

The Silver City

Design and Planning for the Aging Population



Brenna Jones
2012 Senior Project

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Abstract

As the aging population in the United States increases at an unprecedented rate, many of the nation's current suburban community models are failing to support the physical and emotional needs of older adults with decreasing mobility. This project analyzes the problems with the current situation and highlights potential solutions, lays out a series of guidelines for achieving more livable and functional communities, and presents a theoretical redesign of a neighborhood in Sacramento County as an example of how this can be done. Proposed solutions focus on increased density and urbanism as a core component and utilize environmentally sound practices. Ultimately this project demonstrates that designing for older adults is both necessary and logical because in doing so, many levels of needs are met for community members of all ages.

Dedication

To my Grandparents Harold, Kay, and Jean

You faced the challenges of aging with all the grace you could muster and inspired me to do my part in making the journey a little easier for others.

To Mom, Dad, and Whitney

Your constant faith in me and encouragement to pursue my dreams has given me the confidence to do what I love and to do it to the very best of my ability.

To Darwin

I wouldn't be who I am or where I am without your endless love, support, and encouragement. I am so fortunate to have found someone who shares my passions for life, love, and the built environment.

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The conversations I had with each of you about your professional and academic work and experiences added a dimension to this project that could not have been found in textbooks and journal articles. I learned many things from you that I will carry with me far beyond this project.

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Preface

This project focuses mainly on planning and designing communities to meet the needs of seniors, but it is important to distinguish that such places are not “Senior Communities”. The idea is that if a place works for its older residents, it will work for its younger residents as well. By bringing together the generations and designing to meet the greatest needs amongst them, the needs of all will be met. This fundamental philosophy drives the research, guidelines, and design presented here. Design for seniors should not be prioritized over other social issues, it should be considered alongside them as a part of an overall solution.

Introduction

In a time when the age make up of the American population is changing drastically, financial struggles are present at a level not seen in decades, environmental concerns are reaching a new high, and public health is on a decline, it is critical to evaluate the structures of our communities and determine how we can improve them to better meet citizen's needs. The group of individuals whose needs have become most apparent in recent times are older adults.

The first baby boomers turned 65 in 2011, marking the beginning of what will be a large growth in the older population that will continue for many years (Barry, 2010). As a change in the age structure of the country occurs, much of the current suburban development that may work for young families will become a detriment to a large number of individuals as they age and contend with decreasing mobility. Part one of this project analyzes the problems with the current situation and highlights potential solutions, part two lays out a series of guidelines for achieving more livable and functional communities, and part three presents a theoretical redesign of a neighborhood in Carmichael, California as an example of how this can be done. Proposed solutions focus on how communities can be designed in such a way that they support people throughout all phases of their life through the development of increased density and urbanism. Referred to here as "livable communities," this type of development focuses on bringing people closer to the people, activities, and resources that are a part of daily life, and makes it possible to access these resources even without an automobile.

Part 1: Research

“ There is no need for exhaustive research to show that contact with people and events, the sense of belonging, of friendliness with the young, promotes well-being and psychological health.”

-Henry Churchill
Philadelphia Architect

Today's Aging Population

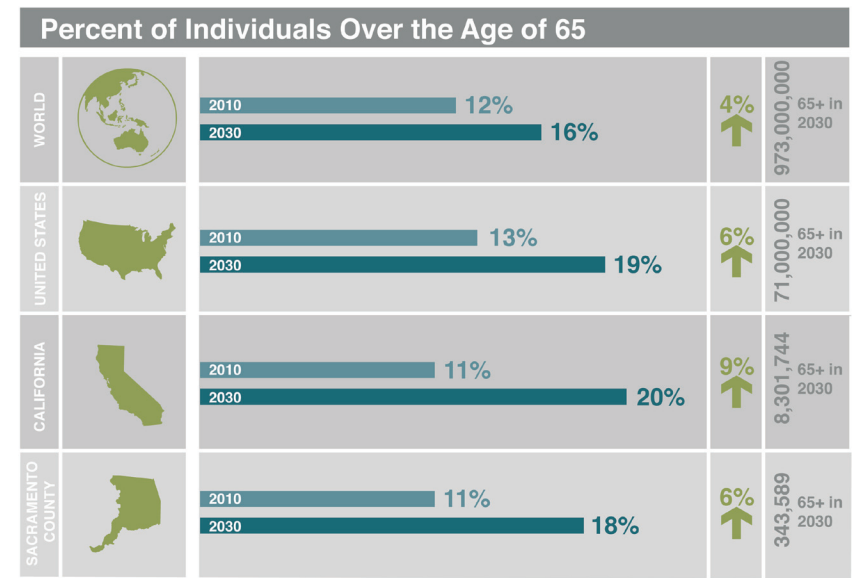
Today's older Americans are a unique group in that they are more diverse and active than ever before. It is important to investigate the trends in the location and lifestyle of these individuals in order to understand their needs.

Age Demographics

The fundamental age make-up of the population is changing both in the United States and around the World. People are living longer and therefore older adults, or seniors, defined here as those aged 65 and older, are making up a larger percent of the population. Worldwide, individuals population (World Health Organisation [WHO], 2007). Likewise in the United States the 65+ group is expected to increase from 13% of the population to 19% in 2030, meaning that nearly 1 in 5 Americans will be over the age of 65 (Administration on Aging [AOA], 2010).

Today more individuals are not only making it into the 65+ age group, they are staying there for longer. In fact, the largest growing segment of the American population is the "oldest-old," defined as individuals 85 and older. There has been a rapid increase in this population in recent years, with another 20% increase expected by

2020 at which point 7.3 million Americans will be in this age group (Colello, 2007).



Sources: U.S. Census Bureau, World Health Organisation, Administration on Aging, American Association of Retired Persons, CIA World Fact Book, Centers for Disease Control and Prevention

Figure 1.1 Increase in Population over 65

Housing

As adults age it is not uncommon for their housing needs to change, yet even with such a large aging population, many older Americans are living in residential areas that were not designed with their needs in mind. As early as 1961, planning literature has recognized that it is a deficit for older adults that much of the country's development is based on a post-war model centered around children and families (Kaufman, 1961). Today a majority of older adults are living in the suburbs, with a total of more than three quarters of all older adults living in suburban, exurban, or rural areas (Transportation for America [T4 America], 2011). A marked increase in Naturally Occurring Retirement Communities, or NORCs, has been seen in suburban locations despite the

many obstacles they present to residents with declining mobility in a phenomenon referred to as the “graying of the suburbs” (Gilhooly et al., 2002).

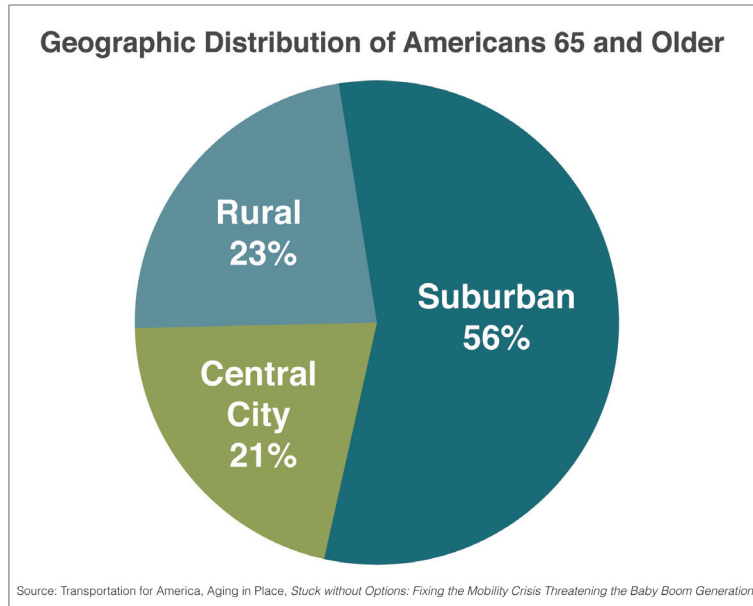


Figure 1.2 Geographic Distribution of Americans 65 and Older

It has been noted that NORCs are developing largely as a result of an increased desire to stay put. Surveys show that 88% of individuals 65 and older want to stay in their current residence as long as possible, and currently only about 5% of Americans change residences after the age of 55 (T4 America, 2011). The amount of seniors living in nursing homes has also decreased in recent years despite their increase in numbers. As of 2006, only about 7.5% of Americans 75 and older were living in such facilities, whereas 10.2% were living in such facilities in 1990 (El Nasser, 2007). This preference to “age in place” is very clear, and is likely to be further confirmed as more baby boomers enter their golden years.

Transportation

The primary challenge for older adults who chose to stay in their homes is transportation considering that a majority of residential development is automotive-dependent and driving is something that often becomes difficult or impossible for individuals in their later years. Older adults who are unable to drive often forego both essential and enjoyable activities, making 15 percent fewer trips to the doctor, 59 percent fewer trips to shop or eat out, and 65 percent fewer trips to visit friends and family, than other individuals of the same age who are still able to drive (T4 America, 2011). Understandably, these missed opportunities often lead to a lower perceived quality of life amongst those who do not drive (Gilhooly et al., 2002).

While some argue that continuing to drive can help to maintain cognitive and social functions amongst older adults, statistics consistently demonstrate that driving can be a serious safety concern for older adults as well as those around them. According to data from the US Department of Transportation, fatal crash rates per mile traveled increase significantly beginning around age 70-74 and reach the highest level in drivers 85 and older (Insurance Institute for Highway Safety [IIHS], 2010). Despite the danger present in continuing to drive, as well as the high cost of insuring, maintaining, and fueling a vehicle, most older adults do not want to give up driving. Surveys have demonstrated, however, that compared to individuals who are asked to think about giving up driving, individuals who have actually been required to give it up recognize that it is less problematic than expected, and does have benefits (Gilhooly et al., 2002). This represents a need for a fundamental shift in the way individuals look at automotive transportation. Once people recognize that driving is not actually a neces-

sity and there are other alternatives, it will be easier to step away from the current auto dependent model. This will be a challenge considering that the aging baby boomers have become very accustomed to a car centered lifestyle, and that the current alternatives to driving are limited and inefficient in many places. There is, however, reason to believe that improvements to transit systems will be effective, based on survey data showing that about 75% of seniors have never used the public transportation available in their region, but 80% say that they would use it regularly if the services were convenient and easily accessible (Cevallos, Skinner, Joslin, & Ivy, 2010).

Transportation issues as they relate to older adults are becoming more widely recognized in recent years considering that local governments ranked transportation as their second highest concern in a 2011 study asking them to identify “the top three challenges your community faces in meeting the needs of or planning for older adults.” The only challenge that ranked higher was financial issues, yet five years prior, transportation was not ranked in the top three at all. (T4 America, 2011). Addressing this transportation issue will require looking at many different factors. Though pedestrian accessibility is a great alternative to driving, a disproportionate amount of pedestrian fatalities occur in older adults, likely due to poor design of pedestrian routes (T4 America, 2011). While public transit is a promising solution for longer trips, even the best systems can have their shortcomings for seniors, many of whom prefer alternative non-fixed route programs that better cater to their needs (T4 America, 2011).

Economics

Beyond the typical challenges associated with aging in a place that is not designed to support the process, a portion of seniors must face the additional challenge of supporting themselves on very little income. Currently nearly 9 percent of older adults fall below the federal poverty line, and 20 percent are considered low income (T4 America, 2011). Though this is a highly significant improvement from the late 1950s when approximately 35% of seniors fell below the poverty line, this is still too high of a number (The Federal Interagency Forum on Aging-Related Statistics, 2010). Many older adults today also face challenges that individuals in their age group did not previously contend with. For instance, grandparents’ roles in the life of grandchildren has changed greatly in the last few years to a point where nearly 1 in 10 children is currently being raised by a grandparent (Livingston & Parker, 2010). Grandfamilies are more likely to be below the poverty line than traditional families due to the financial burden child rearing places on individuals with fixed incomes, reliant on social security.

