

Toward an Analytic Framework for Active Living Strategies in Parks and Recreation Systems

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ABSTRACT:

The predicament many communities face with obesity and other diseases related to sedentary lifestyles has brought to light the symbiotic relationship between the built environment and active living. In this context, architectural and planning research has a crucial role to play and the significance of a conceptual framework that incorporates insights from multiple design disciplines and scales is of paramount importance. This paper focuses on the analytic framework of research that affords potential improvements in the parks and recreation system with the objective of promoting active living in Pennsylvania's Pottstown Area. The approach centers on planning and design strategies for improving the health and wellbeing of residents. It highlights critical issues the area is confronting in terms of growth, sprawl, land loss, access to opportunities at parks and recreation facilities, and programs that affect active living. The analytic framework is informed by The Ecological Model of Four Domains of Active Living developed by Sallis et al. (2006). According to this model active living occurs in four domains of life that include: active recreation, active transportation, household activities, and occupational activities. Our research underscored two of the four domains of active living identified in the model: active recreation and active transportation. The framework recognizes that though it is useful to conceptualize the two domains separately, in actual practice they are closely intertwined. The structure of the study holistically incorporated both domains of active living in the context of distinct levels of influence, which included the neighborhood and policy environments. The analytic framework facilitated a substantive assessment of crucial aspects of existing parks and recreation facilities. This research has contributed substantially to providing a framework for socially relevant, environmentally feasible, and politically viable strategies. The framework it proposes would guide municipalities and planning or design agencies involved in the research process.

CONFERENCE THEME: On Approaches

KEYWORDS: analytic framework, active living, parks and recreation, strategies and guidelines for active living

INTRODUCTION

This paper discusses the analytic framework for a research project that focused on how design and planning strategies for park and recreation systems can encourage active living. Through an assessment of various factors critical to active living, such as the quality of the built environment and the residents' perceptions, needs, and aspirations, the study emphasized the development of an analytic framework that culminated in broad guidelines.

Funded by the Pottstown Area Health and Wellness Foundation (PAHWF), this research identified critical components of the built environment to promote healthy lifestyles. Specifically, the research focused on how design and planning strategies for parks and recreation can encourage active living in Pennsylvania's Pottstown Area. Strategically located at the intersection of the Manatawny Creek and the Schuylkill River, the Pottstown Area's proximity to Philadelphia, King of Prussia, and the Schuylkill River accords it great importance in the region. PAHWF supports about 150,000 people in this region—spanning Berks, Montgomery, and Chester Counties in a ten-mile area around the Pottstown Memorial Medical Center. The geographical and neighborhood context map (Figure 1) highlights the study area within the PAHWF's ten-mile region. The core of building density is found in three major urban centers: Pottstown, Boyertown, and Spring City. These areas are home to commercial centers that support the surrounding suburban residential areas through employment and the supply of goods and services. Many of the outer parts of the study area have been traditionally rural and consist of agricultural land.

However, as prime farmland is rapidly consumed, giving way to exurban and suburban development, these classifications result in sprawling communities moving outward from the urban cores. These new suburbs lack vital qualities seen in traditional, pre-war suburban development, including dense land use, walkable neighborhoods, and multi-use zoning. The diversity provided by traditional suburban and urban areas supports active living lifestyles and encourages interaction between residents. Urban and suburban places share important characteristics, including the density of settlement patterns. Exurban and rural areas have different connotations today, many of which are inextricably related to land consumption and sprawl-related issues, and the Pottstown Area is not an exception in this regard.

The analytic framework developed for the Pottstown study recognizes these disparate conditions and allows the research to include relevant domains of active living in the context of distinct behavior settings, planning strategies, and policy environments. The ultimate intent of this two-year study was to provide relevant information and assessment related to the development of community conservation plans, programs, and projects on parks and recreation to encourage active living in the Pottstown Area.

