

Behavioral Health Research & Services

Evaluation of the
Pathways to Sobriety Project

*Exploratory Analysis of the Municipality of Anchorage's
Community Transfer Station Database*



UNIVERSITY *of* ALASKA
ANCHORAGE

(BHRS Pathways-Related Technical Report No. 3)

Exploratory Analysis of the Municipality of Anchorage's Community Transfer Station Database

(BHRS Pathways-Related Technical Report No. 3)

*Submitted by:
Behavioral Health Research & Services
University of Alaska Anchorage
P. O. Box 241626
Anchorage, Alaska 99524-1626*

*907-561-2880
907-561-2895(FAX)
aybhrs@uaa.alaska.edu*

August 31, 2005

This research was supported by Grant Number 4 H79 SP09943-01-4 from the Center for Substance Abuse Prevention, Substance Abuse and Mental Health Services Administration, US Department of Health and Human Services. Contents are solely the responsibility of the authors and do not necessarily represent the views of the funding agency.

Exploratory Analysis of the Municipality of Anchorage's Public Inebriate Transfer Station Database

*Prepared by BHRS Staff
August 31, 2005*

Executive Summary

In December 2002, the Substance Abuse and Mental Health Services Administration (SAMHSA) awarded funds to the Municipality of Anchorage SAFE City Program to implement the *Pathways to Sobriety* project. This is a multi-faceted project aimed at improving the well-being of individuals exhibiting chronic public inebriation in Anchorage. More specifically, the target population consists of individuals with 19 or more admissions per year to the Municipality of Anchorage's Public Inebriate Transfer Station (TS), a short-term protective care facility for individuals who are severely inebriated. The primary components of this project include:

- 1) voluntary engagement by chronic public inebriates from the target population into detoxification and substance abuse treatment services via individualized intensive case management services;
- 2) increased access to the therapeutic court for the target population involved in a criminal act; and
- 3) invigoration of the alcohol involuntary commitment process.

The Municipality of Anchorage SAFE City Program contracted with Behavioral Health Research and Services (BHRS) at the University of Alaska Anchorage to conduct an evaluation of the *Pathways to Sobriety* project. The goal of this evaluation is to document the process and impact of the *Pathways to Sobriety* project, as well as to assess treatment outcomes attributable to the project. The current report explored utilization of the Transfer Station with the goal to identify trends that may assist the Municipality of Anchorage in determining current and future staffing and to help guide planning for the future of the Transfer Station.

In this report, we examined trends in Transfer Station utilization based on year, month of year, day of month, and day of week, as well as temperature. Using these variables and others, we calculated time series analysis to identify specific variables that have the greatest impact on utilization and to predict future utilization. Our findings provide some insights into the utilization trends that may be of assistance to the Municipality of Anchorage as they look to the future of the Transfer Station. Following is a discussion of the findings as they relate to each of the questions of interest posed by Transfer Station staff members.

What are possible reasons for the significant decrease in Transfer Station utilization that occurred in 2002 and 2003?

Several factors converged in 2002 that may have contributed to the significant decrease in Transfer Station utilization in 2002 and 2003. First, the *Pathways to Sobriety* project, which targeted frequent users of the Transfer Station, was implemented during this time. As noted in a prior BHRS technical report, the *Pathways to Sobriety* project resulted in a reduction in number of visits by these high-end users from 56.2 per client before enrollment to 40.1 after enrollment, with 11 clients having no Transfer Station visits after enrollment. Second, in April 2002, the Transfer Station moved from a downtown location, 6th and C, to its current location, E. 3rd Ave., attached to the State/Municipal Department of Corrections Jail. Our current analysis suggests that this relocation played a significant role in the decrease. Third, the weather was uncharacteristically mild during 2002 and 2003. Although it is difficult to determine how much each of these factors contributed to the decrease in utilization, it is evident that the one factor that can be replicated, namely, intervention services, played a major role. This conclusion is buttressed by the fact that since the *Pathways to Sobriety* project has wound down and is no longer in place, utilization is beginning to increase to its prior levels.

Are there any seasonal, weather-related, or other factors that are related to increases or decreases in Transfer Station utilization?

After controlling for all other factors, daily temperature was related to Transfer Station utilization, with increased utilization with lower temperatures and decreased utilization with higher temperatures. This temperature trend results in utilization of the Transfer Station that is nearly twice as high during the winter months of January, February, and March as it is during the summer months of June, July, and August. Clear spikes in utilization that correspond to severe weather conditions are evident throughout the year.

Are there any indications that monetary distributions, such as the Alaska Permanent Fund Dividend, influence Transfer Station utilization?

Findings indicate a gradual increase in utilization from summer to winter months. However, the months of October and November deviate from this general trend. One possible explanation for this deviation is the Alaska Permanent Fund Dividend distribution during October. However, given that 90% of the Transfer Station clientele are Alaska Natives, other possible explanations include the AFN Conference during October and distribution of Alaska Native Corporation dividends. More information needs to be collected and more analyses conducted to identify the precise source(s) of the trend deviation in October and November.

Are there any identifiable utilization trends related to day of week or day of month that may assist with staffing decisions?

Several notable time-related trends in Transfer Station utilization were identified. Specifically, highest utilization was noted during weekends and lowest utilization on Monday; seasonal trends were noted with highest utilization during winter months and lowest during summer months; and highest utilization was noted during the first week of each month. It should be noted that these trends can heighten or dampen each other. For example, utilization during a weekend that coincides with the first week of a month during winter time may be even higher than utilization on a weekend later in the month or during summer time.

What is the projected daily number of consumers utilizing the Transfer Station in one year? And in five years?

Based on the time series analysis, it is predicted that utilization rates will continued to increase and return to pre-relocation levels by 2007. Indeed, within two years, it is predicted that admissions will be twice as high as the recent lows in 2003. By 2010, it is predicted that utilization rates will be nearly three times as high as the recent lows in 2003 and twice as high as current rates (2004). Further, by 2010, it is predicted that utilization rates will surpass the daily holding capacity of the facility (maximum of 123 clients with 13 staff) on a regular basis. It should be noted that the holding capacity is dependent upon the number of staff members available at any given time. That is, a minimum staff to consumer ratio of 1:10 is required at all times. Thus, although the maximum holding capacity of the building is 123, actual capacity at any given time depends on staffing levels. Given this fact, the holding capacity of the Transfer Station may be exceeded on a regular basis even before 2010 if staff shortages occur.

The current report provides enough evidence for BHRS to draw the following conclusions and make the following recommendations. The goal of these recommendations is to provide additional information needed to streamline the functioning of the Transfer Station and to prepare for future growth.