Because social security makes up 40% of the incomes of older adults on average, it is crucial to consider affordability when designing communities for seniors (McDonnel, 2008). As the country’s age balance shifts and the worker to retiree ratio shrinks, the future of the program is uncertain and could leave future seniors in financial distress, rendering it necessary to consider this possibility now in order to best be able to deal with it in the future.

Importance of Acting Now

Now is the time to start taking action toward improving communities because there is an apparent need as the aging population increases, but also because there is an opportunity. With development all but coming to a halt in the tough economic climate that has characterized the last few years, it is expected that there will be a large influx of building projects and other development as the economy turns around, as most will agree it is beginning to do. It is important to take advantage of this situation and encourage development that promotes more livable and sustainable communities, rather than continuing to develop in a way that is counterproductive to these goals.

Another reason to get started now is simply the fact that Americans deserve better and shouldn't have to wait until the current systems completely fail in order to see change. There is no reason to continue letting older adults suffer in isolation due to their poorly designed communities. There is also no reason to let the state of our country's health continue to flounder when it is well documented that community design is highly correlated with health (Frank, Engelke & Schmid, 2003). The amount of change that can realistically happen in the lifetimes of those alive today is

uncertain, but not being around to see the results has never been a valid excuse for not starting something.

Though taking initiative to improve conditions for seniors may on the surface seem to be an action of "giving" from the rest of society, there is actually much potential to receive valuable services and social resources from this population of individuals, if their communities are designed to allow them to contribute back. Currently there are few incentives and many obstacles for older adults wishing to make productive contributions to society, creating a larger imbalance than necessary between the responsibilities of the working and retired populations (Uhlenberg, 1992). Because many people live 15 to 18 years beyond retirement, this group makes up a significant human resource (Scarfo, 2011). An individual with a lifetime of experiences has a lot to contribute, and in doing so can gain a sense of purpose and satisfaction that improves their own quality of life.

The decision to prioritize livable, sustainable, senior-friendly communities is one that makes sense on many levels and is as much economically justifiable as it is socially justifiable. According to Bob Scarfo, Associate Professor in Landscape Architecture at Washington State University, "The beauty of such a movement is that everyone, not just seniors, benefit in terms of personal savings, health, and social connectivity." He also emphasizes the need to act now, highlighting that money saved by a timely response can be applied to further support programs and infrastructure further benefitting seniors and the environment (Scarfo, 2011).

Changing Models of Care for Older Adults

Throughout much of history, it has been standard for seniors to be cared for by their families as they age. It has also, unfortunately, been fairly standard for seniors without close family to suffer in very poor conditions. Fortunately policies like the Social Security system and the Fair Housing Act have helped ensure that seniors don't end up in squalid conditions, but even with these government efforts, changes in societal norms have put many seniors and their families in tough situations.

Today people are living much longer than ever before, often resulting in more years of needed care, yet at the same time the fast-paced lifestyle that has become standard doesn't often leave time for people to care for their older family members. The issues of elder care associated with family changes, especially the break up of the extended family, were noted in the 1960s when Jerome Kaufman of the American Society of Planning Officials explained that, "family belongingness is being replaced by community belongingness, the motivation for this stemming almost from a "guilt" feeling that, in lieu of the family, societal action must be initiated to help the older generation." (Kaufman, 1961).

As it has become more common for seniors to be cared for by individuals outside of their family, it has also become more common for them to be surrounded by people that are mostly around the same age. While some prefer this, there are certain values associated with intergenerational communities and relationships that are lost. Studies have shown that seniors who are supported by their adult children and thus have regular intergenerational interaction with family members often have better psychological health than those who do not get such interaction (Silverstein & Bengtson, 1994). It has also been documented that interactions between seniors and children tend to benefit both parties even when there is no familial relation. A study done in 2005 by the Texas Department of Housing and Community Affairs demonstrates that intergenerational interaction "provides a greater sense of worth for seniors and results in less aggressive behavior, reduced drug use and greater academic achievement for children." (Briers, 2009).

The concepts of community support and intergenerational interactions are logical adaptations for supporting older adults even as family models change. If communities choose to develop programs and spaces that promote this type of support, it may be possible for all community members to benefit without burdening one another.

Understanding and Promoting Places for Older Adults

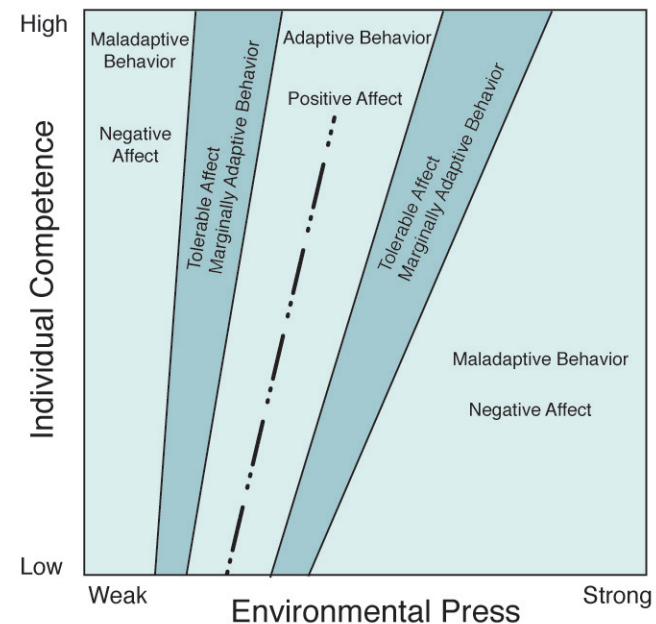
That seniors might have different or more intensive needs in their surroundings is something that hasn't always been understood or acted upon, but today this is rapidly changing.

Scientific Research

Based on a review of academic literature, it is clear that the 1960s was the first time that people began to think about the interaction between older adults and their surroundings. Some planning literature on this topic dates back to this period, but the most significant development during this time was the inception of the field of Environmental Gerontology. Focusing on the “description, explanation, and modification or optimization of the relation between elderly persons and their sociospatial surroundings,” Environmental Gerontology, or EG, was the first organized field to conduct research on this valuable topic (Wahl, 2003).

This field is very broad, and there has been some difficulty in defining precisely what is meant by “environment,” but research has yielded a few significant theories that are relevant on many levels. For instance, Powell Lawton, one of the founders and most influential figures in EG created the Competence-Press Model which

explains the idea that by nature, the environment puts certain pressures on individuals, but the way in which different individuals respond to the same pressure is highly variable depending on their level of “competence” which decreases with age. (Scheidt & Windley, 1998). This model may seem simple, but is a significant consideration in designing spaces for older adults since both environmental pressures and certain physical or cognitive in competences can be avoided completely with sensitive and appropriate design.



Source: Moorea, K.D., VanHaitmsab,K., Curytob, K.& Sapersteinc, A.(2003). A pragmatic environmental psychology: A metatheoretical inquiry into the work of M. Powell Lawton. *Journal of Environmental Psychology*, 23 (4) 471-482.

Figure 1.3 Powell Lawton's Theory of Environmental Press

Though Environmental Gerontology still makes up only a small fraction of the greater field of Gerontology, significant findings have been produced and the field is continuing to grow and evolve.

However, an important next step is to more deeply integrate this field of study with both Gerontology and Planning, and to more directly demonstrate just how closely these two fields are related.

Movements

With increased understanding of the needs and desires of older adults in recent times, several ideas and movements have developed to help people retain their quality of life as long as possible. The most prominent of these is what is known as “aging in place,” which is defined by the center for disease control as “the ability to live in one’s own home and community safely, independently, and comfortably, regardless of age, income, or ability level.” (Center for Disease Control and Prevention, 2009). The opportunity for an individual to remain in the home and neighborhood he or she is familiar with helps to maintain a sense of normalcy even when changes are happening in other areas of his or her life. At the same time, staying at home also proves to be less expensive in many cases, even when doing so necessitates remodeling the home and bringing in part time care.

The need to adapt certain physical characteristics of the home environment throughout the aging process has recently been recognized and new building and design strategies have been developed to make this process simpler and less expensive in the long run. The Center for Universal Design, based out of North Carolina State University, has been promoting “The design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design,” since the center was founded in 1998 (Center for Universal Design, 2011). This concept came about in response to the fact that a much larger portion of today’s population is elderly or disabled

than ever before, necessitating design that meets the needs of all individuals. Utilizing these principles on a more specific level to meet the needs of individuals wishing to age in place, Eskaton, a senior housing provider based in Carmichael, California has established their own set of principles known as “Livable Design,” which is a certification program to encourage developers to include a range of flexible design solutions into new homes. Many of the standards also relate to energy efficiency and earth friendly materials, supporting Eskaton’s idea of “generativity,” the notion that each generation helps the next by practicing resource conservation. (Magan, 2012).

Design programs like Universal Design and Livable Design are making great strides in assuring that homes, buildings, and public spaces are accessible, functional, and beautiful for everyone that may use them, but when it comes to aging in place, often the greater issue is how accessible the community is. Because suburbs clearly aren’t working, the idea of New Urbanism has become a fairly common part of the aging discussion. Defined as “Focus on urban planning that is pedestrian-focused, including new development, redevelopment, and infill development that aim to produce walkable neighborhoods that include a mix of housing and jobs,” New Urbanism tackles the issue of accessibility by bringing people closer to each other and the things they need and making it easy for them to get around without a car (Alley, Liebig, Pynoos, Banerjee & Choi, 2007).

Why Urban is Better

Almost invariably the current suggestions for creating more livable communities focus on a more centralized, urban model. It is important to understand why this is happening, and what makes it more than just another planning trend. Globally, the number of people living in cities is increasing to the point that by 2030 three out of every five people worldwide will be living in cities (WHO, 2007). The reasons for this are numerous and somewhat varied depending on location, but overall the trend is clear.



Source: World Health Organisation, *Global age-friendly cities*.

Figure 1.4 Future Urban Projections

One of the main benefits of cities is that their density allows for more resources to be available in one location, and therefore city residents live in much closer proximity to the things they need for

their activities of daily living, or ADLs, than those in suburban or rural settings. Also, the density of cities allows for more efficient and extensive public transportation networks, allowing easier access to resources both near and far.

Another benefit of cities is that they tend to have increased diversity amongst people, housing options, available resources, and more. Unfortunately older adults are often grouped together and their needs and desires are often generalized, but because they have had an entire lifetime to develop their opinions and preferences, there is understandably much diversity amongst them. It is important to account for this when designing for seniors, and cities are one of the easiest places to offer a diverse range of options in all areas of life.

Arguably one of the most significant reasons that it is important to move toward a more urban model is that due to the previously aforementioned characteristics, cities are one of the most sustainable models for living.

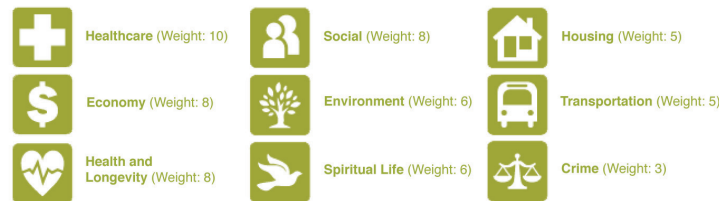
According to Scarfo, “While initially appearing counter-intuitive, if we plan for the aging of society along with four other first-time-ever, equally inescapable trends—peak oil, water scarcity, obesity, and climate change—we come to realize the critical role of the built environment as a common denominator in preparing for a future very different than most of us have anticipated.” (Scarfo, 2011). Though it is very unfortunate that we live in a time when all of these different, unprecedented is-

ssues must be dealt with, it is also quite convenient that to some extent the solution for all of these problems is the same: better planned communities.

