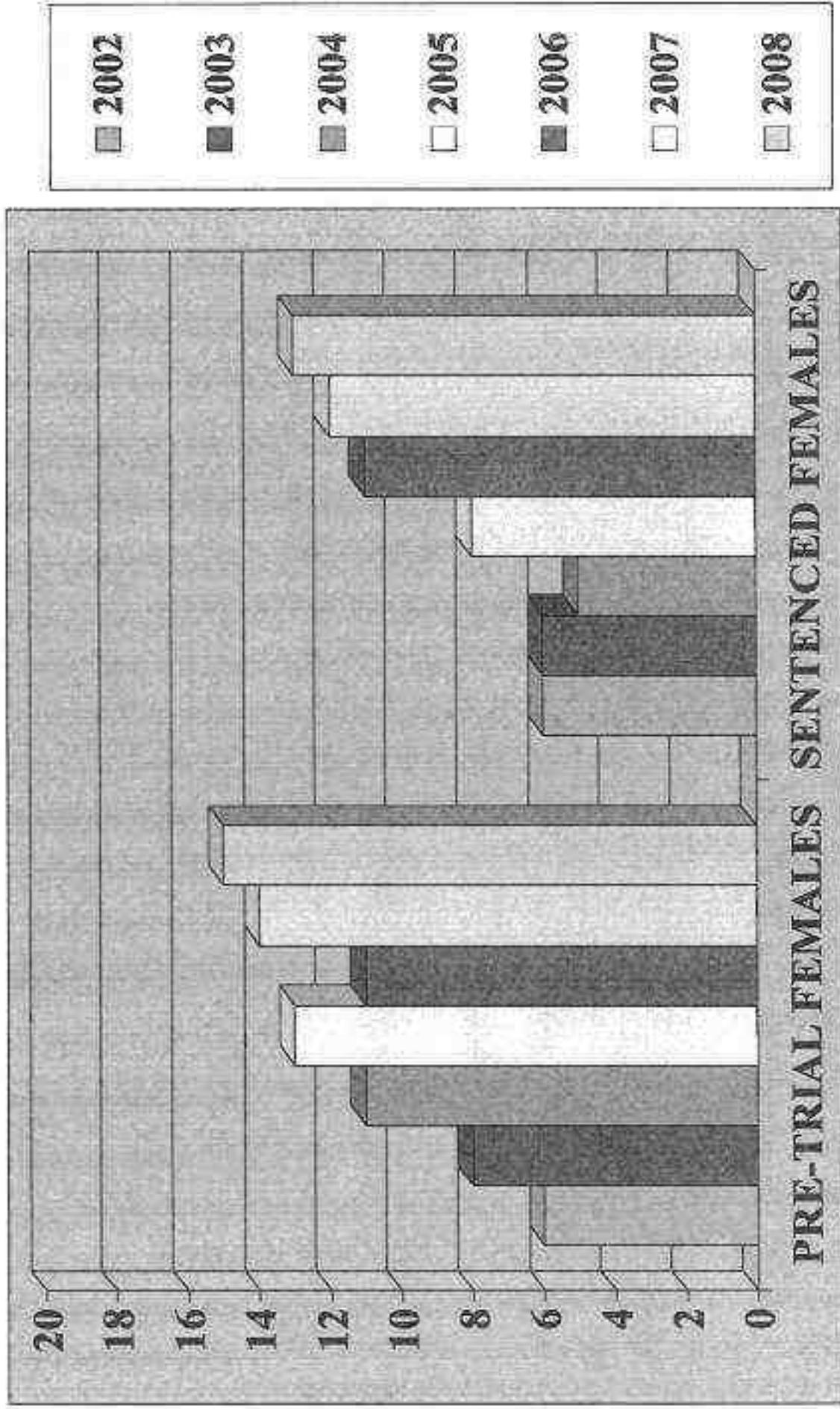
1/1/2002 - 9/30/2008



*OCONEE COUNTY DETENTION CENTER AVERAGE
MALE DAILY POPULATION 11/2002 - 9/30/2008*



**OCONEE COUNTY DETENTION CENTER AVERAGE
FEMALE DAILY POPULATION 11/1/2002 - 9/30/2008**



CRIMINAL JUSTICE COORDINATING COMMITTEE

Committee where key justice system agency officials and other officials of local government can discuss justice system issues.

CRIMINAL JUSTICE

COORDINATING COMMITTEE

- CJCC MEMBERSHIP

- SHERIFF'S OFFICE / LOCAL POLICE
- DETENTION CENTER STAFF
- COUNTY / CITY COUNCIL MEMBERS
- COUNTY ADMINISTRATOR / STAFF
- JUDGES
- SOLICITOR
- COMMUNITY REPRESENTATIVES

