

Greene County Adult Treatment Court Springfield, Missouri *4-Track Model Outcome and Cost Evaluation Report*

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**Office of State Courts
Administrator**
2112 Industrial Drive
Jefferson City, MO 65109

Submitted by:

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**Greene County Adult Treatment Court
Springfield, Missouri**
***4-Track Model Outcome and
Cost Evaluation Report***

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to enrich people's lives*

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EXECUTIVE SUMMARY

Background

In July 2012, the Greene County Adult Treatment Court (GCATC) began using the Risk and Need Triage (RANT®), a scientifically validated screening tool developed by the Treatment Research Institute (TRI), to place participants into quadrants based on prognostic risk and criminogenic need with the objective to use resources more efficiently by targeting the specific risks and needs of the participants. RANT scores were used to place participant in four different quadrants, Quadrant 1 (Q1) high-risk/high-need; Quadrant 2 (Q2) low-risk/low-need; Quadrant 3(Q3) high-risk/low-need and Quadrant 4 (Q4) low-risk/low-need. The participants in each quadrant are placed in different tracks and have different requirements designed to match the participants' risks and needs. By October 2017, there were 366 participants in Q1 (HR/HN), 26 participants in Q2 (LR/HN), 166 in Q3 (HR/LN), and 61 in Q4 (LR/LN).

In October 2014, the Office of State Courts Administrator (OSCA) in Missouri, in partnership with NPC Research, received a grant from the Bureau of Justice Assistance, to perform process, outcome and cost evaluations of two drug courts operating in Missouri using the 4-track model, one of which is the GCATC.

Detailed process and outcome evaluations were conducted to determine the effectiveness and any efficiency gained by separating participants into separate tracks how best to replicate the practices. A cost-benefit analysis was conducted to determine what resources are needed to operate alternative tracks, any cost efficiencies in delivering services according to participant risk/need level and any savings due to improved outcomes. Specifically, the evaluation was designed to address the following study questions:

1. Did the program tailor the treatment court requirements and services to each of the four quadrants? That is, did the program provide services differently in each of the four tracks?
2. Did graduation rates differ before and after 4-track implementation?
3. Did placing participants into the four tracks according to assessed risk and need result in reduced recidivism including rearrests and reincarceration compared to traditional drug court and compared to individuals who were eligible for the treatment court but who did not participate?
4. What are the costs of program participation after implementing the 4-track model?
5. Were there any cost savings or offsets due to improved participant outcomes after 4-track implementation?

NPC selected a sample of treatment court participants at two time points: 1) Participants before the implementation of the 4-track model, and 2) Participants after the four tracks were implemented. Comparison groups of individuals eligible for treatment court but who did not participate in the program were selected at both time points (pre and post 4-track implementation). All individuals in the four sample groups were followed through administrative datasets for up to 3 years post program entry. Outcomes examined included graduation rates, rearrests and associated charges, and time incarcerated after program entry.



The cost approach used by NPC Research is called Transactional and Institutional Cost Analysis (TICA). The TICA approach views an individual's interaction with publicly funded agencies as a set of transactions in which the individual utilizes resources contributed from multiple agencies. In order to maximize the study's benefit to policymakers, a "cost-to-taxpayer" approach was used for this evaluation. The central core of the cost-to-taxpayer approach in calculating benefits (avoided costs) for drug courts specifically is the fact that untreated substance use disorders will cost tax dollar-funded systems money that could be avoided or diminished if substance use disorders were treated. The TICA approach also looks at publicly funded costs as "opportunity resources." That is, resources that are not spent on a particular transaction (e.g., time in jail) are available to be used in other contexts or for other individuals.

Results

Overall, both pre and post-4-track implementation, about two thirds of GCATC participants were male and almost all were White. The average age at program entry increased slightly from pre- to post-implementation from 28 years old to 31 years old. None of these characteristics was significantly different in the comparison group in the pre-4-track sample or post-4-track sample.

On average, for all samples, individuals had roughly 1.5 priors in the 2 years before the program entry date. There were no statistically significant differences in criminal history between the matched GCATC and comparison groups for each time period. When comparing the GCATC participants pre vs post-4-track implementation, GCATC participants had a similar total number of prior arrests across time periods. However, the post-4-track participants had more serious criminal charges (almost three times the number of person charges and 42% more property charges) while the pre-4-track group had roughly 40% more drug charges.

Quadrants varied widely in size with the largest number of participants in Q1 (HR/HN) ($N = 169$), followed by Q3 ($N = 76$), then Q4 ($N = 37$) and finally Q2 ($N = 15$). The majority of participants referred to the GCATC program are high-risk (82%). Participants in Q1 had the highest rates of methamphetamine and heroin/opioid and the lowest rates of alcohol as drug of choice. Participants in Q2 had the highest rates of marijuana as drug of choice. There were differences in gender between quadrants; with Q2 participants having significantly more females and Q3 having relatively fewer females. Quadrants were mostly similar for race, although Q3 had a greater percentage of African American participants compared to the other quadrants. Q2 participants tended to be older while Q1 participants were slightly younger. As expected for individuals screened as high-risk, participants in Q1 and Q3 had a more extensive criminal history than those in the low risk quadrants, Q2 and Q4.

Focus Group Results Summary. Focus groups were conducted with participants in each of the four quadrants. Results for the process study illustrated key differences between the four quadrants. Participants in Q1 were more likely to complain about the services and staff, but were also more likely to disagree with each other and "call each other out" on the truthfulness of those complaints. Q1 participants were also more likely to state that the program had saved their lives. Q2 participants were quieter than the Q1 participants and more supportive of each other. They were more likely to be appreciative of the treatment services they were receiving and more relaxed in their interactions with each other. Q3 participants were forthright in stating that they needed to work on their criminal thinking.

They reported feeling out of place in substance use or mental health disorder treatment groups when required to attend them in past, and appreciated that they were no longer required. Q4 participants were dressed noticeably different than the other three quadrants, in business dress rather than casual clothing. They stated they were scared of the other participants (in the other quadrants) when they came to court or attended other meetings where the participants were all combined. They expressed a deep appreciation for being able to have their own separate court sessions and education groups.

Answers to Research Questions

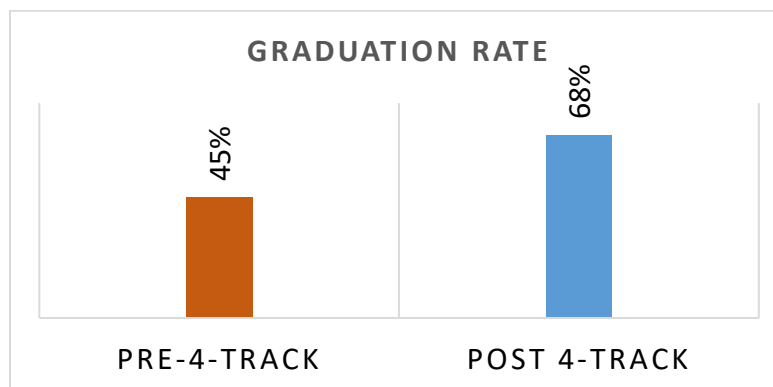
1. Were the treatment court requirements and services tailored to each of the four quadrants?

Yes. Participants in the high-risk quadrants (Q1 and 3) received greater amounts of supervision (and more jail sanctions) as well as high levels of non-substance use disorder treatment social services. Participants in the high-need quadrants (Q1 and 2) had the highest amounts of group counseling and education, individual counseling, day treatment and residential treatment while participants in Q4 had the lowest amounts of all types of treatment. Q3 had lower amounts of services than the high-need quadrants, but had more services than Q4. The GCATC appropriately matched services to the risk levels and criminogenic and clinical needs of its participants.

2. Did graduation rates differ before and after 4-track implementation?

Yes. The average graduation rate, using all non-active participants who either graduated or were terminated, was 45% for pre-4-track implementation participants (2009-2011) compared with 68% for post-implementation participant (2013-2014). This is a substantial increase in graduation rates, indicating that the 4-track model did result in significantly more successful program completion. In addition, a 68% graduation rate is substantially higher than the national graduation rate of 57% for treatment courts across the United States.

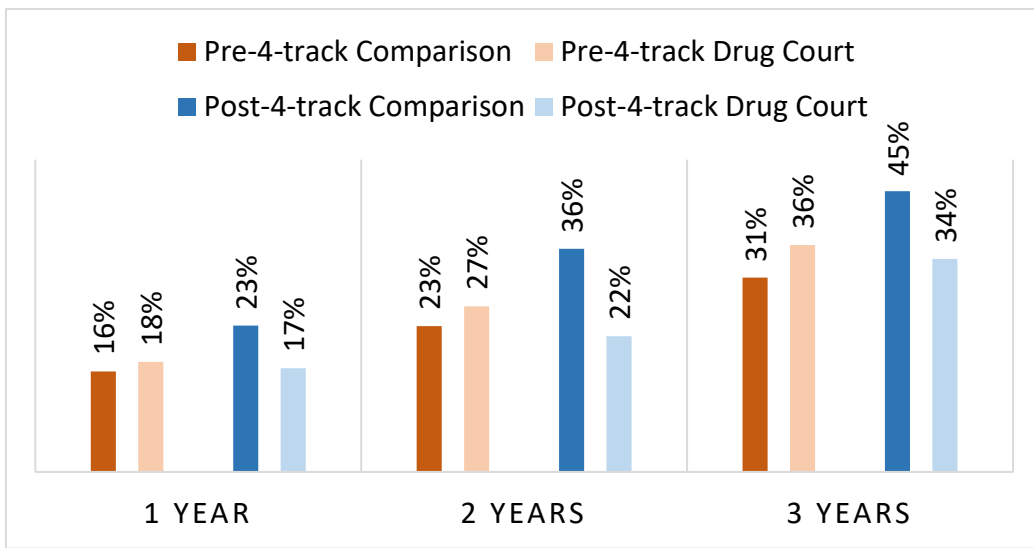
Figure A. Post-4-Track Participants Had a Significantly Higher Graduation Rate than Pre-4-Track Participants



3. Did placing participants into the four tracks according to assessed risk and need result in reduced recidivism?

Yes. At each of the 3 years from program entry the pre-4-track participants had a slightly higher rearrest rate than their comparison group while the post-4-track participants had a significantly lower rearrest rate.

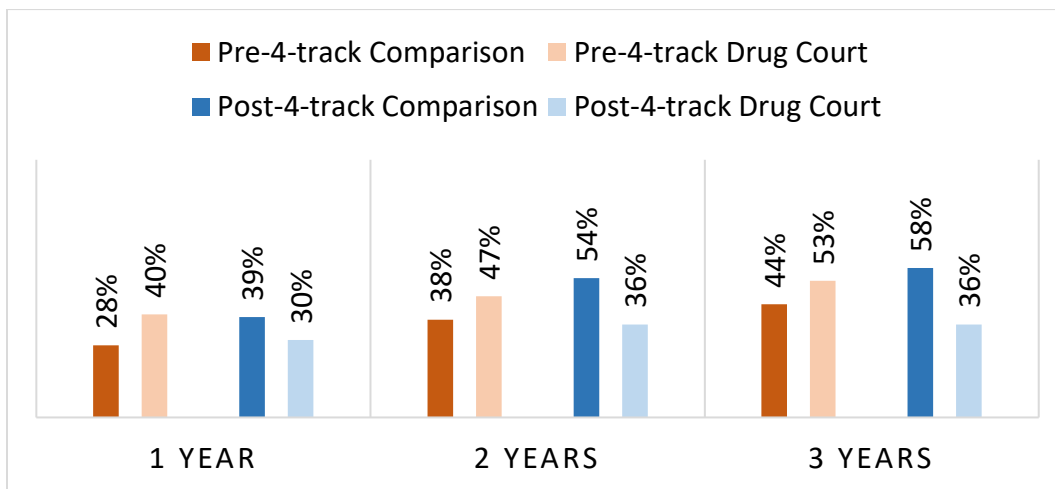
Figure B. Post-4-Track Participants Had Greater Reductions in Recidivism



A review of rearrest rates by charge showed lower rates of person and property crimes for post-4-track participants compared to their comparison group, and half the rearrest rate for drug charges (15% for GCATC participants versus 30% for the comparison group).

An examination of reincarceration rates (see Figure C) showed similar results. Participants pre-4-track implementation had slightly higher reincarceration rates while participants post-4-track implementation had significantly lower reincarceration rates.

Figure C. Post-4-Track Participants Were Reincarcerated Significantly Less Often



4. What are the costs of program participation after implementing the 4-Track model?

Table A shows that the average cost per participant for the GCATC program is \$13,565 (averaged across quadrants). When program costs are examined by quadrant, Q4 has the lowest cost per participant, and Q1 has the highest program cost per participant. The two high-need quadrants (1 and 2) have the highest costs for treatment and for the program overall and the two low-need quadrants have the lowest costs. This illustrates how the GCATC program is applying the principles of risk need responsiveness (RNR) and appropriately providing more intensive services for the HR/HN participants and fewer services for the LR/LN participants. This pattern demonstrates an efficient allocation of funds, spending more on participants who have the highest service needs while spending less on those who require fewer services.

Table A. Program Costs per Participant Post 4-Track Implementation

Transaction	Unit Cost ^a	Avg. Cost per Participant All GCATC	Avg. Cost per Participant Q1	Avg. Cost per Participant Q2	Avg. Cost per Participant Q3	Avg. Cost per Participant Q4
Case Management Days	\$6.84	\$3,974	\$4,377	\$4,740	\$3,361	\$1,468
Court Appearances	\$87.60	\$1,699	\$1,565	\$587	\$3,570	\$186
Treatment ^b	N/A	\$8,289	\$10,120	\$9,576	\$4,541	\$6,956
Drug Tests	\$11.25	\$956	\$865	\$1,009	\$1,103	\$1,009
Jail Sanctions	\$29.38	\$71	\$1,672	\$613	\$1,172	\$243
Program Fees ^c	N/A	(\$1,424)	(\$1,096)	(\$2,088)	(\$1,640)	(\$2,161)
TOTAL		\$13,565	\$17,503	\$14,437	\$12,107	\$7,701



5. Were there any cost savings or offsets due to improved participant outcomes after 4-Track implementation?

Yes. Table B presents the outcome costs for each transaction for all GCATC participants (graduates and terminated participants combined) and the comparison groups, for both the pre-4-track and post-4-track time periods.

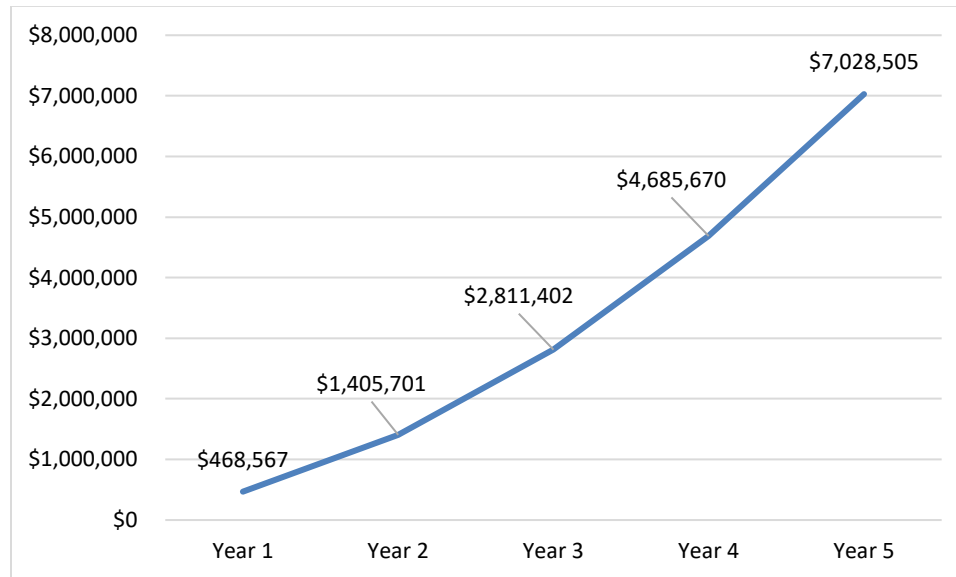
Table B. Outcome Costs per Person Over 3 Years – Pre and Post 4-Track Implementation

Transaction	Unit Costs	Pre-4-Track		Post-4-Track	
		GCATC Per Person (n = 205)	Comparison Per Person (n = 335)	GCATC Per Person (n = 180)	Comparison Per Person (n = 324)
Rearrests	\$96.66	\$47	\$55	\$57	\$78
Circuit Court Cases	\$807.71	\$396	\$460	\$477	\$654
Probation and Parole Days	\$6.26	\$1,561	\$2,524	\$844	\$2,032
Jail Days	\$29.38	\$1,451	\$994	\$810	\$1,339
Prison Days	\$59.84	\$7,945	\$8,985	\$6,673	\$8,746
TOTAL		\$11,400	\$13,018	\$8,861	\$12,849

The costs of criminal justice outcomes for both the pre- and post-4-track GCATC participants is less than the cost for their respective comparison groups, indicating a benefit, or savings, related to program participation in both time periods. Calculating the difference between the pre-4-track participants (\$11,400) and their comparison group (\$13,018) results in a benefit of \$1,618 per participant while the cost difference between post-4-track GCATC participants (\$8,861) and the comparison group (\$12,849) results in a benefit of \$3,988 per participant. The post-4-track participants have a larger benefit, or savings, (a total of \$2,370) than the pre-4-track participants indicating that there is additional benefit related to implementation of the 4-track model.

Figure D illustrates how the savings per participant can continue to grow with the number of new participants that enter the program each year. If the GCATC program serves a cohort of roughly 300 new participants annually, the savings of \$4,733 per participant (including savings related to fewer victimizations) results in a combined savings of \$473,300 per cohort per year, which can then be multiplied by the number of years the program remains in operation and for additional cohorts per year. After 5 years, the accumulated savings come to over **\$7 million**.