Successful Models

Though most communities in the United States still have a long way to go, there are currently some models of places that have done things right, or are actively trying to make changes, that serve as great examples for other communities to follow.

Though cities overall do tend to be some of the more age-friendly places in the United States, not all cities are equipped to support older residents. In 2011 the Center for a Secure Retirement put out a study that highlighted the 50 best U.S. cities for seniors. The results were determined by using nine weighted categories to analyze and compare cities.



Source: Center for a Secure Retirement, Best U.S. Cities for Seniors 2011.

Figure 1.5 Weighted Categories for Best Cities

The categories are quite comprehensive and appropriate in topic, but arguably the weighting system could be improved by giving more weight to issues like transportation, housing, and crime. Results show that some of the high ranked cities are not places

necessarily known for large retiree populations, while some that fall near the bottom of the list, including the major cities in Florida, actually do have large senior populations. This potentially suggests that seniors aren't necessarily attracted to the places that best meet their needs, so it is important to improve all cities to support the individuals living in them.

Top 10 Cities for Seniors

1. Minneapolis-St. Paul, MN
2. Boston, MA
3. Pittsburgh, PA
4. Cleveland, OH
5. Denver, CO
6. Milwaukee, WI
7. San Francisco, CA
8. Portland, OR
9. Kansas City, MO
10. Newark, NJ

Source: Center for a Secure Retirement, Best U.S. Cities for Seniors 2011.

Figure 1.6 Top 10 Cities for Seniors

An example of the benefits that come with living in one of these top ranked cities can be seen in the story of Ann Niles, 68, who needed to get to a scheduled leukemia treatment during a heavy two-week snowstorm in Portland. She explains that she is thankful the streetcar was available to get her there despite the weather conditions because "It turned out I didn't have leukemia. I had something else, and needed a completely different treatment. Because of the streetcar, I was able to proceed with the new treatment right away." Her husband explains that the transportation options were a major reason they relocated from Minnesota to Oregon, and when the streetcar went in in 2001 it "helped create the neighborhood we want to live in" (T4America, 2011).

Even cities that don't already have infrastructure to be at the top of the list, however, can still make changes to improve their livability for older adults. Atlanta, Georgia is ranked number thirty-nine on the list, but in recent years has made accommodating seniors a high priority. In 2009, architect and planner Andres Duany, AICP, and his firm Duany Plater-Zyberk led a nine-day planning exercise, the Lifelong Communities charrette. It took almost a year to plan and cost just under \$500,000, but the charrette proved to be a

highly innovative approach to designing for older adults. The goal was to “design diverse communities that would provide better lifestyles for all generations, particularly the elderly”(Saporta, 2009). Through the efforts of over 1,500 participants, including health professionals, aging and accessibility experts, architects, urban planners, transportation and mobility’ professionals, developers, land owners, and government officials, five master plans were produced based on the principles of new urbanism for specific sites in city, suburban, and small-town settings within Atlanta (Saporta, 2009). Though there may be a seemingly high cost and effort associated with this type of exercise, it is an excellent way to determine needs and solutions and lay the foundation for making improvements within the existing framework of a community, which in the long run can save the community a lot of money.

Another method of addressing the needs of older adults through community involvement can be seen in the idea of service-learning partnerships, carried out in Spokane by community members and students of Washington State University and Eastern Washington University. Through direct involvement, students studying architecture, landscape architecture, interior design, business, and public administration, have been able to bring more than 70 projects to the design stage. In doing so, improvements to the Hill-yard neighborhood of Spokane were able to happen more quickly than expected (Scarfo, 2011). This type of direct involvement between students, professionals, and communities is essential on multiple levels. Not only does it utilize the skills and energy of both students and other individuals that might not otherwise have an opportunity to contribute, it also ingrains in students the importance of focusing on this type of community improvement throughout their careers.

Though it is important for change to start within the community, sometimes private businesses can play an important role. One way that poorer communities can see positive changes is through the work of developers that work with community needs in mind. Domus Development, a California based company focused on providing affordable, sustainable housing close to jobs and transportation, demonstrates how this can be done. Choosing to work primarily with infill sites, the developers examine community needs and create affordable housing in spaces that were often previously a detriment to the community. Some of their projects focus specifically on senior housing, such as the Lincoln Court Senior Housing project in Oakland. By redeveloping the site of an old motel known for drug activity and prostitution, it was possible to provide 82 affordable senior housing units, which brought value to the area and decreased crime by over 40% (Kang, 2012). The units are now in very high demand, with a four-year waiting list. Though Oakland is fairly dense to begin with, Domus demonstrates how this type of infill model can be successful in even more rural communities through the development of the Siena Court Senior Apartments in Pittsburg, California, a town of just over 60,000 residents. This project provides 111 senior housing units with over 10,000 square feet of commercial space, providing a prime example of successful mixed-use development in a fairly low density community (Domus Development).

Every community has room to improve for it’s older adults. The degree to which this is necessary, and the way in which it should be done, however, varies greatly across each place. By identifying what type of change is needed, involving community members, and reaching across disciplines, it is possible for any community to become a more livable community for residents of all ages.

Challenges and Potential Solutions

Though the evidence for why it is important to modify communities to better meet the needs of the aging population may be clear, there are many major challenges that must be confronted in order for change to start happening. Fortunately, however, many of the available solutions actually address multiple problems at once, making them highly worthwhile to pursue.

Budget

As with any sort of major infrastructure change, cost is always one of the main concerns. Though most people will agree that making communities work better for residents is a positive thing, few local governments have the funds readily available to make this happen. While there is no easy solution to providing more money, there is a way to make the money that does exist go farther: planning. Both meanings of the word, as in “urban” planning, as well as simply planning ahead, are crucial in making the most of a budget. According to Mayor of Portland, Sam Adams, “when we plan well, we make progress on some of society’s toughest problems.” He also explains that creating a plan and following through on it “is first and foremost about doing more and being better with the dollars we already have by embracing single actions that have multiple benefits. By working across agencies, we can better leverage limited resources.” (Adams, 2012). Because funding will always be a

struggle, the most effective way to tackle this challenge is to work efficiently with what exists. Designing with seniors in mind is a great way to bring about multiple benefits with each action and make the most of limited funding because seniors often have some of the greatest needs in a community, so designing for them means creating places that will work for everyone with lesser needs as well.

In addition to using government funds wisely to further planning efforts, it is also possible for this work to be done by private developers if incentives exist to encourage the desired type of development. By providing these incentives and streamlining the entitlement process projects that benefit seniors and encourage more liveable urban communities will become more desirable and profitable for developers than continuing to build sprawling developments on green fields (Kang, 2012).

Zoning

Even when adequate funding exists and it is both the private and public will to redevelop spaces within a community to better support residents, a significant challenge exists when it comes to zoning. A vast majority of cities across the country have zoning codes intended to ensure that development happens in the appropriate places. Because much of this zoning dates back many decades, however, it is often outdated and encourages the separation of land uses. Many zoning plans do not include a designation for mixed use, making it very difficult to bring housing, services, and commercial areas into the same area. It is possible to change zoning if a property owner wishes to do so and it is approved by the city, but going through this process is very costly and unfeasible for many developers (Fulton & Shigley, 2005).

One of the new models for addressing the challenges that come with zoning is the idea of form-based codes, which replace zoning laws and focus more on the form of buildings than permitted uses and look at development on a neighborhood and district scale rather than a parcel scale. (Fulton & Shigley, 2005) These codes encourage mixed-use, public transportation, and walk ability as apposed to making it more difficult to achieve these things as traditional zoning codes often do. In places that are not yet making the change to form based codes, the challenge of zoning can be addressed mainly through incentives for developers which involve a city makes it easier and less costly to change zoning regulations if they are being changed to accommodate the type of development that the community wants to see.

Holistic Solutions and Approaches

When it comes to tackling the political and economic challenges of creating more livable communities, the most important tool is a population that understands why communities need to change and is willing to work toward this change. By educating people about the needs of the aging population, how they can be met through planning, and how that planning can positively impact everyone, there will be more support for this type of change. One of the most important things for people to understand is how this type of planning can simultaneously solve many of today's social and environmental problems if done well. Though there is often backlash on initiatives to address environmental issues, initiatives pertaining to social issues are generally met with more support. By demonstrating the interrelation between the two, it will make it easier for even diverse populations to agree on the changes that should be made to their community.

To see change that truly works and meets the needs of all citizens, it is essential that professionals in many different fields interact. Individuals in fields as widely varied as architecture, planning, landscape architecture, public health, gerontology, public policy, human relations, and medicine all have a place to be involved in this kind of change. With proper communication between community members and the right mix of professionals from the appropriate fields, it is possible for change to happen, and for community needs to be met.

Part 2: Guidelines

“ You aren't just the age you are. You are all the ages you ever have been. ”

-Kenneth Koch
Poet, Professor, and Playwright

Overview of Guidelines

these elements should be considered alongside one another. Most of these elements are not capable of creating significant community improvements on their own, but when implemented together can produce noticeable results.

Whether a newer community is choosing to develop in a way that supports residents of all ages, or an older community is seeking to improve its existing infrastructure, these criteria can all be achieved to at least some extent.

The following pages contain guidelines for designing and planning for older adults that fall into six main categories. These guidelines are a broad framework for the basic elements that a community must have in order to accommodate its older population. They are meant as a starting place for anyone thinking about making this type of change in their community, and should be used in conjunction with some of the more specific literature that has been published on this topic. More information about some of the various criteria mentioned here can be found in the publications listed in the Appendix.

It is important to note that these guidelines are divided into clearly defined categories, but there is much overlap amongst the topics, and thus all of



Figure 2.1 Guideline Categories and Topics

Transportation

It is critical that older adults have access to multiple alternatives to driving. For designers addressing this issue, it is important to consider how new development can be located with easy access to existing transit networks, as well as how transportation services can be extended to existing neighborhoods.

Public Transportation

Because it allows people to travel relatively long distances for a relatively low price, public transportation is one of the most important modes for older adults. Some of the considerations that are especially important to older adults include reliability of service, short walking distance to stops, visibility of signs, clarity of route maps, presence of covered seating areas, and patience and helpfulness on the part of drivers and operators. Frequent, direct routes with minimal transfers are ideal when there is enough density to accommodate this, but even weekly or biweekly service directly to a nearby downtown has proven effective for older adults in rural areas (Cevallos et al., 2010).

On-Call Services

For some individuals, especially those with disabilities, public

transportation is not always an option. In these cases, on-call services such as paratransit, which is a type of service that does not run on a fixed route and picks passengers up upon request. Though this is a good option for certain individuals, it is much more expensive, and those who are able to will find that using fixed route transit can be just as efficient, if not more so.

Pedestrian and Bicycle Routes

Pedestrian and bicycle routes are very valuable in that they can help people get around while staying healthy. Interspersing routes that are safe, accessible, and enjoyable throughout communities is a good way to ensure that most individuals can easily access this type of resource. Even if individuals can't get to all of their destinations this way, simply being able to walk around ones neighborhood can contribute to good health and reduce feelings of isolation (Takano, Nakamura & Watanabe, 2002).

Comfortable Streetscapes

In order for people to utilize alternative transportation options, it is crucial that streetscapes be designed to be comfortable, enjoyable, and welcoming. By planting street trees and using vegetation as a barrier where appropriate as well as providing enough benches, drinking fountains, and hand rails, it is possible to make a street someplace a person will want to spend time. Visual interest as well as the presence of other people on a street will make it even more accommodating.