CRIMINAL JUSTICE

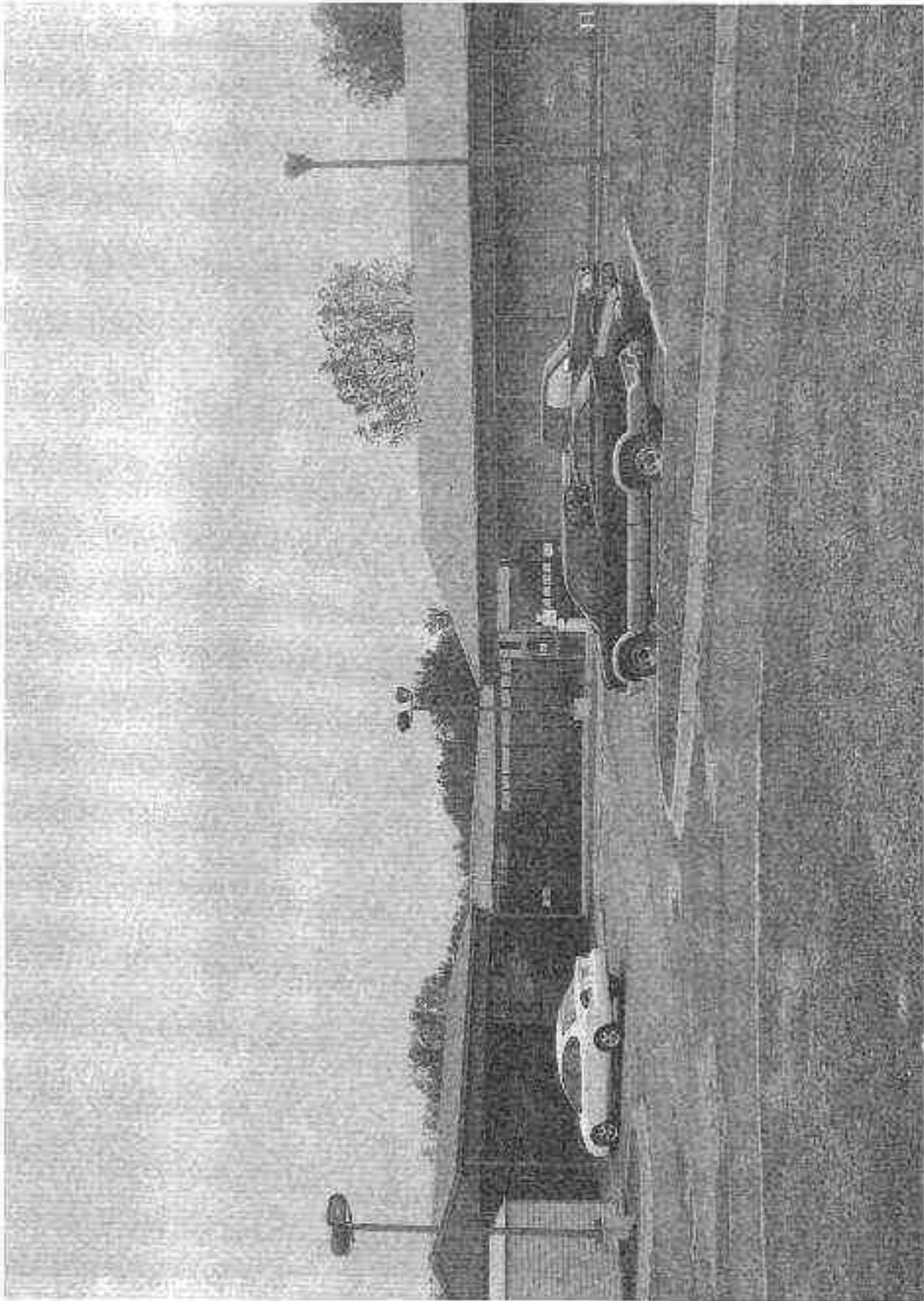
COORDINATING COMMITTEE

- THROUGH COLLABORATION AND SYSTEM WIDE COORDINATION THE CJCC CAN PRODUCE MANY BENEFITS:
 - Better Understanding of Crime & Criminal Justice Problems
 - Greater Cooperation Among Agencies & Local Governments
 - Clear Objectives & Priorities

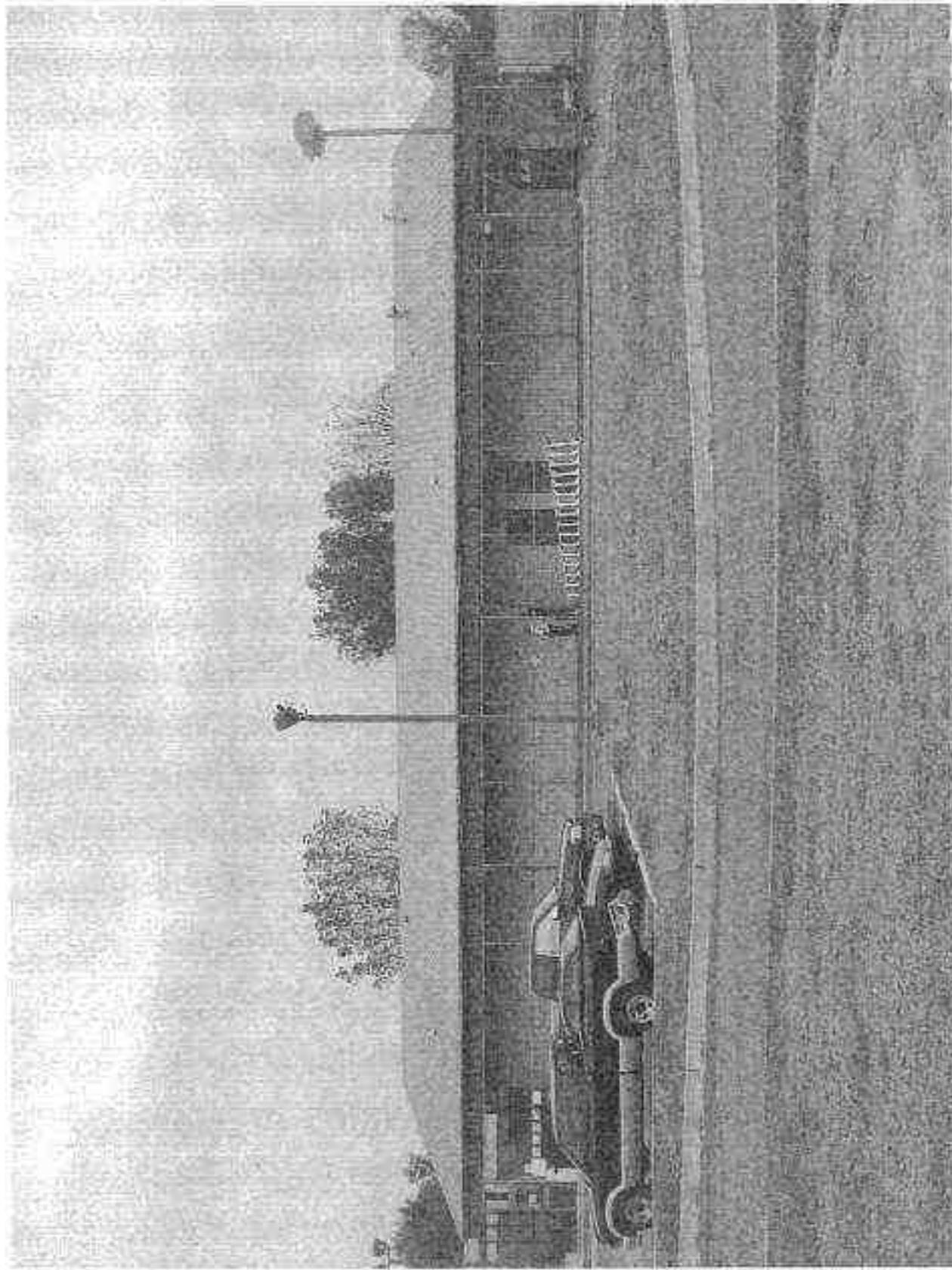
CRIMINAL JUSTICE COORDINATING COMMITTEE

- THROUGH COLLABORATION AND SYSTEM WIDE COORDINATION THE CJCC CAN PRODUCE MANY BENEFITS:
 - More Effective Resource Allocation
 - Better Quality Criminal Justice Programs
 - REDUCED INMATE POPULATION