- First and foremost, based on our analyses of Transfer Station utilization, it is predicted that Transfer Station utilization will exceed capacity within approximately five years. Thus, development of a long-term management plan for the Transfer Station is crucial. Possible considerations for this management plan are as follows:
 - Increase the number and capacity of programs designed to decrease use of the Transfer Station by alcohol dependent, homeless individuals.
 - Explore programs that have been proven successful in serving homeless individuals dependent on substances, in particular, dependent on alcohol.
 - Advocate for increased quantity and access to temporary housing, detoxification services, and residential treatment for individuals who are homeless and dependent on substances.
 - Educate the community on the urgency and severity of this social problem.
 - Secure funding for services that target high users and future high users of the Transfer Station to decrease utilization. As demonstrated by the *Pathways to Sobriety* project, such an intervention approach has immediate impacts on utilization.
 - Develop a plan for utilizing the process of involuntary commitment within the Anchorage community for individuals presenting as a danger to themselves or others due to their high level of alcohol use.
 - Secure funding to support the possible expansion of the Transfer Station and take other steps necessary to realize this expansion.
- With regard to staffing concerns, our analyses suggest that the Transfer Station experiences increased utilization during weekends, winter months (with an additional influx during the month of October), and at the beginning of each month. It is

recommended that these patterns be considered in the staff scheduling process. For example, these higher utilization periods may be better suited to an increase in regular staff members rather than a reliance on on-call staff members. Further, these higher utilization periods should be taken into consideration when determining leave schedules.

- The patterns discovered in this analysis may provide valuable information related to windows of opportunity for outreach and intervention services. By using this information, case managers and other support systems may be able to predict times when intervention might have the greatest impact. For example, high levels of outreach geared toward securing treatment placements and temporary housing may be quite beneficial prior to October when the Alaska Permanent Fund Dividend checks are distributed. Prior to the first of the month, interventions may be effective at reducing high utilization periods.
- With a core group of individuals accounting for the majority of all Transfer Station visits, continued interventions (similar to the *Pathways to Sobriety Case Management Program*) geared toward these individuals would be an effective mechanism for reducing overall utilization. A detoxification program that includes beds serving only chronic inebriates might immediately decrease the number of high-utilization individuals as well as have a positive impact on the lives of these individuals. One model worthy of consideration might be the social detoxification model that is becoming increasingly common throughout the United States. Such a detoxification model includes longer lengths of stay that involve more intensive intervention services.
- The increased Transfer Station utilization during the winter suggests that homeless clients are using the Transfer Station as a primary means to gain shelter from the elements. A major focus of outreach efforts may be to assist potential Transfer Station clients in securing alternate sources of shelter *before* they are admitted. Given the historical shortage of permanent and semi-permanent housing services and funding for homeless individuals, new housing resources may need to be developed to implement this recommendation.
- More intervention targeted at Transfer Station clients at the time of discharge may be helpful in providing the clients with the necessary resources and tools to prevent future admissions. Such interventions could focus on identifying and helping clients who wish to enter mental health or substance use treatment programs, obtain gainful employment, access more permanent housing, or receive other needed social services.
- At the present time, limited demographic information is collected on Transfer Station clients. It may be helpful to gather more detailed information, such as reasons for becoming intoxicated, sources of alcohol, and living conditions. Such information could be gathered through a short interview as clients are released from the Transfer Station. These data could provide insight into the nature of the individuals who frequent the Transfer Station and allow for more targeted interventions to be developed.

Acknowledgements

We would like to express our gratitude to Carrie Longoria, Mark Lessard, David Friedline, and Therese Bartlett at the Municipality of Anchorage SAFE City Program for their incredible cooperation and assistance in providing data and their thoughtful and careful review and editing of this report.

Table of Contents

Executive Summary.....1
Acknowledgements.....5
Table of Contents7
List of Figures8
Introduction.....9
Background and Purpose of this Report.....10
Method11
Findings12
Discussion18
Recommendations20

List of Figures

Figure One: Number of Total Transfer Station Visits by Year.....12

*Figure Two: Number of Daily Transfer Station Visits for February 2001 to
June 2005.....13*

Figure Three: Transfer Station Utilization by Month of Year.....13

Figure Four: Transfer Station Utilization by Day of Month.....14

Figure Five: Transfer Station Utilization by Day of Week.....14

*Figure Six: Relationship between Transfer Station Utilization and
Temperature by Month.....15*

Figure Seven: Actual and Predicted Utilization for July 2005.....15

Figure Eight: Actual and Predicted Total Yearly Utilization16

Figure Nine: Actual and Predicted Monthly Utilization16

Figure Ten: Actual and Predicted Total Daily Utilization17

Figure Eleven: Actual Daily Utilization and Upper Limit Predictions.....17

Exploratory Analysis of the Municipality of Anchorage's Transfer Station Database

*Prepared by BHRS Staff
August 15, 2005*

Introduction

In December 2002, the Substance Abuse and Mental Health Services Administration (SAMHSA) awarded funds to the Municipality of Anchorage SAFE City Program to implement the *Pathways to Sobriety* project. This is a multi-faceted project aimed at improving the well-being of individuals exhibiting chronic public inebriation in Anchorage. More specifically, the target population consists of individuals with 19 or more admissions per year to the Municipality of Anchorage's Transfer Station (TS), a short-term protective care facility for individuals who are severely inebriated. The primary components of this project include:

- 1) voluntary engagement by chronic public inebriates from the target population into detoxification and substance abuse treatment services via individualized intensive case management services;
- 2) increased access to the therapeutic court for the target population involved in a criminal act; and
- 3) invigoration of the alcohol involuntary commitment process.

The Municipality of Anchorage SAFE City Program contracted with Behavioral Health Research and Services at the University of Alaska Anchorage to conduct an evaluation of the *Pathways to Sobriety* project. The overall goal of this evaluation project is to document the impact and process of the *Pathways to Sobriety* project, as well as to measure treatment outcomes.

As an integral part of the *Pathways to Sobriety* project, the Transfer Station provides a location at which severely inebriated individuals can be housed and monitored until their blood alcohol levels have decreased to acceptable levels. One of the primary benefits hoped for from the *Pathways to Sobriety* project was a reduction in the utilization of the Transfer Station, particularly by those individuals who frequently use it. This report explored utilization of the Transfer Station across time with the primary goal to identify trends that may assist the Municipality of Anchorage in determining current and future staffing and to help guide their planning for the future of the Transfer Station.

Municipality of Anchorage Public Inebriate Transfer Station

The Transfer Station is physically attached to the State/Municipal Department of Corrections Jail and functions seven days a week, 24 hours a day and can house up to 123 clients. The Transfer Station has nearly 20 full-time employees and over 20 part-time employees working on an on-

call basis and maintains a minimum staff-to-client ratio of 1:10. At least three staff members are on duty at all times, including an emergency medical technician (EMT). The EMT is responsible for clients' health and well-being and is responsible for the continual monitoring of clients.

The number of individuals using the Transfer Station has increased steadily from 1,766 in 1997 to 2,436 in 2001 but declined to 1,975 in 2002 (Anchorage Safe City Report, 2003). Approximately 90% of the clients utilizing the Transfer Station are Alaska Native, a disproportionate amount to the approximate 7% of the city's total population which is Alaska Native. Men account for 70% of the clients, and 63% of the clients are between 35 and 54 years of age, while another 26% are between the ages of 18 and 34. The majority (75%) of individuals utilizing the Transfer Station enter with a Breath Alcohol Content greater than or equal to .20% (as a point of reference, .08% is the national standard for driving under the influence of alcohol). Any subject with a blood alcohol level exceeding .349% is taken to a hospital for medical clearance (Anchorage Safe City Report, 2003). A significant number of individuals who utilize the Transfer Station do so repeatedly, with a core group of approximately 150 clients accounting for nearly 60% of the total number of visits.