Housing

Because seniors spend more time in their homes than any other age group it is essential that their homes meet all of their needs. One of the most important things in providing housing to seniors is providing options so that individuals with diverse preferences can find something that suits them.

Density

Because increased density means increased accessibility to goods, services, and other people, it is crucial that new development take a more dense form, however the level of density available should vary so that individuals preferring an urban studio apartment as well as those looking for a town home with a garden can all live in a place that provides access to their needs.

Located Near Existing Services

When choosing sites for new housing development, it is important to consider what kind of services, resources, and transportation options already exist in the area. Developing on infill sites in urban areas is a good way to do this, but in areas with a demand for housing and not enough services, it is possible to bring in these resources by using a mixed use model for new development that

will provide space for commercial activities and services.

Affordability

For older adults living on a fixed income, affordability is key. Whether a new project is going to consist entirely of affordable senior housing, or just have a few dedicated units, it is important to maintain a mix of housing prices in an area so that seniors of all economic backgrounds have the opportunity to live there.

Flexibility and Accessibility

While it is important to have a few designated ADA accessible units in any given development, even standard units can better serve seniors as they age by employing some of the principles of Universal Design and Livable Design.

Ability to “Age in Community”

While most seniors prefer to stay in their homes indefinitely, that is unfortunately not always an option. A community that is well planned for older adults will include a mix of housing options ranging from standard apartments that house people of all ages, to apartments specifically for seniors, to assisted living and skilled nursing care facilities for when relocation becomes necessary. Though relocating is not usually an enjoyable experience, being able to relocate within one’s community helps maintain some consistency and can make the transition easier than it would be if the only option were to relocate to a different community entirely.

Green Space

Having green spaces close to home is beneficial for everyone, but for seniors who can't venture as far to get their nature fix, this is even more crucial. How close a person lives to green space can actually influence how many years they have ahead of them according to research that demonstrating that "living in areas with walkable green spaces positively influenced the longevity of urban senior citizens independent of their age, sex, marital status, baseline functional status, and socioeconomic status." (Takano, Nakamura & Watanabe, 2002).

Small Green Spaces Throughout the Community

Because it is so important for older adults to live within walking distance of green space, small parks and gardens should be integrated throughout communities. Even when there isn't space for a full sized park, a small pocket park or garden can still provide benefits for those living nearby.

Large Parks

In addition to small green spaces close to home, larger parks have benefits that often warrant the longer trip to get there. Large parks often serve as community hubs and can foster both formal and

informal social interaction.

Community Gardens

Gardening is a common hobby amongst older adults, and has proven to be a very healthy one. In communities moving toward a higher density model, however, private gardening space may become limited. Community gardens are a great solution to this as they allow individuals to have their own piece of land but also provide interaction with other people with similar interests.

Design for Passive Activities

Many parks are designed as open fields for organized sports and active play. Creating more interesting, shady, enclosed spaces with seating makes passive activities more possible as well.

Connectivity by Green Belts

Green spaces are a great place to exercise, and if they are well connected to each other with greenbelts, getting to these places can be an enjoyable part of the exercise, as well as a great alternative to driving to the park.

Roof Gardens and Courtyards

Individuals living in urban environments might sometimes desire a more intimate way to experience nature. A great way to provide this for people who cannot or do not wish to stray too far from home is by creating green spaces in the form of roof gardens and courtyards.

Programmable Space

Many people will argue that its not the place that matters, its the people. However, having physical places that are well designed to foster social interaction can improve and strengthen community relationships. Having places that can easily be programmed for a variety of different activities provides the foundation for community activities that promote the well being of individuals on multiple levels.

For Healthy Activities

A community should have places where activities that are both enjoyable and healthy can take place. Examples of such activities include farmers markets, cooking classes, organized outdoor group exercise, and informal individual exercise.

For Intergenerational Interaction

Within today's society it is common for people to spend much of their time with people around the same age, often missing out on the benefits that come with interacting with those younger and older than oneself. Some suggestions for crossing age gaps include day care and tutoring centers where seniors are encouraged to volunteer, using their time and skills to help children, as well as com-

munity gardens connected to school gardens where a common interest can bring people of all ages together.

For Volunteerism

Older adults are one of the groups with the most time available to spend volunteering, so it is crucial to provide places for them to do so. Having places where seniors are encouraged to volunteer with children is a good option, as is having spaces where individuals can come together to use a skill to benefit those in need, for instance vegetable gardening, sewing, or carpentry.

For Social Activities

Spaces for formal and informal social activities are important. Having a community center can bring people together for organized activities, while a comfortable, centrally located park or cafe can be a meeting place for those just wanting to spend leisure time together.

For Education

Learning keeps people young, so having a place where classes can be held for people of all ages can provide enrichment and reinforce the idea that its never too late to keep learning.

For Entertainment

Indoor and outdoor spaces for watching films and live performances are a great way to bring community members together to share an interest, or to enjoy the talents of other community members.

Safety and Comfort

In order for any space to be utilized to its full potential, it is crucial that it feels safe and comfortable for everyone using it.

Safe Crosswalks

Studies have shown that a marked crosswalk with no stop sign or stop light is more dangerous than a place where there is no marked crosswalk at all (Koepsell et al., 2002). For older adults who may be slower to cross the street, it is essential that crosswalks be marked and also have a stop sign or traffic light to ensure that cars actually stop.

Separation of Travel Lanes

Typically in designing streetscapes it is considered ideal to have bike and pedestrian lanes separated from car traffic. For slower moving seniors, however, sharing a space with bikes can be a safety hazard. When possible, it is ideal to separate all three lanes with some sort of vegetation or other constructed buffer.

Distinctive Markers for Wayfinding

Clearly marked signs are important for ensuring that people can find their way to a destination or back home, especially when

walking or biking trails stray from the regular street network. Establishing a uniform style for signs, including them in areas that may be confusing, and putting some sort of marker at a consistent interval to let people know they are still on the right path are ways to ensure that no one gets lost. Including fixed maps at certain points may also be helpful, whether in a park, trail network, or medical campus.

Adequate Lighting

Well-lit spaces are important for everyone's safety, but seniors often have even more limited vision at night, so areas that will be used after dusk should have adequate lighting to prevent tripping or other hazards.

Benches and Hand Rails

A challenge for seniors wishing to spend time outside can be not knowing where they will next be able to sit down. By placing benches at a fixed interval throughout a space, people will always know how close the next one is. Handrails are important too in areas where pavement is sloped or uneven.

Restrooms

Having plenty of public restrooms available, as well as establishing policies with private shops allowing non-customers to use restrooms can make seniors more comfortable going out.

Eyes on the Street

A vibrant area with lots of people out and about will feel much safer than a deserted one, and in turn will bring more people out into the community.

Access to Healthcare and Other Services

One of the reasons that well planned housing and transportation are so important is so that people can access the goods and services that they need. It is also important to consider what these resources and services look like and where they are located.

Appropriately Located

By grouping the things that people need to access (healthcare, stores, restaurants, etc.) into one location it makes it easy to access multiple things in one place. The reality of many of today's communities, however, is that there isn't much of a central location, and it is likely to take a long time to get to a point where most cities are once again based around a downtown. In the meantime it is important to group various services together in a place where a large number of people can access them, but it is also important to strategically intersperse these groups of services throughout the community so that everyone has close access to at least a fair number of the goods and services that they need.

Incorporating Health into the Community

Hospitals and other healthcare offices are too often regarded as dreaded places that people only go near if they are sick. By incor-

porating healthcare into communities, this stigma can be broken, and the importance of staying healthy can be better incorporated into individuals lives. Some ways to do this are by opening up medical campuses to the surrounding community by creating beautiful public spaces that can be utilized by patients and community members alike. Certain programming elements like exercise programs, farmers markets, and classes on healthy living can be a great way to bridge the gap between healthcare and the community.

Preventive Care

By making healthcare more visible and easily accessible it may be possible to provide education and encourage people to make basic lifestyle changes and stay on top of their health. These types of preventive actions will mean that fewer people will have to go to the hospital for serious issues that could have been avoided.

Opportunities for Social Interaction

Having all the services one needs for their daily life located close by means easier access and more opportunity to get to know the people involved. Whether it is a visit to the Doctor, or a trip to the market, the experience is always more enjoyable when there is some sort of familiarity and personal connection with the individuals providing these services.

Part 3: Design

“ People ignore design that ignores people.”

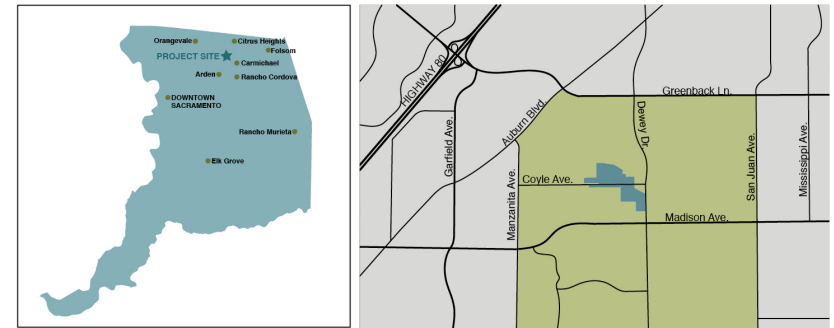
-Frank Chimero
Graphic Designer and Writer

The Site

The site chosen for this theoretical redesign is located in Carmichael, part of Sacramento County, California. This area was selected based on demographics and existing features with potential to be improved. Located at the center of the site is the Mercy San Juan Medical Center. The surrounding area consists primarily of suburban single-family homes with some retail, an elementary school, and a concrete channel in what used to be a natural riparian area.

Though this area is heavily used by residents and hospital patients, visitors, and employees, there are various resources that the space is lacking. This redesign seeks to improve positive aspects of the site and revision negative ones in order to create a higher-density, more walkable community with all of the resources necessary to meet the needs of the individuals living in, working in, and otherwise utilizing the area.

Because the areas in and immediately around this site have a higher percent of individuals over the age of 65 than Sacramento County as a whole, a design that supports the needs of older adults is warranted in this area.



	Median Household Income	Housing Vacancy Rate	Residents Living in Detached Single Family Homes	Commutes Made by Method Other Than Private Vehicle	Residents Over the Age of 65
STUDY AREA	\$60,502	7.7%	70.6%	3.6%	15.8%
SACRAMENTO COUNTY	\$56,493	7.9%	74.1%	7.3%	11.2%

Figure 3.1 Site Context Data

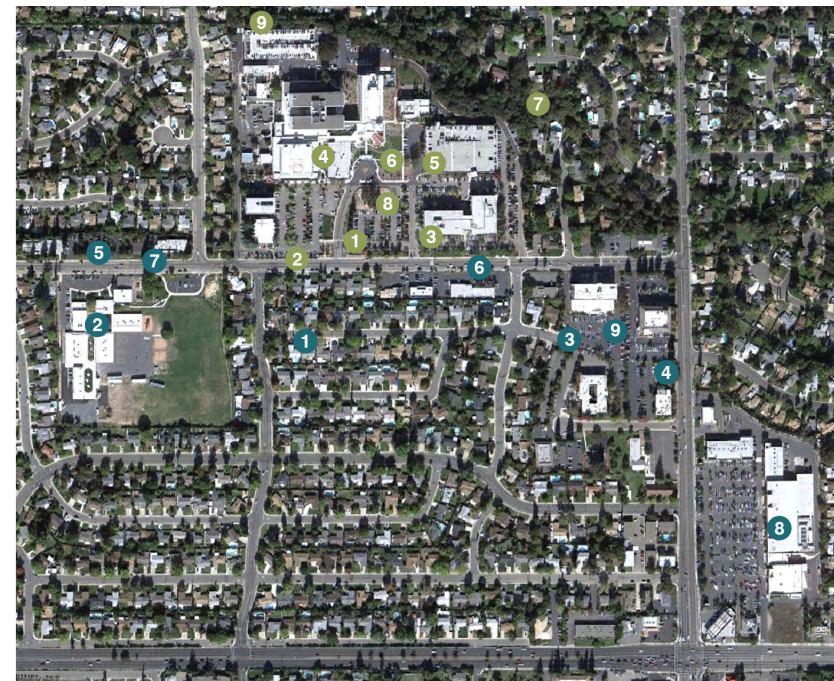


Figure 3.2 Aerial Photo Keyed with Context Photo Location



1. Entrance to hospital parking lot. 2. View of hospital from Coyle Ave. 3. Small sandwich shop within one of the medical buildings. 4. Small courtyard with benches. 5. Parking Garage. 6. Landscaping in front of main entrance. 7. View from top of parking garage. 8. Preserved Oak tree in hospital parking lot. 9. Edge of natural riparian area behind hospital.

