

**DEVELOPMENT OF COST ANALYSIS OF THE CITY AND
COUNTY OF FRESNO'S TEN-YEAR PLAN TO END CHRONIC
HOMELESSNESS: PRELIMINARY ESTIMATES USING
EXISTING DATA AND RECOMMENDATIONS FOR FULL
EVALUATION STRATEGY**

Final Report

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EXECUTIVE SUMMARY

Introduction

The City and County of Fresno have created a Ten-Year Plan to End Chronic Homelessness (TYP), which outlines a strategy that emphasizes long-term housing-based interventions as to address chronic homelessness. Housing interventions outlined in the TYP will make effective and efficient use of resources. Support for this idea stems from two important research findings. First, chronically homeless persons make extensive and costly use of health, mental health, criminal justice, emergency department and other acute public services. Such multi-system service use can have a large impact on public payers that assume the cost of providing these services. Second, placing chronically homeless persons in housing leads to significant reductions in their utilization of acute care services. In fact, cost reductions from reduced service use can entirely offset the cost of housing placement, thereby creating net cost savings for communities.

In conjunction with the Fresno TYP, this report provides preliminary estimates of the costs and benefits of creating 950 units of housing for chronically homeless persons over a ten-year period. The projected costs and benefits of the TYP are based on a number of local and extant data sources and rest on a few key assumptions that are consistent with what is known about acute service utilization of chronically homeless persons prior and subsequent to housing placement. As these estimates should not be seen as substitutes for a well-designed cost study evaluating actual implementation of the TYP, the report also outlines a strategy for conducting an actual evaluation of the cost offsets that are realized from the supportive housing proposed by the TYP, once such housing interventions are implemented.

Why Target Housing to Sub-Groups of Chronically Homeless Persons?

Chronically homeless persons do not constitute a homogenous group. Different sub-groups within this population cover a spectrum in terms of their, health, mental health and substance use challenges, as well as their level of acute service use. Thus, sub-groups are likely to require housing interventions of varying intensity and expense. As information on the exact composition of the chronically homeless population in Fresno was not available, it is assumed that 20% of the units created by the TYP would be targeted at each of the following five sub-groups:

- Sub-Group 1 (SMI, Heaviest Users)- Chronically homeless persons with severe mental illness (SMI) who have a co-occurring substance disorder and may have medical issues as well.
- Sub-Group 2 (SMI, Less Expensive)- Persons with severe mental illness (SMI) with less intensive needs.
- Sub-Group 3 (Public Inebriates)- Chronically homeless persons with severe alcohol problems, who are oftentimes referred to as chronic public inebriates.

- Sub-Group 4 (Substance Abuse and Chronic Medical Condition)- Chronically homeless persons with co-occurring substance abuse and chronic medical conditions.
- Sub-Group 5 (Substance Abuse Only)- Chronically homeless persons who have a substance abuse disorder, without a co-occurring mental health diagnosis.

What are the Estimated Costs of the Fresno Ten Year Plan?

Existing data sources and local estimates of fair-market rents are compiled to calculate a set of baseline estimates for each of the five sub-groups of the annual per unit cost of the housing interventions proposed by the Fresno TYP. These baseline estimates then form part of the basis for projections of the overall costs and benefits of the TYP over its entire implementation period.

- Sub-Group 1 (SMI, Heaviest Users)- Annual per unit cost: \$10,500
- Sub-Group 2 (SMI, Less Expensive)- Annual per unit cost: \$10,466 (1st year); \$7,483 (2nd year), and \$4,500 (after 2nd year)
- Sub-Group 3 (Public Inebriates)- Annual per unit cost of housing: \$12,100
- Sub-Group 4 (Substance Abuse & Medical Condition)- Annual per unit cost: \$7,500
- Sub-Group 5 (Substance Abuse Only)- Annual per unit cost: \$3,600

The Fresno TYP calls for 100 new units of supportive housing to be added each year over a ten-year implementation. Consequently, total housing is expected to increase over the entire implementation period. Overall costs of the TYP were calculated for each year of the implementation period using the above baseline per unit estimates of the cost of housing subsidy and additional services necessary for each of the five targeted sub-groups. Below are estimates of the overall cost and number units of housing at Year 1, Year 5, and Year 10 of the TYP:

- Year 1- Number of Units- 100/ Cost-\$883,320
- Year 5- Number of Units- 500/ Cost-\$3,998,980
- Year 10- Number of Units- 950/Cost-\$7,377,320

What Are The Estimated Costs of Not Implementing The Ten-Year Plan?

These are the estimated costs of not building housing. This is represented by projected acute services costs for persons matching the tenant profiles in the absence of the housing units created by the Fresno TYP. In other words, this would be the cost of services for individuals who would remain homeless were the housing interventions *not* implemented. Below are estimates of the annual per person cost of service utilization in the absence of housing for each of the five sub-groups, based on existing data sources.

- Sub-Group 1 (SMI, Heaviest Users)-Annual per person service costs: \$22,372
- Sub-Group 2 (SMI, Less Expensive)-Annual per person service costs: \$16,594
- Sub-Group 3 (Public Inebriates)-Annual per person service costs: \$48,792
- Sub-Group 4 (Substance Abuse & Medical)-Annual per person service costs: \$8,000
- Sub-Group 5 (Substance Abuse Only)- Annual Per person service costs: \$5,618

Using these annual per person service costs, it is possible to estimate the additional costs of homelessness if the status quo were to be maintained (instead of creating 950 housing units). Because the TYP calls for more housing units to be added over time, these costs are expected to grow as the number of chronically homeless persons who would have otherwise been housed grows accordingly. Below are estimates of the overall acute service costs in the absence of the TYP at Year 1, Year 5, and Year 10:

- Year 1- \$2,339,928
- Year 5- \$14,220,986
- Year 10- \$34,484,965

What Are The Estimated Benefits of Implementing The Ten-Year Plan?

Existing research indicates that housing costs for chronically homeless persons can be fully or substantially offset by reductions in acute service utilization following housing placement, resulting in net benefits for communities. Estimating benefits in the form of cost offsets is a relatively straightforward process. Final estimates of the cost offsets created by the Fresno TYP take into account both the costs of housing interventions and expected reductions in acute service costs subsequent to housing placement. Comparing these costs to estimates of the acute services costs that would be incurred in the *absence* of the implementation of the housing interventions outlined in the Fresno TYP can generate estimates of the cost offsets associated with the TYP. Based on different assumptions regarding the level of reductions in service utilization subsequent to housing placement, we estimate overall cost offsets for four different scenarios. Key estimates regarding cost offsets associated with the TYP include:

- The housing strategy outlined in the TYP is estimated to generate an annual cost offset between \$2.6 million and \$5.4 million by Year 5 and between \$8.7 million and \$17.2 million by Year 10.
- Cost offsets are the greatest for Sub-Group 3 (Public Inebriates). Estimated annual cost offsets for this group alone would be between about \$1.9 million and \$3.3 million by Year 5.

Evaluation Strategy for the Fresno Ten-Year Plan

This section provides guidelines for the City of Fresno to conduct an actual cost evaluation of the TYP as it is implemented in practice. Key issues involved in putting together and implementing a cost study for assessing the actual cost offsets associated with the housing provided in Fresno's TYP include:

- Study Timetable and Sample Size- The evaluation must span a time period of at least one year before and up to two years after tenants have been placed in housing. At a minimum, we recommend that such a study include at least 100 tenants housed within the first three years of the implementation period of the TYP.
- Inclusion of Comparison Groups- Ideally, a cost study would include a comparison group of persons who would not have received a housing placement, but would have similar attributes to those who had. By comparing differences in the outcomes and service utilization of the two groups it would be possible to assess the impact of housing placement. A comparison group might be identified using Homeless Management Information Systems (HMIS) data or persons on waiting lists for housing placement, if available.
- Data Collection and Access- The most practical and accurate approach for collecting data on the services consumed and costs incurred by persons both before and after they are placed in housing uses administrative data records from agencies and systems such as the homeless assistance system, the criminal justice system, and the health and mental health systems that provide services to chronically homeless individuals. Ample time should be allotted to gaining access to these data sources, as this can often be a long process requiring negotiations with service providers and systems. When administrative data are not available for a particular service, another option for collecting information on the use of these services is to interview the tenants on their recollection of the use of such services.

Conclusion

This report provides estimates of the costs and potential cost offsets associated with implementing housing strategies outlined in the Fresno TYP. Our estimates draw on other cost studies as well as on local data sources. The assumptions for these estimates are clearly laid out, as are the shortcomings related to these assumptions and other methodological limitations. Taken together, this means the preliminary estimates provided in this report should not supplant for an actual evaluation of the Fresno TYP, for which guidelines are presented here that promise a more accurate assessment of the cost and benefits of the TYP.

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Introduction

In September, 2008 the City and County of Fresno voted to adopt their Ten-Year Plan to End Chronic Homelessness (TYP). The TYP calls for the adoption of a strategy that emphasizes long-term housing-based interventions as a means of addressing chronic homelessness, and sets a goal of placing 941 chronically homeless persons in housing over a ten-year period. The TYP aims to meet this goal by creating 100 housing units per year. This report aims to conduct and provide the results of a preliminary a cost-benefit analysis of the housing interventions proposed in the City and County's TYP. In addition, the report outlines a strategy for evaluating the cost offsets that are realized from the supportive housing in the TYP, once such housing interventions are implemented.

While focused on the unique context of chronic homelessness in Fresno and the City and County's TYP, the analyses presented in this report have both their theoretical and methodological roots in a number of recent cost related studies conducted in communities throughout the United States. These underlying premise of such studies is that chronic homelessness can be quite costly to society as chronically homeless persons make disproportionate use of expensive acute public services such as inpatient hospital stays, emergency department visits and jail stays. By and large, these studies pursue either one of two aims: the examination of the extent and cost of the utilization of acute public services by homeless persons; or the assessment of cost offsets resulting from reductions in acute service utilization by homeless persons subsequent to their placement in housing. As such, existing studies can be thought of as providing communities with a rough picture of what it costs to maintain the status quo approach to homelessness or a general understanding of the relative costs and benefits of implementing long-term housing-based interventions to address homelessness. Some of the latter type of study have found that targeting housing interventions towards certain sub-groups of the chronically homeless population can even lead to net cost savings, as the cost of housing placement can be more than fully offset by reductions in acute public service utilization.

Nonetheless, due to a number of factors, including geographic variations in the cost of housing interventions, it is difficult to generalize the results of most of the existing studies beyond the communities in which they were conducted. Moreover, as many communities have formulated unique plans to address homelessness, and chronic homelessness in particular, there is a corresponding need for locally tailored cost benefit analyses. Thus, the remainder of this report examines the cost dynamics of chronic homelessness and supportive housing in a Fresno specific context. It is hoped that this report will provide stakeholders with a more complete picture of the potential costs and benefits of the supportive housing strategies outlined in the TYP and a practical approach for evaluating the effectiveness and efficiency of such housing interventions once they are implemented.

The remainder of this report is divided into three chapters. The chapters reflect smaller individual tasks, which were completed in the context of a larger project to undertake a cost benefit analysis of the TYP. As such, the chapters are largely readable as stand alone components, but nonetheless, follow a logical order with subsequent chapters building cumulatively on prior ones.

Chapter One uses local and existing data sources to present a set of baseline estimates of the services costs associated with chronic homelessness in the absence of the TYP, the reduction of services use following placement in housing, and the cost of housing interventions outlined in the TYP. The estimates provided in Chapter One rely on a set of assumptions that are consistent with existing evidence. Most notably, as research has shown that chronically homeless persons do not constitute a homogeneous population, Chapter One establishes a set of five sub-groups with varying assumed levels of service utilization and housing placement cost. The baseline estimates and the targeting of housing units towards the five sub groups provide the basis for a projection of the potential costs and benefits associated with the TYP across its entire implementation period.

Chapter Two uses the baseline estimates established in Chapter One to estimate the projected benefits, costs and potential cost savings associated with creating 914 units of housing for chronically homeless persons in Fresno. The final cost and cost-offset estimates presented in Chapter Two account for housing placement rates, housing turnover rates, total persons served by year, and the cumulative number of persons served over the implementation period of the TYP. Net annual costs, as well as cumulative costs over the entire implementation period of the Ten-Year Plan will be estimated. Chapter Two offers projected cost and cost-offset estimates for four separate scenarios in order to provide a potential range of potential costs and benefits. Given that the cost offset estimates provided in Chapter Two use methods not having the same rigor that would come with systematically following the service utilization of tenants actually placed in supportive housing in Fresno, they should be interpreted and used accordingly.