Background and Purpose of this Report

A cursory examination of monthly admissions revealed a clear seasonal pattern, prompting a desire to investigate Transfer Station utilization. Anecdotally, it was assumed that there are more clients on colder nights as homeless individuals might purposefully seek a means of securing shelter and, in an attempt to prevent hypothermia among intoxicated individuals, the Community Service Patrol and the Anchorage Police Department increase their efforts to bring public inebriates to the Transfer Station. It has also been suggested that the distribution of funds from the Alaska Permanent Fund Dividend or from other sources has a significant impact on admissions to the Transfer Station. However, it is unclear whether receiving these funds would make alcohol more available and thus increase the number of clients, or whether having these funds would allow homeless individuals to secure other forms of shelter, thereby decreasing their need for the Transfer Station.

In 2002 and 2003, a significant decrease in utilization of the Transfer Station was noted. Several factors converged during this time that may have contributed to this decreased utilization. First, the *Pathways to Sobriety* project, which targeted frequent users of the Transfer Station, was implemented during this time. As noted in a prior BHRS technical report, the *Pathways to Sobriety* project resulted in a reduction in number of visits by these high-end users from 56.2 per client before enrollment to 40.1 after enrollment, with 11 clients having no Transfer Station visits after enrollment. Second, in April 2002, the Transfer Station moved from a downtown location, 6th and C, to its current location, E. 3rd Ave., attached to the State/Municipal Department of Corrections Jail. Lack of knowledge regarding the new location and difficulty securing transportation to the new facility were among the hypotheses presented to at least partially explain the subsequent decrease in utilization. Third, the weather was uncharacteristically mild during 2002 and 2003.

Recently, an increase in the utilization of the Transfer Station has been noted. This increase in utilization and evidence of potential seasonal trends motivated the current study. Additionally,

the ability to predict the number of clients expected on any particular night might help guide staffing decisions; the ability to predict future utilization of the Transfer Station may help with making policy and planning decisions.

Through analyzing the admissions database, multiple questions regarding the utilization of the Transfer Station can be addressed. More specifically, the current report attempts to answer the following questions commonly posed by Transfer Station staff members:

- In addition to decreases in utilization facilitated by the *Pathways to Sobriety* project, what other possible reasons exist for the significant decrease in Transfer Station utilization that occurred in 2002 and 2003?
- Are there any seasonal, weather-related, or other factors that are related to increases or decreases in Transfer Station utilization?
- Are there any indications that monetary distributions, such as the Alaska Permanent Fund Dividend, influence Transfer Station utilization?
- Are there any identifiable utilization trends related to day of week or day of month that may assist with staffing decisions?
- What is the projected daily number of consumers utilizing the Transfer Station in one year? And in five years?

Method

Data Sources

The Municipality of Anchorage Transfer Station database serves as the single source of information regarding Transfer Station utilization. These data are collected and entered into an MS Excel[®] database by Transfer Station staff members with one file created for each month. These files are then imported into an MS Access[®] database maintained by the SAFE City Program. Weather-related data for the Anchorage area were obtained directly from the National Oceanic and Atmospheric Administration (NOAA) at <http://www.noaa.gov/>.

The review of Transfer Station data was approved by the Municipality of Anchorage SAFE City Program and is covered under a data-sharing agreement. This study and the entire BHRS evaluation of the *Pathways to Sobriety* project were approved by the University of Alaska Anchorage Institutional Review Board. The current report was based on daily counts of admissions to the Public Inebriate Transfer Station between February 2001 and June 2005.

Statistical Analyses

As a first step towards understanding trends in Transfer Station utilization, we conducted initial analyses to explore trends in utilization based on year, month of year, day of month, day of week, and weather-related variables, such as daily temperature. As expected, a significant degree of autocorrelation was detected in the data. Significant autocorrelations indicate that an association exists between the utilization rate of a given day and a subsequent day. For example, a high utilization rate on one day could be associated with a high utilization rate on the following day. To model the autocorrelation and other time-related variables, we incorporated an autoregressive integrated moving average (ARIMA) time series component into the model. Time series analysis is a statistical approach that explores trends in data across time. ARIMA time series models are specifically designed to capture key aspects of time series data.

In conducting these analyses, we constructed a statistical model based on the above-mentioned variables, using a standard statistical technique for handling count data, Poisson regression. This approach was coupled with an autoregressive integrated moving average (ARIMA) time series model to create a single model for transfer station utilization that could be used to identify any yearly, monthly, and daily trends. In addition, the contributing roles of other variables were investigated. These predictor variables included average daily temperature, minimum temperature, Alaska Permanent Fund Dividend distribution, and Transfer Station relocation. One clear advantage of this analytic approach is the ability both to assess and control for certain variables, such as seasonality or temperature, in a single model.

For purposes of this study, a Poisson regression model was developed using month, day of month, day of week, average daily temperature, minimum temperature, Alaska Permanent Fund Dividend distribution, and Transfer Station relocation data, combined with an ARIMA (3,0,2) model (third-order autoregressive combined with a second-order moving averages). Using this modeling approach, for the data available from February 2001 to July 2005, non-significant variables were removed until only significant variables remained. This model was then tested using the month of July 2005 to assess replicability. The final model was used to project Transfer Station utilization for the next five years. Complete details regarding statistical analyses are available from BHRS.

Findings

Overall Utilization

Figure One demonstrates that, between 1997 and 2001, the total number of admissions to the Transfer Station per year steadily increased. For example, in 1997, total annual number of admissions was 17,278; this annual total gradually increased to 23,653 in 2001. In 2002 and 2003 the annual totals dropped drastically to 17,543 and 12,641, respectively. Totals then once again increased and reached 16,778 in 2004.