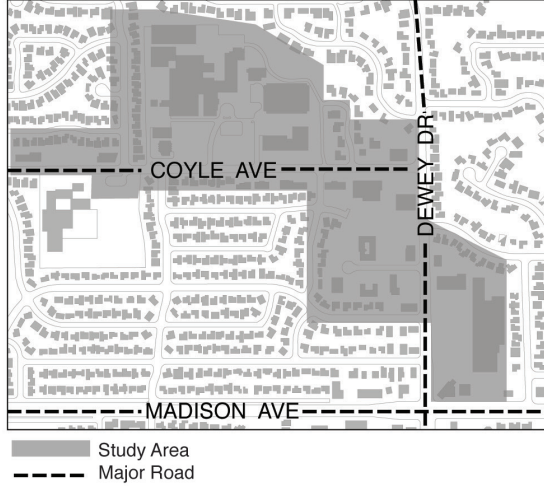
Figure 3.3 Hospital Context Photos



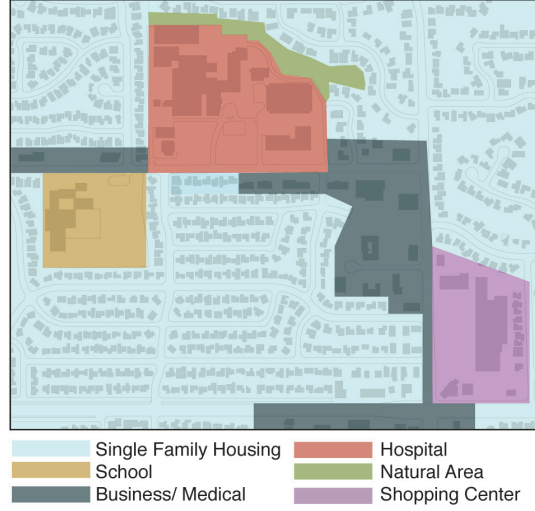
1. Older suburban homes typical of the area. 2. Elementary school. 3. Dead end disconnecting part of the neighborhood 4. Multiple medical offices for lease 5. More space available. 6. Bus stop indicating the number of lines has been reduced. 7. Bus stop benches. 8. Nearby grocery store. 9. Parking around a large medical facility (separate from hospital).

Figure 3.4 Neighborhood Context Photos

Study Area and Major Roads



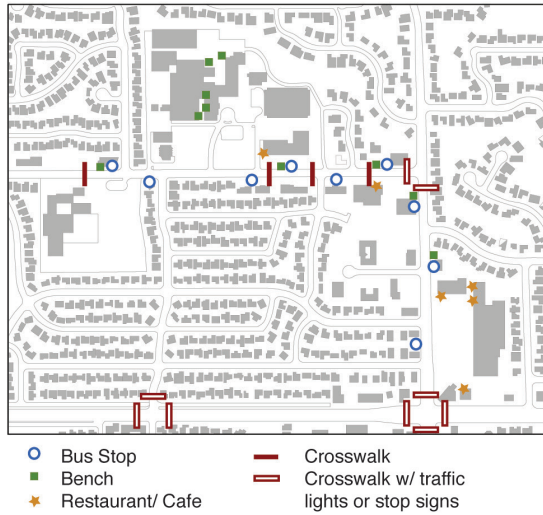
Predominant Land Uses



Major Circulation Patterns



Site Amenities



Green Space and Tree Cover



Parking



Figure 3.5 Site Analysis

Design Approach

The main goal in revisioning this site is to make the space work well for the diverse range of people that spend time in the area, with a special focus on seniors. Because there is already a large senior population in the area, the intention is to provide a space that supports the needs of existing residents, as well as to create opportunities for more residents to live in the area. In creating a larger, denser population, there will be an opportunity for more resources to be located close by, making things more accessible for residents who have limited mobility or are unable to drive a vehicle.

When proposing new development on site, one of the main considerations is how successful the existing development is. Many of the existing medical office buildings are currently vacant, warranting a different use of the space. The offices that are not vacant are often in small buildings set back from the street. By replacing such buildings with mixed-use development, it will be possible for the offices to stay in the same area with the addition of commercial and residential development as well. The larger buildings on site remain, as the benefits of replacing them do not outweigh the challenges involved with doing so.

Liberties have been taken with the removal of some buildings and other infrastructure changes, as this design seeks to demonstrate the ideal situation for this type of site. However, feasibility is taken into consideration for this project, and with the agreement of property owners and changes in zoning designations, this type of development is possible in the area.

Though no mixed-use designation exists in Sacramento County's zoning codes, there is a flexible zoning designation known as SPA that allows for multiple uses on a site. Though it is expensive to have land changed to this designation, multiple adjoining properties can apply for this change together, making it feasible for multiple property owners to come together to share costs and put this type of project through. (S. Singh, personal communication, April 17, 2012).

Another major consideration in the design of the site is the different ways in which the space can be programmed. Each element of the design is intended to be flexible and allow for a diverse range of formal and informal activities that promote health and community strength.

Master Plan

The master plan for the neighborhood focuses on creating higher density development along Coyle Avenue. The new development as well as existing buildings are connected via bike and pedestrian paths. Streetscapes and green spaces are improved to better accommodate users. The Hospital serves as the center of the area, integrating health into the community and opening up the campus for use by the public.

This plan serves as an example of how a community can be improved on a neighborhood scale, however it also leaves open the possibility of future expansion to create an even larger urban area that serves as a small city center for the surrounding suburbs. As urban populations grow and suburban

populations shrink, as is expected in the future, it will be possible to put in more mixed use development in the place of suburban homes to create a gridded network expanding out from this area. As this type of development occurs there will be more resources and housing available, and there will also be more opportunity for improved transit to connect residents to other parts of the county.

Significant community change must take place over a long period of time, and the design proposed here is simply a starting point for the continued improvement of the community.



Figure 3.6 Master Plan

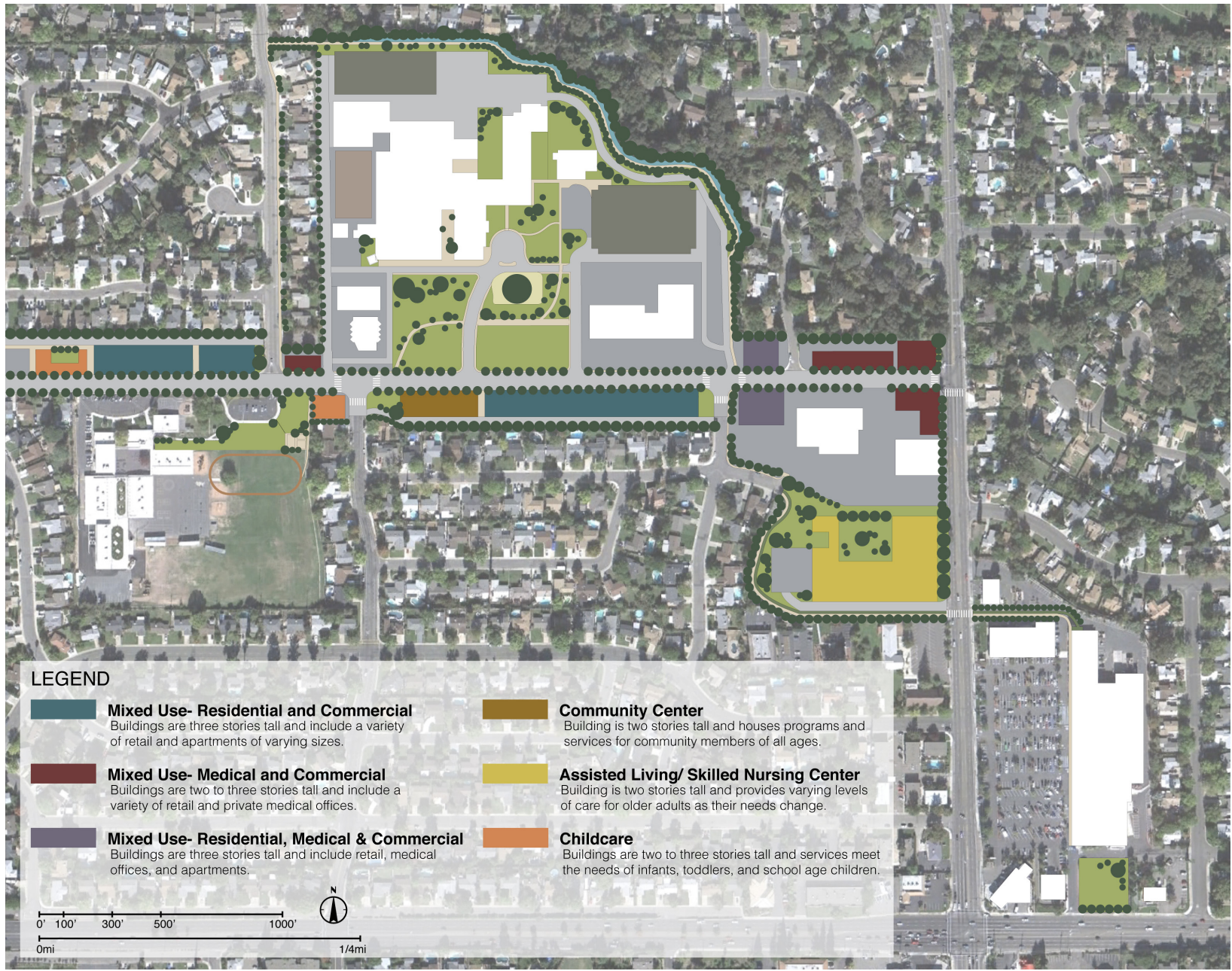


Figure 3.7 New Development



West Detail



Day care Center
Two story infant/toddler day care center with enclosed courtyard for outdoor activities.

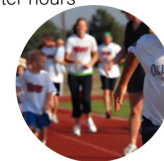
Public Parking
Access for day care and nearby retail.



Improved Streetscape
Shaded with separation of bikes, pedestrians and cars. Includes some street parking.



School Garden
Garden for use by school children in conjunction with curriculum and after school educational programs.



Walking Track
Standard track for use by students during school hours and open to community members after hours



Residential/ Commercial
Three story building with first floor retail and two stories of one, two, and three bedroom apartments. Retail includes cafe, small restaurants, and hair salon.



Medical/ Commercial
Three story building with pharmacy on the first floor with two floors of medical services above.



