TRANSIT PATHWAYS TO URBAN PARKS:
INTERVENTIONS FOR BALANCING DEVELOPMENT, PRESERVATION AND ACCESSIBILITY

by

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ABSTRACT

Getting people to parks and other green spaces is important. But most cities overlook parks as destinations in the name of density and commercial development. This thesis describes the symbiotic relationship between public transportation, open space and dense development, which together are the keys to sustainable, livable communities. Development, environmental and transit agencies together effect the creation of one of the most visible factors that influence the quality of urban life—its transportation network. The narrow focus and lack of coordination between government policies and tools also tend to lead to degradation and loss of open space, as well as access to it. Individual developers sometimes recognize the benefits of open space, but in the midst of maximizing financial returns often they depend on others to provide or require it. Years or decades later, many governments find themselves scrambling to (re)acquire open space in an attempt to improve the quality of life of their residents.

Transportation improvements should continue to be used as catalysts for transforming cities and the way residents perceive them. Improvements are rare opportunities to effect change in an urban environment in a relatively short span of time. New design guidelines, incentives for developing open space, and better coordination between agencies, usually take longer periods of time to create balanced development that most people think of in the abstract. In most governmental systems responsibilities and tools are split sectorally: transit by transportation agencies, open space by environmental management or parks agencies, economic development by any number of different groups from the planning board to development agencies, etc. Rather than thinking of transportation systems as separate from environmental amenities, neighborhood amenities and economic development, planning must attempt to solidify the relationships between them to develop methods of achieving more holistic goals.

This thesis contributes guidelines that will aid in developing design, policy and operational tools that facilitate coordinated, balanced accessibility to a range of uses in transit-rich urban areas, specifically open space, as it has often been neglected in the race to accessibility. This research describes the evolution of struggles between accessibility to open space and commercial development in specific urban areas, then proceeds to characterize current efforts to recreate, reacquire and reconnect open space to urban neighborhoods. It proposes a framework for interventions that prevail in these cities, and their relative success in providing accessibility. I also include a description of various implementation practices and tools, from zoning changes to coordination efforts to funding mechanisms. I conclude by applying these tools to Chicago, San Juan, Puerto Rico, and Santiago de Chile, then offering suggestions for areas where further research is needed.

Thesis Supervisor: Ralph A. Gakenheimer
Title: Professor of Urban Planning and Civil Environmental Engineering
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Getting people to parks and other green spaces is important. But most cities overlook parks as destinations in the name of density and commercial development. This thesis describes the symbiotic relationship between public transportation, open space and dense development, which together are the keys to sustainable, livable communities. Parks are the core of communities, the place where toddlers can play, where children can meet friends from other schools to play sports, where adults can exercise or just socialize. They are a source of urban revitalization, perhaps a catalyst of change. Small green spaces remind us of a city's need and capacity to breathe, while larger spaces beckon to us for exercise or just plain fun. But that is not all, parks are like many other civic spaces: they are the destination for tourists who want to experience the beauty of a city from the locals' perspective, and the path commuters choose to take on their way to work. Parks are not just green lungs to be shunned by transportation services or relegated to the outskirts of the city; for many urban residents parks are destinations too.

1.1 Motivation
As a child, on many spring evenings my friends and I walked through our neighborhood park and waved to several retirees sitting on the benches as we passed by on our way home from school. On weekends we often went to the same park where some of the neighborhood cricketers occupied the pitch while high schoolers played basketball as we climbed the jungle gym or sat on the swings. For a special treat during the summer, my family and friends would venture to Central Park in Manhattan for concerts and other special events. I remember marveling at the way my neighborhood park was a microcosm of the neighborhood, bringing together various people of all ages and all backgrounds. I also remember the excitement of taking the subway into New York City to events at wondrous Central Park, where we would be surrounded by people from ever more backgrounds and walks of life; it was a triple thrill: the park, the subway, the people.

Unfortunately, these sorts of park visits are not possible in all urban areas. Most urban areas have at least a few urban parks in disrepair, and many others are not easily accessible by public transit. This can happen for any number of reasons. In the former case, perhaps due to insufficient public funds or perhaps low patronage. In the latter case, perhaps because in many urban areas transportation networks and green space networks are separated rather than integrated. The objective of this report is to identify steps that facilitate proliferation of integrated networks by formulating methods of increasing access to parks in urban environments by integrating access to green space as a core principle of transit service and facility design.

Why parks, you might ask? With all the needs of residents in an urban environment, what grants parks the prominence afforded urban destinations that warrant urban transit connections? Quite simply, parks are destinations too. In New York City before the mid 1990s, transit ridership was at the
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mercy of economic cycles due to its reliance on work-based trips. More recently transit ridership and revenues rely less on economic cycles but more on its ability to attract non-work trips (Schaller). In fact, parks have been increasingly recognized for their importance in urban communities and the lives of urban residents. Parks are “at the very cultural centre of communities...[they] should inspire civic pride and be of greater importance.” More pointedly, they are an integral component of economic development, healthy ecology and quality of life. In planning vibrant urban environments we must also ensure that urban residents have ready access to the variety of activities and pursuits that are offered by parks. In managing public investments, planners and managers must ensure that cities enjoy the maximum possible synergies between the public transportation network and open space networks. Not only will the synergies of access benefit residents and patrons; they will lead to increased parks patronage, increased economic impacts and increased transit ridership.

Clearly, public transit is not going to satisfy everyone’s needs for open space access. The object is not to eradicate the car, particularly for those who might need vehicular access, such as the disabled or infirm, large families, etc. However, “what the public needs is a balance, and a choice that is based on sensible, long-term thinking, without mortgaging the quality of life of future generations. In that context, public transit has a major role to play” (Gillespie). Even for open space access. More importantly, parks are destinations in and of themselves. Furthermore, open space networks have similar effects on urban environments that public transportation has:

increased economic development, higher quality of life, greater connectivity, and common gathering spaces to name a few.

1.2 A BIT MORE CONTEXT

A caveat should probably be interjected at this moment. Not every major metropolis can be—or even should be—like New York City. The Central Parks, Bosque Chapultepecs (Mexico City) and Hyde Parks (London) of the world were each created many decades or even centuries ago under very different conditions than what we experience today. Some urban parks are natural oases, some man-made. Some were created as playgrounds for the aristocracy, others were designed to bring classes together and/or offer reprieve from oppressive cities or dense urban metropolises. Green spaces in these urban environments were often more prolific than they are today; they were the town squares, the village greens, various pathways and riverbanks that led to them, as well as the yards or courtyards surrounding the homes of their residents. Traveling to these open spaces was not cumbersome; the route to the town square was easy to recognize by its prominence in town, a relatively short distance and usually less congested than it is today.

Before the dawn of the automobile era the scale of cities was far smaller, more human, than it is today as well. Walking was the predominant method of traveling to work, school and recreation centers, followed by the streetcar and other forms of public transit. The automobile opened a world of possibilities by making travel distances seem much shorter because the travel time was far shorter. They also made the ride more convenient: no more waiting for the crowded, sweaty streetcar or trolley. One could simply walk out to the driveway or sidewalk, step into the vehicle and be on

1 Ken Worpole in Urban Parks Forum PRESS INFORMATION

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his or her way. Development was crowded--but not typically overly so--and parking was less problematic. Door-to-door service was not a concept; it was a reality--for those wealthy enough to be car owners.

That reality was decades ago, and only available to those who could afford to purchase a private vehicle. To the vast majority who could not, public transit service was still the only viable answer. The few visionaries and politicians who contemplated the inequity of these circumstances strove towards a remedy based on expanding prospects of car-ownership, rather than one based on maintaining or broadening public access. The unfortunate situation is that as cities become more and more auto-dependent, the distances between various public services become greater and greater. For many urban residents walking to the town square is no longer feasible. Either it is too far from home, or the route is dark and uninviting or fraught with narrow sidewalks lining lanes of impassable vehicular traffic, and further surrounded by rows or stacks of parked cars.

In dense urban environments where rising real estate prices and car-oriented societies dictate upward growth, concentrated development patterns and high parking ratios, the situation is worse. Residents’ connection to open space and the natural environment began to erode with the dawn of auto-dependency. Over time, greater affluence led to greater car-ownership and exacerbated these conditions more than they had already been. Today’s car owners are often bogged down in traffic congestion or traveling longer distances due to urban expansion or suburban growth. Worse still, in several cities of North America and many other regions, urban flight left poor residents to maintain the few urban oases that remained.

The political and financial power to rejuvenate these oases left as well, and the focus on access to these oases shifted firmly towards attracting car-driving suburbanites and tourists, often forsaking city dwellers. As these areas declined in prestige as community centers, residents and visitors stopped patronizing them, and eventually cities stopped maintaining them.

Surely it is time for a new model of growth, or at the very least, a new model of accessibility. In recent years, planners and urban designers have urged a return to the traditional, walkable city. They may be supporters of new urbanism, sustainable development, transit-oriented development, livable cities or something else entirely, but a common premise is to facilitate access to a high quality of life based on equitable choices. A life where one’s choices do not erode the quality of another. It did not take long for many planners, designers, engineers and visionaries to realize that such a life had to be based on public transportation rather than auto-domination.

In most people’s minds, few options can compare to an automobile’s ability to provide door-to-door service to virtually any location. Despite the costs, many covet car ownership for its ability to provide incomparable access to various pursuits in life. Urban transit, on the other hand, is typically perceived as a burden of the poor or an element of an alternative lifestyle. Public transit in most cities has been designed predominantly to facilitate access to jobs and homes for those who have few or no other options. These perceptions are changing. The recent resurgence of facilitating balanced, high-quality lifestyles that are sustainable over time has helped
planners, ecologists and now even some businesspeople to advocate for equitable access to all pursuits with minimal damage to the environment.

Despite intermittent pangs of desire for the convenience and prestige of a car, many recognize that the greatest possibility for this vision of equitable accessibility is further development of public transportation. Rather than simple mobility, public transit has the greatest ability to provide accessibility to all residents, and carries far fewer environmental costs. And when planned and developed well, public transit is a place where people of all backgrounds, income levels, etc. can meet on equal footing. This is also true of public spaces, such as pedestrian streets, sidewalks and parks. Open space networks and transportation networks together form the backbone or perhaps even the life’s blood of cities, and make possible the vision that many of us have come to hold so dear. So, how can open space networks and transportation networks best support each other?

1.3 The Power of a Transportation Project
What are the possibilities for intervention in urban development beyond transportation infrastructure? Well, take all of the possibilities of a connected city. Imagine the impressive roster of city parks in Boston, for example—places like the Public Garden, Arnold Arboretum, and Franklin Park—and link them together. Now, imagine a reconnected Boston. This will be the result of the submersion of the city’s Central Artery, also referred to as the “Big Dig”, as several parks will soon stand where once stood elevated highway beams and wide parkways that dissected the city. This prospect of new urban open space has sparked a debate throughout Boston of whether and where to create new open space. How much? How expansive? Active recreation or passive? The prospect has also allowed many to “imagine a reconnected Boston”, as did many of the residents of Boston’s Back Bay, Jamaica Plain, Roxbury and the South End when the Southwest Corridor Park capitalized on the relocation of the Orange Line service that coursed through their neighborhoods, stitching together neighborhoods of different socio-economic levels and character at either end and on either side of the park, as well as masking the noise and unpleasantness of an exposed heavy rail line. This is the power of a well-planned transportation project—the power to connect and reconnect a city (Gay).

The Big Dig is a remarkable project with few equals, but neither it nor the Southwest Corridor Park is the first or the only project to integrate transportation networks and open space networks. The 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) and its later iterations opened up possible funding sources for US cities to integrate these networks. It recognized the power of transportation to connect and revitalize a city by facilitating not only intermodal spending, but spending also for Scenic Byways and Transportation Community System Preservation projects. This act and others like it signify a growing trend towards developing communities of connected systems—specifically an urban community where connections and destinations of all types are available to all residents. This community is marked by integration between built and natural systems, leveraging transportation networks and open space networks to allow residents from all walks of life to reap the benefits of a full range of activities.

Though access to jobs and homes are already the focus of public transportation systems, many recognize their potential to facilitate access
to recreation, education and all aspects of life as well. Access to quality of
life benefits is only recently being considered in planning large-scale public
transportation projects. Every year, more and more public transportation
projects are looking past the traditional focus on peak commutes to
downtown centers, dense retail developments, and suburban office parks.
More and more public transportation projects include access to sports
arenas, museums, zoos and other cultural attractions in addition to peak
commutes to downtown centers and suburban office parks. Recognition of
public transportation’s ability to make possible a life where the private
ownership of an automobile is not necessary—where those without the
option or desire to own or use the automobile can still lead a quality life—
seems to have begun to take hold in the minds of many urban residents.
This possibility is expanding even more now that urban residents are able to
move beyond the taxi or rental car to take advantage of new forms of
collective transport such as car-sharing cooperatives and other innovations.

1.4 Rethinking accessibility

Planners in several cities have begun developing “public transit accessibility
index” to determine level of accessibility of various points of interest.
There are different models but the overarching theme is to determine
combined elements of the travel time, distance and ease of access between
a public transit node and a point of interest. Most models begin by
calculating the walking time from a specific point of interest to the nearest
public transit node, or perhaps all the transit nodes within a defined radius
or catchment area. The model then calculates the average waiting time
based on the frequency of service at each transit node, then weights this
time based on the reliability of service. This interim product is the total
access time. The model then produces a value usually called the
“equivalent doorstep frequency”, using a constant divided by the total
access time. This frequency value is summed for each of the point within
the catchment area to devise a single value for the overall public transit
accessibility value that is normalized in order to make comparison more
egalitarian. This value is then incorporated into a scale to compare
accessibility from other points of interest. In the end, the process
determines walking time from the point of interest to the public transit
nodes, the reliability of the service modes available, the number of services
available within the catchment area, as well as the level of service at the
public transit nodes (typically the average waiting time).

While this model is a step in the right direction, it is clearly very one-sided.
Most public transit accessibility index models measure the accessibility of
the transit node. While this is incredibly important for users, designers and
engineers, most people consider the ease of the full trip, not only the travel
to the station. So we must begin to develop models that measure the
transit accessibility between a potential user or patron’s starting point—
whether home, office or otherwise—to his or her point of interest. In order
to do so, we must release ourselves from the 500m or 1000ft radius around
stations and the 0.75mile radius around parks or office buildings. We must
devise ways of connecting these circles and/or drawing routes between
their radii. Integrating transportation networks with open space networks

See the Transport for London Annex Measuring Public Transport Accessibility Levels
facilitates this process. This report is an endeavor to support that process, both by devising a new framework to increase access and by encouraging parks patrons, transit users, government agencies and private developers to imagine the routes between the radii, and to connect the centers wherever feasible.

Figure 1: Example of conventional open space service area: Chicago

Figure 2: Realistic access/service area for open space

1.5 Urban need for transit and greenery

Because of the density of “the concrete jungle”, nowhere is access to parks and open space more important than in urban areas. The concrete jungle is not necessarily a horror as many disparagingly cast it; it simply conveys how the density of built structures has come to replace that of greenery that once shared its space. We need access to open space precisely because the urban jungles many of us now inhabit have become so overrun with concrete and steel where instead these jungles should be well-mixed concrete, steel, asphalt and greenery. “Well-designed public spaces are critical to creating
a sense of place, especially in areas of concentrated development. Urbanization and densification caused by capitalizing on transportation improvements in urban areas tend to lead to degradation and loss of open space and access to it. Individual developers sometimes recognize the benefit of open space but in the midst of hoping to maximize immediate returns, they often depend on others to provide or require it. Where large-scale, single-owner developments are possible, opportunities exist to produce open space and/or protect the natural environment that would not normally exist. San Juan, Puerto Rico's Tren Urbano heavy rail project is one such opportunity. In the metropolitan region of Santiago de Chile, San Joaquin's modification of the Comunal Land Plan (Plan Regulador Comunal or PRC) presents another opportunity, with the redevelopment possibilities for the Zanjón de la Aguada near the Carlos Valdovinos Metro station. In the same vein, Chicago, Illinois' first major zoning modification in almost 50 years presents opportunities to increase access to an already extensive, world-renowned urban park system and to perhaps stimulate urban revitalization in some areas.

