# A CITY FOR MARC

AN INCLUSIVE URBAN DESIGN APPROACH TO PLANNING FOR ADULTS WITH AUTISM


by


ELIZABETH FLORENCE DECKER


A REPORT


submitted in partial fulfillment of the requirements for the degree


MASTER OF LANDSCAPE ARCHITECTURE


Department of Landscape Architecture, Regional + Community Planning
College of Architecture, Planning + Design


KANSAS STATE UNIVERSITY
Manhattan, Kansas


2014

Approved by:

Major Professor
Mary Catherine (Katie) Kingery-Page

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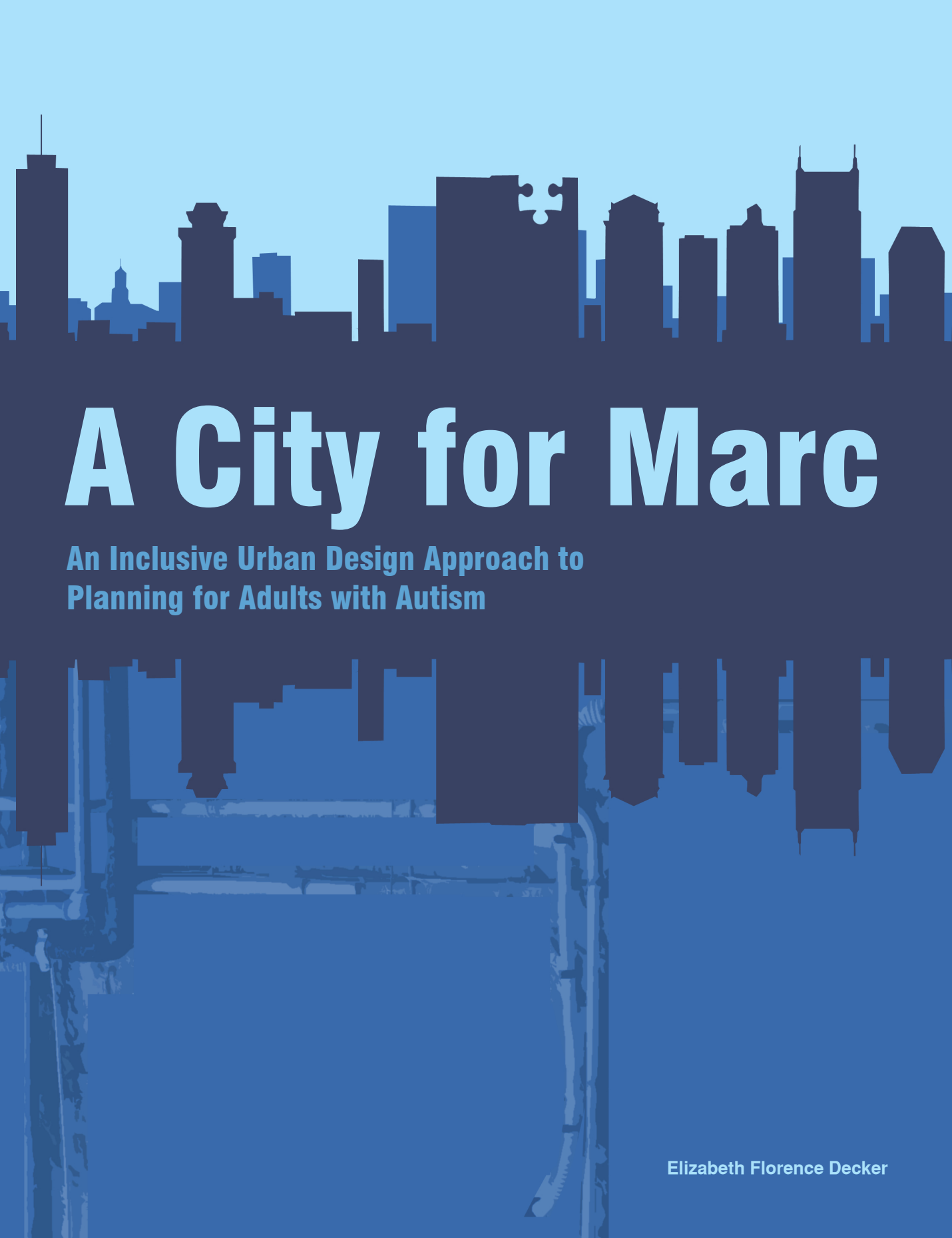
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# Abstract

The generation of diagnosed autistic children is aging, calling on needed research for what will happen to autistic adults. Cities are outfitted to non-autistic people, typically created for an idealized individual without disability or limitation. Urban environments add to sensory overload, have limited mass transit accessible to those with neurological disabilities, provide few affordable housing units, offer very little employment opportunity, and have no green spaces designed for those with autism or other differences. Typical urban design does not take into account the landscape and urban affordances needed by adults with autism.

This project synthesizes a toolkit including the following needs for adults with autism: vocational training, life skills, mental and physical health support, employment, public transportation and affordable housing.

Using the initial theoretical urban systems toolkit, I conducted an evaluation and synthesized proposal for Nashville, Tennessee, a large city that ranks within the nation among the lowest for cost-of-living (e.g. groceries, housing, and utilities). The outcome of the evaluation and synthesis is a diagrammatic infographic conveying existing and needed services within Nashville, as well as connectivity of needs for adults with autism. From the diagrammatic proposal, the initial theoretical urban systems toolkit is revised, reflecting upon the findings through the evaluation of Nashville, Tennessee.

The final theoretical urban systems toolkit and diagrammatic proposal for Nashville, Tennessee provides exploratory research for city planners, architects, and landscape architects to design for cities inclusive of adults with autism, as well as other neurological disabilities or limitations. This additional layer of design not only contributes to the social and environmental well-being of individuals with autism, but also contributes to the entire urban community. Urban design as an approach to planning for adults with autism contributes a new disciplinary perspective to the discourse on planning for a maturing autistic population.

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## An Inclusive Urban Design Approach to Planning for Adults with Autism

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Landscape Affordances Network 2014

A report submitted in partial fulfillment of the requirements for the degree:
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Department of Landscape Architecture, Regional + Community Planning
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This book is dedicated to my little brother, Marc,
who has opened my eyes to the world of autism.

Though irritable at times, he is a
blessing to have in the family.

# Preface

In order to understand why I chose to develop this project, allow me tell you where I come from. I am a Master's student in the Department of Landscape Architecture at Kansas State University. My interests in design revolve around big thinking and urban design. I have strong visual and graphic skills, as well as a quiet, competitive nature, whether it pertains to design or a sport.

Most of my life has been spent in Fort Leavenworth, Kansas; Leavenworth, Kansas and Lansing, Kansas living as an *Army brat.* My father retired at Fort Leavenworth as a Lieutenant Colonel in the Army in the year 2000. I am the third child out of four in my family; two older sisters (eight and twelve years older) and a little brother (four years younger). Marc, my little brother, can be described in scientific terms as: *an individual who displays social communication deficits and repetitive behavior that affect his everyday life* (Autism Speaks 2013). In my family's terms, he is a handful. In my terms, he is my little brother.

There have been instances over the years where friends, extended family members, and strangers have asked me what it is like growing up with a sibling with autism. I simply reply, "He's always been there — no different than any other sibling. "Then a follow up question would be, 'Would your family be better off if he was not in the family?'" "God put him in our family to appreciate a different view of life," I would respond. "He's better behaved and smarter than the majority of children today."

Within my family, it is very common to yell, "Marc!" which indicates that he is up to trouble. Sometimes he rips pieces of the linoleum floor in the guest bathroom, dumps a cup of water down an air vent, or messes with the water heater. He has made holes in the drywall throughout my parents' house, stating that he wanted to know what was behind the wall. Every day he will ask the same questions, focusing on what his fixation is at the time. Other times he will pull my hair or point out every beauty mark on someone's face. Habits become old habits and new ones have surfaced throughout the past years. When he was really little, he would have a hard time going through doorways unless someone grabbed his hand to guide him through to the next room. Therapy has trained him to pretend to pull an imaginary rope to help him through the door, but only if someone gives him verbal permission to exit or enter.

Elizabeth Decker:

# "God put him in our family to appreciate a different view of life," I would respond. "He's better behaved and smarter than the majority of children today."

Marc was not very verbal from the age of two to the beginning of his teen years. Every person within our immediate family made a communication connection with him, being able to translate what his noises or gestures meant. An individual outside the family did not have a clear sense of what he was trying to say. Fortunately, as he grew older in age, this social barrier has faded and he is able to speak outside my parents' house. In school and Special Olympics, he is quite the chatter box. The only place he will not speak, or he will have to use his *silly voice* to speak, is in a vehicle. It is odd how he thinks, but it is an aspect of him that my family and I are accustomed to.

My parents will always tell others that I treat Marc like any other sibling — with little patience. When he would pull my hair, I would slap his hand. When he would break something of mine, I would immediately yell at him. And, as a typical older sibling, I would get him into trouble in some way or another when we were little. Once I tied a wagon to the back of my bicycle to pull him around, but did not consider the limited turning radius the wagon had. I took a sharp turn and poor Marc tipped over onto the concrete, scraped his knee, and started wailing. I still feel bad to this day about the wagon incident. I feel even worse about the times I would accidentally break something and blame Marc for it, because I did not realize at the time that Marc is not able to fully justify his actions.

Marc has many interests, though at times he seems to only be fixated on just a few things when we converse. He has a fascination with vacuums and cleaning aids; he always asks about water heaters and air conditioners; he is familiar with vehicles and their functions; he enjoys Google Earth and aerial maps; and he really loves music, specifically artists similar to *Earth, Wind and Fire*. A minor skill he possesses is his ability to remember dates. "Remember

back in May 2005 when...?" "Remember back in '09 when...?" "You did that back in 2010." Nothing gets by him. My mom always tells people that you would not want Marc seeing you commit a crime, because he will remember everything you did and when it was committed.

I am amazed by my little brother sometimes. When I started college in the Landscape Architecture program at Kansas State University, Marc must have seen my old design models from past projects and attempted to construct a model himself. From snapped off balsa wood rods, he constructed a simple skeleton of a barn with trusses and supports that resembled that of an illustration in a construction book.

The Special Olympics has been a great opportunity for Marc and my family. He has made friends who have similar disabilities and the organization has provided my family with a network of other families who have a loved one with special needs. Leavenworth Special Olympics holds basketball, bowling, and track and field practices, as well as workshops and dances. Marc never seems to care if he wins in Special Olympics, but he does enjoy attending the dances.

I completed this project with my little brother in mind, because he will soon be ineligible to receive school services and will begin his life of semi-independence. I designed this project to help me understand what will become of Marc after school, as well as other individuals with ASD. What are Marc's options? Will he be able to work? Will he still be living at home? How will he travel from place to place? Can he function on his own?

My family is very fortunate to have Marc in the household. Fortunately, Marc has three older sisters who will look after him once our mom and dad are no longer around. I only pray his life will be happy as he steps into adulthood.

Autism is a fast-growing developmental disability, affecting 1 in 68 children in the United States (Autism Speaks 2013). With such an increasing rate of children diagnosed with autism, comes an increasing rate of future adults with autism. There are many research papers, studies, and services provided for autistic children; however, little attention is being paid to adults with autism. ASD is not a condition that can be cured, but its symptoms can be reduced. What adults with autism need are opportunities to live a full productive life.

This project intends to stimulate designers and planners to take into account the development of urban environments for a neglected group of individuals, and move toward the realization that reworking urban systems to fit a specific group can also be beneficial for all individuals.

**Figure 0.1**
Marc high-fives the Patriot Guards at a State Special Olympics basketball tournament (by Sarah Helgerson)

# 01

## Introduction

01

# Introduction

Living in settings designed for people without autism contributes many daily living challenges that adults with autism experience (Robertson 2013). Individuals diagnosed with Autism Spectrum Disorder (ASD) exhibit social communication deficits and repetitive behavior affecting each individual differently at varying degrees (NAMI 2013, Autism.org 2013, FAST 2013, Standifer 2009). Autism is a neurological disorder, meaning that it causes major impairments in communication, sensory, and social information processing abilities that are needed for an individual to understand and interact with his surrounding physical and social environment (UnderstandingAutism. org 2013, Robertson 2013). One in sixty-eight children is diagnosed with ASD in the United States, affecting five times as many males as females (Autism Speaks 2013).

We are coming to a time where the generation of children with autism is growing up; we need to focus on what will become of adults with autism. By law, it is the public school's responsibility to provide services for people with autism until the age of twenty-one years. Under the Individuals with Disabilities Education Act (IDEA), federal funding to state and local school districts mandates special provision of education services to students of disabilities (Autism Speaks 2011). Once a child leaves the school system, whether at the age of eighteen or twenty-one, educational entitlements of IDEA no longer apply.

With an employment rate of ten percent and a majority of autistic adults living at home due to limited housing opportunities, adults with autism have extremely minimal chances of socializing and becoming independent (Harmon 2011). Most jobs offered for autistic individuals are either monotonous and do not utilize the individual's skills or lack in funds to provide training for disabled workers. Housing options are limited to: remaining at home, family living, renting an apartment or home, shared housing, intentional communities or licensed facilities; all options that are not specific for people with autism (Myers and Associates 2010). Adulthood for many people means being employed and living in a particular area, however, having a sense of belonging in a community is just as significant (Autism Society 2013).

Others have considered the urban environment from a distinct group's point of view for the purpose of being inclusive. Since the 1990's, the city of Vienna, Austria has adopted

gender mainstreaming in many areas of city administration (Foran 2013). Gender mainstreaming is part of a project that aims to take gender into consideration in public policy; this means city administrators create laws and regulations that are beneficial for both men and women equally (Foran 2013). With more than sixty pilot projects thus far, officials say it is working (Foran 2013).

Evan Kail (Foran 2013):

04

"You need to know who is using the space, how many people, and what are their aims. Once you've analyzed the patterns of use of public space, you start to define the needs and interests of the people using it, then planning can be used to meet these needs."

# Dilemma

Urban environments are outfitted to non-autistic people, typically created for an ideal individual without disability or limitation. Urban environments add to sensory overload, have limited access to mass transit accessible to those with mental disabilities, provide few affordable housing units, offer very little employment opportunity, and have no green spaces designed for autism or other mental limitations. Typical urban design does not take into account the landscape and urban affordances needed by adults with autism.

The purpose behind this study was to develop a theoretical urban systems analysis that will help designers understand ways to design environments to be more inclusive of those living with autism, as well as provide precedent in designing for other disabilities.

# Boundaries

## Nashville, Tennessee

Nashville, Tennessee is the test city in this project, due to its' large size, existing activities, multimodal transit, and recently expanding downtown residential core. Located along the Cumberland River in Davidson County, the *Music City* has a population of about 650,000 people (United States Census Bureau 2014). Partly due to recent zoning code alterations, the core of downtown Tennessee is increasing in residential use. The new Downtown Code (DTC) took effect in February 2010, adopting **Form-Based Code**. Rather than separation of land uses, form-based codes use physical form for organization. These codes address the relationship between building facades and public realm, mass and form of buildings, and scale of streets and blocks (KCDI 2014). Form-based codes are geared towards a regulatory plan that states appropriate development form and scale, not only difference in land-use types.

## Economics

Though autism is becoming more common within the United States, the level of knowledge about autism within the general public is still low. Employment opportunities, housing expertise, social programs, and education are lacking due to limited funding, economic issues, and policy making. There is a growing need for research on how services and programs for adults with autism can be structured (NIH 2013).

Today, the economic crisis has hit many jobs, causing many employers to dismiss or turn away workers. The job market is limiting and businesses can only put forth so much money for training. Currently, the national unemployment rate is 7.6% (Figure 1.1). In 2011, the employment ratio for people with disabilities was 17.8% while the population of employed with no disabilities was 63.6% (Bureau of Labor Statistics 2013). Most workers reported they were unemployed due to their own disability (Figure 1.2), whereas only a small percentage lacked transportation options, were dismissed for misconduct, lost government assistance, or lacked felt they lacked training.
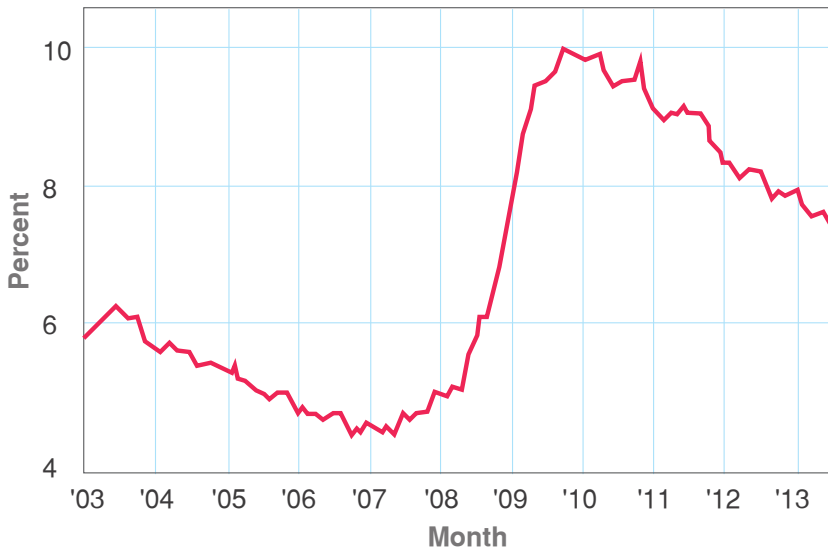
**Figure 1.1**
Unemployment Rate; Labor Force
Statistics for the United States
Population (2003-2013)
(adapted by Author from Bureau of
Labor Statistics 2013)