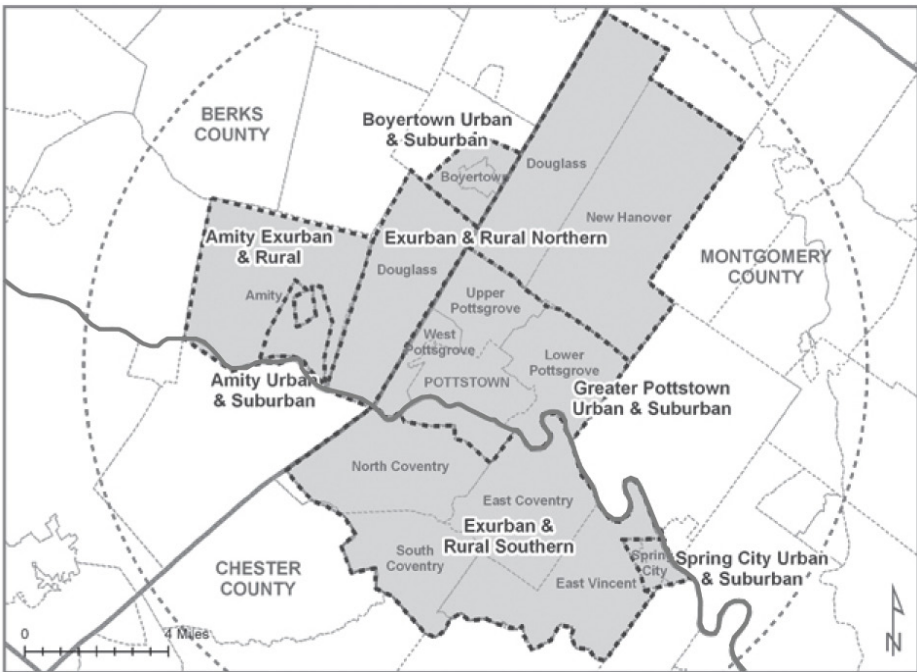


Figure 1: Study Area Geographical and Neighborhood Contexts

I. DEVELOPING ACTIVE LIVING FRAMEWORK

Several studies conducted within the last decade can provide a basis for an in-depth understanding of the Pottstown Area in terms of health, wellness, and active living. A brief discussion of some of these studies and their findings is critical in providing a developmental perspective for successful parks and recreation planning or design strategies.

Two studies conducted by Barton Smith titled “A Health Assessment of the Pottstown Area: A Report to the Pottstown Area Health and Wellness Foundation” (2004) and “An Independent Assessment of the Health, Human Services, Cultural and Educational Needs of Montgomery County” (2006) have useful implications for active living and parks and recreation for the Pottstown Area. The reports acknowledged that improving the health of a community is a difficult and multi-faceted task that

can only be accomplished through the involvement of all stakeholders. A physical environment that fosters collaboration and protects the health of residents by encouraging healthy lifestyles and active living is an essential first step in achieving this goal. A comprehensive and thoughtfully researched report, “Back to Prosperity: A Competitive Agenda for Renewing Pennsylvania,” published in 2003 by The Brookings Institution Center on Urban and Metropolitan Policy offers sobering insights into the current status of Pennsylvania, including southeast Pennsylvania. While recognizing Pennsylvania’s fundamental assets—its history, institutions, and industry, as well as the natural and built environment—the report presents disturbing patterns that need to change before Pennsylvania pulls out of this static growth pattern. Susan Landes (2006) conducted the “Parks and Recreation Peer Study” for the Pottstown Metropolitan Region. The intent of this study was to establish goals to coordinate parks and recreation opportunities among the region’s eight municipalities, which included Pottstown. The “Pottstown Metropolitan Regional Comprehensive Plan,” which was prepared by the Montgomery County Planning Commission in 2005, showed that, despite large amounts of open space, the need to provide residents with recreational opportunities still exists. The need for integrated planning, as well as the identification of areas in need of improvement, is emphasized in the report.

A number of studies that deal with the geographical and ecological significance of the Schuylkill River offer useful suggestions. “The Schuylkill Watershed Conservation Plan,” funded by the Pennsylvania Department of Conservation and Natural Resources (DCNR) and The William Penn Foundation, provides a guidebook for municipalities and conservation groups. Prepared in 2001 by The Conservation Fund, Natural Lands Trust, and The Patrick Center for Environmental Research at The Academy of Natural Sciences, the intent of the study was to articulate a long-term vision for the Schuylkill River Watershed. The regional nature of the assessment makes the study attractive for municipalities and non-profit institutions. The primary goals of the study were to: identify critical conservation issues, conduct an inventory and assessment of land and water resources, and make recommendations.