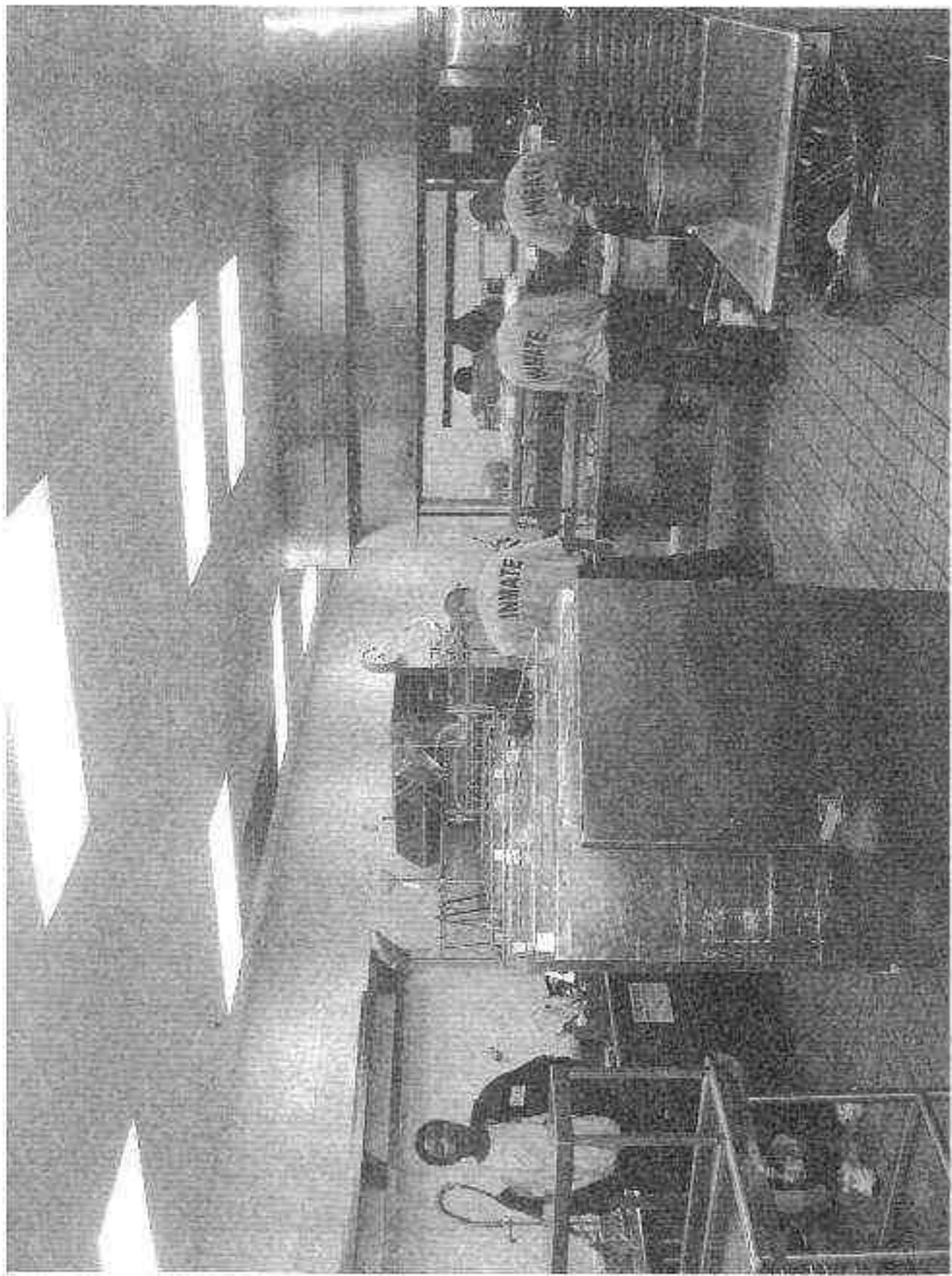
CHESTERFIELD COUNTY PRISON CAMP ADDITION



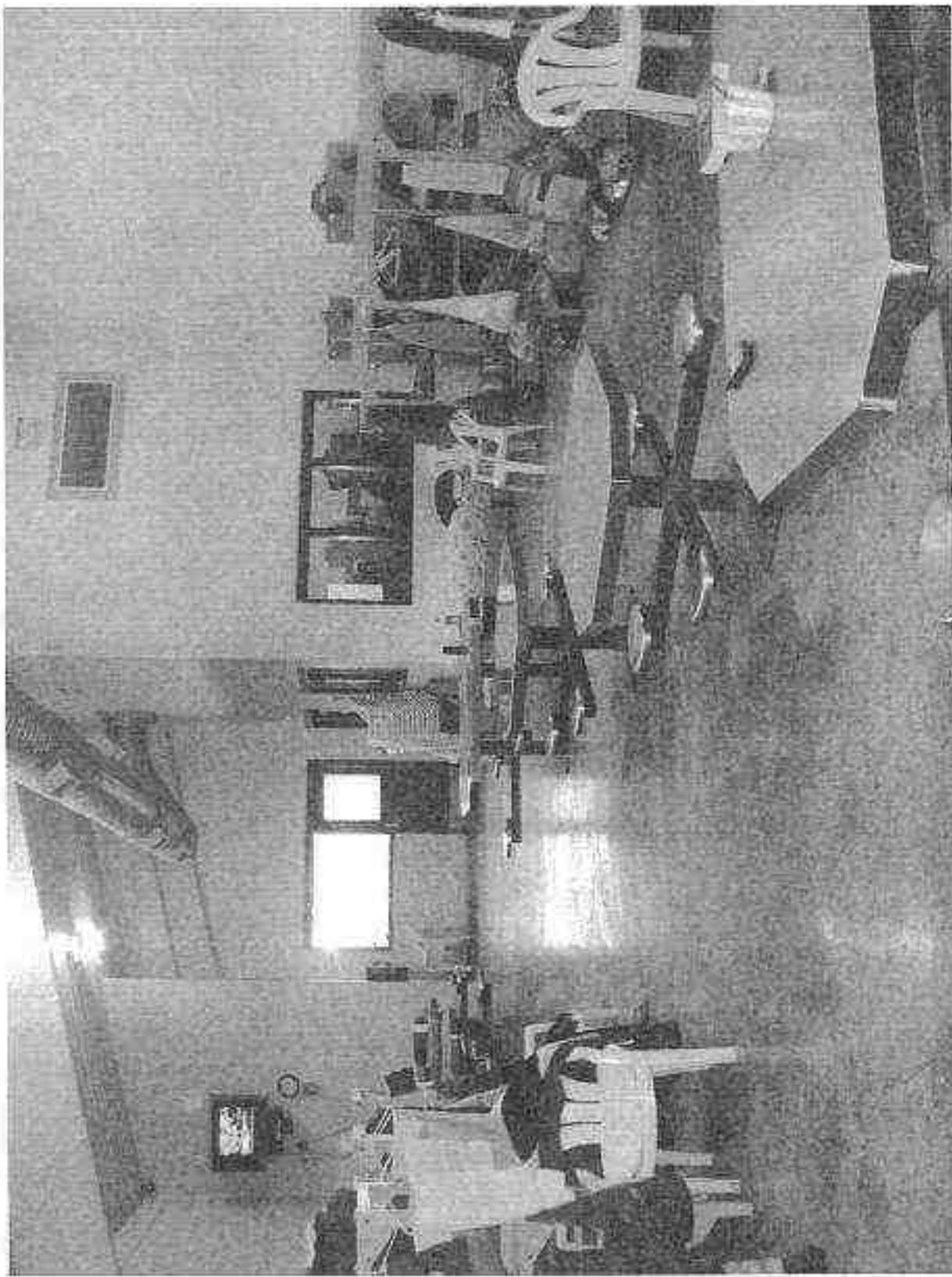
CHESTERFIELD COUNTY PRISON CAMP ADDITION