**Persons with a disability 25 years and over who were not employed with a barrier to employment by educational and type of barrier (May 2012)**
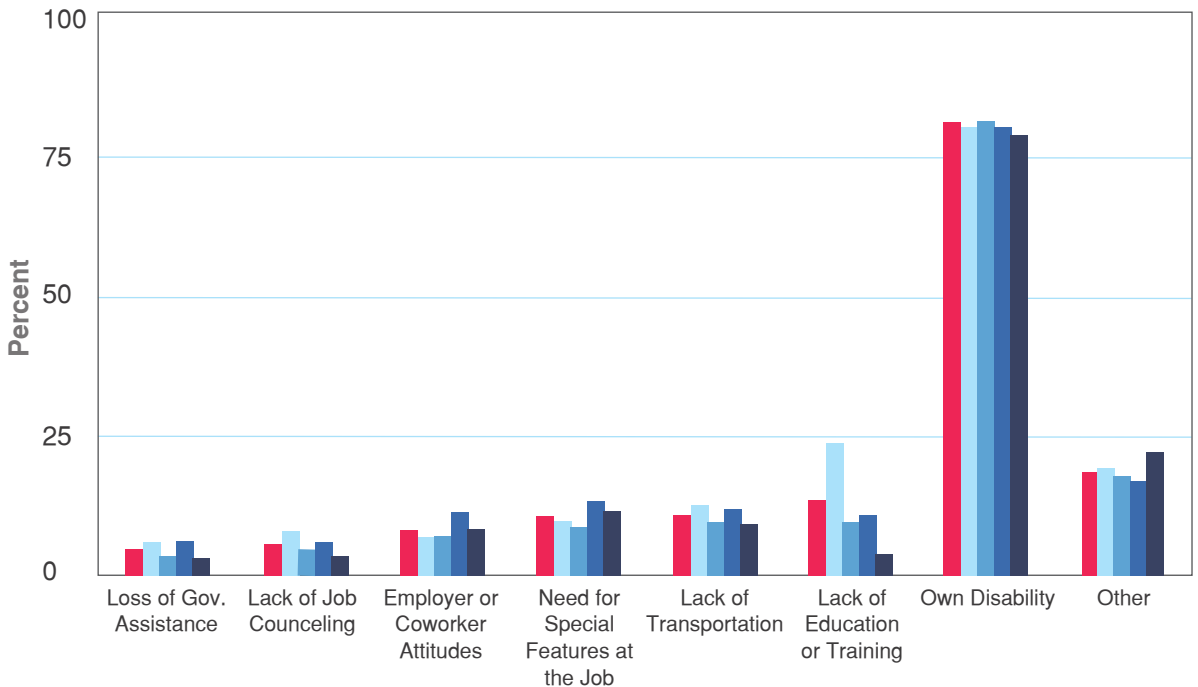


**Figure 1.2**
Labor Force Statistics for Individuals with Disabilities
(2012), Information acquired from May 2012 Current
Population Survey (CPS)
(adapted by Author from Bureau of Labor Statistics 2013)

## Affordable Housing

Adults with autism are often faced with seven typical living settings. These options include: staying at home, family living, renting an apartment or home, buying a house, shared housing, intentional communities, and licensed facilities (Myers and Associates 2010). Up to eighty percent of autistic adults end up living at home, because there are few places that are affordable to live in, as well as a lack of housing communities specific for autistic individuals within most cities (Cerbasi 2013). Caretakers, needed or desired, can also be costly. Appropriate support services are needed, housing funding and regulations are limited, and there is a shortage of financial resources for building new homes. Lastly, there is little expertise on affordable housing development for people with autism (Myers and Associates 2010).

## Statistics

(Autism Society 2013) (Harmon 2011)

# 56%
**of students with autism finish high school**

# 10%
**of individuals with autism after high school are employed**

**1 to 1.5 million Americans live with ASD, with a total cost of $60 billion annually**

# 60%
**of the costs are for adult services**

**In ten years, the annual cost will rise to $200-400 billion**

**The cost of autism within a lifespan is $3.2 million per individual**

# Relevance to Landscape Architecture

There are masses of articles, books and journals about children with autism and how to cope with their senses. Most landscape design for autism is dedicated towards children's sensory gardens, providing spaces for people with disabilities to seek sensory integration. Unfortunately, children with autism grow up to become adults with autism and they are on their own after the age of twenty-one, often still living with family with little to no opportunities to socialize or find place of employment. In the urban environment, there are very few places for autistic adults to congregate and socialize in close proximity, as well as scattered services that require transportation from a paid caregiver or confusing mass transit systems that only adhere to universal design for physical disabilities and not mental; the need for mobility corresponds to the present condition of public transit. Cities are not prepared to house autistic adults, nor individuals with many other meurological disabilities or limitations.

As landscape architects, we focus on creating sustainable spaces that enhance social, environmental and economic stability. There is a lack of physical space that is inclusive of adults with autism, as well as planned programs and systems within an urban context specific for individuals with autism. The core issues or services to hone in on that will help jump start autistim inclusive communities include (NIH 2013):

- Vocational training
- Employment
- Life-long learning
- Health support
- Public transportation
- Affordable housing

The National Institute of Health (NIH) has defined these six services for autistic adults through the Funding Opportunity Announcement's (FOA) goal to stimulate research that looks into the efficiency of service system interventions that want to improve health outcomes for people with ASD (NIH 2013).

# Background

How people interact with the environment changes during the course of an individual's life. An individual may have good access to his environment at one age, but not at another age, or an individual may have good access to his environment in a rural setting, but not in an urban setting (Brown 2001).

Support for transition allows and individual access to quality preparation before major structural changes in phases of life (Brown 2001). Individuals must have access to: critical information, choices, travel, time, social relationships, economic resources, and preparation for change.

## What is in Action Now?

A need for effective service coordination is apparent. Most states recognize the importance of service coordination, but challenges, such as availability to funding, type of services available, waiting lists, and access to public transportation are obstacles in proper transitioning from school to post-school or adulthood (Gerhardt 2009).

In order to provide adequate transitioning, efforts of agencies to coordinate with one another more efficiently must be a primary focus (Gerhardt 2009).

Adulthood, in the United States, is defined within complementary parameters, such as: employment, how and where an individual lives (urban vs. rural), religious or community organizations, friends and family, and marital status. Most emphasis of transition is placed on "school to work," and though important, it is not the only preparation for adulthood.

Effective comprehensive transition planning should include a variety of life domains that support a society's accepted definition of competent adulthood (Gerhardt 2009).

For most adults with autism, employment remains elusive with unemployment/ underemployment of individuals with ASD at 90%. Waiting lists for housing are lengthy. New Jersey, for example, has a waiting list of over 8,000 people with developmental disabilities (Gerhardt 2009).

"This significant lack of services can be viewed as the most significant challenge to development of integrated and valued lives of quality and dignity for adults with ASD (Gerhardt 2009)."

There is no relevant legislation specifically designed to provide for individuals with ASD in vocational and employment arenas. These concerns are subsumed under laws that provide personal and systemic protection of disabled people (Gerhardt 2009). Disability legislation includes:

- ADA
- IDEA
- VRA
- Ticket to Work Program

## ADA

The **Americans with Disabilities Act (ADA)** prohibits discrimination in areas of transportation, employment, public accommodations, telecommunications, and public services of disabled individuals (Gerhardt 2009). ADA also makes it unlawful for employers to discriminate against employees on the basis of a disability; under ADA, employers are required to provide reasonable adjustments for disabled workers to assist in performance of essential functions of the job.

For individuals with autism, the impact of ADA on employment has not yet been tested.

In 1999, as an alternative to institutional placement for disabled individuals, the Supreme Court held that states may be required to provide community-based services. The ruling supported the right of disabled individuals to live, work, and enjoy life in the community (Gerhardt 2009).

Today, states are still addressing significant programmatic implications of this decision.

## IDEA

During childhood and adolescence, autistic individuals are covered by **Individuals with Disabilities Education Act (IDEA)**, which states that all disabled children are entitled to a free and appropriate public education in a least restrictive environment (Gerhardt 2009). Colleges and universities are also obligated to provide access to education.

## VRA

The **Vocational Rehabilitation Act (VRA)** provides individuals with disabilities access to any federal funded program, service, or activity. Funds are available for time-limited job training and employment development assistance at state level (Gerhardt 2009).

At the state level, the majority of adults with "classic" autism are ineligible for vocational rehabilitation services due to outdated concerns in regards to their ability to maintain long term, steady employment and following termination of time-limited supports the VRA provides (Gerhardt 2009).

## Ticket to Work and Work Incentives Improvement Act

The **Ticket to Work Program** is an employment program for disabled individuals receiving Social Security benefits (Gerhardt 2009). Its goal is to increase opportunities for eligible adults to gain certain employment-related services from public and private providers. Under the Ticket to Work Program the Social Security Administration administers a ticket to indicate eligibility for employment services. The eligible individual may then use the ticket to "buy" employment services through an employment network or vocational rehabilitation provider.

The **Work Incentives Planning and Assistance (WIPA)** program addresses the need for effective benefits planning. Under the Social Security Administration, Work Incentives allow disabled individuals to remain employed without the loss of medical benefits, such as Medicaid (Gerhardt 2009). Regardless of its source, Work Incentives are available to all beneficiaries.

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# Urban Design

**Urban design**, a term coined in North America in the late 1950's, can be defined as the multi-disciplinary activity of forming and managing urban environments, combining social, expressive, and technical factors (Madanipour 2007). Contemporary urban design focuses on the quality of the physical and socio-economic realm, as well as the creation of meaningful places (Carmon and Tiesdell 2007). Designers tend to follow a particular group of urban design theories that apply to the general population. Typical urban design is not necessariliy inclusive of specific focus groups.

Urban design is a method of social control and liberation (Cuthbert 2006). Cities show signs of social struggle and are symbols of past generation conflicts and values, portraying the complexity of buildings and spaces that reveal: stories, philosophies, religions, wars, victories, failures, and dreams (Cuthbert 2006). In Alexander Cuthbert's book, *The Form of Cities*, he indicates that urban designers should be aware of their involvement in city planning and design, knowing how their involvement in a historical ideology process influences future social development. Specific ideologies have made significant impacts on urban space and form, from the uniform density and height of Socialist cities in China, to religious influence in the unique forms of space in the Islamic world (Cuthbert 2006).

Human needs have been neglected in the design and organization of public spaces (Carr et al. 1992). Places are often built and assessed within assumptions of what should be done, rather than real assessment of needs. Examination of needs within public spaces asserts that the use of the space is important in designing successful places (Carr, Francis, Rivlin, and Stone 1992). People

tend to go to public open spaces for specific reasons. The specific reasons that attract people to public areas reflect characteristics of urban life. A stop in a public space may enable a person to escape from the hustle and bustle of crowds, or the space may be a place to congregate and connect with others. Certain activities may also be sought out within public spaces, such as bicyclers wanting to use a bike trail. Any encounter in a public space can potentially satisfy more than one purpose: comfort, relaxation, passive or active engagement with the environment, and discovery (Carr et al. 1992).

Paths, portals and places make up the majority of meaningful space in urban environments (White 1999). They can be described by their physical traits (container), use (activity), and feel (ambience). **Paths** are the streets, walkways, boulevards and alleys that connect places and are devoted to circulation. **Portals** are gateways into places where paths meet. **Places** are urban rooms of a city, such as: plazas, courts, gardens and parks.

In Roger Trancik's book, Finding Lost Space, Trancik discusses three approaches to urban design: figure-ground theory, linkage theory, and place theory. Each design approach has its own importance, but drawing upon all three theories will provide well-designed urban spaces (Trancik 1986).

**Figure-ground theory** describes urban environments contain as patterns of solid masses (figure) and open voids (ground) (Trancik 1986). The objective behind the figure-design approach is to manipulate spatial relationships by adding to or subtracting from physical geometry (Trancik 1986). This approach is a graphic tool that shows

mass-void relationships as an abstract plan view that portrays the structure of urban spaces (Trancik 1986). Figure-ground is a good approach for identifying patterns or problems with spatial order, but the figure-ground can become static and lead to a two-dimensional notion of space (Trancik 1986).

**Linkage theory** uses circulation as a generator of urban form (Trancik 1986). Streets, pedestrian walkways, and linear open space are linking features that physically connect portions of a city (Trancik 1986). When applying the linkage approach, designers organize a system of connections and emphasize circulation. Efficiency of infrastructure takes precedence over patterns of defined outdoor space, sometimes overvaluing spatial definition (Trancik 1986).

**Place theory** designs with components of cultural, historical and social contexts (Trancik 1986). Social and cultural values of a user's control over public space are as imperative as adjacent enclosure principles and connection (Trancik 1986).

The development of identity is central to our ability to position ourselves in the world (Lukez 2007). Whether through the provision of security, shelter, political, economic or social needs, every city pattern serves a purpose.  Through the **Adaptive Design Process**, communities are allowed to define their current and anticipated identity, as well as define steps required to reach these goals (Lukez 2007). It is intended to provide a means for reforming edge cities and suburbs into places with identity. The Adaptive Design Process has the ability to link past actions with future possibilities by reviewing conventional design processes, breaking down into six phases (Lukez 2007):

- Mapping
- Editing
- Selecting tools
- Projecting
- Simulating
- Recalibrating

This tool serves as a means of reminding investors of consequences and opportunities inherent in their actions (Lukez 2007).

Ken Greenberg, an architect and urban designer, emphasizes the renewal of neglected cities.  After World War II, a paradigm shift occurred, where living and work became two separate entities. Suburbs emerged and people began to strongly rely on automobiles, which influenced the growth of shopping malls, with massive parking lots, and thinning of sidewalks. With an increase in automobiles came an increase in commute time, averaging 88 minutes per individual in cities.

Today, there is a strong demand for **compact communities**, where individuals are able to walk from home to the grocery store and take transit to work (Greenberg 2013). More people are moving into cities and out of suburbs — generating a new paradigm shift in urban design and planning. Two-thirds of people in North America live in metropolitan areas today.

Urban design is not about density, but about mixed-use and diversity (Greenberg 2013). Animated streets, mixing work, housing, schools, recreation centers, libraries, and other uses are all elements of a complete neighborhood. Designers and politicians also have to think of making cities for the entire human life cycle, skillfully layering up on what exists, thus adding richness and synergy to urban life. Cities involve an accumulation

Ken Greenberg (Greenberg 2013):

" In the case of cities, there are many actors in this many sided tug of war. On the one side, we have imperatives, social, economic, environmental, demographics, new better understanding of options and consequences and how cities work. On the other, outdated structures, lack of resources, fear of change, societal divisions, ideology, vested interests, etc. "

of thousands of individual efforts, including: entrepreneurs, companies, and communities.

As landscape architects, we design for the general welfare. ADA is a policy that results in design standards for public spaces. However, these standards do not necessarily afford all individuals with physical limitations, as well as cognitive limitations, full use of an environment. Designing for adults with ASD is an additional layer to be added to the current pool of urban design theories and processes. Similar to the gender mainstreaming project in Austria, mentioned earlier in the introduction (p.03), consideration of the urban environment from a particular group's point of view has been applied in the past with success. Adults with autism are another specific group that has fallen into the cracks of current urban design theories. Urban environments can be designed and planned to provide opportunities for full inclusion of adults with autism.

## Methods

The final result in my research is a qualitative synthesis of an initial theoretical urban systems toolkit that is based in literature review and limited interviews, as well as an exploratory example of how a city can become autism friendly. Links between past city identity and future design possibilities is done through the Adaptive Design Process (p.12). Using the initial toolkit, I develop an audit of Nashville, Tennessee. Conclusions drawn from the "testing" of Nashville form the basis for a city-specific diagrammatic proposal of recommendations for Nashville. These recommendation diagrams synthesize into a revised theoretical urban systems toolkit. Within such a short amount of time, this project can only set the stage for future assessment and research to allow for focus groups to provide input of the framework as well as how to apply the programs for autistic adults within an urban core.

## Literature Review Synthesis

A compilation of literature sets the foundation for an urban design framework for autistic adults. I reviewed eight categories of literature:

**1. Conditions of Autism**

• States what autism spectrum disorder is

• States existing services, laws and policies for individuals with ASD

• Provides information on what adults with autism need through services for everyday life

**2. Inclusion and Exclusion**

• Describes the importance of providing inclusive services and activities for people living with disability

**3. Landscape Affordance Theory**

• Briefly states the theory of affordance and provides design vocabulary

**4. What Urban Landscapes Create for Autism & Other Disabilities**

• Seeks opportunities to design for sensory stimulation and sensory relief

• Discusses the lack of "big thinking" design for individuals with autism

• Interview results affirm the importance of providing services for individuals living with disability

**5. Importance of Inclusive Design for Adults with Autism**

• Restates the difficulties adults with autism face in everyday lfie

**6. Design Detail and Approach Precedents**

• Provides examples of characteristic design that relates to the needs for those with autism, as well as goes further in depth of *Gender Mainstreaming Urban Design*, a successful urban design approach for a specific group of people

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**7. Why Inclusive Design for ASD:**
   **Benefits You, Me and Everyone Else**

• Briefly states the theory of affordance and provides design vocabulary

**8. Refinement of Needs for Adults**
   **with ASD in an Urban Setting**

• Refines the definition of needs for autistic adults in an urban setting

## Urban Design Toolkit

The compilation of literature has been translated into an urban design toolkit of systems and programs for adults with autism. Services Research for Autism Spectrum Disorder across the Lifespan (NIH 2013) has set up key components in the dilemma and provides information on areas that are lacking in autistic adults services: vocational training, employment, life-long learning, mental and physical health support, public transportation, and affordable housing. The ASD-specific literature review is augmented with reflections from *The Handbook of Disability Studies* (Albrecht et al. 2001).

## Evaluation of Nashville, Tennessee

Using the initial toolkit, I evaluated what Nashville has in terms of urban affordances for adults with autism as well as what existing characteristics exclude adults with ASD. Through comparison and contrast of the literature based toolkit and existing conditions of Nashville, evaluated Nashville's degree of inclusivity for autistic adults.

## Recommended Diagrammatic Proposal

Following the evaluation, I developed a diagrammatic proposal grounded in the theoretical toolkit. The infographic serves as a summary plan for a city inclusive of ASD individuals. It consists of recommendations to support the six needs for adults with autism drawn from "Services Research for Autism Spectrum Disorder across the Lifespan (2013)."

## Revised Toolkit

Nashville's diagrammatic proposal Allowed further reflection and revision leading to a final toolkit of urban systems and programs for adults with ASD. The final toolkit is an infographic that takes the needs of adults with autism, literature review based concepts, Nashville problems, key components from the recommended diagrammatic proposal of Nashville, and connects each audit component into final conclusions that form a theoretical the basis for urban design and planning for adults with autism.

