OSBM

# Inmate Road Squads And Litter Crews

## As Directed by Session Law 2007-323, Section 17.2

## Management Study

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***Office of State Budget and Management***

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# INTRODUCTION

## *Scope of Study*

Section 17.2 of Session Law 2007-323 requires that the Office of State Budget and Management (OSBM), in consultation with the Department of Correction (DOC) and the Department of Transportation (DOT), conduct a study to determine the actual cost and cost/benefit of operating medium custody road squads and minimum custody litter squads (work squads). The study should also determine whether $11.3 million dollars transferred from DOT to DOC is adequate.

## *Methodology*

To conduct the study, OSBM analysts performed the following tasks:

- Reviewed internal reports, forms, and publications,
- Reviewed financial data,
- Observed medium work squads and minimum work squads,
- Identified the cost of operating medium work squads and minimum work squads,
- Identified the number of hours spent by road squads to perform road litter maintenance,
- Identified road miles cleaned or maintained by road squads,
- Determined the benefits of operating medium work squads and minimum work squads,
- Evaluated the cost/benefit of medium work squads and minimum work squads,
- Determined the cost for DOT workers to perform road litter maintenance, and
- Analyzed various other data.

# BACKGROUND

Inmate road work dates back to an 1887 law requiring judges to sentence less serious offenders to hard labor on the county roads and highways. General Statute 148-26 states "as many minimum custody … and as many medium custody prisoners as are available, for work and can be adequately guarded during such work without reducing security levels at prison units, shall be employed in the maintenance and construction of public roads of the State." The General Assembly in the past four fiscal years required DOT to transfer $11.3 million[1] to DOC to cover the inmate work squad's costs.

DOC's Division of Prisons and DOT work together to organize medium and minimum custody inmates into work squads that keep roadside litter to a minimum on the many highways across the State of North Carolina. Medium work squads are made up of eight inmates and are supervised by two armed correctional officers. Medium work squads are transported in a small prison bus to their assigned work locations. Minimum work squads consist of a maximum of 10 inmates supervised by one unarmed correctional officer. Minimum work squads are transported in a 15-passenger van.

The Division of Prison screens inmates to select low risk custody inmates to serve on squads. Medium and minimum work squads cannot:

- have a history of escape from armed supervision or more than one escape from minimum custody within the past five years;
- have convictions for any serious assaultive crimes against persons unless they are within 12 months of minimum custody eligibility, or
- have served less than 60 days in minimum or medium custody.

In addition, medium work squads must:

1 $10 million for medium and $1.3 million for minimum work squads.

- be within 36 months of minimum custody eligibility,
- not have any pending charges for Class A or B criminal offences, or
- not have a history of serious institutional violence within the last year.

The only other additional selection criteria for minimum work squads are that they cannot have more than two escapes within the past 5 years.

## RESULTS

***Work Days***

Work squads are deployed 8-hours per day for five days per week. Inmates spend approximately 4-hours per day picking up trash. The remaining four hours are spent on security effort, transportation to the work site and hourly water and food breaks. Security efforts include several head counts per day and inmate searches before inmates board the bus.

A working year equals 260 days (total available work days) since inmates work 5 days per week for 52 weeks per year. In January 2007, DOC implemented a new computer system to track the effectiveness of work squad deployment. The system tracks the percent of days worked and not worked and includes the reason work squads were not deployed. Reasons for inmates not working include holidays, extreme weather conditions[2], training, staff shortages, management decisions, vehicle repairs, security, and failure of DOT to pick up inmates.

During our review of the DOC computer system, we found inconsistencies between total available work days and the number of days reported in the system. For example, the 68 minimum work squads reported a total of 15,181 days (worked and not worked) whereas total available days were 17,680 (68 squads x 260 days). Consequently, work squad supervisors did not account for 2,499 days in the DOC computer system for minimum work squads. Similarly, the 104 medium work squad supervisors reported a total of 21,188 days (worked and not worked). Actual available work days totaled 27,040 (104 x 260 days) for medium work squads. Therefore, 5,852 days were not entered into the DOC computer system for medium work squads.

The work squad supervisor is responsible for entering inmate work activities into the computer system on a daily basis, including reasons work squads were not deployed. Failure to enter all days worked and not worked into the system causes the DOC computer system to be incomplete and reports to be inaccurate. Table 1 shows the lack of consistent data entered into DOC computer system since no medium work squads accounted for 260 available days and only 3 of the 68 minimum work squads accounted for 260 available work days. Reporting weaknesses are due to inadequate computer controls and lack of documented policies.