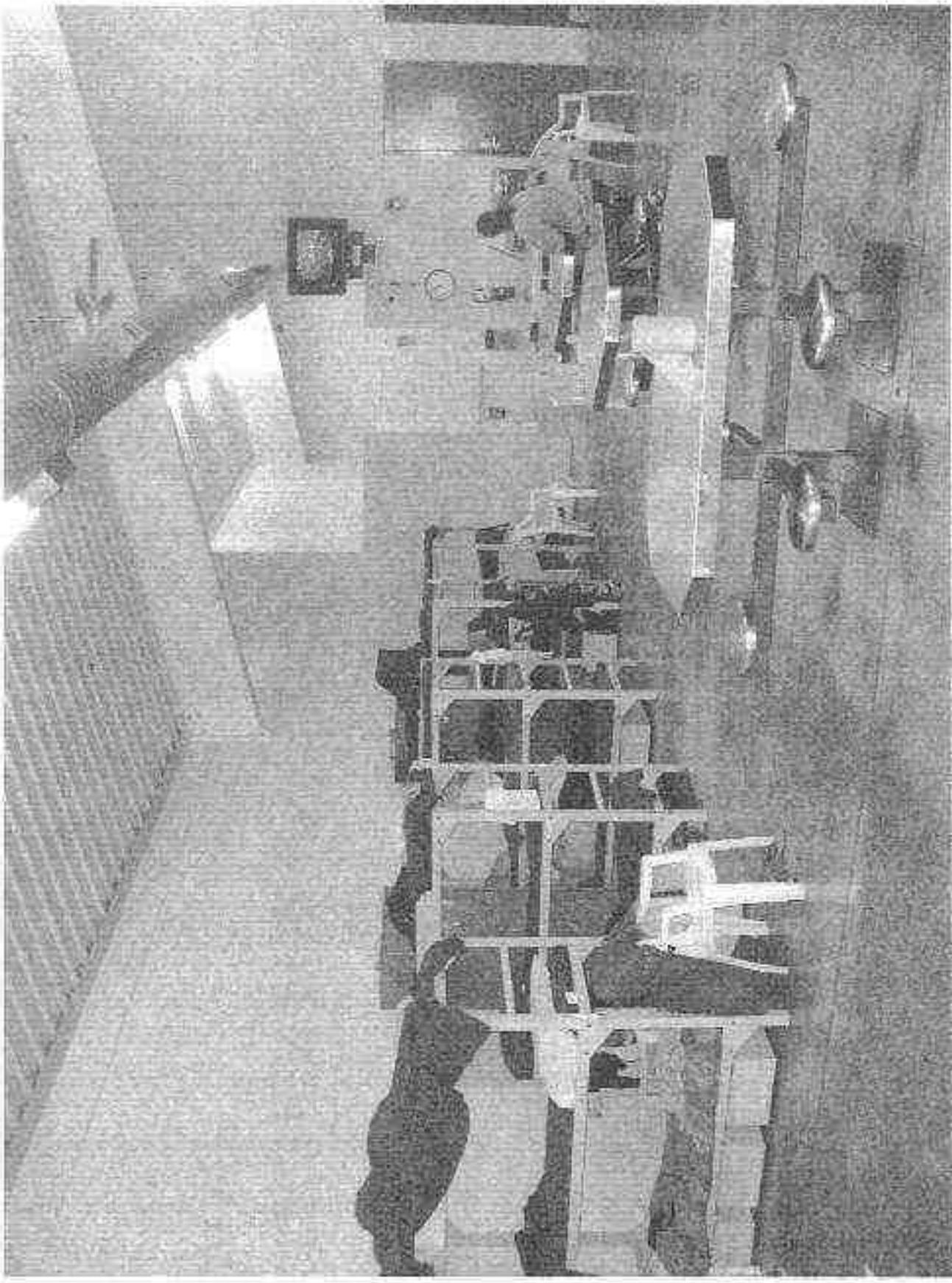
CHESTERFIELD COUNTY PRISON CAMP ADDITION