# Limitations

Information about the physical qualities of Nashville is taken from Google Earth; thus the urban base data is limited. Most imagery on Google Earth is one to three years old (Google 2014). Characteristics of Nashville have been taken from secondary sources online as well. For this project, general characteristics are acceptable, because the end product is focused on providing a theoretical urban systems precedent for designing cities inclusive of autism — not specifically designing Nashville, Tennessee.

I was also unable to obtain GIS information reflecting Nashville's current conditions, such as land use.

A lack of quantitative information on Nashville, such as the existing number of affordable housing units, exact efficiency of public transportation or number of residents living with autism, is another limitation. However, the final design provides a theoretical quantitative estimate of characteristics that could be created when developing the inclusive city.

Limited interviews were conducted due to time and access to subjects with ASD. Three individuals living with varying limitations and different city scales were interviewed.

Finally, my project focuses on design for inclusive cities through an urban systems scale; my project does not touch on site specific design.

## Directions for Future Testing

If carried forth by others, the logical next step for this research is to gather input from adults with autism about their lived experience of urban places. The toolkit can then be tested against real users' perceptions and needs. Reflection upon this initial test city will inform revisions to the final toolkit.

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# 02

## Literature Review

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Conditions of Autism

Inclusion & Exclusion

Landscape Affordance Theory

What Urban Landscapes Create for Autism &
Other Disabilities

Importance of Inclusive Design for Adults with ASD

Housing, Employment, Urban Design &
Planning Precedents

Why Inclusive Design for ASD Benefits: You, Me &
Everyone Else

Refinement of Needs for Adults with ASD in an
Urban Setting

# Conditions of Autism

## What is Autism?

**Autism Spectrum Disorder** (ASD) is a neurological disorder that affects brain functions, impacting development of verbal and non-verbal social interaction and communication skills (FAST 2013). "Spectrum" refers to varying degrees of effects of each individual. Degrees range from insistence in repetition, restricted range of interests, and social interaction impairments to sensory issues, poor motor coordination, and language difficulties. One in 68 children is diagnosed with ASD in the United States, affecting five times as many males as females (Autism Speaks 2013).

Each individual with autism has diverse abilities; some autistic individuals may have exceptional abilities in visual, music, or academic skills, whereas 40 percent of autistic individuals have intellectual disability (Autism Speaks 2013).

## Signs & Symptoms of Autism Spectrum Disorder (ASHA.org 2013):

**Communication**
- Limited verbal speech
- Difficulty expressing needs and wants
- Echolalia (repeating words that were said)
- High-pitched or *robotic* voice

**Social Skills**
- Poor eye contact
- High focus on a topic or object of interest
- Difficulty making friends

**Reactions**
- Rocking, hand flapping, or other self-stimulating movements
- Not paying attention to what the individual sees or hears
- No fear of danger
- Sensitivity of lack of sensitivity to touch, light, or sounds

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There is no known cure for autism (ASHA.org 2013). Medications and dietary restrictions may help to control symptoms of autism for some individuals. Intervention should begin at a young age for an appropriate treatment plan to be established. A treatment plan may consist of traditional speech and language approaches, alternative communication, and behavioral interventions (ASHA.org 2013).

## Legislation Affecting Services

**ADA** (See page 09)
**IDEA** (See page 10)
**VRA** (See page 10)
**Ticket to Work Incentives Improvement Act** (See page 10)

### Fair Housing Act
Amended in 1988, the Fair Housing Act "prohibits housing discrimination on the basis of race, color, religion, sex, disability, familial status, and national origin (ADA. gov 2009)." The Fair Housing Act requires landlords to make reasonable exceptions in their policies to afford people of disabilities, and also requires landlords to allow disabled tenants to make reasonable access-related modifications to the tenants' living space, as well as common use spaces (ADA.gov 2009).

### Rehabilitation Act
The Rehabilitation Act of 1973 prohibits discrimination on the basis of disability in programs run by federal agencies, programs receiving federal financial assistance, in federal employment, and in federal contracted employment practices (ADA.gov 2009). It authorizes funding for disability-related activities, such as vocational rehabilitation (VR) programs, training and research, and independent living programs (DOL.gov 2013).

### Workforce Investment Act (WIA)
The Workforce Investment Act merges federal job training and employment programs to provide a wide range of employment services, vocational rehabilitation, adult education, welfare-to-work, and vocational education activities into a system, known as One-Stop Career Centers (DOL.gov 2013).

## Glossary of Services:
## Adapted from Autism Speaks 2014

**Advocacy services** provide protection of rights for individuals with disabilities.

**Day programs** provide work, social, and skills training opportunities for people with disabilities, five days a week during work hours. Day programs consist of work services, such as sheltered workshops, medical assistance, and supported employment services.

**Employment services** advance job skills for competitive employment and can vary from intensive support to optional support.

**General assistance** refers to financial aid support for individuals with disabilities, managed by a county or state.

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**Habilitation services** maintain an individual at their highest level of vocational functioning, including paid work and supports.

## What Autistic Adults Need Through Services for Everyday Life

**Vocational Training:**
Vocational training emphasizes skills and knowledge needed for a specific vocation (Farlex 2014). General vocational training facilities for adults with autism focus on (VISTA 2014):

- Developing a resume
- Searching for jobs
- Completing job applications
- Developing interview skills
- Learning to select professional attire
- Learning to make a positive presentation
- Demonstrating appropriate work behaviors

- Interacting with coworkers
- Managing job stress

**Employment:**
Employment for individuals with autism varies depending on where the individual falls on the spectrum, but similar to the generalized population, careers fit with specific interests, skills, and availability of the individual and business. Adults with ASD may engage in the following types of employment (Autism Now 2013):

- Competitive employment
- Customized employment
- Enclaves (Small group of people with disabilities who are trained at employment site, receive support and supervision, and work alongside other employees (Autism Now 2013))
- Group supportive employment
- Job accommodations (Standifer 2013)
  - Mentoring to help autistic individual understand social situations in workplace
  - Job coach
- Sheltered workshop (least valued)
- Supported employment

Career options, from Temple Grandin and Kate Duffy's *Developing Talents: Careers for Individuals with Asperger Syndrome and High-Functioning Autism* and Temple Grandin's "Choosing the Right Job for People with Autism or Asperger's Syndrome," include the following:

1. Employment examples for high-functioning ASD adults (Grandin and Duffy 2008):

- Aircraft mechanic
- Artist
- Biological and medical research scientist
- College professor
- Computer programmer
- Drafting
- Engineering
- Financial accounting and record keeping
- Graphic arts design
- HVAC
- Information technology
- Language interpreter
- Learning specialist
- Library jobs
- Printing
- Veterinary assistant and technician

2. Employment examples for good visual thinkers (Grandin 1999):

- Animal trainer/ veterinary technician
- Automobile mechanic
- Building maintenance
- Building trades
- Computer animation
- Commercial art
- Computer programming or repair
- Drafting
- Equipment design
- Factory maintenance
- Handcrafts
- Laboratory technician
- Photography
- Small appliance and lawnmower repair
- Video game designer
- Web page design

3. Employment examples for non-visual thinkers (Grandin 1999):

- Accounting
- Library science
- Computer programming
- Engineering
- Journalist
- Copy editor
- Taxi driver
- Inventory control
- Tuning musical instruments
- Laboratory technician
- Bank teller
- Clerk
- Telemarketing
- Statistician
- Physicist or mathematician

4. Employment examples for non-verbal ASD adults (Grandin 1999):

- Reshelving library books
- Factory assembly work
- Copy shop
- Janitor jobs
- Restocking shelves
- Recycling plant
- Warehouse
- Lawn and garden work
- Data entry
- Fast food restaurant
- Plant care

**Life Skills Training:**

Life skills training provides training for individuals to cope with life challenges of daily life, especially in communication skills, decision-making, and problem solving (Dictionary.com 2014). Individuals with autism require formal facilities, informal in-house training, or coaching to learn appropriate skills that are used in everyday life. Typical life skills include (VISTA 2014):

Living Skills:
- Budgeting, banking, and paying bills
- Cleaning and household chores
- Food preparation
- Grocery and household product shopping
- Laundry
- Personal health care
- Personal hygiene
- Making appointments
- Medication management
- Self-advocacy
- Shopping
- Using public transportation

Social Integration Skills:
- Fitness awareness
- Interactive conversations
- Decision-making skills
- Making appropriate choices
- Using appropriate social etiquette
- Interpreting social cues
- Initiating and maintaining relationships
- Understanding dating and sexuality
- Participating in recreational activities
- Time management

**Health Support:**

National Institute of Health has stated that adults with autism are in need of access to physical and mental health support. Health conditions that are common in individuals with autism include (NIH 2014):

- Co-occurring Mental Disorders
- Fragile X Syndrome
- Gastrointestinal problems
- Intellectual disability
- Related Disorders, such as Rett Syndrome
- Seizures
- Sensory problems
- Sleep problems
- Tuberous Sclerosis

Adults with autism require specific health support for what is listed above, but adults with ASD also require typical support, such as dental care, eye care, psychological, and physical therapy. Access to medication, whether through pharmacies, drug stores, or a health care provider, is also important for an individual with autism's health.

Aside from health care provisions, individuals with autism also require healthy activities, similar to what typical individuals require in order to lead a healthy lifestyle. For example: recreation promotes inclusion and quality of life, increases confidence and independence, improves physical and mental health, as well as provides an environment for socializing (Autism Speaks 2014). Adults with autism must have access to:

- Exercise
- Healthy food
- Open space
- Recreation
- Sensory Stimulation

**Public Transportation:**

Many adults with autism have difficulty in learning how to drive; some never learn how (Autism Now 2013). Those individuals who cannot drive must rely on family, friends, or caretakers to get from place to place. Due to high rates on unemployment, some individuals with ASD never earn enough money to buy their own vehicles. For this reason, people

with ASD need access to some form of public transportation or para transit (Autism Now 2013):

- ADA Para Transit Programs: for people of disabilities who are not able to use fixed-route bus systems
- Community Ride Programs: volunteer drivers who provide transportation to individuals who have limited access to public transportation
- Commuter Connections: organized carpool options
- Deviated Bus Routes: some buses may deviate off the fixed-route to pick up or drop off a passenger
- Medical Transportation Programs: provides rides to medical appointments for people with disabilities and low-income
- Opportunity Cars: a network of organizations that are dedicated in aiding low-income families acquire a vehicle
- Public Buses and Trains
- Ride Programs for Seniors and People with Disabilities: weekly ride programs funded by a city for local destinations
- Taxis
- Workers Needing Transportation: a program that assists low-income workers to go to and from work

**Housing:**
Few autistic adults live independently (Heasley 2013). About seventeen percent of young adults on the spectrum between the ages of twenty-one and twenty-five have lived independently. Since leaving high school, nine in ten young adults with autism have spent some time living with a parent or guardian. Housing options available for adults with autism include:

- Assisted living
- Buying a house
- Family living
- Intentional communities
- Licensed facilities
- Renting an apartment or home
- Shared housing
- Staying at home

NIH suggests that adults with autism require affordable housing (Housing Choice Voucher Program Section 8). The housing choice voucher program is a federal government program that assists low-income families, the disabled, and the elderly to afford decent housing within the private market (HUD.gov 2014). When a family or individual is issued a housing voucher, they are responsible to find a housing unit of their choice where the owner agrees to rent under the voucher program (HUD.gov 2014). Rentals must meet public housing agency's (PHA) standards of health and safety. The PHA directly pays the landlord a housing subsidy on behalf of the participating family or individual. The family or individual then pays the difference between the rent charged by the landlord and the amount subsidized by the voucher program (HUD.gov 2014). Eligibility for Section 8 is determined by PHA based on: family size, total annual gross income, and is limited to US citizens and non-citizens who have eligible immigration status.

Metropolitan Development and Housing Agency (Nashville's Section 8):

- Mission is to create affordable living opportunities in Nashville
- Equal opportunity housing
- ADA compliance

# Inclusion & Exclusion

Every society has its own way of incorporating or excluding specific categories, groups, or subjects; in other words, allowing social connections or refuting them (Ravaud and Stiker 2001). Stalinists sought to enact uniformity; Democracy celebrates the principles of freedom, liberty, and fraternity; some societies attempt to assist those who are termed to be "in need;" others provide a definition of an "ideal individual;" and some societies foster discrimination or segregation (Ravaud and Stiker 2001). Altogether, societies are challenged with the problem of managing differences.

Exclusion results in a culture where norms inhibit integration for people that do not correspond with the norm (Ravaud and Stiker 2001). People with a difference are at risk fo exclusion, unless specific measures are taken for prevention. Public authorities, such as institutions, assistance, or allowances, decrease the risk of exclusion, more difficulty in access to a place in society is often experienced by those with disabilities. Typical barriers that block individuals living with disability from inclusion into social spaces correspond with the lack of access (physical, psychological, and cultural).

An example of how the United States has attempted to be inclusive of those with disability can be seen in the Americans with Disabilities Act (ADA) of 1990. ADA prohibits discrimination in areas of transportation, employment, public accommodations, telecommunications, and public services of disabled individuals (Gerhardt 2009). The act also makes it unlawful for employers to discriminate against employees on the basis of a disability; employers are required to provide reasonable accommodations for disabled workers to assist in the performance of essential functions of the job. As mentioned in Chapter 1, the impact of ADA on employment for individuals with autism has not yet been tested. With the law came design standards and technical assistance as well.

## Disability, Health & the Emphasis of Inclusion of Disabilities

The U.S. Census 2000 counted 49.7 million with a form of long-lasting disability. Disability is caused by barriers within the environment that develop because the environment is unable to effectively adapt to the needs of individuals with disabilities (Fougeyrollas and Beauregard 2001). Public officials have emphasized creating accessible, public, physical and social environments, which may include: transportation, buildings, and medical, social, and income support groups (Enders 2001).

**Disability and Health Objectives for Improvement (HUD.gov 2014):**

- Be included in public health activities
- Receive interventions and services at decent times
- Interact with environments without barriers
- Participate in everyday activities

(HUD.gov 2014):

**Public Health Action (HUD.gov 2014):**

The Public Health Action was identified using the International Classification of Functioning, Disability and Health (ICF), and World Health Organization (WHO) (HUD.gov 2014).

Improve the conditions of daily life:
- Encourage accessibility to environment
- Encourage community living
- Remove environmental barriers through universal design concepts and operation policy shifts

Address inequitable distribution of resources:
- Appropriate health care of individuals with disabilities
- Education and employment opportunities
- Social interaction
- Access to assistive supports and technologies

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**"All people, including people with disabilities, must have the opportunity to take part in important daily activities that add to a person's growth, development, fulfillment, and community contribution."**

**"Disability is caused by the presence of barriers within the environment and occurs because the environment does not succeed in adapting to the needs of people who have impairment ."**

Expand the knowledge base and awareness about determinants of health for individuals with disabilities by increasing:
- Inclusion in public health data collection efforts across a lifespan
- Inclusion in health promotion activities
- Expansion of training opportunities for health care professions

People with disabilities are more likely to:
- Experience difficulties in getting health care they need
- Not have an annual dental visit
- Not have a mammogram in past two years
- Not have a Pap test in past three years
- Not engage in fitness
- Use tobacco
- Be overweight or obese
- Have high blood pressure
- Experience symptoms of psychological distress
- Receive less social-emotional support
- Have lower employment rates

# Landscape Affordance Theory

Affordances occur when different characteristics of an individual, such as social needs, personal intentions, and physical abilities are "matched with features of the environment" (Zeleke 2009).

**Three Fundamental Properties of the Theory of Affordance are:**

- Affordance exists relative to the capabilities of action of an individual
- The existence of an affordance is independent of an individual's ability to perceive it (Zeleke 2009)
- Affordance does not change as the goal of an individual changes

Shared affordances lead to the creation of shared environments. Environments can be evaluated for affordances without having to observe the actions of an individual.

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# What Urban Landscapes Create for Autism & Other Disabilities

Urban environments muster a variety of sounds, lights, and dangers. In smaller communities, typical people feel safer within their communities, having the advantage of knowing where everything is and who everyone is. A typical individual who lives in a large or small community, travels from home to work, runs errands, and gets involved with activities. However, autistic adults and other individuals with disabilities require specific services that cater towards their needs to live healthily in their communities. Large cities have more services for people with disabilities, but large communities are also difficult to navigate through due to a broader range of poor connection of services and areas within the city.

A component in designing cities inclusive of autistic adults is to design for sensory stimulation and to provide sensory relief opportunities. The sensory system helps our body maintain balance from the complexities of our environment into our internal world (Grandin and Duffy 2008). A typical nervous system allows outside information to stream smoothly to the brain. The brain will then tell what body part to move, stop doing, and slow down. Autistic individuals often have a dysfunctional sensory system, where one of more senses is over or under reactive to stimulation (Hatch-Ramussen 2013). For example, a distant car horn could sound like explosions to individuals with autism. Including pocket parks that stimulate individuals with autism is a detail in design that is also beneficial to the general public's well-being and health. Sensory stimulation "pockets" provide a place of serenity from the hustle and bustle of city life, and allow individuals to have more intimate relationships with themselves, members of the community, or even nature.

Though design for sensory stimulation is already prevalent and applies to small-scale design, such as therapeutic gardens, what is lacking in designing for adults with autism is the "big idea". The lack of connection between services for individuals with ASD reveals the exclusion of people who live with autism in city design. Current urban landscapes fail to provide for the welfare of autistic individuals.

## Augment to Literature:
## Open-Ended Interviews

The following open-ended interviews reaffirm the needs and concerns of individuals with disabilities, as stated in the introduction chapter. I conducted three interviews with individuals (and one caretaker) of varying disabilities. Though these individuals live in three varying degrees of community size, they each indicated specific concerns in what their city had to offer or what their city should improve. Though only three interviews could be conducted due to this project's time constraints, the information gathered does augment and affirm the literature review. Full notes taken during the interviews can be found in *Appendix A.*

**Tom Page**
**Wichita, KS | Living with Blindness**

Tom Page works as a self-employed musician and is owner of TOPtone Recording Studio in Wichita, Kansas. In addition to being a life-long musician, he holds an interdisciplinary Master's degree in statistical research methods

The interview with Tom Page pointed concern towards the lack of accessibility to public transportation, as well as an emphasis on the need for efficient public transit. Wichita's loop bus system contains unconnected routes and is untimely; twenty minutes apart by car can translate to two hours by bus. Taxis are unreliable as well, because an individual could wait for half an hour to two hours. A person with disabilities in Wichita has the option of Para Transit Systems, where a van comes to the rider's house, but the van will not go anywhere the buses do not.