**Table 1**
**Accurate Reporting of 260 Available Work Days**

| | Medium | Minimum | Total |
|---|---|---|---|
| Prisons under reporting | 104 | 63 | 167 |
| Prisons Accurately Reporting | 0 | 3 | 3 |
| Prisons Over Reporting | 0 | 2 | 2 |
| Total | 104 | 68 | 172 |

Source: DOC

***Squad Costs***

Medium and minimum work squad costs consist of correctional personnel, including benefits, supplies, equipment, transportation, and inmate labor. DOC includes a 25% relief factor, which is industry standard[3], into the overall personnel costs. The relief factor allows for coverage when the work squad officers attend training[4] or takes leave. Supply costs consist of miscellaneous hand tools, cell phones, and correctional officers' weapons and uniforms.

[1] Extreme weather conditions include rain, snow, sleet, snow, chill factors of 20 degrees Fahrenheit or below, or temperatures above 95 degrees Fahrenheit.

[3] Relief factors are based on the National Institute of Corrections industry standard and necessary to ensure a post is filled 5 days per week for the work squad officers.

[4] Each officer is required to take 40 hours of in-service training each year.

Medium work squad correctional officers are equipped with a shotgun, handgun, pepper spray, magazine pouch, handcuffs, handcuff cases and pistol holsters while minimum correctional officers do not carry any guns.

As identified in Table 2, personnel cost for a medium work squad totals $85,845 per squad and minimum work squad total is $45,420 per squad. The reason for this difference is there are two correctional officers on a medium work squad while there is one officer on a minimum work squad. After adding in supplies and equipment costs, the cost for a medium work squad totals $97,944 while a minimum work squad is $52,953. For medium work squads, inmate labor totaled $74,198. Minimum work squad inmate labor totaled $76,731. In fiscal year 2007, the 104 medium work squads cost $10,186,230 and the 68 minimum work squads cost $3,677,500.

**Table 2**
**Breakdown of Work Squad Costs**

| **PERSONNEL** | **Medium** | **Minimum** |
|---|---|---|
| Correctional Officer (CO) | $29,164 | $29,164 |
| Relief Factor | $ 7,291 | $ 7,291 |
| Lead Officer | $32,447 | $ 0 |
| Health Benefits | $ 6,752 | $ 3,573 |
| SS Tax | $ 5,271 | $ 2,789 |
| Retirement | $ 4,920 | $ 2,603 |
| **Subtotal Personnel Cost Only** | $85,845 | $45,420 |
| | | |
| **EQUIPMENT/TRAINING** | | |
| Officer Training | $ 158 | $ 88 |
| Officer Uniform | $ 754 | $ 419 |
| Weapons | $ 111 | $ 6 |
| Bus | $ 6,591 | $ 0 |
| Van | $ 0 | $ 2,302 |
| Vehicle Operation | $ 3,150 | $ 3,150 |
| Hand Tools | $ 1,248 | $ 1,248 |
| Cellular Telephone | $ 87 | $ 87 |
| Trailers (vans only) | $ 0 | $ 233 |
| **Subtotal Equipment and Training Only** | $12,099 | $ 7,533 |
| | | |
| **Total Annual Cost Without Inmate Labor For 1 Squad** | **$97,944** | **$52,953** |
| | | |
| Number of Squads | 104 | 68 |
| **Total Annual Cost Without Inmate Labor Cost for All Squads** | **$10,186,230** | **$3,600,804** |
| Inmate Labor Cost | $74,198 | $76,731 |
| | | |
| **Total Inmate Labor Cost Including Inmate Labor Costs** | **$10,260,428** | **$3,677,500** |
| | | |
| **Total Cost For All Inmate Labor Costs** | **$13,937,927** | |
| Source: DOC | | |

***Inmate Deployment***

It is the goal of the DOC to deploy inmate road squads 70% (182 days) of the 260 total available work days. Several factors affect the availability of inmates and the number of work hours performed by medium and minimum work squads. Acceptable work absences for inmates not being deployed include holidays, weather, vehicle repair, security, and failure of DOT to pickup inmates. Security is also an acceptable work day absence since prison superintendants use guards for major prison lockdowns and disturbances.