Transportation projects have been used as catalysts for transforming the city and the way residents perceive it. They have empowered patrons and politicians alike to request or demand new civic plazas, improved pedestrian spaces and even new green spaces. In Bogotá, Colombia, the TransMilenio project is accompanied by reclamation of city sidewalks for pedestrians instead of cars, hundreds of kilometers of bicycle paths, and yes, the creation of several city parks. In Curitiba, Brasil, the same has been true. Many cities in Germany and in England have had long-standing traditions of protecting and integrating green spaces into development approvals, some more successfully accessible by public transit than others. Many of Mexico City's parks are for the most part accessible by transit. Government organizations in each of these cities have used different methods both to discover the "optimal" amount of provided open space and to determine the incentives and regulations most effective at ensuring development of at least the minimal amount. Few government agencies have linked the necessity of access to a range of activities—be they primarily economic, educational, recreational or otherwise—to urban residents' need for open space. Instead, in planning development at urban transit nodes the predominant practice has been to densify housing and/or commercial developments, not to preserve or create open space and certainly not to provide transit access to it.

What follows are guidelines intended to ease the journey toward connecting city residents to one of the many components of high-quality lifestyles in an urban setting: urban parks. Various urban areas have been examined to discover the spatial distribution of the open space network and that of the transportation network in order to determine the quality of access to open space afforded urban residents in each city. Review of the various urban areas led to analysis of open space typologies, along with elements that prevent and support access to several open spaces in each urban area. This information has been combined with policies and strategies that support access to open space, and finally organized into a framework of policies, strategies and design elements in support of access to urban parks through

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3 Regional Plan Association/Connecticut Land Use Coalition. p14
urban transit systems. The framework is intended to facilitate balanced development around transit nodes by offering directed recommendations to a combination of transit agencies, parks agencies and planning organizations where appropriate. This framework has then been applied to specific areas in each of the three cities mentioned above: Chicago, Illinois; San Juan, Puerto Rico; and Santiago de Chile.

1.6 Approach
This report began with an extensive review of studies, reports and literature regarding benefits of open space, benefits of public transportation, possible connections between each of the two and finally their place in sustainable communities, where the objective was to learn of similarities and/or overlaps in treatment of both open space and transit. Where are there networks at all, instead of isolated services? Are the two networks coming together or separating in most areas? Where are these conditions most prevalent: in urban areas, rural areas or somewhere in between?

The research shows that in many cases the relationship between transit and open space was often subjugated to other needs, particularly in dense urban environments where land values are at a premium. I then began to focus on urban areas where transit investment had caused significant densification of development around transit nodes, and looked for major parks in these environments. In which cities did there exist parks at transit nodes? Is this due to historical reasons or current planning interventions? How were connections between open spaces and transit nodes maintained or created?

Once a significant number of cases were gathered, they were sorted and arranged in order to understand and compare the conditions that were based on the current or historic demographic profile and the public transit and open space systems. In each case, several salient points are drawn out to determine what conditions are preferable and what practices are relevant and necessary to replicate the beneficial synergies between public transit and open space networks. On the following page you will find a diagram depicting how this thesis aims to bridge the gaps between conventional transit accessibility curves and parks service areas in order to form curves that more accurately represent how people perceive access to these spaces. I reviewed both the case studies and literature to determine what would be most helpful in creating these conditions and implementing these practices: a framework of typology and hierarchy of access.

I then set about to create such a framework, researching and analyzing existing frameworks in various cities to determine what commonalities are prevalent. The framework of typology (for open space) was then combined with a framework for access and simplified to relate it specifically to advancing public transit access to green spaces. This is followed by general recommendations for improving access.

All of this information is synthesized and applied to 3 specific cases. The first, Chicago, is an example of a city where transit access to open spaces exists, but little encouragement is given to current or potential users. The second, San Juan, Puerto Rico, is an example of the opportunity to develop a link to existing open space presented by the investment in the Tren Urbano heavy rail project scheduled to begin service this year. The last, Santiago de Chile’s San Joaquin, is an example of an opportunity to develop park access near an underutilized rail station.
In each case, I undertake a review of income distribution and car ownership, and analysis of transit accessible green spaces, if any, and finally a comparison of both the demography and accessibility to determine the character of transit access to urban green spaces. This is followed by a depiction of the green spaces most lacking transit access and/or the most prevalent opportunities for connecting networks given the conditions in play at present, which are described in the case. Each applied example ends with specific recommendations to create, encourage, or expand transit access to the specific green space(s) referenced, as well as connections generally.

The conclusion of this report collects all recommendations together, for the benefit of several sectors of government agencies as well as private developers, and recaps the framework more generally. Finally, this report identifies possible areas for future research.
**Transit Pathways to Urban Parks**

**Legend**

- ● Transit station
- ○ Transit access area
- ■ Green space attraction
- ○ Green space service area (variable)
- □ Commercial nodes
- ▮ Residential nodes
- - - Connection routes

*Bent, MCP Thesis, June 2003*
2.1 Synergies: Why policymakers should care about incorporating green space at transit nodes

Public infrastructure—whether parks or transit—is one of the few places where we all meet as equals. Most other sectors of society are “highly hierarchical”, where “the CEO perhaps meets the janitor, but from his position of power”. Parks, trains, and sidewalks, allow us to meet as equals, particularly when they are well distributed and equitably accessible. Parks have the ability to bring together people from all types of different backgrounds, socio-economic levels and ages. But the magnitude of this phenomenon will depend greatly on the variety of programmes offered, the perceived safety and the level and quality of access provided at each facility.

Social policy is usually concerned with those in society, who we have been termed ‘travel-disadvantaged’. Some are fully physically and mentally fit, but are encumbered and find travel difficult, or are inhibited from traveling by the perceived threatening environment, others are frail, and others still are disabled in one way of another. Together they are large in number, and providing for their proximity and their accessibility is a matter of public policy (Halcrow Fox).

2.1.1 Urban densities deprive us of green space

As more people leave rural environments for the steel and concrete surroundings of cities, there is a growing recognition that they will need and want some form of vegetation present in their daily lives. Whether it is a shady city park for recreation, a tree border for visual privacy or a wetland area for flood control, the concept of urban greening is fast becoming a reality beyond recreational use and aesthetics (IADB). Densities on the periphery of urban areas are far lower than those in the urban core; it is the basic principle of urban land development (Wheaton). This is particularly true for cities with a hub and spoke transportation system. The center is also where land prices are highest, and often where open space is most lacking. Of course, the center need not truly be the “center” of a sphere, as in Chicago, where Lake Michigan forms a geographical barrier making the Loop the core of a hemisphere instead.

Because land prices are lowest closer to the periphery, it is far easier to preserve open space or vacant land from development. Open space preservation is often a method of land-banking, an opportunity for latent development—until a visionary develops a park or the community becomes attached to the space or both, as was the case with New York’s Central Park at its inception 150 years ago. Predictably, in most urban areas there are greater amounts of green space near the periphery than in the urban core. Sadly it is in the urban core that green space is most needed, as “the need
for usable open spaces accessible to the public [only] increases as density increases in growth centers” (Corvin).

2.2 Market Needs and Desires: Why Transit Agencies Should Foster an Open Space Presence at Transit Nodes

2.2.1 Equitable Accessibility

Just as public agencies must ensure that those who are physically disabled have access to green spaces among other activities, they should also ensure that these spaces are accessible to those without cars. Several different organizations have identified goals for open space for urban residents, including the World Health Organization, which has set a goal for each area of $9\text{m}^2$ per resident. The National Recreation and Parks Association has proclaimed that each region should provide 6 to 10 acres of open space per 1000 residents, within the context of the historic development patterns and geographic conditions of the region. Few organizations have identified concrete goals for access to green spaces, beyond amount of space per resident and perhaps proximity to the spaces. So imagine that each region meets this goal by reserving several hectares or acres of open space from development on the periphery of municipal limits, away from developed spaces or perhaps atop a mountain. What, then, is the point of having $9\text{m}^2$ of open space per resident, if one has little or no access to it? Travel time, walking distance, and neighborhood proximity are not enough.

Income distribution should not prevent open space access

Consider a family without a car who wish to take a trip to the park. It is the first warm day in months and they wish to take a swim to take advantage of the good weather. The small neighborhood park near their home does not have an outdoor swimming pool, so they must travel to another park in a different section of town. Without sufficient transit access, a trip that might last 20 minutes by car might be impossible for a carless family, but it certainly would be no small hardship to go for a swim. The family might be inclined to take the trip, however, if the park were only a few blocks from the transit station or bus stop.

Unfortunately this is the predicament of many families in low-income communities and often minority communities. “African-Americans and Latinos rely far more heavily on public transportation than the population as a whole does”, as do many low-income communities. Low-income communities often have revenue structures that lack the capacity to provide ample green spaces in the face of other seemingly more pressing needs. They often lack ample yards, so the children are especially likely to play on the sidewalk or in the street—something that past generations of American children did safely and that children living on suburban cul-de-sacs do safely today (see Conservation Law Foundation for more). Families in such communities have just as much need for and right to the benefits of open space. While it is certainly better to increase the amount and quality of open spaces in needy communities, providing access to existing green spaces would expand the sphere of greenery and the range of activities available to families in these areas far more expeditiously. Increased transit access would thereby provide both broader long-term access and immediate short-term access.

2.2.2 Accessibility vs. Mobility

Consider the difference between simple physical movement and actually getting where you need or want to go. There is indeed a marked difference:
the difference between accessibility and mobility. One might be able to drive long distances, travel for many hundreds of miles by car, but in the same distance collective transportation can and often does allow one to actually visit many locations in similar distances, as well as those that are both smaller and larger. It is the difference between living in a sparsely developed mountainous region or plateau and living in a dense urban environment. Whereas mobility allows substantial movement, it does not necessarily offer access to destinations. On the other hand, that is the very definition of accessibility. Mobility is characterized by a car-oriented society, whereas accessibility is characterized by an amalgam of different modes, including large components of collective transportation—from public transit systems to car-sharing cooperatives, to rental cars. These components work together to provide optimal choices to residents, that they may use them to gain access to various activities in life.

Transit should provide access to all aspects of life

Residents in urban communities need access to the natural environment; and not always the environment in their back yard.5

People who cannot afford to drive or chose not to drive are able to participate in a range of activities because of public transportation services. Public transportation might be seen as offering “universal mobility” (Gillespie) because it extends mobility to many more individuals at more affordable costs than personal vehicles. If transit-friendly communities are to continue to proliferate and be sustainable, they must not only encourage transit use; they must also decrease automobile dependency in more arenas than just commuting to work. They must offer access to a variety of activities by incorporating commercial, residential, recreational and civic uses within reasonable walking distances from the transit node in a well-designed pedestrian environment (see RPA, 1997). Recent Census 2000 information and household travel surveys in New York City reveal that less than ½ of all transit trips are now work-based trips. It was discovered that while there was an increase in work-related trips by public transportation, non-work travel by subway and bus grew astronomically in the 1990s (Schaller). Clearly not every city can or even should be New York City, but these data show that with the proper incentive people can be encouraged to use transit for activities other than work commutes.

Increased access boosts transit ridership—especially in the off-peak

Perhaps more importantly, these data also show that people actually wish to access non-work-based activities using transit. The lesson here is that increased parks patronage through transit can benefit transit agencies in a very basic manner: increased ridership. The broader take on transit access and the increase in off-peak service will not only increase access to captive riders, it will attract choice riders. Both patrons and employees would be better able to travel to parks if they were better equipped for transit access. Parks employees would be better able to access facilities by transit rather than flooding the parking lots each day. Since parks patronage is typically recreational and outside of work hours, increased transit access to parks for patrons would likely boost ridership in the off-peak. To be sure,
Transit Pathways to Urban Parks

there are implicated costs to transit agencies in a rise in off-peak ridership, however it also utilizes a major investment that otherwise lays fallow. The increase in off-peak ridership also builds a greater culture of transit usage and further convinces residents of the benefits of transit usage rather than automobile dependency.

2.3 Development Impacts: Why Planning Organizations Should Encourage Connections Between Transportation and Green Space Networks

2.3.1 Transit is a Catalyst for Rising Real Estate Costs.
Perhaps the most compelling argument for maintaining or creating a green space presence at transit stations is that of transit's catalyst for land value increases. Like parks, transit investments have long been heralded as a neighborhood revitalization strategy (Conservation Law Foundation). “Public transportation facilities and corridors are natural focal points for economic and social activities.” 6 This, and many other factors, makes them all the more attractive to real estate developers. Improvements typically drive up land values, to the unfortunate detriment of open space development or preservation.

Since open space is often a public good, its development and preservation typically falls to public agencies. Many governments believe that open space is not the highest and best use of transit-adjacent land, particularly when selling public land often brings much-needed revenue to public coffers. With rising land costs, land acquisition for open space becomes far more difficult for public agencies. Many cities have various land trusts, dedicated budget items, and even private partners who support open space in urban areas. Few have found consistently beneficial methods of open space preservation in downtown areas, where few public agencies own parcels suitable for green space development. “At times of great expansion, especially when expansion is rightly limited to within existing geographic boundaries, green spaces are particularly vulnerable, and any underestimation of the value of green space can quickly lead to irreversible loss of what is truly one of a City’s greatest assets. As the urban density of a city increases the importance and value of the available green space is magnified.” 7 Planning open space preservation and development links to construction of transit lines represents an opportunity to capitalize on land values before they increase beyond the affordability of public agencies.

2.3.2 Land Conversion Facilitates Assembly, and Change
London’s Urban Parks Forum found that “the most likely reason for the trend towards smaller sites is the lack of available land within urban conurbations and the high real estate value placed on available land.” 8 With transit infrastructure on the horizon, many local governments endeavor to maximize the massive public investment by encouraging transit-supportive uses, usually through zoning changes and other incentives. The zoning changes and incentives create an opportunity for conversion of all or most land uses at the transit node. As many transit and planning agencies recognize, the conversion or at least the availability of the land at the transit node presents an opportunity to plan holistic and integrative uses for the communities in proximity to the transit node.

6 See Public Transportation Partnership for Tomorrow at http://www.publictransportation.org/primer_benefits.html
7 See Urban Parks Forum http://www.urbanparksforum.co.uk/LondonPlan.htm
In terms of green space, most agencies concentrate on inclusion required by zoning, and rely heavily on developers for connections to any existing open space. For example, Arlington County has done a good job of densifying development around transit stations, particularly in the Ballston corridor, but seem to have problems preserving or creating open space near transit stations in the WMATA system. Though Arlington County planners acknowledge the problem of trying to reserve open space, they have not yet been able to act due to the commodity of land along the transit corridor. They also have not yet extended design review concepts pointedly in the direction of transit access to open space.\textsuperscript{9} Region-wide, agencies and organizations are investing in access to transit lines and along transit corridors by bicycle (Arlington County “bike master plan” and New York Avenue Station bike path connection interesting...), but have not made transit connections to open space a similar priority. Why? Lack of land ownership is one of their biggest obstacles.