The foregoing discussion on related plans and studies conducted in the study area represents a useful body of work in terms of identifying a variety of critical issues. Collectively these studies enhance our understanding of the region and have been used as a springboard for this research. While there have been many attempts to address the critical concerns of the Pottstown region, a comprehensive and shared understanding or strategy is still absent. Similarly, an emphasis on the relationship between built environment and active living is singularly lacking in current studies. Understanding the value of comprehensive design and planning strategies in rectifying this situation takes on added importance. In fact, environmental and policy interventions have been identified as the most promising avenues for creating widespread improvements in physical activity, eating habits, and weight status (Lee and Moudon, 2004).

1.1. ACTIVE LIVING

Active living can be concisely defined as a way of life that integrates physical activity into daily routines (ALR 2010). It is a concept broader than just physical activity in the sense that it accounts for physical activity in all spheres of human life—work, play, transportation, and household activities as opposed to focusing on only leisure or recreational physical activity. Regular physical activity is important because it improves the quality of life and reduces the risk of chronic diseases like coronary heart disease, stroke, high blood pressure, Type 2 Diabetes, and some cancers (HHS Press Office 2008). When viewed through the lens of active living, health benefits associated with physical activity can be accrued in a variety of ways, such as walking or bicycling for transportation, exercise or pleasure, playing outdoors, working or gardening in the yard, climbing stairs, and using recreational facilities.

I.2. ECOLOGICAL MODEL OF ACTIVE LIVING

The Ecological Model of Four Domains of Active Living (Sallis, et al. 2006) is used to direct this study. In this four-domain model of active living, the outcome of interest is behavior, which occurs at the intersection of people and place. Drawing from a socio-ecological perspective, place is conceptualized in terms of behavior settings (Barker 1968, Rapoport 1990, Reed 1996), bounded places where particular activities occur. These settings provide cues or signals for appropriate rules and behavior. Both objective and perceived features of the built environment are involved in transmitting cues or signals about appropriate behavior. Characteristics like the size (length, breadth, etc.) of a setting and presence of physical elements in the setting refers to objective features, while perceived safety or comfort of a particular setting refers to subjective features of the built environment. The subjective features are more often linked to the larger sociocultural context within which settings are embedded and vary between people or groups. Thus, in examining behavior within the context of settings, the larger sociocultural milieu of the people and groups involved plays a significant role.

According to Sallis's model active living occurs in four important domains of life:

1. *Active recreation* can take place in neighborhood parks in a variety of settings that include athletic fields, building structures for recreational activities, community gardens, sports fields, children's play areas and so on.
2. *Active transportation* refers to any method of travel that utilizes human energy but most commonly refers to walking and biking.
3. *Household activities* are located in the home environment and include a wide range of activities. Some household tasks involve physical activity like household chores and gardening. The use of laborsaving devices and use of electronics (computers, gaming systems, and television) decrease physical activity and promote sedentary behavior.
4. *Occupational activities* usually refer to work environment for adults and school environments for children, youth, and young adults.

Within each of these domains of life, multiple levels of influence exist, ranging from intrapersonal or interpersonal variables to policy variables. The intrapersonal variables relate to individual preferences, as well as biological and psychological factors that influence an individual's perception of the built environment through active living. Interpersonal variables refer to the social and cultural environment, while policy refers to macro-scale societal variables, such as incentives for an auto-oriented lifestyle in the United States.

In addition, the natural environment and information environment affect active living. The natural environment consists of elements (like weather and topography) that influence air quality and ease of active living (like walking or biking). Information is present in every setting, and promotion of sedentary activities is especially ubiquitous in the United States. The information environment refers to elements of mass media and communications including news, advertising, billboards, and radio and television programs. Some elements of the information environment cut across domains/settings (like mass media sports programs that encourage passive viewing) while others are site-specific (like advertising of particular programs in a health club or television at home).

The model developed by Sallis, et al. (2006) is effective in capturing the complexity of the relationship between the built environment and active living in a general or universal context. It is, however, too broad in its scope and application for critical insights into design and planning interventions. In order to encapsulate the specific conditions particular to our study in a focused manner, certain aspects of the model were revised and adapted. The resulting analytic framework was designed specifically for our study, but retained holistic characteristics of the Sallis model.