Tom emphasized transportation as a key to employment access. He also stated that the most ideal place to live in Wichita is within

downtown, close to the bus hub, which means more bus coverage. A proximity grid of no more than ten to fifteen minutes of the hub works well to dwell in. Unfortunately, downtown's housing is made up of mostly condos of $100,000 or more, and few places in downtown are $800 or less. Suitable housing happens to be the least affordable, and the cheaper the housing gets, the less green space is available.

**Christopher Banner**
**Manhattan, KS | Living with**
**Asperger's Syndrome**

Christopher Banner is currently retired, but writes book reviews for *The Mercury*. Before retirement, he worked for Kansas State University, tuning and repairing musical instruments - a job that he found to be very suitable for him, because he needed a career that was flexible and that allowed him to work with his hands. He takes pride in his hobbies, including: restoring his home, building furniture, and even assembling vehicles.

Christopher emphasizes the need to have access to medical support, pharmacies, and therapies. Pawnee Mental Health, located in Manhattan, Kansas, is a facility that sees people regardless of income. Banner finds this facility to be an asset to those with disabilities and in need of medical support, especially for those who have low-income.

In Banner's opinion, large cities have an advantage over smaller cities, providing more choices in services and opportunities. Small towns tend to have fewer employment opportunities, but depending on the needs or interests of the individual, a small town may be found to be more suitable to live in.

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**Petra Tillman**
**Leavenworth, KS | Mother of**
**Son Living with Autism**

**William Tillman**
**Leavenworth, KS | Living with Autism**

William Tillman graduated high school about six years ago and is currently volunteering at Leavenworth Public Library, re-shelving books. His mother, Petra, is his job coach. Currently, William lives at home with his parents and relies on family for transportation. He is also involved with the Leavenworth Special Olympics and Special Needs Assistant Program (S.N.A.P.).

Petra Tillman emphasizes that government does not do enough for individuals with disabilities. Many individuals ith disabilities are "falling into cracks." According to Petra, vocational rehabilitation in Kansas is a ninety day program that retrains someone that was sick or hurt; once the 90 days are up, the individual is on his own. This type of program is not suitable for William, because he needs a program that involves a job coach and semi-independent work. Those "falling in the cracks," have little choice but to work in sheltered workshops. Sheltered workshops can be an option, depending on the functioning of the individual. William cannot work in a sheltered workshop, because he may learn inappropriate things from other workers, such as physical outbursts, and will not learn proper skills.

There is a group home option for William, but Petra states that it would be too restrictive for her son. Other counties have duplexes with housing for disabilities on one side, and caretakers or helpers for those individuals on the other. These homes typically house six to eight people; however, it is difficult to pair personalities.

Smaller communities provide a better sense of security; Petra would never let William walk alone in Kansas City. Though smaller communities have more freedom, larger cities have more services in public transportation, as well as other provisions.

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# Importance of Inclusive Design for Adults with ASD

One in sixty-eight children is diagnosed with autism spectrum disorder in the United States (Autism Speaks 2013). As the population of autistic children expands, so does the need to design for the increasing population of autistic adults become more prevalent. As stated in Chapter 1 (p.07), with an employment rate of ten percent and the majority of autistic adults having to live at home due to limited housing opportunities, adults with autism have extremely minimal chances of socializing and becoming independent (Harmon 2011). Most jobs offered for autistic individuals are either monotonous and do not utilize the individual's skills or lack in funds to provide training for disabled workers. Housing options are limited, too. Most adults with autism are faced with remaining at home, family living, renting an apartment or home, shared housing, intentional communities or licensed facilities (Myers and Associates 2010).

Once individuals with autism reach the age of twenty-one, school services cease and transportation provided by the Individuals with Disabilities Education Act (IDEA) stops (Nikolchev 2011). Adulthood for many people means being employed and living in a particular area, however, having a sense of belonging in a community is just as significant (Autism Society 2013).

As landscape architects, city planners, and designers, we are ethically obliged to design for health, safety, and welfare. Autistic adults have as much need for health, safety, and welfare as any other individual. Despite diagnosis of autism on the rise, the level of knowledge about autism within the general public is still low. Employment opportunities, housing expertise, social programs, and education are lacking due to limited funding, economic issues, and policy making. The need is growing for research on how services and programs for autistic adults can be structured (NIH 2013).

# Housing, Employment, Urban Design & Planning Precedents

## Housing & Employment

### Fairweather Lodge
Fairweather Lodge is a self-governed, recovery oriented housing model of evidence-based research practice for people with mental illnesses. The model consists of shared housing and employment for those who reside in the lodge. Fidelity standards were developed to certify adherence to principles and practices that form the foundation of the model (PA

Faye Graye (Nikolchev 2011):

## "At 21, the buses stop coming."

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Housing Choices 2013). Adherence with fidelity standards leads to client satisfaction and program outcomes, which include: average weekly earnings and hours worked, number of hours of staff involvement, social interaction, psychiatric stability, and medication compliance (PA Housing Choices 2013). Staff serve as teachers, coaches, and advisors to Fairweather Lodge, available in emergencies and will visit several times a week as needed.

Fidelity Standards Life Domains:
- Housing
- Employment
- Social
- Autonomy

Lodges are essentially shared, permanent housing units that are affordable housing alternatives to Community Residential Rehabilitation programs, Personal Care Homes, rooming houses, and efficiency apartments. Rent, which includes utilities, groceries, and transportation, is shared by five to eight Lodge users, making Fairweather Lodge a cost effective housing model (PA Housing Choices 2013). Lodges are located within residential communities close to commercial centers and public transportation.

The Fairweather Model operates as a consumer run business where lodge members make decisions in regard to business operation. Some residents may choose to work outside the lodge, but still support efforts of lodge business. Since mental illness (the audience for the lodge is not individuals with autism) is a chronic illness, lodge members assume the work of another member who may be experiencing mental health problems to the degree that they are unable to work (PA Housing Choices 2013).

Members do not lose their employment position as a result of a mental health condition. The model is also a way out of poverty as well as a cushion for financial security for its members.

**The Faison Residence**
The Faison Residence is a semi-independent living community with forty-five apartments; thirty percent of units have special needs. The remaining tenants are rented to the general public, which makes the community inclusive and integrated. It provides a "virtual village" or support through smart home and security technology. A network of professional caregivers permanently live and work within the residence, and provide 24/7 support for its special needs tenants. The purpose behind the Faison Residence is to create intentional "smart" neighborhoods that use support models to create a semi-independent life for its special needs members within a neighborhood community (Faisonresidence.org 2014).

**Jewish Vocational Service of MetroWest Career Center for Individuals with Autism Spectrum Disorder**
Opened by Jewish Vocational Service of MetroWest in East Orange, NJ, this career center offers simulated work centers to allow clients to gain experience in real-life practice (Ginsberg 2011). For example: One scenario replicates a clothing store with racks of garments on different hangers. These hangers and clothes must be arranged a certain way, as well as shelves of clothing, after being folded, can be put away (Ginsberg 2011). Another scenario depicts a medical office, which includes cabinets, a desk, and files that must be filed according the medical office systems (Ginsberg 2011). There is also a grocery store, business office, and a shipping and receiving center.

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## Urban Design & Planning

**Gender Mainstreaming Urban Design**
Since the 1990's, the city of Vienna, Austria has adopted gender mainstreaming in many areas of city administration (Foran 2013). Gender mainstreaming is part of project that aims to take gender into consideration in public policy; this means city administrators create laws and regulations that are beneficial for both men and women equally (Foran 2013). With more than sixty pilot projects thus far, officials say it is working (Foran 2013). In 1999, residents in Vienna were asked to fill out a questionnaire on how often they used and why they used public transportation. The majority of men reported using either public transit or car twice a day to go to work and come back home. Women reported that they used the city's network of public transit, sidewalks, streetcars, and subway lines more frequently for a multitude of reasons (Foran 2013). Officials also found that women were more likely to divide their time between work and family commitments. From this statistic, city planners developed a plan to improve mobility. City plans included: additional lighting to make walking at night safer, widened sidewalks and ramps to accommodate strollers, wheelchairs, and easy pedestrian navigation. Time use surveys by the Austrian national statistics office found that women spend more time with household chores and childcare than men (Foran 2013). In 1993, Vienna held a design competition to develop an apartment complex designed for and by women that would make life easier for women. The project was given the name *Women-Work-City*. Women-Work-City consists of a series of apartments with courtyards that allow parents and children to spend time outside without the hassle of traveling far from home. The project contains an on-site kindergarten, pharmacy and doctor's office, and is in close proximity to public transportation.

Evan Kail (Foran 2013):

**"What made the project unique was that we worked to define the needs of the people using the space first and then looked for technical solutions. Very often it is the opposite, where technical or aesthetic solutions determine the end result."**

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## Why Inclusive Design for ASD Benefits: You, Me & Everyone Else

The connection of services for individuals with ASD is an overlooked aspect in planning for healthy communities. Planners, landscape architects, and architects design cities with the intention of providing adequate services and needs for the general public, as well as follow ADA code for individuals with impairments. However, designing for a "generalized" population can only go so far in being successful. It is difficult to truly render a city inclusive of all members, but thinking of more residents when designing communities only increases the success of healthy cities. Following design guidelines that cater toward individuals with autism adds an additional level of health to cities. For example, referring back to page 28, adults with autism require access to sensory stimulation, which can become "pocket parks." Pocket parks are beneficial for the general public, because access to green space and places of respite relieve stress, as well as provide aesthetic benefits within a city. Designing cities inclusive of autistic adults does not mean that city components must be taken away or demolished in order to provide an equal playing field for everyone, but that inclusive cities provide opportunities for more members to experience social and environmental interactions, as well as have access to specific services.

## Refinement of Needs for Adults with ASD in an Urban Setting

Urban environments are dynamic machines that can provide, as well as prevent, needed services for autistic individuals. Barriers to a city more inclusive of services for adults with autism correspond with a lack of access to: physical, psychological and cultural social spaces. What adults with autism need are connected services that allow access in close proximity. Autistic individuals must be able to have access to: vocational training programs, employment, life skills training, physical and mental health support, public transportation, and affordable housing. These six needs are key to a city more inclusive of adults with autism.

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# 03

## Initial Urban Design Systems Toolkit

**Toolkit Setup**

**Initial Toolkit**

**Employment**

# Toolkit Setup

Through the synthesized literature review and limited interviews, I devised an initial theoretical urban systems toolkit. My toolkit summarizes services and programs that cater to adults with autism under the needs established by National Institute of Health.

# Initial Toolkit

## Vocational Training

(Synthesized from Ginsberg 2011, VISTA 2014, *Appendix A*)

Education Facilities

Employment Training Facilities

Organizations to Provide Coaching

## Employment

(Synthesized from EEOC 2007 , Grandin 1999, Autism Now 2013, Grandin and Duffy 2008)

Competitive Employment

Customized Employment

Enclaves

Group Supportive Employment

Sheltered Workshop (Least Valued)

Supported Employment

Categories:
Administrative Support
Craft Workers
Laborers
Professionals
Operatives
Sales Workers
Service
Technicians

## Life Skills Training

(Synthesized from VISTA 2014)

Education Facilities

Occupational Therapy

# Health Support

(Synthesized from NIH 2014,
Autism Speaks 2014)

Access to Healthy Food

Access to Open Space

Gyms

Health Care Facilities:
Hospital
Dental
Gastroenterologists
Neurologists
Medical
Pharmacies
Psychiatrists
Psychologists
Therapies
Diet and nutrition

Sensory Stimulation or Relief

# Public Transportation

(Synthesized from Autism
Speaks 2014)

ADA Para Transit
Programs

Community Ride
Programs

Commuter Connections

Deviated Bus Routes

Medical Transportation
Program

Opportunity Cars

Public Buses and Trains

Ride Programs for
Seniors and People
with Disabilities

Taxis

Workers Needing
Transportation

# Affordable Housing

(Synthesized from Heasley 2013,
HUD.gov 2014, PA Housing Choices
2013, Faisonresidence.org 2014)

Assisted Living

Buying a House

Family Living

Intentional Communities

Licensed Facilities

Renting an Apartment
or Home

Shared Housing

Staying at Home

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**Figure 2.1**
Initial Urban Design Systems Toolkit
(by Author)

# Employment

## Careers for Adults with Autism

(Synthesized from EEOC 2007, Grandin 1999, Grandin and Duffy 2008)

Because of existing autism-specific literature, the toolkit's employment category was able to be expanded into more detail. Within the toolkit, career options for adults with autism are drawn from Temple Grandin and Kate Duffy's *Developing Talents: Careers for Individuals with Asperger Syndrome and High-Functioning Autism* and Temple Grandin's "Choosing the Right Job for People with Autism or Asperger's Syndrome." These are not the only career options for adults with autism. This list is meant to provide a starting point, not an exhaustive resource.

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The career examples provided by these resources, in order to have a better understanding of the type of work individuals with severe autism may thrive in, is categorized using the U.S. Equal Employment Opportunity Commission's Classification Guide (EEOC 2014).

## Legend

● Non-Verbal (Grandin 1999)

● Visual Thinkers (Grandin 1999)

● Non-Visual Thinkers (Grandin 1999)

Recommended for High-Functioning (Grandin and Duffy 2008)

## Admin. Support

● Bank Teller
● Clerk
● Data Entry
● Inventory Control
● Library Science
● Veterinary Assistant

## Operatives

● Copy Shop
● Equipment Design
● Factory Assembly
● Information Technology
● Printing
● Recycling Plant
● Re-shelving Books
● Restocking Shelves
● Taxi Driver
● Video Game Design
● Warehouse
● Web Page Design

## Craft Workers

- Aircraft Mechanic
- Appliance Repair
- Automobile Mechanic
- Building Trades
- Computer Repair
- Handcrafts
- HVAC
- Instrument Tuning
- Maintenance/ Repair
- Power Plant Operator

## Laborers

- Lawn Maintenance

## Professionals

- Accounting
- Artist
- Biological Research
- College Professor
- Computer Programming
- Engineering
- Graphic Arts Design
- Journalist
- Library Science
- Mathematician
- Photography
- Physicist
- Statistician

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## Sales Workers

- Clerk
- Telemarketing

## Service

- Cleaner
- Fast Food
- Janitor
- Maid

## Technicians

- Drafting
- Laboratory Technician
- Veterinary Technician

# 04

## Evaluation of Nashville, TN

# Nashville, Tennessee

## Introduction

Also known as *Music City*, due to its many music venues and long history of famous music stars, Nashville, Tennessee ranks within the nation among the lowest for cost-of-living (e.g. groceries, housing, utilities, etc.), with an overall cost that is 10.2% less than the national average (Visitmusiccity.com 2014). The city has a population of about 650,000 people and continues to increase due to transportation advancement, labor supply, and development opportunities. Since 2002, the downtown's residential population has grown 3,315 people, based on additional new units in downtown (Visitmusiccity.com 2014).

Although Nashville is well known as a music recording center and tourist attraction, the city has a diverse range of business and industry. Nashville's major industries include: automobile production, finance, health care management, higher education, insurance, music production, printing & publishing, technology manufacturing and tourism.

Since 2010, Nashville has adopted a **Form-Based Code**. Rather than using typical zoning codes that separate use, form-based codes use physical form for organization. These codes address the relationship between building facades and public realm, mass and form of buildings, and scale of streets and blocks (FCBI 2014). These codes are geared towards a regulatory plan that states appropriate development form and scale, not only difference in land use types.

For the following inventory analysis of downtown Nashville, TN, I used internet resources, such as, Google Earth and Nashville related websites, to locate specific services referenced in the initial urban design systems toolkit. Though using secondary data sources is a limitation, the final proposal is theoretical and is intended to provide just a starting point for planners and designers when designing cities inclusive of autism services.

# Neighborhoods

The overall geographic boundary of the study area was determined through the *Downtown Community Plan 2007* (Metropolitan Planning Department 2007). *Downtown Community Plan 2007's* boundary is within the I-440 loop and consists of the following neighborhoods adapted from the *Downtown Community Plan 2007* (Figure 4.1):

- **Hope Gardens**
  Residential neighborhood
- **Bicentennial Mall**
  Farmer's Market and Park
- **Capitol Hill**
  (State offices)
- **Sulphur Dell**
  Future site of Sounds Stadium
- **Public Square**
  Civic institutions
- **The Gulch**
  Multifamily, young urbanites, lofts
- **The Core**
  Offices, museums, Tennessee State University Avon Williams Campus
- **Second Avenue**
  Shopping district, Fort Nashborough, Riverfront Park
- **Lower Broadway**
  Neon lights and honky-tonks
- **Upper Broadway**
  Frist Visual Arts Center, Bridgestone Arena
- **SoBro**
  Music City Center, Country Music Hall of Fame, Walk of Fame Park, hotels
- **Rutledge Hill**
  Business district, Nashville Children's Theater
- **Rolling Mill Hill**
  Multifamily housing
- **East Bank**
  Industry, LP Field, Cumberland Park

For the following inventory analysis maps, I have kept the initial site boundary at a estimated two mile radius from the central point of downtown. This was done in order to provide more background on what the area within the *Downtown Community Plan 2007's* boundary provides compared to its' outskirts.

Hope Gardens

Bicentennial Mall

Sulphur Dell

East Bank North

Cumberland River

Public Square

Capital Hill

East Bank

Second Avenue

The North Gulch

The Core

Lower Broadway

East Bank South

Upper Broadway

SoBro

Gateway Boulevard

Rolling Mill Hill

Rutledge Hill

The Gulch

**Figure 4.1**
**Neighborhoods (adapted by Author from**
*Downtown Community Plan 2007*)

Miles

0    0.25    0.5    1

# Existing Disability & Autism Services

Within the Core and Capitol Hill neighborhoods of downtown, there is a small variety of public services for those with disabilities. Two services pertain to mental or intellectual disability, whereas the others pertain to general services for those in need of vocational rehabilitation, welfare, food stamps, and housing assistance (Figure 4.2).