Figure One: Number of Total Transfer Station Visits by Year

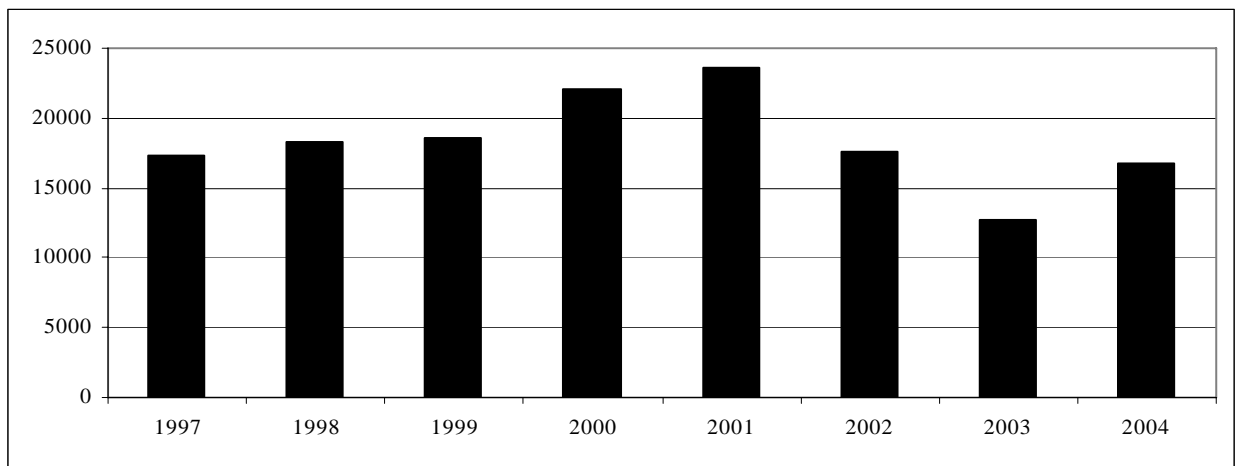
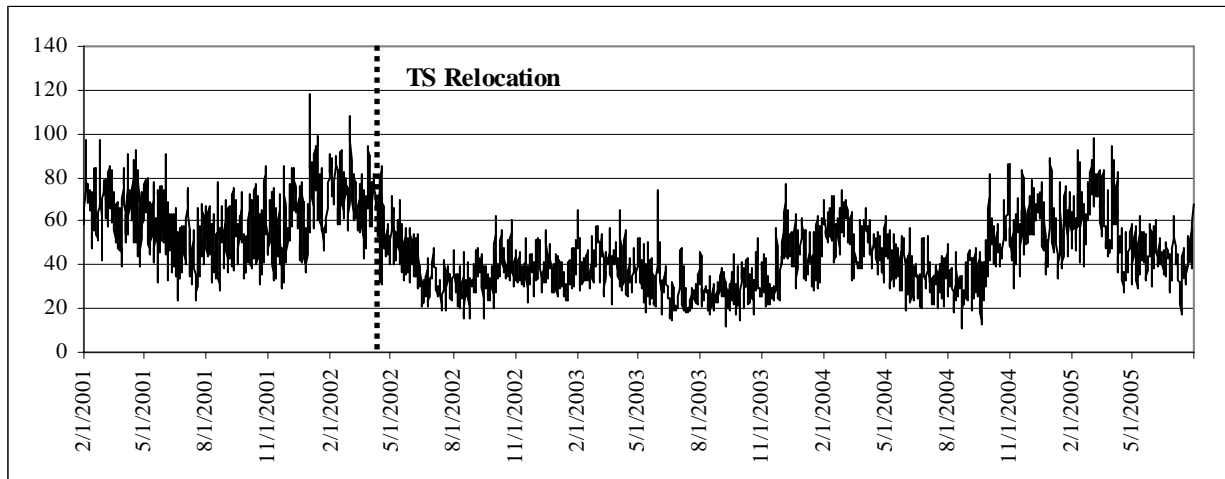


Figure Two provides the number of daily Transfer Station visits between February 2001 and June 2005. As noted earlier, several events occurred that may be related to decreases in utilization during 2002 and 2003. These factors include implementation of the *Pathways to Sobriety* project, relocation of the Transfer Station, and uncharacteristically mild weather. Since that time, utilization has increased and is approaching levels noted prior to 2002. Possible reasons for this increase in utilization are the elimination of the *Pathways to Sobriety* project, increased familiarity with the new Community Transfer Center location, and increased transportation of homeless individuals by the Community Service Patrol and Anchorage Police Department.

Figure Two: Number of Daily Transfer Station Visits for February 2001 to June 2005



Month, Day of Month, and Day of Week Utilization

Figure Three provides information utilization based on average numbers of daily visits by month of year. As the Figure demonstrates, average daily utilization increases during the winter months and decreases during the summer months. The exception to this otherwise smooth trend are the months of October and November, an exception that will be discussed later in this report within the context of the Alaska Permanent Fund Dividend distributions.

Figure Three: Transfer Station Utilization by Month of Year

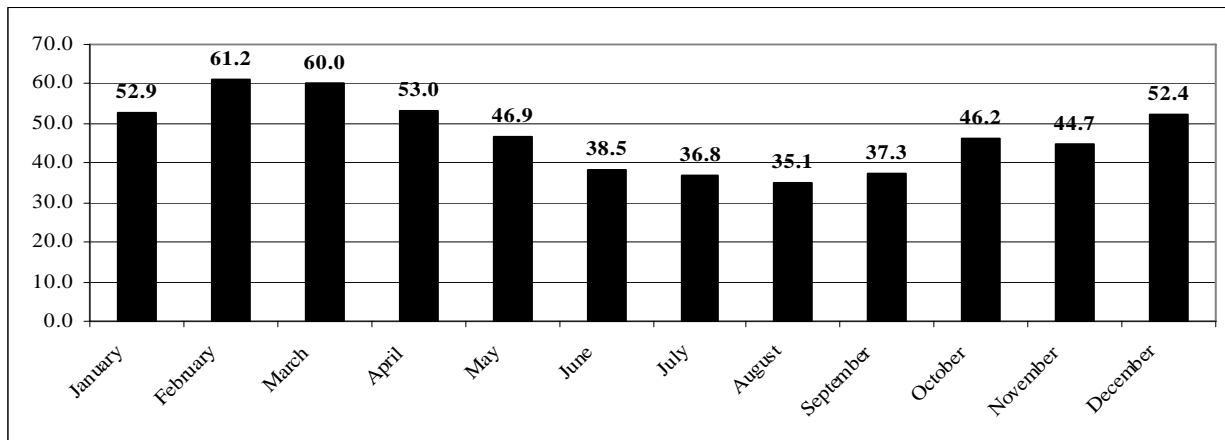


Figure Four provides information on average daily utilization by day of month (where months were standardized to 30 days using a standard econometric formula). As the Figure shows, utilization is significantly higher during the first week of each month, with lower utilization during the middle two weeks.