Arlington County’s zoning map identifies some areas within the transit corridor as possible locations for open space. These areas are not definitively designated as open space, however, because the land is privately owned. Government regulations prevent them from acquiring additional land not used directly for transit infrastructure. Despite the great opportunity presented by the rail investment and the influence the planning boards can exert, they may not be able to convince landowner(s) or possible developer(s) to create open space in that location. Didn’t have much opportunity to push for developing parks or open space, particularly in beginning.\textsuperscript{10} Not only are government agencies inhibited by inadequate funding for land acquisition, but also by concerns for the impact of zoning active land for open space since it precludes development of other uses. This might force current owners to abandon lots without much hope of recouping full market value, making enemies of the development world or forcing these lots to lie vacant and neglected while developers and owners turn their attention elsewhere.\textsuperscript{11}

\subsection{2.3.3 Balanced development means sustainable development}
Many planning and transit agencies worry about the effect increasing the percentage or ratio of inclusion of open space will have on density and on property values. During interviews in Arlington County, Virginia, for example, town officials were more concerned with the need to densify the area around stations in order to increase ridership than to capitalize on open space opportunities.\textsuperscript{12} Densification and increased ridership are without doubt vital to the viability of a good transit system. But ridership does not always stem from the built environment; it stems from travel between origins and destinations. And the conflict between the economic development and preservation of the natural environment is sometimes more a factor of perception than of reality. While there is a clear correlation between the two concepts, both increasing development density and increasing property values will have positive effects—the first for ridership, the second for tax revenues.

\begin{itemize}
\item \textsuperscript{9} \textit{Interviews with WMATA personnel.}
\item \textsuperscript{10} \textit{Taken from personal interviews with Arlington County, Virginia planning officials.}
\item \textsuperscript{11} \textit{From discussions with planning professionals in Santiago de Chile and development professionals in San Juan.}
\item \textsuperscript{12} \textit{From personal interviews with Arlington County, Virginia planning officials.}
\end{itemize}
Population expansion and urban growth make necessary “careful management and a joined up holistic approach to developmental control. A failure to provide adequate guidance and control would result in chaotic and piecemeal development driven by pure economics, rather than the quality of life enjoyed by the population and urban sustainability and efficiency.” In Tacoma, Washington’s report on Urban Growth Centers planners found that “the need for usable open spaces accessible to the public increases as density increases in growth centers” (Corvin). As the focal points of many communities, often the place where several communities intersect, uses around transit stations should be balanced to accommodate the range of uses demanded by that community. “These activities help create strong neighborhood centers that are more economically stable, safe and productive” and should be further integrated into metropolitan and regional needs as well.

Most cities have found that zoning regulations that require developers to include open space in their site plans are not always effective at making open space accessible to the public. Yet we also realize that “there is more to transit than getting from place to place. Just as streets are more than routes for cars, a transit station, be it a bus stop or a train or subway station, can be much more to a neighborhood than just a place where people come and go. There are challenges involved in coordinating transit and development in city neighborhoods, where new development must be well integrated with the existing community” (Conservation Law Foundation, 60).

2.3.4 SYNERGY INCREASES PROPERTY VALUES ACROSS MARKETS

Much like public transit stations, open spaces positively impact the areas in which they lie. The economic benefits of parks are difficult to quantify precisely; however, various studies have identified how parks contribute to economic development. There are varying degrees of economic benefit depending upon the type of open space. Like the Central Parks and Hyde Parks of the world, many parks provide economic benefit to the residents in close proximity by raising the market value of these residential developments due to their social benefit and resale value. Although each case is different, leasing rates for units with view of an urban park command higher rates. In case studies examined by Economic Research Associates in various major metropolitan cities, the rental premium for proximity to parks ranged from 10 - 40 percent. A 1991 Denver survey in revealed that the percentage of residents who would pay more to live in a neighborhood near a park or greenway increased from 16 to 48 percent between 1980 and 1990. In a study of the economic benefits of parks, John L. Crompton discovered that property values of homes near parks are as much as 20% higher than identical or similar homes in the same area. Development of an urban park induces new development and/or improvement of existing properties.15

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13 See http://www.urbanparksforum.co.uk/LondonPlan.htm
14 See Public Transportation Partnership for Tomorrow at http://www.publictransportation.org/primer_benefits.html
15 See Phillips (2003) and Crompton (2001) for more on economics and parks.

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Crompton further shows how homes near parks with nuisance factors, such as congestion, street parking or blighted facilities, and those near parks without nuisance factors have somewhat different effects on the peak values of homes in the immediate area (shown in figure 3 above) (Crompton, 16), but the result is a net increase in property values. This net increase benefits municipalities as well since the higher value of the home as well as the amount of property tax revenues collected by the municipality. The assessed value of these homes is higher, leading to greater property tax revenues. Of course, the economic benefits of parks are not limited to residential areas. Commercial developments also enjoy increased property values due to park adjacency, and many developers exploit this by asking higher rental and sales prices for office space, retail developments and such of this ilk.

2.3.5 Components of package sought by office developers

Neighborhood, metropolitan and regional parks are also components of an attractive real estate package sought by office developers. Real estate studies show that many office developers and companies have found that employees seek locations that offer a variety of activities in proximity to their office. In hopes of making the office environment more attractive to potential employers employees and many developers and companies seek locations that offer recreation, retail, restaurant and other uses so that employees can shop, socialize and/or exercise near the job at their convenience (Crompton, 2003). These sites command higher rental and sales prices as well (Wheaton). The benefits of these higher prices are not only felt in the profits of the developers and companies, but often in the salaries of employees and certainly in the higher quality of life they experience.

2.4 Environmental impacts: Why parks agencies should cultivate connections

2.4.1 Saves magnitude of land used for parking lots/garages

“Public transportation helps to preserve open spaces, enhancing a community’s appearance while conserving recreational places where families spend time together.”16 Although most parks agencies assert that they do not plan for vehicular access, many parks agencies are copious consumers of parking lots and garages at their facilities. They find parking a necessity—sometimes in large amounts—due to zoning regulations for parking ratios,

16 See Public Transportation Partnership for Tomorrow at http://www.publictransportation.org/primer_benefits.html
handicapped access and maintenance vehicle needs. Some parking is of course necessary, but reducing parking ratios and better accommodating public transit would allow more green space in parks facilities. Catering to vehicular trends rather than planning for transit accessibility amounts to parks agencies robbing patrons of many valuable acres of land that might otherwise be devoted to programmatic, passive or simple landscaped green space.

2.4.2 Quality of Life

Certain parks, such as Central Park in New York City, or Bosque Chapultepec in Mexico City, are so integral to a city's identity that it is hard to imagine those cities without them (IADB, 46). "Compared to a factor such as air quality, which can directly correlate to the health of a community, the connection between civic well-being and green space may seem tenuous. Yet it is these intangible qualities of municipal health—park space, school funding and library spending and newspaper readership among them—that can set the tone for a community" (Owens and Wallis). Studies have shown that the ability to travel in an area conveniently, without a car, is an important component of a community's livability. Public transportation provides opportunity, access, choice and freedom, all of which contribute to improved quality of life. 17

Pedestrian public spaces are woefully undervalued. Though one might be able to do so with much effort, it would be very difficult to prove mathematically that quality improvements to public spaces more or better parks make people happier, much less measure how much happier. However if we reflect, most things that are important in life cannot be measured either: Friendship, beauty, love and loyalty are examples. Parks and other pedestrian places are essential to a happy urban life. There is a curious difference between parks and other public investments. If people lack transport, running water, or other traditional public services, they will feel very unsatisfied. But if they do have those services, they do not get much satisfaction out of it. On the contrary, if they lack parks or other pedestrian spaces, they will not be particularly dissatisfied. But if they do have them, they will derive out of it ceaseless satisfaction. It is so, because most government services are means to a better life; while pedestrian spaces are an end in themselves; they practically ARE a better life in themselves (Johnason).

17 See Public Transportation Partnership for Tomorrow at http://www.publictransportation.org/primer_benefits.html

2.4.3 Continuity of the Ecological Cycle

Urban parks, vegetated areas and other green areas are traditionally viewed as simply recreational spaces. But they are components of networks that allow holistic integration as species habitat, resting grounds and pedestrian connections. They are necessary for basic sanitation, floodwater control,

18 See Public Transportation benefits for more information http://www.publictransportation.org/primer_benefits.html

Bent, MCP Thesis, June 2003
sewage and waste treatment, pollution control macro- and microclimate management, biodiversity increase and poverty reduction (IADB). A regional greenway network can afford benefits through natural management and restoration of these various necessities while requiring less investment in public and private infrastructure. “Protecting and restoring ecological health holds the promise of long-term sustainability in terms of both biology and a foundation for enhanced quality of life and economic health” (Johnson, 68).

Figure 4: Interrelated Functions of Urban Greenways

Source: Sustainable Communities from Barton et al.

2.4.4 Personal Health: Walkable cities means more walking and more activity

In addition to improving the quality of life, parks provide more than just recreational and economic benefits to its patrons and nearby residents. Parks also improve the personal health of those who visit them. They are a component of an active lifestyle and provide many psychological benefits. They enable not just activity but interaction, where people may walk alone or together, sit and talk with friends and/or neighbors or simply people-watch. The very presence of even a few initial people attracts others to the open spaces, and provides a basic sense of safety and entitlement.

In recent years many city residents have been striving for a “definition of what the good life includes...[usually arriving at] a couple of cars and a house on the cul-de-sac,” says Kraft of the Robert Wood Johnson Foundation. “The good life means you can be a couch potato” (Moore) allegiances to, or perhaps visions of, the importance of parks—strictly defined—has been diminishing, while ideas about the significance of open and green space has been strengthening due to the concept that parks, streets, plazas and empty lots were parts of a continuous system. Citizens and professionals viewed all unbuild spaces as potential sources of psychic relief (Cranz). Providing transit access to parks and green space would reinforce and support pedestrian activity rather than a car-based lifestyle leading to more congestion or this suburban image of the good life. Parks also provide passive and active recreation, refuge from the car and concrete urban bustle, and improvements in a city’s aesthetic value and environmental quality (IADB).
3.1 Visions of development potential: New York City

3.1.1 Context

Few cities can match the accessibility offered New York City’s residents. Rather than crawl through roadway congestion above New York’s speeding trains, most residents choose the cheaper, faster service of the subway system for work and recreational travel. The majority of New York City’s parks are accessible by transit, simply because the majority of New York is accessible by transit. However, as with many of New York’s transit destinations, the main programmatic attraction of each destination dominates the station area. When you surface at Prospect Park, you find yourself staring across at the park. And certainly when you emerge at most of the Central Park stations, you feel as though you’ve just climbed out of a rabbit hole in the park entryway.

The mobility and accessibility provided by NYC’s transit system places it at the forefront of finance, commerce, culture and entertainment. Four of five rush-hour commuters in the tri-state area take transit service into NYC’s Central Business District. But even the MTA recognizes that its property is not the most valuable contribution to the region’s economy. “The greatest value of the MTA lies in its beneficial impact on the New York region’s economy and quality of life. New York ranks near the top among the nation’s best cities for business, says Fortune magazine, because it has ‘what every city desires, a workable mass transit system.’” (MTA)

In metropolitan New York’s 2,967 square miles urbanized area, the Metropolitan Transportation Agency’s service area covers 322 square miles and serves approximately half of the approximately 16 million metropolitan area residents (National Transit Database, 2001). New York City’s MTA subways, buses, and railroads carry 2.3 billion New Yorkers a year. With almost 8 million weekday passengers on average (7 million in the 5 boroughs alone), this system accounts for \( \frac{1}{3} \) of the mass transit riders in the USA and \( \frac{2}{3} \) of the USA’s total rail riders. This is North America’s largest transportation network, where between 60% and 70% of work trips are made by transit.

3.1.2 New York City’s prominent open spaces

Union Square Park: neighborhood destination, lessons in revitalization

Subway Station(s): 14th Street-Union Square (N, R)

Nearby Amenities: Retail, various cafes and restaurants, near-daily farmer’s market

Redeveloped in 1985 through a new $3.6 million plaza, Manhattan’s Union Square revitalized the Gramercy Park area in eastern downtown. The project was funded by the New York City Department of Parks and Recreation opened up the park’s center lawn, established clear site lines, and restored the Lincoln and Washington statues. Since then, an outdoor restaurant was opened as well as a near-daily farmer’s market. The Union Square subway station was also rehabilitated, thus further increasing the marketability of a Union Square location (Phillips). Since the revitalization,
property values around Union Square have skyrocketed, and development starts have increased significantly. Where once stood a blighted square overrun by drug-dealers now stands a marked attraction for neighborhood residents, office developers, employees and shoppers alike. Recognition of the site's amenities are immediate: when you emerge from the 14th Street-Union Square station on the N/R line, you find yourself in the center of the square, where you may dart a few paces directly to Union Square Park or meander slowly through the fruit sellers at the farmers' market. Union Square is an excellent example of immediate recognition (prominence in station area) and urban revitalization spurred by parks investment.

**Bryant Park:** metropolitan destination, lessons in marketing

*Subway Station(s):* 42nd Street (B,D,F,Q)

*Nearby Amenities:* New York Public Library, 42nd Street retail, American Radiator Building, WR Grace Tower, Bryant Park Studios

Bryant Park, once referred to as "needle park" due to the high volume of illegal drug activity, has come to be perhaps one of the highest and best maintained parks in America and certainly in New York. Restored in the early 1980s, it sits on 8 acres of land, and now attracts an average of over 10,000 patrons on a spring day. Where once stood a space shunned by neighborhood residents and businesses, Bryant Park now hosts several public and private functions each year. It is so well-patronized that it now hosts New York's Fashion on 5th, and has become one of only a few pilot sites selected for New York City's wireless outdoor network. Seven million square feet of office and retail space surround the park.

**Central Park:** regional destination, lessons in development speculation

*Transit:* 59th Street-Columbus Circle (A,B,C,D,1,2,3,9); 72nd, 81st, 86th, 96th, 103rd St. (A,B,C,D); 110 Street (2,3), numerous bus lines

*Nearby Amenities:* too numerous to list!
CASE STUDIES: NEW YORK CITY

3.1.3 APPLICABLE OPEN SPACE AND ACCESS LESSONS

Today a new trend has been discovered in New York City’s mass transit service: fewer than \( \frac{1}{2} \) of all transit trips are now work-based trips. In the 2000 Census and Household Travel Survey show that the proportion of households owning a vehicle increased from 44.1% in 1990 to 44.3% in 2000. The proportion of New York City workers commuting by public transportation declined slightly over the last decade, from 53.4% in 1990 to 52.8% in 2000. “The growth in non-work transit trips explains why transit ridership has continued to increase in 2002 despite falling employment in New York City in the last year.” Non-work travel by subway and bus grew 62% in the last decade, while work-related trips by public transit grew only 6.7% (Schaller, 2000, p 7).

It has become clear that non-work trips are now an integral component of growth in New York’s transit ridership, which poses both challenges and opportunities for transit providers. While the growth in non-work based trips allows transit providers to maximize infrastructure use in the off-peak, it also requires more energy use as well as labor, and complicates vehicle and track maintenance and servicing schedules. This information should broaden the focus of travel survey analysis, since such surveys and analyses typically focus(ed) on work-related travel, usually based on unidirectional flows into the central business district during peak weekday hours (Schaller, 2002, p 10). The discovery of the importance of transit travel unrelated to

“Connections with Central Park run especially deep with New Yorkers. We tend to think of the Park as our own front yard”. Central Park runs for 50 city blocks and encompasses approximately 843 acres of land. It is currently honored as the heart and soul of the city, where visits have amounted to almost 25 million people in the course of one spring weekend. The park was designed in such a way that it maximizes connections while minimizing disturbances from competing transportation modes with a network of bridges and underpasses allowing 4 transverse roads for vehicular traffic, and 58 total miles of pathways. With the advent of the public transit system Central Park now boasts, 8 subway stops and over 15 bus lines on the edges of its boundaries (Central Park Conservancy).
work trips heralds a greater possibility—and probability—of transit’s presence in various aspects of life. Since we now have a better understanding of parks’ place in urban lifestyles, we can assume that the demand for transit access is also present, or soon will be. The popularity of New York City’s parks, described further below, combined with the knowledge that social and recreational home-based trips account for 14.1% of all trips in the region, also indicate a probable rise in transit usage to access parks.

Apart from the noteworthy, innovative design interventions that Olmstead and Vaux were able to carry out, Central Park’s most important lesson is probably vision. Though it was at the center of the island, Central Park was not central to developed Manhattan when it was first imagined, or even when it first opened. When construction began in 1858, the developed city reached only as far north as 38th Street. As early as the 1850s, famed landscape architect Frederick Law Olmsted justified the purchase of land for New York’s Central Park by noting that the rising value of adjacent property would produce enough in taxes to pay for the park (Trust for Public Land). Since its inception, Central Park has become an oasis in the growing urban jungle of New York City.
3.2 A WIDE RANGE OF TYPLOGIES: BOSTON, MASSACHUSETTS, USA

3.2.1 PROFILE

The service area of Boston's Massachusetts Bay Transportation Agency spans 3,244 square miles including commuter rail service, 891 square miles of which is urbanized. The MBTA serves approximately 1.5 million people daily (National Transit Database 2001). Boston is also one of the top transit-oriented cities in the USA; between 20% and 40% of work trips are made by transit, and 47% of trips destined for downtown Boston are originating outside Boston are made using public transit. However, auto ownership in Boston also grew 37% since 1990, versus only a 3% growth in population. 57% of Boston's population and 79% of Boston's jobs lie within a 10-minute walk of a public transit station (including commuter rail). "MBTA service is very competitive for trips between core and non-core neighborhoods. Interestingly, for trips starting in a Core neighborhood and ending in the Core, transit has a low share since walk is the dominant mode of travel for these trips. In contrast, for trips starting in a non-core neighborhood destined anywhere but the Core, transit share is relatively low since the auto is often more practical" (City of Boston et al.).