47

One location within Nashville offers services for children and adults with autism — Vanderbilt Kennedy Center. Vanderbilt Kennedy Center, located outside the study boundary, is a research center that provides a variety of services for people with disabilities, families, and the community. Its' Treatment and Research Institute for Autism Spectrum Disorders (TRIAD) offers autism-specialized resources and services for families and professionals (Vanderbilt Kennedy Center 2014). Though the Vanderbilt Kennedy Center has more focus on children with autism, they also provide some resources for autistic adults.

## Legend

Disability Services

Autism Services

Urban Housing Solutions

Tennessee Department of Human Services

Cumberland River

Mental Health Services

Disability Determination

Vocational Rehabilitation

Intellectual Disability Services

Tennessee Commission on Aging and Disability

Rehabilitation Services

Vanderbilt Kennedy Center

**Figure 4.2**
**Inventory of Existing Disability Services**
**(by Author)**

Miles

0    0.25   0.5            1

# Existing Health

There are a small variety of healthy opportunities within downtown Nashville (Figure 4.3). Downtown Nashville contains one destination for fresh, healthy food — the Nashville Farmers' Market. The Farmers' Market is open seven days a week, is divided into three distinct areas (farmers, merchants, and restaurants), and supports both locally owned and operated businesses (NFM 2013). It also provides culinary classes and production rental opportunities.

An estimate of twelve public parks exist within the initial site study boundary, as well as a greenway. Some of the parks are more interactive with the community, such as Bicentennial Capitol Mall State Park, adjacent to the Farmers' Market, with its' spray park and historical assets, as well as Public Square Park, located in front of Nashville's historic Metropolitan Courthouse, serving as a backdrop for concerts.

There are few medical services, mostly relating to dental offices and a family clinic, as well as a multitude of gyms, clubs, and recreational services within and south of the core of downtown.

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## Health Support

Access to Healthy Food

Access to Open Space

Gyms

Health Care Facilities:
Hospital
Dental
Gastroenterologists
Neurologists
Medical
Pharmacies
Psychiatrists
Psychologists
Therapies
Diet and nutrition

Recreation

Sensory Stimulation or Relief

## Legend

Healthy Food

Gym and Recreation

Clinic or General Health Service

Open Space

Cumberland River
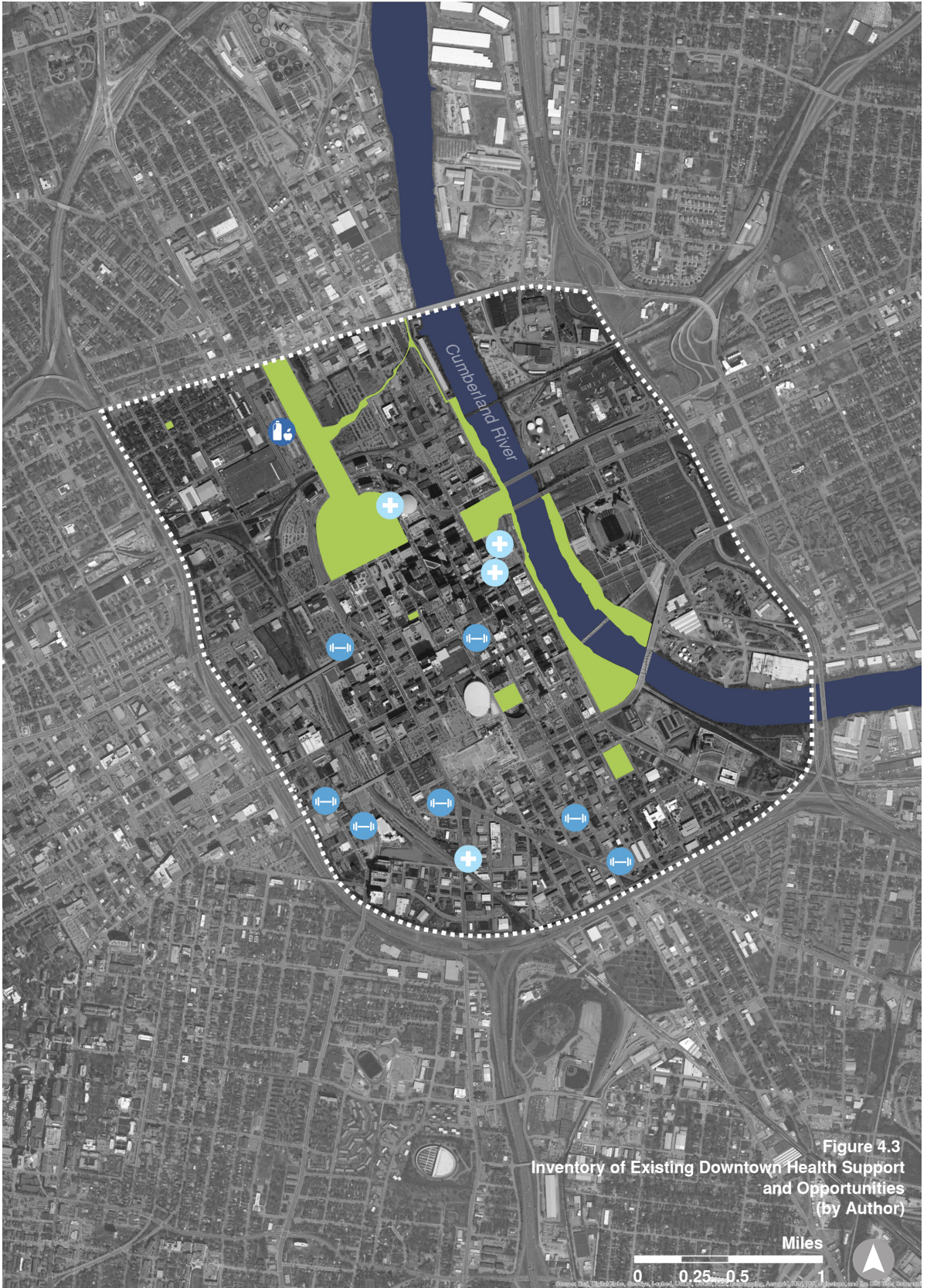
Figure 4.3
**Inventory of Existing Downtown Health Support
and Opportunities
(by Author)**

**Miles**

0    0.25   0.5                    1

# Existing Housing

Downtown Nashville, Tennessee has been growing in residential services since the early 2000s. With an expanding residential market, more multifamily units and lofts are sprouting within the Core, the Gulch, and the Rolling Mill Hills vicinities (Figure 4.4). Single-family residential housing was not taken into consideration for this inventory, because most neighborhoods consisting of single-residents are located outside the site boundary, aside from the Northeastern corner where Hope Gardens is situated.

Other affordable housing locations outside the boundary were noted in order to provide a better understanding of where downtown fits in providing Section 8 Housing. Referring back to page 24, Section 8 is a federal government program that assists low-income families, the disabled, and the elderly to afford decent housing within the private market (HUD.gov 2014). There are only two affordable housing complexes that provide Section 8 Rent Assistance within the site boundary (MDHA 2014): James Robertson Apartments and Laurel House. Downtown Nashville has a selection of general housing; however, it is lacking affordable places to live.

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## Affordable Housing

Assisted Living

Buying a House

Family Living

Intentional Communities

Licensed Facilities

Renting an Apartment or Home

Shared Housing

Staying at Home

## Legend

Existing General Multifamily Housing

Existing Affordable Housing

Cumberland River

James Robertson Apartments

Laurel House

**Figure 4.4**
**Inventory of Existing Downtown and Surrounding**
**Neighborhoods Housing Options**
**(by Author)**

Miles

0      0.25   0.5                    1

## Vocational Training

Education Facilities

Employment Training Facilities

Organizations to Provide Coaching

# Existing Vocational Training Services

There are five vocational training services specific to people with disabilities within a two mile radius of the core of downtown (Figure 4.5). Only two, Tennessee Department of Intellectual and Developmental Disabilities and Vocational Rehabilitation Office, are within the study site's boundary.

Vanderbilt Kennedy Center, a research center highlighted in an earlier inventory analysis for autism services, provides a two-year nonresidential certification for students with disabilities in areas of education, social skills, and vocational training (Vanderbilt Kennedy Center 2014). This is a Comprehensive Transition Program designated by the U.S. Department of Education.

## Legend

Vocational Training

Disability Vocational Training

Cumberland River

TN Dept. of Intellectual and
Developmental Disabilities

Vocational Rehabilitation Office

Pre-Vocational and Employment Program

Rochelle Center

Vanderbilt Kennedy Center

**Figure 4.5**
**Inventory of Existing Vocational Training Services**
**(by Author)**

Miles

0    0.25  0.5              1
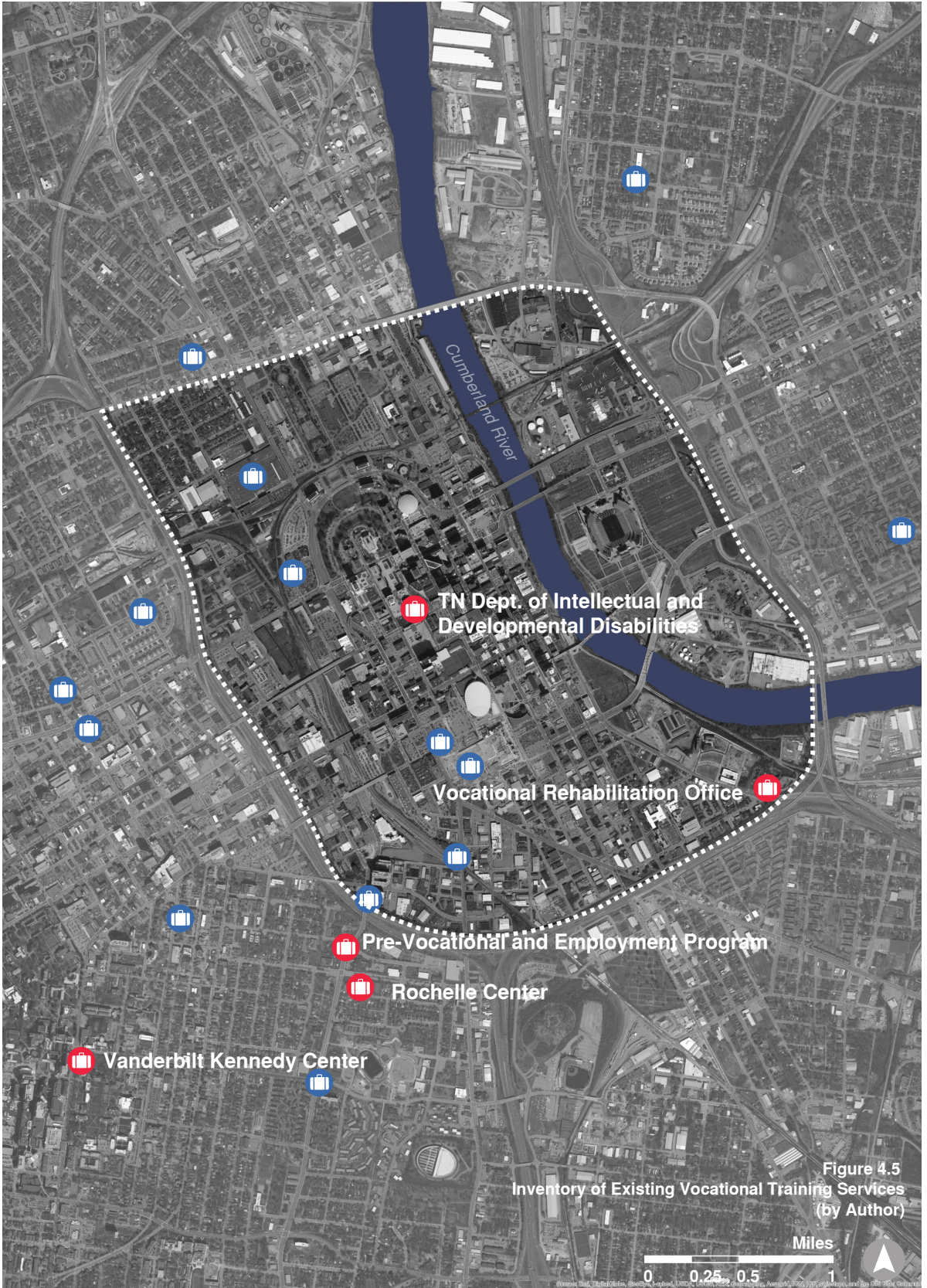
# Existing Transit

The Nashville Metropolitan Transit Authority (MTA) offers public transportation to residents and visitors in Nashville-Davidson County, with more than 40 bus routes (Nashville MTA 2014). Under Title VI of the Civil Rights Act of 1964, MTA ensures that no individual is denied service on the basis of race, color, or national origin.

Nashville currently offers a variety of public transportation, such as:

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- AccessRide (Para Transit Program)
- B-Cycle stations (Rent a bike)
- Bicycle trails
- Carpooling
- MTA Bus Rapid Transit Lite (BRT)
- Ride Sharing (employer-based)
- Taxi
- Vanpooling

AMP (Figure 4.6) is a proposed 7.1 mile, full-service BRT line that is currently being planned for one of Nashville's major corridors, Broadway/West End, beginning in East Nashville to Saint Thomas hospital (Nashville MTA 2014). Issuers of the proposal state that the AMP would decrease traffic congestion, have real-time arrival information and fare collection kiosks, and serve as an economic development component.

Considering that the proposed AMP line is planned along a major corridor, my design proposal will relate to the potential use of the AMP line.

## Public Transportation

ADA Para Transit Programs

Community Ride Programs

Commuter Connections

Deviated Bus Routes

Medical Transportation Program

Opportunity Cars

Public Buses and Trains

Ride Programs for Seniors and People with Disabilities

Taxis

Workers Needing Transportation

## Legend

B — B-Cycle Station

Bus Stop

amp — AMP Stop

Bicycle Trail

City Proposed Bicycle Trail

Bus Route

AMP Line

Cumberland River

**Figure 4.6**
Inventory of Existing Nashville Public Transportation
(by Author)

Miles

0     0.25   0.5                    1

# Overlaid Inventory

The overlaid inventory data, consisting of: Nashville neighborhoods, disability services, affordable housing, healthy opportunities, transit, and vocational training programs, brought my attention to three key clusters and services (Figure 4.7):

**Area A** is a vital component to design development due to its well-utilized Farmers' Market. Downtown Nashville, according to USDA, is considered a **food desert**. A food desert refers to urban neighborhoods or rural towns that have little to no access to fresh, healthy, and affordable food, which is usually provided by grocery stores  (USDA 2014).

**Area B** contains a large concentration of services and activity. This grouping provides affirmation of a growing urban core that has potential to grow in disability services.

**Area C** is a prime focus area, containing Vanderbilt Kennedy Center. Vanderbilt Kennedy Center is one of the few in Nashville, if only, research institution that gears towards autism of all ages that provides services and programs for autistic adults. Ensuring a connection from the core of downtown to this facility is vital in my theoretical diagrammatic proposal for Nashville.

## Legend

| | | | |
|---|---|---|---|
| 🏠 | Affordable Housing | ▬ | AMP Route |
| ♿ | Disability Services | amp | AMP Stops |
| 🧴 | Farmers' Market | ◼ | Underutilized Lots |
| 🏋 | Gym | ◯ | Areas of Interest |
| ✚ | Health Services | | |
| 💼 | Vocational Training | | |
| ◼ | Open Green Space | | |

Cumberland River

A

B

C
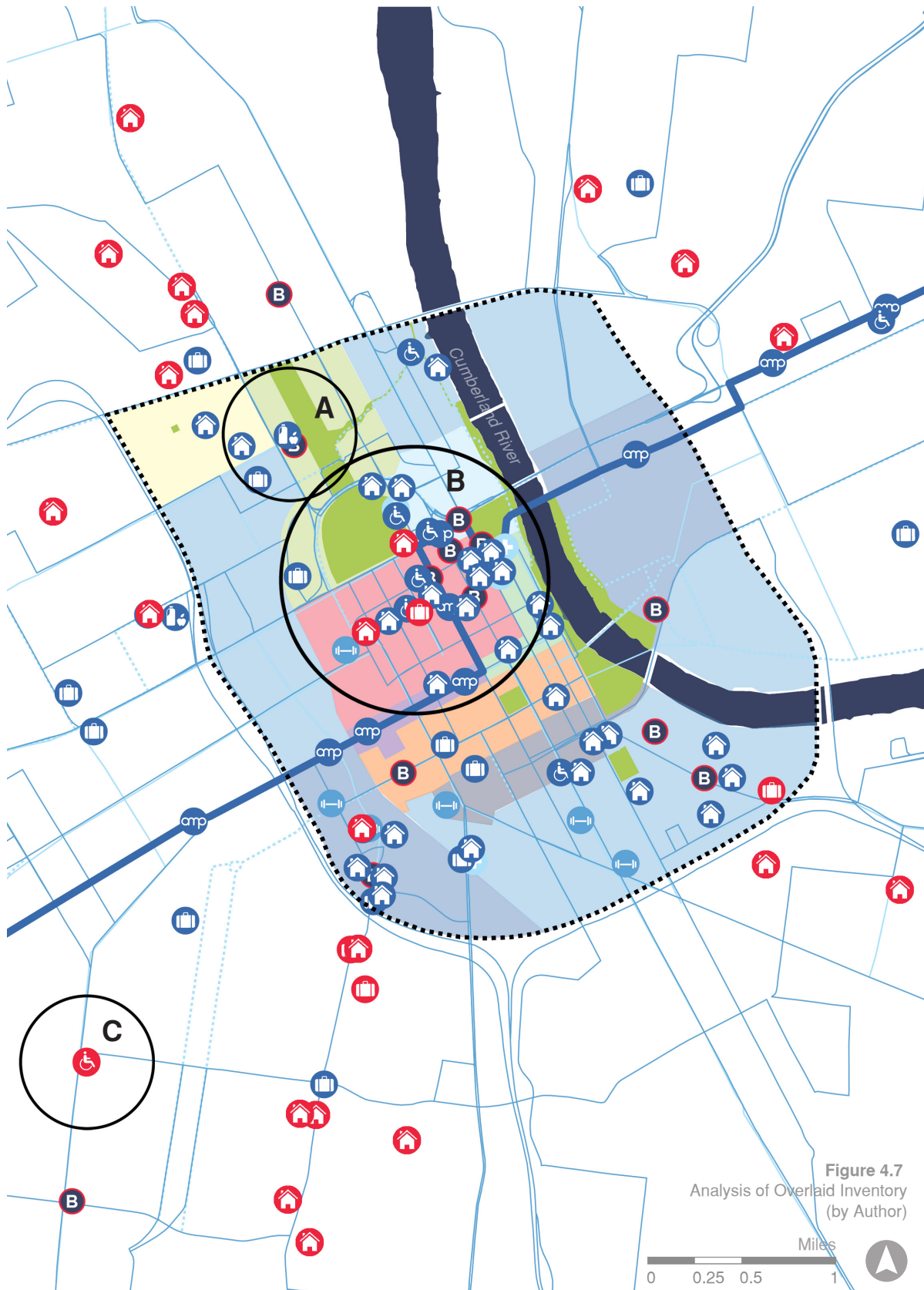
**Figure 4.7**
Analysis of Overlaid Inventory
(by Author)

Miles

0    0.25   0.5              1

# Employment

| | |
|---|---|
| 🔔 | Competitive Employment |
| | Customized Employment |
| | Enclaves |
| | Group Supportive Employment |
| | Sheltered Workshop (Least Valued) |
| | Supported Employment |

Categories:
Administrative Support
Craft Workers
Laborers
Professionals
Operatives
Sales Workers
Service
Technicians
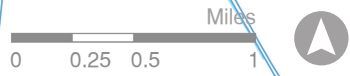
# Urban Study Area Boundary

Once key areas were identified, I narrowed the initial, downtown boundary according to areas of interest. The new study boundary begins at the Farmers' Market and trails its way to Vanderbilt Kennedy Center (Figure 4.8). The link between the original site boundary and Vanderbilt Kennedy Center developed a realm between the two focal areas, which was defined by the toolkit. There is now a "new" definition of a district, reflected by the services provided.