Crosswalks with Stop Signs
Stop signs added to ensure pedestrian safety.

Tutoring Center
Two story building offering after school care for elementary school students as well as interactive tutoring services

Community Garden
Public garden with individual plots for rent.

Shared Resources and Community Space
Interface between community and school gardens, allows for interaction between users and sharing of knowledge and resources. Spaces separated but joined with a gate.

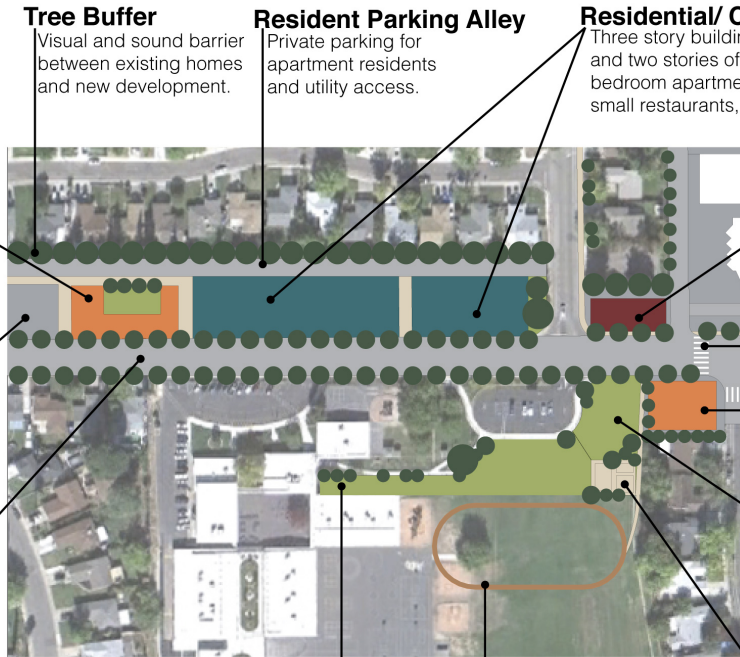


Image Sources:
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<http://www.santafecommunitygardens.org/wordpress/wp-content/uploads/2010/05/eldoradogarden.jpg>;
<http://www.laughlin.af.mil/shared/media/photodb/web/090520-F-5667C-004.jpg>;

Figure 3.8 West Detail



North Detail



Image Sources:
<http://www.midwestplayscapes.com/art/whats-new/lifetrail600.jpg>;
<http://www.hardisondowney.com/photos/HilltopRendering.jpg>;
http://media.goodlifeteam.com/wp-content/uploads/2011/07/2124_main.jpg

Figure 3.9 North Detail



East Detail

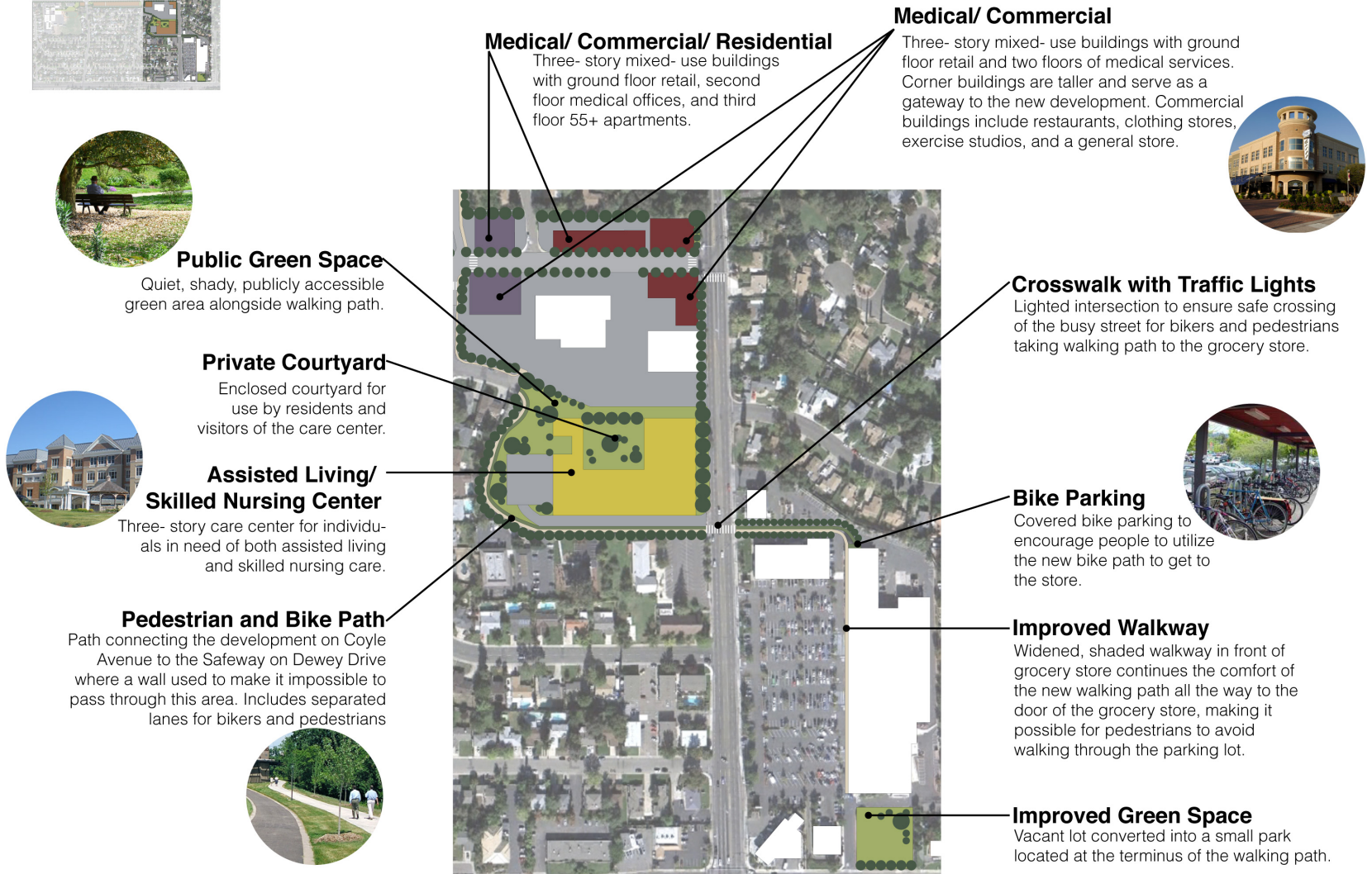


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<http://www.safetrec.berkeley.edu/news/lighted-and-covered-bike-parking-north-berkeley-bart-small-glendale.jpg>

Figure 3.10 East Detail

Streets and Paths

In order for a community to be safe and accessible for its residents, it is crucial for its streets and paths to be accommodating for their users. The main road that runs through this site, Coyle Avenue, has sidewalks, crosswalks, and a few bus stops, but could be greatly improved. The street has been divided into sections, each with a slightly different streetscape suggestion. The new model includes shade trees, swales for capturing runoff, separate bike and pedestrian lanes, wide sidewalks, crosswalks with stop signs, and cafe seating and benches in certain areas. The main portion of the road, Streetscape A, is heavily focused on pedestrian access and does not include street parking. Streetscape B, however is slightly modified

and does include street parking located in such a way that it serves as a buffer between bicycle lanes and moving cars. The intention of these altered streetscapes is to make the road more comfortable to walk on and to encourage people to spend time in the public realm, creating a vibrant community space.

In order to create a more expansive walking network, pedestrian paths are being proposed that connect to the main roads but also meander through quieter, more natural area. Behind the hospital exists a concrete channel surrounded by riparian trees and vegetation. It is fenced off from view, but has the potential to be a beautiful natural walking path if the area is restored and expanded.

An additional pedestrian and bike path is being proposed that will connect the main development on Coyle Avenue to the grocery store and shopping center located on Dewey Drive. Previously a road came to a dead end at a large concrete wall, preventing anyone from walking directly to this area. With the proposed changes, it will be possible to walk and bike directly to the shopping center. All together, the new and improved walking paths make up 1.5 continuous miles within the site.