3.2.2 BOSTON'S OPEN SPACES: THE EMERALD NECKLACE, ET AL.

Boston's Emerald Necklace is a 7-mile long network of parks and greenways encircling the several of Boston's core neighborhoods. It is yet another legacy of well-designed, landscaped parks by Frederick Law Olmstead. Though the Boston Common and Public Gardens long preceded the Back Bay Fens, Jamaica Pond and the Arnold Arboretum, the concept of encircling Boston with connected open spaces was championed by Olmstead for the Boston Parks Department between 1878 and 1892. Each park was strung...
Transit Pathways to Urban Parks

together by linear parks, greenways or bike trails and tree-lined boulevards like Commonwealth Avenue or the Arborway. Over the years, some of these parks or connections had been eroded by disrepair or development, but in past years several connections have been recreated or strengthened, such as Southwest Corridor Park.

To support and build upon public sector initiatives—the result of two decades of private sector and community advocacy—to restore and preserve the Emerald Necklace, the Emerald Necklace Conservancy was established in 1996 under the auspices of the Boston Greenspace Alliance. In late 1997 it became a separate, non-profit organization. The Conservancy drew upon models established by the Central Park Conservancy, the Prospect Park Alliance (New York) and the Louisville (Kentucky) Conservancy for its organization and its desire to bring together concerned citizens to become advocates for, and stewards of, urban greenspace (see Boston Parks and Recreation for more).

A not-for-profit organization, the Emerald Necklace Conservancy is a public-private partnership comprised of community, business government and institutional representatives, residential neighbors, representatives of Necklace-related associations and interested citizens. With a mission to preserve, improve, promote, and maintain the land and water parks designed by Olmsted, the Emerald Necklace Conservancy focuses on:

- establishing community commitment through advocacy and education, and by building an enlarged, united and diverse constituency for the Emerald Necklace;
- creating and supporting maintenance plans which ensure that the six parks are managed as a cohesive system;
- providing private sector and individual support to augment limited municipal parks budgets in Boston and Brookline in order to ensure Emerald Necklace restoration and on-going maintenance efforts. 44

Over the past decade, the City of Boston and the Town of Brookline have made almost $60 million in capital expenditures for parks and waterway improvements in the Emerald Necklace. These efforts have included improved pathways, plantings and signage, bridge repairs, and the restoration of boardwalks and buildings (see Boston Parks and Recreation for more).

Boston Common/Public Gardens: combination metropolitan destination and commuter haven, lessons in management and design integration

T-Station(s): Park Street, Boylston, Arlington

Nearby amenities: State House, Commonwealth Avenue, Newbury & Boylston Streets retail, Downtown Crossing and Back Bay business and retail centers

Figure 6: View of Boylston Station Area

Purchased in 1634, the 75-acre Boston Common and Public Garden were originally meant for use as a cattle grazing ground. The character of these two parks is very different: the Boston Common, acquired first, maintains its pastoral feel today, and offers recreational activities from playing fields

Bent, MCP Thesis, June 2003
to ice skating while the Public Gardens are far more manicured and offer passive repose and pleasant pathways for pedestrian commuters.

**Arnold Arboretum:** combination metropolitan destination and community amenity, lessons in partnership and design integration

_T-Station(s):_ Forest Hills (Orange Line and Commuter Rail)

_Nearby amenities: Franklin Park, golf course and zoo, residential neighborhoods_

The Arnold Arboretum is a 265-acre sanctuary of trees, shrubs and vines both for neighborhood, metropolitan and regional visitors and for students and professionals of Harvard University’s horticultural and natural science programs. Bequeathed to Harvard University by merchant James Arnold in 1872, it is the oldest green space in the Emerald Necklace, and the only one managed by a private university for the benefit of the public. It is currently owned by the City of Boston and managed and maintained by Harvard University as part of a thousand-year leaseback agreement. The Arboretum is not the only green haven in reach of the Forest Hills Station: within a mile and a half radius there are more than 1,570 acres of public open space. Patrons and residents have access to the Franklin Park Zoo, several community gardens and various cemeteries as well.

### 3.2.3 Applicable Open Space/Access Lessons

Perhaps the most prevalent message in the vast number of lessons in the Boston context is that of proving a range of connected options. Perhaps due to its compact, dense urban development or perhaps its long history as a walkable city, Boston has a great range of types of green space within the city limits and its immediate environs. Most, if not all, of these green spaces are connected to transit service of some kind while still incorporating various other modes of travel. The system is not without its problems however, with many patrons complaining of the poor pedestrian connections between stations and park entry areas.

Boston’s Arnold Arboretum is very similar to many Chicago parks in that it is connected to transit, but not well-patronized by transit. One of the reasons that patrons find it difficult to travel to the Arboretum by transit may be trip chaining, the phenomena of combining various destinations. It is difficult to combine transit trips in the area because it is somewhat isolated from other transit services. Perhaps a more obvious deterrent to transit access to the Arboretum is the poor pedestrian connections that exist in the station area at Forest Hills. Residents in the area also find the park area the shortest route to the T station, but have similarly complained that the pedestrian route to the station can be quite difficult. As a researcher at Harvard University’s Rappaport Institute for Greater Boston noted in a recent article, “tires, wooden planks, and garbage block a rare passageway, under the commuter rail in Roslindale, that leads into the Arnold Arboretum. There are no signs pointing the way from the Forest Hills T station to Franklin Park, and the journey on foot through traffic can be harrowing.” (Laufer)
3.3 Policy follows function: London, UK

3.3.1 Profile

Demographics of the city

London is England's capital city, nestled about 90 miles inland from the southeastern coast of England. London's metropolitan area is home to over 7.3 million people, 14.3% of England's total of over 49 million residents. Almost 3 million residents are concentrated in Inner London, which has a population density of over 11,000 people per square mile (4,600 per square kilometer, demographia.com). Greater London experienced a 5% population increase between 1991 and 2001. The city is actually an amalgam of 33 boroughs, all covering over 620 square miles (over 1580 square kilometers) in total. The city is surrounded by a 100-mile greenbelt that acts as a somewhat unofficial urban growth boundary.

Source: TA Software

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square miles, while in central London (an area of 11 miles), public transport captures 78% of work trips.  

Open Space Network

England’s Urban Park Forum began after several different organizations embarked on an analysis of the condition of parks throughout England. The study began with an inventory and accounting of the royal parks, only to find that the condition of urban parks is particularly problematic. Recognizing the role that parks play in the quality of life, particularly of urban residents, the London Parks Forum was formed. In the course of the nationwide study, the Heritage Lottery Fund undertook the task of preserving the royal parks using lottery funds. They began to devise and carry out interventions that would improve the quality of parks, as well as to help localities identify and implement interventions of their own. The efforts of the Heritage Lottery Fund raised awareness for parks and helped to assign economic value to their place in the built environment. And the Programme’s success spurred a wider revival of interest in the regenerative role of urban parks. The Heritage Lottery Fund asserted that “nothing...is more important than the restoration of parks, public gardens and open spaces in towns and cities. Many parks have now been reduced to a state in which their contribution to the quality of urban life is minimal. Their potential, however, remains enormous.” Contributing to the regeneration of urban parks therefore exemplifies our policy in two important respects. It uses lottery money to maximum public benefit, and it converts the legacy of the past into a vital asset for the future.” The Park Life report identified good quality public parks as fundamental to urban life. (Lambert)

The draft London Plan acknowledges the rich variety of green space that exists within London and describes the specific roles that each type of green space fulfills:

- defining and shaping communities and geographic neighborhoods;
- accommodating a myriad of recreational, sporting and cultural needs;
- improving the visual appearance;
- providing vital habitats and supporting biodiversity;
- combating climatic change and improving the urban environment;
- providing sustainable transport links;
- welcoming and providing for everyone regardless of age, gender, ethnicity, religion, race, color, creed or social position.

Greenwich Peninsula: neighborhood amenity, regional metropolitan destination, lessons in land use integration

Greenwich Peninsula sits in a quiet, post industrial corner of London, the site that hosts its famed Millennium Dome. The land itself hosted various different industrial purposes, from rope making to asbestos. The

15 UK Labour Force Survey at www.publicpurpose.com

16 See Urban Parks Forum at http://www.urbanparksforum.co.uk/LondonPlan.htm
development plan aims to establish a “new urban quarter” that builds on the achievements of more traditional solutions and rejects recent the trend toward single use, single function neighborhoods. The new community consists of a mixed-use, residential and commercial area with outlet for passive and active recreation, shopping connected by “a series of parks with extensive pedestrian, cycle, road and public transport links.” The plans include several high-rise towers, which the architect hopes will encourage creation and maintenance of an “urban oasis” of greenery and parkland. Unlike many dockside and waterfront developments, housing will not be entirely concentrated along the river. Instead many structures will be set back from the river and surrounded by parkland that will connect residents to the riverbanks (see Rogers for more on the Master Plan).

Greenwich Peninsula hopes to provide an enhanced quality of life for the entire Greenwich community, not just the planned area. Plans have integrated sustainability and renewability throughout the entire progression of the development. Energy consumption and water conservation techniques throughout the site were key considerations in the design of buildings and the materials used. There is also significant investment in the provision of green spaces and habitats where wildlife can thrive. In addition, traffic throughout the area has been designed to reduce the impact of the car on the environment.

3.3.2 APPLICABLE OPEN SPACE/ACCESS LESSONS

Due to its royal historical development, its integrative government structure and its residents proactive concern for greenery, London’s park system is expansive, quite beautiful and well-connected for the most part. The multifaceted endeavor pursued by the national and local governments was led by the integrated Department of the Environment, Transport and Regions, accompanied by different agencies and subsidiaries. The multidisciplinary approach afforded opportunities to study parks in much detail, and from several different viewpoints. They studied not only the parks themselves, but also the impressions of patrons in their use of parks. This is the greatest lesson to be applied to other cities in this study.

DETR and its sister agencies uncovered many salient facts about parks in the urban environment previously mentioned in this paper. With respect to London specifically, the Park Life report revealed that some 40% of the population uses parks regularly, and that many of these individuals do so every day. The Public Parks Assessment revealed that 82% of the population does not have access to good quality parks (Lambert). A cultural or social impediment to parks access that is rarely discussed is the effect of racial tensions on patronage to public space. It was also reported that minority groups are particularly deterred by barriers shaped by ethnicity. These include fear of racist attacks, unfamiliarity with green space landscapes and open space cultures, a lack of attractive facilities or activities, an uncomfortable feeling of ‘otherness’ (Dunnett). In a report on improving urban parks, they surveyed urban residents to determine deterrents to parks patronage. Poor access was mentioned as one of the top ten reasons people are put off from using urban green spaces by 5 of the 7 groups surveyed. Among factors that would most encourage more frequent use of urban green spaces “easier to get to” was mentioned in the top 9 reasons by all of the 7 groups.

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17 See http://www.greenichpeninsula.co.uk/tour/history.htm
18 See http://www.greenichpeninsula.co.uk/visionframe.htm

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groups surveyed, especially 12-15 year olds and non-Europeans (minorities in this case). 19

The comprehensive analysis and London's culminating report should be undertaken in most if not all urban areas. Among other findings, these efforts uncovered and compiled the various benefits and impacts of urban parks, along with a profile of users and needs for immediate improvements and future research. They qualified where required interventions were physical in nature and where they might be more policy focused. They also determined where issues were due to cultural backgrounds and where they were more generally applied.

19 See Dunnett, Tables 3.4 and 3.5
3.4 Combining infrastructure investments: Bogotá, Colombia

The importance of pedestrian public spaces cannot be measured, but most other important things in life cannot be measured either: friendship, beauty, love and loyalty are examples. Parks and other pedestrian places are essential to a city’s happiness.20

Inspired by Curitiba, in only three years officials in Bogotá, Colombia designed and put in service a bus-based rapid transit system now boasting 39 kilometers of exclusive bus lanes, 57 stations, and 4 bus terminals. The system currently carries 670,000 daily trips, with its main line carrying more than 40,000 passengers per hour (Poole and Orski). The remaining demand for public transport (approximately 8 million daily trips) is still being served by the traditional system with buses operating in mixed traffic. The new system was implemented at a cost of $5 million/km ($8 million/mile), is able to cover its operating costs and even makes a small profit.

Figure 7: The main trunks in the TransMilenio system

Bogotá’s transportation improvements were not totally about transportation service, however, they were about improving the quality of life. The innovative bus rapid transit system was accompanied by an aggressive effort to reclaim the city for pedestrians in an effort to reestablish equitable access to a high quality of life for its residents. During and immediately after inauguration of TransMilenio, Bogotá residents also received over 1,200 parks of various sizes, uses and activities, along with several hundred kilometers of bicycle routes and pedestrian trails. “Concerned about equity

20 Enrique Peñalosa in Parks for Livable Cities: Lessons from a Radical Mayor. See http://www.pps.org
and overall quality of life, and constrained by economic realities, [Peñalosa's] administration combined car use restrictions with efforts to promote and accommodate other modes.  

3.4.2 APPLICABLE OPEN SPACE/ACCESS LESSONS

The lessons from Bogotá and TransMilenio are not necessarily gained from the connections between public transit and specific parks; instead the almost palpable message is the incredible power of linking transportation improvements with general quality of life improvements. Bogotá's TransMilenio is a brilliant example of using public transportation improvements to kickstart urban renewal, as well as to spur on other environmental improvements and quality of life improvements particularly open space, green networking, and the like. The support for the changes heralded by TransMilenio and the message of possibilities and empowerment made possible not only several bicycle trails, but also the largest network of bicycle trails in Latin America (270 km) as well as the longest pedestrian path in the world. In 1990, Bogotá provided 3.62m² open space per resident. With the advent of significant influx of residents from urban growth and expansion of informal settlements, officials feared serious deterioration of this ratio. With an aggressive plan to recover public open space where private owners had co-opted it, Bogotá now has 1,723 hectares of parks and green spaces, for a total of approximately 2.87m² of open space per resident. Lost ground to some extent, but in the face of the rapid expansion, a noteworthy accomplishment.

More importantly, Bogotá activists and planners were more successful at responding to public needs and desires. Public spaces generated along with transportation infrastructure further inspired urban renewal because of the strategic placement of the new open spaces and civic squares. Country clubs in affluent neighborhoods were reclaimed for public uses, and drug-infested plazas were renovated and planted. Once refurbished these squares served as catalysts for revitalization of the neighborhoods that host them.

21 Enrique Peñalosa in Break the Gridlock proceedings. See http://www.Breakthegridlock.com
TRANSIT PATHWAYS TO URBAN PARKS

Since the inception of these changes, Bogotá has been proclaimed a more humane, more livable city. One of the many premises that formed the basis of the transformation of the city is that poverty in dense urban environments is determined by the quality and quantity of public spaces. Another is the concept that the dimensions that determine quality of life are linked to the existence and endowment of public spaces. The champions of the efforts to transform the city were able to combine constituencies, and to empower and activate them by convincing them of the possibilities of a better lifestyle based on equality, connectivity and civic participation. Supporters and even prior critics of the project now praise it for its emphasis on accessibility, consistency and affordability to various sectors of life. Bogotá's then mayor and champion, Enrique Peñalosa, asserts that sidewalks are more closely related to parks than to streets: “The public good is supposed to prevail over private interest... What makes a country civilized is its public spaces. In the US, cycling is mostly an environmental choice, but in developing countries the struggle is to make transport more egalitarian. Public space is particularly important as a venue for leisure, especially for people who are poor.” In “third world” cities, people-oriented transportation planning is a matter of survival. Funds need to be spent on public needs instead of on a car-oriented infrastructure that will serve a minority of the population. “These changes aren’t about engineering, they’re political. We are changing the way people think, asking for a more pedestrian, humane, sustainable and happier society.”