Figure D. Growth in Cost Savings Due to Positive Criminal Justice Outcomes for Post-4-Track GCATC Over 5 Years



If GCATC participants continue to have positive outcomes in subsequent years, then these cost savings can be expected to continue to accrue over time, repaying the program investment costs and providing further savings in the form of opportunity resources to public agencies. These findings indicate that GCATC 4-track model is both beneficial to participants and beneficial to Greene County and Missouri taxpayers.

These findings indicate that using RNR in a drug court setting through implementing separate tracks and providing supervision and services based on each participants individualized risk and need results in increased public safety due to lower criminal recidivism as well as substantial cost savings to the taxpayer.

BACKGROUND

Drug courts are designed to guide offenders identified as having substance use disorders into treatment that will support recovery and improve the quality of life for the offenders and their families. Benefits to society include substantial reductions in crime and decreased drug use, resulting in reduced costs to taxpayers and increased public safety.

In the typical drug court program, participants are closely supervised by a judge who is supported by a team of agency representatives operating outside of their traditional roles. The team typically includes a treatment court administrator, case managers, substance use disorder treatment providers, prosecuting attorneys, defense attorneys, law enforcement officers, and parole and probation officers who work together to provide needed services to drug court participants. Prosecuting and defense attorneys modify their traditional adversarial roles to collaborate in supporting the treatment and supervision needs of program participants. Drug court programs blend the resources, expertise and interests of a variety of jurisdictions and agencies.

Drug courts have been shown to be effective in reducing criminal recidivism (GAO, 2005), improving the psycho-social functioning of offenders (Kralstein, 2010), and reducing taxpayer costs due to positive outcomes for drug court participants (including fewer rearrests, less time in jail and less time in prison) (Carey & Finigan, 2004; Carey, Finigan, Waller, Lucas, & Crumpton, 2005). Some drug courts have been shown to cost less to operate than processing offenders through business-as-usual in the court system (Carey & Finigan, 2004; Carey et al., 2005).

More recently, research has focused not just on *whether* drug courts work but *how* they work, and *who* they work best for. Research-based best practices have been developed (e.g., Volume I of NADCP's Best Practice Standards was published in 2013 and Volume II in July 2015). These Best Practice Standards present multiple research-based practices that have been associated with significant reductions in recidivism or significant increases in cost savings or both. The Standards also describe the research that illustrates for whom the traditional drug court model works best, specifically, high-risk/high-need individuals. The Standards recommends that drug court programs either limit their population to high-risk/high-need individuals, or develop different tracks for participants at different risk and need levels (i.e., follow a RNR model). That is, drug courts should assess individuals at intake to determine the appropriate services and supervision level based on their assessment results (e.g., Andrews, Bonta, & Wormith, 2006; Lowenkamp & Latessa, 2005). In addition, the populations of participants at different risk and need levels should not mix as the research further shows that mixing leads to worse outcomes. Specifically, mixing low-risk individuals with high-risk individuals generally results in the low-risk becoming high-risk, and providing high intensity treatment for individuals with low-needs not only wastes resources, but can result in these low-need individuals becoming high-need or otherwise creating unnecessary challenges in their lives. This research has led to the development of more sophisticated drug court programs, including programs that have implemented multiple tracks for their participants based on the four "quadrants" of risk and need (high-risk/high-need, high-risk/low-need, low-risk/high-need, and low-risk/low-need). The first known programs to implement all four tracks, or quadrants, were the drug courts in Greene County and the City of St. Louis, Missouri, followed shortly after by Jackson County, where the judicial officers/commissioners and coordinators worked with their



teams and with community organizations to develop appropriate supervision, treatment and other complementary services for participants at each risk and need level.

In October 2014, the Office of State Courts Administrator (OSCA) in Missouri, in partnership with NPC Research, received a grant from the Bureau of Justice Assistance, to perform process, outcome and cost evaluations of two drug courts operating in Missouri that are using the 4-track model and to assist in the expansion of this model into four additional Missouri drug courts. The Missouri Drug Courts Coordinating Commission was interested in the costs associated with implementing this model and subsequently contracted with NPC to evaluate the costs and potential benefits in two of the expansion sites, Boone and Osage-Gasconade counties.

All programs are using a specialized screening tool, the Risk and Needs Triage (RANT®), a scientifically validated screening tool developed by the Treatment Research Institute (TRI), to place offenders in one of the four risk-need “quadrants” (See Table 1). The programs have separate treatment and supervision requirements according to participants’ risk and need levels. The 4-track model implemented in these sites is an effort to tailor the treatment court programs to the risk and needs of participants in each quadrant with the expectation that this will improve effectiveness and be more cost and resource efficient. The evaluation in these four sites is intended to determine whether this expectation is accurate. That is, the study across these four sites (Greene, Jackson, Boone and Osage-Gasconade counties) is designed to answer the question, does implementing separate tracks based on participant risk and need in treatment courts actually result in more efficient use of program resources and in improved participant outcomes?

Table 1. The Risk and Need Quadrants

	High-Risk (HR)	Low-Risk (LR)
High-Need (HN)	Quadrant 1 (Q1) high-risk/high-need	Quadrant 2 (Q2) low-risk/high-need
Low-Need (LN)	Quadrant 3 (Q3) high-risk/low-need	Quadrant 4 (Q4) low-risk/low-need

This report contains the study results specifically for the Greene County Adult Treatment Court. A summary of the study results across all four study sites is available online at www.npcresearch.com under “Reports & Publications.” This report includes the specific evaluation methods used in Greene County, a brief description of the 4-track treatment court program, and the outcome (recidivism) and program cost results for the Greene County Adult Treatment Court (GCATC).

Evaluation Design and Methods¹

The detailed process and outcome evaluations were conducted in Greene and Jackson County treatment court programs to determine the effectiveness and efficiency gained by separating participants into appropriate tracks as well as to improve upon these tracks and determine how best to replicate the practices. A cost-benefit analysis was conducted to determine resources needed to operate alternative tracks, cost efficiencies in delivering services according to participant risk/need level and any savings due to improved outcomes. Specifically, the evaluation was designed to address the following study questions:

1. Did the program tailor the treatment court requirements and services to each of the four quadrants? That is, did the program provide services differently in each of the four tracks?
2. Did graduation rates differ before and after 4-track implementation?
3. Did placing participants into the 4-tracks according to assessed risk and need result in reduced recidivism including rearrests and reincarceration compared to traditional drug court and compared to individuals who were eligible for the treatment court but who did not participate?
4. What are the costs of program participation after implementing the 4-track model?
5. Were there any cost savings or offsets due to improved participant outcomes after 4-track implementation?

NPC selected a sample of treatment court participants at two time points: 1) Participants before the implementation of the 4-track model, and 2) Participants after the four tracks were implemented. Comparison groups of individuals eligible for treatment court but who did not participate in the program were selected at both time points (pre and post 4-track implementation). All individuals in the four sample groups were tracked through administrative datasets for up to four years post program entry. Outcomes examined included graduation rates, rearrests and associated charges, and time incarcerated after program entry.

The cost approach used by NPC Research is called Transactional and Institutional Cost Analysis (TICA). The TICA approach views an individual's interaction with publicly funded agencies as a set of transactions in which the individual utilizes resources contributed from multiple agencies. Transactions are those points within a system where resources are consumed and/or change hands. In the case of drug courts, when a drug court participant appears in court or has a drug test, resources such as judge time, defense attorney time, court facilities, and urine cups are used. Court appearances and drug tests are transactions. In addition, the TICA approach recognizes that these transactions take place within multiple organizations and institutions that work together to create the program of interest. These organizations and institutions contribute to the cost of each transaction that occurs for program participants. TICA is an intuitively appropriate approach to conducting costs assessment in an environment such as a drug court, which involves complex interactions among multiple taxpayer-funded organizations.

¹ Statistical analysis methods are included as Appendix A



In order to maximize the study’s benefit to policymakers, a “cost-to-taxpayer” approach was used for this evaluation. This focus helps define which cost data should be collected (costs and avoided costs involving public funds) and which cost data should be omitted from the analyses (e.g., costs to the individual participating in the program).

The central core of the cost-to-taxpayer approach in calculating benefits (avoided costs) for drug courts specifically is the fact that untreated substance use disorders will cost tax dollar-funded systems money that could be avoided or diminished if substance use disorders were treated. In this approach, any cost that is the result of untreated substance use disorders and that directly impacts a citizen (through tax-related expenditures) is used in calculating the benefits of substance use disorder treatment.

Finally, NPC’s cost approach looks at publicly funded costs as “opportunity resources.” The concept of opportunity cost from the economic literature suggests that system resources are available to be used in other contexts if they are not spent on a particular transaction. The term opportunity resource describes these resources that are now available for different use. For example, if treatment for substance use disorders reduces the number of times that a client is subsequently incarcerated, the local sheriff may see no change in his or her budget, but an opportunity resource will be available to the sheriff in the form of a jail bed that can now be filled by another person, who, perhaps, possesses a more serious criminal justice record than does the individual who has received treatment and successfully avoided subsequent incarceration. Therefore, any “cost savings” reported in this evaluation may not be in the form of actual monetary amounts, but may be available in the form of a resource (such as a jail bed, or a police officer’s time) that is available for other uses.

SAMPLE/COHORT SELECTION

To ensure a rigorous outcome evaluation, it is necessary to select a cohort of individuals who participated in the GCATC both pre and post 4-track implementation and a cohort of similar individuals who did not participate in the program.

The GCATC Participant Groups

The Greene County Adult Treatment Court began implementing the 4-track model in July of 2013. The pre-4-track implementation sample selected for the study was the population of individuals who entered the program between January 2009 and March 2012. The post-4-track implementation sample was the population of individuals who entered the program from July 2013 to October 2017. This study uses an intent-to-treat design so all participants who entered the program during the selected time periods, regardless of exit status, are included in the analysis.

The Comparison Group

Step 1: Selecting the Comparison Group

The comparison sample is composed of individuals who are similar to those who participated in the treatment court program (e.g., similar demographics and criminal history) but who did not participate in the program. NPC obtained court case and arrest data for Greene County from OSCA’s Judicial Information System (JIS) (see Table 1 for more details). These data allowed for the identification of individuals who received similar types of eligible arrests (e.g., drug, property, etc.) during the same time periods as the GCATC participants and therefore were potentially eligible for the GCATC. Additional

information was gathered from the Department of Corrections (DOC) database that indicated whether they fit the eligibility criteria for the treatment court program. This information included detailed demographics and criminal history. All GCATC participants and comparison individuals were matched on all available information (described in detail below) using Mahalanobis Distance Matching.

Step 2: Matching the Comparison Group to the GCATC Group - Application of Propensity Score Weighting

Comparing program participants to offenders who did not participate in the drug court (comparison group members) is complicated by the fact that program participants may systematically differ from comparison group members, and those differences, rather than drug court, may account for some or all of the observed differences in the impact measures. To address this complication, once the available comparison sample was identified, we used a method called Mahalanobis Distance Matching because it provides some control for differences between the program participants and the comparison group (according to the available data on both groups) (Rubin, 1980). Mahalanobis Distance Matching selects comparison group members that are similar to GCATC participants and provides a weighting scheme designed to mimic randomized blocked designs when random assignment is not available or feasible.

NPC matched participants with potential comparison group members on a number of participant characteristics including: 1) race, 2) age, 3) sex, and 4) criminal history.



DATA COLLECTION AND SOURCES

Administrative Data

The data necessary for the evaluation were gathered from administrative databases as described in Table 2. The table lists the type of data needed and the source of these data.

Table 2. Greene County Treatment Court Data and Sources

Data	Source
<p><i>Treatment Court Program Data</i> <i>Examples:</i></p> <ul style="list-style-type: none"> • Participant demographics • Program start and end dates • Phase dates • Exit Status • Sanctions and Incentives 	<p>Judicial Information System (JIS)</p>
<p><i>Traditional Court Data</i></p> <ul style="list-style-type: none"> • Dates of case filings • Charges • Convictions 	<p>Judicial Information System (JIS)</p>
<p><i>Incarceration and Supervision Data</i></p> <ul style="list-style-type: none"> • Jail entry and exit dates • Prison entry and exit dates • Probation/parole start and end dates 	<p>Greene County Jail Missouri Department of Corrections</p>
<p><i>Drug Testing</i></p> <ul style="list-style-type: none"> • Dates of drug tests • Results of drug tests 	<p>Averhealth (Drug Testing and Laboratory Services)</p>
<p><i>Treatment</i></p> <ul style="list-style-type: none"> • Entry and exit dates of treatment received • Treatment modality • Units of service 	<p>Heartland Center for Behavioral Change Higher Ground Preferred Family Healthcare/ Alternative Opportunities Recovery Outreach Services</p>

Cost Data

The TICA methodology is based upon six distinct steps. Table 3 lists each of these steps and the tasks involved.

Table 3. The Six Steps of TICA

	Description	Tasks
Step 1:	Determine flow/process (i.e., how program participants move through the system).	Site visits/direct observations of program practice. Interviews with key informants (agency and program staff) using a drug court typology and cost guide.
Step 2:	Identify the transactions that occur within this flow (i.e., where clients interact with the system).	Analysis of process information gained in Step 1.
Step 3:	Identify the agencies involved in each transaction (e.g., court, treatment, police).	Analysis of process information gained in Step 1. Direct observation of program transactions.
Step 4:	Determine the resources used by each agency for each transaction (e.g., amount of judge time per transaction, amount of attorney time per transaction, number of transactions).	Interviews with key program informants using program typology and cost guide. Direct observation of program transactions. Administrative data collection of number of transactions (e.g., number of treatment sessions, number of drug tests).
Step 5:	Determine the cost of the resources used by each agency for each transaction.	Interviews with budget and finance officers. Review of websites, agency budgets and other financial paperwork.
Step 6:	Calculate cost results (e.g., cost per transaction, total cost of the program per participant).	Indirect support and overhead costs (as a percentage of direct costs) are added to the direct costs of each transaction to determine the cost per transaction. The transaction cost is multiplied by the average number of transactions to determine the total average cost per transaction type. These total average costs per transaction type are added to determine the program costs and the outcome costs.

Step 1 (determining program process) was performed during site visits by OSCA staff, through analysis of program documents, and through interviews with key informants. Step 2 (identifying program transactions) and Step 3 (identifying the agencies involved with transactions) were performed through observation during site visits and by analyzing the information gathered in Step 1. Step 4 (determining the resources used) was performed through extensive interviewing of key informants, direct observation during a site visits, and by collecting administrative data from the agencies involved in the program. Step 5 (determining the cost of the resources) was performed through interviews with program and non-



program staff and with agency financial officers, as well as analysis of budgets found online or provided by agencies. Finally, Step 6 (calculating cost results) involved calculating the cost of each transaction and multiplying this cost by the number of transactions. For example, to calculate the cost of drug testing, the unit cost per drug test is multiplied by the average number of drug tests performed per person. All the transactional costs for each individual were added to determine the overall cost per program participant/comparison group individual. This was reported as an average cost per person for the program, and outcome/impact costs due to rearrests, jail time and other recidivism costs, as well as any other service usage, such as treatment for substance use disorders. In addition, due to the nature of the TICA approach, it was also possible to calculate the cost of GCATC processing per agency, so that it is possible to determine which agencies contributed the most resources to the program and which agencies gained the most benefit.

RESULTS

This section includes brief background information about the Greene County Adult Treatment Court and then a summary of the key results and recommendations. The section following this summary provides the detailed outcome and cost results.

The Greene County Adult Treatment Court (GCATC) was established in 1998 to address the substance use disorders and the associated lifestyle of felony offenders by providing a structured program designed to hold the offenders accountable, help the offenders move toward recovery, and assure that they develop responsible living skills. The goals of the GCATC are to determine the best options for treatment and supervision for each participant that will optimize outcomes at the least cost to taxpayers and with the least threat to public safety, stop the revolving door of incarceration and criminal activity, and to return offenders to their families and the community as productive citizens. In July 2012 GCATC began using the RANT to place participants into quadrants based on prognostic risk and criminogenic need with the objective to use resources more efficiently by targeting the specific risks and needs of the participants. As of October 2017, there were 619 participants with RANT scores, 366 participants in Quadrant 1 (Q1) HR/HN, 26 participants in Quadrant 2 (Q2) LR/HN, 166 in Quadrant 3 (Q3) HR/LN and 61 in Quadrant 4 (Q4) LR/LN.

Process Evaluation Summary

From the site visit observation, team member interviews and participant focus groups, it was determined that overall, the GCATC follows essential guidelines and best practices within the 10 Key Components of Drug Courts.² Among its many positive attributes, the program should be specifically commended for the following practices:

- Representatives from all key agencies attend staffing and court sessions
- Excellent team member communication
- Regular email communication
- Program length is a minimum of 12 months, and has at least 3 phases
- A dedicated prosecuting attorney and defense attorney assigned to the program
- Eligibility criteria that includes participants with a wide range of charges
- Once they have entered the program, participants are connected with treatment services swiftly
- The program uses a validated tool to assess for risk and need levels and has developed a 4-track model that separates participants by quadrant in court and in treatment
- Treatment agencies are assigned to quadrants according to the typical services needed by participants in that quadrant
- The program provides relapse prevention education while participants are active in the program and continuing care options following graduation

² The full, detailed, process evaluation report can be found on the NPC website at http://npcresearch.com/wp-content/uploads/Greene-Co-process-evaluation-report_1215.pdf



- Drug testing occurs at least twice per week
- Rapid results from drug testing
- Sanctions are imposed swiftly after non-compliant behavior
- Guidelines on program responses to participant behavior with a printed copy given to each team member
- The team consistently takes into account participant risk and need level, and proximal and distal behaviors in determining a response to participant behaviors
- Jail is used sparingly
- The commissioner participates in regular training to stay abreast of the latest research as well as training others
- Court is every 2 weeks for high-risk (Q1 and Q3) participants
- The commissioner is respectful, fair, attentive, and caring in her interactions with the participants in court
- The commissioner consistently spends greater than 3 minutes with each participant
- Family members, including children, are allowed and even welcomed in court
- The GCATC collects electronic data
- Drug court team members receive ongoing training

Although this program was functioning well, there were some primary areas of suggested program improvement that arose in the staff interviews participant focus groups and observations during the site visit.