The myriad but neatly defined social contexts in the ecological model do not fully embrace decision-making approaches on issues that impinge on the built environment at large. For example it is not clear how social determinants for management structures and partnerships help or impede active living strategies at the micro or intrapersonal level (Stewart 2009).

Understanding how design or planning decision-making mediates between the micro, meso, and

macro levels (Bronfenbrenner 1979) is essential to developing socially viable, politically feasible, and environmentally responsible approaches (see Figure 3). Without substantive operational dimensions, a conceptual model cannot adequately address the multifaceted aspects of active living strategies.

While the sensibility of the Sallis model provides a comprehensive vision of the complexities and intricacies of the relationship between active living and community dynamics, the model falls a little short of providing tangible strategies for making active living an integral part of parks and recreation systems and does not fully address the question of what needs to change in the existing context (Stewart, 2009).

2. ANALYTIC FRAMEWORK OF STUDY

The Sallis model, which is based on a priori and cross-disciplinary knowledge, is a useful springboard for the development of our analytic framework because it encapsulates the complexity of the relationship between the built environment and active living in a wide-ranging context. While there are similarities, there are also certain noteworthy differences. The characteristics that are substantially different in our analytic framework can be summarized as follows:

- Focus on the built environment at three scales necessary to affect change in order to encourage active living: macro or policy environment at the regional level and beyond; meso or community-level issues and park systems; and micro or individual neighborhood characteristics, as well as design and management of parks.
- Emphasis on social and physical factors that directly relate to design and planning dimensions of parks and recreation systems.
- Knowledge and insights generated through an understanding of universal concepts and their relevance to a particular situation; or in other words a holistic view of a particular place—i.e. the Pottstown Area.

2.1. ACTIVE RECREATION AND ACTIVE TRANSPORTATION

This study specifically focuses on two of the four domains of active living identified in Sallis's model: active recreation and active transportation. The reason for this selective emphasis is that parks and recreation opportunities most closely align with these two domains. Active recreation is focused on the physical activity within parks, and may be associated with availability and appropriateness of facilities.

Active transportation underscores an easily overlooked aspect of active living: getting to and from parks. Park features have been found to be more important than proximity to home (PCPFS 2008), suggesting that people visit particular parks within a network for specific facilities, rather than visiting parks closer to home. Once park distance exceeds a walking distance (half a mile is the general standard or estimate), it is perfectly reasonable to assume that other forms of transportation, especially automobiles, will be used. In this case, the opportunities for active transportation as an integral part of active living are lost.

Though it is useful to conceptualize the two domains (active recreation and active transportation) separately, in reality many of their elements are closely interrelated and interconnected. For instance, while street network patterns are part of the active transportation domain, they also have bearing upon recreational opportunities by providing easy (or potentially problematic) access to parks and trails (part of the active recreation domain).

2.2 DEFINING THE ANALYTIC FRAMEWORK

In our analytic framework (Figure 2) two of the four domains of active living in the Sallis model—active recreation and active transportation—are especially highlighted. Thus, in structuring this research, we holistically consider both domains of active living in the context of distinct behavior settings and policy environments. The behavior settings under investigation in this study are the

neighborhood environment and recreation environment. Within each of these settings we specifically focus on the existence of and access to pedestrian/bike facilities and parks/trails as well as their particular characteristics. Within the policy environment, this study concentrates on zoning codes, land use policies, and management structures and partnerships as they relate to active recreation and transportation.