Chapter Three outlines approaches for evaluating the cost offsets that are realized from the proposed creation of supportive housing in Fresno's TYP. Chapter Three outlines the key issues involved in putting together and implementing a cost study in Fresno that can evaluate the actual cost offsets associated with the housing provided in Fresno's TYP, as well as the key elements that it should seek from bidders who are proposing to conduct this cost study. After a discussion of a timetable for an evaluation, Chapter Three proposes two viable methodologies, for collecting data to document changes in services use prior and subsequent to housing placement. The relative merits and drawbacks of each methodology and their potential costs are also discussed.

This report concludes with a brief summary of its key points and their implications. In addition, the limitations of projected cost and cost offset estimates provided are discussed, and the importance of conducting a rigorous cost study in Fresno is emphasized.

Chapter One

Compiled Local and Extant Data Sources for Cost and Cost-Offset Estimates

1.1 Targeting Housing to Sub-Groups

Research has indicated that chronically homeless persons do not constitute an homogenous population. There is a fair amount of distribution of mental health and substance abuse disorders among chronically homeless persons, with around 30% having a serious mental illness and 60% having a substance abuse disorder. Precise information on the composition of sub-groups of the chronically homeless population in Fresno was not available and the Fresno TYP does not specify how the proposed 941 units will be targeted to specific sub-groups. Consequently, it is assumed that 20% of the proposed units will be targeted at each of five different sub-groups of chronically homeless persons. Details on the five sub-groups and their estimated annual acute services cost are provided below:

Sub-Group 1 (SMI, Heaviest Users)- Sub-Group 1 is composed of chronically homeless persons with severe mental illness (SMI) who are likely to be the heaviest users of public services. A study conducted in Philadelphia by Poulin, Culhane, Maguire and Metraux (forthcoming) using a broadly representative sample of chronically homeless persons found that this sub-group uses an average of \$22,372 of public services per person on an annual basis. This is the per person annual cost estimate for this sub-group that will be used in this study.

Sub-Group 2 (SMI, Less Expensive)- Sub-Group 2 is composed of persons with severe mental illness (SMI) who are likely to make less extensive and therefore less expensive use of public services. A study conducted in Philadelphia by Poulin, Culhane, Maguire and Metraux (forthcoming) using a broadly representative sample of chronically homeless will be used to estimate the per person services cost for this sub-group. That study found an average annual per person cost of \$16,594 and that estimate will be employed here.

Sub-Group 3 (Public Inebriates)- Sub-Group 3 is composed of chronically homeless persons with severe alcohol problems, who are oftentimes referred to as chronic public inebriates. These individuals are likely to make extensive use of public services, and inpatient hospital, detoxification and criminal justice resources in particular. A study conducted in Seattle by Larimer et al. (2009), found that this group used a median monthly cost of \$4,066 in jail, shelter, substance treatment, emergency medical, and Medicaid funded services. This translates into a median annual cost of \$48,792, which will be used in this study.

Sub-Group 4 (Substance Abuse and Chronic Medical Condition)- Sub-Group 4 is composed of chronically homeless persons with a substance abuse and chronic medical condition, for example persons with HIV/AIDS. There are few studies that provide accurate estimates of the cost of public services used by this group, but it is

likely less extensive than persons with a severe mental illness or public inebriates. Therefore, this study will assume that this group uses \$8,000 per person annually in public services.

Sub-Group 5 (Substance Abuse Only)- Sub-Group 5 is composed of persons who have a substance abuse disorder, without a co-occurring mental health diagnosis. These persons are likely to make less extensive use of public services. A study conducted in Philadelphia by Poulin, Culhane, Maguire and Metraux (in press) estimated that this sub-group uses \$5,618 per person in public services each year. This estimate will be used in this analysis.

1.2 Service Costs in the Absence of Housing Placement

Based on the extant estimates of the costs of services used by chronically homeless persons described above, Table 1.1 provides a baseline estimate of annual service costs in the absence of housing placement. Both per person and total costs are shown for each of the five sub-groups. Total costs represent the costs for providing services to the 941 persons—20% in each sub-group—who would be placed in housing in accordance with the TYP.

Table 1.1-Projected Annual Service Costs Without Ten-Year Plan		
	Year 1	
Sub-Group	Per Person	Total
Sub-Group 1 (SMI, Heaviest Users)	\$22,372	\$4,205,936
Sub-Group 2 (SMI, Less Expensive)	\$16,954	\$3,187,352
Sub-Group 3 (Public Inebriates)	\$48,792	\$9,172,896
Sub-Group 4 (Substance Abuse & Chronic Medical)	\$8,000	\$1,504,000
Sub-Group 5 (Substance Abuse Only)	\$5,618	\$1,056,184
Total		\$19,126,368

1.3 Costs of Housing Plan

Table 1.2 presents the projected annual per unit and total costs of housing interventions for each targeted sub-group of the chronically homeless population in the first year of implementation of the TYP. Again, it is assumed that 100 new units will be created in the first year of implementation, and that 20% of the units will be targeted at each sub-group. However, based on their assumed needs, the five sub-groups of chronically homeless persons will require housing interventions of varying type and expense. Where possible, the estimated costs of housing interventions rely on information and data specific to the City of Fresno. The housing interventions for each sub-group and their estimated costs are detailed below:

Sub-Group 1 (SMI, Heaviest Users)- Sub-Group 1 is comprised of persons with severe mental illness who make heavy use of public services. This group is likely to require permanent supportive housing, which includes a full housing subsidy and support services. It is estimated that this intervention will cost \$10,500 per year in Fresno. This estimate used the Fiscal Year 2009 HUD estimate of \$647 per month for the Fair Market Rent (FMR) for an efficiency apartment in the Fresno Metropolitan Statistical Area (MSA). This translates into a yearly cost of \$7,764. However, it is assumed that persons in Sub-Group 1 will be eligible to receive full SSI benefits, which in California amount to \$907/month, and will contribute 30%, or \$272/month, towards rent. Therefore the true annual cost of the housing subsidy will be \$4,500 (\$7,764-\$3,264). In addition to the \$4,500 housing subsidy, based on estimates presented in Culhane and Metraux (2008) it is assumed that support services will cost \$6,000 per person, yielding a total per person annual cost of \$10,500 for the intervention.

Sub-Group 2 (SMI, Less Expensive)- Sub-Group 2 is made up of persons with severe mental illness who make less extensive use of public services. This group is likely to require a full housing subsidy. Like Sub-Group 1, the individuals in this group are likely eligible for SSI benefits, and therefore the annual cost of the housing subsidy is presumed to be \$4,500. However, it is likely that this group will only need time-limited support services. One model for providing these services that has proved effective with homeless persons with mental illness is Critical Time Intervention (CTI). Critical Time Intervention offers intensive support services for a limited period of time, followed by a scaling back period and ultimate termination of services. Based on information presented by Jones et al. (2003) on the cost of providing CTI to homeless persons with mental illness, it is assumed that the annual per unit cost will be \$5,966 in the first year of implementation of the housing program. Therefore, in the first year of implementation, this housing intervention will cost \$10,466 (\$4,500+\$5,966). It is assumed in the second year of the intervention, that CTI services will be stepped down by 50% and consequently that the housing intervention will cost only \$7,483. It is assumed that in subsequent years, CTI support services will be terminated and that persons will only require an annual subsidy of \$4,500.

Sub-Group 3 (Public Inebriates)- Sub-Group 3 is made up of individuals with severe alcohol problems who make extensive use of public services. Like Sub-Group 1 and Sub-Group 2, individuals in this sub-group will require a housing subsidy of \$4,500 and additional on-site services including case management and health services. Based on estimates from a study conducted by Larimer et al. (2009) that examined the cost of providing housing and on-site support to this sub-group, it is assumed that support services will cost \$7,600 per person, yielding a total annual cost of \$12,100 (\$4,500+\$7,600) for the intervention.

Sub-Group 4 (Substance Abuse and Chronic Medical Condition)- It is assumed that persons in Sub-Group 4 will require a full housing subsidy and stabilization services. It is assumed that these persons will be SSI eligible and that a full subsidy will therefore cost \$4,500 per person per year. It is further assumed, based on estimates provided by

Culhane and Metraux (2008), that stabilization services will cost \$3,000 per year, yielding a total cost of \$7,500.

Sub-Group 5 (Substance Abuse Only)- Persons in Sub-Group 5 make less extensive use of public services and require only a shallow housing subsidy. This study assumes that a subsidy of \$300 per month, or \$3,600 per year to be an adequate subsidy for this group.

Table 1.2-Projected Annual Cost of Ten-Year Plan-Year 1 of Implementation		
	Year 1	
Sub-Group	<u>Per Unit</u>	<u>Total</u>
Sub-Group 1 (SMI, Heaviest Users)	\$10,500	\$210,000
Sub-Group 2 (SMI, Less Expensive)	\$10,466	\$209,320
Sub-Group 3 (Public Inebriates)	\$12,100	\$242,000
Sub-Group 4 (Substance Abuse & Chronic Medical)	\$7,500	\$150,000
Sub-Group 5 (Substance Abuse Only)	\$3,600	\$72,000
Total		\$883,320

1.4 Summary

The Fresno TYP sets a goal of creating 941 units of housing for chronically homeless persons and envisions the addition of 100 new units on an annual basis to achieve this goal. Calculating a potential range of costs and cost-offsets associated with the TYP requires a set of baseline estimates regarding the cost of acute services used by specific sub-groups of chronically homeless persons and the cost of housing interventions targeted to each of these sub-groups. As such, the estimates and assumptions presented in this chapter provide the framework for an analysis that will estimate the projected range of costs and cost offsets associated with the TYP across its entire implementation period. The final cost and cost-offset estimates will account for housing placement rates, housing turnover rates, total persons served by year, and the cumulative number of persons served over the plan period. Net annual costs, as well as cumulative costs over the entire implementation period of the TYP will be estimated.

Chapter Two

Projected Benefits and Costs Associated with the City and County of Fresno's Ten-Year Plan to End Chronic Homelessness

2.1 Introduction

Recent years have seen the emergence and rapid growth of a body of research examining the costs of homelessness. Such studies focus on the utilization of health, mental health, criminal justice, emergency department and other acute public services by homeless persons (Kushel et al., 2001; Kuno et al., 2000; Salit et al., 1988). Findings from these studies suggest that chronically homeless persons make extensive and costly use of these acute services. Moreover, there is strong evidence that housing chronically homeless persons is linked to significant reductions in acute services use that can generate net cost savings over time. Studies conducted in New York City (Culhane, Metraux & Hadley, 2002), Seattle (Larimer et al., 2009) and San Diego (Gilmer, Manning & Ettner, 2009) have highlighted the potential for housing interventions targeted towards chronically homeless persons to create cost savings for local communities and public service systems.

Drawing on the strategy outlined in the Fresno TYP, this chapter aims to examine the projected benefits, costs and potential cost savings associated with creating nearly 1,000 units of housing for chronically homeless persons in Fresno. The final cost and cost-offset estimates will account for housing placement rates, housing turnover rates, total persons served by year, and the cumulative number of persons served over the Plan's implementation period. Net annual costs, as well as cumulative costs over the entire implementation period of the TYP will be estimated.

Estimating the potential range of costs and cost-offsets associated with the TYP requires the formulation of a set of baseline estimates regarding the cost of acute services used by specific sub-groups of chronically homeless persons, the cost of housing interventions targeted to each of these sub-groups and the level of service utilization reduction associated with housing placement. These estimates, which provide the framework for calculating the costs and cost-offsets associated with the TYP, were detailed in Chapter One.

2.2 Procedure for Estimating Cost Offsets

Obtaining estimates of the potential range cost offsets associated with the TYP strategy can be achieved through a relatively straightforward process. First, it is necessary to review the rationale for targeting housing units to specific sub-groups of chronically homeless persons and to discuss the varying housing and service needs for each sub-group. It is also important to discuss the potential rate of placement in housing units as well as the yearly turnover rate, and their implications for the cost offset estimates. Second, using these turnover rates, estimates of the costs associated with the housing interventions outlined in the TYP and the number of persons served will be provided. Third, acute services costs that would be incurred over a ten-year period in the absence of the housing interventions in the TYP will be estimated. Fourth, this analysis will

estimate the acute service reductions associated with the TYP for four different scenarios of services utilization reduction. Fifth, in order to provide final estimates of the likely range of cost offsets associated with the TYP, the estimated costs of the housing strategy will be added to the estimated reduced acute service costs associated with the TYP and these figures will be subtracted from the service costs that would be incurred in the absence of the TYP.