- Add a law enforcement representative on the team
- Consider the use of simple (automated) standardized staffing sheets
- Create a participant handbook
- Keep probation and treatment staff who work directly with participants more consistent.
- Ensure that a defense attorney is consistently present at staffing meetings and court sessions
- Have the assigned prosecutor agree to be a part of the team for at least 2 years or indefinitely instead of rotating regularly
- Decrease the length of time from arrest to program entry
- Create a training packet and guide for new team members, particularly those, such as the prosecutor, who rotate, or for position where there is high turnover
- Ensure all required data is entered in the statewide case management system

NPC has found that the above list of suggestions for program improvements are common issues for treatment courts all over the U.S. Although implementing these suggestions will enhance the GCATC, the program is already very high functioning and engaged in research based best practices.

4-Track Implementation

The GCATC began implementing the 4-track model in July 2013. RANT scores were used to place participants in four different quadrants, 1) high-risk/high-need (HR/LN); 2) low-risk/low-need (LR/HN); 3) high-risk/low-need (HR/LN) and 4) low-risk/low-need (LR/LN) (see Table 1). The participants in each quadrant are placed in different tracks and have different requirements designed to match the participants' risks and needs. Table 4 provides a summary of the key requirements for each track. This table demonstrates the GCATC did plan program requirements and service provision to match the risk and need levels of the participants that fell in each quadrant.

Table 4. Quadrant/Track Requirements

Quadrant ("Q")	Staffing Requirements	Court Requirements	Probation/Supervision Requirements	Treatment Requirements	Other Requirements
Q1 (HR/HN) Men Only	Two times per month (1st and 3rd weeks)	Two times per month (1st and 3rd weeks). Reduced to 1x per month in phases 3, 4, & 5	Weekly upon entry, reduced over course of program	Based on assessed level of care, specific to each participant	Criminal-thinking interventions in Phase 1, self-help groups in Phase 2 or 3
Q1 (HR/HN) Women only	Two times per month (2nd and 4th weeks - Alternates with Q1 male court dates)	Two times per month (2nd and 4th weeks - Alternates with Q1 male court dates)	Weekly upon entry, reduced over course of program	Based on assessed level of care, specific to each participant	Criminal-thinking interventions in Phase 1, self-help groups in Phase 2 or 3
Q2 (LR/HN)	No staffing - PO's and tx communicate by phone and email as needed; the PO's and tx touch base the day before court	On the 5th Wednesday (of any month with a 5th Wednesday - approx. 4 times per year), *Appear in court with Q4 participants	Weekly upon entry, quickly reduced over course of program	Treatment groups are separate from other quadrants	Self-help groups specific to individual
Q3 (HR/LN)	Two times per month	Two times per month (2nd and 4th weeks)	Weekly upon entry, reduced over course of program	No formal substance use disorder treatment. Focus on secondary prevention services, early interventions, and trauma services. Weekly individual session for 1st month	Criminal-thinking interventions early (Phase 1 or 2)



Quadrant ("Q")	Staffing Requirements	Court Requirements	Probation/Supervision Requirements	Treatment Requirements	Other Requirements
Q4 (LR/LN)	No staffing - PO's and tx communicate by phone and email as needed; the PO's and tx touch base the day before court	On the 5th Wednesday of every month with a 5th Wednesday, *Appear in court with Q2 participants	Weekly upon entry, quickly reduced over course of program	No formal substance use disorder treatment. Focus on secondary prevention services, early interventions, and trauma services. Weekly individual session for 1st month. Groups separate from other quadrants	
Non-compliance docket (All quadrants)	As needed at other staffings	Two times per week	N/A	N/A	N/A

Focus Group Results Summary. Focus groups were conducted with participants in each of the four quadrants. Results for the process study illustrated key differences between the four quadrants.

- Quadrant 1:** Participants in Quadrant 1 (high-risk/high-need) were more likely to complain about the services and staff, but were also more likely to disagree with each other and “call each other out” on the truthfulness of those complaints. Quadrant 1 participants were also more likely to state that the program had saved their lives.
- Quadrant 2:** Quadrant 2 participants were quieter than the Quadrant 1 participants and more supportive of each other. They were more likely to be appreciative of the treatment services they were receiving and more relaxed in their interactions with each other.
- Quadrant 3:** Quadrant 3 participants were forthright in stating that they needed to work on their criminal thinking. They reported feeling out of place in substance abuse or mental health treatment groups when required to attend them in past, and appreciated that they were no longer required.
- Quadrant 4:** Quadrant 4 participants were dressed noticeably different than the other three quadrants, in business dress rather than casual clothing. They stated they were scared of the other participants (in the other quadrants) when they came to court or attended other meetings where the participants were all combined. They expressed a deep appreciation for being able to have their own separate court sessions and education groups.

Outcome and Cost Evaluation Results

Treatment Court Participant and Comparison Group Demographics and Criminal History. Table 5 provides the demographics for the study samples of GCATC participants pre- and post-4-track implementation overall and by quadrant at the time of program entry. For the comparison group, a “program entry date” was imputed based on the various lengths of time between arrest and entry for GCATC participants who followed a similar entry process. More specifically, participants in the GCATC can enter the program pre-plea, post-plea, post-adjudication, and post-sentencing (including entering on probation violations and re-entering from prolonged incarceration). The comparison groups were selected from different time periods in the adjudication process to match the GCATC participant groups and then a “program entry date” was imputed accordingly.

Overall, Table 5 shows that, both pre and post-4-track implementation, about two thirds of GCATC participants were male and almost all were White. The average age at program entry increased slightly from pre- to post-implementation from 28 years old to 31 years old. None of these characteristics was significantly different in the comparison group in the pre-4-track sample or post-4-track sample.

Table 5. GCATC Participant and Comparison Group Characteristics Pre- and Post-4-Track Implementation: Demographics

	Pre-4-Track		Post-4-Track	
	<i>GCATC</i> <i>N = 205</i>	<i>Comparison</i> <i>N = 336</i>	<i>GCATC</i> <i>N = 300</i>	<i>Comparison</i> <i>N = 411</i>
Sex				
Male	63%	62%	68%	66%
Female	37%	38%	32%	34%
Race/Ethnicity				
White	89%	90%	91%	92%
African American	10%	9%	8%	7%
Other	1%	1%	1%	1%
Age at Entry Date				
Average age in years	28 years	29 years	31 years	31 years
Range	18 – 59	17 – 61	18 – 61	18 – 62



In terms of criminal history, the comparison groups pre and post-4-track implementation were matched to the GCATC participants and therefore were similar in their respective time periods. Table 6 shows the criminal history in the 2 years prior to program entry for the GCATC participants and the comparison group including average number of arrests for any charge and average numbers of arrests by type of charge (person, property, drug, or other) and level of charges (felony or misdemeanor). On average, for all samples, individuals had roughly 1.5 priors in the 2 years before the program entry date. These arrests may or may not include the arrest that led to each participant’s entry into the program as some individuals enter the program on a probation violation or upon reentry after incarceration so the charge that led to program entry may have occurred before the 2 years prior to entry. There were no statistically significant differences in criminal history between the matched GCATC and comparison groups for each time period.

When comparing the GCATC participants pre vs. post-4-track implementation we find that GCATC participants have a similar number of prior arrests across time periods. However, the post-4-track participants have more serious criminal charges (almost 3 times the number of person charges and 42% more property charges) while the pre-4-track group has roughly 40% more drug charges.

Table 6. GCATC Participant Characteristics Pre- and Post-4-Track Implementation: Criminal History

	Pre-4-Track		Post-4-Track	
	<i>GCATC</i> <i>N = 205</i>	<i>Comparison</i> <i>N = 336</i>	<i>GCATC</i> <i>N = 300</i>	<i>Comparison</i> <i>N = 411</i>
Average number of arrests 2 years prior to program entry	1.53	1.39	1.47	1.31
Average number of person arrests 2 years prior to program entry	0.06	0.06	0.16	0.14
Average number of property arrests 2 years prior to program entry	0.36	0.31	0.51	0.41
Average number of drug arrests 2 years prior to program entry	0.77	0.76	0.55	0.55
Average number of other arrests 2 years prior to program entry	0.32	0.25	0.29	0.23
Average number of misdemeanor arrests 2 years prior to program entry	0.65	0.59	0.72	0.61
Average number of felony arrests 2 years prior to program entry	1.01	0.96	1.00	0.89

Demographics and Criminal History by Quadrant. Table 7 shows demographics for GCATC Post-4-track participants separated by quadrant.³ First note that the quadrants varied widely in size with the largest number of participants in Q1 ($N = 169$), followed by Q3 ($N = 76$), then Q4 ($N = 37$) and finally Q2 ($N = 15$). The majority of participants referred to the GCATC program are high-risk (82%).

There were differences in gender between quadrants; with Q2 participants having significantly more females and Q3 having relatively fewer females. Quadrants were mostly similar for race, although Q3 had a greater percentage of African American participants compared to the other quadrants. Q2 participants tended to be older while Q1 participants were slightly younger.

Table 7. GCATC Post-4-Track Participant Characteristics: Demographics by Quadrant

	Q1: HR/HN $N = 169$	Q2: LR/HN $N = 15$	Q3: HR/LN $N = 76$	Q4: LR/LN $N = 37$
Sex				
Male	67%	53%	74%	62%
Female	33%	47%	26%	38%
Race/Ethnicity				
White	96%	93%	80%	91%
African American	3%	7%	17%	9%
Other	1%	0%	4%	0%
Age at Entry Date				
Average age in years	30 years	35 years	32 years	32 years
Range	18 – 60	23 – 48	18 – 61	22 – 51

³ Pre-4-Track participants were not screened with the RANT so it is not possible to examine the characteristics of historical GCATC participants by quadrant.

Table 8 displays the criminal history of Post-4-track GCATC participants by quadrant. As expected for individuals screened as high-risk, participants in Q1 and Q3 had a more extensive criminal history than those in the low-risk Q2 and Q4. Q1 had a greater average number of prior arrests, followed by those in Q3. Participants with low-risk scores (Q2 and Q4) had the lowest average number of prior arrests, though Q4 had double the number of prior arrests compared to Q2. This may be due to participants in Q4 being more likely to enter the program before or soon after adjudication (not entering on probation violations or after reentry) so that the arrest that led GCATC entry fell within the 2 years prior. The higher risk quadrants had a greater proportion of prior person and property arrests as well as felony arrests.

Table 8. GCATC Participant Characteristics Post-4-Track Implementation: Criminal History by Quadrant

	Q1: HR/HN N = 169	Q2: LR/HN N = 15	Q3: HR/LN N = 76	Q4: LR/LN N = 37
Average number of arrests 2 years prior to program entry	1.80	0.50	1.19	1.05
Average number of person arrests 2 years prior to program entry	0.17	0.00	0.14	0.22
Average number of property arrests 2 years prior to program entry	0.70	0.14	0.39	0.11
Average number of drug arrests 2 years prior to program entry	0.67	0.07	0.40	0.57
Average number of other arrests 2 years prior to program entry	0.30	0.29	0.29	0.19
Average number of misdemeanor arrests 2 years prior to program entry	0.84	0.29	0.59	0.57
Average number of felony arrests 2 years prior to program entry	1.27	0.21	0.79	0.65

Additional data were available for drug of choice, education, employment status, and housing status for most GCATC participants. Table 9 displays these participant characteristics for pre-4-track participants and post-4-track participants. Participants in post-4-track implementation were significantly more likely to have methamphetamine or heroin/opioids as a drug of choice than pre-4-track participants and significantly less likely to have marijuana ($p < .05$). Post-4-track participants were more likely to have a high school education, but were slightly less likely to have a home, and more likely to be living with friends. Unemployment was similar between pre- and post-4-track participants.

Table 9. GCATC Participant Characteristics Pre- and Post 4-Track Implementation⁴

	Pre 4-track N = 205	Post 4-track N = 300
Primary Drug of Choice		
<i>Reported as "None"</i>	28%	33%
<i>Alcohol</i>	8%	8%
<i>Marijuana</i>	53%	24%
<i>Methamphetamine</i>	2%	25%
<i>Crack or Cocaine</i>	2%	1%
<i>Heroin/Opioids</i>	1%	7%
<i>Nicotine</i>	3%	0%
<i>Prescription Drugs</i>	4%	2%
<i>Other</i>	1%	1%
Education		
<i>Less than High School</i>	40%	30%
<i>High School Graduate</i>	25%	40%
<i>Some College</i>	32%	28%
<i>4 Year Degree or Higher</i>	3%	2%
Housing Status		
<i>Own/Rent</i>	52%	43%
<i>Living with Friends/Family</i>	45%	52%
<i>Temporary Housing or Homeless</i>	3%	5%
Employment Status		
<i>Full Time</i>	38%	36%
<i>Part Time</i>	16%	12%
<i>Student</i>	0%	1%
<i>Retired/Disabled</i>	2%	7%
<i>Unemployed</i>	44%	45%

⁴ Data were missing for two participants in pre-4-track implementation. Data were missing for drug of choice for 49% of participants and were missing for employment, housing, and education for 30% of participants post-4-track implementation. Percentages are calculated out of cases where data were available.



Table 10 displays drug of choice, education, housing status, and employment status for post-4-track participants by quadrant.

Table 10. GCATC Participant Characteristics Post-4-Track Implementation: Demographics by Quadrant⁵

	Q1: HR/HN N = 169	Q2: LR/HN N = 15	Q3: HR/LN N = 76	Q4: LR/LN N = 37
Primary Drug of Choice				
<i>Reported as "None"</i>	33%	17%	35%	36%
<i>Alcohol</i>	4%	17%	14%	14%
<i>Marijuana</i>	19%	50%	22%	41%
<i>Methamphetamine</i>	31%	17%	22%	9%
<i>Crack or Cocaine</i>	0%	0%	3%	0%
<i>Heroin/Opioids</i>	11%	0%	3%	0%
<i>Nicotine</i>	0%	0%	0%	0%
<i>Prescription Drugs</i>	1%	0%	3%	0%
<i>Other</i>	1%	0%	0%	0%
Education				
<i>Less than High School</i>	36%	18%	25%	19%
<i>High School Graduate</i>	44%	27%	46%	19%
<i>Some College</i>	20%	46%	27%	55%
<i>4 Year Degree or Higher</i>	0%	9%	2%	7%
Housing Status				
<i>Own/Rent</i>	33%	64%	42%	74%
<i>Living with Friends/Family</i>	60%	36%	54%	26%
<i>Temp Housing/Homeless</i>	7%	0%	4%	0%
Employment Status				
<i>Full Time</i>	29%	46%	40%	52%
<i>Part Time</i>	15%	0%	7%	13%
<i>Student</i>	0%	0%	0%	3%
<i>Retired/Disabled</i>	6%	18%	7%	3%
<i>Unemployed</i>	50%	36%	46%	29%

⁵ Data were missing for approximately half of participants for drug of choice and a third of participants for the remaining variables. Percentages are calculated out of cases where data were available.

A review of Table 10 shows that participants in Q1 had the highest rates of methamphetamine and heroin/opioids and the lowest rates of alcohol as a drug of choice. Participants in Q2 had the highest rates of marijuana as drug of choice. Over 70% of the participants in the high-risk quadrants (Q1 and Q3) had a high school education or less, while more than 60% of the two low-risk quadrants (Q2 and Q4) had attended college. Over half of the high-risk participants were unemployed, or were homeless while over half of the low-risk participants owned their own homes and were employed (most were employed full time).

These findings demonstrate the relative criminogenic needs of high-risk participants. Regardless of clinical need (a substance use or mental health disorder) participants in the high-risk quadrants need social services related to education, employment and housing. Those in the low-risk quadrants are significantly less likely to need these services.

STUDY QUESTION #1: DID THE PROGRAM TAILOR THE TREATMENT COURT REQUIREMENTS AND SERVICES TO EACH OF THE FOUR QUADRANTS?

Did the program provide different program activities and services for the different quadrants?

Table 11 provides the average program activities per participant for each quadrant. Participants in Q1 had the fewest average number of days in the program while participants in Q4 had the greatest average number of days in the program, although this may be attributable to the higher graduation rates in Q4 (see Table 13). The number of court appearances varied with higher risk participants attending more and lower risk receiving fewer. All quadrants had a similar average number of total drug tests administered. Q4 had the fewest average number of jail sanctions.

Table 11. Program Events: Average per Participant by Quadrant Post-4-Track Implementation

Program Activities	Q1: HR/HN <i>N</i> = 161	Q2: LR/HN <i>N</i> = 15	Q3: HR/LN <i>N</i> = 73	Q4: LR/LN <i>N</i> = 37
Length of Stay (Days)	518	625	645	701
Court Appearances^a	26	7	32	8
Drug Tests	77	90	98	90
Jail Sanctions (Days)	57	21	39	8
Program Fees	\$2,537	\$2,500	\$2,548	\$2,463

^a Court appearance data was not entered into the program database. Numbers of court appearance are estimates based on requirements for each phase and length of stay.