Vanderbilt Kennedy Center is situated two miles from the core of downtown; existing transit from Vanderbilt Kennedy Center to Capitol Hill is about an 18 minute ride when using public transportation - depending on city traffic. The AMP line is also a key factor to note, because it is a primary transit connection within the urban study area boundary.

Due to the narrowed study boundary, I was able to indicate potential businesses that correspond with the toolkit. Most businesses that reflect the recommended types of employment for individuals with autism occurs along the AMP line, and is comprised of a variety of employment types, such as: service, craft workers, and operatives.

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## Legend

| | | | |
|---|---|---|---|
| 🏠 | Affordable Housing | 👷 | Administration Support |
| ♿ | Disability Services | 📐 | Craft Workers |
| 🍎 | Farmers' Market | 🏃 | Laborers |
| 🏋 | Gym | 👔 | Professionals |
| ➕ | Health Services | ⚙ | Operatives |
| 💼 | Vocational Training | 🧍 | Service |
| 🟩 | Open Green Space | 🔧 | Technicians |
| ▬ | AMP Line | ┅ | Walkability |
| amp | AMP Stops | 🟦 | Underutilized Lots |

2 Miles

1 Mile

.5 Mile

Vanderbilt
Campus

Cumberland River

**Figure 4.8**
Urban Study Area Boundary with Existing Boundary
(by Author)

Miles

0            0.25            0.5

# Analysis:
# Underutilized Land

I located underutilized lots (parking lots) through
Google Earth as potential areas of interest
(Figure 4.9). From the indicated locations
of design potential, a clear connection from
Vanderbilt Kennedy Center, through the core
is made, terminating at the Farmers' Market.
This connection forms the basis of a system
of service and needs for autistic individuals.

## Legend

■ Underutilized Lots

— New District Connectivity

Vanderbilt
Campus

Cumberland River

**Figure 4.9**
Analysis: Underutilized Land
(by Author)

Miles

| 0 | 0.25 | 0.5 |

# Analysis: Land Use & Implications for Infill

## Legend

Bicentennial Mall
Contains: Nashville Farmers' Market, Capitol Building, Bicentennial Mall, Supreme Court, Library and Archives

2nd Avenue (Shopping District)
Contains: Fort Nashborough, Riverfront Park, Retail, and Restaurants

The Core
Contains: Offices, Retail, Museums, Public Library, Music Venues, Bridgestone Arena, Frist Visual Arts Center, Tennessee State University Avon Williams Campus, and Tennessee Performing Arts Center

SoBro
Contains: Music City Center, Country Music Hall of Fame, Walk of Fame Park, Schermerhorn Symphony Center, Nashville Symphony Orchestra, Johnny Cash Museum, Restaurants, Hotels, and Bars

The Gulch
Contains: The Icon, Multifamily Housing, Lofts, Restaurants, Bards, Young Urbanites, and Industrial History

Auto District
Contains: Automobile retail, restaurants, and varied retail

Hotels and Music
Contains: Hotels, music businesses, and restaurants

Restaurants
Contains: Fast food, an apartment building, library, and Disciples Divinity House

Vanderbilt University
Contains: Vanderbilt Kennedy Center

Underutilized Lots

Existing Services

Cumberland River
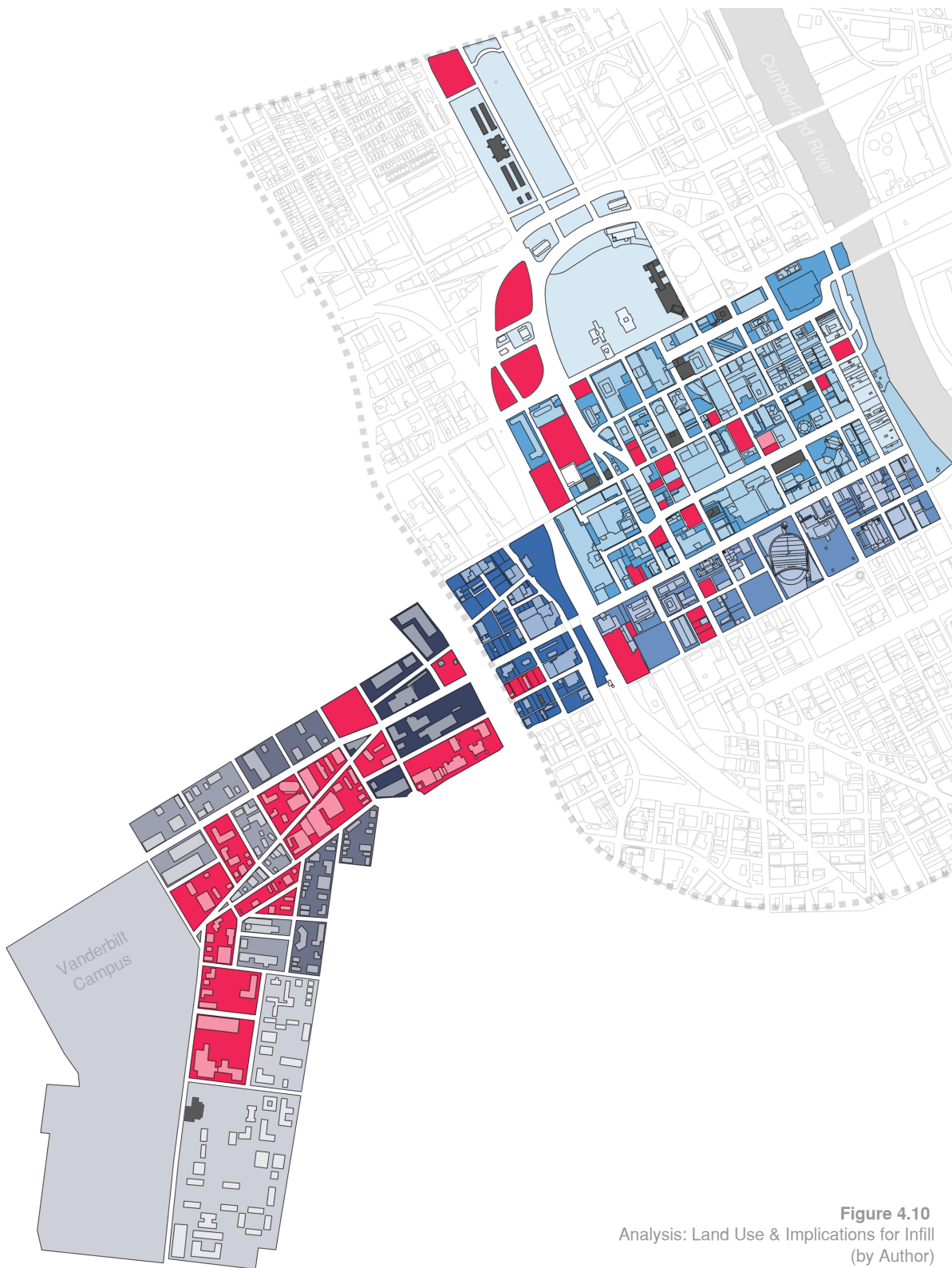
Vanderbilt
Campus

**Figure 4.10**
Analysis: Land Use & Implications for Infill
(by Author)

Miles

0                    0.25                    0.5

# 05

65

**Diagrammatic Proposal:**
**A City Inclusive of Autism**
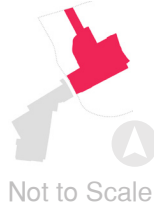
# Design Proposal

## Overview

This chapter displays my theoretical diagrammatic proposal of Nashville, Tennessee, utilizing the underutilized lots analyzed in Chapter 4, proximity to services indicated from the initial urban design systems toolkit, and intention of providing an inclusive corridor of services for adults with autism. In Chapter 1, p.12, I cited Ken Greenberg's statement that small, collective projects from various stakeholders and communities are what make up a city; cities are about diversity — not density. The theoretical design for Nashville involves a minimal infill of proposed services, avoiding a design dense with forms and lacking in an appropriate amount of function. Each proposed function relates to its surrounding characteristics illustrated in Chapter 4, Figure 4.10 (p.66), developing a cohesive and functional plan. The connection of clusters of services develops a corridor of different neighborhood characteristics. These new characteristics are threaded into the existing neighborhood characteristics, interconnecting with the existing community, providing an environment that is inclusive of autistic adult services.

My final theoretical design proposal provides more affordable housing locations that connect with the proposed corridor of autism services, links healthy food areas to other areas in need, provides life skill and vocational training facilities adjacent to civic or institutional programs, and includes green space that provides a healthy aesthetic and sensory stimulation opportunities. I utilized the existing AMP line proposal, because it is proposed over an existing major corridor. My design proposal separates from the AMP line and connects downtown to Vanderbilt Kennedy Center.

Quantified proposed affordable housing units, square footage of green space, and access to services provide a sense of what my proposal provides. A small infill of services leads to an efficient amount of services that can be utilized by individuals with autism, as well as others with disabilities or those considered to have no limitation. This proposal is not intended to screen out individuals who do not have autism, but to provide autism inclusive services to the existing neighborhoods.

Finally, I drafted a scenario involving a typical day for an adult with autism which offers an example of how the design could be used by those in city design. Though this scenario is theoretical, it takes into consideration what I know of my little brother, Marc, an adult living with autism (see p.xvi), the experiences of William Tillman (Appendix A), and combines scientific and diagnostic data on what autism is and what those living with autism may need.
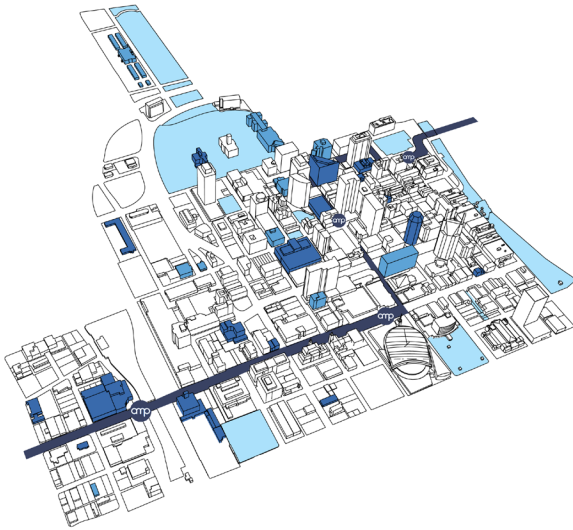
For this model of downtown's autism services proposal, I developed a diagrammatic infographic (Figure 5.1) of my design process and final outcome in four steps: existing services and conditions, underutilized lots for development, proposed connection of autism services and form development, and  final design with existing services.



Not to Scale

# Design Principles: Downtown Services

## Proposed Connection

Existing Services and Conditions

— AMP Route

(amp) AMP Stops

Open Space

Disability Services

Employment
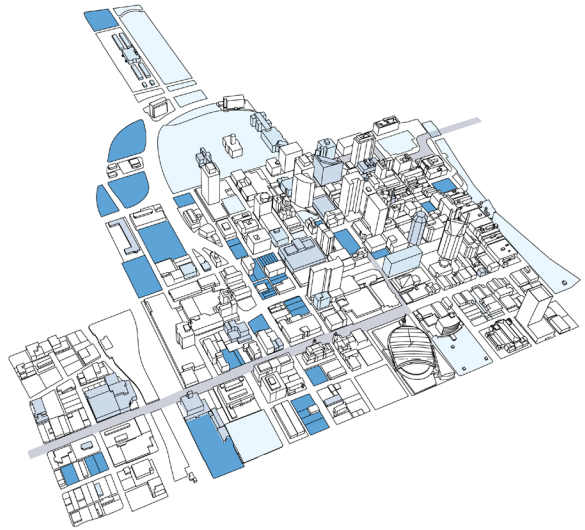


Underutilized Lots

Parking Lots
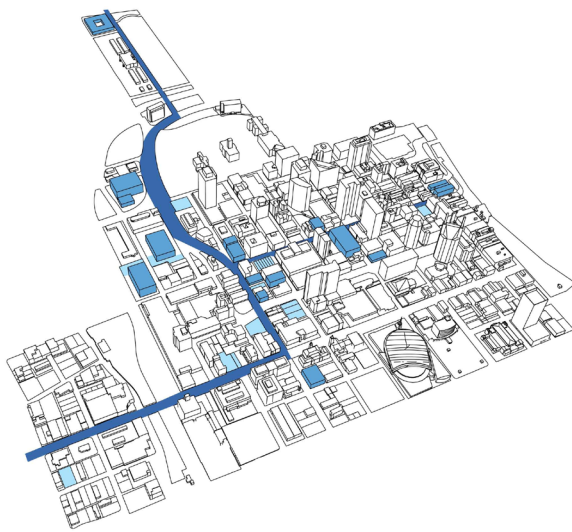
**Proposed Connection and Form**

- Proposed Open Space
- Proposed Buildings
- Corridor Connection
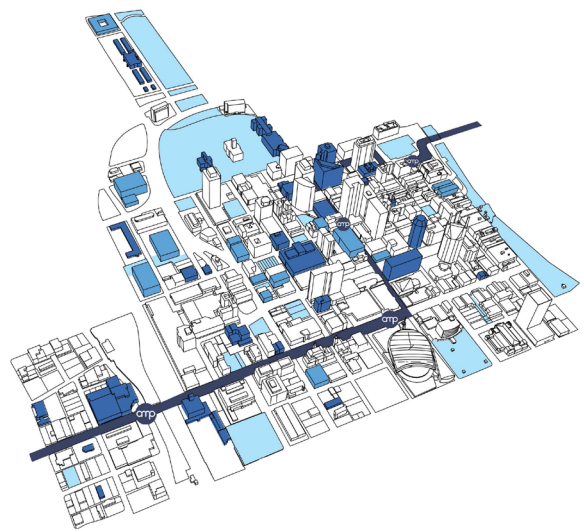
**Function with Existing Services**

- AMP Route
- AMP Stops
- Open Space
- Proposed Buildings and Services
- Disability Services and Employment

**Figure 5.1**
Downtown Design Process and Final Proposal
(by Author)

In this model of the proposed corridor to Vanderbilt Kennedy Center I developed a diagrammatic infographic (Figure 5.2) of my design process and final outcome in four steps: existing services and conditions, underutilized lots for development, proposed connection of autism services and form development, and final design with existing services.