Figure Four: Transfer Station Utilization by Day of Month

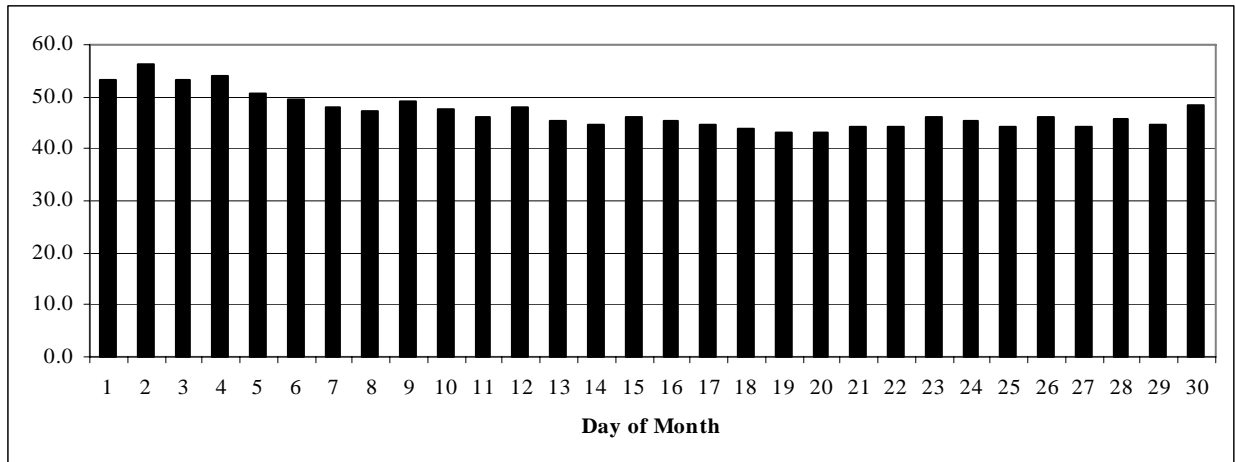
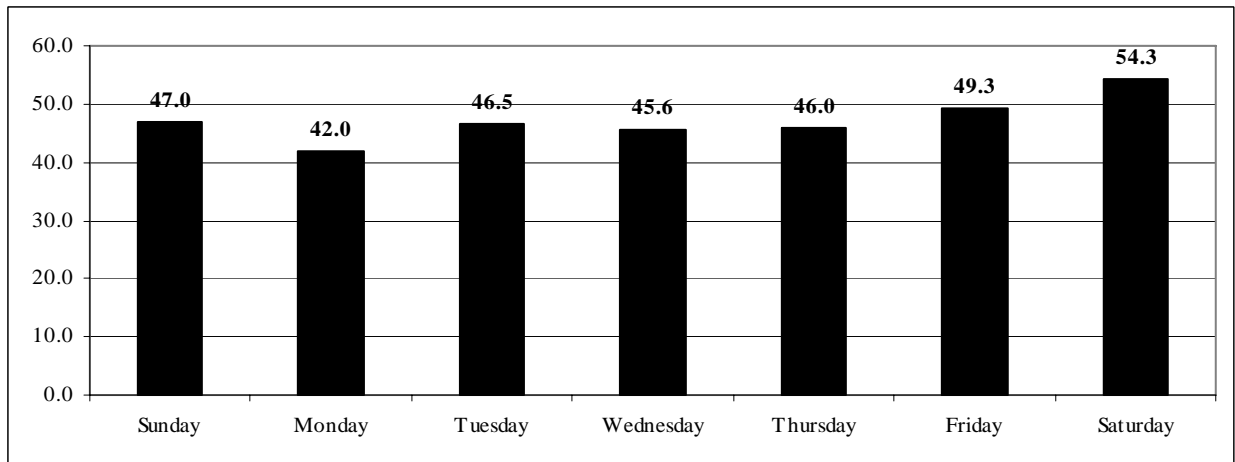


Figure Five provides information on Transfer Station average daily utilization based on day of week. As shown, utilization is highest during the weekend (Friday, Saturday, and Sunday), lowest on Monday, and relatively constant across the middle of the week (Tuesday, Wednesday, and Thursday). It should be noted that because a given week may fall across two months, weekly trends may be dampened or heightened by monthly trends noted above (e.g., higher utilization during first week of the month).

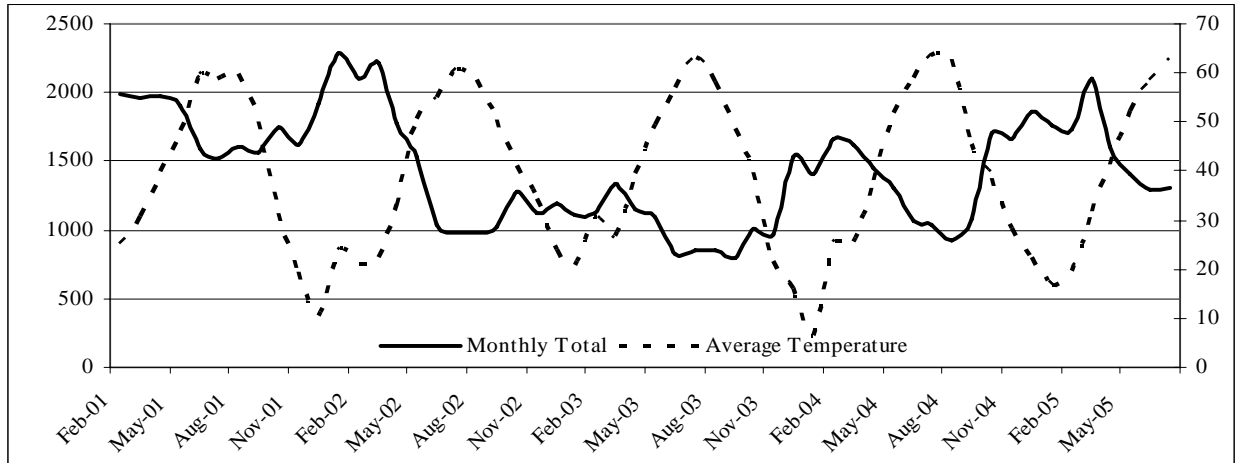
Figure Five: Transfer Station Utilization by Day of Week



Temperature and Transfer Station Utilization

Figure Six provides information on average monthly Transfer Station utilization as it relates to temperature. The figure demonstrates an inverse relationship between utilization and temperature. That is, as temperature rises, Transfer Station utilization decreases; as temperature drops, utilization increases. As would be expected, this trend is identical to the trend that is noted for month of year (see Figure Three).

Figure Six: Relationship between Transfer Station Utilization and Temperature by Month

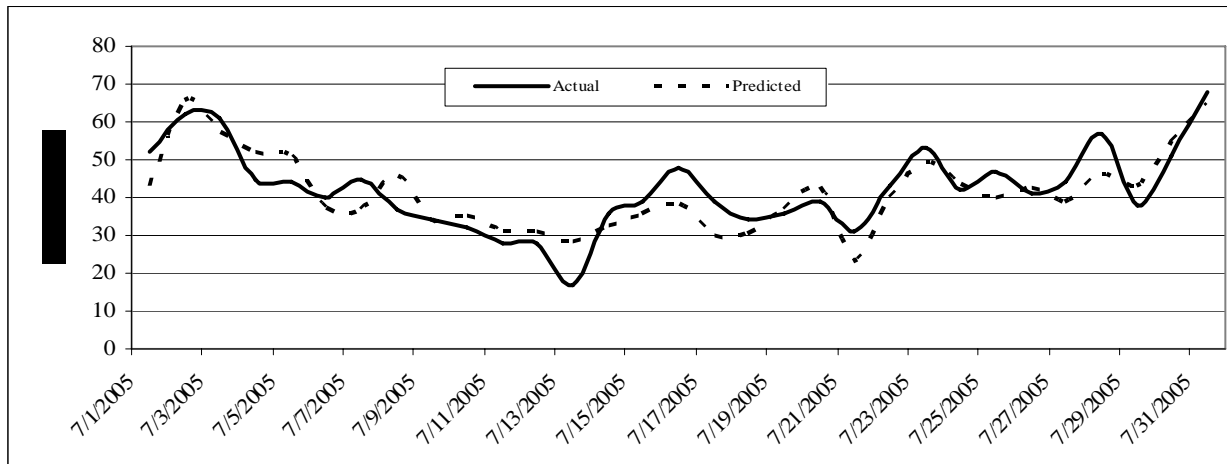


Time Series Analyses

In developing the time series model to better understand and then predict utilization trends and patterns, we used month, day of month, day of week, average daily temperature, minimum temperature, Alaska Permanent Fund Dividend distribution, and Transfer Station relocation. Using data from February 2001 to June 2005, we developed a model to fit the existing data and to predict future Transfer Station utilization. Once developed, to verify its predictive accuracy, the model was used to predict actual data for July 2005.