Treatment services were provided primarily by four different providers. For the most part, participants in each quadrant were sent to separate providers. The treatment datasets received from each provider were combined and the services were counted in 15-minute units (other than assessments, day treatment, and residential), the same way the data was entered by the treatment providers. Table 12 displays the average number of treatment services received per participant by post-4-track GCATC participants for each quadrant. Although family and early intervention services were available, participants in all quadrants were rarely provided with those services. Medication management also appears to be used rarely. The most pronounced differences in treatment are seen in group counseling, group education, individual counseling, day treatment, and residential treatment. Participants in the high-need quadrants (Q1 and Q2) have the highest amounts of group counseling and education, individual counseling, day treatment and residential treatment while participants in Q4 have the lowest amounts of all types of treatment. Q3 had lower amounts of services than the high need quadrants, but had more services than Q4, appropriately matching the high criminogenic needs of these participants.

Table 12. Treatment Services: Average per Participant by Quadrant Post-4-Track Implementation

Treatment Services (Units) Units = 15 minutes	Q1: HR/HN N = 161	Q2: LR/HN N = 15	Q3: HR/LN N = 73	Q4: LR/LN N = 37
Assessments	0.34	0.40	1.38	0.39
Family Conference (Units)	0.05	0.00	0.33	0.00
Family Therapy (Units)	0.19	0.00	0.05	0.00
Group Counseling (Units)	97.38	70.67	69.10	39.50
Group Education (Units)	118.80	88.73	66.99	55.36
Individual Counseling (Units)	32.42	45.07	23.82	12.03
Early Intervention (Units)	0.11	0.20	0.00	0.11
Medication Management (Units)	0.17	0.27	0.15	0.28
Day Treatment (Days)	80.50	152.13	45.38	53.64
Residential Treatment (Days)	46.24	76.40	16.79	24.11

The findings for program requirements and social services described in Tables 11 and 12 show that the GCATC is doing exceptionally well in matching services to participant risks and needs. However, there are some anomalies, particularly related to Q4 (LR/LN) participants engaging in individual and residential treatment. This is likely due to some individuals being mis-categorized as Q4 as a part of a data entry decision. More on this is included in the discussion. Regardless, overall the GCATC is following a solid pattern of risk need responsivity (RNR).

STUDY QUESTION #2: DID GRADUATION RATES DIFFER BEFORE AND AFTER 4-TRACK IMPLEMENTATION?

Theoretically, adjusting program requirements and providing services based on assessed risk and needs should result in higher rates of successful program completion. Table 13 provides the graduation rates by year before and after implementation of the 4-track model. Calculating the average graduation rate using all non-active participants who either graduated or were terminated results in an average graduation rate of 45% for pre-4-track implementation participants (2009-2011) compared with 68% for post-implementation participant (2013-2014). This is a substantial increase in graduation rates, indicating that the 4-track model did result in significantly more successful program completion.

Table 13. Graduation Rates Pre- and Post-4-Track Implementation by Entry Year

Entry Year	N	Graduation Rate (grad/term only)	Graduated	Terminated	Active (No exit date)	Other Exit
2009 (Pre)	87	53%	46%	41%	1%	11%
2010 (Pre)	92	43%	38%	50%	2%	10%
2011 (Pre)	53	32%	23%	49%	15%	13%
2012	N/A	Gap Year	Not included in study sample Transition year between pre-4-track and post-4-track			
2013 (Post)	97	64%	52%	29%	19%	1%
2014 (Post)	149	71%	49%	20%	30%	1%
2015 (Post)	160	N/A ^a	28%	21%	51%	1%
2016	205	N/A ^a	4%	17%	79%	0%

^a N/A = The majority of participants were still active at the time of the data download, so a valid graduation rate could not be calculated.



Table 14 displays the percent graduated, terminated, and still active as well as the graduation rates (non-active participants only) for each quadrant post-4-track implementation for participants who had at least 12 months in the program allowing for some time to successfully complete the program. Q1 had the lowest percent of graduates and participants in Q4 had the highest. When looking at non-active Post-4-track participants by quadrant, participants in Q1 had the lowest graduation rate (44%), though almost half the participants in this quadrant are still active, so the graduation rate may increase, particularly since people who graduate tend to be those with longer length of stays. The graduation rate was 71% in Q2, 65% in Q3, and 90% in Q4. These graduation rates follow the expected pattern based on the understanding of the high criminogenic and clinical needs of HR/HN participants. Q1 should struggle the most with completing program requirements and would have the lowest graduation rate, followed by high-risk participants in Q3, while the low-risk quadrants should have a higher graduation rate and this is indeed the case in the GCATC 4-track program. Interestingly, Q3 participants have graduation rates closer to the low-risk participants. Because participants who are high-risk and low-need do not have a substance use disorder, it is likely that they can more easily understand and follow program requirements, and will more quickly be cognitively able to benefit from the services that address their criminogenic needs such as housing, education and employment assistance.

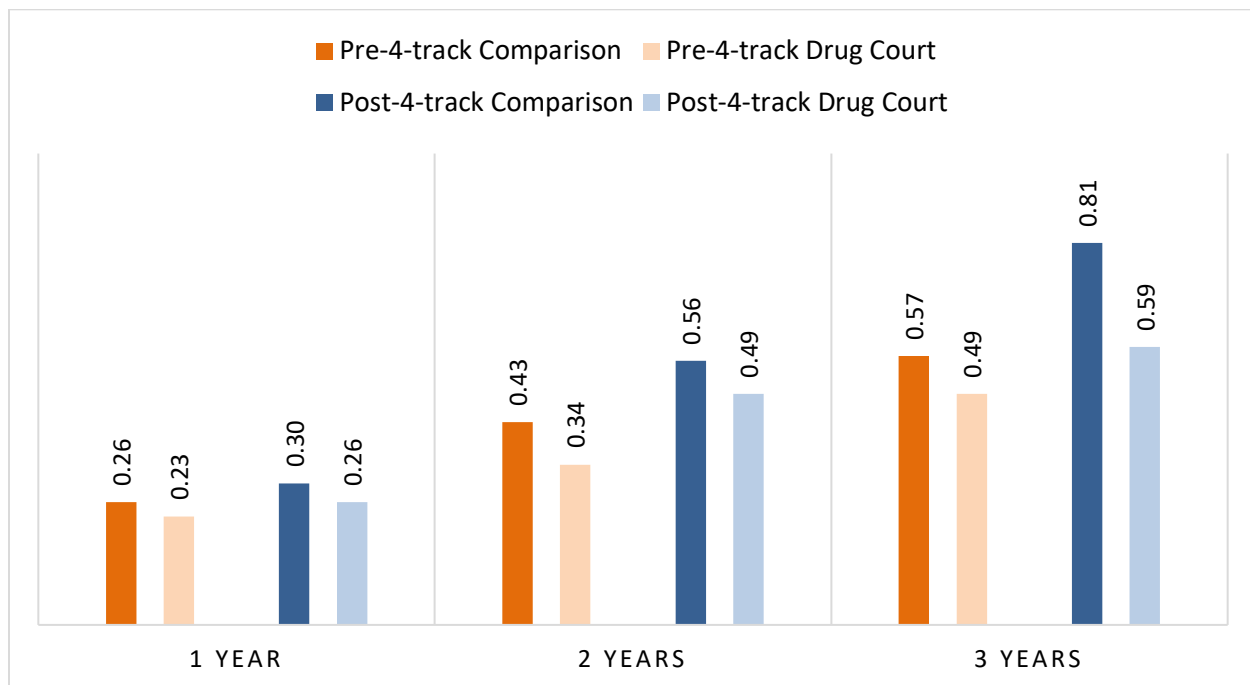
Table 14. Graduation Rates Post-4-Track Implementation by Quadrant

Exit Status	Q1: HR/HN N = 285	Q2: LR/HN N = 22	Q3: HR/LN N = 114	Q4: LR/LN N = 45
Graduation Rate (Non-active only)	44%	71%	65%	90%
Graduated	26%	55%	41%	84%
Terminated	28%	14%	18%	4%
Active	45%	32%	41%	11%
Other Exit	1%	0%	0%	0%

STUDY QUESTION #3: DID PLACING PARTICIPANTS INTO THE FOUR TRACKS ACCORDING TO ASSESSED RISK AND NEED RESULT IN REDUCED RECIDIVISM?

Figure 1 illustrates the average number of rearrests cumulative for each year up to 3 years after program entry for GCATC participants and the comparison group. As illustrated in the graph, treatment court participants had a lower average number of rearrests relative to the comparison group both pre and post-4-track implementation. The difference in rearrests was significant at 2 years and 3 years after program entry, with the comparison group expected to have roughly 1.4 more rearrests than GCATC participants at both time points.⁶ However, reduction in rearrests (the effect size) was larger for the post-4-track group. That is, at 3 years from entry the pre-4-track participants showed a 16% reduction in rearrests compared to the comparison group while the post-4-track participants showed a 37% reduction. Overall, recidivism was higher in the post-4-track groups (both GCATC participants and the comparison group). This could be due to the post-4-track groups being slightly higher risk than the pre-4-track group as evidenced by greater numbers of person and property charges as well as felony arrests in the 2 years prior to entry (see Table 6).

Figure 1. Average Number of Rearrests over 3 Years Pre- and Post 4-Track Implementation⁷

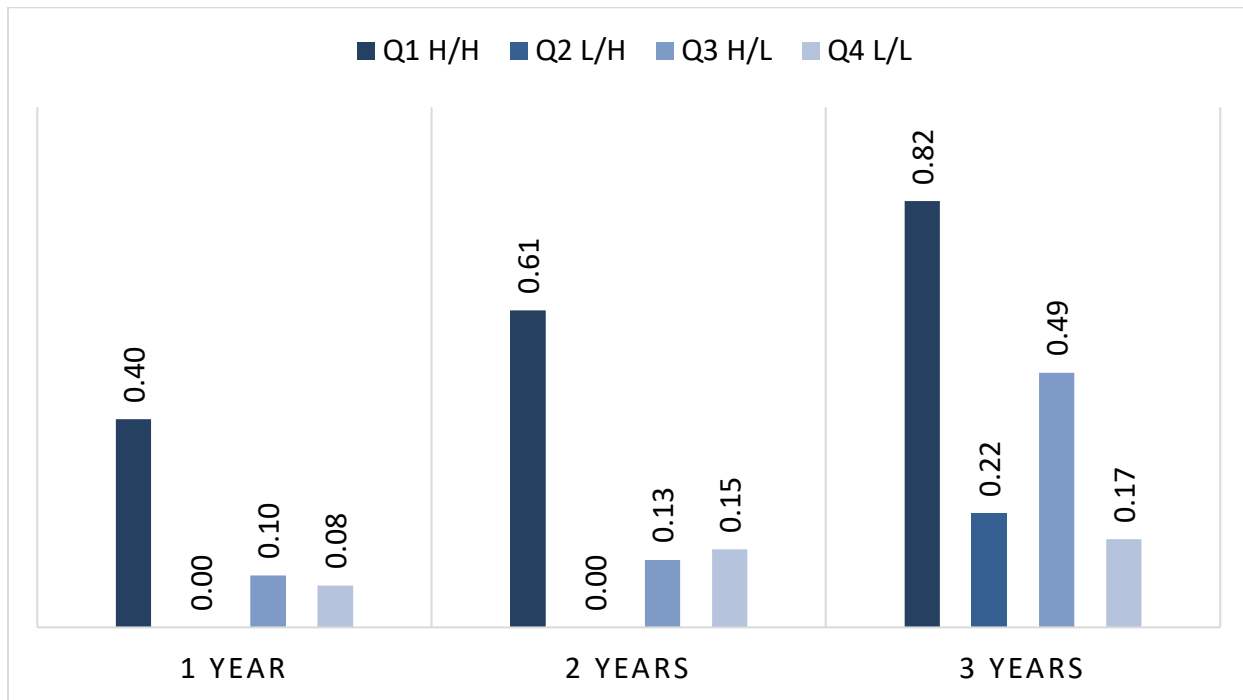


⁶ Year 2: Wald $\chi^2(1) = 4.425, p < .05$, Incident Rate Ratio 95% CI = 1.02 < IRR < 1.98; Year 3: Wald $\chi^2(1) = 3.905, p < .05$, Incident Rate Ratio 95% CI = 1.01 < IRR < 1.86

⁷ Sample sizes by group and time period (1 Year, 2 Years, 3 Years): Pre-4-track GCADC Participants $n = 205, 204, 204$; Pre-4-track comparison group; $n = 336, 335, 334$; Post-4-track GCADC Participants $n = 289, 249, 179$; Post-4-track comparison group $n = 397, 361, 301$.

Figure 2 displays the average number of rearrests for post-4-track GCATC participants separated by quadrant up to 3 years after program entry. At all three time points, participants in the high-risk quadrants (Q1 and Q3) had the highest average number of rearrests with Q1 having the most. In contrast the low-risk quadrants had substantially fewer rearrests. At 1 year and 2 years after program entry, Q2 did not have any rearrests. These findings support the accuracy of the RANT in separating individuals correctly into risk and need categories. Overall, the number of rearrests for all quadrants is very low, with less than one rearrest occurring in any quadrant after 3 years.

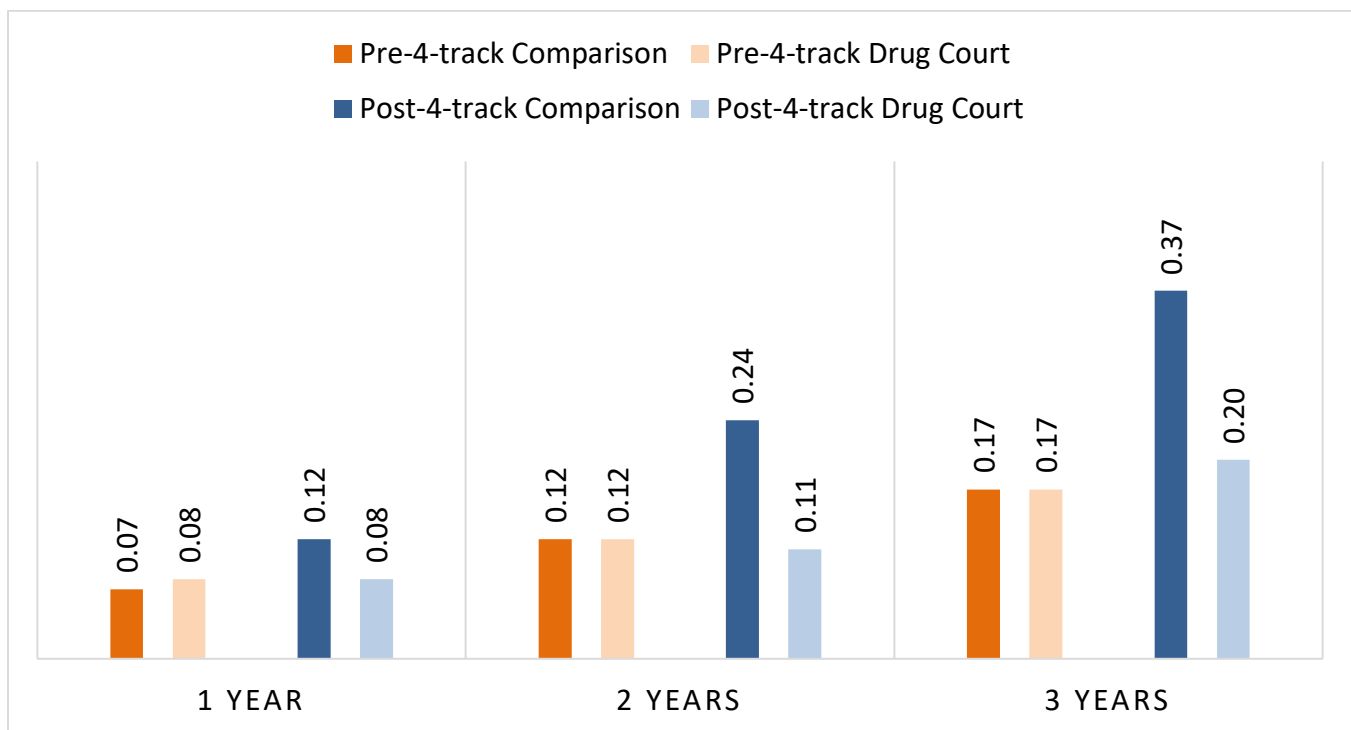
Figure 2. Average Number of Rearrests over 3 Years by Quadrant⁸



⁸ Sample sizes by group and time period (1 Year, 2 Years, 3 Years): Quadrant 1 $n = 162, 139, 90$; Quadrant 2 $n = 14, 12, 9$; Quadrant 3 $n = 73, 62, 49$; Quadrant 4 $n = 37, 34, 30$.

In addition to all rearrests, a key measure for drug courts is new arrests associated with drug charges as this can be an indication of continued drug use. Figure 3 illustrates the average number of rearrests with drug charges for each year up to 3 years after program entry for GCATC pre-4-track participants, GCATC post-4-track participants, and their respective comparison groups. During pre-4-track implementation, GCATC had similar numbers of drug rearrests to their comparison group while post-4-track implementation, GCATC had significantly lower average number of drug rearrests compared to their comparison group ($p < .01$). At 2 and 3 years after entry, the post-4-track GCATC participants had roughly half as many drug rearrests as the comparison group.⁹ Furthermore, there is a significant interaction between 4-track implementation and participation in the drug court, indicating that the implementation of 4-track model significantly reduced drug rearrests.¹⁰

Figure 3. Average Number of Drug Rearrests over 3 Years¹¹



⁹ Year 2: Wald $\chi^2(1) = 9.644, p < .01$, Incident Rate Ratio 95% CI = 1.33 < IRR < 3.47; Year 3: Wald $\chi^2(1) = 8.781, p < .01$, Incident Rate Ratio 95% CI = 1.24 < IRR < 2.84

¹⁰ Year 2: Wald $\chi^2(1) = 4.046, p < .05$ Year 3: Wald $\chi^2(1) = 4.287, p < .05$

¹¹ Sample sizes by group and time period (1 Year, 2 Years, 3 Years): Pre-4-track GCADC Participants $n = 205, 204, 204$; Pre-4-track comparison group; $n = 336, 335, 334$; Post-4-track GCADC Participants $n = 289, 249, 179$; Post-4-track comparison group $n = 397, 361, 301$.