Not to Scale

# Design Principles:
# To Vanderbilt Kennedy Center

## Proposed Connection
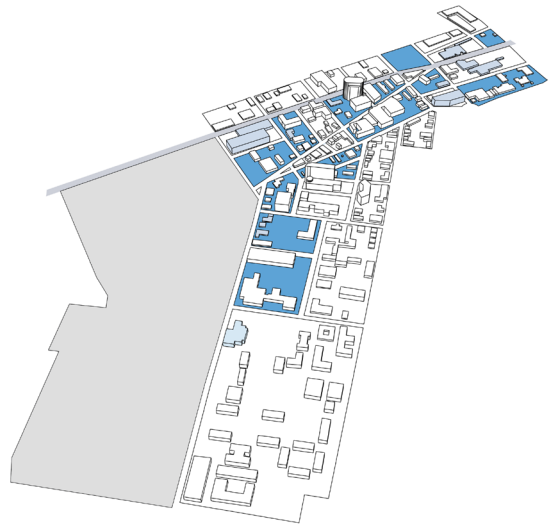
### Existing Services and Conditions

— AMP Route

(amp) AMP Stops

Open Space

Disability Services

Employment

### Underutilized Lots

Parking Lots

Proposed Connection and Form

- Proposed Open Space
- Proposed Buildings
- Corridor Connection
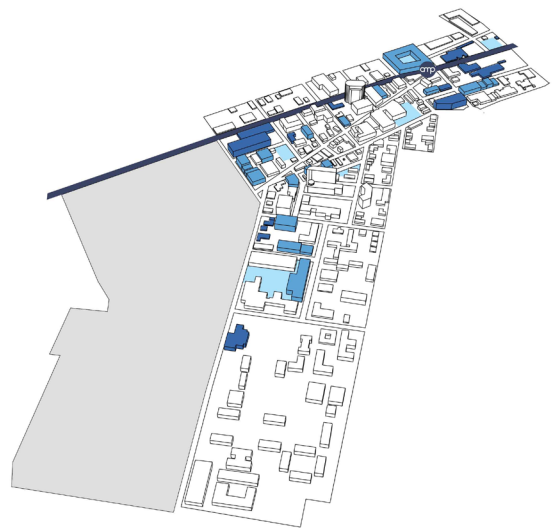
Function

- AMP Route
- AMP Stops
- Open Space
- Proposed Buildings and Services
- Disability Services and Employment

**Figure 5.2**
Proposed Corridor Process and Final Proposal
(by Author)

# Inclusive Neighborhoods

## Additional Characteristics for an Inclusive Neighborhood
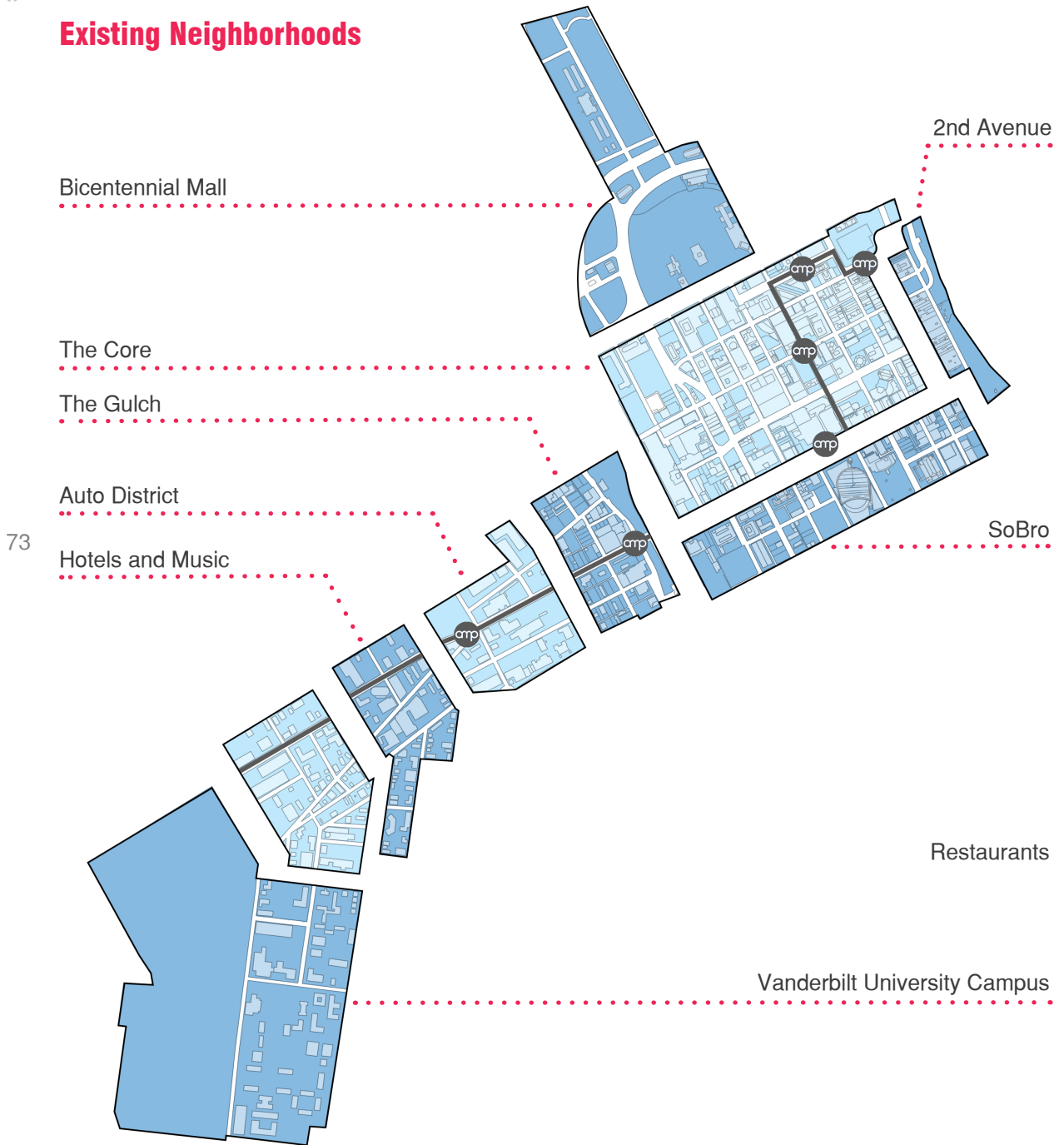
### Existing Neighborhoods

Bicentennial Mall

The Core

The Gulch

Auto District

73

Hotels and Music

2nd Avenue

SoBro

Restaurants

Vanderbilt University Campus

**Figure 5.3**
Inclusive Neighborhoods: Existing Neighborhoods
(by Author)

# Proposed Neighborhood Characteristics Inclusive of Autistic Adults

Connection to Farmers' Market and Archives

Active and Accessible

Riverfront Housing

Arts Workshop

Employment Strip

Livability Close to Work

Healthy Services Strip

Livability Close to Campus

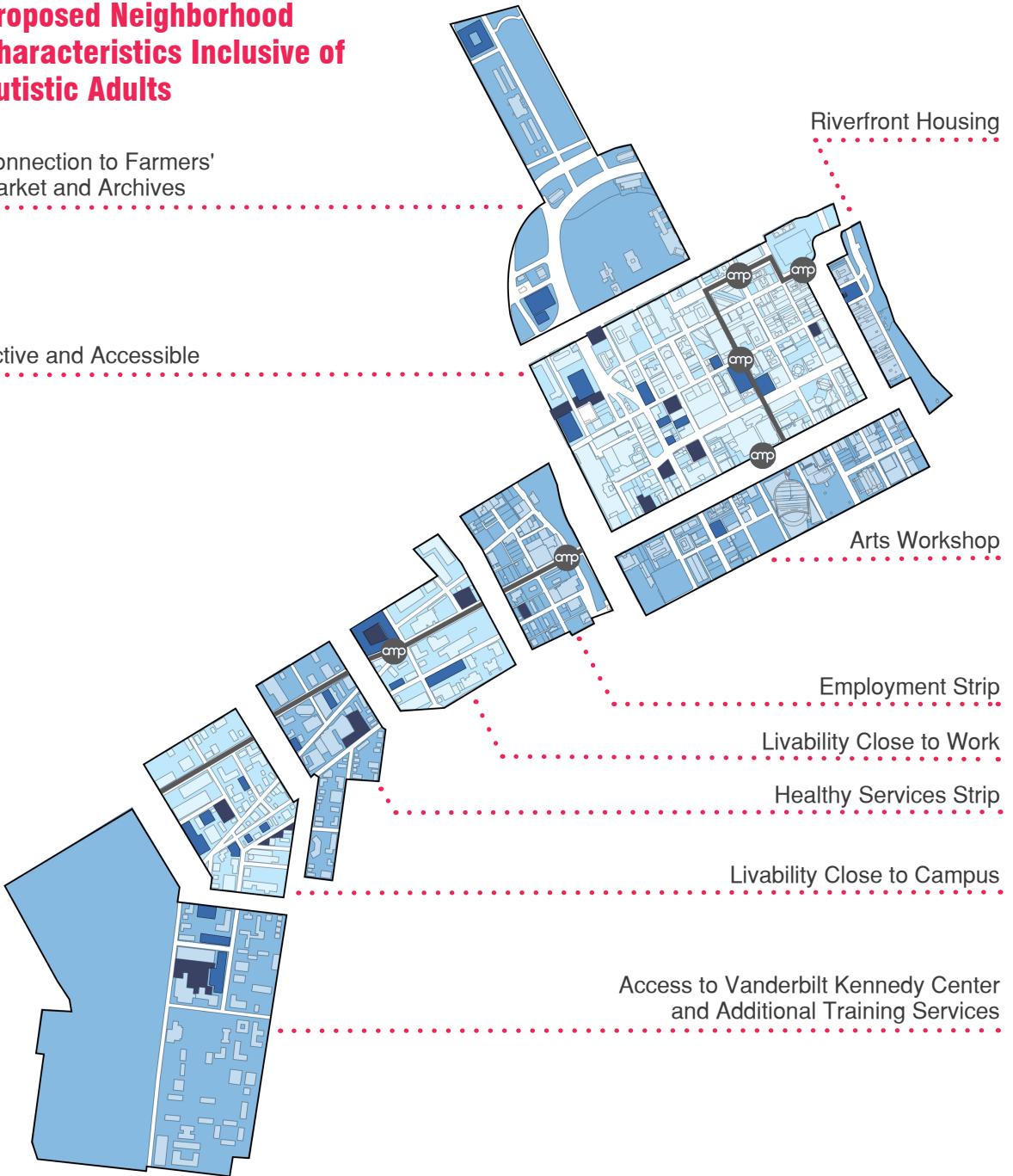Access to Vanderbilt Kennedy Center and Additional Training Services

**Figure 5.4**
Inclusive Neighborhoods: Proposed Neighborhood
Characteristics Inclusive of Autistic Adults
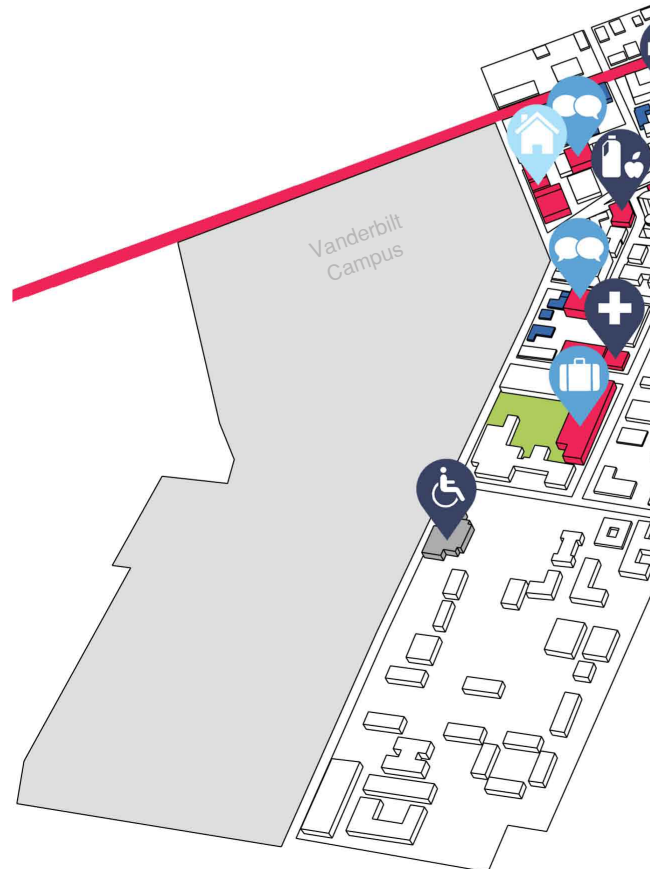(by Author)

# Final Model of Autism Services

## Proposed Corridor of Autism Services

The final model of the proposed corridor of autism services reveals an active and healthy infill of characteristics (Figure 5.5). More affordable housing, placed in areas of the site that correlate with the surrounding uses, such as employment opportunities, allows for the application of accessible grocery stores, recreational facilities, and health clinics. Areas within the site boundary that lacked open space, is now brushed with adequate plots of green space, specifically along the corridor's main axis, which was illustrated in Figures 5.1 and 5.2. This decision of green space placements help to afford the corridor a healthy and aesthetic identity, compared to its surrounding, existing developments.

More autism service specific features relate to the proposed vocational training and life skills training facilities in close proximity to proposed affordable housing locations. Though the housing facilities are placed near employment opportunities that are options for adults with autism, the toolkit's employment categories also apply to the general population. Considering the amount of proposed health clinics, the clinics serve the community in the sense of providing health care and employment. The connection of autism related services also benefits and creates more opportunities for the Vanderbilt Kennedy Center, providing the research center with prospects to conduct more research on adults with autism and provide for a more connected network of adults with autism.

Each proposed function was carefully planned to: be accessible to adults with autism, provide autism related services that correlate with the initial toolkit, and thread into the existing neighborhood characteristics to allow the design to serve the community in its entirety. The overall proposal does not segregate one specific group from another; it merely provides opportunity for adults with autism to be included in their broader community.

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Vanderbilt Campus

## Legend

- 🏠 Affordable Housing
- 💼 Vocational Training
- 💬 Life Skills Training
- ♿ Disability Services
- ➕ Clinics
- 🛒 Grocery
- 🏋 Gym

- ▬ AMP Route
- amp AMP Stops
- ▪ Open Space
- ▪ Existing Employment
- ▪ Proposed Building
- ▪ Existing Building

Not to Scale

**Figure 5.5**
Final Model of Autism Services
(by Author)

# Design Proposal Summary

## Estimated Quantities of Proposal

My design proposal does not estimate market conditions, but simply quantifies the services and opportunities I proposed (Figure 5.6). All quantities are approximate because building footprints and floor plans are conceptual; the number of one-bedroom apartment units proposed is based on 550 sq. ft. units.

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Vanderbilt Campus
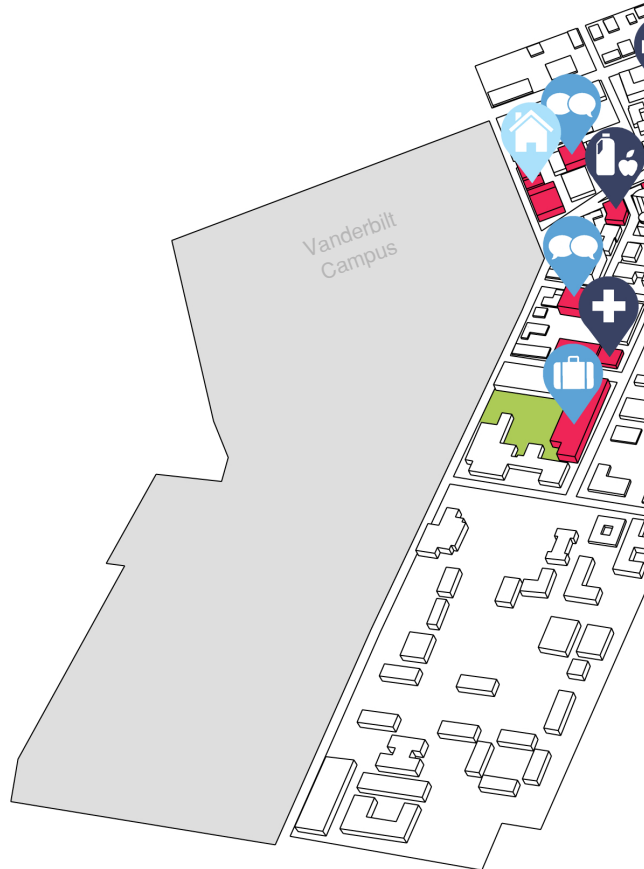
## Legend (Estimates of Proposed)

Affordable Housing
(Approx. 2,000 One-Bedroom Units)

Vocational Training
(3 Vocational Schools)

Life Skills Training
(3 Life Skills Facilities)

Clinic
(7 Clinics)

Grocery Store
(5 Health Food Stores)

Gym
(3 Recreational Facilities)

Open Space
(Approx. 350,000 sq. ft.)

Not to Scale

**Figure 5.6**
Design Proposal Summary
(by Author)

# Typical Day for an Autistic Individual

## Scenario in an Inclusive City

My scenario illustrates a typical day an individual with autism may experience during his or her day (Figure 5.7). Due to access to public transportation and a network of connected services, an adult with autism is able to easily travel from place to place and visit his or her needs throughout the day.

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Here, I learn how to do household chores.

Sometimes I visit the Vanderbilt Kennedy Center when I need help.

Vanderbilt Campus

Bicentennial Mall's fountains are worth visiting everyday.

The Farmer's Market always has the best food!

Living here is convenient to the surrounding services.

I work part-time at the public library.

A few days a week at vocational training helps me learn how to manage stress in the workplace.

I like to exercise before I start my day.

Being able to take public transportation fits my budget.

Here I am able to take a bus to Vanderbilt Kennedy Center.

## Legend

- Apartment
- Vocational Training
- Life Skills Training
- Vanderbilt Kennedy Center
- Recreation
- Farmer's Market
- Gym
- Typical Route
- AMP Stops
- Focal Areas

Not to Scale

**Figure 5.7**
Scenario
(by Author)

# 06

## Revised Toolkit &
## Project Conclusions

**Revised Toolkit**

**Project Conclusions**

From my analysis of Nashville, Tennessee and theoretical diagrammatic proposal for Nashville, I found missing components in the toolkit that were not captured within my synthesized literature review. Words featured in the color blue are the added parts to the revised toolkit.

# Revised Toolkit

## Vocational Training

(Synthesized from Ginsberg 2011, VISTA 2014, *Appendix A*)

Education Facilities

Employment Training Facilities

Organizations to Provide Coaching

Vocational Rehabilitation

Research Centers

## Employment

(Synthesized from EEOC 2007 , Grandin 1999, Autism Now 2013, Grandin and Duffy 2008)

Competitive Employment

Customized Employment

Enclaves

Group Supportive Employment

Sheltered Workshop (Least Valued)

Supported Employment

Categories:
Administrative Support
Craft Workers
Laborers
Professionals
Operatives
Sales Workers
Service
Technicians

## Life Skills Training

(Synthesized from VISTA 2014)

Education Facilities

Informal In-Home Learning

Occupational Therapy

Research Centers

# Health Support

(Synthesized from NIH 2014,
Autism Speaks 2014)

Access to Healthy Food

Access to Open Space

Gyms

Health Care Facilities:
Hospital
Dental
Gastroenterologists
Neurologists
Medical
Pharmacies
Psychiatrists
Psychologists
Therapies
Diet and nutrition

Recreation

Sensory Stimulation

# Public Transportation

(Synthesized from Autism
Speaks 2014)

ADA Para Transit
Programs

Community Ride
Programs

Commuter Connections

Deviated Bus Routes

Medical Transportation
Program

Opportunity Cars

Public Buses and Trains

Ride Programs for
Seniors and People
with Disabilities

Taxis

Workers Needing
Transportation

# Affordable Housing

(Synthesized from Heasley 2013,
HUD.gov 2014, PA Housing Choices
2013, Faisonresidence.org 2014)

Assisted Living

Buying a House

Family Living

Intentional Communities

Licensed Facilities

Renting an Apartment
or Home

Shared Housing

Staying at Home

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**Figure 6.1**
Revised Urban Design Systems Toolkit
(by Author)

# Project Conclusions

## Summary

Urban environments are typically created for an ideal individual without disability or limitation. Adults with autism have limited access to public transportation, are faced with a limited selection of affordable housing choices, have difficulty finding suitable employment opportunities, and have no green spaces designed for sensory stimulation. Typical urban design does not take into account the landscape and urban affordances needed by adults with autism. With a growing number of children diagnosed with autism comes the dilemma of what will become of these children when they age into adulthood. As landscape architects, designers, and planners, we are obliged to develop healthy urban environments for everyone. The purpose behind my project was to develop a theoretical urban systems analysis that will help designers understand ways to design environments to be more inclusive of those living with autism, as well as provide an exploratory example in developing environments for other disabilities or limitations.