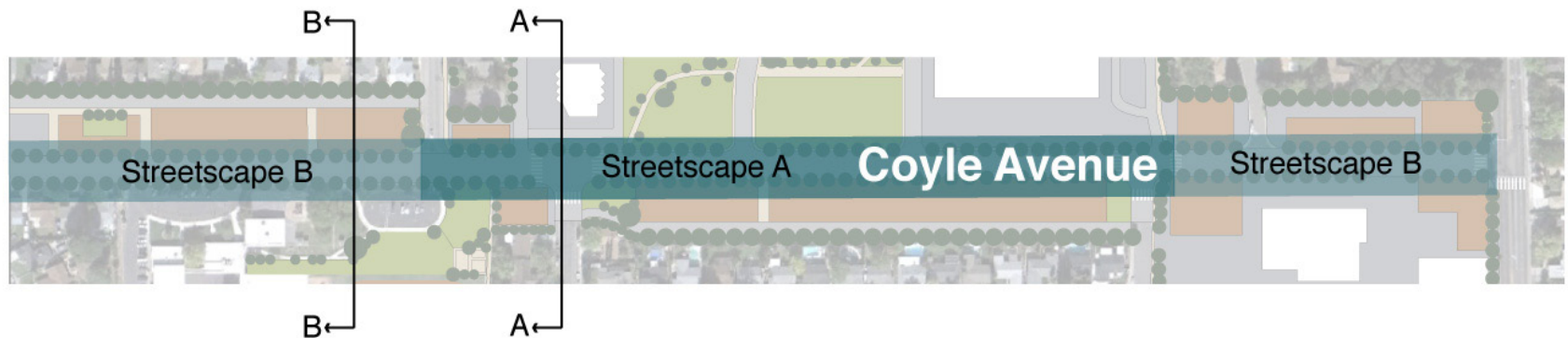
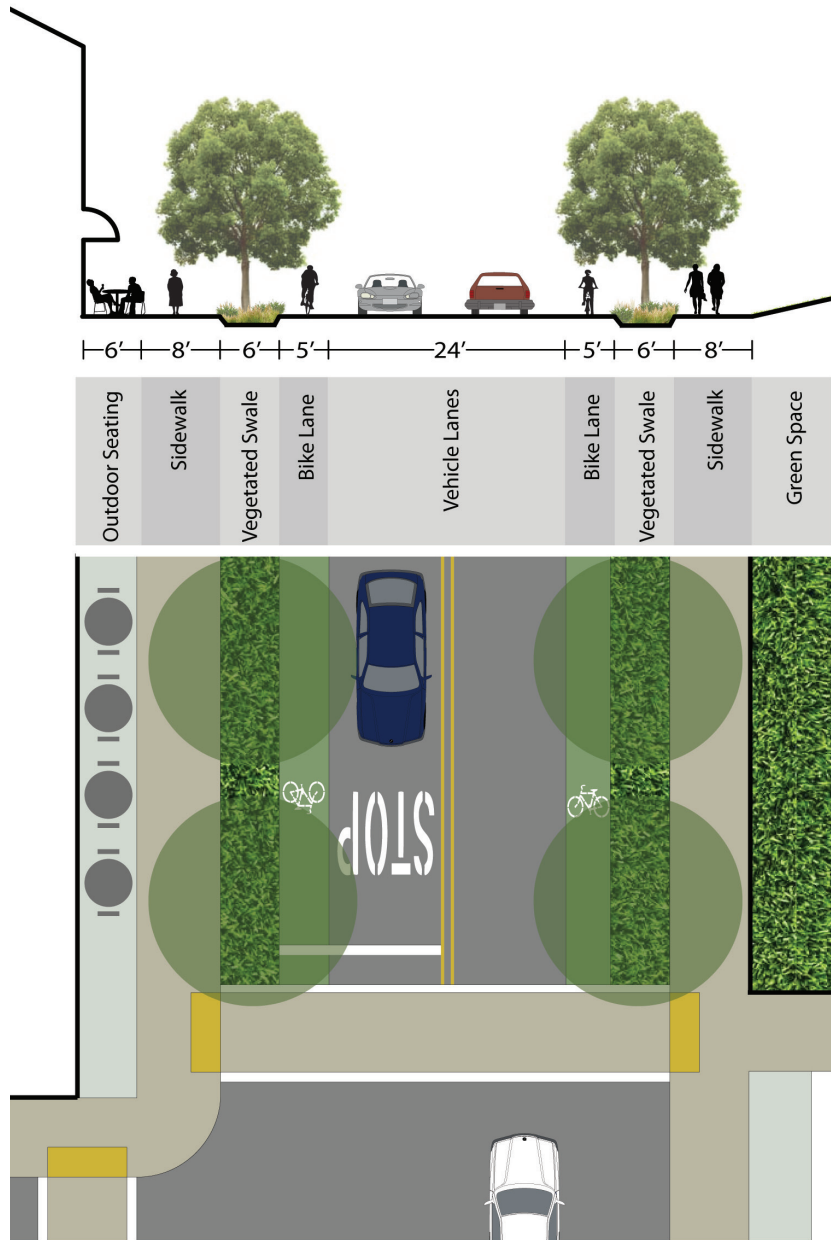
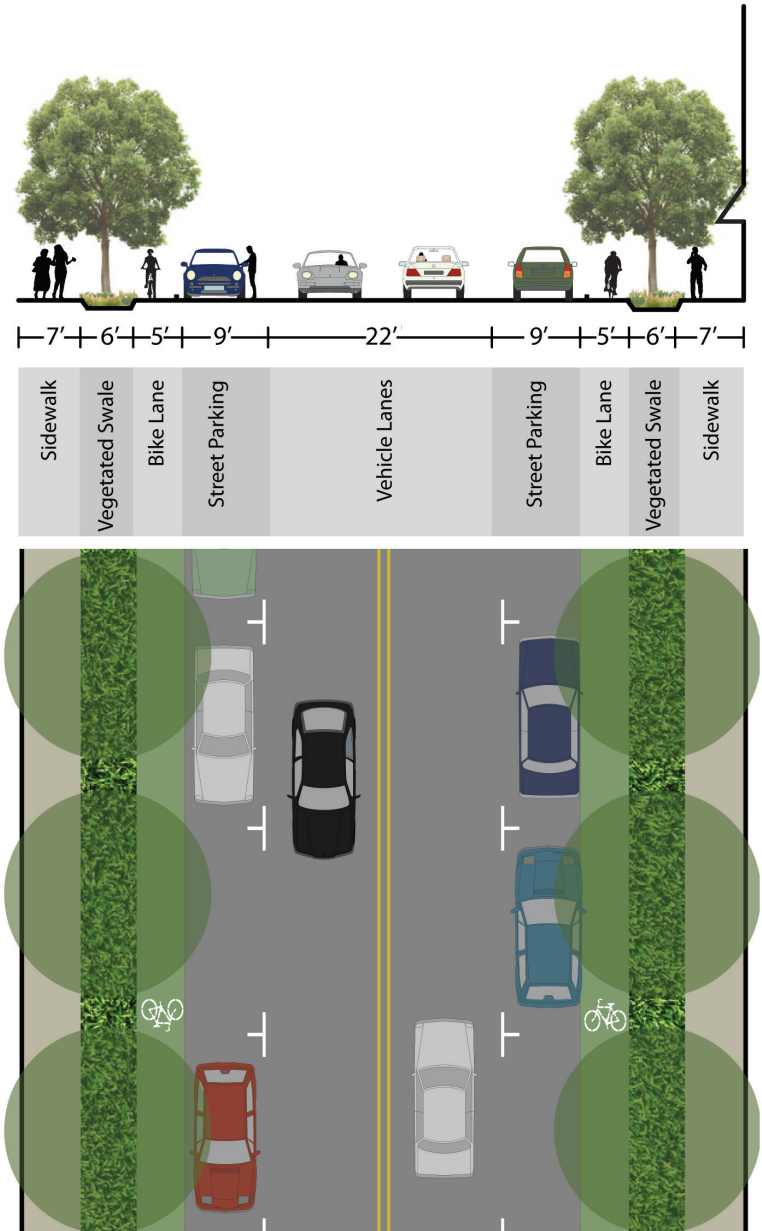


Figure 3.11 Streetscape Context



Streetscape A

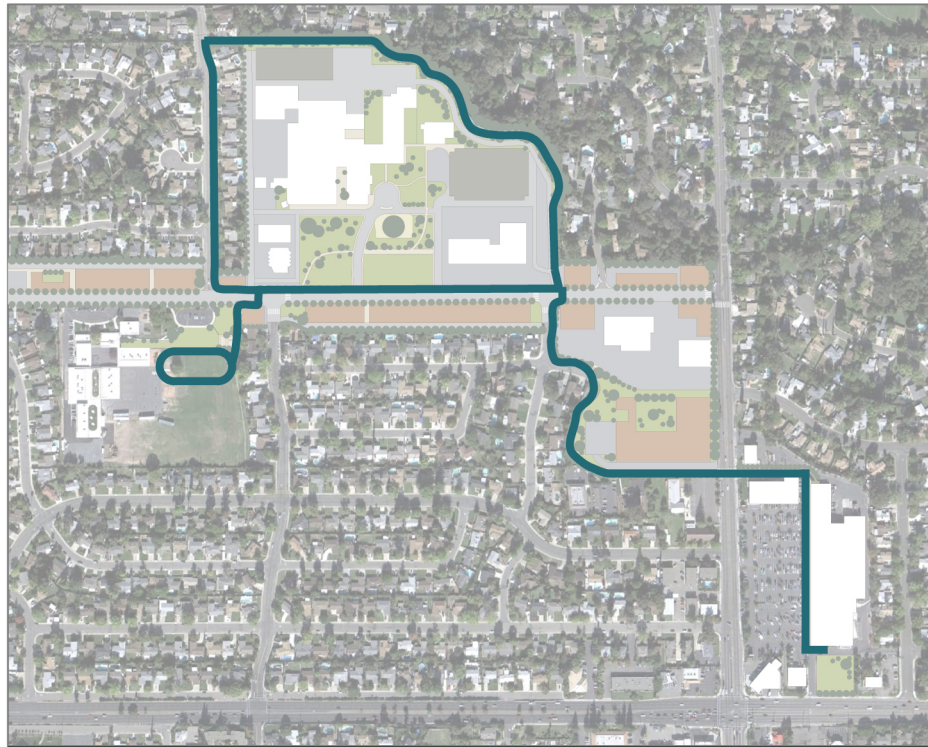


Streetscape B

Figure 3.12 Streetscape Plans and Sections



Figure 3.13 Streetscape Perspective



1.5 MILES

of connected
walking paths
separated from
bicycle and
automobile traffic

Benches

Located every 300-500 yards



Mileage Markers

Located every quarter of a mile



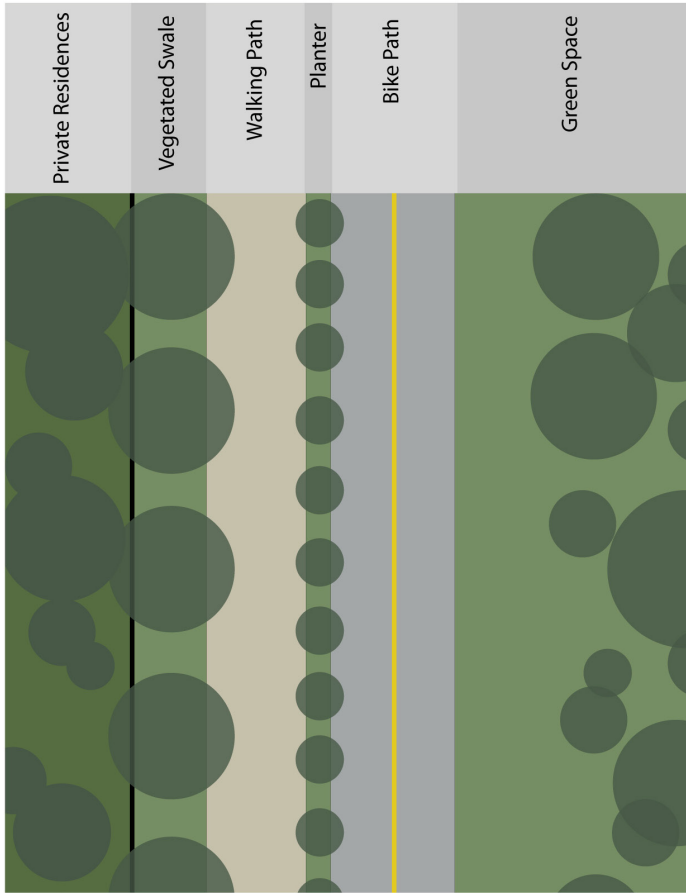
Trail Maps

Located at transitional points

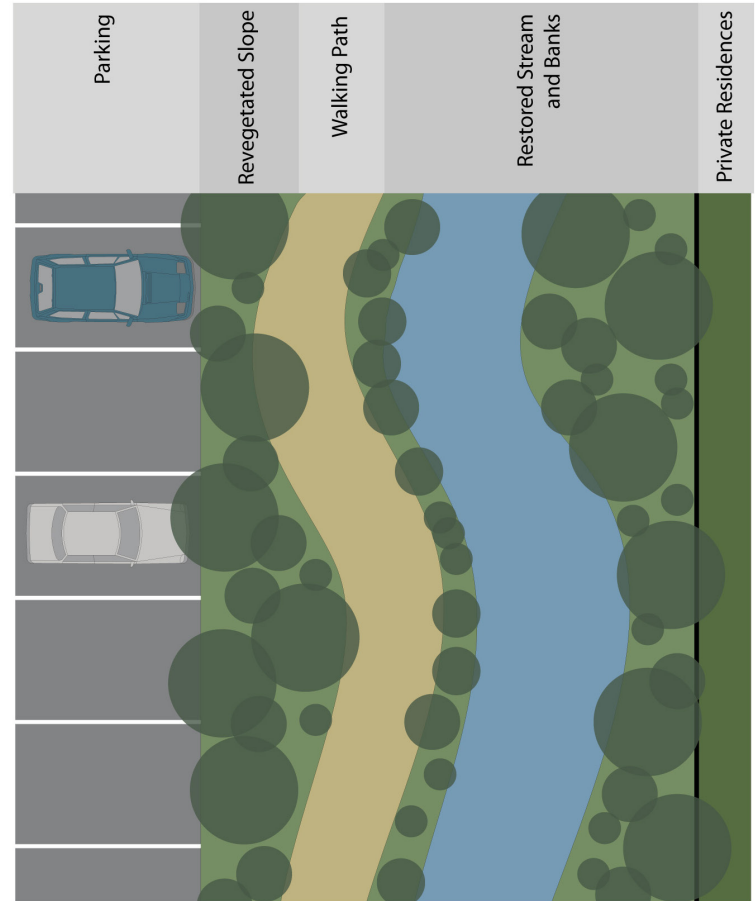
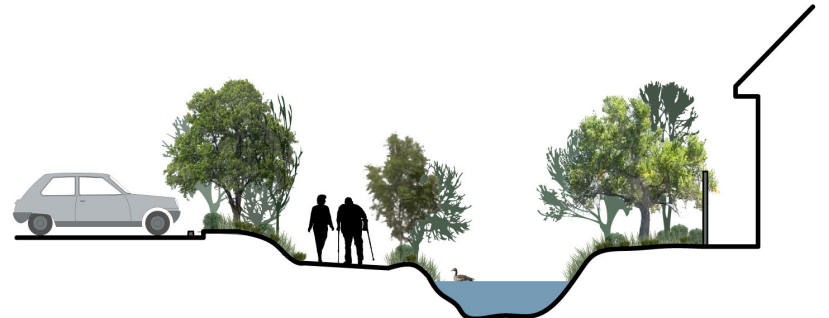


Image Sources:
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http://upload.wikimedia.org/wikipedia/commons/8/85/Garden_bench_001.jpg
http://www.vackersign.com/images/trail_signs_markers/map%20panel%20resampled%20cover.jpg

Figure 3.14 Walking Path Overview



Pedestrian and Bike Path



Riparian Walking Trail

Figure 3.15 Walking Path Plans and Sections



Figure 3.16 Walking Path Perspective

Green Spaces

A variety of green spaces are proposed for this site in order to provide as close of access as possible for all residents and other users. Some are new, some are existing, and some are improvements on the existing.