To assess a more complete description of the criminality of both groups, researchers also reviewed arrests by type of charge including person (e.g., assault), property (e.g., theft), or other arrest charges (e.g., trespassing) 3 years from program entry. Table 15 displays the average number of rearrests by other (non-drug) charge type and level over 3 years from program entry for GCATC participants and the comparison group pre-4-track implementation and post-4-track implementation. GCATC participants had fewer of person, property and all other charge types compared to their respective comparison groups although none of the differences were statistically significant. When looking at charge level, post-4-track GCATC participants had significantly fewer felony rearrests than their comparison groups. The comparison group had 1.7 times more felony rearrests and 1.6 times more misdemeanor rearrests 2 years after program entry than GCATC participants.^{12, 13} There were no significant interactions between pre- and post-4-track implementation.

Table 15. Average Rearrests by Type over 3 Years by Pre- and Post-4-Track

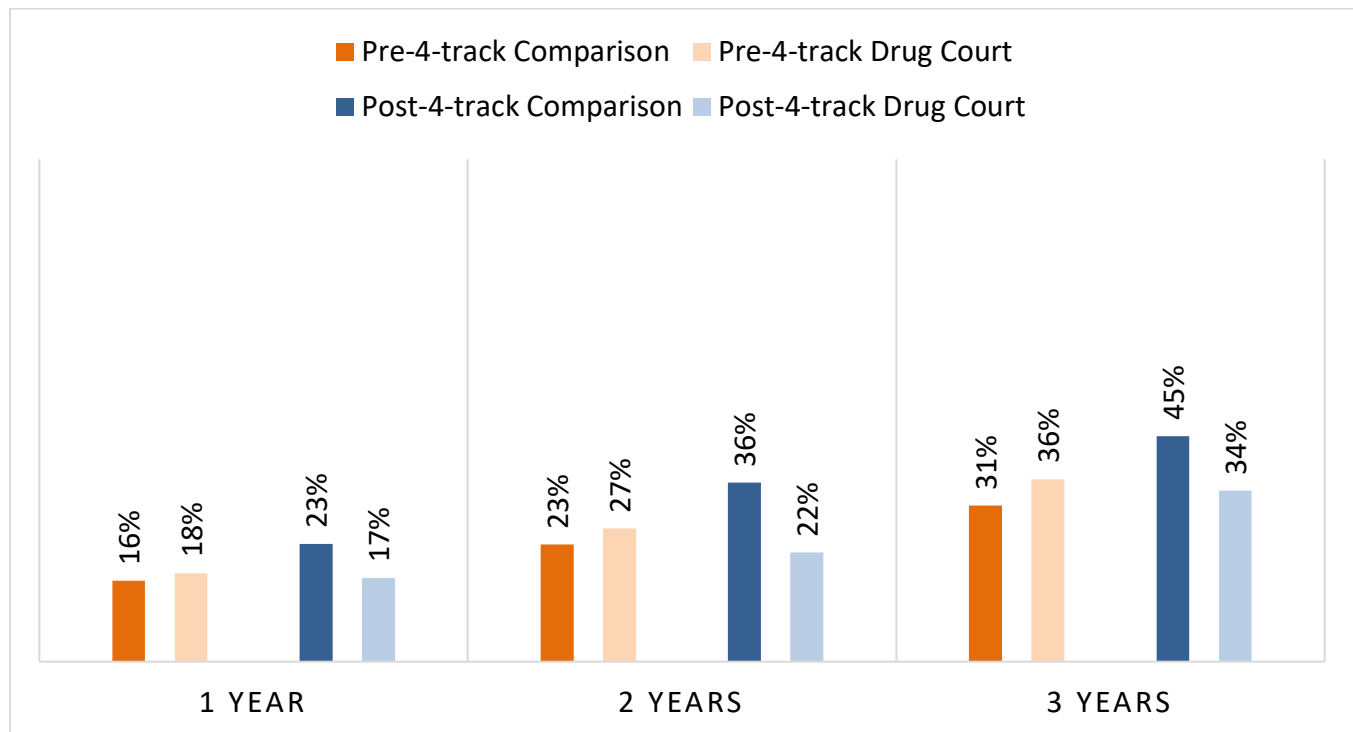
	Pre-4-Track						Post-4-Track					
	Comparison			GCATC			Comparison			GCATC		
	Y1	Y2	Y3	Y1	Y2	Y3	Y1	Y2	Y3	Y1	Y2	Y3
Person	0.05	0.08	0.09	0.02	0.04	0.03	0.02	0.07	0.09	0.05	0.05	0.08
Property	0.11	0.16	0.20	0.04	0.11	0.16	0.07	0.13	0.19	0.08	0.11	0.17
Other	0.05	0.10	0.13	0.04	0.07	0.10	0.08	0.15	0.21	0.07	0.12	0.17
Felony	0.12	0.22	0.30	0.14	0.20	0.26	0.20	0.38	0.53	0.16	0.23	0.32
Misdemeanor	0.16	0.26	0.34	0.10	0.17	0.26	0.15	0.29	0.40	0.12	0.18	0.31

¹² Year 2: Wald $\chi^2(1) = 6.183, p < .05$, Incident Rate Ratio 95% CI = 1.11 < IRR < 2.41; Year 3: Wald $\chi^2(1) = 7.341, p < .01$, Incident Rate Ratio 95% CI = 1.16 < IRR < 2.45

¹³ Wald $\chi^2(1) = 4.867, p < .05$, Incident Rate Ratio 95% CI = 1.05 < IRR < 2.41

In addition to examining recidivism in terms of numbers of rearrests, it is also useful to examine the recidivism *rate*, the number (or proportion) of individuals from each group who were rearrested at least once over each year after program entry. Figure 4 illustrates the percent of all GCATC participants and their comparison group who were rearrested over a 3-year period for any charge following program entry. Participants pre-4-track implementation had a similar rearrest rate as the comparison group, with no significant difference between the groups. However, post-4-track implementation, GCATC participants had significantly lower proportions of rearrests at years 2 and 3. The odds of being rearrested for the comparison group was 2 times greater at year 2 and 1.6 times greater at year 3 than the GCATC participants.¹⁴ Furthermore, the interaction between 4-track implementation and participation in the GCATC program was significant, indicating that implementation of the 4-track model resulted in lower rearrest rates for program participants.¹⁵ Overall, Figure 4 shows that about one third of GCATC participants post-4-track implementation are rearrested within 3 years of program entry. Although this is an improvement compared to individuals who do not participate in the program, the GCATC should continue to refine the program process and work toward further decreasing recidivism for its participants.

Figure 4. Percent of Individuals Rearrested for any Offense over 3 Years¹⁶



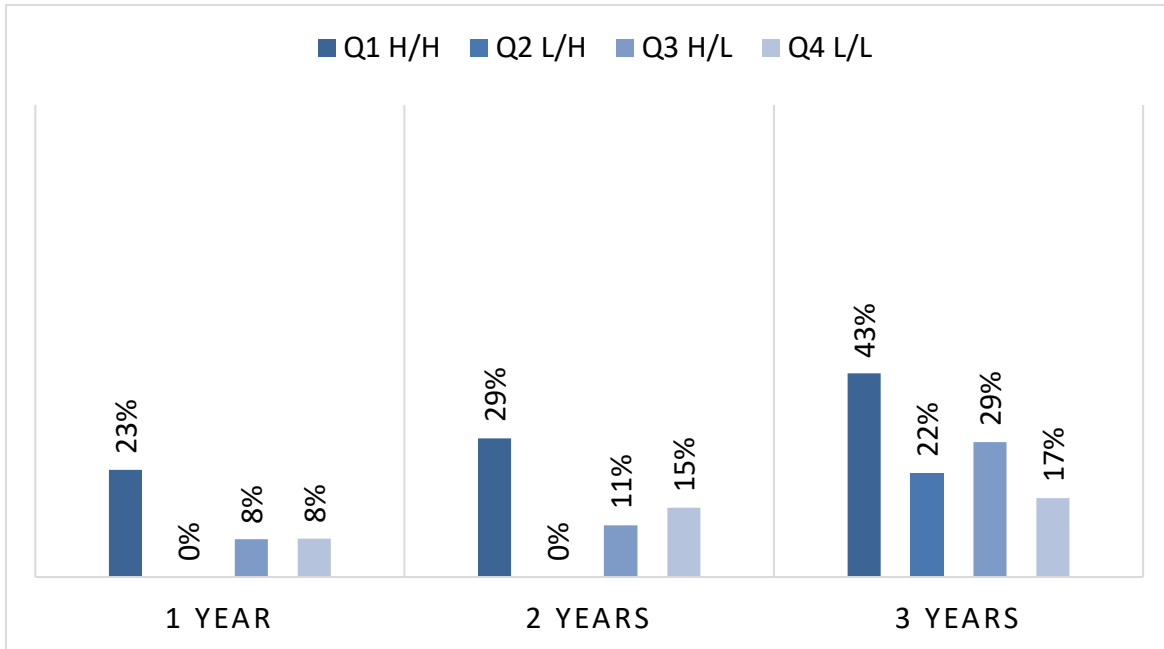
¹⁴ Year 2: Wald $\chi^2(1) = 13.781, p < .001$, Odds Ratio 95% CI = 1.39 < OR < 2.92; Year 3: Wald $\chi^2(1) = 5.618, p < .05$, Odds Ratio 95% CI = 1.08 < OR < 2.34

¹⁵ Year 2: Wald $\chi^2(1) = 9.969, p < .01$ Year 3: Wald $\chi^2(1) = 5.618, p < .05$

¹⁶ Sample sizes by group and time period (1 Year, 2 Years, 3 Years): Pre-4-track GCADC Participants $n = 205, 204, 204$; Pre-4-track comparison group; $n = 336, 335, 334$; Post-4-track GCADC Participants $n = 289, 249, 179$; Post-4-track comparison group $n = 397, 361, 301$.

Figure 5 shows the percent of post-4-track participants rearrested by quadrant up to 3 years after program entry. Similar to the findings for number of rearrests (see Figure 2), Q1 had the highest proportion of individuals rearrested at each time point. There were no individuals rearrested in Q2 during the first 2 years after program entry. After 3 years from program entry, participants in Q4 had the lowest percentage of individuals. These findings support the accuracy of the RANT in predicting relative risk.

Figure 5. Percent of Individuals Rearrested for any Offense over 3 Years¹⁷



To assess a more complete description of the criminality of both groups, researchers also reviewed arrests by type of charge including person (e.g., assault), property (e.g., theft), drug (e.g., possession), or other arrest charges (e.g., trespassing) 3 years from program entry in Figure 6 and level (misdemeanor and felony) in Figure 7.¹⁸

Figure 6 displays the percent of individuals rearrested by charge type 3 years after program entry pre-4-track implementation and post-4-track implementation. Pre-4-track participants have a lower recidivism rate for property charges, but no difference in property or other arrest charge types. Post-4-track GCATC participants show a slightly reduced percentage of individuals rearrested for person charges 3 years after entry but much larger differences for property and drug charges. When looking at drug charges, post-4-track implementation GCATC participants had half the percentage of individuals rearrested for a drug charge 3 years after program entry compared to the comparison group. The difference between groups was statistically significant, with those in the comparison group having 2.4 times greater odds of being rearrested for a drug charge after 3 years.¹⁹

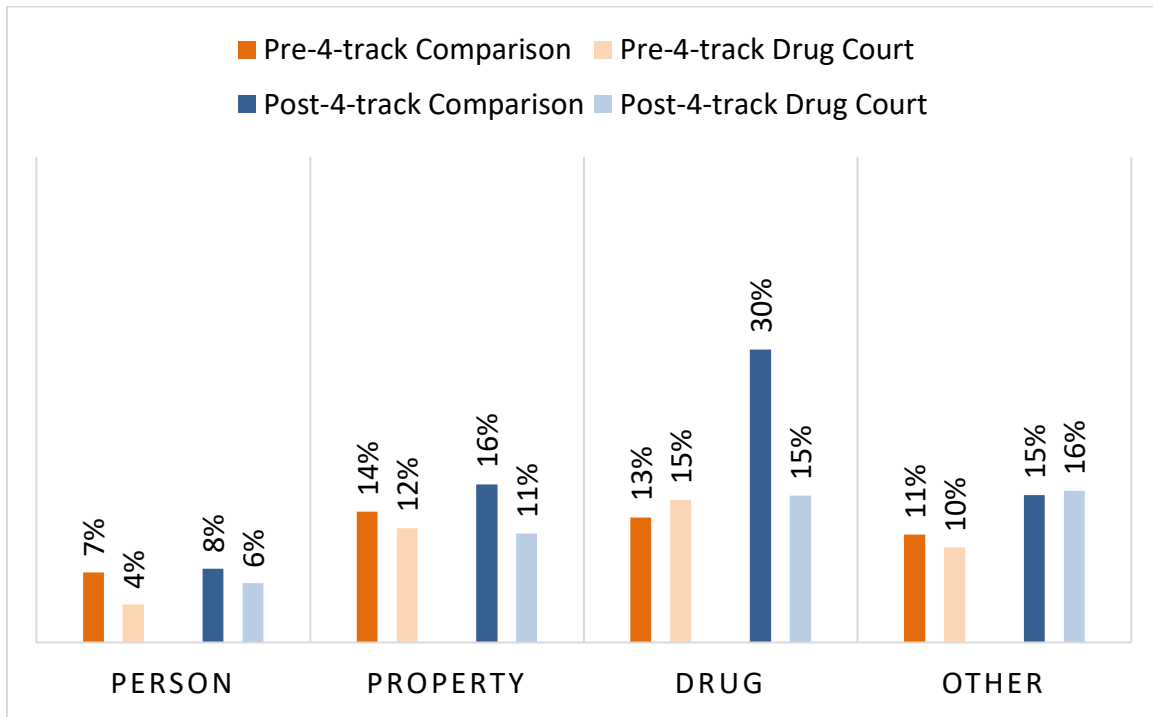
¹⁷ Sample sizes by group and time period (1 Year, 2 Years, 3 Years): Quadrant 1 $n = 162, 139, 90$; Quadrant 2 $n = 14, 12, 9$; Quadrant 3 $n = 73, 62, 49$; Quadrant 4 $n = 37, 34, 30$.

¹⁸ When an individual received more than one charge per arrest, a single arrest could be coded as both a person and property crime. Therefore, the percentages in Figures 9-10 do not add up to the percent of total arrests reflected in Figure 7.

¹⁹ Wald $\chi^2(1) = 13.467, p < .001, Odds Ratio 95\% CI = 1.519 < OR < 3.962$.

Furthermore, the interaction between 4-track implementation and group assignment was significant, indicating that the 4-track model reduced drug charges in GCATC participants.²⁰

Figure 6. Percent of Individuals Rearrested by Arrest Charge at 3 Years²¹

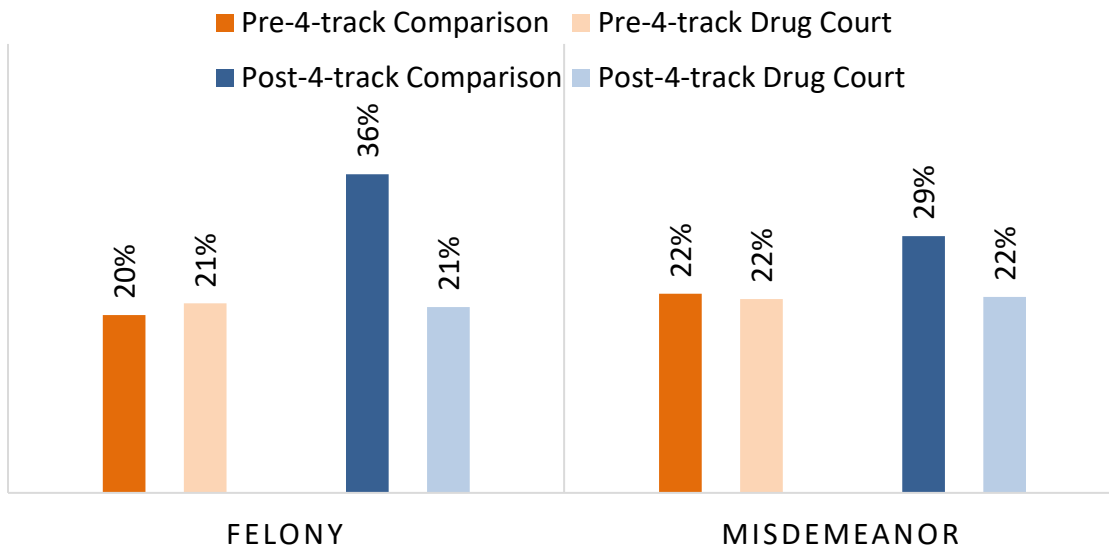


²⁰ Wald $\chi^2(1) = 8.855, p < .01$

²¹ Sample sizes by group: Pre-4-track comparison $n = 334$, Pre-4-track GCADC participants $n = 204$, Post-4-track comparison $n = 301$, Post-4-track GCADC participants $n = 179$

Figure 7 displays the percentage of individuals rearrested by charge level 3 years after program entry. Pre-4-track implementation, GCATC participants and their comparison group had similar rates of being rearrested for felonies and misdemeanors. When looking at post-4-track implementation, GCATC had a reduced percentage of individuals rearrested than their comparison group for both felonies and misdemeanors 3 years after program entry. While the reduction in misdemeanors was not statistically significant, the reduction in felonies by GCATC did reach statistical significance. The comparison group had 2.1 greater odds of being rearrested for a felony than GCATC participants.²² Furthermore, similar to other recidivism findings, the interaction between 4-track implementation and GCATC participation was significant, indicating that the 4-track model was instrumental in reducing felony rearrests for program participants.²³

Figure 7. Percent of Individuals Rearrested by Arrest Level at 3 Years²⁴



Another measure of recidivism is incarceration rates and time spent incarcerated. Figure 8 illustrates the percent of individuals reincarcerated in local jail in the 3 years after program entry. The counts do not include jail received as a program sanction for GCATC participants. Pre-4-track implementation, GCATC participants had a greater percentage of individuals incarcerated at each time point. However, during post-4-track implementation, GCATC participants had a lower percentage of individuals reincarcerated. At 3 years after program entry, the post-4-track GCATC participants had a significant reduction in percentage of individuals incarcerated, with the comparison group having 2.7 times greater odds of being incarcerated than GCATC participants.²⁵ The interaction between 4-track implementation and GCATC participation was also significant at 3 years after program entry. As with other recidivism findings, the significant interaction indicates that implementing the 4-track model significantly improved participant outcomes.²⁶

²² Wald $\chi^2(1) = 11.711, p < .001$, Odds Ratio 95% CI = 1.381 < OR < 3.283.