22 Enrique Peñalosa in Break the Gridlock proceedings. See http://www.Breakthegridlock.com

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Chapter 4 Towards a Framework

4.1 Rationale

Positive and practical responses are needed to ensure that parks and green spaces serve the whole community, especially children and young people, the elderly, those with disabilities, minorities and people in disadvantaged areas (Urban Green Spaces Task Force). Urban designers and planners must take action now given the opportunities presented by the current emphasis on sustainable development, and the public (re)investment given various different infrastructure projects on the horizon. Many agencies have no idea how to take action beyond improving the quality of parks and expanse of transit networks. By creating and applying a framework specifically to address this need, we can take a step in a helpful direction. In the course of literature review and case study analysis I observed that there is no common language for green space. London planners and officials discovered that “the lack of commonly agreed definitions for the various types of green space often proved problematical” (Urban Parks Programme). This made it difficult to compare attributes across the spectrum of green spaces and to compare the quality of spaces.

Parks and green spaces are a popular and precious resource, which can make a valuable contribution to the attractiveness of a neighborhood, to the health and well being of local people and expand the educational opportunities for children and adults alike. However, despite their popularity, there has been a worrying decline in the quality of far too many urban parks and green spaces and action is urgently needed, if they are to deliver many benefits (Urban Green Spaces Task Force). In the UK, it is already recognized that information on urban green spaces needs to be improved. Recent research by various parks agencies suggest “a typology for urban green space that could, albeit possibly with some modification, provide a basis for developing consistent records and estimates of the extent of different types of green space both locally and nationally... so that local authorities can be given guidance on a preferred approach.”

An integrative approach to planning and developing urban environments is quickly beginning to resurface, particularly in Western Europe and many of the major cities in the United States, notably Portland, Chicago, and San Francisco. The UK’s Urban Parks Forum asserts that “local authorities need to take a broad integrative view of the whole urban green space resource, which recognizes its vital contribution to the quality of life of urban dwellers.” The Forum advocates:

- producing ‘green space audits’ which incorporate qualitative as well as quantitative information;
- formulating green space categorization systems and typologies that drive policy; and
- producing holistic green space strategies and green structure plans that consider parks as just one element in a larger green space network.

To be sure it will be very difficult to find a commonly agreeable typology and definition of character for green spaces that will aid both parks agencies and transit agencies to work collaboratively in creating,

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24 Ibid
encouraging or supporting transit integration and access to green spaces if even they decide to take this approach. Many studies have asserted that better provision and care of urban parks and green spaces will require an effective policy framework, one within which all decision-makers can operate and work collaboratively. A more strategic approach is needed at the national and local level for improving co-ordination of national priorities and guiding local strategies for delivering networks of green spaces that can benefit whole communities and the nation. A better policy and good practice framework is also needed at a local level, within which policy makers, designers, managers, and users of green spaces can plan to deliver higher standards of care (Urban Green Spaces Task Force). By establishing an agreed set of definitions, local authorities would find it much easier to compare sites on a like-for-like basis, develop appropriate quality standards and maintenance regimes and make more accurate assessments of the level of resources required for each site (Urban Parks Programme). “In many densely-developed urban areas the priorities should normally be accessibility and quality.”

4.1.1 Framework intended to stand as a baseline guide, not a manual or directive

While one can define certain trends or periods in park development, their various uses and environments have ensured that no one model has died out just as no one model has prevailed. Like many other urban forms, new types emerge as amalgams or combinations of previous models, constantly building on the successes and failures of the past. “A consequent temptation is to take an eclectic view of park purpose and design that results in a hodgepodge of elements from each model. Because no one is sure what parks are for and whom they should serve, park planners tend to favor a scattershot approach in the hope of covering the most bases” (SPUR). One would not ask a seamstress to tailor pants to fit all needs, one must instead first determine the activities that might suit the pants before we alter the pattern, cut the fabric and sew it. Similarly, in our frameworks we must first determine the activities and needs applicable to the urban area before we design and cut the urban fabric. And we must keep in mind always that this is a basic framework, it too must undergo slight alterations to fit each urban form, community needs and desires, political culture and local/regional climate. The list and descriptions and of course the examples that follow are not exhaustive, nor are they meant to be.

25 Regional Plan Association/Connecticut Land Use Coalition.
26 Building Livable Communities, CT. p9

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### Towards a Framework

**Understanding Open Space and Its Users**

<table>
<thead>
<tr>
<th>Type</th>
<th>Timeframe</th>
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<th>Activities</th>
<th>Access modes</th>
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<td>Neighborhood residents</td>
<td>Socializing</td>
<td>Pedestrians</td>
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<td>Weekdays: daytime</td>
<td>Children, retirees</td>
<td>Play, socializing, passive recreation</td>
<td>Pedestrians and bicyclists</td>
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<td>Weekends</td>
<td>Neighborhood residents</td>
<td>Active recreation</td>
<td></td>
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<td></td>
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<td>Socializing, commuting</td>
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<td>Metropolitan patrons of specific attraction(s)</td>
<td>Active recreation, tourism</td>
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<td>Neighborhood residents</td>
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</tbody>
</table>
4.2 Typology & hierarchy of access to open space

4.2.1 Examples of typology in other regions

Green spaces may range from the tiniest household garden to an expansive forest. The components in between might include green belts like the one surrounding London, England or Portland, Oregon, as well as riverwalks such as that of San Antonio, Texas or green roofs like those found in Amsterdam, Holland. These parks may be used as routes to locations within the built environment, respite from the hustle-bustle of urban life or an afternoon stroll in the neighborhood attraction. What follows are descriptions of typologies used in dense urban environments served by public transit systems. Each case depicts the typology and the method or extent of its use within that environment. Again, this list is by no means exhaustive.

It is not at all my intention to overvalue the need for connectivity between transportation and open space networks to the detriment of more general needs and attributes of open spaces. With that in mind, the following is a list of common characteristics shared by successful public spaces as determined by the DTLR in their Literature Review of Public Space and Local Environments. Taken together with the typology described by the DETR, these data provide a helpful ideology with which to approach urban parks and transit nodes. These characteristics set up a mindset with which we might approach a framework of access to green spaces.

- **Character** - places should have their own identity, responding to and reinforcing distinctive patterns of development and culture.
- **Continuity and enclosure** - public and private spaces should be clearly distinguished, and the continuity of building frontages should be promoted.
- **Quality of the public realm** - places should have attractive and successful public spaces that work well for all users, including disabled and elderly people.
- **Ease of movement** - places should be easy to get to and move through. Places should be inter-connected and put people before traffic while integrating land uses and transport modes.
- **Legibility** - places should have a clear image, be easy to understand and easily identify the purpose of the space. They should provide recognisable routes and landmarks to help people find their way around.
- **Adaptability** - places should be capable of changing in response to economic, social and technological conditions.
- **Diversity** - places should have variety and choice. There should be a mix of appropriate developments and uses that meet the local needs of all sectors of society.

**Connecticut.**

Although open space was not the focus of the effort at discovered what makes communities more livable, the Regional Plan Association and Connecticut Land Use Coalition did undertake a brief analysis of open space. Their report Building Livable Communities attempted briefly to understand and categorize open space both to understand their benefits and to zone for the effective use of open spaces. They describe open space as:

- Designated greenways,
- Greenbelts,
- Trails,
- Woodlands,
- Waterfronts, and
- Wildlife habitats

27 See Nora J. Rubinstein, Ph.D. The Psychological Value Of Open Space, for more in this vein. [http://www.greatswamp.org/publications/rubinstein.htm](http://www.greatswamp.org/publications/rubinstein.htm)

28 Williams, Katie et al. p 2
Scotland.

In Scotland, the Scottish Executive Central Research Unit determined that green spaces and civic spaces could be lumped together, with the two taken as subsets of the designation “open space”. Civic spaces are simply described as “predominantly paved areas, mainly in town and city centres” (Kit Campbell Associates). They continue by describing a typology of green spaces as:

- Parks and gardens
- Outdoor sports facilities
- Natural green spaces
- Green corridors
- Amenity greenspace
- Children’s play areas
- Other functional green spaces.

London.

As noted earlier, the United Kingdom has aggressively undertaken identification and analysis of rural, suburban and urban parks throughout the country. In the course of the Public Parks Assessment, the Urban Parks Programme recognized that “development of nationally accepted green space descriptions and definitions would greatly facilitate any study of this nature carried out in the future”. The Department of Transport, Local Government and Regions’ Urban Greenspace Taskforce devised an “Urban Open and Green Space Typology” (see Figure 6, following page) in order to categorize the various urban spaces.

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29 Building Livable Communities, CT. p9

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4.2.2 Concerns with examples

Various cities have developed both simple, ‘back-of-the-envelope’ typologies with 3 categories (tot lot, adventure playground, and urban plaza) to complex typologies with well over 12 categories. In all cases the philosophy behind the typology is that every space represents a valuable link in an open space network (SPUR). Clearly all types of urban spaces are valuable and needed. Existing typologies and analyses are often too broad or too fine, at least for the purpose of assigning access, and integration between open space networks and transportation networks. Typologies mainly list many different categories, based largely on size or on hierarchy of spatial/societal groups. Typologies describe characteristics of forest preserves several hundred acres in size to community gardens less than one-half acre. Other typologies focus on uses or ecological attributes, such as forest preserves to wetlands and the like. Each of these typologies is specific to the urban area that it serves, so they should not at all be considered invalid or not useful. However, most of the hierarchies place little emphasis on physical access beyond the regulations for handicapped access. More specifically, they do not address physical access beyond that of the character of the programming areas within each space for the most part. Few, except The Greening of Boston, even mention the prospect or importance of access using public transit service within the rubric of the typology chosen.

Transit access is glossed over if mentioned at all

In each of these endeavors, except Boston, transit access is a distant constant. While even 15 years ago authors of The Greening of Boston recognized the need to “map, publish, and publicize public transportation routes to parks, playgrounds, gardens, urban wilds, conservation lands, and beaches...within city limits and beyond”, (Greening of Boston) most other inventory or characterization efforts, such as London’s Green Spaces, Better Places only went so far as describing a need for “elaborating and quantifying...rights of way and accessibility for green space networks within urban areas” (Urban Green Spaces Task Force).

People objectives & needs are overlooked or downplayed

In the course of Tacoma, Washington’s Urban Growth Centers report, they discovered that many urban parks and open spaces that had been created for the public as part of mitigation practices were in fact inaccessible to the public. Many were small spaces located at the bases of office buildings, on rooftops and along existing rights of way, but their location was not at all publicized to those who might actually use it. In many cases, planners and advocates discovered that neighborhood residents often did not know that these spaces were available to the public, either because of their location or because of their total lack of participation in its planning. Like many other cities that require open space inclusion, it had become more of a checklist item than one that was truly reviewed for its integration into the site and the community it is meant to serve.

Strategies are not holistic enough and tend to miss the middle layer

In most of these examples, and several others reviewed, there seems to be only the neighborhood park and the major regional attraction. While some park agencies do acknowledge that some facilities fit a specific niche not offered elsewhere, that type of attraction rarely appears in the typology as
such. Few typologies acknowledge the intermediate level: citywide attractions or perhaps metropolitan attractions. This is the level that would host resources at a scale and activity level somewhere between the community garden and the regional zoo or reservation. Where special-use or intermediate level attractions do appear in typologies, again access is not explicitly mentioned, and certainly not access by public transit.

Multiple categories too complex for access purposes

The multiple-category models developed by parks and/or environmental management agencies are far too complicated for the purpose determining access. The intricacies of the activities, maintenance needs and management strategies for each subcategory within the broader designations are quite important to environmental management agencies and parks agencies. However, the broad designations are sufficient for the needs of transportation agencies in most cases in that they allow transportation agencies to understand how people use open spaces and how they should plan to provide access to those activities. The multiple category models seem to imply that each category would warrant a very different level of access. While that may possibly be true, it is more feasible to propose a more general model at the outset.

4.3 Proposed hierarchy

New York-based non-profit group, Project for Public Spaces is well-respected for their efforts at discovering what makes public spaces successful. In their efforts PPS has discovered that “access and linkages”, “comfort and image”, “uses and activities” and “sociability” are crucial criteria for successful public spaces. They continue further by asserting that “Accessible spaces have a high parking turnover and, ideally, are convenient to public transit.” One can judge the accessibility of a place by its connections to its surroundings, both visual and physical. A successful public space is easy to get to and get through; it is visible both from a distance and up close. The edges of a space are important as well: for instance, a row of shops along a street is more interesting and generally safer to walk by than a blank wall or empty lot (Project for Public Spaces).

The Project for Public Spaces also offer the following ratings and descriptions of Great Public Spaces:

- Can you see the space from a distance? Is its interior visible from the outside?
- Is there a good connection between the space and the adjacent buildings, or is it surrounded by blank walls? Do occupants of adjacent buildings use the space?
- Can people easily walk to the place? For example, do they have to dart between moving cars to get to the place?
- Do sidewalks lead to and from the adjacent areas?
- Does the space function for people with special needs?
- Do the roads and paths through the space take people where they actually want to go?
- Can people use a variety of transportation options - bus train, car, bicycle, etc. - to reach the place?
- Are transit stops conveniently located next to destinations such as libraries, post offices, park entrances, etc.? (Project for Public Spaces)

These are questions planners and transit professionals should keep in mind when considering public spaces, including parks.
Figure 11: Boston's "neighborhood strokes"

Source: The Greening of Boston
Figure 12: Boston's "broad strokes"

Source: The Greening of Boston

Bent, MCP Thesis, June 2003
4.2.2 Concerns with examples

Various cities have developed both simple, 'back-of-the-envelope' typologies with 3 categories (tot lot, adventure playground, and urban plaza) to complex typologies with well over 12 categories. In all cases the philosophy behind the typology is that every space represents a valuable link in an open space network (SPUR). Clearly all types of urban spaces are valuable and needed. Existing typologies and analyses are often too broad or too fine, at least for the purpose of assigning access, and integration between open space networks and transportation networks. Typologies mainly list many different categories, based largely on size or on hierarchy of spatial/societal groups. Typologies describe characteristics of forest preserves several hundred acres in size to community gardens less than one-half acre. Other typologies focus on uses or ecological attributes, such as forest preserves to wetlands and the like. Each of these typologies is specific to the urban area that it serves, so they should not at all be considered invalid or not useful. However, most of the hierarchies place little emphasis on physical access beyond the regulations for handicapped access. More specifically, they do not address physical access beyond that of the character of the programming areas within each space for the most part. Few, except The Greening of Boston, even mention the prospect or importance of access using public transit service within the rubric of the typology chosen.

Transit access is glossed over if mentioned at all

In each of these endeavors, except Boston, transit access is a distant constant. While even 15 years ago authors of The Greening of Boston recognized the need to “map, publish, and publicize public transportation routes to parks, playgrounds, gardens, urban wilds, conservation lands, and beaches...within city limits and beyond”, (Greening of Boston) most other inventory or characterization efforts, such as London’s Green Spaces, Better Places only went so far as describing a need for “elaborating and quantifying...rights of way and accessibility for green space networks within urban areas” (Urban Green Spaces Task Force).

People objectives & needs are overlooked or downplayed

In the course of Tacoma, Washington’s Urban Growth Centers report, they discovered that many urban parks and open spaces that had been created for the public as part of mitigation practices were in fact inaccessible to the public. Many were small spaces located at the bases of office buildings, on rooftops and along existing rights of way, but their location was not at all publicized to those who might actually use it. In many cases, planners and advocates discovered that neighborhood residents often did not know that these spaces were available to the public, either because of their location or because of their total lack of participation in its planning. Like many other cities that require open space inclusion, it had become more of a checklist item than one that was truly reviewed for its integration into the site and the community it is meant to serve.