Through a synthesized literature review and limited interviews, I devised an initial urban systems toolkit that provided components of the needs for adults with autism. My toolkit was then applied to Nashville, Tennessee, determining what Nashville currently has for adults with autism, and what Nashville needed to have to be inclusive of individuals with autism. Initially looking at Nashville as a site for downtown redevelopment, I realized there were existing services that corresponded with autism-related needs, unlike my initial thoughts of Nashville having little to no services for adults with autism.

Between the evaluation of Nashville and design changes, the initial boundary narrowed its scope to a focused corridor that contained components of my initial toolkit, as well as underutilized land that became potential design sites. Within my proposed corridor of inclusive services, I devised a theoretical diagrammatic proposal of what Nashville could be if my toolkit was applied. Each model showed connection of autism related services that were threaded into the existing city conditions. The city analysis and proposal then fed into a revised toolkit, indicating missing toolkit components that were not mentioned in my synthesized literature review.

The design for Nashville is theoretical and its' main purpose is to display an exploratory

example for designers and planners on: how a city can be inclusive of autism services, how designers can provide a better community for all individuals, and demonstrate the need to design for a growing group of individuals. Formed on the basis of my initial interest in learning more about the challenges facing adults with autism, specifically with my little brother, Marc (p. xvi) in mind, this project has sheds light on an existing urban design challenge that cities lack connection of autism related services. It is not enough to read my theoretical urban systems toolkit in order to design a city inclusive of autism services. The toolkit acted as a guide in determining a location of interest to provide a connection of services and programs for individuals with autism. Though theoretical, this project can be easily applied to a realistic master plan design for any United States city.

My project proposal provides a basis for city planners, landscape architects, and designers to adhere to in providing inclusive environments for adults with autism. Similar to the *Gender Mainstreaming* project in Vienna (p.33), designing for a specific group can be a potential benefit for all.

The significance of my project in landscape architecture as a discipline, demonstrates the scope of services, scale, and type of thinking landscape architecture has to offer, unlike the typical association of landscape architects dealing with planting design, water management, and streetscape. Landscape architects can be "big thinkers" and step foot into planning scale, providing services for specific individuals through design.

Developing a design toolkit based in literature review has opened my eyes to a different method of designing urban environments. The main purpose as to why my research project viewed urban design and planning from a large scale perspective, is to display the importance of designing urban environments starting with the *big idea*. Once the big idea is established, then a more specific urban design scale can be implemented. If a designer or planner does not have a clear grasp of what the end result of their design will be, then the significance of their design will have little impact on the majority of those living within cities and many individuals are excluded from opportunities, as well as placed within a mismatch of unconnected services.

## Directions for Future Testing

If carried forth by others, the next step for this research is to gather input from adults with autism about their lived experience of urban places. The toolkit can then be tested against real users' perceptions and needs. Reflection upon the theoretical design of Nashville, Tennessee will inform revisions to the current revised toolkit. Following further refinement of the toolkit, it could be applied to a real city planning process. The outcome would reveal strengths and weaknesses of the toolkit.

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# A

## Appendix A:
## Open-Ended Interviews

# Interview Coding

The following pages are notes are taken during open-ended interviews with Tom Page, Christopher Banner, William Tillman and Petra Tillman. Each set of interviews are coded with symbols that relate to what services or needs the interviewee discussed. These codes helped me interpret which needs and services were most emphasized by each respondent.

## Coding Symbols

Affordable Housing

Employment

Disability Services

Health Support

Life Skills Training or Social

Transportation

Vocational Training

Walkability

# Tom Page
## Wichita, KS | Lives with Blindness

**Brief Biography:**

"Tom Page works as a self-employed musician and is owner of TOPtone Recording Studio in Wichita, Kansas. In addition to being a life-long musician, he holds an interdisciplinary Master's degree in statistical research methods." (Page 29)

\* Based on literature review

## Interview Questions (Tom Page & Others)
IRB Protocol #6989

1. What is it like living in (city name) for you?
2. What are positive experiences living in an urban environment?
3. What are negative experiences living in an urban environment?
4. What are your housing options in this city? How satisfied are you with these options?
5. Are there any organizations or programs that accommodate to your needs? To autistic adult needs?
6. Are there any autism or disability focus groups in the city?
7. Is it easy to get from place to place for you? For those with autism? Why?
8. Are there vocational training services for those with autism?
9. If there was one thing that you think should be put into place or removed in the urban environment to benefit individuals with autism, what would it be?
10. Do you think that autistic adults are more willing to live in larger cities, or smaller communities? Why do you think so?

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1.) Wichita - loop bus system (not effective)
2.)    - routes not connected to destination
3.)    - 20 apart by car - can translate to 2 hour on bus
   - Apply for jobs - bus is not reliable
   - Solved with social network of drivers or money (taxis)
   - Taxis - wait half hour to 2 hours (can't give estimates)
   - Parrot Transit System (van comes to house) ] Why bother?
      • Not as efficient
      • Won't go anywhere where buses do
   - Core neighborhood (Historical Mid-Town)
      • Best place for bus access
      • Whose couch can I sleep on? bus route far away
   - Walkability
      • Negotiate bumps - not a problem
      • Standardization - public private
         - Not angle sidewalks
      • Away from core of town - 5 minutes by car - no sidewalks (walk on side of road, ditch, dirt or paved?)
      • By his house, train track behind - tracks have been turned to path, but 2 blocks of house there is a park with no sidewalk, light pole with clock - didn't get it was a clock (button!)
      • Bicycles and walkers like crisscross - but this is difficult for blind
      • Domed pavers - blind people don't like (lights) - angle domes toward other side of street (engineer)
      • Universal Design - deployed for blind is silly
   - Employment Access - transportation is key - selfemployed; cognitive? workshop owns apartments, contracts, blind people work in shop - segregation influence; artificial pocket of blind people (how they have to live?) - rest of town shelters; community about rest of people

4.) Housing - best place to be is downtown due to his hub (most coverage), grid no more than 10-15 min of hub will work, condos $100,000 Λ, 650-800 very few, slip house excluded (hate to be here), nothing available below $600, population unemployed, SSI money $670 (under $700 a month), best suited to live in happens to be least affordable, green space falls off as cheaper gets, no matter how much planning city is often unwilling to pay - we get "strip of grass" for "park."

5.) Presbyterian Transportation thing
- fill gap for disability transportation
- book in advance

Lions Club
- group that serves the blind
- work - drop glasses in a box and redistribute
- blindness prevention — very good
- needs of blind - etc.
- sweatshops to raise money for projects (can't endorse)

CPRF
- Clearing house of cognitive disab.
- Cloistered living and sheltered workshop
- 1970's - Timbers - live independently - at times considered fairly progressive
  - 0 job opportunities for freed
  - Close to university to take classes (3 degrees) — Mixed feelings
- Civil war veterans "Mrs. Holtz - Lighthouse for Blind"
  - begging - need a place for these people?
  - crafts to keep your busy ←-----
    - Ignoring blind guy who wants to be a lawyer

6.) Advocacy Groups for and Are
  Autism          cognitive disabled
    - Parents group - education

  Blind              Wichita Association of Visually Blind
    - NFofBlind          - Disbanded - aged out
      national Federation  - Mostly blind people
                          - They lobbied to do for instead of of
                          - Company name for workshop

7.) Socio-Political Part can't be separated
  - Vocational Training (Rehabilitation)
    • Political
    • Disabled - blind classed with IQ - shipped away to learn
    • Know people who have PhD's
      - Buy equipment may need in work force

Severely mentally retarded (not getting help from agency)
    • DC traveled -where is the rehabilitation center?
    • Kansas Disability Rights
      • QAP
    • Gets to go to a training center! 6 months later...
    • Arkansas, OK, KS
      └→ more progressive than KS in this sense

Workshop
    • Sheltered wkshp - is this training? - Goodwill industries runs training programs - never produces
      graduates (really a good program)
    • Many nominal, but no desire for sheltered environment

10.) Each to own
- "Some prefer smaller" in note
- "Tax likes larger" - real integration
- allows everyone to fit what they want
- Early choices
- "Low expectations gives low results"
- Live rural KS, but does...
  - Not functional
  - Take home to Wichita -
  - Blindness skill training
    - Denver

**Figure A.1**
Tom Page Interview Notes
(by Author)

# Christopher Banner
## Manhattan, KS | Lives with Asperger's Syndrome

• Bought & lived in houses that needed work – *had shop tools* – not sure if ASD types – Temple Brandon – "high functioning will need group homes – they will need workshops to work on projects of their own. Sitting & watching TV after work is not a good thing – work on projects that I want – group homes will not have sort of thing

### Interview Questions (Tom Page & Others)
IRB Protocol #6989

1.) What is it like living in (city name) for you?
2. What are positive experiences living in an urban environment?
3. What are negative experiences living in an urban environment?
4.) What are your housing options in this city? How satisfied are you with these options?
5.) Are there any organizations or programs that accommodate to your needs? To autistic adult needs?
6. Are there any autism or disability focus groups in the city?
7. Is it easy to get from place to place for you? For those with autism? Why?
8. Are there vocational training services for those with autism?
9. If there was one thing that you think should be put into place or removed in the urban environment to benefit individuals with autism, what would it be?
10. Do you think that autistic adults are more willing to live in larger cities, or smaller communities? Why do you think so?

2.) Met wife when working at Great Lakes Navy Hospital – northern suburbs of Chicago – Red Cross – transferred her here – he going to night school at Jr. College – couldn't get together cuz of her schedule – rented half of duplex in Jardine – rented house in country + one room school house – idea was he was going to work on it – Country Club 2½ years later. Fired (2 days before quitting) 73' – wife said stay home and figure out what you want to do – not – wanted to make violins – job to repair – needed ... had to be accessible to customers – had to move into town. bought house block from current – made whole new kitchen & cabinets – shop from basement. garage – 75' – 80' (3 car garage, single family r shop from basement. 80' or 81' walked in Freeman to 6th St. to Safeway, worked on Poyntz and there was a For sale sign by the time we reached Juliette decided to buy it – lived until 94' → Aw

Intro.) 1. Winter, book reviews for Mercury – One or 2 books a month
2. Barbara Bossonnette
*3. Big Lakes Developmental Center Inc.
 • Group homes
 • Make it in the world
 1416 Hayes Drive, (776)-9201
4. Journal of the West
 • Quarterly history of west

1.) • Lived since Feb. 71' – country house until 75'
• Because of A.S. in O.C.D. – biochemical brain imbalance – mind messed up & not able to function as fully as one would think
• When growing up – told smart, but school was a struggle – college with a 3.3 GPA
• After move to Chicago – MensA advertise for entrance exam – adult intelligence test – top 2% of population – average 4% PHD
– After college graduation, worked with hands – work called for solving problems – not a white collar job
• Came to Manhattan, Great job as mechanic, fired as mechanic at country club, instruments 75'
• Part time with University music department to do their instruments, 93' tuned piano
• Retired in 09'
• Wife is licensed master's social worker / makes more money
• keep part-time work – 1.) no way can get job that makes more money than she did, couldn't move to city because money wouldn't be there – wife is GS-13 at Ft. Riley
• University M.D. – "being a specialist like I was, I started doing what needed to be done"
 • One boss – own time
"When world started closing in on me – go to shop, go home, see shrink"
 • What other job would permit that?
"A way to get away from a work situation without penalty"
 • "Color of Dark" – employer knew autistic people had needs & abilities – set up with situation to accommodate needs – rec center
 • Autistic need a certain predictability – own parking places

✱ • Pawnee Mental Health (Claflin & Sunset)
 • Various workers there – see people regardless of pay – psychotropic medication – went there for years – 89' put on Prozac – mind started clearing – talked to shrink – work better with mind
 – Preference to work with hands, difficult to switch to mental job – need Pawnee to get help regardless of pay

• Employer insurance programs
• Obamacare – help low income
• Music Department – hired officially as grad student – didn't care if he never finished degree – 6 credits a semester – got MA in music history in 83'
• Find some way to have employer flexibility – 89' MA in Geography – Pessac – head straight to classwork done
• K-State good place for me, without it, getting a real job in real world – wouldn't be able today – would have killed myself
• Wife handles financial matters – principal parent. I can't relate to people generally – I would mess things up just – me – credit goes to her
• Impression – A.S.d ASD are not people types – tend not to marry
• Family – community facility to help them financial programs – typically autistics will be low-income – unstable – A.S. – not so much the case – significant part of engineering & math are A.S.

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- 2 kids, wife became dissatisfied with place – wanted newer place – moved near Jun. High School (chicken farm at time) – 94' – five years ago – kept Osage as rental and moved back – Browning was too big, ⅓ acre with pond – hated to work on house – 04' or 05' tenant in Osage moved out – felt need to sell it because tired of being landlord – would have to had put it all white (ugh) – "how would you like to live in that house by yourself?" – designed additions – contractor to build shells – worked most 2 years finishing inside (flooring, wiring, plumbing) HVAC contracted out – kitchen & bathroom cabinets – try paper hanging (cute!)

- Always had single family dwelling – always owned it – always had things to do on it – ASD low functioning would be able to do such a thing.

5.) Not a social type – not into meetings – Pawny – diagnosed with Parkinsons a year ago – Meadowlark meetings – not happy with it – 12 step group 'Co-Dependence' – late 80's – used to go to church – but decided didn't really enjoy it unless needed to go – Unitarians wife goes – 54' merged with Universalists – they are a free thinking group – no doctrine – readings & hymns – never hear about God & Jesus – too many people, not a fan of sermons – wife goes every week – son became a humanitarian minister – "is this really a worthy project or a social?" project as an excuse to get together – not comfortable with more than 1 or two people – A.ss.

7.) Yes – always had own car – bicycle & motorcycle 1963' – project
- when growing up used bicycle made me do driver's test – miserable experience – personal
- Chicago – take commuter train down to loop
- Not a problem
- Needs to live in place like Manhattan
- Vegas last summer
- Chose to live here because here you can walk to places – Browny a mile from anywhere
- Group home set up near activities to walk

10.) Large city – more services & opportunities, more choices (advantage)
- wouldn't care to live in larger cities

"How big do you need?"

- Wamego – doctors, dentists, churches, grocery within walking distance
  4,300 – good place to be if mental health were there

- "Are the services I need in that city?"

- Small town – employment is an issue – wouldn't have a lot of choices
- ASD has better chance in city size of Topeka or bigger in finding something (127,000)
- Better off in small town if

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**Brief Biography:**
"Christopher Banner is currently retired, but writes book reviews for *The Mercury*. Before retirement, he worked for Kansas State University, tuning and repairing musical instruments - a job that he found to be very suitable for him, because he needed a career that was flexible and that allowed him to work with his hands. He takes pride in his hobbies, including: restoring his home, building furniture, and even assembling vehicles." (Page 29)

**Figure A.2**
Christopher Banner
(by Author)

# William Tillman (Son) & Petra Tillman (Mother)
## Leavenworth. KS | Lives with Autism

Interview Questions (Tom Page & Others)
IRB Protocol #6989

1. What is it like living in (city name) for you?
2. What are positive experiences living in an urban environment?
3. What are negative experiences living in an urban environment?
4. What are your housing options in this city? How satisfied are you with these options?
5. Are there any organizations or programs that accommodate to your needs? To autistic adult needs?
6. Are there any autism or disability focus groups in the city?
7. Is it easy to get from place to place for you? For those with autism? Why?
8. Are there vocational training services for those with autism?
9. If there was one thing that you think should be put into place or removed in the urban environment to benefit individuals with autism, what would it be?
10. Do you think that autistic adults are more willing to live in larger cities, or smaller communities? Why do you think so?

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WILLIAM - altered questions to give more responses

1.) Always lived with parents in LV

2.) No job found - she picked job - works at public library - volunteer 1:00-3:00 PM MwF

3.) Parents drive -

4.) Programs - SNAP, swimming between June - August; Special Olympics, basketball, track & field, bowling

5.) No workshops

6.) Likes all other cities

7.) No college courses

8.) Apartment with similar people - young

9.) Putting away books & DVD's, CD's - organizing

10.) Watch movies, draw, writing - fiction & non-fiction

> on level of functioning
William can't work here - he will learn things there that are inappropriate - physical outbursts (other workers) - afraid wouldn't learn proper skills
- Petra job coaches him at library
- Out of HS for 6-7 years
- More autism adults coming
- Douglas County - better services

PETRA

1.) Not very good - no services - sheltered workshop - too restrictive - supportive employment - no agencies in this county

2.) Special Olympics, SNAP - only positive experiences for Sped.

3.) Lack of transportation -

4.) Group home option - way too restrictive for him - other counties have duplexs with high-functioning other side has helpers - 6-8 people hard to pair personalities - Sees with kids within Special Olympics - eligibility; group homes - more financial sense - Douglas County/etc. runs - No LV

5.) Voc. Rehab - 90 day program - retrain someone that was sick or hurt - not appropriate for William - automatically closes at 90 days - needs a program that includes job coach - semi-independent LV County - Guidance Center - must be mentally ill to be eligible

6.) Security = smaller; won't let him work alone in KC; freedom here; more services in public transport in large - Grew up in larger city - services not here

**Brief Biography:**

"William Tillman graduated high school about 6 or 7 years ago and is currently volunteering at Leavenworth Public Library, putting away books. His mother, Petra, is his job coach. Currently, William lives at home with his parents and relies on family for transportation. He is also involved with the Leavenworth Special Olympics and Special Needs Assistant Program (S.N.A.P.)." (Page 30)

**Figure A.3**
William Tillman and Petra Tillman Interview Notes
(by Author)