An analysis of average work days per squad was conducted and is reflected in Table 3. Neither medium nor minimum

**Table 3**
**Analysis of Days Deployed in Calendar Year 2007**

| **Squad** | **Total Days Available** | **DOC Deployment Goal (70%)** | **Actual Days Deployed** | **Actual Days Plus Acceptable Absence** | **Unacceptable Days** |
|---|---|---|---|---|---|
| Medium | 260 | 182 | 127 | 161 | 44 |
| Minimum | 260 | 182 | 161 | 190 | 34 |
| Source: DOC | | | | | |

work squads met the goal of 70% deployment. Actual deployment rates for medium squads were 49% and minimum squads were 62%. On average, medium squads are not deployed 44 days and minimum squads are not deployed for 34 days of the 260 days available for unacceptable reasons.

DOC's only performance measure is the 70% deployment rate. The staff hours, inmate hours, highway miles cleaned, and numbers of bags collected are not used to measure the work squad's effectiveness and efficiency. In the absence of documented performance goals and objectives, we used DOT's Clean Sweep Program as a basis to measure inmates' performances. The Litter Sweep Roadside Cleanup Program is a concentrated effort by North Carolina to use inmates 4 weeks a year[5] to remove litter from North Carolina highways. During a 5 year period (September 2002 and September 2007), medium and minimum inmate work squads cleaned an average 8,874 miles of highway and picked up an average of 116,792 bags of litter for each 2-week period. Table 4 estimates the performance of a squad for one day. This information was utilized to estimate medium and minimum squad's performance.

**Table 4**
**Per Day Per Crew – Performance Measures**

| Measure | Medium Squad | Minimum Squad |
|---|---|---|
| Highway Miles | 2 | 10 |
| Bags of Litter | 24 | 134 |
| Source: DOC | | |

Based on deployment data shown in Table 3 and estimated performance measures in Table 4, if DOC work squads had worked the optimum 182 days during 2007, they could have cleaned 161,498 miles of highways and removed 2,125,611 bags of litter. However, medium work squads were deployed 49% and minimum work squads were deployed 62% of the work year. Table 5 shows performance measures by miles and Table 6 shows performance measure for bags.

**Table 5**
**Estimated Highway Miles**

| Measure | Medium Squad | Minimum Squad |
|---|---|---|
| Optimum | 31,685 | 129,813 |
| Actual | 22,180 | 114,977 |
| Source: DOC | | |

**Table 6**
**Estimated Bags of Litter**

| Measure | Medium Squad | Minimum Squad |
|---|---|---|
| Optimum | 460,987 | 1,664,624 |
| Actual | 322,691 | 1,474,382 |
| Source: DOC | | |

There were 44 and 34 days of unacceptable absences for medium and minimum work squads, respectively. If DOC would have deployed the squads during those days, an additional 44,752 highway miles could have been cleaned and 419,632 bags of litter could have been collected.

***Determination of Actual Annual Work Squad Costs***

The correctional officers assigned to the inmate work squads are paid with DOT funds. As shown in Table 2, the annual cost to deploy medium and minimum work squads is approximately $13.9 million. However, this analysis includes the cost of unacceptable work day absences. Table 7 identifies the reasons why squads are not deployed, categorizes the reasons by acceptable or unacceptable and shows absenteeism rates. The lack of deployment due to unacceptable work day absences should reduce the annual cost of work squads.

DOC did not deploy minimum work squads 13% of the time due to unacceptable work day absences causing an adjustment of $468,100. Medium work squads were not deployed 17% of the time causing an adjustment of $1,731,659. See Table 8 for the cost adjustment for unallowable work day absences.

**Table 7**
**Reasons for Days Not Worked**

| | Minimum Work Squad | Medium Work Squad |
|---|---|---|
| **Acceptable** | **Work Days** | **Work Days** |
| Weather | 788 | 1,586 |
| Holiday | 472 | 628 |
| Vehicle Repair | 398 | 1,176 |
| Security | 36 | 6 |
| Total Acceptable | 1,694 | 3,396 |
| | 10% | 13% |
| | | |
| **Unacceptable** | **Work Days** | **Work Days** |
| Training | 304 | 680 |
| Staff Shortage | 1,177 | 3,022 |
| Management Decision | 831 | 923 |
| No DOT Pickup | 24 | 5 |
| Total Unacceptable | 2,336 | 4,630 |
| | 13% | 17% |
| | | |
| Source: DOC | | |

[5] Litter Sweep Roadside Cleanup Program consists of 4 weeks a year, 2 weeks in April and 2 weeks in September.