CHESTERFIELD COUNTY PRISON CAMP ADDITION



CHESTERFIELD COUNTY PRISON CAMP ADDITION



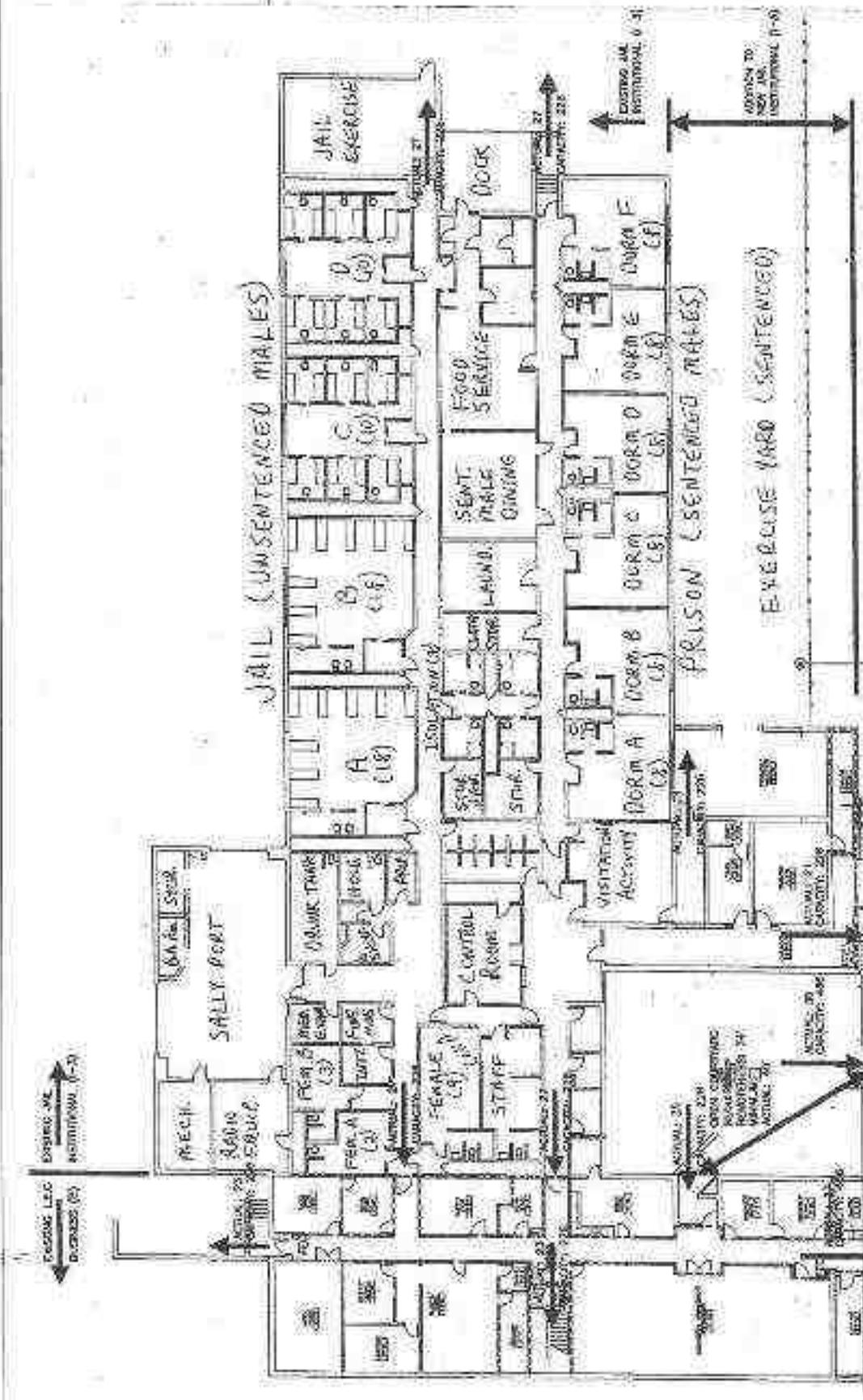
CHESTERFIELD COUNTY PRISON CAMP ADDITION

- 1 BUILDING SPLIT INTO TWO (2) DORMS
 - 33 Bed Dorm for County Sentenced Male Inmates
 - 33 Bed Dorm for State Sentenced Male Inmates
- KITCHEN FOR ENTIRE JAIL AND PRISON CAMP
- APPROXIMATELY \$1.5 MILLION DOLLARS

PROPOSED OCONEE COUNTY SHORT TERM INMATE POPULATION REDUCTION STRATEGY

- ESTABLISH CRIMINAL JUSTICE COORDINATING COMMITTEE
- BUILD SEPARATE DORM STYLE HOUSING UNIT WITH KITCHEN
 - Move Sentenced Inmates From Dorm A – F into new prison camp.
(48) Inmates
 - Free up forty-eight (48) pre-trial beds in main detention center and enhance ability to implement classification plan.
 - Renovate kitchen to increase rated capacity and number of single lockdown cells.

OCONEE COUNTY DETENTION CENTER



RENOVATION CONSIDERATIONS

- SECURITY ISSUES
 - Cameras & Recording Capability
 - Inmate Intercom Systems
 - Officer Down Communication System
 - Security Locking Systems
 - Redesign Sally Port
 - Redesign Control Room

- LIFE SAFETY
 - Smoke Evacuation System
 - Sprinkler System

RENOVATION CONSIDERATIONS

- **PHYSICAL PLANT**

- Commercial Dryers
- Inmate Property Storage
- Medical Examination Area
- Conditions of Confinement
 - Lack of space to shift inmates to make repairs

OCONEE COUNTY DETENTION CENTER

STAFFING NEEDS ASSESSMENT

Conducted by: Robert E. Bealefield, ARM
Risk Manager
South Carolina Association of Counties

April 28, 2008

€

€

€

STAFFING NEEDS ASSESSMENT

This assessment is based upon conditions, blueprints, discussions with staff, and the best information available at the time the report was written. Risk Management reports provided by the South Carolina Association of Counties Risk Management Staff are advisory and are intended to replace County risk management efforts. This report was prepared solely for use by Oconee County.

INTRODUCTION

This staffing needs assessment was conducted at the request of Sheriff James E. Singleton; Mr. Dale Surrett, Oconee County Administrator; and Major Steve Pruitt, Oconee County Detention Center Director.

This assessment was conducted to determine the minimum staffing level required to insure the safety and security of employees, inmates, and the citizens of Oconee County while complying with mandated state and federal standards. Proper staffing should reduce overtime expenditures and decrease the County's liability exposures.

DETENTION CENTER DESIGN AND LAYOUT

The minimum staffing level identified in this assessment is based on several factors. These factors include, but are not limited to: Inmate classification; Actual inmate count; Physical plant facility limitations; and Covering mandatory posts and positions that are outlined in this assessment. Several of these factors are outlined in Appendix A.

As the inmate population changes, staffing levels will need to be re-evaluated to meet the needs of the facility. Yearly staffing reviews are mandated by the *Minimum Standards for Local Detention Facilities in South Carolina* to address this issue.

The Oconee County Detention Center is rated by the Jail and Prison Inspection Division of the Department of Corrections to house one hundred twenty-two (122) inmates. The average daily inmate population was approximately one hundred sixty-four (164), with a high count of one hundred ninety-two inmates (192) during the last year. This level of overcrowding, combined with providing mandated services, necessitates higher staffing levels.

Inmates are located in different types of multi-occupancy units and single cells throughout the facility based on their classification level. Due to the linear design of the facility, all inmates will be monitored by indirect supervision, supplemented by cameras. This method of supervision is staff intensive and requires Officers to make rounds throughout the facility and to enter each inmate living area. The use of cameras can not be substituted to reduce minimum staffing requirements or eliminate mandatory rounds.

€

€

€

Inmates are housed in the following multi-occupancy units and cellblocks based on different classification levels:

Female Dorm A: Sentenced Female Dorm - Rated Capacity 2

Female Dorm A is rated to hold two (2) sentenced female inmates in non-secured beds. These inmates are monitored by Officers making rounds. These inmates can not be locked into cells due to the dormitory style of these units. Therefore, Officers will need to make frequent rounds, especially at night. Two (2) Officers must be present before any Officer can enter these units.

Female Dorm B: Sentenced Female Dorm - Rated Capacity 3

Female Dorm B is rated to hold three (3) sentenced female inmates in non-secured beds. These inmates are monitored by Officers making rounds. These inmates can not be locked into cells due to the dormitory style of these units. Therefore, Officers will need to make frequent rounds, especially at night. Two (2) Officers must be present before any Officer can enter these units.

Female Housing Unit A: Pre-Trial Female Minimum/Medium Unit - Rated Capacity 9

Female Housing Unit A is rated to hold nine (9) pre-trial female inmates in non-secured beds. These inmates are monitored by Officers making rounds. These inmates can not be locked into cells due to the dormitory style of these units. Therefore, Officers will need to make frequent rounds, especially at night. Two (2) Officers must be present before any Officer can enter these units.