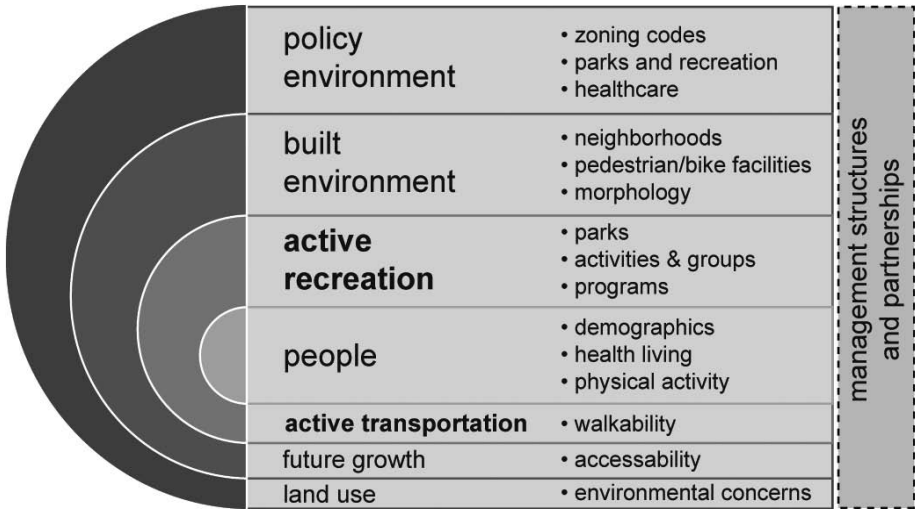


Figure 2: Analytic Framework of Study

Management structures that promote partnerships are crucial at all stages in the analytic framework—from people to policy levels. Our framework acknowledges that the large number of municipalities affects active living in the study area. To encourage viable active living strategies, thoughtful multi-jurisdictional planning and land use initiatives that result in working collaborations with surrounding townships and boroughs are vital. The parks and recreation field must recognize the need for developing viable partnerships with related fields and to become more integrated in active living strategies.

When examining behavior settings, we concentrate on groups that are likely to be insufficiently active or inactive. This is motivated by the need to understand the reasons for inactivity, and in doing so, develop strategies to increase activity levels of groups that would benefit most from increases in levels of physical activity. In other words, we emphasize high-leverage groups (Stokols, 2000) that are likely to benefit the most from successful physical activity interventions. Thus, the focus of this study is on behavior that takes place at the intersection of specific groups and environments (Figure 2)

2.3. COMPONENTS OF THE FRAMEWORK

The socio-ecological perspective of active living is employed to direct this study because it allows for the incorporation of a wide range of factors at multiple scales with an emphasis on micro-, meso- and macro-level scales. Micro level is the smallest of the levels of the environment, akin to the individual at the neighborhood scale, the meso level is the middle ground, and deals with the communities in the region, while the macro level represents the largest level, dealing with institutions and policies.

Because ecological analysis takes a place-based perspective, it is particularly suited to the study of issues related to active living, as physical activity tends to be a place-based activity. Specifically, these scales allow valuable and holistic insights into design and planning strategies for the parks and recreation system.

- At the macro-scale, we examine land use policies and zoning codes as they relate to active transportation and active recreation. We conclude by examining partnerships/organizing structures with respect to Planning Commissions and Parks and Recreation agencies as they work to meet the needs of the Greater Pottstown Area. Figure 3 illustrates how these various elements are interrelated and interconnected.
- At the meso-scale, we focus on pedestrian/bike facilities and streetscape elements that promote active transportation and provide links to parks and recreational facilities.
- At the micro scale, we then investigate parks at the neighborhood scale in terms of the facilities offered and user groups (children, adolescents, young adults, adults, and seniors).

The analytic framework of this study allows the concept of active living to be considered with regard to multiple scales of influence. It entails complex feedback loops involving behavior as signified by the two domains of active living: active recreation and active transportation. Such a framework represents the interface between people and environment and creates a reciprocal relationship among all the critical elements (Figure 3).