Strategies are not holistic enough and tend to miss the middle layer

In most of these examples, and several others reviewed, there seems to be only the neighborhood park and the major regional attraction. While some park agencies do acknowledge that some facilities fit a specific niche not offered elsewhere, that type of attraction rarely appears in the typology as
such. Few typologies acknowledge the intermediate level: citywide attractions or perhaps metropolitan attractions. This is the level that would host resources at a scale and activity level somewhere between the community garden and the regional zoo or reservation. Where special-use or intermediate level attractions do appear in typologies, again access is not explicitly mentioned, and certainly not access by public transit.

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These are questions planners and transit professionals should keep in mind when considering public spaces, including parks.

Bent, MCP Thesis, June 2003
4.3.1 CUES

Cues are probably the smallest component of urban green spaces, but not at all the least important. These components provide cues as to the location of larger, more expansive green spaces, remind us of the presence of greenery in our lives, and help to replenish much-needed oxygen in dense urban areas. They sometimes provide a short respite for traveling species—birds, animals and humans! Due to their character their role can be undervalued or under recognized in green space networks, and instead considered to be isolated greenery. We often overlook them because cues are the urban greenery that we see every day, the flowers, plants and trees that we think of when we hear the phrase: “stop to smell the roses”. They provide buffers between railroad tracks and nearby buildings, and also beautify the major thoroughfares in the downtown. They include everything from tiny street plantings along sidewalks to tree-lined boulevards to planted corridors along at-grade railway lines.

Cues are also the occasional greenery within in transit stations and station areas that remind us that there is a world above us and outside the station. Cues are used perpetually by residents and patrons, largely without our active knowledge of their use. Cues should be seen from one’s apartment or office window and as you travel through transit corridors in rail cars or buses. In order for cues to be effective aids for access purposes, views of them must be preserved and they must be easily reachable by maintenance personnel and residents to some extent. However, the relationship between cues and transit is not one where direct transit access is necessarily warranted. Rather than contemplating direct access to cues, they should be incorporated into station areas and along major routes to green space destinations in order to facilitate access to green spaces beyond stations.

Figure 13: Boston’s Mattapan Trolley Line towards Butler Road Station

Source: http://community.webshots.com/photo/3861595/

4.3.2 NEIGHBORHOOD RESOURCES

Figure 14: playground at Southwest Corridor Park, Boston and Sacramento Street Park, Cambridge (Massachusetts)

Neighborhood resources typically range from the shaded sitting area at the corner of a block to playgrounds for nearby children to community gardens to running tracks frequented by residents of all ages. These amenities serve primarily to provide arenas for meeting and socializing with neighbors. They offer play areas for toddlers and school-age children, passive recreation for older residents or retirees, as well as active recreation or exercise for nearby residents of all ages. They might also incorporate wetlands or species habitats where they overlap, but rely heavily on spaces usable by
Transit Pathways to Urban Parks

local community members. Transit service to neighborhood resources is helpful, particularly bus service; however, access and design interventions should be focused on pedestrian and bicycle connections to ensure that local residents are able to travel there.

4.3.3 Connectors

Figure 15: Southwest Corridor Park, Boston

Connectors are also undervalued and often overlooked in green space systems. They too allow birds, animals and people to travel between green space destinations, but more so than cues, they allow this without leaving the system. More importantly, connectors allow birds and animals to travel between green spaces via their natural modes. These are the components that join parks in one part of a city to a reservation in another, and even to a suburban forest. Connectors might include linear parks, bikeways, greenways and pedestrian trails. Their use is also more or less perpetual, since they may be used by cyclists commuting to work during the week or enjoying a ride on a Sunday afternoon and by pedestrians en route to shopping areas or home. They may lie solely outside of destinations, or may connect to trails and paths within other green spaces in order to string together several amenities. These are the green space components that remind us that greenery is not isolated, but part of a larger system. Connectors may pose as neighborhood amenities or as regional resources, but it is far more difficult to design them to be both. Perhaps more so than other green space types, great care must be taken to address the needs and desires of the local and regional community when planning and designing connectors so that the appropriate balance may be struck.

4.3.4 Metropolitan and Regional Destinations

Figure 16: Bosque Chapultepec, Mexico City and Bois de Vincennes, Paris

Destinations are the sites that we think of when someone mentions parks or open space. They are the large parks or commons at the center of a city, such as Mexico City’s Bosque Chapultepec or San Francisco's Golden Gate Park. They include everything from reservations rich with hiking trails to urban wilds to massive landscaped parks like those mentioned above. They might be Sydney's Olympic Park, New York's Bronx Zoo or Paris' Bois de Vincennes. There is a subtle difference between metropolitan and regional destinations. Both will draw patrons from long distances, but clearly regional destinations will draw patrons from farther distances. Public transit service is crucial at both metropolitan and regional destinations, both because transit makes them more accessible to residents of urban households who have access to personal vehicles in lower proportions than their suburban counterparts and because transit service will prevent vehicular congestion during the various special events that destinations tend to host.

Bent, MCP Thesis, June 2003
4.3.5 Design Characteristics.

Some advocate placing restrictions on development to stave off fragmenting open spaces and other natural resources. In some ways perhaps that is true; but rather than couch it in those terms, it seems more prudent to seek ways of development that will better integrate open spaces where practical and buffer then where warranted. The Connecticut Land Use Coalition defined a “transit-friendly community” as one that “encourages transit use, decreases automobile dependency, and offers a variety of activities by incorporating commercial, residential, and civic uses within reasonable walking distance to a rail station or bus stop in a well-designed pedestrian-oriented environment” (Regional Plan Association). This same holds true for livable communities that incorporate green spaces as part of at least the civic and recreational component in a mixed-use environment. If we accept that good design, responsive to the community setting, climate and political and financial reality, is at the core of successful green spaces, then we must acknowledge that design is also part of the reason it might not work well.

Several cities have adopted zoning regulations and incentives that support transit-oriented development (TOD) in strategic locations. The concept of TOD has many definitions and incarnations among those who use it. Some qualify it as development around a rail system, where the transit stop becomes the center of development. Others qualify it more specifically as moderate to high density uses that mixes residential development, commercial amenities, jobs and public uses at strategic points along a rail system. Because rail has been the most attractive form of transit in many urban environments many TOD guidelines have focused on rail systems, but many of the tenets that hold true for rail systems can also hold true for transit systems built around bus or bus rapid transit service. The key is to leverage the development potential of the transit node by providing a variety of uses and ensuring that they are sufficiently dense to support transit ridership.

Figure 17: Example of design objectives of transit-oriented developments

Even TOD advocates do not urge overbuilt transit nodes. Most supporters of TOD recognize the need for pedestrian plazas at transit nodes, preferably directly adjacent to the transit stop. This provides space not only for riders to conveniently enter and leave the station area, but also to meet friends or colleagues, socialize or rest on street furniture or perhaps purchase small items from concessionaires. Like supporters of transit-oriented development, promoters of New Urbanism advocate neighborhoods that are more conducive to walking, bicycling, and transit riding rather than oriented to driving. But whether one supports TOD, New Urbanism or livable communities, most professionals in urban development assert that “good rather than basic design from the outset is likely to be a sound investment, as environmental perceptions are likely to rise with incomes,” and it is far more difficult to retrofit an ugly structure to make it attractive (World Bank).
4.3.6 Observed Design Interventions

The distance transit riders are willing to walk to transit depends upon pedestrian accessibility, a concept comprised of many factors. In raw terms accessibility is beholden to number and steepness of hills, availability and condition of sidewalks, protection from sun and rain—whether by trees or awnings—presence of street furniture, shops, or vistas along the route, volume and speed of vehicular traffic, ease and safety of street crossings and security along the route (see Holtzclaw or Joo for more information). Many of these will also be subjective determinations based also on the activity on the street, with pedestrian activity reflecting most positively on the environment and the perception of safety and belonging. To obtain the public transit accessibility index, most transit agencies assume that the average transit passenger will walk ¼ mile to a bus, or ½ mile to a rail transit or ferry station (Joo). Some transit agencies, with help from planning agencies and sister transportation agencies, attempt to provide the various amenities described by Holtzclaw and others.

Following are images of these design characteristics, in addition to characteristics and interventions observed at transit-oriented parks and open spaces. These design interventions have enhanced the experience of transit users destined for parks as well as those transit users simply passing through open spaces as they travel to other destinations.
Predominant routes lined with green elements
Figure 20: from Bosque Chapultepec (Mexico City)

Source:

Continuous pedestrian routes
Figure 21: view of route to L from Conservatory Station, Chicago

Locational information

Directional signs
Figure 22: Hyde Park sign at Tube station (London)

Neighbourhood maps and park maps
Figure 23: Park area map: Arnold Arboretum, Boston
The intention of the section is not solely to propose new design interventions, but instead to associate existing interventions with open spaces that they would most benefit. The proposed interventions pay special attention to those interventions that would increase recognition of connections between open space and transit. Again, while it is hoped that many interventions might be combined to maximize their impacts, keep in mind that interventions must be tailored to the physical and social conditions present at each transit node or open space destination.
The table and descriptions that follow depict basic typologies and the accompanying hierarchy of access that seems to be the most beneficial based on literature review, case study analysis and visits to various urban areas. As stated earlier, each urban area will need to evaluate the transportation network—particularly the public transit system—and open space networks that are available to its residents. Though this report focuses on improving transit access to regional green space destinations the proposed hierarchy that follows is intended to guide planning agencies, transit agencies and parks agencies in improving equitable access to various types of green spaces.

One will note that vehicular access is mentioned only marginally in this table. This is not to say that automobile access should not be accommodated, quite the contrary. Automobiles are a part of our culture and our transportation network, and are necessary at times. However, this effort is intended to facilitate more equitable choice between modes and to promote the primary mode that will likely be most beneficial for equitable access and sustainable development, as well as to provide a baseline framework where none seems to exist. There are existing guidelines for vehicular access to various destinations—whether veiled or explicit—through handicapped accessibility guidelines or zoning guidelines and parking ratios. Each of these regulations and standards are necessary and helpful, and this research aims to supplement such guidelines with a similar set that includes a more extensive and accessible group of modal options.
<table>
<thead>
<tr>
<th>Character/ Type</th>
<th>Description</th>
<th>Predominant users</th>
<th>PRIMARY Mode Access Goals</th>
<th>Major Design Needs &amp; Interventions</th>
<th>Policy/Structural Concerns</th>
<th>Examples</th>
<th>Notes &amp; Caveats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cues</td>
<td>Street medians, railway corridors, etc.</td>
<td>Neighborhood residents, commuters, passers-by</td>
<td>Visual corridors</td>
<td>Visibility from major transit corridors, pedestrian routes, etc., should be laid out to enhance view corridors, with care to not creating vehicular blind spots</td>
<td></td>
<td>Mattapan Trolley Line, Boston</td>
<td>Context-specific: serve as buffers, dust abatement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Little to no access required</td>
<td></td>
<td></td>
<td>Many public and private residual green spaces: front yards, etc.</td>
<td>Easy maintenance should be focus</td>
</tr>
<tr>
<td>Connectors</td>
<td>Greenways, tree-lined boulevards</td>
<td>Neighborhood residents, commuters, shoppers.</td>
<td>Pedestrian, bicycle</td>
<td>Ample non-motorized route widths</td>
<td>Collaboration between local and regional managers, agencies</td>
<td>Commonwealth Avenue, Boston</td>
<td>Serve as buffers, noise abatement, dust abatement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Little to no vehicular access</td>
<td>Ample lighting</td>
<td></td>
<td></td>
<td>Easy maintenance should be focus</td>
</tr>
<tr>
<td>Neighborhood resources</td>
<td>Small-scale parks, tot lots, community gardens, etc.</td>
<td>Neighborhood residents</td>
<td>Pedestrian, bicycle</td>
<td>Continuous pedestrian routes</td>
<td>Maintenance by local residents and/or agencies</td>
<td>Titus Sparrow Park, Boston</td>
<td>May overlap with other types, but must be careful to respond to/balance local desires</td>
</tr>
<tr>
<td>Metropolitan destinations</td>
<td>Large scale parks</td>
<td>Neighborhood residents, metropolitan patrons of specific attraction(s)</td>
<td>Bus, BRT, rail</td>
<td>Continuous pedestrian routes between station areas and park areas</td>
<td>Continuity at different entrances / nodes</td>
<td>Boston Common &amp; Public Gardens, Boston</td>
<td>Priority should be placed on access to activities not offered at other locations</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ideally little vehicular access; specific to urban context</td>
<td>Station design incorporates destination</td>
<td>Bus routes should be altered slightly to accommodate new facilities/ destinations</td>
<td>Central Park, NYC</td>
<td>Design interventions for bus and rail interventions might differ by context</td>
</tr>
<tr>
<td>Regional destinations</td>
<td>Large-scale parks, 'unique' / activity-specific parks</td>
<td>Neighborhood residents, regional patrons of specific attraction(s)</td>
<td>Rail, BRT, bus, commuter rail</td>
<td>Continuous pedestrian routes between station areas and park areas</td>
<td>Continuity at different entrances / nodes</td>
<td>Chicago Lakefront, Brooklyn Botanical Gardens, Franklin Park Zoo &amp; Golf Course, Bronx Zoo</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Vehicular access specific to urban or suburban/rural context</td>
<td>Prominence at station exits</td>
<td>Continuity across municipal boundaries</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Without argument, design review processes or collaborative processes often lengthen a project’s approval schedule. However, they can help the developer (whether private or public) work more effectively to respond to community needs and desires, and to accomplish more overarching objectives in a way that working disparately simply cannot. They can help to identify potential partners in funding, construction/creation, maintenance, or management. They can also help to broaden the diversity of green spaces and tailor the activities within each more appropriately. Involving other proponents early in the process also prevents the possibility of opposition further in the development process, encourage stakeholders to develop a sense of ownership and pride, and provide opportunities to improve access, signage, etc.

4.4 Implementation.

4.4.1 Regulatory Incentives.

Transfer of Development Rights (TDR)

Under this provision, a developer is offered the opportunity to develop—or develop more intensely—above and beyond the intensity stated in existing zoning regulations in exchange for not developing in an area that city or regional officials would like to protect. The area to be protected, the “sending” area, may be outside an urban growth boundary or it may be a wildlife habitat or wetland or simply in effect, a developer or landowner can sometimes “transfer density” from adjacent properties if further development of them is restricted. The net result can be the same overall density but distributed differently between parcels of land.

4.4.2 Institutional Capacity.

Coordination between agencies

Planners are also needed to design urban green areas in a way that maximizes the potential uses. Whereas urban green areas have been traditionally designed for recreation and aesthetic value, their usefulness far exceeds these functions. With proper design, green areas can also improve air and water quality, protect biodiversity, reduce erosion and flood risks, provide agricultural output, etc. But all this requires planning. It requires cross-sectoral communication where city planners talk with water and sewage engineers, transportation specialists, agronomists, businesses, and local communities to design green areas that best serve the intended beneficiaries (IADB).

Fragmentation of responsibility for different aspects of urban green space management is a major hindrance to efficiency and community involvement. Bringing together all responsibilities for green space strategy, management and maintenance within one section will foster a holistic view of the urban green space resource, of which parks are but one part. Breaking down barriers between different groups of staff and instilling a sense of ‘ownership’ in everyone involved can not only be cost effective, potentially allowing more staff to be employed on-site, but can also encourage individual initiative and a culture of innovation in tackling problems. Changing roles does, however, require new skills and there is increasingly a need for a new breed of modern green space professional (OPDM).

We welcome the partnership approach that is integral to the report’s green space recommendations. Many of the green spaces lie on, or cross over local
authority borders, and improving the existing, and developing new green space networks demands a multi-agency approach that transcends boundaries, defined by politics rather than physical geography. The benefits afforded by green spaces and the impact they have on the agendas of health, education, sport, culture and the arts, heritage, economics, transport, ecology and the environment demands the attention and involvement of all relevant agencies and bodies. With concerted action, the existing value of green space can be considerably enhanced.