Segregation Unit A: Male Maximum Security Cellblock - Rated Capacity 4

Segregation Unit A is rated to hold four (4) male inmates in single secured cells. These inmates are monitored by Officers making rounds, which should be frequent, especially at night.

Cellblocks A & B: Male Minimum/Medium Security Cellblocks - Rated Capacity 36

Cellblocks A and B are each rated to hold eighteen (18) pre-trial male inmates in non-secured beds. These inmates are monitored by Officers making rounds. These inmates can not be locked into cells due to the dormitory style of these units. Therefore, Officers will need to make frequent rounds, especially at night. Two (2) Officers must be present before any Officer can enter these units.

Cellblocks C & D: Male Minimum/Medium Security Cellblocks - Rated Capacity 20

Cellblocks C and D are each rated to hold ten (10) pre-trial male inmates in secured cells. Each cellblock has a common area to which inmates have access, unless they are locked in their cells. These inmates are monitored by Officers making rounds.

€

€

€

Dormitories A - F: Male Sentenceed Dormitories - Rated Capacity 48

These six (6) dormitories are each rated to hold eight (8) sentenced inmates in non-secured beds. These inmates are monitored by Officers making rounds. These inmates can not be locked into cells due to the dormitory style of these units. Therefore, Officers will need to make frequent rounds, especially at night. Two (2) Officers must be present before any Officer can enter these units.

Other Cells: Holding & Special Purpose Cells - Combined Capacity 17

There are both holding cells and observation cells located in the facility. These require different levels of supervision specific to their particular uses.

STAFFING PLAN

This staffing plan was formulated based on a review of the facility's layout and design blueprints, a site visit, discussions with staff, and an evaluation of the County's vacation and sick leave policies. Essential posts and job functions, including staff supervision and support functions, were identified and analyzed.

The Detention Center is staffed by twenty (20) Security Officers, one (1) Detention Center Director, and seven (7) Administrative/Support employees. Security Officers work eight (8) hour shifts and are split into three (3) squads which are supposed to provide twenty-four (24) hour coverage, seven (7) days a week.

The current staffing level does not provide for a shift relief factor and the facility is constantly understaffed. Due to overcrowding, Officers are forced to leave mandated security posts and positions to perform other functions. These deficiencies create a safety hazard for employees, inmates, and the citizens of Oconee County, along with increasing the County's liability exposure. The proposed staffing level has been formulated to address these issues.

Appendix B provides a list and time line for selected facility activities.

This assessment does not address the staff needed to supervise inmates while they are working outside of the Detention Center. It is presumed that County department heads and their authorized employees who check out and/or use the inmates are being held responsible for their supervision.

PROPOSED STAFFING

Listed in the order as they appear on the chart contained in this report, the following positions or posts were identified:

(

—

(

—

(

SECURITY

1. Central Control

The Officer at this post monitors the movement of staff, visitors, inmates, and other personnel entering, exiting, and functioning inside the secure perimeter of the facility. This Officer is responsible for opening electronic doors and for monitoring all intercom systems, facility cameras, facility fire alarm panels, and communications. The activities performed by the Officer at this post are critical to the operations of the facility. As mandated by the *Minimum Standards for Local Detention Facilities in South Carolina*, this post must be staffed twenty-four (24) hours a day, seven (7) days a week.

The recommended staffing for this post is one (1) Officer per shift. Due to the intensity of constant monitoring and reacting/initiating, and the need for alertness by the Officer on duty, it is recommended that this position be rotated or relieved periodically during each shift.

2. Booking

The Officer at this post processes inmates into the facility; receives and documents property and money; verifies authorizations and prepares booking documents; and performs initial screening and housing assignments. This Officer is required to perform these same functions in reverse order when an inmate is released.

The recommended staffing for this post is one (1) Officer per shift.

3. Floater

The Officers in this position monitor inmate activity throughout the facility and assist with preparing and dispensing medication; conduct mandatory and unscheduled inmate counts; and physically inspects all areas of the facility; provide security during sick call and visitation; distribute mail; supervise inmate programs; provide security during board hearings; escort inmates to their housing units; and provide other services as required.

The Officers in this position are also responsible for checking inmates out of the facility for work in the morning and searching and checking inmates back into the facility in the afternoon. Every inmate who leaves the facility must be searched prior to re-entering it. This is critical to controlling the admission of contraband into the facility and is also required by the *Minimum Standards*.

Appendix B contains a list of activities that Officers are required to perform. Officers in the Floater position are responsible for conducting these activities.

Due to the linear layout of the facility, overcrowding, and conducting mandated activities, the recommended staffing for this position is three (3) Officers on first and second shift, and (2) Officers on third shift.

€

€

€

4. Shift Supervisor

Each Officer in this position is responsible for supervising and directing the activities of the Officers working on their shift. In addition, this Supervisor is responsible for assisting the Officers and carrying out any duties that may be required of them during the shift.

The recommended staffing for this position is one (1) Supervisor per shift.

ADMINISTRATIVE

1. Detention Center Director

The Director will manage facility operations in accordance with the facility mission and in compliance with the *Minimum Standards for Local Detention Facilities in South Carolina* and other applicable federal, state, and local codes and requirements. The Director will be responsible for supervising staff, maintaining property, and managing the budget; formulating and implementing policies and procedures; establishing agency goals, objectives, and services; and providing for the security, health, and safety of inmates. The Director will also interact with public and private agencies, community groups, volunteers, and the media. The Director will provide reports to the Sheriff and will perform other duties as assigned.

2. Assistant Director

The Assistant Director will manage the facility when the Director is not present. The Assistant Director will provide support to the Director and will perform other duties as assigned, including special projects and such regular functions and assignments that are delegated by the Director. These duties may include, among other things, correspondence and official documentation to the Criminal Justice Academy, the Department of Corrections, and other agencies with which the facility regularly interacts.

3. Training Officer

The Training Officer will conduct training as mandated by the *Minimum Standards for Local Detention Facilities in South Carolina*, the South Carolina Law Enforcement Training Act, and other nationally recognized practices. The Training Officer will be responsible for maintaining all employee training records and for ensuring that each Officer meets certification requirements.

4. Inmate Programs Coordinator

The Inmate Programs Coordinator plans, implements and coordinates a variety of inmate programs, including home detention (electronic monitoring) and work release. Develops, schedules and monitors inmate programs, such as vocational counseling, adult education, and alcohol / drug treatment, in cooperation with other government agencies and with religious and private organizations. Researches, prepares and implements policies, procedures, program guidelines, screening processes, and other standards for inmate programs. Provides information to inmates,

€

10

€

10

10

10

€

officers and the public about available programs. Develops, maintains, and periodically updates a list of community resources that are available for inmates. Screens inmates and monitors their progress in, and compliance with, various programs.