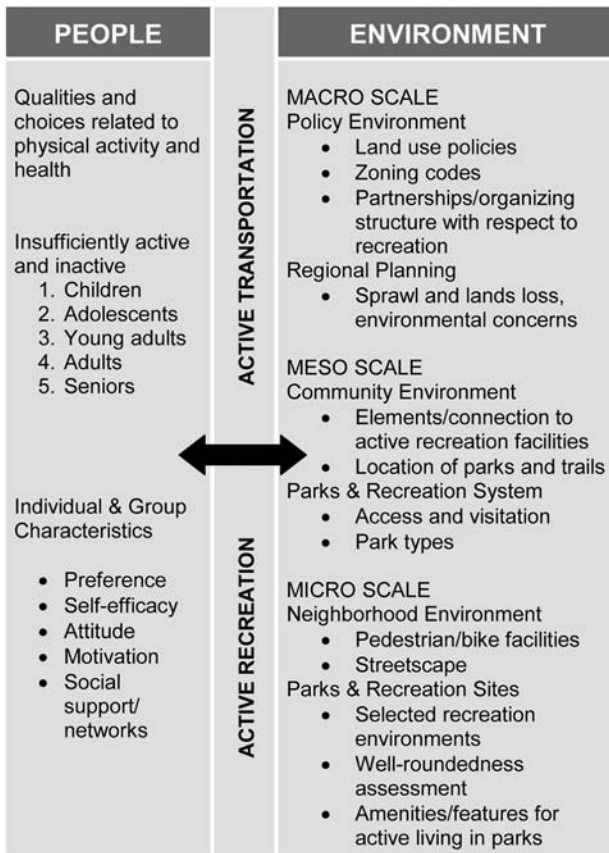


Figure 3: Diagram of Study Elements

2.4. ANALYSIS OF PARKS AND RECREATION SYSTEM

Our analytic framework is based on a structure that enables a complex understanding of how parks and recreation spaces represent a significant resource for active living. As municipally owned amenities, they are free and accessible to the public. As a network or system, parks and recreation sites potentially offer a range of facilities that accommodate all age groups.

A majority of studies correlate proximity to parks with increased physical activity (PCPFS, 2008). The literature on physical activity and parks points to three characteristics that affect park usage for recreational physical activity: accessibility, availability, and quality of amenities (Cohen, et al. 2007). Other researchers have noted that in addition to location and park features, three additional factors are important for users: programming, outreach, and safety and maintenance (PCPFS 2008).

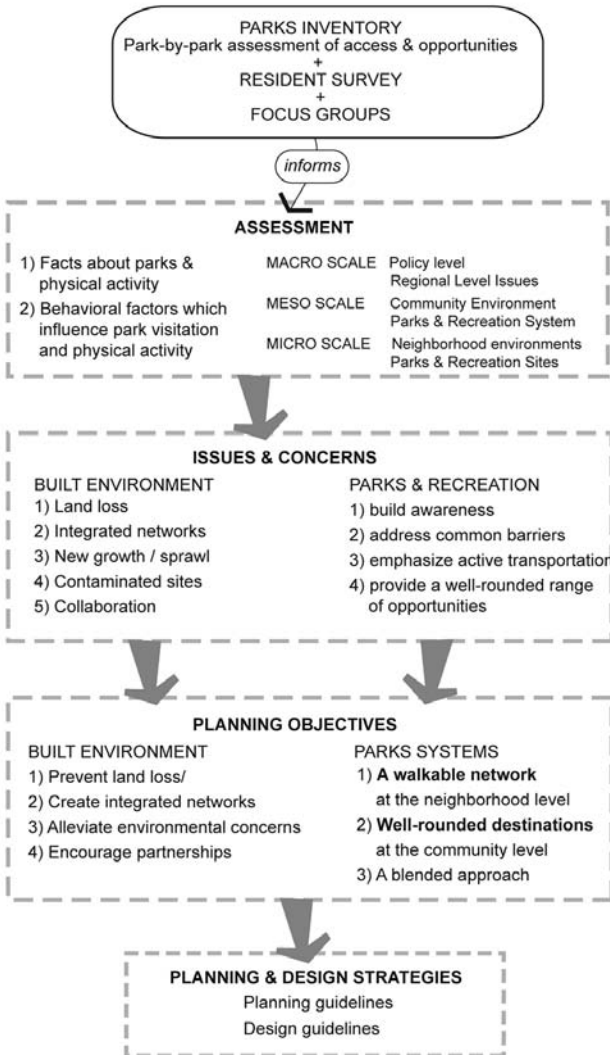


Figure 4: Diagram illustrating the process of identifying gaps in knowledge and creating guidelines

Any single park within the overall park system is located in proximity to a certain proportion of the overall population. It is also located within a unique configuration of street networks, which affects access by walking, bicycling, private and public transportation. The relationship of street networks and the population helps to determine the overall accessibility to the individual parks. When taken as an overall park system, the aggregated access reveals the percent of the population with access to the combined facilities of the park system by transportation mode.

While at least one half of the activity occurring in parks is physical, people visit parks for a variety of health-related reasons. Approximately 80-percent of Americans use local parks and recreation facilities (Henderson 2005) and not just for physical activity. Many common non-sports activities are important and merit further study. Connections to the natural environment, contact with others, and experiences with historical and cultural narratives contribute to a well-rounded park network. This suggests that creating well-rounded parks and recreation spaces may encourage more local visitation, thereby potentially increasing the prevalence of active transportation. To these ends, the Pottstown study evaluated the parks network based on three crucial factors: accessibility, availability, and quality.