2.3 Turnover and Placement Rates

In order to accurately estimate the costs associated with the housing strategy outlined in the Fresno TYP, the number of persons served, and service utilization reductions on a per unit basis, it is important to account for turnover and placement rates in housing units. Based on the strategy outlined in the TYP, it is assumed that 100 new units of housing will be created annually for the first nine years of the implementation period. However, in adhering as closely as possible to the content of the TYP, which calls for the creation of 941 units, this analysis assumes that only 50 new units will be created during the tenth year of the Plan's implementation period, for a total of 950 new units over the entire implementation period. Furthermore, this analysis uses an assumption of year-round housing occupancy. In other words, it is assumed that if a tenant vacates a unit, that vacancy will be filled in relatively short order. This means that due to turnover in housing units, the number of persons placed in housing in a given year will be greater than the number of housing units. Accounting for turnover in housing units allows for more accurate estimates of the number of persons served as a result of the provisions in the TYP. In addition, accounting for the turnover rate makes it possible to estimate turnover adjusted service reductions on a per unit, as opposed to per person, basis. This allows for more accurate comparisons of the cost of housing units, which are calculated on a per unit basis, and service utilization reductions associated with housing placement. Based on turnover rates in existing housing programs for chronically homeless persons, this analysis will use annual turnover rate of 15 percent.

2.4 Housing Costs Associated with Ten-Year Plan

Table 2.1 and Table 2.2 present estimates of the cost of the housing interventions detailed in the Fresno TYP. Based on the estimates detailed in Chapter One, Table 2.1 provides a summary of the annual cost of a housing unit for each of the five sub-groups of the chronically homeless population detailed in Chapter One. The cost per unit for each sub-group is assumed to remain constant over the duration of the implementation period of the TYP with one notable exception. As noted in Chapter One, the cost per unit of for Sub-Group 2 will be \$10,466 in the first year of the unit's existence, \$7,483 in its second and \$4,500 in subsequent years. This cost dynamic was accounted for in projecting the cost of housing units for Sub-Group 2 over the entire implementation period.

Table 2.2 presents the projected number of units, persons served and costs of housing interventions over the entire implementation period of the TYP. Again, it is assumed that 100 new units will be added each year, that 20 percent of these units will be targeted

towards each of the five established sub-group and that there will be a turnover rate of 15 percent. Based on this 15 percent turnover rate, estimates of the number of persons served each year are obtained by multiplying the number of units by 1.15. Estimating the annual cost of housing units for each sub-group is relatively straightforward, again with the exception of Sub-Group 2. For Sub-Groups 1, 3, 4 and 5 the annual cost of housing units is estimated by multiplying the cost per unit from Table 2.1 by the number of units in Table 2.2. For units targeted at Sub-Group 2, costs will fluctuate depending on the age of the unit and the tenure of the tenant. The cost estimates for Sub-Group 2 presented in Table 2 take these potential fluctuations into account by assigning costs to units based on their age. For example, in Year 3 there are 60 units for persons in Sub-Group 2. It is assumed that 20 of these units were added in Year 3 and therefore have a unit cost of \$10,466, that 20 of these units were added in Year 2 and therefore have a unit cost of \$7,483 and that 20 of these units were added in Year 1 and therefore have a unit cost of \$4,500. Thus, the total cost of housing units for Sub-Group 2 in Year 3 is equal to $(\$10,466 \times 20) + (\$7,483 \times 20) + (\$4,500 \times 20)$ or \$448,980.

Table 2.1-Estimated Annual Costs Per Unit of Housing Interventions	
Sub-Group	Cost Per Unit
Sub-Group 1 (SMI, Heaviest Users)	\$10,500
Sub-Group 2 (SMI, Less Expensive)	\$10,466
Sub-Group 3 (Public Inebriates)	\$12,100
Sub-Group 4 (Substance Abuse & Chronic Medical)	\$7,500
Sub-Group 5 (Substance Abuse Only)	\$3,600

Table 2.2-Projected Number of Units, Persons Served and Annual Costs of Housing Interventions Over Entire Implementation Period of Ten-Year Plan

Sub-Group	Year 1			Year 2			Year 3			Year 4			Year 5		
	Units	Persons Served	Total Cost	Units	Persons Served	Total Cost	Units	Persons Served	Total Cost	Units	Persons Served	Total Cost	Units	Persons Served	Total Cost
Sub-Group 1	20	23	\$210,000	40	46	\$420,000	60	69	\$630,000	80	92	\$840,000	100	115	\$1,050,000
Sub-Group 2	20	23	\$209,320	40	46	\$358,980	60	69	\$627,960	80	92	\$538,980	100	115	\$628,980
Sub-Group 3	20	23	\$242,000	40	46	\$484,000	60	69	\$726,000	80	92	\$968,000	100	115	\$1,210,000
Sub-Group 4	20	23	\$150,000	40	46	\$300,000	60	69	\$450,000	80	92	\$600,000	100	115	\$750,000
Sub-Group 5	20	23	\$72,000	40	46	\$144,000	60	69	\$216,000	80	92	\$288,000	100	115	\$360,000
Total	100	115	\$883,320	200	230	\$1,706,980	300	345	\$2,649,960	400	460	\$3,234,980	500	575	\$3,998,980
Sub-Group	Year 6			Year 7			Year 8			Year 9			Year 10		
	Units	Persons Served	Total Cost	Units	Persons Served	Total Cost	Units	Persons Served	Total Cost	Units	Persons Served	Total Cost	Units	Persons Served	Total Cost
Sub-Group 1	120	138	\$1,260,000	140	161	\$1,470,000	160	184	\$1,680,000	180	207	\$1,890,000	190	219	\$1,995,000
Sub-Group 2	120	138	\$718,980	140	161	\$808,980	160	184	\$898,980	180	207	\$988,980	190	219	\$974,320
Sub-Group 3	120	138	\$1,452,000	140	161	\$1,694,000	160	184	\$1,936,000	180	207	\$2,178,000	190	219	\$2,299,000
Sub-Group 4	120	138	\$900,000	140	161	\$1,050,000	160	184	\$1,200,000	180	207	\$1,350,000	190	219	\$1,425,000
Sub-Group 5	120	138	\$432,000	140	161	\$504,000	160	184	\$576,000	180	207	\$648,000	190	219	\$684,000
Total	600	690	\$4,762,980	700	805	\$5,526,980	800	920	\$6,290,980	900	1035	\$7,054,980	950	1093	\$7,377,320

2.5 Service Costs in Absence of Ten-Year Plan

A number of studies have calculated the acute services utilization by various sub-groups of chronically homeless persons. These costs can be interpreted as representing the acute service costs for the persons who would be placed in the housing units created by the Fresno TYP were the housing interventions *not* to be implemented. Put differently, these are the estimated costs of homelessness if the status quo were to be maintained instead of creating 950 housing units over 10 years,. Estimates from existing studies are used to estimate the service costs that would be incurred in the absence of the Fresno TYP. The annual service costs per person for the various sub-groups of the chronically homeless population were detailed in Chapter One, but are summarized again in Table 2.3.

Table 2.3 presents annual acute service costs on a per person basis for each of the five sub-groups. These figures can be used to estimate the service costs that would be incurred in the absence of the housing interventions proposed in the TYP. However, in order for more meaningful comparisons to be made between the costs that would be incurred in the absence of housing interventions and the cost of the interventions themselves, it is necessary to convert the per person service costs into per unit service costs. This is achieved by accounting for an assumed annual 15 percent turnover rate in housing units. Converting the per person service costs to per unit service costs provides a more accurate estimate of the overall service costs that would be incurred in the absence of the housing strategy outlined in the TYP.

Table 2.3-Projected Annual Service Costs Per Person	
Sub-Group	<u>Per Person</u>
Sub-Group 1 (SMI, Heaviest Users)	\$22,372
Sub-Group 2 (SMI, Less Expensive)	\$16,954
Sub-Group 3 (Public Inebriates)	\$48,792
Sub-Group 4 (Substance Abuse & Chronic Medical)	\$8,000
Sub-Group 5 (Substance Abuse Only)	\$5,618

Table 2.4 provides an estimate of projected overall service costs that would be incurred in the absence of the TYP. Both per unit and total costs are shown for each of the five sub-groups. Based on the Bureau of Labor Statistics' U.S. City Average Medical Cost Increase figures, a 5% increase in costs per year for services is assumed.

Again, it is assumed that the TYP would provide 100 new units each year. Thus, the figures in Table 2.4 can be interpreted as representing the acute service costs for the persons who would be placed in the housing units created by the TYP were the housing interventions not to be implemented. In a sense, these costs can be understood as the cost of maintaining the status quo rather than investing in new housing interventions for chronically homeless persons. For example, the total cost of \$4,913,849 for Year 2 represents the services costs incurred in the absence of the TYP by the persons who otherwise would have been served by the 200 units of housing that would have been created at that stage of the implementation period. Likewise, the total cost of \$7,739,312 for Year 3 represents the services costs incurred in the absence of the TYP by the persons who otherwise would have been served by the 300 units of housing that would have been created at that stage of the implementation period.

Table 2.4-Service Costs Incurred In Absence of Ten-Year Plan										
Sub-Group	Year 1		Year 2		Year 3		Year 4		Year 5	
	<u>Per Unit</u>	<u>Total</u>	<u>Per Unit</u>	<u>Total</u>	<u>Per Unit</u>	<u>Total</u>	<u>Per Unit</u>	<u>Total</u>	<u>Per Unit</u>	<u>Total</u>
Sub-Group 1	\$25,728	\$514,556	\$27,014	\$1,080,568	\$28,365	\$1,701,894	\$29,783	\$2,382,652	\$31,272	\$3,127,230
Sub-Group 2	\$19,497	\$389,942	\$20,472	\$818,878	\$21,496	\$1,289,733	\$22,570	\$1,805,626	\$23,699	\$2,369,885
Sub-Group 3	\$56,111	\$1,122,216	\$58,916	\$2,356,654	\$61,862	\$3,711,729	\$64,955	\$5,196,421	\$68,203	\$6,820,303
Sub-Group 4	\$9,200	\$184,000	\$9,660	\$386,400	\$10,143	\$608,580	\$10,650	\$852,012	\$11,183	\$1,118,266
Sub-Group 5	\$6,461	\$129,214	\$6,784	\$271,349	\$7,123	\$427,375	\$7,479	\$598,325	\$7,853	\$785,302
Total		\$2,339,928		\$4,913,849		\$7,739,312		\$10,835,037		\$14,220,986
Sub-Group	Year 6		Year 7		Year 8		Year 9		Year 10	
	<u>Per Unit</u>	<u>Total</u>	<u>Per Unit</u>	<u>Total</u>	<u>Per Unit</u>	<u>Total</u>	<u>Per Unit</u>	<u>Total</u>	<u>Per Unit</u>	<u>Total</u>
Sub-Group 1	\$32,836	\$3,940,310	\$34,478	\$4,826,880	\$36,202	\$5,792,256	\$38,012	\$6,842,102	\$39,912	\$7,583,330
Sub-Group 2	\$24,884	\$2,986,055	\$26,128	\$3,657,917	\$27,434	\$4,389,500	\$28,806	\$5,185,097	\$30,246	\$5,746,816
Sub-Group 3	\$71,613	\$8,593,582	\$75,194	\$10,527,137	\$78,954	\$12,632,565	\$82,901	\$14,922,217	\$87,046	\$16,538,791
Sub-Group 4	\$11,742	\$1,409,015	\$12,329	\$1,726,043	\$12,945	\$2,071,252	\$13,593	\$2,446,666	\$14,272	\$2,711,722
Sub-Group 5	\$8,246	\$989,481	\$8,658	\$1,212,114	\$9,091	\$1,454,537	\$9,545	\$1,718,171	\$10,023	\$1,904,307
Total		\$17,918,442		\$21,950,091		\$26,340,109		\$31,114,254		\$34,484,965

2.6 Service Costs Associated with Ten-Year Plan

A growing body of research, including several studies employing rigorous scientific methods, (Culhane, Metraux & Hadley, 2002; Rosenheck et al. 2003; Gulcur et al. 2003; Larimer et al., 2009; Gilmer, Manning & Ettner, 2009) has provided strong evidence that the placement of chronically homeless persons in housing is linked to significant reductions in acute services use. The analysis of the range of costs and cost offsets associated with the Fresno TYP uses existing studies to estimate the likely reduction in acute services use associated with housing placement.

As existing studies were conducted at different times in different jurisdictions, this analysis will simulate four service reduction scenarios in order to provide a plausible range of service reduction over the implementation period of the TYP. The first scenario (**Scenario 1**) is based on a study conducted by Culhane, Metraux and Hadley (2002) and assumes a 35% reduction in services use for all sub-groups in the first two years after housing placement, a 10% reduction for all sub-groups in the following two years, a 5% reduction in the next two years and a 3% reduction in the remaining years. The second scenario (**Scenario 2**) takes a more conservative approach and assumes a 25% reduction in services in the first two years, a 5% reduction in the following two years, a 3% reduction in the next two years and a 1% reduction in the remaining years.