Figure Seven provides a visual representation of the fit between predicted utilization (prediction based on data from February 2001 to June 2005) and actual utilization for the results of July 2005. As the figure shows, the dashed line indicating predicted utilization closely parallels the solid line indicating actual utilization. The closeness of these two lines, coupled with mathematical indicators revealing a strong fit between predicted and actual utilization, provides support that the model developed in this study can accurately predict future utilization of the Transfer Station.

Figure Seven: Actual and Predicted Utilization for July 2005



Future Transfer Station Utilization

Using the model developed through the time series analysis, we extrapolated from the current data to predict future Transfer Station utilization. Figure Eight provides actual annual utilization between 1997 and 2004 and predicted annual utilization between 2005 and 2010. As indicated, within two years, total annual utilization is likely to return to levels evident before the Transfer Station moved to its current location. Further, by 2010, it is predicted that utilization will exceed the highest utilization thus far (in 2001) by over 35%, an amount that will be nearly three times higher than the recent low utilization (in 2003).

Figure Eight: Actual and Predicted Total Yearly Utilization

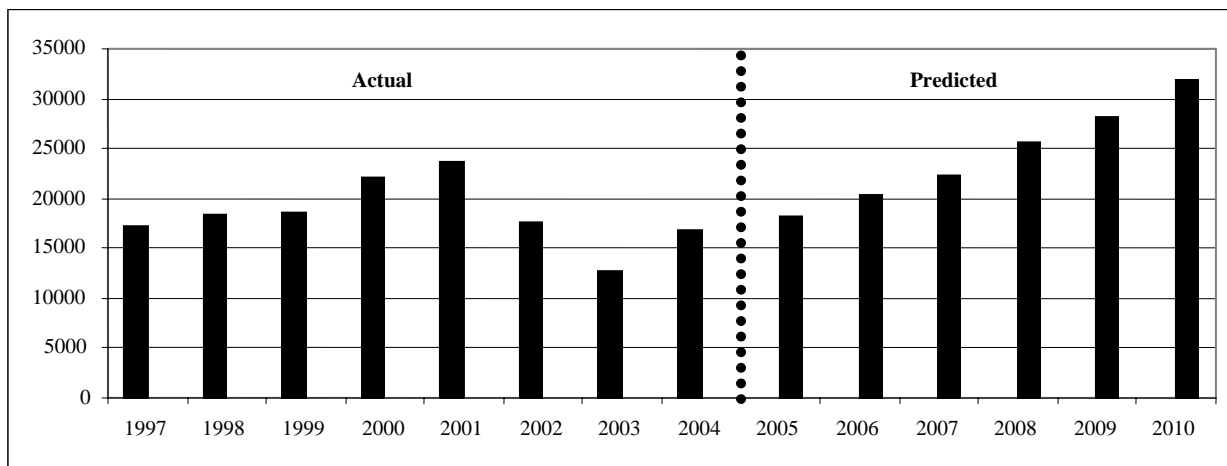


Figure Nine provides actual monthly utilization between February 2001 and June 2005 and projected utilization between July 2005 and January 2010. The solid line indicates the predicted value for each month and the dashed lines above and below indicates the lowest and highest predicted values. Providing more information on the trends described in Figure Eight, Figure

Nine shows that the highest monthly utilization in 2010 will exceed 3000 visits, a more than three-fold increase from the lowest monthly utilization in December 2003.

Figure Nine: Actual and Predicted Monthly Utilization

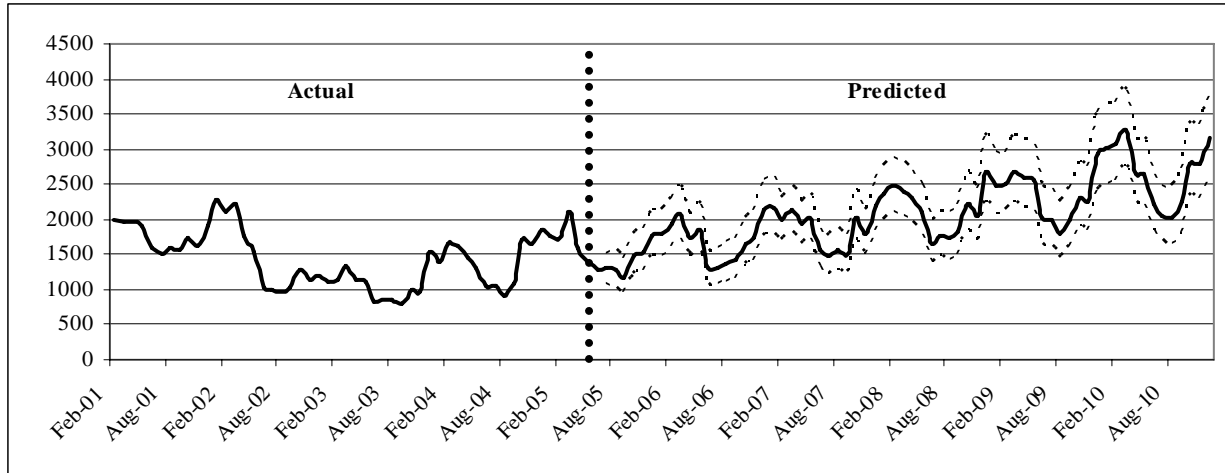


Figure Ten provides actual daily utilization between February 2001 and June 2005 and predicted utilization between June 2005 and January 2010. This figure indicates that by 2010, daily visits to the Transfer Station are likely to exceed the holding capacity of 123 on a regular basis. It should be noted that the holding capacity of the Transfer Station is dependent upon staffing levels. That is, a minimum staff-to-consumer ratio of 1:10 is required at all times. Thus, although the maximum holding capacity of the building is 123, actual capacity at any given time depends on staffing levels.