4.4.3 Problems with fragmentation

One aspect or the other often falls through the cracks

Towns need to take fuller advantage of access to public transportation. In places where there are commuter rail stations, for example, municipalities should develop land use regulations that channel growth and guide street improvements to transform the adjacent area into a transit-friendly community: a community where housing, schools, parks, shopping, and public transit are within walking distance. Alternatives to driving, such as walking, transit and bike riding, are designed and built into the community to ensure local mobility. In a livable community, use of the automobile should be optional. But when we leave access to various activities to either the development agency or the transit agency we trust each agency to rely on its foci of talents and skills. Since most transit agencies are about the business that they do best. Unfortunately, since parks agencies best manage and maintain parks and transit agencies best provide access to jobs, this leaves access to a broader range of activities without a champion or even a coordinator. Most parks are opportunistically sited and most transit service is based on the Central Business District, leaving connections between service and destinations to create themselves. What of the planning agency, you might wonder? They are busy managing the seams between complementary and non-complementary zones, parking ratios and the like.

Incomplete connections: natural networks and transportation networks

Green space networks and transportation networks are part and parcel of the connectivity of developed areas. When planned appropriately, both systems work together to allow residents to access and enjoy any number of activities. Taken together, they can provide a continuous level of connectivity, holding them separate implies that one must choose between the two. The accessibility offered by a connected city reveals possibilities to travel farther and more comfortably with more choices. One might spend the day roaming a park event, meandering slowly away from home only to take transit home after a day spent walking the length of the park. Without proper transit service, one would need to spend almost as much time walking back to the parking garage or perhaps instead take a taxi back home.

Squandered public resources

By now we should all understand many of the benefits offered by greenspace networks. Parks, gardens and vegetated spaces should not be avoided by transit services for fear of damaging them, nor should they be built over (or overbuilt!) in plans for densifying transit nodes. Instead, planning agencies and transit organizations would be mistaken to not take

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30 See Urban Parks Forum at http://www.urbanparksforum.co.uk/LondonPlan.htm
31 Regional Plan Association and Connecticut Land Use Coalition.
advantage of this resource. With most dense urban environments boasting parks patronage by anywhere between 40% and 90% of residents, transit agencies who do not plan for greenspace access are ignoring a large market. To lose sight of the incredible resources represented by both transit and parks is to squander their value. “We can choose to squander that opportunity through complacency and drift. Or we can use our significant resources to realize an environmental and social ethic that few have had the courage to imagine.”

Thrice-wasted capital investments

The key to the region’s success has been its ability to anticipate change and invest in the world’s largest metropolitan transportation and greenspace systems, and create the capacity for sustained growth in the region’s cities and suburbs. This statement, said of New York City, elucidates the benefits of building on public resources. But it also reminds us of the significant investments that city and regional governments make in both green space networks and transportation systems. Combining such investments can further compound the benefits of greenspace networks and transportation networks, including saving the various agencies from overspending. Both the transport infrastructure and park infrastructure are long-lived and extensive. Any astute businessperson will explain that supporting one’s network of products will advance the business as a whole. To invest in neighborhood regeneration, greenspace development and transportation systems separately rather than concertedly will only mean a greater magnitude of fiscal investment. It would be as foolhardy as maintaining the benches within the park, but not the footpaths that lead to them.
The fate and future of everyone in this region is inherently connected. There is a common interest, a common good, and it cuts across municipal boundaries and binds us all into one metropolitan community. In this era of unprecedented prosperity, we would be a hollow and near-sighted people indeed if we were to neglect issues concerning human dignity and equality of opportunity, community and environmental integrity, and the ideals and civilizing purposes of a great metropolitan region. (Johnson, p 11)

5.1.1 Socio-Economic Conditions

The income gap between high- and low-income households in the region increased 11 percent between 1999 and 2000, the first rise in seven years. Nearly one in seven children aged 18 and under in the Chicago region lived below the federal poverty level in 2000 - the first significant increase in five years. Compared to the top 20 U.S. metropolitan regions in 2000, the Chicago region ranked fourth behind the metropolitan areas of Los Angeles (215), San Francisco (216), and New York, which ranked first with 443 corporate headquarters. The Chicago region is home to 107 corporations with more than 2,500 employees, second only to the New York (239) region, and well ahead of the San Francisco (91) area, its nearest competitor.

Chicago's public transit system, affectionately referred to as "the L", has been described as its "most practical landmark" (Simpson). Each workday the Chicago Transit Authority serves 500,000 riders on its rail system alone, which covers 356 square miles. In 2000, the CTA posted an overall ridership increase, reaching its highest level in 5 years (Johnson). Like most urban transit systems, the "override principal is giving employers access to labor
Riders on the CTA’s system use rail predominantly, as it captures 67% of all riders. But in recent years, the transit mode share of commuters has been falling gradually over recent decades. According to UITP’s Millennium Cities Database, only 4.5% of all residents use transit when compared with all trips, not just work commutes. More than 35% of nationwide transit ridership is in the New York area.

5.1.3 Public Open Space in Chicago

Trees, flowers, parks, attractive open spaces: these things are contagious. When people experience them, they want more of them. And they’re willing to pay for them, because they know they’re getting something for their money.

The US National Parks and Recreation Agency asserts that every 1,000 residents should be afforded between 6 and 10 acres of open space. The city of Chicago afforded 4.13 acres to every 1,000 residents in 1998, despite the fact that protected open space throughout the region increased on a per capita basis, from 17 acres per 1,000 residents in 1990 to 21.3 in 2000. In a study of public open space acreage in 20 municipalities across the United States, summarized in the CitySpace plan, Chicago ranked 18th of the 20 and 6th of 8 municipalities with population density greater than that of Chicago. Chicago area residents are not starved for open space, though. They can enjoy suburban music festivals, forest preserves, zoos, and arboretums; but “suburban residents are the region’s major users of downtown Chicago’s chief cultural offerings.” In a survey of almost 600 residents conducted by the Chicago Parks District, 91% of respondents stated that they visited a park in the past year.

Chicago is well-known for its beautiful, well-maintained parks and open spaces; but access to regional parks and open space in Chicago is spotty for many of the city’s residents. Recent efforts have revealed that as much as 63% of Chicago residents live in neighborhoods where parks are either too crowded or too far away. Since the NRPA asserts that each region should account for its historical development pattern, and the specific geographic and demographic conditions, Chicago has reasonably adopted lower standards than those of newer communities growing on undeveloped land considering its dense development pattern over the past century and a half. Within the city limits, 55 of the 77 community areas have less than 2 acres of open space per resident or contain sub-areas that do. Urban residents are fortunate in that the Chicago Parks District prioritizes neighborhood parks within walking distance (see image below), and also in that many of Chicago’s urban parks with regional attractions are located within reasonable distance of transit nodes. This does raise two problems, however: (1) creating enough green space in the right locations to satisfy the 2 acre goal in an urban environment might take many years to achieve due to real estate and land use conditions, and (2) patrons are not overtly encouraged to travel to parks using public transportation in order to take advantage of current provisions. In order to “make transit the first choice for people coming to and moving around the Central Area,” an aspiration of the Central Area Plan, the CTA must strive to make sure that all activities are accessible by transit.

5.1.4 Chicago’s World-Renowned, Historic Parks

Chicago has a wonderful legacy to build upon. Over the past few decades the Burnham Plan and other urban design efforts have enhanced the beauty of the lakefront, the regional network of rivers, streams, and greenways; the quality and variety of suburban forests, Brookfield Zoo, the Chicago Botanical Gardens.
5.1.5 The CitySpace Plan

In 1993 several of Chicago’s public agencies joined together to produce a comprehensive plan for preserving and creating public open space within the City of Chicago. The original partners, the Chicago Parks District and the Forest Preserve District of Cook County later joined by Chicago Public Schools, released CitySpace: an Open Space Plan for Chicago in 1996 after compiling observations and recommendations from ten task forces led by a steering committee. Chicago’s CitySpace plan identifies two needs for open space that are “consistent city-wide”.

- Each community needs enough acres of public open space available to serve the residents who live there, and
- Residents of every community deserve to have parks or other open spaces that are within reasonable travel distances.

The CitySpace plan recommends developing short- and long-term goals to “ensure that all Chicago neighborhoods have convenient access to public open space.” Interestingly the CitySpace plan prioritizes open space access on a neighborhood scale and identifies a mechanism for developing access on a community level (see below). Unfortunately, the CitySpace plan does not do the same for access to park attractions on a citywide or metropolitan scale. The Chicago Park District defines park types by size, where a regional park (15 to 50 acres) has a maximum acceptable distance from a resident of a mere 0.75 miles, similar to the service area depicted by the National Recreation and Park Association. Partners in the CitySpace plan have recognized the need for regional accessibility to open space, though the preliminary focus seems to lie in connecting Chicago’s city dwellers to the forest preserve system and to various greenways “by bicycle and pedestrian routes, trails and public transportation” since most of the 67,000 acres of the Cook County forest preserve system lie beyond the city limits.

The same is true for residents of many communities. Increasing the total acreage of open space may indeed be the most efficient manner of supplying greater access to open space; however, it is neither the easiest nor the most expedient. More importantly, no facility will be able to provide all activities at any one location. As the CitySpace plan describes, some communities might “appear to be well-served, but in reality much of the open space may be in one large park that is too far away for many residents.” We should also recognize that residents and tourists alike would no doubt be attracted to parks and open spaces in their neighborhood for casual recreation or socializing. However, the number of facilities that offer specific uses—indoor ice rinks or golf courses or beaches, for example—is far fewer and as such they act as regional attractors. It appears that the only regional attraction within the city limits that has been clearly identified by the CitySpace plan for better public transit access is the Lakefront. Yet the Lakefront is not the only such facility. A more detailed analysis of specific uses offered at parks and open spaces would reveal a prioritized list of open space attractions that need regional access beyond the preliminary level undertaken in the CitySpace plan. So rather than a simple size-based analysis, Chicago’s residents would benefit from a use-based analysis in addition to the current service area-based analysis.

5.1.6 Open Space Attraction Most Lacking Transit Access: Lakefront Access: Red Line and #72 Bus

Despite both the CTA and the Parks District’s desire to devise ways of increasing access to the Lakefront through public transit, no concrete plans
currently exist. Chicago Parks District plans for Lakefront open space improvements do not explicitly include transit access even though it is a stated goal, and at present the CTA's focus seems to have been on incremental improvements to existing service. The most clear beach access is the #72 bus that runs along North Avenue and then directly into the entrance area of the North Avenue Beach, as well as service to Navy Pier that also passes Ohio Street Beach. The closest rail service is the Red Line running along State Street. Unfortunately service to North Avenue Beach runs only on weekends, only beginning in mid-May. While clearly summer weekends are the peak time and season for beach-going, that does not negate the need to travel the beach during the week, particularly for the park employees.

Timing of service is not the only issue, and it is not limited only to North Avenue Beach. Part of the issue is the amount of space required for a bus turnaround. Due to the location, CTA buses seem to need space to turn around before resuming the eastbound route. There are several possible solutions. CTA buses might stop on the street as on any other street, and loop around a block to make their way back to their routes. The Parks District might elect to give up parking spaces in order to accommodate bus a turnaround. The Chicago Department of Transportation might allow bus turn lanes along access routes to beaches. The most immediate solution is likely to be the first, the most ideal the second; but each solution must cater to the road situation at each beach entrance.
5.1.7 Area most lacking open space: the Loop

Between the Chicago Parks District’s efforts to create open space in the downtown, the CTA’s plans for the Circle Line and residents’ aspirations for a Gray Line, the opportunity to capture and create open space in the Loop area is now. A variety of strategies should be pursued, including acquisition of existing open spaces, density bonuses for open space creation and any other zoning incentives that encourage greening the Loop area. These strategies should not be limited to the private sector however. The Loop is easily the most transit accessible area in Chicago, but the L carries a great stigma of noise and unattractiveness with it. The accessibility of the Loop and unattractiveness of the infrastructure have left much of the space immediately surrounding the L cluttered by office buildings in the best case, and gas stations and parking garages in the worst. While most people agree that gas stations are not the best of the transit-oriented or even transit-supportive uses, many argue about the best method to convert such uses.

Why not open space? Of all uses in the Loop, open space is probably one of the highest in demand. Since many gas stations and parking lots or garages are located near L stations and/or on major bus routes, they are ideally located to provide pedestrian plazas for use by neighborhood residents as well as commuters. Several enterprising architects have discovered that the dimensions of surface lots are often ideal for conversion to parks. Designating these areas for transfer of developments rights would allow the development sector to reap some financial benefit while also serving the needs of Loop workers, visitors and residents.

Figure 25: Loop Area Open Space Opportunities

5.1.9 Most problematic conditions

Inconsistent coordination between agencies

The Chicago Parks District strives to provide open space and parks facilities in every Chicago neighborhood within walking distance of residents, and as a secondary measure seeks to provide accessibility to residents regionally. The Chicago Transit Authority is developing guidelines for improved station area access generally, and working to advance transit-oriented development, which typically includes landscaped and/or hard-scape...
plazas to some extent. Each of these efforts are independently effective at their stated intent, but not very effective at enhancing the general accessibility between parks and open space that should be available to city residents at large. Unfortunately the two agencies have yet to consistently collaborate to determine mutually beneficial standards, procedures or even policies. Apart from the relocation of the Green Line’s Conservatory Station, the agencies have continued planning and design activities for similar areas separately. Both agencies have recently expressed interest in working on other projects as they did with the Garfield Park Conservatory and Station. Opportunities exist for testing new tools at the Millennium Park now in construction, and several Lakefront areas in renovation. But the CTA’s inflexibility—prior, perceived or otherwise—over the decades prevents the Parks District from requesting they shift a secondary bus route even one block. The CTA, on the other hand, does not seem to be intimately aware of the parks projects in the pipeline early enough to interject their aid.

Each agency has exhibited significant creativity in past projects, yet still has not consistently found innovative or even simple ways to increase access to open space. The Parks District and the CTA previously collaborated to relocate Conservatory Station on the Green Line in order to raise prominence of and access to the Garfield Conservatory, the Peace Museum and the neighborhood high school, blocks away from the existing station. The Parks District followed suit with a business improvement district of sorts in the somewhat neglected neighborhood—Green Town—while the CTA invested in the new station, some advertising, and other access improvements. The initiative shown in the Conservatory Station collaboration has not carried over to other stations or other parks facilities. Even though each agency was designed to be more flexible than other entirely public city agencies might be considered, they have not utilized the tools at their disposal nor have they initiated others. Moreover, the CitySpace Implementation Structure (see below) does not contemplate the same level of collaboration with CTA that is afforded city agencies whose regulations affect the Parks District.

5.2 Catalyzing Conditions.

With a holistic approach, no department is concerned exclusively with quality of life and attractive public spaces. So all of them have to be.

Our campus park program worked because the three agencies involved were willing to view it as more than a school program and more than a park program. It was a people program.
5.2.1 ZONING CHANGES

Several efforts are now underway to make sure that land use and urban design policy facilitate a more-balanced lifestyle for Chicagoans, commuters and visitors. The Chicago Zoning Commission aims to make development of city parks and open space much easier through the extensive zoning reform currently underway.

5.2.2 POPULARITY OF URBAN GREENING

Chicago's Urban Heat Island Initiative is designed to ameliorate the effects of dark surfaces and reduce pollution by: (1) using alternative paving, (2) constructing light-colored roofs, (3) using alternative energy sources, (4) increasing green space, and (5) installing rooftop gardens. Chicago's Department of Environment is not only encouraging business and homeowners to use these techniques but also is implementing them itself. City administrations have engaged in promoting anything from green roofs to increased street furniture and everything in between. They have even been so proactive as to use some city buildings as pilot projects, most notably the roof garden atop Chicago's City Hall. The wide variety of projects has one thing in common: they aim to improve the quality of life. In a recent speech before the ... Mayor Daley stated that “the cities that pay attention - really pay attention - to quality of life will be the cities that thrive in the 21st century.” Trees, flowers, a small park, even a sidewalk bench can soften the rough edges of a city, calm your nerves and make you feel a little more in control of things. Parks play an equally important role in residential areas. They are essential building blocks of strong neighborhoods.124

5.2.3 DEVELOPMENT OF NEW OPEN SPACES

I believe very strongly that government cannot expect people to take care of their property unless government takes care of its property. How can people believe we value education if we allow our schools to deteriorate? How can people believe we value neighborhoods, if we allow our parks to deteriorate? Now we are rebuilding these community anchors.