A major limitation of existing studies is that they do not track reductions in service utilization for longer than two years subsequent to housing placement. Therefore, it is not possible to say with certainty whether service reductions would be sustained over the entire implementation period of the TYP, as Scenario 1 and Scenario 2 assume. As such, Scenario 1 and Scenario 2 may overestimate the degree of services reduction, and as a result the cost offsets, associated with the TYP. Consequently, the third scenario (**Scenario 3**) and the fourth scenario (**Scenario 4**) assume that no further reduction in services occurs after Year 4 of the implementation period. Scenario 3 assumes a 35% reduction in services use for all sub-groups in the first two years after housing placement, a 10% reduction for all sub-groups in the following two years, with service utilization stabilizing at Year 4 levels in the subsequent years. Likewise, Scenario 4 assumes a 25% reduction in services in the first two years, a 5% reduction in the following two years, with service utilization stabilizing at Year 4 levels in the subsequent years. All Scenarios will account for an assumed 5% annual increase in costs for services, based on based on Bureau of Labor Statistics' U.S. City Average Medical Cost Increase figures. The results of Scenario 1, Scenario 2, Scenario 3, and Scenario 4 are presented in Table 2.5, Table 2.6, Table 2.7, and Table 2.8, respectively. Whereas Table 2.4 represents the acute service costs that would be incurred in the absence of the TYP, Table 2.5, Table 2.6, Table 2.7 and Table 2.8 represent the acute service costs incurred were the housing interventions set forth in the TYP to be implemented. Again, acute service costs are presented in per unit terms.

Table 2.5- Projected Annual Service Costs Associated with Ten-Year Plan—Scenario 1

Sub-Group	Year 1		Year 2		Year 3		Year 4		Year 5	
	Per Unit	Total	Per Unit	Total	Per Unit	Total	Per Unit	Total	Per Unit	Total
Sub-Group 1	\$17,559	\$351,184	\$11,984	\$479,367	\$11,325	\$679,502	\$10,702	\$856,173	\$10,675	\$1,067,541
Sub-Group 2	\$13,307	\$266,135	\$9,082	\$363,275	\$8,582	\$514,942	\$8,110	\$648,827	\$8,090	\$809,006
Sub-Group 3	\$38,296	\$765,912	\$26,137	\$1,045,470	\$24,699	\$1,481,954	\$23,341	\$1,867,263	\$23,282	\$2,328,243
Sub-Group 4	\$6,279	\$125,580	\$4,285	\$171,417	\$4,050	\$242,983	\$3,827	\$306,159	\$3,817	\$381,742
Sub-Group 5	\$4,409	\$88,189	\$3,009	\$120,377	\$2,844	\$170,635	\$2,688	\$215,000	\$2,681	\$268,078
Total		\$1,597,001		\$2,179,906		\$3,090,017		\$3,893,421		\$4,854,610
Sub-Group	Year 6		Year 7		Year 8		Year 9		Year 10	
	Per Unit	Total	Per Unit	Total	Per Unit	Total	Per Unit	Total	Per Unit	Total
Sub-Group 1	\$10,649	\$1,277,846	\$10,846	\$1,518,401	\$11,046	\$1,767,419	\$11,251	\$2,025,130	\$11,459	\$2,177,184
Sub-Group 2	\$8,070	\$968,380	\$8,219	\$1,150,678	\$8,371	\$1,339,389	\$8,526	\$1,534,689	\$8,684	\$1,649,918
Sub-Group 3	\$23,224	\$2,786,907	\$23,654	\$3,311,542	\$24,091	\$3,854,635	\$24,537	\$4,416,689	\$24,991	\$4,748,309
Sub-Group 4	\$3,808	\$456,945	\$3,878	\$542,965	\$3,950	\$632,011	\$4,023	\$724,166	\$4,098	\$778,539
Sub-Group 5	\$2,674	\$320,890	\$2,724	\$381,297	\$2,774	\$443,830	\$2,825	\$508,546	\$2,878	\$546,729
Total		\$5,810,968		\$6,904,883		\$8,037,283		\$9,209,220		\$9,900,679

Table 2.6- Projected Annual Service Costs Associated with Ten-Year Plan --Scenario 2

Sub-Group	Year 1		Year 2		Year 3		Year 4		Year 5	
	Per Unit	Total	Per Unit	Total	Per Unit	Total	Per Unit	Total	Per Unit	Total
Sub-Group 1	\$20,261	\$405,213	\$15,955	\$638,210	\$15,915	\$954,922	\$15,876	\$1,270,046	\$16,169	\$1,616,928
Sub-Group 2	\$15,354	\$307,079	\$12,091	\$483,650	\$12,061	\$723,661	\$12,031	\$962,469	\$12,253	\$1,225,344
Sub-Group 3	\$44,187	\$883,745	\$34,797	\$1,391,899	\$34,710	\$2,082,628	\$34,624	\$2,769,895	\$35,264	\$3,526,423
Sub-Group 4	\$7,245	\$144,900	\$5,705	\$228,218	\$5,691	\$341,470	\$5,677	\$454,156	\$5,782	\$578,197
Sub-Group 5	\$5,088	\$101,756	\$4,007	\$160,266	\$3,997	\$239,798	\$3,987	\$318,931	\$4,060	\$406,039
Total		\$1,842,693		\$2,902,242		\$4,342,480		\$5,775,498		\$7,352,931
Sub-Group	Year 6		Year 7		Year 8		Year 9		Year 10	
	Per Unit	Total	Per Unit	Total	Per Unit	Total	Per Unit	Total	Per Unit	Total
Sub-Group 1	\$16,468	\$1,976,209	\$17,119	\$2,396,648	\$17,795	\$2,847,217	\$18,498	\$3,329,643	\$19,229	\$3,653,450
Sub-Group 2	\$12,480	\$1,497,615	\$12,973	\$1,816,233	\$13,486	\$2,157,685	\$14,018	\$2,523,277	\$14,572	\$2,768,666
Sub-Group 3	\$35,917	\$4,309,994	\$37,335	\$5,226,946	\$38,810	\$6,209,612	\$40,343	\$7,261,753	\$41,937	\$7,967,958
Sub-Group 4	\$5,889	\$706,672	\$6,122	\$857,017	\$6,363	\$1,018,136	\$6,615	\$1,190,646	\$6,876	\$1,306,437
Sub-Group 5	\$4,136	\$496,261	\$4,299	\$601,840	\$4,469	\$714,986	\$4,645	\$836,131	\$4,829	\$917,445
Total		\$8,986,752		\$10,898,683		\$12,947,636		\$15,141,451		\$16,613,957

Table 2.7- Projected Annual Service Costs Associated with Ten-Year Plan--Scenario 3

Sub-Group	Year 1		Year 2		Year 3		Year 4		Year 5	
	Per Unit	Total	Per Unit	Total	Per Unit	Total	Per Unit	Total	Per Unit	Total
Sub-Group 1	\$17,559	\$351,184	\$11,984	\$479,367	\$11,325	\$679,502	\$10,702	\$856,173	\$11,237	\$1,123,727
Sub-Group 2	\$13,307	\$266,135	\$9,082	\$363,275	\$8,582	\$514,942	\$8,110	\$648,827	\$8,516	\$851,585
Sub-Group 3	\$38,296	\$765,912	\$26,137	\$1,045,470	\$24,699	\$1,481,954	\$23,341	\$1,867,263	\$24,508	\$2,450,782
Sub-Group 4	\$6,279	\$125,580	\$4,285	\$171,417	\$4,050	\$242,983	\$3,827	\$306,159	\$4,018	\$401,833
Sub-Group 5	\$4,409	\$88,189	\$3,009	\$120,377	\$2,844	\$170,635	\$2,688	\$215,000	\$2,822	\$282,188
Total		\$1,597,001		\$2,179,906		\$3,090,017		\$3,893,421		\$5,110,116
Sub-Group	Year 6		Year 7		Year 8		Year 9		Year 10	
	Per Unit	Total	Per Unit	Total	Per Unit	Total	Per Unit	Total	Per Unit	Total
Sub-Group 1	\$11,799	\$1,415,896	\$12,389	\$1,734,473	\$13,009	\$2,081,367	\$13,659	\$2,458,615	\$14,342	\$2,724,965
Sub-Group 2	\$8,942	\$1,072,998	\$9,389	\$1,314,422	\$9,858	\$1,577,307	\$10,351	\$1,863,193	\$10,869	\$2,065,039
Sub-Group 3	\$25,733	\$3,087,985	\$27,020	\$3,782,782	\$28,371	\$4,539,338	\$29,789	\$5,362,094	\$31,279	\$5,942,987
Sub-Group 4	\$4,219	\$506,310	\$4,430	\$620,230	\$4,652	\$744,276	\$4,884	\$879,176	\$5,129	\$974,420
Sub-Group 5	\$2,963	\$355,556	\$3,111	\$435,556	\$3,267	\$522,668	\$3,430	\$617,401	\$3,602	\$684,286
Total		\$6,438,746		\$7,887,463		\$9,464,956		\$11,180,479		\$12,391,698

Table 2.8- Projected Annual Service Costs Associated with Ten-Year Plan --Scenario 4

Sub-Group	Year 1		Year 2		Year 3		Year 4		Year 5	
	Per Unit	Total	Per Unit	Total	Per Unit	Total	Per Unit	Total	Per Unit	Total
Sub-Group 1	\$20,261	\$405,213	\$15,955	\$638,210	\$15,915	\$954,922	\$15,876	\$1,270,046	\$16,669	\$1,666,936
Sub-Group 2	\$15,354	\$307,079	\$12,091	\$483,650	\$12,061	\$723,661	\$12,031	\$962,469	\$12,632	\$1,263,241
Sub-Group 3	\$44,187	\$883,745	\$34,797	\$1,391,899	\$34,710	\$2,082,628	\$34,624	\$2,769,895	\$36,355	\$3,635,488
Sub-Group 4	\$7,245	\$144,900	\$5,705	\$228,218	\$5,691	\$341,470	\$5,677	\$454,156	\$5,961	\$596,079
Sub-Group 5	\$5,088	\$101,756	\$4,007	\$160,266	\$3,997	\$239,798	\$3,987	\$318,931	\$4,186	\$418,597
Total		\$1,842,693		\$2,902,242		\$4,342,480		\$5,775,498		\$7,580,341
Sub-Group	Year 6		Year 7		Year 8		Year 9		Year 10	
	Per Unit	Total	Per Unit	Total	Per Unit	Total	Per Unit	Total	Per Unit	Total
Sub-Group 1	\$17,503	\$2,100,339	\$18,378	\$2,572,915	\$19,297	\$3,087,499	\$20,262	\$3,647,108	\$21,275	\$4,042,211
Sub-Group 2	\$13,264	\$1,591,684	\$13,927	\$1,949,813	\$14,624	\$2,339,775	\$15,355	\$2,763,859	\$16,123	\$3,063,278
Sub-Group 3	\$38,173	\$4,580,715	\$40,081	\$5,611,375	\$42,085	\$6,733,651	\$44,190	\$7,954,125	\$46,399	\$8,815,822
Sub-Group 4	\$6,259	\$751,060	\$6,572	\$920,048	\$6,900	\$1,104,058	\$7,245	\$1,304,169	\$7,608	\$1,445,454
Sub-Group 5	\$4,395	\$527,432	\$4,615	\$646,104	\$4,846	\$775,325	\$5,088	\$915,852	\$5,342	\$1,015,070
Total		\$9,551,229		\$11,700,256		\$14,040,307		\$16,585,113		\$18,381,833

2.7 Cost Offsets Associated with Ten Year Plan

In order to determine the potential range of cost offsets associated with the Fresno TYP, both the acute service cost reductions associated with the TYP and the cost of the housing interventions envisioned by the TYP must be considered. As such, the cost offsets associated with the proposed housing strategy can be estimated by adding the annual cost of providing housing interventions for each sub-group (shown in Table 2) to the service cost totals for Scenario 1, Scenario 2, Scenario 3 and Scenario 4 (shown in Table 2.5, Table 2.6, Table 2.7 and Table 2.8). These sums can then be compared to the projected annual costs that would be incurred in the absence of the TYP (shown in Table 2.4).