²³ Wald $\chi^2(1) = 7.220, p < .01$

²⁴ Sample sizes by group: Pre-4-track comparison $n = 334$, Pre-4-track GCADC participants $n = 204$, Post-4-track comparison $n = 301$, Post-4-track GCADC participants $n = 179$

²⁵ Wald $\chi^2(1) = 20.827, p < .001$, Odds Ratio 95% CI = 1.757 < OR < 4.102.

²⁶ Wald $\chi^2(1) = 12.406, p < .001$

Figure 8. Percent of Individuals Reincarcerated in Jail over 3 Years Pre- and Post-4-Track Implementation²⁷

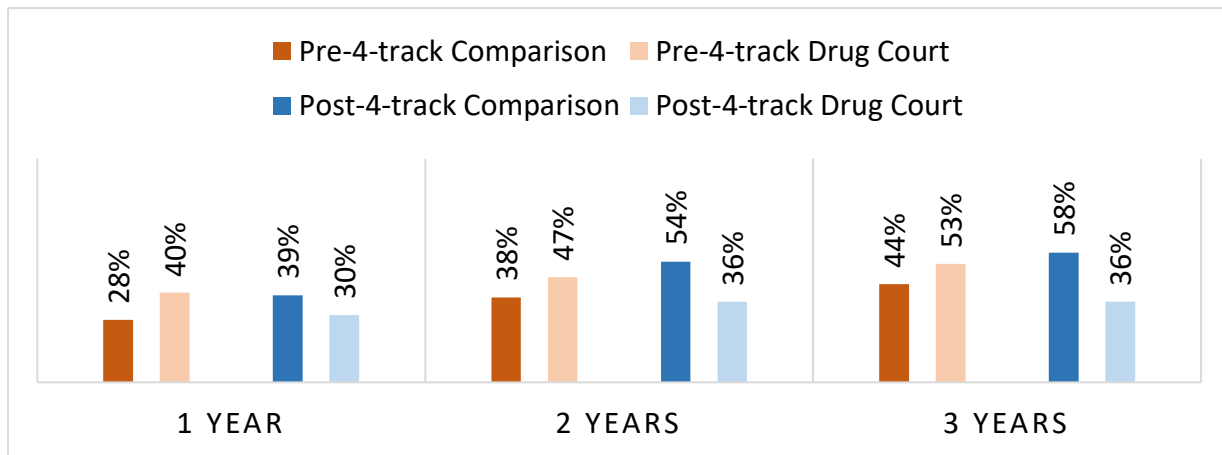
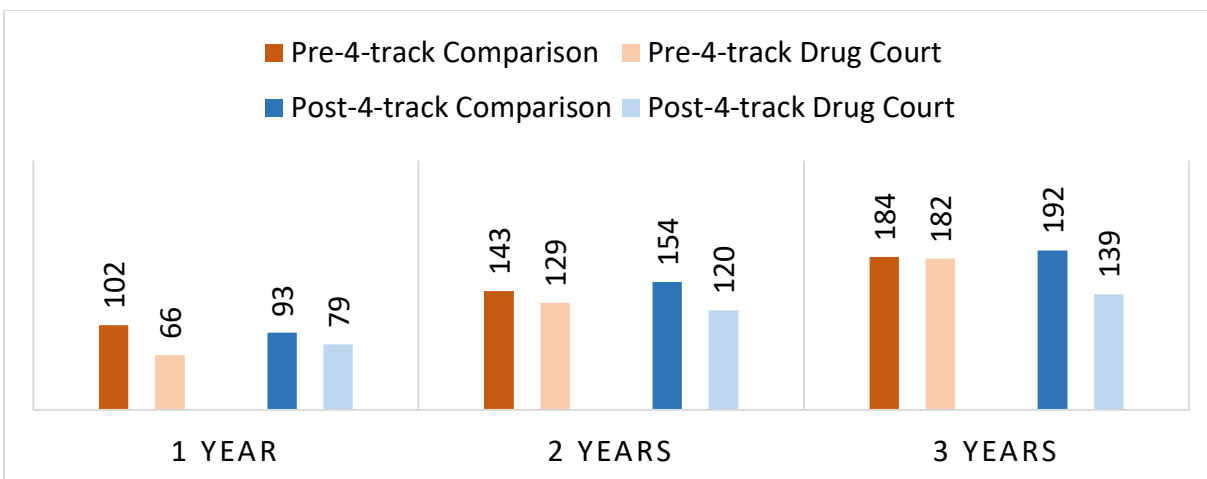


Figure 9 displays the average length of incarceration (both jail and prison) cumulatively over 3 years pre- and post-4-track implementation. The number of days each year is calculated based on the length of time each individual was incarcerated for a full incarceration episode (entry to exit) that started during the particular year, regardless of whether the episode ended that year or in future years. For both pre- and post-4-track periods, GCATC participants had fewer days incarcerated than their respective comparison groups. However, continuing the recidivism patterns described above, at 3 years after program entry, pre-4-track participants had a similar average number of days incarcerated as their comparison group while the post-4-track participants had substantially fewer days incarcerated, supporting the positive impact of the 4-track model

Figure 9. Average Days Incarcerated after Program Entry Pre- and Post-4-Track Implementation²⁸



²⁷ Sample sizes by group and time period (1 Year, 2 Years, 3 Years): Pre-4-track GCADC Participants $n = 205, 204, 204$; Pre-4-track comparison group; $n = 336, 335, 334$; Post-4-track GCADC Participants $n = 289, 249, 179$; Post-4-track comparison group $n = 397, 361, 301$.

²⁸ Sample sizes by group and time period (1 Year, 2 Years, 3 Years): Pre-4-track GCADC Participants $n = 205, 204, 204$; Pre-4-track comparison group; $n = 336, 335, 334$; Post-4-track GCADC Participants $n = 289, 249, 179$; Post-4-track comparison group $n = 397, 361, 301$.



STUDY QUESTION #4: WHAT ARE THE COSTS OF PROGRAM PARTICIPATION AFTER IMPLEMENTING THE 4-TRACK MODEL?

NPC built the Cost Study on findings from the Outcome Study described earlier in this report.

Program Cost Methods

Program transactions for which costs were calculated in this analysis included status review hearings (including staffings), case management, drug treatment, drug tests, jail sanctions, and program fees. The costs for this study were calculated to include taxpayer costs only. All cost results provided in this report are based on fiscal 2018 dollars or were updated to fiscal 2018 using the Consumer Price Index.

Obtaining the cost of GCATC transactions for status review hearings (i.e., court sessions) and case management involved asking each GCATC team member for the average amount of time they spend on these activities (including preparing for staffing meetings and the staffing meetings themselves), observing their activities on a site visit and obtaining each GCATC team member's annual salary and benefits from a supervisor or financial officer at each agency involved in the program. As this is typically public information, some of the salaries were found online, but detailed benefits information usually comes from the agency's financial officer or human resources department. In addition to salary and benefits, the indirect support rate and jurisdictional overhead rate were used in a calculation that results in a fully loaded cost per court session per participant and cost per day of case management per participant. The indirect support rates and overhead rates for each agency involved in the program were obtained from agency budgets that were found online or by contacting the agencies directly.

Program Transactions

Court Session or Status Review Hearing. A drug court session, for the majority of programs, is one of the most staff and resource intensive program transactions. These sessions include representatives from the following agencies:

- 31st Judicial Circuit Court
- Missouri Department of Corrections (Division of Probation & Parole)
- Heartland Center for Behavioral Change
- Higher Ground Recovery Center
- Preferred Family Healthcare
- Recovery Outreach Services

NPC based the cost of a *Court Session or Status Review Hearing* (the time during a session when a single program participant interacts with the judge) on the average amount of court time (in minutes) each participant interacts with the judge during the drug court session. This includes the direct costs for the time spent for each GCATC team member present, the time team members spend preparing for the session, the time team members spent in staffing, the agency support costs, and jurisdictional overhead costs. Because each quadrant has different team members appearing at court sessions and staffing meetings, there are different costs for each quadrant for a court session. NPC estimated the cost for a single Q1 court appearance at \$74.40 per participant. For Q2, the cost per court appearance is \$95.28 per participant. For Q3, the cost per court appearance is \$144.94 per participant. For Q4, the cost per court appearance is \$26.92 per participant. NPC calculated a weighted GCATC court appearance cost of \$87.60 per participant for all GCATC participants.

Case Management is based on the amount of staff time dedicated to case management activities during a regular work week and is then translated into a total cost for case management per participant per day (taking staff salaries and benefits, and support and overhead costs into account).²⁹ The agencies involved in case management are the 31st Judicial Circuit Court, Missouri Department of Corrections (Division of Probation & Parole), Heartland Center for Behavioral Change, Higher Ground Recovery Center, Preferred Family Healthcare, and Recovery Outreach Services. Again, because each quadrant has different team members doing case management work, there are different costs for each quadrant for the case management transaction. The daily cost of case management is \$8.45 per Q1 participant, \$8.42 per Q2 participant, \$5.36 per Q3 participant, and \$2.33 per Q4 participant. NPC calculated a weighted GCATC daily cost of case management of \$6.84 for all GCATC participants.

Treatment Services for GCATC participants are provided by Heartland Center for Behavioral Change, Higher Ground Recovery Center, Preferred Family Healthcare, and Recovery Outreach Services. The treatment costs used for this analysis are the contracted billing amounts between OSCA and Treatment Court Specialized Services Providers in each county. Each contract specifies the fixed price for each unit of service. Because total treatment costs per participant were included in the treatment dataset, there are no unit costs for treatment such as group treatment sessions or individual treatment sessions. Treatment is reported as an average cost per participant instead of unit cost per service received.

Drug Testing is performed by a contracted drug testing agency (Averhealth Testing and Laboratory Services). Drug testing costs were obtained from program staff and is an average cost for a urinalysis (UA) test. The average cost per UA test per participant is \$11.25.

Jail Sanctions are provided by the Greene County Sheriff's Office. Using budget and average daily population information obtained online, the cost per person per day of jail was calculated to be \$28.36 in 2016. Using the Consumer Price Index, this was updated to fiscal 2018 dollars, or \$29.38.

GCATC participants pay a **Program Fee** to the Circuit Court. NPC was able to obtain data on the actual amount paid by participants, so the program fee included in this cost analysis is the average amount per participant paid by the participants in each group.

Program Costs

Table 16 displays the unit cost per program related event (or "transaction"), and the average cost per individual for each of the GCATC events for all participants who exited the program as well as for each of the quadrants.³⁰ The sum of these events or transactions is the total per participant cost of the GCATC program. The table includes the average for all GCATC participants ($N = 285$), all participants in Q1 ($N = 161$), all participants in Q2 ($N = 15$), all participants in Q3 ($N = 73$), and all participants in Q4 ($N = 36$), regardless of their status upon program exit. That is, the participants included in the cost analysis are all participant who exited the program, both graduates and non-graduates (participants who were terminated, or unsuccessfully discharged). It is

²⁹ Case management includes meeting with participants, evaluations, phone calls, referring out for other help, answering questions, reviewing referrals, consulting, making community service connections, assessments, documentation, file maintenance, and residential referrals.

³⁰ Program participants included in the program cost analysis are those who had sufficient time to complete the program and who exited the program either through graduation or termination. Active participants were not included in the analysis as they were still using program services so did not represent the cost of the full program from entry to exit.



important to include participants who were discharged as well as those who graduated as all participants use program resources, whether they graduate or not.

Table 16. Program Costs per Participant Post 4-Track Implementation

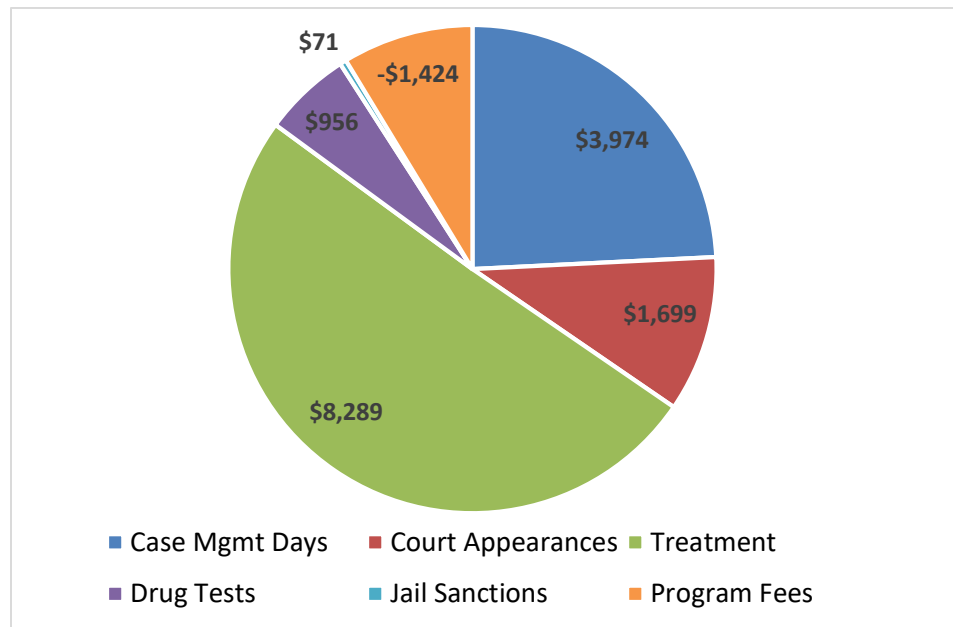
Transaction	Unit Cost ^a	Avg. Cost per Participant All GCATC	Avg. Cost per Participant Q1	Avg. Cost per Participant Q2	Avg. Cost per Participant Q3	Avg. Cost per Participant Q4
Case Management Days	\$6.84	\$3,974	\$4,377	\$4,740	\$3,361	\$1,468
Court Appearances	\$87.60	\$1,699	\$1,565	\$587	\$3,570	\$186
Treatment ^b	N/A	\$8,289	\$10,120	\$9,576	\$4,541	\$6,956
Drug Tests	\$11.25	\$956	\$865	\$1,009	\$1,103	\$1,009
Jail Sanctions	\$29.38	\$71	\$1,672	\$613	\$1,172	\$243
Program Fees ^c	N/A	(\$1,424)	(\$1,096)	(\$2,088)	(\$1,640)	(\$2,161)
TOTAL		\$13,565	\$17,503	\$14,437	\$12,107	\$7,701

^a In the interest of brevity, the unit costs shown in this table are averaged for all GCATC participants. The unit costs by quadrant are shown in the Program Transactions section before Table 16. ^b Unit costs or the number of events for treatment were not included in this table due to the wide range of treatment modalities. The treatment services provided can be found in Table 12 earlier in this report, and treatment costs by agency are displayed in Table 17. ^c The amount of fees actually paid varies by group, so the amount of program fees differs by column.

The unit cost multiplied by the number of events per person results in the cost per person for each transaction during the course of the program (from entry to exit). When the costs of the transactions are summed the result is a total GCATC program cost per participant of \$13,565 (averaged across quadrants). The average cost per graduate is \$13,375. Note that the graduates cost more than the participants in general, as graduates are typically in the program longer than non-graduates and use more resources. When program costs are examined by quadrant, Q4 has the lowest cost per participant, and Q1 has the highest program cost per participant. The two high-need quadrants (Q1 and Q2) have the highest costs for treatment and for the program overall and the two low-need quadrants have the lowest costs. This illustrates how the GCATC program is applying the principles of RNR and appropriately providing more intensive services for the HR/HN participants and fewer services for the LR/LN participants. This pattern demonstrates an efficient allocation of funds, spending more on participants who have the highest service needs while spending less on those who require fewer services.

Figure 10 illustrates that, on average across all quadrants, over half of program costs per participant are due to treatment (61%), with the next largest proportion being case management (29%). This pattern is similar for all four quadrants.

Figure 10. Program Cost per Participant by Transaction (All Participants)





Another useful way to examine program costs is by the amount contributed by each agency involved in the program. Table 17 displays the cost per participant by agency for all participants as well as by agency for each quadrant.