5. Inmate Transportation

There is currently only one (1) designated Transport Officer at the existing facility. In order to meet the transport needs of the facility, other Officers are pulled from their posts. This decreases inmate supervision and leaves critical posts and positions uncovered, which increases the potential for assaults and escapes. This practice also increases the County's liability exposure. One (1) Officer position is not enough for this function.

The Officers in this position will supervise and escort inmates into and out of the facility as mandated by court orders, medical needs, and other commitments. These transports can cover the entire State of South Carolina. When not transporting inmates, these Officers will provide assistance to the Floaters in performing duties throughout the facility.

This position should be staffed by two (2) Officers.

6. Administrative Assistant

Professional administrative and clerical support must be available to the management and supervisory staff of the facility. Correspondence, records keeping, filing, and communications through telephone and electronic mail on behalf of the Detention Center are vitally important. The County must insure that all such functions are provided for without expecting the security staff to be diverted from their primary duties to carry out these non-security tasks.

7. Food Service/Facility Maintenance Supervisor

The employees in this position must plan menus which meet recognized dietary requirements, coordinate medically authorized and religious diets in accordance with acceptable practices and standards, order and maintain food supplies, and supervise the inmate workers during food preparation, serving of meals, and clean up. These tasks must be performed seven (7) days a week, 365 days a year, covering meals from breakfast through supper.

In addition to supervising the food service needs of the facility, these employees also supervise maintenance work being done in the facility. Unlike other County facilities, a backed up toilet or broken shower in this setting can result in injuries, diminished security, and litigation. The County needs to insure that someone is available to respond to maintenance problems at the Detention Center on a twenty-four (24) hour a day basis, seven (7) days a week. This need can be satisfied through an outside contract or by using on-call County employee(s).

Due to the time requirements of these positions, two (2) employees currently work split shifts to provide supervision of these tasks.

(

(

(

8. Medical Services

The County contracts for inmate medical services with a local physician and the facility has one (1) nurse on duty throughout the week. During the mandatory medical screening that must be done on all inmates within fourteen (14) days of their admission, as well as the regular sick call that must be available for all inmates on a continual basis, an Officer stays with each inmate while he/she is being assessed by the medical provider at the facility.

STAFFING AVAILABILITY AND SHIFT RELIEF FACTOR

Once the posts and positions required to cover all facility operations have been identified, the total number of personnel needed *to ensure coverage as required in an operation that is open every day of the year, twenty-four (24) hours a day, must be determined.* To project sufficient staffing and ensure continuous coverage without the necessity of overtime, a shift relief factor must be calculated.

To determine the staffing requirements to fill one (1) post, around the clock, every day of the year, two (2) factors are considered:

Staffing Availability

The base number of hours that one (1) staff member is available to work is called staffing availability. This is derived by subtracting all leave options (such as holiday, sick, vacation, etc.) and training requirements from the scheduled working hours.

Shift Relief Factor

The number of personnel required to provide continuous coverage of one (1) post or position, given their availability, is called the Shift Relief Factor. This figure is derived by dividing staffing availability into the total hours required to staff a post for 365 days a year.

Although some employees may not take all leave which is available to them, planning for continuous coverage of critical positions must be done on the basis of potential absences. Even then the factors affecting availability do not take into consideration some shortages such as those due to workers' compensation leave, unauthorized absences, and suspensions, and the factors do not consider turnover rates and the time it takes to train a new Officer prior to his/her being able to supervise inmates.

Oconee County Detention Officers work eight (8) hour shifts, for a total of 80 hours per pay period unless absent due to leave, training, or other approved reasons. Appendix A details the factors and steps that were used to determine the Shift Relief Factor.

To determine the Shift Relief Factor needed to cover each post or position per eight (8) hour shift, the following factors were taken into consideration:

C

1

C

2

C

3

- 88 hours of vacation earned a year;
- 96 hours of holiday time earned a year;
- 99 hours of sick leave earned a year;
- 40 hours of in-service training received per year;
- 164 hours of meals and breaks that must be relieved per year.

Based on the information outlined above, the shift relief factor for the Oconee County Detention Center is 1.83 Officers per shift for a twenty-four (24) hours per day, seven (7) days a week, post or position. Using this formula, the minimum number of personnel required to provide continuous coverage for each post or position is represented in the following chart:

€

€

€

PROPOSED MINIMUM STAFFING PLAN FOR THE OCONEE COUNTY DETENTION CENTER					
POSITION	1 ST SHIFT 5:45 AM 2:00 PM	2 ND SHIFT 1:45 PM 10:00 PM	3 RD SHIFT 9:45 PM 6:00 AM	SHIFT RELIEF	TOTAL STAFF
SECURITY					
Central Control	1	1	1	1.83	5.49
Booking	1	1	1	1.83	5.49
Floater/Security Escorts	3	3	2	1.83	14.64
Shift Supervisor	1	1	1	1.83	5.49
TOTAL:					31.11
ADMINISTRATION/SUPPORT					
Director	1				1
Assistant Director	1				1
Training Officer	1				1
Inmate Programs Coordinator	1				1
Inmate Transports	2				2
Admin. Support	1				1
Food Service/ Maintenance Supervisor		SPLIT SHIFT			2
Nurse					1
TOTAL:					10
TOTAL PROJECTED STAFF:					41

(

7.

(

17

(

STAFFING SUMMARY

As illustrated in the chart, the proposed minimum staffing level for the Oconee County Detention Center is thirty one (31) Security positions, one (1) Director, one (1) Assistant Director, one (1) Training Officer, one (1) Inmate Programs Coordinator, two (2) Transportation Officers, one (1) Administrative Assistant, two (2) Food Service/Maintenance Supervisors, and one (1) Nurse.

While it is impossible to totally eliminate overtime and unexpected costs, this is the minimum level of staffing that would be necessary to fully cover all mandated and critical posts and positions while providing for the safety and security of employees, inmates, and the citizens of Oconee County.