Figure Ten: Actual and Predicted Total Daily Utilization

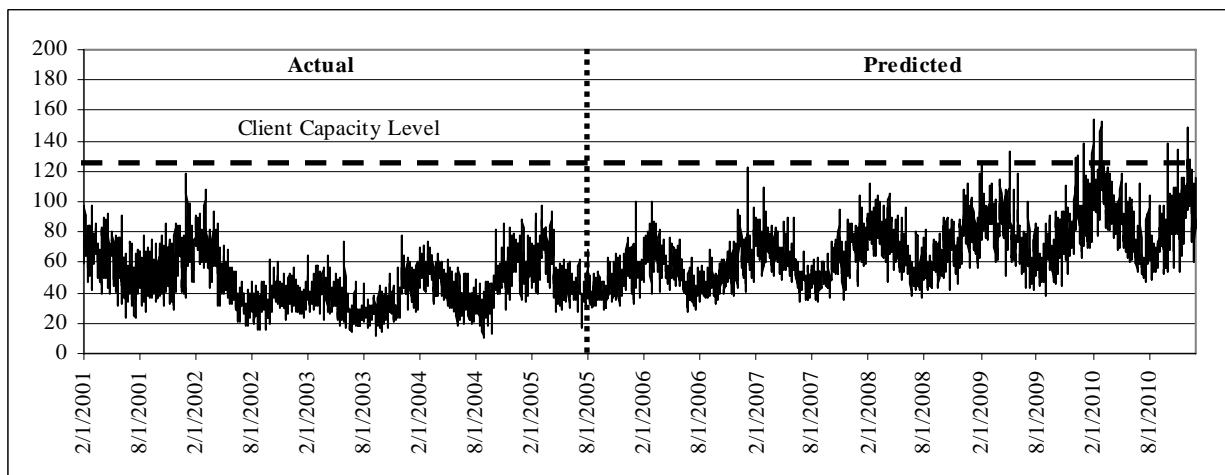
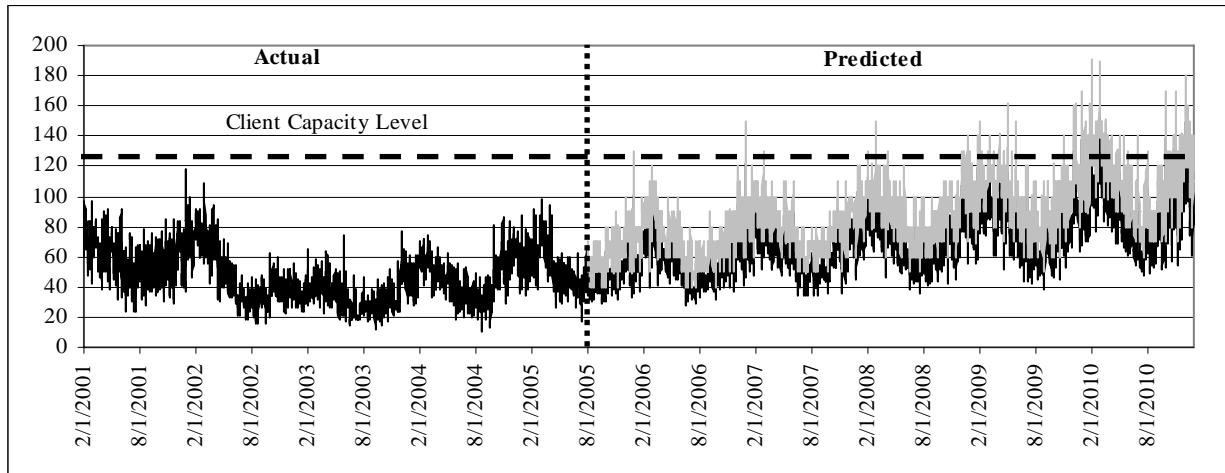


Figure Eleven provides actual daily utilization between February 2001 and June 2005 and predicted daily utilization between June 2005 and January 2010, including the upper 95% confidence interval. The solid line reflects predicted utilization and the gray area above this line

reflects the upper limit of predicted utilization. This graph expands on the information provided in Figure Ten and highlights the strong possibility that utilization will exceed capacity within five years.

Figure Eleven: Actual Daily Utilization and Upper Limit Predictions



Additional Findings

The predictive model also confirmed and clarified the following important findings:

- Significant yearly, monthly, and weekly trends can be identified. Utilization rates vary by month, week, and day of month.
- After adjusting for seasonality and other factors, the Transfer Station move resulted in an *initial* average reduction of approximately 26 visits per day.
- After adjusting for seasonality, Alaska Permanent Fund Dividend distributions result in an average increase of four additional visits per day over what would have been expected for that time period.
- After controlling for month of year, temperature and weather conditions were marginally significant predictors of utilization. However, it should be noted that month of year is closely associated with temperature and the trend for higher utilization during January, February, and March as compared to June, July, and August is at least partially accounted for by temperature.
- The Transfer Station move from downtown Anchorage to its present location was associated with a significant decrease in utilization occurring subsequent to the move. However, current trends indicate a steadily increasing utilization with current data indicating a return to near pre-relocation utilization.

Discussion

In this report, we examined trends in Transfer Station utilization based on year, month of year, day of month, and day of week, as well as temperature. Using these variables and others, we calculated time series analysis to identify specific variables that have the greatest impact on utilization and to predict future utilization. Our findings provide some insights into the

utilization trends that may be of assistance to the Municipality of Anchorage as they look to the future of the Transfer Station. Following is a discussion of the findings as they relate to each of the questions of interest posed by Transfer Station staff members.

What are possible reasons for the significant decrease in Transfer Station utilization that occurred in 2002 and 2003?

Several factors converged in 2002 that may have contributed to the significant decrease in Transfer Station utilization in 2002 and 2003. First, the *Pathways to Sobriety* project, which targeted frequent users of the Transfer Station, was implemented during this time. As noted in a prior BHRS technical report, the *Pathways to Sobriety* project resulted in a reduction in number of visits by these high-end users from 56.2 per client before enrollment to 40.1 after enrollment, with 11 clients having no Transfer Station visits after enrollment. Second, in April 2002, the Transfer Station moved from a downtown location, 6th and C, to its current location, E. 3rd Ave., attached to the State/Municipal Department of Corrections Jail. Our current analysis suggests that this relocation played a significant role in the decrease. Third, the weather was uncharacteristically mild during 2002 and 2003. Although it is difficult to determine how much each of these factors contributed to the decrease in utilization, it is evident that the one factor that can be replicated, namely, intervention services, played a major role. This conclusion is buttressed by the fact that since the *Pathways to Sobriety* project has wound down and is no longer in place, utilization is beginning to increase to its prior levels.

Are there any seasonal, weather-related, or other factors that are related to increases or decreases in Transfer Station utilization?

After controlling for all other factors, daily temperature was related to Transfer Station utilization, with increased utilization with lower temperatures and decreased utilization with higher temperatures. This temperature trend results in utilization of the Transfer Station that is nearly twice as high during the winter months of January, February, and March as it is during the summer months of June, July, and August. Clear spikes in utilization that correspond to severe weather conditions are evident throughout the year.

Are there any indications that monetary distributions, such as the Alaska Permanent Fund Dividend, influence Transfer Station utilization?