Table 2.9, Table 2.10, Table 2.11 and Table 2.12, as well as Figure 2.1, present the results of this comparison and the projected annual cost offsets for Scenario 1, Scenario 2, Scenario 3 and Scenario 4 respectively. As Figure 2.1 indicates, the break even point where the cost reductions associated with the TYP offset its cost, occurs between Year 1 and Year 2 of the implementation period for both Scenario 1 and Scenario 2. As Table 2.9 and Table 2.11 show, in Scenario 1 and Scenario 3, by Year 7 of the implementation period the reduced service costs associated with the creation of housing units completely offsets the cost of the units for all sub-groups. Similarly, in Scenario 2 and Scenario 4, service reductions associated with the creation of housing units offsets the cost of the units themselves for all sub-groups except for Sub-Group 4. For all Scenarios, cost offsets are the greatest for Sub-Group 3 (Public Inebriates) with estimated annual cost offsets of between about \$1.9 million and \$3.3 million for this group in Year 5 and between about \$5.4 million and \$9.5 million in Year 10.

Table 2.13 and Figure 2.2 offer side by side comparisons of the total annual cost offsets associated with each scenario. As Table 2.13 and Figure 2.2 indicate, by Year 5, the housing strategy outlined in the TYP is estimated to generate an annual cost saving of between about \$2.6 million and \$5.4 million and between \$8.7 million and \$17.2 million by Year 10.

Table 2.14 and Figure 2.3 present the projected cumulative cost offsets associated with both Scenario 1 and Scenario 2. As shown in Table 2.14, cumulative cost savings associated with the TYP are estimated to be between about \$5.1 million and \$11.9 million in Year 5 and between about \$35.7 million and \$72.9 million in Year 10.

Table 2.9-Projected Annual Cost Offsets Associated With Ten-Year Plan—Scenario 1

Sub-Group	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	<u>Cost Offset</u>	<u>Cost Offset</u>	<u>Cost Offset</u>	<u>Cost Offset</u>	<u>Cost Offset</u>	<u>Cost Offset</u>	<u>Cost Offset</u>	<u>Cost Offset</u>	<u>Cost Offset</u>	<u>Cost Offset</u>
Sub-Group 1	-\$46,628	\$181,201	\$392,392	\$686,478	\$1,009,689	\$1,402,464	\$1,838,479	\$2,344,837	\$2,926,972	\$3,411,146
Sub-Group 2	-\$85,513	\$96,623	\$774,791	\$617,819	\$931,898	\$1,298,694	\$1,698,259	\$2,151,131	\$2,661,428	\$3,122,578
Sub-Group 3	\$114,304	\$827,183	\$1,503,775	\$2,361,159	\$3,282,060	\$4,354,675	\$5,521,595	\$6,841,930	\$8,327,528	\$9,491,482
Sub-Group 4	-\$91,580	-\$85,017	-\$84,403	-\$54,147	-\$13,476	\$52,070	\$133,078	\$239,241	\$372,500	\$508,183
Sub-Group 5	-\$30,975	\$6,972	\$40,740	\$95,325	\$157,224	\$236,591	\$326,817	\$434,707	\$561,626	\$673,578
Total	-\$140,393	\$1,026,963	\$1,999,335	\$3,706,635	\$5,367,396	\$7,344,494	\$9,518,228	\$12,011,846	\$14,850,054	\$17,206,966

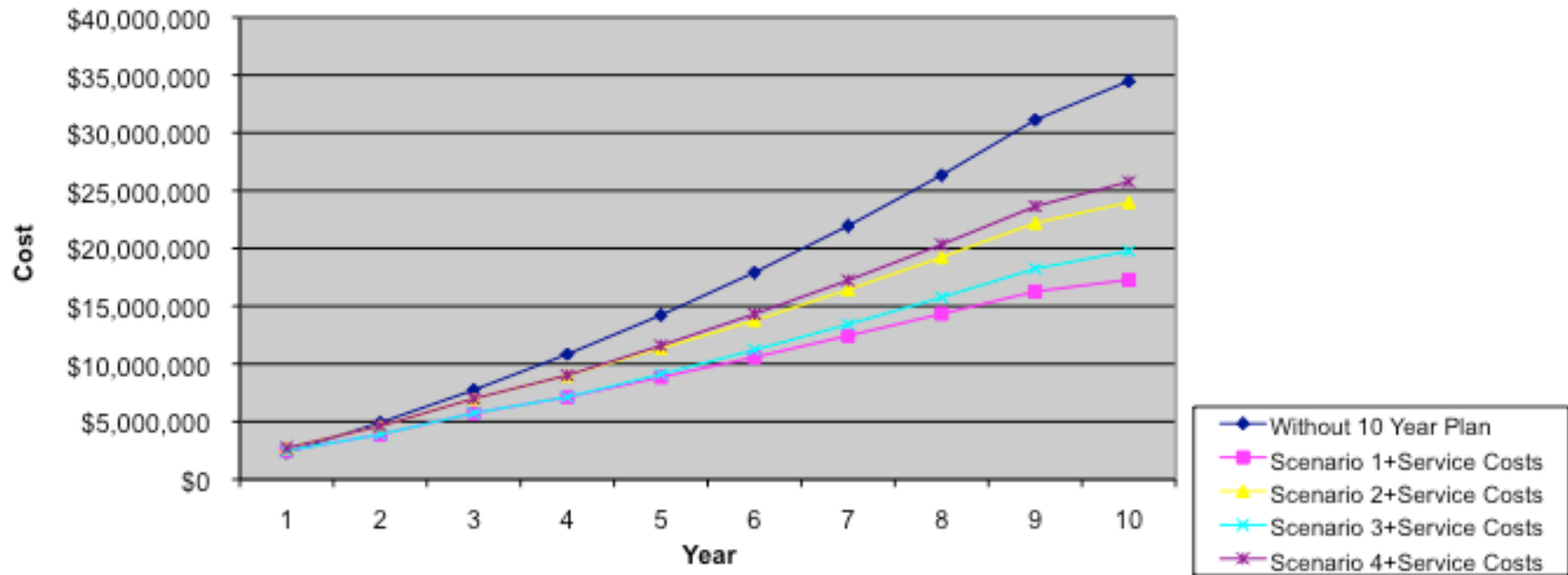
Table 2.10-Projected Annual Cost Offsets Associated With Ten-Year Plan—Scenario 2

Sub-Group	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	<u>Cost Offset</u>	<u>Cost Offset</u>	<u>Cost Offset</u>	<u>Cost Offset</u>	<u>Cost Offset</u>	<u>Cost Offset</u>	<u>Cost Offset</u>	<u>Cost Offset</u>	<u>Cost Offset</u>	<u>Cost Offset</u>
Sub-Group 1	-\$100,657	\$22,357	\$116,972	\$272,605	\$460,302	\$704,101	\$960,232	\$1,265,038	\$1,622,459	\$1,934,879
Sub-Group 2	-\$126,457	-\$23,752	\$566,072	\$304,177	\$515,561	\$769,459	\$1,032,704	\$1,332,836	\$1,672,840	\$2,003,830
Sub-Group 3	-\$3,529	\$480,755	\$903,101	\$1,458,526	\$2,083,880	\$2,831,587	\$3,606,192	\$4,486,953	\$5,482,465	\$6,271,833
Sub-Group 4	-\$110,900	-\$141,818	-\$182,890	-\$202,144	-\$209,931	-\$197,657	-\$180,974	-\$146,884	-\$93,980	-\$19,715
Sub-Group 5	-\$44,542	-\$32,916	-\$28,422	-\$8,605	\$19,263	\$61,220	\$106,274	\$163,551	\$234,040	\$302,861
Total	-\$386,085	\$304,627	\$746,872	\$1,824,559	\$2,869,075	\$4,168,710	\$5,524,428	\$7,101,494	\$8,917,824	\$10,493,688

Sub-Group	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Cost Offset	Cost Offset	Cost Offset	Cost Offset	Cost Offset	Cost Offset	Cost Offset	Cost Offset	Cost Offset	Cost Offset
Sub-Group 1	-\$46,628	\$181,201	\$392,392	\$686,478	\$953,503	\$1,264,414	\$1,622,407	\$2,030,888	\$2,493,487	\$2,863,365
Sub-Group 2	-\$85,513	\$96,623	\$774,791	\$617,819	\$889,319	\$1,194,077	\$1,534,515	\$1,913,214	\$2,332,924	\$2,707,457
Sub-Group 3	\$114,304	\$827,183	\$1,503,775	\$2,361,159	\$3,159,521	\$4,053,596	\$5,050,355	\$6,157,226	\$7,382,124	\$8,296,804
Sub-Group 4	-\$91,580	-\$85,017	-\$84,403	-\$54,147	-\$33,568	\$2,705	\$55,813	\$126,976	\$217,490	\$312,302
Sub-Group 5	-\$30,975	\$6,972	\$40,740	\$95,325	\$143,115	\$201,924	\$272,557	\$355,869	\$452,770	\$536,020
Total	-\$140,393	\$1,026,963	\$1,999,335	\$3,706,635	\$5,111,890	\$6,716,716	\$8,535,648	\$10,584,173	\$12,878,795	\$14,715,947

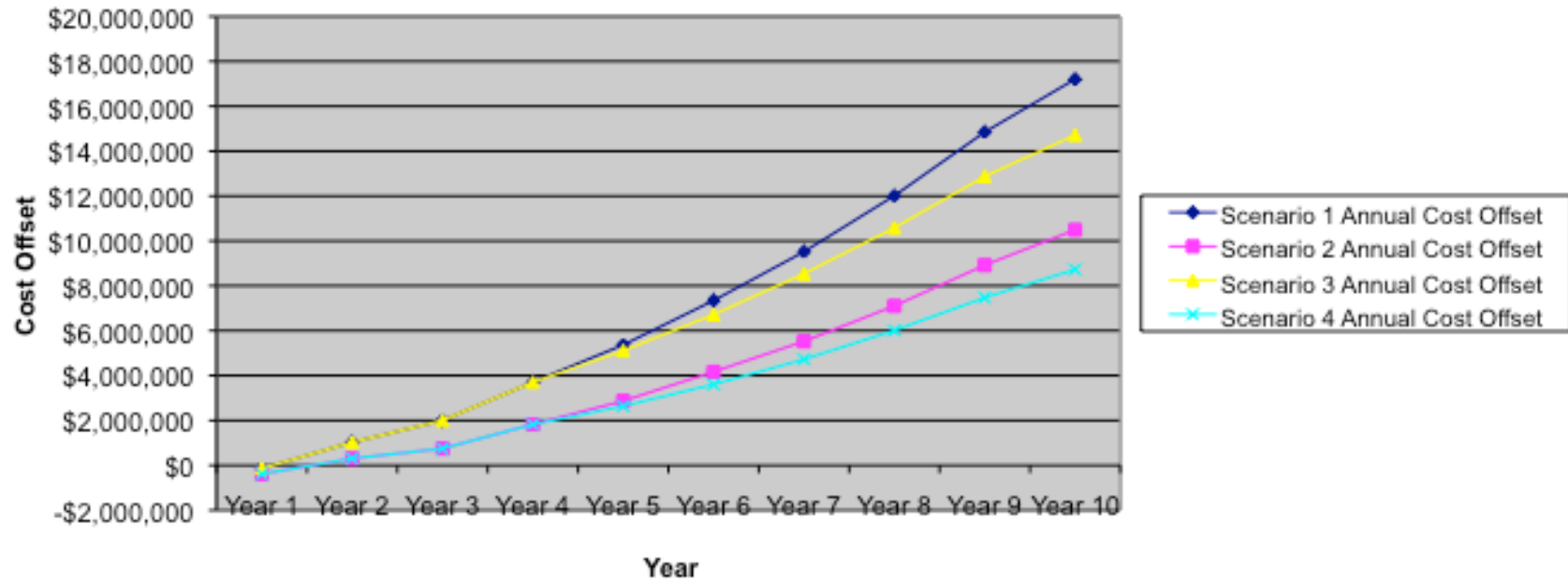
Sub-Group	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Cost Offset	Cost Offset	Cost Offset	Cost Offset	Cost Offset	Cost Offset	Cost Offset	Cost Offset	Cost Offset	Cost Offset
Sub-Group 1	-\$100,657	\$22,357	\$116,972	\$272,605	\$410,294	\$579,971	\$783,964	\$1,024,757	\$1,304,994	\$1,546,119
Sub-Group 2	-\$126,457	-\$23,752	\$566,072	\$304,177	\$477,664	\$675,391	\$899,124	\$1,150,745	\$1,432,258	\$1,709,219
Sub-Group 3	-\$3,529	\$480,755	\$903,101	\$1,458,526	\$1,974,815	\$2,560,867	\$3,221,762	\$3,962,914	\$4,790,093	\$5,423,969
Sub-Group 4	-\$110,900	-\$141,818	-\$182,890	-\$202,144	-\$227,814	-\$242,045	-\$244,005	-\$232,806	-\$207,502	-\$158,732
Sub-Group 5	-\$44,542	-\$32,916	-\$28,422	-\$8,605	\$6,705	\$30,049	\$62,010	\$103,212	\$154,319	\$205,237
Total	-\$386,085	\$304,627	\$746,872	\$1,824,559	\$2,641,665	\$3,604,232	\$4,722,855	\$6,008,822	\$7,474,161	\$8,725,812