Table 17. Program Costs per Participant Post-4-Track Implementation by Agency

Agency	Avg. Cost per Participant All GCATC	Avg. Cost per Participant Q1	Avg. Cost per Participant Q2	Avg. Cost per Participant Q3	Avg. Cost per Participant Q4
Circuit Court ³¹	\$872	\$1,092	(\$204)	\$1,881	(\$883)
Department of Corrections- Probation and Parole	\$2,599	\$2,814	\$2,825	\$3,026	\$1,147
Preferred Family Healthcare	\$7,832	\$9,744	\$11,145	\$3,280	\$6,223
Higher Ground	\$406	\$607	\$58	\$5	\$85
Recovery Outreach Services	\$505	\$423	\$0	\$495	\$323
Heartland Center for Behavioral Change	\$1,280	\$1,151	\$0	\$2,248	\$563
Sheriff	\$71	\$1,672	\$613	\$1,172	\$243
TOTAL	\$13,565	\$17,503	\$14,437	\$12,107	\$7,701

Table 17 and Figure 11 show that the costs accruing to treatment, especially for Preferred Family Healthcare (for time spent in staffing, court sessions, case management and therapy/education services), account for the largest portion of program costs (58%) per participant. The next largest cost (19%) is for probation and parole, followed by Heartland Center for Behavioral Change (9%).

³¹ The program fee was included in the Circuit Court's total as participants pay the fee to the court.

Figure 11. Program Cost per Participant by Agency

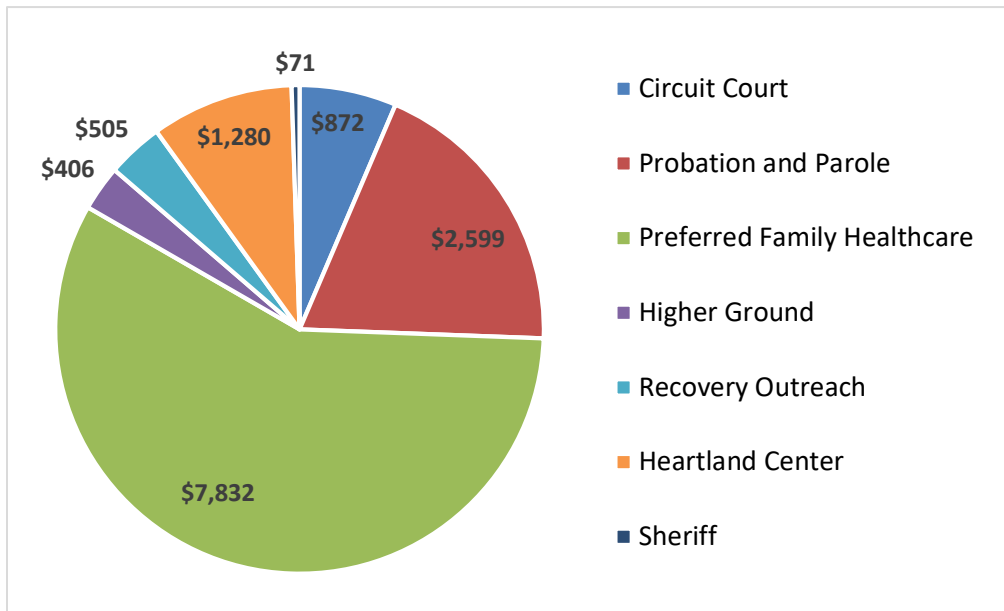
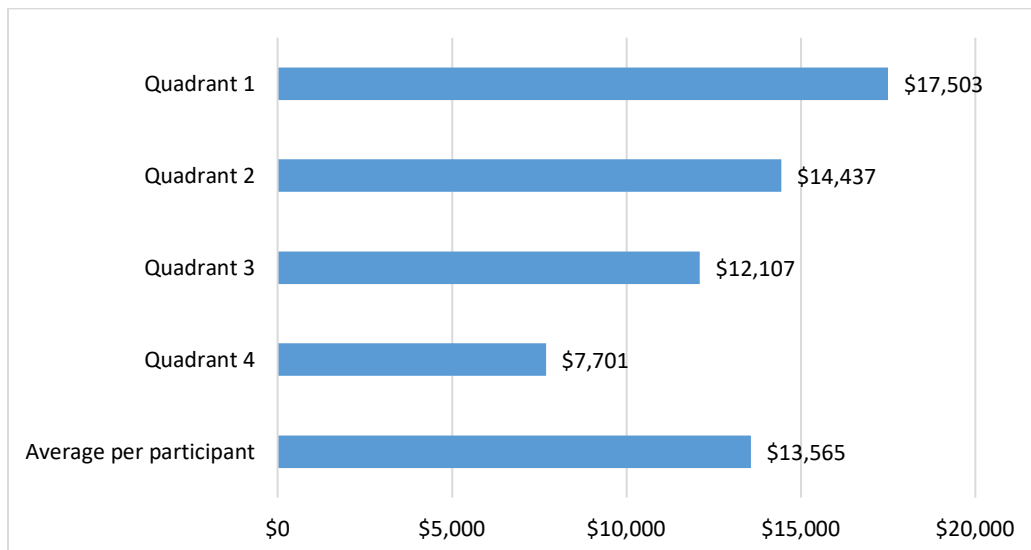


Figure 12 illustrates the program costs per quadrant post 4-track implementation. As presented in the earlier tables, the cost per participant is highest in Q1, followed in order by Q2, Q3 and Q4 with the two high-need quadrants (Q1 and Q2) with higher costs than the two low-need quadrants (Q3 and Q4).³² The overall average cost per participant (\$13,565) is relatively high due to the majority of participants being HR/HN.

Figure 12. Program Cost per Participant by Quadrant



³² The average cost per participant in all quadrants is higher than the cost per participant NPC found in Jackson County, due mainly to higher treatment costs, and higher court session and case management costs.



STUDY QUESTION #5: WERE THERE ANY COST SAVINGS OR OFFSETS DUE TO IMPROVED PARTICIPANT OUTCOMES AFTER 4-TRACK IMPLEMENTATION?

Outcome Cost Methods and Transactions

Outcome costs include any events (transactions) that occur after program entry that are not related to program activities. For this study, only criminal justice system related events are included in the cost analyses. These events include arrests, court cases, days incarcerated (jail and prison), and time on probation and/or parole.

The cost per **Arrest** incorporates the time of the law enforcement positions involved in making an arrest, law enforcement salaries and benefits, support costs and overhead costs. Because NPC was unable to get responses from any law enforcement agencies within Greene County, proxies were developed for the Greene County Sheriff's Department and the Springfield Police Department using financial information from the two agencies (e.g., online agency budgets), but used time estimates from staff at the Columbia Police Department and the Jackson County Sheriff's Department. The average cost of a single arrest by the Greene County Sheriff's Office is \$70.42 and the average cost of a single arrest by the Springfield Police Department is \$122.89. The arrest cost at each law enforcement agency was averaged to calculate the final "cost per arrest" in the outcome analysis of \$96.66.

Court Cases include those cases that are dismissed as well as those cases that result in conviction. Because they are the main agencies involved, court case costs in this analysis are shared among the 31st Judicial Circuit Court, Greene County Prosecuting Attorney's Office, and Missouri Public Defender's Office. Using budget and caseload information from each agency, the cost of a Circuit Court Case is \$807.71.

Jail costs were provided by the Greene County Sheriff's Department. Using budget and average daily population information obtained online, the cost per person per day of jail was calculated to be \$28.36 in 2016. Using the Consumer Price Index, this was updated to fiscal 2018 dollars, or \$29.38.

Probation and Parole costs were obtained through online information from the Missouri Reentry Process (a program within the Missouri Department of Corrections). The average cost of probation and parole was \$6.04 per day in 2016. Using the Consumer Price Index, this was updated to fiscal 2018 dollars, or \$6.26 per day.

Prison costs were obtained through online information from the Missouri Reentry Process (a program within the Missouri Department of Corrections). The statewide cost per person per day of prison was \$57.76 in 2016. Using the Consumer Price Index, this was updated to fiscal 2018 dollars, or \$59.84.

Victimizations were calculated from the National Institute of Justice's *Victim Costs and Consequences: A New Look* (1996).³³ The costs were updated to fiscal 2018 dollars using the Consumer Price Index. Property crimes are \$14,224.83 per event and person crimes are \$46,081.54 per event.

The outcome cost analyses were based on cohort of individuals who participated in the GCATC before 4-track implementation and after 4-track implementation, and matched comparison groups of individuals who were eligible for the GCATC program but who did not attend the program (there are two comparison groups—one for pre-4-track and one for post-4-track). These individuals were followed through administrative data for 3 years post program entry (and a similar time period for the comparison group). This study compares recidivism costs for the four groups over 3 years, as well as the costs by agency.

The outcome costs discussed below do not represent the entire cost to the criminal justice system. Rather, the outcome costs include the transactions for which NPC's research team was able to obtain data and cost information on both the GCATC and comparison group from the same sources. However, we believe that the costs represent the majority of criminal justice system costs.

Finally, note that some possible costs or cost savings related to the program are not considered in this study. These include the number of drug-free babies born, health care expenses, and GCATC participants legally employed and paying taxes. The gathering of this kind of information is generally quite difficult due to HIPAA confidentiality laws and due to the fact that much of the data related to this information are not collected in any one place, or collected at all. Although NPC examined the possibility of obtaining this kind of data, it was not feasible within the time frame or budget for this study. In addition, the cost results that follow do not take into account other less tangible outcomes for participants, such as improved relationships with their families and improved quality of life. Although these are important outcomes to the individual participants and their families, it is not possible to assign a cost to this kind of outcome (it is priceless). Other studies performed by NPC have taken into account health care and employment costs. For example, Finigan (1998) performed a cost study in the Portland, Oregon, adult drug court which found that for every dollar spent on the drug court program, \$10 was saved due to decreased criminal justice recidivism, lower health care costs and increased employment.

³³ The costs for victimizations were based on the National Institute of Justice's *Victim Costs and Consequences: A New Look* (1996). This study documents estimates of costs and consequences of personal crimes and documents losses per criminal victimization, including attempts, in a number of categories, including fatal crimes, child abuse, rape and sexual assault, other assaults, robbery, drunk driving, arson, larceny, burglary, and motor vehicle theft. The reported costs include lost productivity, medical care, mental health care, police and fire services, victim services, property loss and damage, and quality of life. In our study, arrest charges were categorized as violent or property crimes, and therefore costs from the victimization study were averaged for rape and sexual assault, other assaults, and robbery and attempted robbery to create an estimated cost for violent crimes, arson, larceny and attempted larceny, burglary and attempted burglary, and motor vehicle theft for an estimated property crime cost. All costs were updated to fiscal 2018 dollars using the consumer price index (CPI).

**Outcome Cost Results**

Table 18 shows the average number of recidivism-related events per individual for all GCATC participants (regardless of graduation status) and the comparison group over 3 years, for both the pre-4-track and post-4-track time periods. These events are counted from the time of program entry.

Table 18. Average Number of Recidivism Events per Person over 3 Years from GCATC Entry

Recidivism-Related Events	Pre-4-Track		Post-4-Track	
	GCATC Per Person (n = 205)	Comparison Per Person (n = 335)	GCATC Per Person (n = 180)	Comparison Per Person (n = 324)
Rearrests (Case Filings)	0.49	0.57	0.59	0.81
Circuit Court Cases	0.49	0.57	0.59	0.81
Probation and Parole Days	249.37	403.15	134.81	324.53
Jail Days	49.40	33.84	27.56	45.58
Prison Days	132.77	150.15	111.52	146.15
Property Victimizations	0.16	0.20	0.17	0.19
Person Victimizations	0.04	0.09	0.08	0.09

Overall, as demonstrated in Table 18, pre-4-track GCATC participants have fewer of every event than the comparison group, except for jail days. Post-4-track GCATC participants have fewer of every event than the comparison. When GCATC participants are compared pre- and post-4-track, there are slightly more rearrests, court cases, and victimizations for the post-4-track group, but substantially fewer probation and parole days, jail days, and prison days. The slight increase in rearrests may be due to several factors including changes in police staffing or procedures over time, or more intensive supervision. In addition, the post-4-track participants had more person and property charges prior to entry in the program than the pre-4-track participants.

Table 19 presents the outcome costs for each transaction for all GCATC participants (graduates and terminated participants combined) and the comparison group, for both the pre-4-track and post-4-track time periods. The first subtotal in Table 19 displays the costs associated with outcomes that occurred in the 3 years after program entry for the GCATC group and the comparison group (an estimated “program entry date” was calculated for the comparison group to ensure an equivalent time period between groups) not including victimizations. Because victimizations were not calculated using the TICA methodology, the costs for these events are presented separately, with the final total providing the total costs for all events from program entry to 3 years after program entry.

Table 19. Outcome Costs per Person over 3 Years – Pre- and Post 4-Track Implementation

Transaction	Unit Costs	Pre-4-Track		Post-4-Track	
		GCATC Per Person (n = 205)	Comparison Per Person (n = 335)	GCATC Per Person (n = 180)	Comparison Per Person (n = 324)
Rearrests	\$96.66	\$47	\$55	\$57	\$78
Circuit Court Cases	\$807.71	\$396	\$460	\$477	\$654
Probation and Parole Days	\$6.26	\$1,561	\$2,524	\$844	\$2,032
Jail Days	\$29.38	\$1,451	\$994	\$810	\$1,339
Prison Days	\$59.84	\$7,945	\$8,985	\$6,673	\$8,746
SUBTOTAL		\$11,400	\$13,018	\$8,861	\$12,849
Property Victimizations	\$14,224	\$2,276	\$2,845	\$2,418	\$2,703
Person Victimizations	\$46,081	\$1,843	\$4,147	\$3,687	\$4,147
TOTAL		\$15,519	\$20,010	\$14,966	\$19,699

The costs of criminal justice outcomes for both the pre- and post-4-track GCATC participants is less than the cost for their respective comparison groups, indicating a benefit, or savings, related to program participation in both time periods. When the difference in total costs, including victimization costs, is calculated between the GCATC participants and their comparison groups, the benefit for pre-4-track GCATC participants comes to \$4,491 per participant and the benefit for post-4-track participants comes to \$4,733 per participant. This difference shows that the benefit due to GCATC participation post-4-track implementation, with victimization costs are included, is just slightly greater than it was pre-4-track. However, when examining costs related to the local and state criminal justice system (using the subtotals, without including the victim related costs), participants in the post-4-track time period cost \$2,370 less (per participant) than pre-4-track participants, indicating a substantial savings related to implementation of the 4-track model.



Graduates of the program show substantial savings compared to the comparison group (a savings of \$18,369 for the pre-4-track group and a savings of \$16,038 in the post-4-track group, when victimizations are included); however, a comparison of graduates to the comparison group is not valid as the two groups are not equivalent as some of the comparison group is made up of people who would have terminated prior to graduation.

Table 20. Outcome Costs per Participant by Quadrant over 3 Years

Transaction	Unit Costs	Q1 (HR/HN) Per Person (n = 90)	Q2 (LR/HN) Per Person (n = 10)	Q3 (HR/LN) Per Person (n = 49)	Q4 (LR/LN) Per Person (n = 30)
Rearrests	\$96.66	\$79	\$21	\$47	\$16
Circuit Court Cases	\$807.71	\$662	\$178	\$396	\$137
Probation and Parole Days	\$6.26	\$1,118	\$381	\$795	\$0
Jail Days	\$29.38	\$1,233	\$100	\$618	\$120
Prison Days	\$59.84	\$10,370	\$1,596	\$4,593	\$762
SUBTOTAL		\$13,462	\$2,276	\$6,449	\$1,035
Property Victimizations	\$14,224.83	\$3,698	\$0	\$1,991	\$0
Person Victimizations	\$46,081.54	\$5,069	\$0	\$2,765	\$1,382
TOTAL		\$22,229	\$2,276	\$11,205	\$2,417

Q1 (HR/HN) participants have by far the highest outcome costs over 3 years, while Q4 (LR/LN) participants have the lowest outcome costs. When victimizations are included, Q1 participants have the highest outcome costs over 3 years, but Q2 (LR/HN) participants have the lowest outcome costs due to no victimizations. It is interesting to note that outcome costs for Q3 (HR/LN) participants are half of the cost of Q1, in spite of the fact that both quadrants are high-risk. This indicates that there is a benefit of the multi-track treatment court model on high-risk individuals, even without a substance use disorder.

Outcome Costs per Agency

These same outcome costs were also examined by agency to determine the relative cost to each agency that contributes resources to the GCATC program. The transactions shown above are provided by one or more agencies. If one specific agency provides a service or transaction (for example, the Missouri Department of Corrections [DOC] provides prison days), all costs for that transaction accrue to that specific agency. If several agencies all participate in providing a service or transaction (for example, the Circuit Court, Prosecuting Attorney, and Public Defender are all involved in Circuit Court cases), costs are split proportionately among the agencies involved based on their level of participation. Table 21 provides the cost for each agency for pre-4-track and for post-4-track GCATC participants, as well as the cost per person for each agency for the pre-4-track and post-4-track comparison groups. Table 21 shows that for each agency, other than law enforcement pre-4-track implementation, the GCATC participants cost less than the comparison group.

Table 21. Outcome Costs per Person by Agency over 3 Years from Program Entry

Agency	Pre 4-Track		Post 4-Track	
	GCATC per person	Comparison per person	GCATC per person	Comparison per person
Circuit Court	\$111	\$129	\$134	\$184
Prosecuting Attorney	\$121	\$140	\$145	\$199
Public Defender	\$164	\$191	\$198	\$271
Law Enforcement	\$1,498	\$1,049	\$867	\$1,417
Department of Corrections	\$9,506	\$11,509	\$7,517	\$10,778
SUBTOTAL	\$11,400	\$13,018	\$8,861	\$12,849
Victimizations*	\$4,119	\$6,992	\$6,105	\$6,850
TOTAL	\$15,519	\$20,010	\$14,966	\$19,699

*These costs accrue to a combination of many different entities including the individual, medical care, etc. and therefore cannot be attributed to any particular agency above.