Findings indicate a gradual increase in utilization from summer to winter months. However, the months of October and November deviate from this general trend. One possible explanation for this deviation is the Alaska Permanent Fund Dividend distribution during October. However, given that 90% of the Transfer Station clientele are Alaska Natives, other possible explanations include the AFN Conference during October and distribution of Alaska Native Corporation dividends. More information needs to be collected and more analyses conducted to identify the precise source(s) of the trend deviation in October and November.

Are there any identifiable utilization trends related to day of week or day of month that may assist with staffing decisions?

Several notable time-related trends in Transfer Station utilization were identified. Specifically, highest utilization was noted during weekends and lowest utilization on Monday; seasonal trends were noted with highest utilization during winter months and lowest during summer months; and highest utilization was noted during the first week of each month. It should be noted that these trends can heighten or dampen each other. For example, utilization during a weekend that coincides with the first week of a month during winter time may be even higher than utilization on a weekend later in the month or during summer time.

What is the projected daily number of consumers utilizing the Transfer Station in one year? And in five years?

Based on the time series analysis, it is predicted that utilization rates will continued to increase and return to pre-relocation levels by 2007. Indeed, within two years, it is predicted that admissions will be twice as high as the recent lows in 2003. By 2010, it is predicted that utilization rates will be nearly three times as high as the recent lows in 2003 and twice as high as current rates (2004). Further, by 2010, it is predicted that utilization rates will surpass the daily holding capacity of the facility (maximum of 123 clients with 13 staff) on a regular basis. It should be noted that the holding capacity is dependent upon the number of staff members available at any given time. That is, a minimum staff to consumer ratio of 1:10 is required at all times. Thus, although the maximum holding capacity of the building is 123, actual capacity at any given time depends on staffing levels. Given this fact, the holding capacity of the Transfer Station may be exceeded on a regular basis even before 2010 if staff shortages occur.

Recommendations

Based on the findings from this study, we offer several short-term and long-term recommendations. Before providing these recommendations, we first want to identify potential limitations of the analyses upon which the recommendations are based. These limitations include, but are not limited to, the following:

- Data for the Transfer Station were only available for February 2001 through July 2005. Additional data would provide stronger support for the findings, particularly for the projected data.
- Significant efforts were made by Municipality of Anchorage SAFE City and BHRS staff members to ensure the accuracy of the data. However, the primary responsibility of Transfer Station staff is ensuring the health and safety of consumers utilizing the Transfer Station and not necessarily verifying data entry. As a result, there may be some inherent difficulties in the data that may insert some error. For example, typographical errors for data of admission may inflate one day's data while deflating the actual admission date's data.
- Individual demographic characteristics (e.g., gender, cultural heritage, frequency of utilization) were not included in the analyses. It is possible that additional trends may have been identified were they included.
- Anchorage's population growth was not directly included in the model building.

Although it is likely that this would account for at least some of the recent increase in utilization, it was not directly assessed. Additionally, projected population increases were not directly included in the analyses.

- Not all variables that may account for variability in utilization across time were necessarily included in the model building. One notable example is the dividends that Alaska Native corporation shareholders receive. Given that the majority of consumers at the Transfer Station are Alaska Native, it may be that the distribution of these dividends played a significant role in admissions.

These potential limitations notwithstanding, the current report provides enough evidence for BHRS to make the following programmatic and planning recommendations. The goal of these recommendations is to provide additional information needed to streamline the functioning of the Transfer Station and to prepare for future growth.

- First and foremost, based on our analysis of Transfer Station utilization, it is predicted that Transfer Station utilization will exceed the building capacity within approximately five years. Thus, development of a long-term management plan for the Transfer Station is crucial. Possible components to include in this management plan are:
 - Increase the number and capacity of programs designed to decrease use of the Transfer Station by alcohol dependent, homeless individuals.
 - Explore programs that have been proven successful in serving homeless individuals dependent on substances, in particular, dependent on alcohol.
 - Advocate for increased quantity and access to temporary housing, detoxification services, and residential treatment for individuals who are homeless and dependent on substances.
 - Educate the community on the urgency and severity of the social problems within Anchorage.
 - Secure funding for services that target high users and future high users of the Transfer Station to decrease utilization. As demonstrated by the *Pathways to Sobriety* project, such an intervention approach has immediate impacts on utilization.
 - Secure funding to support the possible expansion of the Transfer Station and take other steps necessary to realize this expansion.
- With regard to staffing concerns, our analyses suggest that the Transfer Station experiences increased utilization during weekends, winter months (with an additional influx during the month of October), and at the beginning of each month. It is recommended that these patterns be considered in the staff scheduling process. For example, these higher utilization periods may be better suited to an increase in regular staff members rather than a reliance on on-call staff members. Further, these higher utilization periods should be taken into consideration when determining leave schedules.
- The patterns discovered in this analysis may provide valuable information related to windows of opportunity for outreach and intervention services. By using this information, case managers and other support systems may be able to predict times when intervention might have the greatest impact. For example, high levels of outreach geared

toward securing treatment placements and temporary housing may be quite beneficial prior to October when the Alaska Permanent Fund Dividend checks are distributed. Prior to the first of the month, interventions may be effective at reducing high utilization periods.

- With a core group of individuals accounting for the majority of all Transfer Station visits, continued interventions (similar to the *Pathways to Sobriety Case Management Program*) geared toward these individuals would be an effective mechanism for reducing overall utilization. A detoxification program that includes beds serving only chronic inebriates might immediately decrease the number of high-utilization individuals as well as have a positive impact on the lives of these individuals. One model worthy of consideration might be the social detoxification model that is becoming increasingly common throughout the United States. Such a detoxification model includes longer lengths of stay that involve more intensive intervention services
- The increased Transfer Station utilization during the winter suggests that homeless clients are using the Transfer Station as a primary means to gain shelter from the elements. A major focus of outreach efforts may be to assist potential Transfer Station clients in securing alternate sources of shelter *before* they are admitted. Given the historical lack of permanent and semi-permanent housing services and funding for homeless individuals, new housing resources may need to be developed to implement this recommendation.
- More intervention targeted at Transfer Station clients at the time of discharge may be helpful in providing the clients with the necessary resources and tools to prevent future admissions. Such interventions could focus on identifying and helping clients who wish to enter mental health or substance use treatment programs, obtain gainful employment, access more permanent housing, or receive other needed social services.
- Limited demographic information is collected on Transfer Station clients. It may be helpful to gather more detailed information, such as reasons for becoming intoxicated, sources of alcohol, and living conditions. Such information could be gathered through a short exit interview as clients are discharged from the Transfer Station. These data could provide insight into the nature of the individuals who frequent the Transfer Station and allow for more targeted interventions to be developed.

Pathways to Sobriety Evaluation Technical Report Listing

- *Exploratory Analysis of the Municipality of Anchorage's Community Transfer Station Database (BHRS Pathways-Related Technical Report No. 3)*
- *Pathways to Sobriety Data Report #1: January 1, 2002 to June 30, 2004 (BHRS Pathways-Related Technical Report No. 2)*
- *Consumers, Staff and Community Providers' Knowledge of and Opinions about the Pathways to Sobriety Project (BHRS Pathways-Related Technical Report No. 1)*