Figure 2.1-Projected Annual Costs



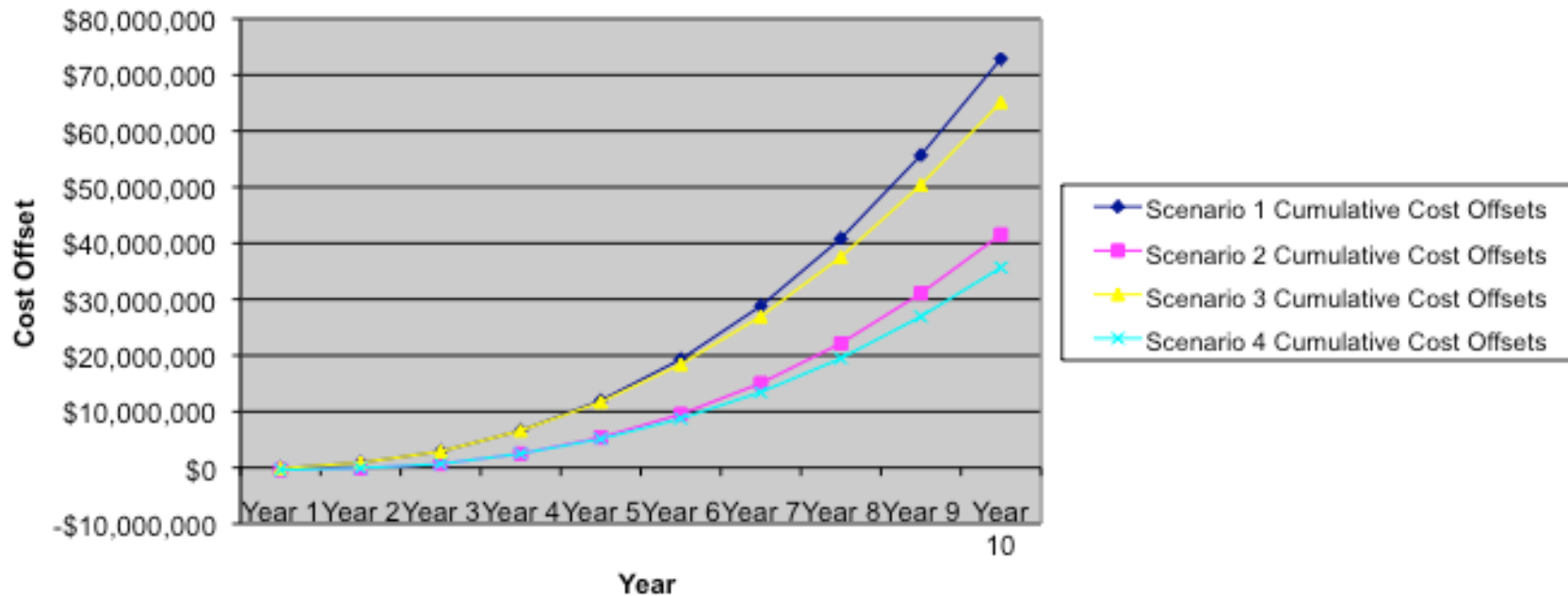
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Scenario 1 Annual Cost Offsets	-\$140,393	\$1,026,963	\$1,999,335	\$3,706,635	\$5,367,396	\$7,344,494	\$9,518,228	\$12,011,846	\$14,850,054	\$17,206,966
Scenario 2 Annual Cost Offsets	-\$386,085	\$304,627	\$746,872	\$1,824,559	\$2,869,075	\$4,168,710	\$5,524,428	\$7,101,494	\$8,917,824	\$10,493,688
Scenario 3 Annual Cost Offsets	-\$140,393	\$1,026,963	\$1,999,335	\$3,706,635	\$5,111,890	\$6,716,716	\$8,535,648	\$10,584,173	\$12,878,795	\$14,715,947
Scenario 4 Annual Cost Offsets	-\$386,085	\$304,627	\$746,872	\$1,824,559	\$2,641,665	\$3,604,232	\$4,722,855	\$6,008,822	\$7,474,161	\$8,725,812

Figure 2.2-Projected Annual Cost Offsets Associated with Ten-Year Plan



	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Scenario 1 Cumulative Cost Offsets	-\$140,393	\$886,570	\$2,885,905	\$6,592,540	\$11,959,936	\$19,304,429	\$28,822,658	\$40,834,504	\$55,684,558	\$72,891,525
Scenario 2 Cumulative Cost Offsets	-\$386,085	-\$81,458	\$665,414	\$2,489,973	\$5,359,048	\$9,527,758	\$15,052,186	\$22,153,680	\$31,071,503	\$41,565,192
Scenario 3 Cumulative Cost Offsets	-\$140,393	\$886,570	\$2,885,905	\$6,592,540	\$11,704,430	\$18,421,146	\$26,956,794	\$37,540,967	\$50,419,762	\$65,135,709
Scenario 4 Cumulative Cost Offsets	-\$386,085	-\$81,458	\$665,414	\$2,489,973	\$5,131,637	\$8,735,870	\$13,458,725	\$19,467,547	\$26,941,709	\$35,667,520

Figure 2.3-Projected Cumulative Cost Offsets Associated with Ten-Year Plan



2.8 Summary

The Fresno TYP sets a goal of creating 941 units of housing for chronically homeless persons and envisions the addition of 100 new units on an annual basis to achieve this goal. In close adherence to this strategy, the analysis in this chapter has provided an estimate of the costs and potential cost offsets associated with creating 950 units of housing for chronically homeless persons, with 20 percent of the units targeted at five sub-groups of chronically homeless persons with varying levels of service utilization and housing needs. As the analysis has shown, the cost of the housing strategy outlined in the TYP will increase as new units are added each year, and by the tenth year of the implementation period it will cost an estimated \$7.4 million annually to operate the 950 units of housing. However, it is possible that the cost of implementing the TYP strategy will be offset by the reduced acute service utilization of persons who would be served by the housing units. It is important to note that existing studies have not examined the pattern of services reductions associated with housing placement over the long-term. As such, it is difficult to say with certainty whether service reductions will be sustained over the entire implementation period of the TYP. Thus, the projections in this analysis may be biased in the direction of overestimating cost offsets and should be interpreted accordingly. That said, based on calculations of the costs of acute service utilization that would be incurred in the absence of the TYP, and the assumptions employed in this analysis regarding reductions in acute service utilization associated with implementation of the TYP, it is estimated that the break even point for the TYP will occur between the first and second year of its implementation. Moreover, depending on which scenario of service reduction associated with housing placement is considered, it is estimated that by the fifth year of the Plan's implementation annual savings will reach between about \$2.6 million and \$5.4 million and that cumulative savings ranging from about \$5.1 million and \$11.9 million will have accrued. By the tenth year of implementation, it is estimated that annual savings will be between about \$8.7 million and \$17.2 million and cumulative savings between about \$35.6 million and \$72.9 million.

Chapter Three

Evaluation Strategy for the Fresno Ten-Year Plan

3.1 Introduction

This chapter will outline approaches for evaluating the cost offsets that are realized from the supportive housing (SH) in Fresno's TYP. Since the Culhane et al. (2002) study of NY/NY housing demonstrated that reductions in services use across homeless, health care, mental health care, and criminal justice systems can substantially offset the costs of providing housing with support services for homeless individuals, numerous jurisdictions have sought to replicate these findings under local conditions. Culhane et al. (2007), in an overview of cost studies, summarizes 33 cost and cost offset studies compiled by the U.S. Interagency Council on Homelessness from various jurisdictions. Several major cost studies have also appeared since Culhane et al.'s monograph.

Cost studies leverage political will and resources. Homeless individuals can amass substantial costs across systems that are not counted as direct homeless costs. These services, which are often not coordinated across (or even within) systems, are provided in costly acute, inpatient or crisis contexts, and are associated with severe disability and pathology among the individuals receiving these services. As documented in a *New Yorker* article by Malcolm Gladwell (2006), in the extreme, the costs incurred by homeless individuals can range into the hundreds of thousands of dollars. The prospect that SH, through stabilizing a homeless individual's living situation and providing a care manager to coordinate and streamline services, can reduce the inefficiencies that account for much of these services costs adds a powerful rationale for ending chronic homelessness through providing SH instead of managing it through shelters and other ameliorative services.

However, not all homeless persons, even among the chronically homeless, make expensive use of services. Most cost studies have focused on persons with serious mental illness or long-term drug and alcohol abuse – persons who accrue costly inpatient hospital stays, ambulance services, incarcerations, and detoxification services – to offset SH configurations where the housing and services can run upwards of \$15,000 annually. While it is clear that every jurisdiction has a subgroup of such heavy users among their homeless population, this subgroup is a minority, even among the chronically homeless. As such housing with intensive support services is made available for chronically homeless individuals on a wider scale, the fewer cost offsets a jurisdiction is likely to realize.

This situation of diminishing offsets is addressed in Chapter One, where we identify different subgroups among the chronically homeless individuals that Fresno will target for housing under the TYP and provide different configurations of housing and service supports based on their need for services. Only 40% are anticipated to have services demands that are extensive enough to warrant full housing subsidies and intensive, ongoing support services. The remaining persons will have more shallow housing

subsidies and/or services support that is either less intensive or that tapers down as the individuals become more settled in their tenancy.

In this chapter, we provide a plan for monitoring and evaluating pre-intervention service use patterns and costs by tenants and the impact of housing placement on subsequent services use and costs. Chapter Two has provided a framework for how cost offsets might work with the mix of housing and services configurations proposed in Chapter One. This chapter will outline the key issues involved in putting together and implementing a cost study in Fresno that can evaluate the actual cost offsets associated with the housing provided in Fresno's TYP, as well as the key elements that it should seek from bidders who are proposing to conduct this cost study. Where most cost studies have only looked at cost offsets for the heaviest services users, this evaluation will be noteworthy in its examination of persons with wider levels of services demands as well as the impacts of a wider set of housing and services configurations.

Following discussion of a timetable for this evaluation, this chapter will cover two methodologies for collecting data to document changes in services use. The primary method for such data collection is through the collection and analysis of secondary (administrative) data. Important issues related to this are outlined, along with suggestions for the use of the local Homeless Management Information System (HMIS) for capturing data, along with accessing and analyzing other sources of administrative data. The second method relies on interviews to collect primary data on services use, an approach which includes surveys and monitoring services use in ways that can be used in the absence of available administrative data. The pros and cons associated with each of the respective strategies will be explained, as will the potential costs associated with each are discussed. Finally, a brief overview of a set of cost studies will be provided. These cost studies from other jurisdictions can provide valuable insights as to the design of such a study in Fresno.

3.2 Timetable

The first task in organizing a cost study is to set up a timetable for when such a study should be conducted. In order to get an accurate assessment of changes in service use patterns related to SH, there needs to be a sufficient time period for tenants to use services after they receive their housing placement. For the City of Fresno, such results will mean that it will take several years from the implementation of housing under the TYP before offset results are available. However, some preliminary results may be available earlier.

Various factors need to be taken into account for planning a timetable. First, a study period of least one and up to two years after the tenants have been placed in SH is necessary for getting an accurate gauge of post-placement service use patterns. The study period would end only after a sufficient number of tenants had the opportunity for their services to be tracked through this study period. "Sufficient" means having a large enough study group to be able to detect substantial differences in "pre-post" housing placement services use as statistically significant. Generally, the larger this study

group, the better, and Burt (2004) recommends at least 100 tenants. Given that not all tenants will be using the services examined, we think 100 to be low. Another factor to be considered, as Burt (2004) also points out, is the time lag between when services are provided and when the services get recorded into administrative databases. This means adding about another six months to the data collection process, after the study period has concluded, to make sure that the database of services use is complete.

Looking at the implementation schedule in Chapter 2 of this report (Table 2.2) shows that SH under Fresno's TYP is scheduled to become available at the rate of 100 units per year for the ten-year duration of the plan for a total of 941 units. At a minimum, we recommend that a cost study cover a study group of all tenants housed within the first three years of this schedule. Given one to two years of services use, the data time lag, and time for data analysis, cost offset results would not be available before the sixth year of program implementation. Furthermore, the more years this study could include (ideally all TYP units would be included in a study), the more informative the results would be.