Successful interventions in the built environment “should (a) ensure safe, attractive, and convenient places for physical activity (Sallis, et al. 2006).” Many factors influence active living and the urban, suburban, exurban, or rural context presents a host of issues that emanate from these settings. Sprawl and the character of development affect the way people use the built environment for physical activity.

3. USING THE ANALYTIC FRAMEWORK

The intent of our research is to provide information about community conservation plans, programs, and projects on parks and recreation. Our research provides an ontologically coherent framework for analysis of design and planning strategies that encourage active living. It is therefore essential that the key stakeholders, and professionals such as land regulators, planners, and designers, benefit from practical applications of the methods, design criteria, and performance standards resulting from this study. To this end, our comprehensive framework includes four critical areas that impinge on active living: profile of the people, assessment of the built environment, assessment of parks and recreation, and partnerships and management.

3.1. IDENTIFYING KNOWN VARIABLES

The outcomes of this study were achieved in two phases. The first phase collected data, which included the local and regional context (historical, cultural, environmental, transportation); related plans and studies; demographic profile of the study area, including residents’ physical activity levels; built environment issues including sprawl, zoning, and pollution; parks and recreation characteristics, including park types, scale, naturalness, location and access, diversity of uses, and facilities; and management structures, partnerships, and stakeholders. Phase I also identified issues in the Pottstown region within the scales of the framework, which entailed not only understanding the region as a whole, but also comprehending the needs of its multifarious communities (Figure 1). The four elements of the analytic framework (graphically illustrated in Figure 2) translated into broad types of data collection and analysis, categorized as follows: the built environment, people, parks and recreation, and partnerships and management. Various sources for data collection were used, including: census databases, regional reports, GIS-based maps, and on-site observations. As information was compiled, it became clear that particular components of the framework had no available data—most notably absent was data on behavioral factors influencing physical activity.

Phase I concluded with a comprehensive plan for obtaining the missing data. Interviews with stakeholders, telephone surveys, and focus groups helped frame the behavioral patterns of the community in relation to active living. This and the previously mentioned data filled in the analytic framework. It was determined that certain variables affecting active living had not been fully considered by the Pottstown community—these areas became the targets for improving the community’s parks and recreation systems (as illustrated in Figure 4).

3.2. DEVELOPING GUIDELINES

The second phase linked findings and conclusions from Phase I research to planning objectives, issues and characteristics, recommendations, and implementation strategies. Based on data collected from focus groups of stakeholders and end users, Phase II culminated in guidelines regarding development strategies for the built environment and parks and recreation system. These guidelines influence variables that are not currently considered in relation to active living. As such, these variables are the untapped potential for improving active living within the community. The method for these guidelines consisted of an evaluation of key behavioral factors for park visitation and active living, an assessment of the “well roundedness” of parks, and the identification of models for planning parks systems. In general, the process can be summarized as follows:

Planning Objectives:

Planning objectives can be defined as the most fundamental tools underlying all planning, design, and strategic activities. To this end, a set of “planning objectives” or guiding urban design principles is articulated, which guide strategies for promoting active living through parks and recreation systems.

Issues and Characteristics:

This part comprises an explanation of the planning objective and its significance, including a brief discussion of the problems to be resolved in order to provide a broad context for the planning objective. A clear and concise description of the essential qualities and characteristics the environment should possess to resolve the identified problems. The description is broad and evocative, but has a certain degree of specificity.

Recommendations:

These are statements that suggest relevant planning or design strategies for resolving or alleviating the identified problem(s) in order to achieve a desirable or essential environmental outcome.

Implementation Strategies:

This section consists of descriptions of opportunities for improvement that provide actionable strategies for implementation if applicable.

The analytic framework allowed the articulation of planning objectives, issues, and recommendations on the nature of the built environment in that impinge on the parks and recreation system and active living. These related to a number of larger regional issues such as prevention of sprawl land loss, creation of integrated networks, and alleviation of environmental concerns.

Many issues related to partnerships and organizational structures, as well as impediments to collaboration among municipalities or community organizations in the study area, were integral parts of the research.

The framework was used to produce viable strategies for the parks and recreation system in the region at multiple scales—neighborhood, community, and region. Figure 4 highlights how the process of generating guidelines functions within various scales of intervention. In the end, the analytic framework identified positive assets for each community and opportunities for promoting active living, delivering a set of guidelines that local policy-makers can easily institute.