Table 22 illustrates that in the pre-4-track time period, every agency except for law enforcement has a benefit, or savings, associated with the GCATC program due to GCATC participants having fewer rearrests, court cases, probation and parole days, prison days, and victimizations than comparison group members. In the post-4-track time period, every agency has a benefit, or savings, as post-4-track GCATC participants have fewer of every outcome transaction than the comparison group. In both time periods, DOC sees the biggest benefit due to fewer prison days for post-4-track participants. The savings to criminal justice system agencies is \$1,618 per participant in the pre-4-track time period and \$3,988 in the post-4-track time period.

Table 22. Benefit Accrued to each Agency per Participant over 3 Years from Program Entry

Agency	Pre-4-Track Benefit/Savings	Post-4-Track Benefit/Savings
Circuit Court	\$18	\$50
Prosecuting Attorney	\$19	\$54
Public Defender	\$27	\$73
Law Enforcement	(\$449)	\$550
Department of Corrections	\$2,003	\$3,261
SUBTOTAL (No Victimization)	\$1,618	\$3,988

Table 23 (like Table 20) shows that Q1 participants have by far the highest outcome costs, and the bulk of those costs accrue to DOC for prison days and to victimizations. Q3 participants also have high DOC and victimization costs, as is expected from high-risk participants.

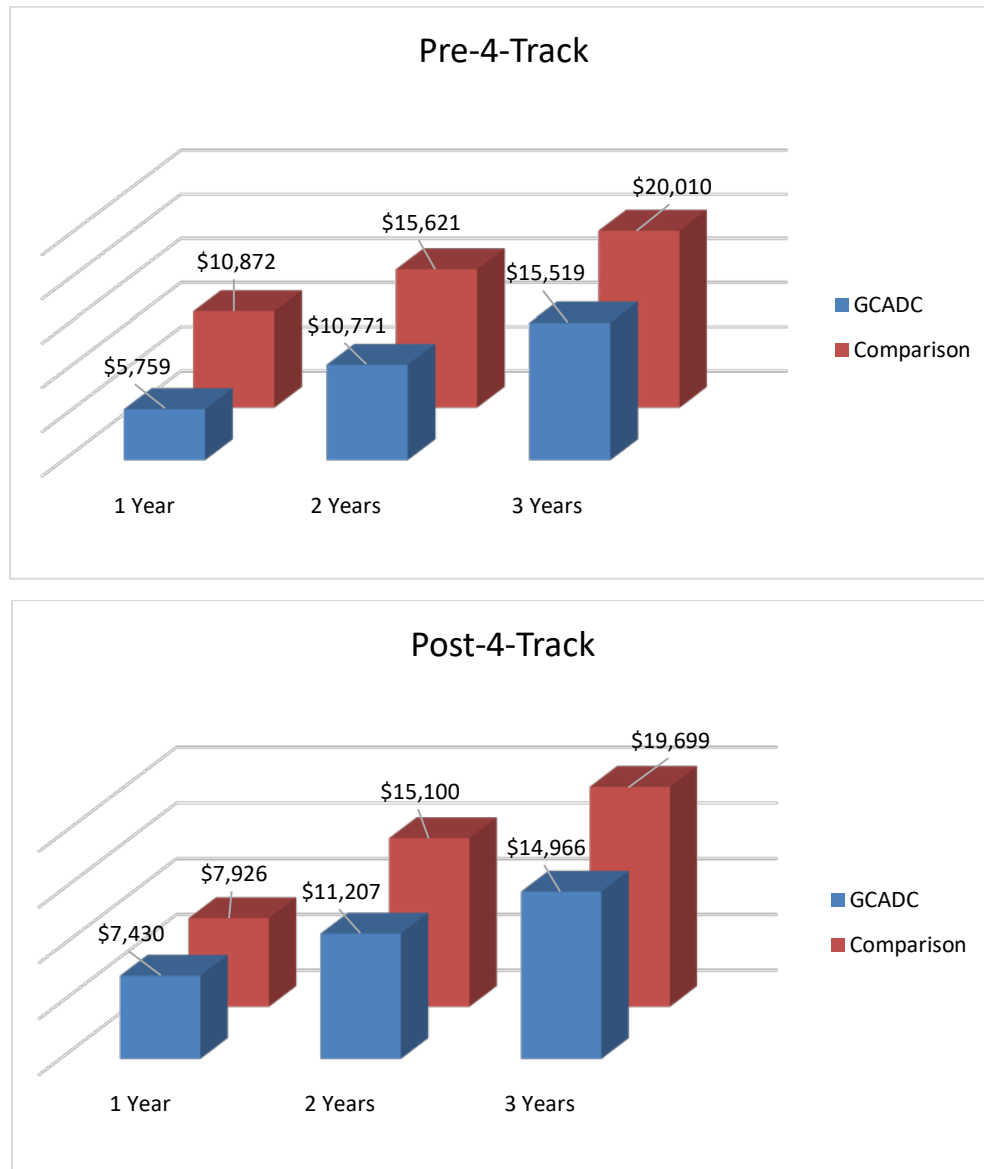
Table 23. Outcome Costs per Person by Agency over 3 Years from Program Entry

Agency	Q1 (HR/HN) per person	Q2 (LR/HN) per person	Q3 (HR/LN) per person	Q4 (LR/LN) per person
Circuit Court	\$186	\$50	\$111	\$38
Prosecuting Attorney	\$202	\$54	\$121	\$42
Public Defender	\$274	\$74	\$164	\$57
Law Enforcement	\$1,312	\$121	\$665	\$136
Department of Corrections	\$11,488	\$1,977	\$5,388	\$762
SUBTOTAL (No victimizations)	\$13,462	\$2,276	\$6,449	\$1,035

Cost-Benefit Analysis

Figure 13 demonstrates the benefit (or savings) each year, cumulative, over 3 years. The GCATC program, both pre- and post-4-track implementation, showed lower costs for the program participants each year, demonstrating increasing cost savings every year.

Figure 13. Criminal Justice Recidivism Cost Consequences per Person: Pre and Post 4-Track Implementation over 3 Years after Program Entry



Over time, the GCATC 4-track model results in cost savings and a return on taxpayer investment in the program. The program investment cost is \$13,565 per GCATC participant. When the cost difference in outcomes between post-4-track GCATC participants and comparison group members is calculated, the benefit due to reduced recidivism for GCATC participants over the 3 years included in this cost-benefit analysis came to \$4,733 (as opposed to a benefit of \$4,491 in the pre-4-track time period). This amount does not yet result in a positive return on the investment in the 3 years after program entry. However, if we make the assumption that the cost savings will continue to accrue over time as has been demonstrated in long term drug court studies (e.g.,

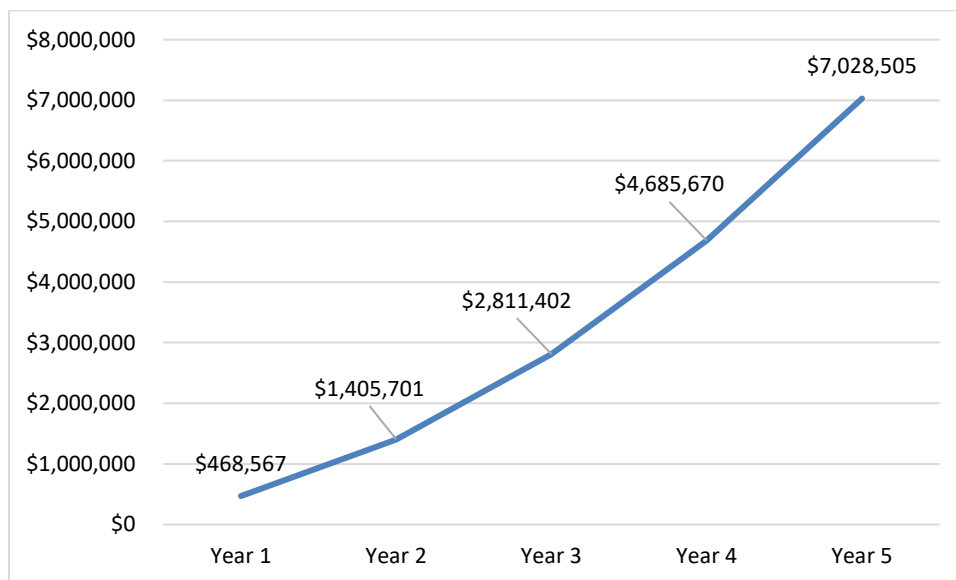
Finigan, Carey, & Cox, 2008), the return on investment will increase over time as the outcome savings continue to accumulate. If other system costs, such as health care were included, studies have shown that an increased return on investment can be expected, up to \$10 saved per \$1 invested in the program (Finigan, 1998).

Cost Conclusion

Figure 13 provides a graph of the outcome costs for all pre-4-track and all post-4-track GCATC participants and the comparison groups over 3 years, including victimizations. The cost savings illustrated in Figure 13 are those that have accrued through 3 years after program entry. Many of these savings are due to positive outcomes while the participant is still in the program.

These savings will also continue to grow with the number of new participants that enter the program each year. If the GCATC program serves a cohort of roughly 300 new participants annually, the savings of \$4,733 per participant (including victimizations) over 3 years from program entry results in a combined savings of \$473,300 per cohort per year, which can then be multiplied by the number of years the program remains in operation and for additional cohorts per year. After 5 years, the accumulated savings come to over **\$7 million** (See Figure 14).

Figure 14. Growth in Cost Savings Due to Positive Criminal Justice Outcomes for Post-4-Track GCATC over 5 Years



If GCATC participants have more positive outcomes in subsequent years, then these cost savings can be expected to continue to accrue over time, repaying the program investment costs and providing further savings in the form of opportunity resources to public agencies. These findings indicate that GCATC is both beneficial to participants and beneficial to Greene County and Missouri taxpayers.

LIMITATIONS

As is true for all administrative data, there are likely some inaccuracies in the data entered into the administrative datasets provided for this study that were outside of NPC's control. For example, when the 4-track model was first implemented in the existing adult treatment court, there was a separate court in operation called CRISP (Court Reporting Intensive Supervision Court). Probationers facing prison were ordered into this court – it was their last opportunity to correct their behavior and remain in the community. The CRISP participants were given sanctions for positive or missed UA's, failing to attend treatment, missing appointments, etc. Often the sanctions were jail, with the number of days in jail increasing incrementally until they were either sent to "120-day treatment" in the Department of Corrections or they were revoked. Approximately a year or so after the 4-track model had been implemented in the adult treatment court, it was decided that the CRISP court should be closed and many of the CRISP participants were transferred into the adult treatment court. Because the CRISP participants were already partially through their program process, they were not assessed and placed in a quadrant but instead were just seen in court on the same calendar as Q4 (LR/LN) participants. No code was available in the treatment court database that was specific to CRISP, so they were given the code for Q4s. Because of the way data were entered, it was not possible to differentiate true Q4s from the CRISP participants so CRISP participant data is included with the Q4 analysis. Implications for this mis-categorization are that it is likely that the Q4 time in treatment presented in this report (e.g., individual substance use treatment, residential treatment) is actually due to participants from CRISP since it is unlikely that Q4 participants would have been sent to substance use treatment based on their assessed needs. In addition, the time in jail presented in the recidivism results is also likely due to CRISP participants. If we were able to differentiate the CRISP participants from the true Q4 participants, it is likely that the differences between Q4 and the other quadrants would be more pronounced, better illustrating the fidelity to RNR and the four quadrants. In addition, it is likely that the programs costs would be lower, and that the costs for jail time would also be lower. However, even with this contamination of the Q4 sample, there is clear support in the data for the provision of services based on risk and need, and the associated benefits in improved participant outcomes.

This example of the inaccuracies that occur in administrative data also illustrates the importance of good data entry practices including using appropriate codes for individuals in different programs and for specific program activities. Mis-coding can lead not only to inaccurate evaluation results, but could also have a real impact on the lives and freedoms of the individuals who are under the jurisdiction of the criminal justice system.

SUMMARY AND POLICY IMPLICATIONS

The results of this study showed that the GCATC implemented the 4-track model with exemplary fidelity. Participants in each of the four quadrants received levels of supervision, social services and treatment according to the assessed risk and need. The cost of the program was highest in HR/HN participant (\$17,503 per participant) and lowest for LR/LN participants (\$7,701), demonstrating an appropriate allocation of funds to participants with the highest service and supervision needs.

The outcome and cost analyses demonstrated that implementation of the 4-track model resulted in substantially improved participant outcomes. Specifically, after the 4 track model, GCATC participants:

- Graduated at higher rates (68% post-4-track versus 45% pre-4-track)
- Had lower rearrest rates compared to their matched comparison group
 - 37% reduction in number of rearrests post-4-track versus 16% pre-4-track
 - 85% reduction in number of drug rearrests post-4-track versus 0% pre-4-track
 - 66% reduction in felony arrests post-4-track versus 15% pre-4-track
- Had lower reincarceration rates
 - 61% lower reincarceration post-4-track versus higher incarceration for the pre-4-track participants
 - 38% fewer days in jail and prison versus no difference for pre-4-track participants
- And demonstrated a cost savings for local and state criminal justice agencies of nearly \$4,000 per participant post-4-track versus \$1,618 pre-4-track

Savings due to lower use of criminal justice resources and fewer victimizations resulted total savings of \$4,733 per 4-track participant over 3 years. If the GCATC program serves a cohort of roughly 300 new participants annually, the savings per participant results in a combined savings of \$473,300 per cohort per year, which can then be multiplied by the number of years the program remains in operation and for additional cohorts per year. After 5 years, the accumulated savings come to over \$7 million.

These findings indicate that using RNR in a drug court setting through implementing separate tracks and providing supervision and services based on each participants individualized risk and need results in increased public safety due to lower criminal recidivism as well as substantial cost savings to the taxpayer.

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APPENDIX A: STATISTICAL DATA ANALYSES METHODS

Once all data were gathered on the study participants, researchers cleaned and moved the data into SPSS 23.0 for statistical analysis. The analyses used to answer specific questions are described below.

Mahalanobis Distance Matching was performed using a tool developed in R used in conjunction with SPSS (Rubin, 1980).

RESEARCH QUESTION #1: DID THE PROGRAM TAILOR THE TREATMENT COURT REQUIREMENTS AND SERVICES TO EACH OF THE FOUR QUADRANTS? THAT IS, DID THE PROGRAM PROVIDE SERVICES DIFFERENTLY IN EACH OF THE FOUR TRACKS?

The total level of program activities and treatment services received were summed for each participant in post-4-track GCATC participants. Means of program activities and treatment services were calculated for all post-4-track GCATC participants by client. Treatment services received were defined by the number of units of treatment received by each participant with a treatment unit usually corresponding to 15 minute intervals except for residential or day treatment. Means of program activities and treatment services are then compared across quadrants.

RESEARCH QUESTION #2: DID GRADUATION RATES DIFFER BEFORE AND AFTER 4-TRACK IMPLEMENTATION?

Graduation rates for GCATC participants were calculated using program data. Graduation rates were calculated 1) using all GCATC participants that entered the program, including those that were currently active at the time of the study, and 2) using all GCATC participants that had successfully completed the program or were terminated, which excludes those that were active, transferred, medically discharged, or those that became deceased during the program. Graduation rates by year are calculated using the year of program entry of each participant. Graduation rates by quadrant are calculated only for participants that had at least 12 months from program entry to the time of data collection, allowing for ample time to complete the program.

RESEARCH QUESTION #3: DID PLACING PARTICIPANTS INTO THE 4-TRACKS ACCORDING TO ASSESSED RISK AND NEED RESULT IN REDUCED RECIDIVISM INCLUDING REARRESTS AND REINCARCERATION COMPARED TO TRADITIONAL DRUG COURT AND COMPARED TO INDIVIDUALS WHO WERE ELIGIBLE FOR THE TREATMENT COURT BUT WHO DID NOT PARTICIPATE?

Comparison pool members were identified from Greene county jail records using GCATC eligibility requirements. After comparison pool members were identified, Mahalanobis Distance Matching (Rubin, 1980) was used to create a matched comparison group that were similar to GCATC participants according to race, sex, age, and prior criminal history, defined as the number of arrests (total and by type and level). Pre-4-track GCATC participants and post-4-track GCATC participants were each matched separately, thus two comparison groups were identified corresponding to each time period. A pseudo “program entry” date was calculated for each comparison group member using the average time from arrest to entry in each corresponding GCATC group while also using a random standard error to account for the non-uniform time from eligible arrest to program entry.

Outcomes looked at the percent and average number of arrests, and the percent and average length of reincarceration up to 3 years after program entry, or the equivalent date for the comparison group.³⁴ For outcomes that were continuous (number of arrests, length of incarceration) a negative binomial regression to account for the nonnormal distribution of these outcomes. For outcomes that were categorical (percent rearrested or percent incarcerated), a logistic regression was conducted. Models did not include any demographic or prior criminal history covariates as GCATC participants and each comparison group were well matched after Mahalanobis Distance Matching. All participants and comparison group members were included with the weights provided from Mahalanobis Distance Matching. Each model included time (pre-4-track implementation and post-4-track implementation) and group (GCATC participants and comparison group) as between-subjects variables, as well as the interaction between these two variables. Incident Rate Ratios for negative binomial regressions and Odds Ratios for logistic regression were provided.

³⁴ Analyses that examine outcome time periods greater than 1 year include only participants who have the full outcome time available. For example, analyses that examine outcomes 2 years from GCATC entry will only include individuals that have 2 full years of outcome time available. Outcomes are based upon program entry date (or a similarly assigned date for the comparison group).