Expanding the study group would come at the expense of additional time until the cost study is completed. However, the role of potential cost offsets in issues such as showing offset returns from SH, and for determining the configurations of housing subsidies and service supports to be provided, generally will make it preferable that a study come out as soon as is feasible. Study designers must take both logistical and policy considerations into account when setting up the timetable for this study.

Preliminary results from such a study may mitigate the time it takes until final cost-offset results become available. One set of results that would likely be of interest are the nature and extent of services that persons used prior to their SH placements. Such a study would effectively document the costs of homelessness without taking into account the impact of SH. This would assist with planning purposes and could set the expectations for the extent of cost offsets that can be realized (as costs cannot be offset by an amount greater than the services accrued prior to SH placement). Furthermore, such a cost of homelessness study, as a preliminary part of a broader cost-offset study, would be valuable as a "dry run" to establish the data exchange, collection and analysis procedures that will be used for the final study, and can identify problems early and thereby improve the efficiency of the overall study. And finally, as cost of homelessness data will be used in the final cost offset study, it will speed the time of the overall project's completion.

3.3 Recruitment and Informed Consent

Recruiting study participants is one of the initial steps to implementing a cost study. For a housing initiative on the scale of the City of Fresno's, all tenants should be recruited for participation in the study. Participation in this study should be voluntary, and tenants should understand that participation in such a study is completely independent from, and should not in any way jeopardize, their housing arrangements. The purposes of the study should be explained, as should what is involved in tenants participating in study

and any possible risks and benefits that may be derived from the study. Finally, the participants should give their *informed consent*. Informed consent means providing the research participants with sufficient information about the study so they can make an informed and uncoerced decision about whether or not to participate in the study. Burt's (2004) monograph on "do it yourself" cost studies provides more detailed information about the issue of informed consent and the forms for obtaining informed consent. In a study such as this, where no active participation is required, informed consent in some instances may be waived. There are also circumstances in which the data analysis can be done under the auspices of the entity providing the data, and informed consent would not be necessary. However these situations, and how they are handled, will vary according to particular situations and it is important to recognize that usually it will be the Institutional Review Board (IRB), not the study organizers, who will make the determination of whether or not the study will need to obtain informed consent.

"Participation" in a cost study, unless supplementary interviews are also conducted, would largely require that a participant grant permission to access services records. Protocol for obtaining informed consent should be coordinated with the researchers involved in the study, and procedures and forms used for informed consent must have the approval of the IRB overseeing the study. IRBs will be addressed in the next section of this task. In conjunction with obtaining informed consent, participants can also be asked to provide releases of information to facilitate the researchers obtaining services records from other agencies. This can help alleviate a key concern raised by providers of administrative data.

3.4 Institutional Review Boards (IRB)

In studies of this nature, there will certainly be concern over whether the data will be properly used and that the well-being and confidentiality of the members of the study group will be safeguarded. As part of addressing these issues, the study will need to go under review by at least one and likely several different IRBs. While the procedures vary among individual IRBs, they will each want to review the study protocol and have specific questions about how the data will be used and whether or not the study participants will have given their informed consent to be included in the study. The organizers of a cost study should find out early which IRBs they will likely have to apply to and what the procedures are for submitting the study for approval. Along with informed consent, procedures for data storage and maintaining confidentiality of data will be a matter of interest for the IRB (and for the agencies providing data access). The measures taken to safeguard these records should be clearly outlined in a document developed in conjunction with the researchers.

3.5 Comparison Groups

The inclusion of a comparison group into the study provides a similar group of persons who, for this study, would not have received an SH placement. Changes in services use and costs for the comparison group represents what would happen in the absence of an SH placement. This then would control for other potential explanations, other than

SH placement, for why services use might change. Put another way, by comparing the outcomes of the SH tenants with the members of the comparison group, it would be possible to gauge the difference in services used by the two groups and attribute that as the difference made by the SH placement.

The most challenging part about using control groups is to identify a similar group of persons who have not been placed in SH. This can be accomplished if, through HMIS, there is a sufficient pool of individuals with similar homelessness histories and other characteristics (sex, age, race, etc.) to those placed in SH. Waiting lists, if available, for the SH housing is another potential source of control observations.

If a control group is not available, probably the most feasible study is to analyze the services use of the SH tenants over time periods prior to and following SH placement. Though not as rigorous an analysis as using a control group, a pre-post study can still yield important insights.

3.6 Administrative Data

Using administrative data records from agencies that provide services to chronically homeless individuals, if they are available, offer the most practical and accurate means for assessing the services consumed and costs incurred by persons both before and after they are placed in housing provided by Fresno's TYP.

Data Access

Access to administrative datasets containing records of services use by persons in SH is the key element of any cost study. It will be largely up to the City of Fresno staff who are organizing this study to identify and gain access to data sources that would inform a cost study. Plenty of time should be devoted to gaining access to these databases, as this can often be a long process. Typically data access is a negotiated process where the data is first requested, then parameters for use of the data are established, measures for providing informed consent and confidentiality are agreed upon, the data fields of interest are determined, and the logistics of the data transfer are worked out.

Using data in cost studies typically involves matching records across systems with personal identifiers that include social security number, date of birth, first and last names, and gender. This is sensitive, confidential information and agencies who have these databases are understandably concerned that the data they provide will be used only for the purposes that are agreed upon and that the data be handled in a manner where they can feel reasonably assured that the confidentiality of the records are maintained. This can involve a considerable amount of negotiating, drafting of memorandums of understanding and legal documents, and approvals by institutional review boards (discussed later in a separate subsection).

The researchers doing the analysis for the cost study will need to participate in the data acquisition process in order to ensure that the data is appropriate for the planned

analyses and to provide necessary assurances for the agencies giving the data. However, by the time the research team is identified and ready to participate, the process should be well underway. Alternatively, if the researchers have experience and expertise in obtaining data from public agencies they can assist through the whole process of data acquisition, although this would add to the cost of the project.

Data Types

Burt (2004) states that the data sources to use for a cost study should hinge both on which sources are of the most interest to stakeholders and which sources are accessible. In addition to that, an awareness of which services are used most frequently by members of the study group, and thereby might show reductions in use after placement in housing, is also important. Burt suggests holding focus groups among SH tenants to help ascertain what these frequently used services consist of.

Many data sources are such, however, that interest in them and use of them is self-apparent, and should be incorporated into a cost study if available. Potential sources of data for a cost study in Fresno would include:

i. Homeless Services

a. Homeless Management Information System (HMIS) – Fresno, through its public housing authority, has implemented an HMIS which collects data on shelter and transitional housing provided by providers in the local continuum of care. Currently the HMIS has substantial but not complete coverage, and the degree of coverage is expanding so that it will become a reliable source of data on persons served by local homelessness services system, their patterns of service use and lengths of stay, and the outcomes of their services use. This system should be utilized for information on homeless services use, and gaps in the coverage of homeless services should be identified and, if the gaps are prominent, they may be compensated for somewhat by interviewing persons in the study group (see next section).

ii. Public Assistance

a. Fresno County Department of Employment and Temporary Assistance (E&TA) – E&TA is the County provider of various forms of assistance that homeless persons frequently access. The assistance programs that would be of interest include food stamps; general assistance; and Medi-Cal eligibility. The department may also be a source of data on persons receiving GR who get certified for Social Security Administration disability benefits.

iii. Criminal Justice

a. Fresno County Sheriff's Department – The Sheriff's Department, as the administrator of the County jail, will be the source of records of all jail incarcerations. It may also be a secondary source for arrest and booking data.

b. Fresno City Police Department – The police department will be the primary source for arrest and booking data. In addition, this may be a source of data for persons sent to the Fresno Rescue Mission for detention in their public inebriation facility (i.e., drunk tank).

c. Fresno County Probation Department – Source of data for services and costs related to community supervision in conjunction with criminal convictions.

d. California Department of Corrections and Rehabilitation – CDCR administers the state prison and parole systems, and can provide records of state-level incarcerations and supervision following release.

iv. Employment

a. California Employment Development Department – CEDD maintains data on unemployment benefits received as well as records of employment earnings. While the latter is not a "cost," it is an item of interest in that wages are an easily monetized gain (as opposed to a cost) that may be connected with SH placement.

v. Health and Mental Health Care

a. California Department of Health Care Services – CDHCS is the administrator of Medi-Cal, California's Medicaid program. In this capacity, they would have records of health services received by individuals that was reimbursed through Medi-Cal.

b. California Department of Mental Health – DMH administers inpatient services for the state-run psychiatric hospitals.

c. Fresno County Department of Behavioral Health – DBH provides a wide range of County-funded mental health and substance abuse services. These include services provided on both outpatient and inpatient bases.

d. Local Hospitals – local hospitals, especially hospitals that get disproportionate shares of indigent care patients, may have records of health care services used by the study group and may be interested in participating in a cost study to see what homelessness "cost" them.

e. Veterans Administration – as Fresno has a VA hospital, this may be a source of health care if a significant proportion of the study group are veterans. The VA maintains an electronic database of the services provided through the Veterans

Health Administration, and also actively researches the intersections between homelessness and VA care.

f. Fresno County Department of Public Health – DPH provides HIV/AIDS and Tuberculosis services, and administers some Homeless Prevention and Rapid Rehousing Program (HPRP) assistance. Not likely to be a major source of services use.

3.7 Interview-based Services Use Data

When administrative data are not available for a particular service, another option for collecting information on the use of these services is to interview the SH tenants on their recollection of the use of such services. For example, as HMIS systems are relatively new in many jurisdictions, data on shelter and other homeless services may not be available, or only be partially available, through administrative sources. Careful and methodical interviewing of study participants can recreate a history of services use prior to SH placement, and follow up interviews at regular intervals while the study participant is in SH can keep track of services use during the post-placement period.

The key to this method is implementing interviewing procedures that maximizes participant recall. Should this method be used, it is advised that a consultant with particular expertise with this type of interviewing be engaged. Additionally, as charges for the services provided will not be available, per unit charges for the services consumed will have to be applied to all of the services reported.

Such a methodology can be useful to fill gaps in the availability of administrative records. One particular area where this may be useful is with use of shelters and other homeless services if the coverage of the local HMIS is not complete enough to cover the pre-placement time period examined in this study.

3.8 Analysis Expertise

It is anticipated that the City of Fresno will seek to contract with an analysis team to actually perform the analysis. In laying out the specifications for such an analysis team, the key qualifications for such an analysis team would be their demonstrated experience and ability to:

- 1) Match and manage administrative datasets – Will the data be matched across data sources (and de-identified) prior to the analysis team gaining access to the data, or, alternately, how does the analysis team propose to combine multiple datasets from different sources into an integrated data set? Potential research teams should also describe their capacity to manage large datasets, including their safeguards to ensure data confidentiality.
- 2) Analysis plan – Given the details that are available about the data to be used for the cost study, what research questions would analysis teams propose to

- pursue, what results would they furnish, and the what methodology would they use to obtain these results?
- 3) Comparison group – Provided a comparison group will be used, then from where would the pool of control observations come from, and what procedures will be used to select the control observations that will be used in the study?
 - 4) IRB – How will the potential analysis team handle the issue of informed consent? Will they seek to exempt the study from informed consent (if yes, how) or how would they go about getting informed consent from the study participants (City staff might also be used to obtain informed consent for this study)?
 - 5) Data negotiation – What is the role that the potential analysis group will take in gaining access to different data sources?
 - 6) Cost estimates for services – How would the costs be calculated for the services that will be examined and for the SH intervention?
 - 7) Surveys and qualitative information – if this study will feature data collected directly from study participants, then what type of data will be collected, what instruments (surveys, focus groups, etc.) will be used to collect this data, what measures will be taken to validate this data, and how will results from this data be presented and integrated with results from other data (e.g., administrative data) collected as part of this study?

3.9 Costs of Contracting with an Analysis Team

The costs of contracting with an analysis team will largely depend on the scope of the project, which is at this point undetermined. Factors that will contribute to the final costs would include:

- 1) Research team participation in accessing data;
- 2) Costs of obtaining data;
- 3) Number of data sources;
- 4) Design and incorporation of control group (if included);
- 5) Execution of data matches (if data is not already matched and de-identified by data provider);
- 6) Obtaining informed consent (if necessary);
- 7) Complexity of analysis;
- 8) Design, collection and analysis of survey and qualitative data (if included);
- 9) Site visits and presentations;
- 10) Write ups of study findings;
- 11) Degree to which some of the study tasks are performed by City of Fresno staff.

- 12) Administrative overhead costs from the organization with which the researcher is affiliated.