The most significant green area on this site is the large public park proposed for the site of the existing hospital parking lot. By creating more street parking and a new staff parking garage on the hospital site to accommodate those who typically park in the lot, it becomes possible to utilize this as a green space without reducing the amount of parking available. The intention of the new park is to serve as a place for hospital patients, visitors, and staff to get outside without being too far from the hospital, while also encouraging community members who are not affiliated with the hospital to use the space for recreational purposes as well. Located directly across the street from the proposed community center, the park can easily serve as a location for organized community activities in addition to the more informal activities typical of a public park.

Another new green space being added to the site is the community and school garden. Located in front of Coyle Avenue Elementary,

this garden has two separate but connected entities: the school portion and the community portion. The spaces are separately fenced but have gates joining them at a common area with shared resources such as a tool shed, compost area, and covered gathering space. The intention of this design is to allow for interaction between school children and community members based on the shared interest of gardening.

Other proposed green spaces on the hospital site include a courtyard behind the hospital with outdoor exercise equipment for use in the physical therapy process, and improved seating areas nearby for use by hospital employees on their breaks. The green area wrapping around the main entrance of the hospital also has improved seating options and shaded areas where previously there was no place to sit or rest.

Outside of the hospital campus new green areas are also proposed. These include enclosed courtyards for the day care center and the assisted living/ skilled nursing facility as well open green spaces near the community center, along the walking paths, and near the shopping center on Dewey Drive.

By dispersing green spaces throughout the site and creating a variety of sizes and types, all residents will have the opportunity to easily access at least one of the spaces for enjoyment on a regular basis.

Hospital Entry Park

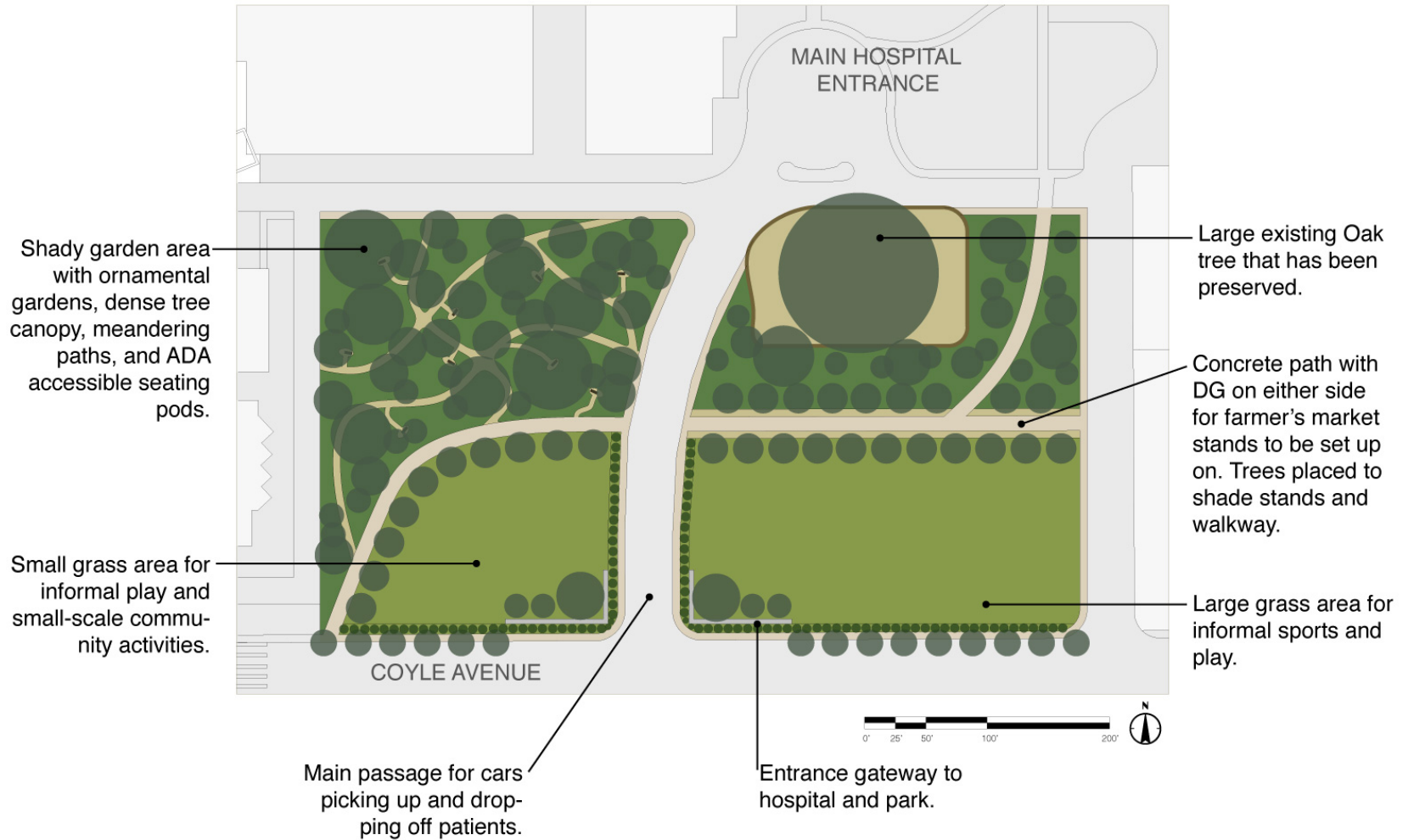


Figure 3.17 Hospital Entry Park



Figure 3.18 Park Perspective

School and Community Gardens

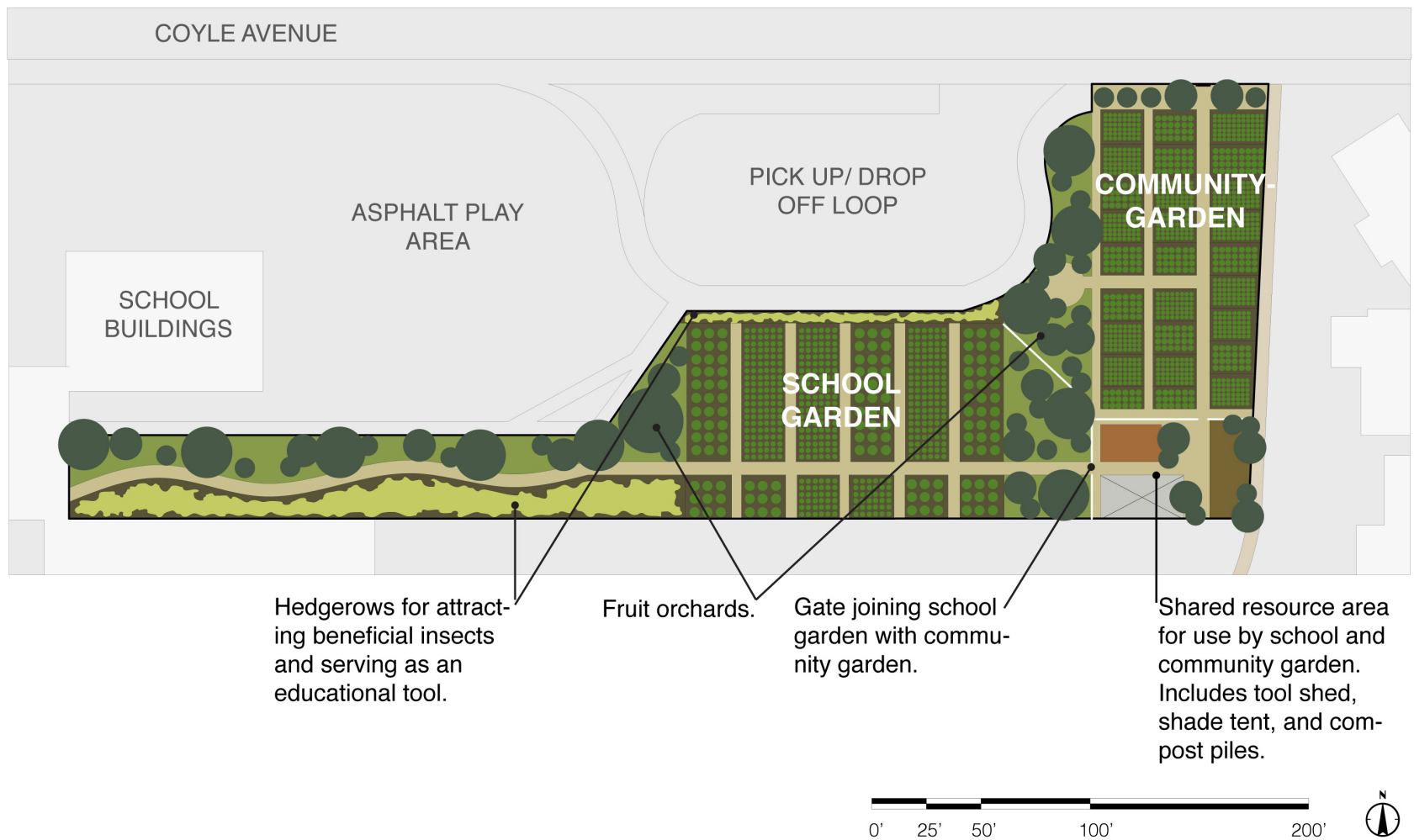


Figure 3.19 School/ Community Garden Plan



Figure 3.20 Garden Perspective

Conclusion

As the aging population continues to increase and current community models fail to support the needs of this group, a great opportunity exists to bring about change. Older adults are simply one of many groups who benefit from better planned, more liveable communities. Because the need to design for older adults is apparent now, it can serve as the impetus for change that will benefit everyone. There is no reason not to take action now to bring about positive community changes that will support the old, the young, and everyone in between throughout the future. Doing so will also result in a lighter demand on the earth's resources, ensuring that many more generations will have the opportunity to live in and enjoy vibrant, healthy, and responsible communities throughout every stage of their lives.

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Appendix

Additional sources providing framework and guidelines for specific design strategies for older adults:

The World Health Organisation

Global Age-friendly Cities

http://www.who.int/ageing/publications/Global_age_friendly_cities_Guide_English.pdf

The American Association of Retired Persons

Beyond 50.05: A Report to the Nation on Livable Communities: Creating Environments for Successful Aging

http://assets.aarp.org/rgcenter/il/beyond_50_communities.pdf

Transportation for America

Aging in Place Stuck without Options: Fixing the Mobility Crisis Threatening the Baby Boom Generation

<http://t4america.org/resources/seniorsmobilitycrisis2011>