**Table 8**
**Adjustments for Unacceptable Inmate Absences**

| | | |
|---|---|---|
| Total Annual Cost Without Inmate Labor Cost for All Squads | **$10,186,230** | **$3,600,804** |
| Inmate Labor Cost | $74,198 | $76,731 |
| Adjustment for Unacceptable Inmate Absences | ($1,731,659) | ($468,100) |
| Total Costs | **$8,528,769** | **$3,209,435** |
| Total Actual Costs for Both Squads | **$11,738,204** | |
| Source: DOC | | |

***Benefits of Work Squad***

There are several benefits for utilizing inmate work squads which include:

- Annual cost savings of $201,687 for using inmates versus DOT state employees as reflected in Table 9. Appendix A has details and cost saving if squads were deployed at a lower than 100% rate.
- Inmates clean an estimated 137,157 highway miles annually.
- The public has a positive view of inmates picking up litter.

**Table 9**
**Cost Comparison Between DOT State Employee Vs DOC Inmates Squad**

| | **DOT** | **DOC** | **Cost Savings** |
|---|---|---|---|
| Based on 100% deployment | $283,236.80 | $81,549.30 | $201,687.50 |

## CONCLUSIONS

OSBM concludes:

- The deployment rate of DOC inmate work squads is significantly below the target deployment rate.
- DOC's new system for tracking work squad deployment is not providing accurate reports for effective road squad cost development because of incomplete supervisory input to the system.
- Even when allowing for the lower deployment rate, the $11.3 million transfer is not adequate to cover the costs. After adjustments for the underutilization, the cost is $11,738,204.
- By utilizing the inmate work squads versus DOT employees, there is a cost savings of $201,687 annually for each inmate work squad that is utilized.

## RECOMMENDATIONS

OSBM recommends that:

- DOC should diligently work towards reducing unacceptable absences which will improve DOC's effort to accomplish its 70% deployment rate.
- DOC should prorate personnel costs for unacceptable absences.
- DOC should implement control and monitoring procedures to accurately report inmate road squad work activities. This could be accomplished by:
    - Providing work squad supervisors computer training,

    - Developing computer controls requiring accountability for all work days, and
    - Assigning individual(s) to review computer reports for accuracy.

- DOT should transfer $11.8 million to DOC to cover actual costs of inmate work squads. DOC and DOT should work together to monitor costs of inmate work squads.

**ACKNOWLEDGEMENTS**

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# DOT and DOC Cost Comparison of Work Squads

***Cost comparison:***

| | | DOT | | DOC | Cost Savings |
|---|---|---|---|---|---|
| Based on 100% deployment | | $283,236.80 | [1] | $81,549.30 | **$201,687.50** |
| Based on 62% deployment (minimum custody) | | $207,535.33 | [2] | $54,080.88 | **$153,454.45** |
| Based on 49% deployment (medium custody) | | $164,019.86 | [3] | $98,657.96 | **$65,361.90** |

**Cost for DOT to Deploy One Squad**

| | quantity | unit cost /hour | total/ hour | |
|---|---|---|---|---|
| DOT employee | 8 | 16.35 | 130.80 | |
| DOT supervisor | 1 | 22.89 | 22.89 | |
| | | | | |
| Truck | 1 | 7.24 | 7.24 | |
| | | | | |
| Cost/hour | | | $ 160.93 | |
| [1]Based on available work hours (1,760 x $160.93) | | | | **$283,236.80** |
| [2]Based minimum custody deployment rate (1,760 x $160.93*62%) | | | | **$207,535.33** |
| [3]Based medium custody deployment rate (1,760 x $160.93*49%) | | | | **$164,019.86** |

**Cost for DOC to Deploy One Squad**

| | Medium Squad Cost | Minimum Squad Cost | Weighted Average Squad Cost |
|---|---|---|---|
| DOC Employee and Equipment Total for One Work Squad (see Table 3) | $ 97,944.52 | $ 52,952.48 | $ 79,947.70 |
| | | | |
| **Inmate Labor** | | | |
| 8 or 10 man crew * $.70 per day * 260 available days | $ 1,456.00 | $ 1,820.00 | $ 1,601.60 |
| Deployment factor | 49% | 62% | |
| **Annual Labor Cost for Inmate Labor Squad** | $ 713.44 | $ 1,128.40 | |
| | | | **$ 81,549.30** |
| | | **$ 54,080.88** | |
| | **$ 98,657.96** | | |

Annual Available Working Hours

| | |
|---|---|
| 2,080 | Total Annual Hours |
| 1,760 | Available Working Hours |
| 1,290 | Minimum Custody Deployment Rate (2,080 hrs x 62%) |
| 1,019 | Medium Custody Deployment Rate (2,080 hrs x 49%) |