€

€

€

APPENDIX A
OCONEE COUNTY DETENTION CENTER - 8 HOUR SHIFTS
SHIFT RELIEF FACTOR WORKSHEET

STEP#	DESCRIPTION	HOURS	LETTER
1	# OF HOURS AGENCY CLOSED PER YEAR	0 hrs	A
2	# OF HOURS AGENCY OPEN PER YEAR (8,760 HOURS - A)	8,760 hrs	B
3	# OF PAID HOURS PER EMPLOYEE PER YEAR	2,080 hrs	C
4	# OF NON-PAID HOURS PER EMPLOYEE PER YEAR	6,680 hrs	D
5	# OF VACATION HOURS EARNED PER YEAR (Avg. for Staff - 11 days X 8hrs/day)	88 hrs	E
6	# OF HOLIDAY HOURS EARNED PER YEAR (12 days X 8hrs/day)	96 hrs	F
7	# OF COMPENSATION HOURS PER YEAR	0 hrs	G
8	# OF SICK LEAVES HOURS EARNED PER YEAR (12 months X 8.25 hrs per month)	99 hrs	H
9	# OF OTHER HOURS OFF PER YEAR	0 hrs	I
10	# OF TRAINING HOURS TAKEN PER YEAR (Minimum # hours mandated by Standards)	40 hrs	J
11	# OF HOURS UNAVAILABLE FOR DUTY POST (Sum of D through J)	7,003 hrs	K
12	# OF ACTUAL DUTY HOURS PER EMPLOYEE (B minus K)	1,757 hrs	L
13	# OF HOURS RELIEVED FOR MEALS/BREAKS	164.25 hrs	M
14	# OF HOURS ACTUALLY ON DUTY POST (L minus M)	1,592.75 hrs	N
15	SHIFT RELIEF FACTOR (S divided by N) - 5.5 divided by 3 Shifts = 1.83	N/A	O

*This shift relief factor is a low estimate which is based upon the minimum number of vacation, sick, and training hours for a 1st year employee.

(

(

— 1 —

(

2. 365 DAYS A YEAR X 24 HRS/DAY = 8,760 HRS PER YEAR
3. WORK HOURS = 80 HRS/PER PAY CYCLE X 26 PAY CYCLES/YEAR = 2,080 HRS PER YEAR
4. HOURS OFF WORK = 8,760 HRS/YEAR - 2,080 HRS/YEAR = 6,680 HRS PER YEAR
5. VACATION HRS = 11 DAYS X 8 HRS/DAY = 88 HRS PER YEAR
6. HOLIDAY HRS = 12 DAYS X 8 HRS/DAY = 96 HRS PER YEAR
8. SICK HRS = 8.25 HRS/MONTH X 12 MONTHS = 99 HRS PER YEAR
10. TRAINING HRS = 40 HRS PER YEAR
(This is the minimum number of training hours mandated per year by the Minimum Standards for Local Detention Facilities in South Carolina effective 1/1/2006.)
11. SUM OF 1 THROUGH 10 = 7,003 HRS
12. 8,760 HRS - 7,003 HRS = 1,757 HRS AVAILABLE FOR DUTY POST
13. RELIEVED MEALS & BREAKS = 1,757 HRS/YEAR DIVIDED BY 8 HRS/DAY = 219 DAYS. 219 DAYS/YEAR X .75 HRS/DAY = 164.25 HRS/YEAR
14. 1,757 HRS - 164.25 HRS = 1,592.75 HRS ACTUALLY ON DUTY POST
15. 8,760 HRS DIVIDED BY 1,592.75 HRS = 5.5 OFFICERS REQUIRED TO COVER ONE (1) PERMANENT POST OR POSITION
5.5 DIVIDED BY 3 SHIFTS = 1.83 SHIFT RELIEF FACTOR

(

(

(

APPENDIX B: OCONEE COUNTY DETENTION CENTER SELECTED ACTIVITY SCHEDULES

ACTIVITY	TIME LINE																						
	0600	1000	1400	1800	2200	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400
Prepare Medications																							
Dispense Medications																							
Daily Meals																							
Daily Counts																							
Work Crews-Out In																							
Joint Court																							
Exercise Yard																							
MOC Cell																							
Courts 2 day work																							
Medical Services MSn, Tns, Wrd																							
Visitation Tue-Thur Sat-Sun																							

*Other activities including General Sessions Court, in-facility inmate movements, medication inventory, sick call, attorney visits, non-scheduled inmate counts, Officer training, and other day to day activities are not reflected on this chart.

C

10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
449
450
451
452
453
454
455
456
457
458
459
459
460
461
462
463
464
465
466
467
468
469
469
470
471
472
473
474
475
476
477
478
479
479
480
481
482
483
484
485
486
487
488
489
489
490
491
492
493
494
495
496
497
498
499
499
500
501
502
503
504
505
506
507
508
509
509
510
511
512
513
514
515
516
517
518
519
519
520
521
522
523
524
525
526
527
528
529
529
530
531
532
533
534
535
536
537
538
539
539
540
541
542
543
544
545
546
547
548
549
549
550
551
552
553
554
555
556
557
558
559
559
560
561
562
563
564
565
566
567
568
569
569
570
571
572
573
574
575
576
577
578
579
579
580
581
582
583
584
585
586
587
588
589
589
590
591
592
593
594
595
596
597
598
599
599
600
601
602
603
604
605
606
607
608
609
609
610
611
612
613
614
615
616
617
618
619
619
620
621
622
623
624
625
626
627
628
629
629
630
631
632
633
634
635
636
637
638
639
639
640
641
642
643
644
645
646
647
648
649
649
650
651
652
653
654
655
656
657
658
659
659
660
661
662
663
664
665
666
667
668
669
669
670
671
672
673
674
675
676
677
678
679
679
680
681
682
683
684
685
686
687
688
689
689
690
691
692
693
694
695
696
697
698
699
699
700
701
702
703
704
705
706
707
708
709
709
710
711
712
713
714
715
716
717
718
719
719
720
721
722
723
724
725
726
727
728
729
729
730
731
732
733
734
735
736
737
738
739
739
740
741
742
743
744
745
746
747
748
749
749
750
751
752
753
754
755
756
757
758
759
759
760
761
762
763
764
765
766
767
768
769
769
770
771
772
773
774
775
776
777
778
779
779
780
781
782
783
784
785
786
787
788
789
789
790
791
792
793
794
795
796
797
798
799
799
800
801
802
803
804
805
806
807
808
809
809
810
811
812
813
814
815
816
817
818
819
819
820
821
822
823
824
825
826
827
828
829
829
830
831
832
833
834
835
836
837
838
839
839
840
841
842
843
844
845
846
847
848
849
849
850
851
852
853
854
855
856
857
858
859
859
860
861
862
863
864
865
866
867
868
869
869
870
871
872
873
874
875
876
877
878
879
879
880
881
882
883
884
885
886
887
888
889
889
890
891
892
893
894
895
896
897
898
899
899
900
901
902
903
904
905
906
907
908
909
909
910
911
912
913
914
915
916
917
918
919
919
920
921
922
923
924
925
926
927
928
929
929
930
931
932
933
934
935
936
937
938
939
939
940
941
942
943
944
945
946
947
948
949
949
950
951
952
953
954
955
956
957
958
959
959
960
961
962
963
964
965
966
967
968
969
969
970
971
972
973
974
975
976
977
978
979
979
980
981
982
983
984
985
986
987
988
989
989
990
991
992
993
994
995
996
997
998
999
999
1000

C

C

C