The analytic framework provided a background and the context for planning objectives, recommendations, and implementation strategies for the parks and recreation system in the study area. The planning objectives provide a tool kit capable of application to any municipality within the study area. The validity of the framework resides in the fact that immediate action can be taken on any or all issues. The approach covers the following key topics:

- A review of the literature on parks and physical activity, including a discussion of the importance of well-rounded parks.
- An overview of four key behavioral factors, which describe the choices people make related to park visitation and physical activity.

- An explanation of the parks assessment tool developed during the course of this study. This tool assesses well roundedness in parks according to four primary categories of opportunities: physical activity; contact with nature; social connections; and connections with history, culture, and sense of place.
- Three models for parks systems: the walkable network; well-rounded destinations; and a blended approach. Each model is appropriate for different densities of the built environment, and takes into account people's behavioral choices. This part also provides information on specific actions and parks to be improved.
- Guidelines for planning at the system level and design guidelines specifically applicable to individual parks. These guidelines are intended to be taken into consideration during the planning and design phases of implementing the models for parks systems.

It is beyond the scope of this paper to delve into a detailed discussion and analysis of the guidelines that resulted from this analytic framework. Figures 3 and 4 delineate the planning and design objectives derived from this approach that formed the basis for our recommendations and implementation strategies. Suffice it to say that these guidelines are essential to influence changes in behavior at multiple levels—ranging from the intrapersonal to the policy levels—in order to enhance active living through the parks and recreation system in the Pottstown Area.

CONCLUSION

While there have been many attempts to address the critical concerns of the region, a comprehensive and shared understanding or strategy is still lacking. An emphasis on the relationship between built environment and active living is singularly lacking in current research and studies. Environmental and policy interventions have been identified as the most promising avenues for creating widespread improvements in physical activity, eating habits, and weight status. The analytic framework of this study proposes an interdisciplinary and multi-level approach to promoting active living lifestyles consistent with ecological principles.

The framework targets domains that have implications for the built environment. As represented in the conceptual model, active living includes a wide range of activities. The concept of active living allows for a deeper understanding of physical activity and shifts the emphasis from solely exercise to the manner in which physical activity is perceived. The built environment has the potential for a strong impact on active living and can facilitate or constrain physical activity. Providing the necessary infrastructure that supports active living behavior through parks and recreation planning is of paramount importance.

The analytic framework of this study was developed to allow relevant domains of active living to be examined within the context of distinct behavior settings, planning strategies, and policy environments. The identified behavior settings under investigation exist within the neighborhood and recreation environment. Ultimately, the intent is to provide information related to the development of community conservation plans, programs, and projects on parks and recreation. It accomplishes this by providing new insights into community plans encouraging active living.

Based on the initial response to the outcomes of this research, it has become clear that land regulators, planners, and designers will benefit from practical applications of the methods, design criteria, and performance standards suggested by the study. When incorporated in policy documents, they could offer insights into development strategies for active living in similar towns in Pennsylvania. Our comprehensive analytic framework, which includes four critical areas that impinge on active living: profile of the people or the community, assessment of the built environment, assessment of parks and recreation, and partnerships and management structures, will yield fruitful data for future research and allow further refinement during the implementation process.

When dealing with the complexity of issues involved in this research, some concerns could not be fully addressed as conceptualized in the analytic framework and warrant further study. For instance, given the enormity of the planning and design process for encouraging active living through the parks and recreation system in the study area, many budget and equity issues for various municipalities

were not fully tackled. These issues have significant implications for not only partnerships and management structures in the area, but also for planning and development strategies. In this context, it would be worthwhile to continue investigating these issues and develop compelling strategies for municipalities to merge or consolidate resources more effectively.

ACKNOWLEDGEMENT

The authors graciously acknowledge the Pottstown Area Health and Wellness Foundation (PAHWF) for its support of this two-year research project through a substantial research grant. We sincerely appreciate the confidence, cooperation, and assistance afforded us by the foundation during the entire duration of this project. Without the generous help of the foundation's staff in facilitating the focus groups and organizing interviews of key personnel and professionals from various municipalities, we would have been hard pressed to complete this study in a timely manner.

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