The number of contingencies outlined in this list is considerable and precludes any definite projecting of costs involved in contracting for a cost-offset study. The researchers contracted for this study have performed several moderate sized studies involving analyses of services and attendant costs using only administrative data for approximately \$100,000. On the low end, Burt and Martinez (2006) performed a widely disseminated cost study for \$55,000; on the high end the NY/NY study was performed for \$450,000 (Burt 2004, Culhane, Metraux & Hadley 2002).

3.10 A Brief Review of Other Cost Studies

This section will review nine recent studies involving costs related to providing SH which illustrate different ways to address issues and approaches reviewed in this chapter. Detailed reviews are not provided, instead the studies are grouped by several key methodological issues and bibliographical information for the full reports is provided so that the reader can consult the original studies. This is not a comprehensive selection of cost studies, nor are the studies here necessarily those which have been most widely disseminated. Instead, these studies each contain features which are potentially useful in developing a design for a cost study in Fresno.

1) Pre-post cost studies

These studies are the most straightforward in that they examine the services use and attendant costs during comparable time periods prior to and following placement into SH. Time periods that are covered vary, as do the types of services that serve as a basis for the costs. The three studies included in this category, focusing on SH tenants in Illinois, Maine, and Denver, all show substantial reductions in costs for the systems examined. Each of these studies gives a description of their methodologies for selecting study participants, obtaining informed consent, and obtaining services use records on the basis of this consent. In some instances the SH tenants were also given structured interviews to facilitate identifying the services that were used.

The advantage to this type of cost study is in its straightforward nature. However, there is a substantial limitation here in that, although it is highly likely that the SH placement was instrumental leading to the reductions in cost from the pre-placement to the post-placement periods, there is nothing in these studies that addresses the possibility that the reductions could have occurred due (in part or in whole) to other factors.

- a) The Heartland Alliance, Mid America Institute on Poverty (Illinois, 2009). *Supportive Housing in Illinois: A Wise Investment*
<http://www2.illinois.gov/nursinghomesafety/Documents/Supportive%20Housing%20in%20Illinois%20-%20A%20Wise%20Investment.pdf>

b) Melany Mondello, Jon Bradley, Tom Chalmers McLaughlin, & Nancy Shore (Maine, 2009). *Cost of Rural Homelessness: Permanent Supportive Housing Cost Analysis, State of Maine*

<http://www.mainehousing.org/Documents/HousingReports/CostOfHomelessnessRural.pdf>

c) Jennifer Perlman & John Parvensky, Colorado Coalition for the Homeless (Denver 2006). *Denver Housing First Collaborative: Cost Benefit Analysis and Program Outcomes Report*

http://www.coloradocoalition.org/userfiles/Housing/Denver_Housing_First_study.pdf

2) Cost studies with comparison groups

These two cost studies track services costs for both SH tenants and comparison groups of persons who have similar characteristics to the SH tenants but who did not receive an SH placement. Adding a comparison group adds layers of complexity in study design, cost, and statistical analysis, and comparison groups are not always readily available. But the inclusion of a comparison group into the study will provide a more rigorous study with more defensible results. This is because including a comparison group, if done correctly, can more precisely evaluate the degree to which pre-post placement changes in services use are due to the SH placement or to other factors common to both the study and the comparison groups. The studies included here, from Minnesota and from Seattle, illustrate how comparison groups can contribute to a cost study and how, for each study, the comparison groups were selected. However each situation is unique, which limits the potential for replicating the procedures for forming comparison groups.

d) *The Minnesota Supportive Housing and Managed Care Pilot Evaluation Summary.*

<http://www.hearthconnection.org/files/The%20Minnesota%20Supportive%20Housing%20and%20Managed%20Care%20Pilot%20-%20Evaluation%20Summary%20%28March%202009%29.pdf>

e) Mary E. Larimer, Daniel K. Malone, Michelle D. Garner, David C. Atkins, Bonnie Burlingham, Heather S. Lonczak, Kenneth Tanzer, Joshua Ginzler, Seema L. Clifasefi, William G. Hobson & G. Alan Marlatt (Seattle, WA 2009). "Health Care and Public Service Use and Costs Before and After Provision of Housing for Chronically Homeless Persons With Severe Alcohol Problems" *Journal of the American Medical Association* 301(13):1349-1357 (not available online).

3) Cost studies that do not use administrative records

Administrative records are not always available for a cost study, either because a services provider is unwilling to provide records or because the records simply don't exist. Homeless services are the best example of this, as prior to the introduction of HMIS many homeless services simply went unrecorded. Two of the three studies listed in this subsection, from Rhode Island and Portland, Oregon, rely exclusively on interviewers piecing together histories of services use based largely on the recall of the persons in the study group. Cost estimates are then applied to these assessments of services use to gauge costs, and pre-post comparisons are made. The third study

listed here, from Massachusetts, combines this interview approach with data from Medicaid records to produce a hybrid cost study. Several aforementioned cost studies that used administrative records also conducted interviews to determine which services the study participants used (before tracking down the corresponding administrative records). Collecting data on services use through interviewing is usually less desirable than using administrative data, but is less expensive and better than no services data at all.

f) Eric Hirsch, Irene Glasser, Kate D'Addabbo & Jessica Cigna (Rhode Island 2008). *Rhode Island's Housing First Program Evaluation*
<http://documents.csh.org/documents/nj/08COC/RIFirst.pdf>

g) Thomas L. Moore, Central City Concern (Portland Oregon, 2006). *Estimated Cost Savings Following Enrollment in the Community Engagement Program: Findings from a Pilot Study of Homeless Dually Diagnosed Adults.*
http://www.shnny.org/documents/CEPCOST-BENEFITlinktoCEP_000.pdf

4) Cost studies embedded in broader evaluations

Several of the cost studies already cited, including those in Minnesota, Denver, and Rhode Island, go beyond just focusing on services use and attendant costs and look more generally at the impact of SH on tenants. Another good example of such a study is by the Lewin Group, in an evaluation of six programs targeting frequent users of health care services in California, many of whom were also homeless. One part of this comprehensive evaluation of the programs was their use (and associated costs) of hospital inpatient and emergency room use. They document reductions and outline limitations inherent to attributing the pre-post reductions to the program intervention. In addition, they also conducted broader assessments of how well tenants were connected with needed services; how barriers to coordination of care were identified and addressed; and how this SH intervention impacted quality of care received.

The Lewin Group (California, 2008)
Frequent Users of Health Services Initiative
<http://documents.csh.org/documents/fui/FUHSIEvaluationReportFINAL.pdf>

3.11 Summary

Numerous cost offset studies have been produced since Culhane et al.'s NY/NY study came out in 2002, with varying sets of methodologies and data sources. This chapter has outlined many of the general issues that such studies face so that the City and County of Fresno can be informed in planning the scope of the evaluation of SH that it plans to provide in conjunction with its TYP.

This study offers descriptions of two methods of data collection: administrative data and consumer self-report. Both have their challenges. Researchers have usually relied on administrative data to measure service utilization and costs. The most challenging facet of administrative data is accessibility. But when available, administrative data can

provide detailed information on diagnoses or charges (in the case of criminal justice) and on admission and discharge dates, all of which can be used to infer costs. However, every study is limited by the administrative data it can include (or does not include). For example, a study that includes only VA hospitalization data or Medicaid data will miss state psychiatric facility inpatient days, shelter days, jail and prison stays, or uncompensated care provided in public or private hospitals. The inclusion or exclusion of particular systems can have significant impacts on the assessment of overall costs. Consumer self-report poses reliability issues, and will often lack the precision that is possible with administrative data in gauging the extent and costs of services use. Thus it will often be used when administrative data is not available, or to supplement administrative data.

While these studies have limitations and their findings may be regarded as primarily illustrative from a social science standard, they are playing an instrumental role in local policy discussions. In many cities, documentation of such high costs associated with a subset of homeless people, however unrepresentative, is a powerful means of demonstrating the impact of chronic homelessness on society and garnering political momentum around local plans to address it. On that measure, these studies may be even more effective than more polished academic research, having a local basis, involving the participation of local institutions, demonstrating the impact on those local institutions, and often involving known homeless persons in the community.

Provided that the SH provided through Fresno's TYP incorporates the different levels of housing subsidy and case management that are outlined in Chapter One, the evaluation described here will incorporate different configurations of SH and different costs associated with each configuration. This is done with the expectation that persons housed in SH who were formerly chronically homeless have different services needs and demands. An evaluation of these different types of SH, and their corresponding cost offsets, will make a unique contribution to the growing literature on the cost efficiencies that have been demonstrated for SH.

Conclusion

The City and County of Fresno's Ten-Year Plan to End Chronic Homelessness sets a goal of creating 941 units of housing for chronically homeless persons and envisions the addition of 100 new units on an annual basis to achieve this goal. This report has sought largely to emulate prior studies on the cost dynamics of homelessness and supportive housing by providing an estimate of the costs and potential cost offsets associated with creating 950 units of supportive housing for chronically homeless persons in Fresno. In doing so, we have recognized that chronically homeless persons do not constitute a homogenous population and thus have assumed that 20 percent of the units will be targeted at five sub-groups of chronically homeless persons with varying levels of service utilization and housing needs. As such, this evaluation has separated itself from existing cost studies that focus on persons with serious mental illness or long-term drug and alcohol abuse by examining persons with wider levels of services demands as well as the impacts of a wider set of housing and services configurations.

Our estimates of the costs and cost offsets associated with the Fresno TYP draw on existing as well as local data sources and are premised on a number of assumptions regarding rate of creation of housing units, housing turnover rates and reduction of service utilization subsequent to housing placement. We estimate that the cost of the housing strategy outlined in the Fresno TYP will increase as new units are added each year, and by the tenth year of the implementation period, it will cost an estimated \$7.4 million annually to maintain the 950 units of housing. The cost of the housing units, however, is estimated to be more than fully offset by the reduced acute service utilization of persons who would be placed in housing. Depending on which scenario of service reduction associated with housing placement is considered, we estimate that by the fifth year of implementation period of the TYP annual cost offsets will be between \$2.6 million and \$5.4 million and that by year ten, annual cost offsets will range from \$8.7 million to \$17.2 million.

There are a number important limitations in the methodology used in this report's analyses that give reason for the aforementioned estimates of the costs of the TYP and the cost offsets resulting from its implementation to be interpreted with caution. First, no existing study has examined the pattern of services reductions associated with housing placement beyond a two-year time horizon. Consequently, there is still uncertainty surround the long-term dynamics of service utilization subsequent to housing placement. It is therefore, unclear whether this report's assumption that any initial service reductions will be sustained over the entire implementation period of the TYP is accurate, and estimates of cost offsets may be inflated as a result. Second, estimates of the cost of housing and services necessary for each targeted sub-group are drawn in part from prior research that was conducted in different geographic locations. It is likely that service costs in Fresno will differ from the locations in which prior studies were conducted, thereby biasing estimates used in this report, although the direction of the bias is unclear. Third, there is little evidence regarding the level of housing assistance and supportive services, if any, are necessary for members of Sub-Group 4, chronically

homeless persons with only a substance abuse disorder. Our analyses assumed that a shallow subsidy of \$3,600 per person per year would be sufficient, but this assumption has not been verified by research findings. It is possible that ours may be an underestimate of the level of subsidy needed for Sub-Group 4, which if true, would mean that estimates of cost offsets presented in this report are inflated. Fourth, this report made a number of assumptions regarding placement rates, turnover rates, and tenant retention in housing. For example, our analysis assumed that housing units would be continuously occupied. These assumptions were made in order to streamline the analysis procedure but may not hold true in the actual implementation of the Fresno TYP. As a result, the estimates of cost offsets and number of persons provided here may be biased in the upward direction. Finally, this report may not fully account for capital costs, start-up costs and administrative costs associated with implementing the Fresno TYP. A full accounting of capital and start up costs was not conducted in this report, due in part to the assumption that these costs are drawn from separate funding streams than the ongoing operating costs of the housing units. In addition, it is possible that unforeseen administrative costs may arise in the actual implementation of the TYP, which to the extent that this analysis fails to account for them, will possibly overstate estimates of cost offsets.

The above noted limitations underscore the importance of conducting a well-designed evaluation of the cost offsets that are realized from the housing interventions proposed in the Fresno TYP as they are implemented. Put differently, the analysis presented here should be seen as preliminary and tentative estimates, but not substitutes for an actual local cost study. An evaluation that tracks subjects for an adequate timeframe, has an large enough sample size, compares persons placed in housing with a similar but unhoused comparison group and uses an appropriate data collection strategy will not suffer from the limitations and uncertainties that were present in the analysis provided in this report. If done correctly, an actual evaluation can provide a highly accurate assessment of the relative costs and benefits of Fresno's TYP.

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