Millennium Park. Mayor Daley’s unveiling of a $150 million “Lakefront Millennium Project,” intended to enhance park, recreation, cultural, and transportation facilities along Chicago’s lakefront in the area of Grant Park.126 We have received substantial private-sector contributions toward our 25-acre Millennium Park in downtown Chicago, just north of the Art Institute. About two-thirds of the cost will be financed through the parking garage, and the rest through private donations. So far, individuals and companies have pledged $100 million, and we expect between $25 million and $50 million more.127

Chicago River. Reconnecting Chicagoland’s residents, workers and visitors to the Chicago River is the aim of a massive effort to create several parks, walkways and other improvements along the Chicago River, which runs through city. Projects include the completion of a beautiful lighted walkway on the north side, stretching from Michigan Avenue for several blocks to the east and the new Museum of Contemporary Art on the near north side.128

5.2.4 URBAN GROWTH/REAL ESTATE MARKET IN CHICAGO

Urban development in Chicago, as in many other cities, moves along at a rapid rate. Whether purposefully or accidentally the pace and processes often prioritize economic development—in the form of office buildings and
TRANSIT PATHWAYS TO URBAN PARKS

There has also been an explosion of residential development within a few miles of Chicago's core in the last decade. A significant portion of development has been in the conversion of former industrial buildings to residential space—now typically called “loftominiums”. In some of Chicago’s neighborhoods that have suffered the greatest economic deterioration, job loss, and depopulation over the last few decades — neighborhoods with high rates of crime and drug use — there are examples of rejuvenation, e.g., North Kenwood/Oakland and Woodlawn on the South Side, North Lawndale on the West Side, and Logan Square on the near Northwest Side. Between 1980 and 2002 some 43.5 million square feet of new office space was constructed in downtown Chicago, equivalent to the entire metropolitan inventory of cities such as Phoenix or St. Louis.130

The Central Area Plan is the City’s Attempt to manage and enhance the transformation of the core area. It details the Central Area’s potential as well as the obstacles to growth, and provides a blueprint for essential change. It crafts this vision with a “greener”, more environmentally sustainable Central Area as an overarching theme. There are three guiding principles of the new plan: development and diversity, transportation and access and waterfronts and open spaces. Subsequent plans have been as important in creating some of the most admired features of the city we know today. This Plan is offered in the same spirit. A great deal has been accomplished, but there is much more work to be done if the Central Area’s growth, quality of life, and commitment to preserving the best of its history are to be maintained and balanced.131

5.2.5 RELATIONSHIP BETWEEN CITY AGENCIES

“...To a greater degree than perhaps any other U.S. city, Chicago has benefited from an enlightened planning partnership between the public and private sectors.” The achievements of Burnham and Bennett’s famous 1909 Plan of Chicago, sponsored by the Commercial Club of Chicago and carried out over a period of fifty years by the City and other public agencies, is well known. There are, however, indicators or examples of a collaborative relationship between city agencies in Chicago. The success of the Zoning Commission hearings, the re-routing of Lake Shore Drive to create a campus for the three museums located on the near south side (the Field Museum of Natural History, the Shedd Aquarium, and the Adler Planetarium) all help to demonstrate the City’s capacity for project collaboration.

Since 1996, the City has spent over $600 million on capital improvements to parks and various recreational facilities around the city. They have invested in making parks and public spaces safer by working with police and neighborhood groups to set up community policing programs. Realizing that children spend a significant amount of their out-of-school time in parks and recreational facilities they have integrated some services between the Parks District and the Public Schools with programs like After School Matters and integrated park development with neighborhood revitalization with programs like NeighborSpace, which has allowed the City to turn vacant lots and river edges from unused, derelict space to small parks and gardens. We
also use city-owned land when we assemble property for larger parks. The new 20-acre South Chicago Park is being created from 169 parcels of city-owned, tax-delinquent and donated land, leaving only 25 parcels to be acquired. Another potential source of parkland is abandoned service stations. Chicago has more than 500 of these eyesores. Over the last three years, we have cleaned up 40 of them and removed 144 underground storage tanks. When we've been able to locate the owners, we've forced them to pay. Some of these sites have already been placed back into service as neighborhood parks and child-care centers, while others are ready to be redeveloped into new commercial sites and affordable housing.

That trend has benefited the Sun Belt, of course. But in the 2000 census Chicago and several other northern cities gained population for the first time in 50 years, and it's largely because people now want to live in these cities, not because may have to. In fact, many suburbanites are finding the city is doing a better job of creating human spaces than the suburbs. It's hard to find a nice neighborhood park in our newer suburbs. You can't ride your bike to visit friends in another subdivision, and you certainly can't walk to the regional shopping mall.
5.3 Prioritized solutions.

Metropolitan Chicago is an attractive location where young professionals want to work and live. Both to keep its best young people here and to attract others who will drive our economic growth in the future, we must improve on that attractiveness. The secret to doing so lies in developing toward a community of the whole rather than remaining the preserve of isolated communities.¹⁵

5.3.1 Information is key

Many transit agencies rely on patrons' knowledge of the system, rather than using information as a tool to increase the quality of service and to build ridership. Most transit agencies, CTA among them, have mastered the art of producing clear, informative system maps. All agencies use demographic data and demand models to accommodate and forecast service needs, most of which focus heavily on work-based trips. Few have mastered or even considered the impact educating the public of the benefits of transit service to recreational facilities can have on ridership levels, operations, and quality of life for constituents. CTA seems to be among those agencies that are ready and willing to identify and utilize tools that will help to improve the relationship transit service has with recreational facilities, in this case open space or parks facilities.

Application of information as a tool is neither equitable nor effective, since the information available in each medium (print, web, radio) varies greatly, as does the availability of each medium. Transit access information itself is available, but neither CTA nor the Parks District present details of transit service to specific parks facilities at a meaningful scale. The Parks District produces several documents annually and seasonally that describe its various facilities, the services offered at each, as well as their location. Each of these documents includes CTA's logo—"CTA, Take It!"—among several other advertisements, but none include listings or maps of explicit transit services to facilities. Web-based materials include directions to events by train or bus, but this information is usually buried in the text, rather than prominently displayed. CTA advertises transit service to certain parks district facilities on its trains and buses, within its stations and platforms, and also prominently displays parks on its maps (above left). This information is helpful to those already predisposed to taking transit, it does not help to increase ridership levels or inform other residents of accessibility by transit, nor does it relieve pressures for parking at parks facilities. The Parks District's efforts are minimal at best, in that they assume patrons are aware of transit connections, or that they will call or consult a CTA map to determine which transit stop is nearest the facility.

Information is perhaps one of the more simplistic tools to utilize, even though its use presentation can be quite costly. It is the tool that would most immediately and significantly impact transit access to parks facilities in Chicago. As noted earlier there are many park facilities that are not accessible by transit service. For the park facilities that are accessible by
transit service, little information is easily accessible. For example, the Chicago Parks District website links to a Mapquest image (above right) for driving directions—with no indication of the transit stop locations, despite the proximity of the Green Line station and several bus lines, not to mention the incredible investment of both Chicago Parks and the CTA in moving the station to that location. The Parks District's Office of Planning and Development relies on the Marketing Department to disseminate information to the public.

At present both the CTA and the Parks District rely heavily on passenger and patron initiative, rather than facilitating decisions that support their goals and policies. However, planning efforts at Garfield Park suffer for lack of knowledge: riders do not have ready, one-stop information on both facility programs or events and travel routes to Conservatory Station. Only industrious patrons dig through the layers of information to discover how to access this park using transit. Coordinated map links are one way to enhance rider and patron understanding of transit access to parks facilities is to links between the two agencies. Rather than forming links to MapQuest to show park locations, links could be made to CTA maps or station area neighborhood maps for those parks easily connected to transit stations. With appropriate neighborhood maps, web surfers would have the means to make informed decisions.

5.3.2 ZONING FOR TRANSIT-ACCESSIBLE DESTINATIONS

With the current rezoning efforts underway, many city agencies view this as a time to push forward a policy agenda that reflects their vision of the city. Both the Zoning Reform Commission and city agencies recognize that preexisting zoning ordinances were aimed at facilitating development by private parties, in a world where many organizations were either private or public (which were somewhat exempt from certain regulations). Today’s efforts recognize the limitations imposed on public and quasi-public agencies, and now strive to define zoning regulations that will facilitate land use development according to urban design policy by public agencies as well as by private agencies. The hope is that tailoring zoning ordinances to land uses and not simply to private owners, it will broaden the efficacy, equity and effectiveness of policies.

Adjustments to the Zoning Ordinance will affect the way the CTA uses ownership and operation of transit service, as well as the way the Parks District uses design and maintenance of park facilities to connect the City's parks to its residents. The CTA has been able to introduce consideration for a Transportation Corridor Zone with different standards and permitting requirements than adjacent or pre-existing zones. Similarly, the Parks District has introduced the concept of a parks zone that would facilitate parks development. Each of these zones acknowledges the existing and in some cases prospective use of land in the zone by altering allowable dimensions. For example, whereas property owners might have built within 5 feet of an inactive rail line, the Transportation Corridor Zone requires setbacks approximately 30 feet from prospective transit service lines. CTA has asserted that pedestrian improvements are key, in that most transit trips start and end with a pedestrian trip. In support of that theory, where pre-existing ordinances might have required a 6-foot setback from streets the new zone requires setbacks of 8 - 10 feet to facilitate pedestrian movement.
Though transportation infrastructure and parks facilities often receive less attention than commercial real estate endeavors in planning and zoning matters, planners, city officials and residents now realize that they significantly impact the shape and feel of a city. In any of these cases, lack of funding is typically the cry of those who stall. The development process is costly enough, many would argue that adding further analysis, regulation, etc. would delay the process further and therefore add substantial costs due to time and professional fees (Mayor’s Zoning Reform Commission). Information itself is costly, because it must be gathered and analyzed in order to impact other tools, and even more so when information is the tool, as in advertising or marketing materials. The bottom line is: each tool is costly to implement, but many would argue that these tools are also cost-effective when taken over the long term.

Transfer of Development Rights (TDR).

TDR was recommended by the authors of Chicago Metropolis 2020—the Commercial Club of Chicago—as a method of preserving open space in Chicago’s area municipalities (see Johnson). This is a property rights tool that has not yet appeared in zoning, or any other format for that matter. With rezoning underway, Chicago is seeking tools that support its goals but do so simply. The City seeks tools that ordinary citizens can understand and apply without interpretation from professionals. Though TDR is not typically a simple procedure, it can be a tool for community-building as it is crucial to involve local property owners and community residents in the designation process. To formalize this process locally, we recommend that counties and local municipalities designate appropriate areas in their plans as eligible to sell and receive the transferable rights. The political climate of Chicago may allow designating sending areas but the process involves a level of study that involves City agencies, several state agencies, and of course the public. TDR could be helpful in the Loop Area at a localized level, combining with other zoning benefits to help preserve and create open space—a much-needed amenity in the Loop. Such efforts should be concentrated around the L-line itself, to replace some of the light lost in this area.

Incentive zoning.

The Zoning Reform Commission professes a need to create new open spaces in existing or evolving neighborhoods. The proposed zoning ordinance offers incentives for many of the objectives that fit this goal. It uses familiar incentives such as density bonuses for incorporating affordable housing, and introduces new tools such as incentives for incorporating “green-oriented site planning” (Mayor’s Zoning Reform Commission). A new bonus system features significant incentives for including pocket parks, special street landscaping, and also green roofs. The City even plans to offer financial contributions for off-site parks and improvements to Chicago River walkways. Each of the incentives support the urban design policies being advanced by the Zoning Commission and other city agencies, while still allowing variation in the way in which it is carried out. It prevents creation of a uniform, monotonous cityscape.

5.3.3 COORDINATION BETWEEN THE CTA AND THE PARKS DISTRICT

Both the Parks District and the CTA currently plan parks facilities access and transit stations based on the same standard criteria as other parks facilities and other transit stops. Both agencies do recognize different needs for urban and suburban environments, but criteria are not further qualified for
different urban situations. There are relatively few regulations that address areas external to stations expressly to facilitate access to transit service. CTA has undertaken this to some extent by proactively participating in recent efforts to re-write Chicago's zoning ordinance. In addition to the comments mentioned earlier, like the Zoning Commission, the CTA supports fewer curb-cuts on transit access routes and opposes blank walls at street level on pedestrian routes. The Parks District has undertaken similar efforts in the rezoning process. Because each agency is so specialized, it is reasonable to conclude that coordination between the two agencies would yield the best possible results in an area that affects them both. But the jurisdiction is unclear in some cases: where does CTA property really end and parks facilities begin? What should be done if there is a gap in-between the two? Collaborating helps to answer these questions, and utilizes information by pooling it amongst the various agencies.

Keep in mind that neither agency acknowledges access to park facilities via transit as its primary goal. However, the Chicago Transit Authority (the "CTA") does acknowledge park access as a method of increasing ridership and accessibility. The Chicago Parks District (the "Parks District") acknowledges that driving should not be the primary method of accessing its facilities, as much for space considerations as for equitable access for all income ranges. Both agencies recognize the impact their urban design policies have on the city.

The State of Illinois is the source of a significant portion of all regional and local planning and regulatory functions pertaining to land use and the environment, as well as those of transportation planning. One might think that this would enable a more holistic view on a matter such as transportation to open space destinations. But the relationships among the transportation agencies and planning agencies, CATS, NIPC and RTA collectively, that prevent redundancy and duplication also seem to minimize overlaps that would be beneficial as well. When the time comes for planning, it seems that transit service is at least slightly overlooked in the Parks District and open space in the CTA. And government being as entrenched in history as it tends to be, it can often be difficult to break out of the traditional role of non-communication between agencies—even if the current administrators are willing to think in this way.

While other organizations may suggest that an umbrella organization be formed, that action does not seem to be the most expedient manner of working to improve transit access to open space. Instead, the planning and design (or programming) departments within each agency might agree to establish contact earlier in their processes, and to maintain communication through all stages of their respective projects. Each agency might designate staff positions to take on monitoring progress, or each might adopt a new operating procedure of sorts, or by scheduling periodic meetings with counterparts at sister agencies. A more direct approach might be to require that managers of projects within the catchment area of a transit node (for the Chicago Parks District) or within the catchment area of a park (for the CTA, or even PACE and Metra) be required to contact the planning department of the appropriate agency before final decisions are made. All this bearing in mind, however, that the catchment area quite often is not the 1/4-mile radius around the transit node or 1-mile radius around the regional park, but more closely resembles the catchment area described in chapter 1 of this thesis.
5.3.4 Design cues.

In many parts of Chicago, and other cities for that matter, decorative structures are used to cue us into the culture, people or activities at a particular location or in a particular community. “These streetscapes help generate community pride, they create a sense of place and they help attract customers for neighborhood businesses.” (Daley) The same can be true of destinations within Chicago's green space network. Design cues will help to identify where open space would be necessary to create a “feeling of openness at street level” (Kayden) as New York zoning ordinance goals once stated. Several City agencies have already acknowledged insufficient pedestrian and transit access to the Lakefront and several parks on the Southside, and perhaps overcrowding in the city center.

As mentioned above, the Parks District’s objective is first to build a network of parks facilities in every neighborhood, so that Chicago residents can easily walk to neighborhood parks. There are certain regional attractions, of course; and their second hope is to build open, equitable access to the regional centers for ice-skating or boating for example. Understanding and designing for the level of access required for each different type of facilities is vital to ensuring proper access. Each type of facility will require minimum characteristics: pedestrian access, minimal parking, street lighting, etc. However, more precision should be applied in this case. A different dynamic is introduced when transit access meets automobile access meets pedestrian access than when only two of the three are present. Again information is key. Design characteristics should be uniform across stations, but adding green elements at transit nodes with open space access will also provide visual cues to patrons. In addition, adequate signage describing the name(s), direction, and other pertinent information regarding the nearest open space or other attractions in the area should be posted at each transit node.

Most planners and designers will argue that the design elements described in this thesis are basic, simple even. Perhaps it is their simplicity that often allows them to escape consistent use. In most cases the resulting plans for parks and transit nodes contain some of the elements described. But few contain all of the minimal elements. As it stands, though, the only regulation or standard tools in direct use are those which reference roadway or walkway widths, number of handicapped parking spaces, height of railings and the like. The standards are met—typically without challenge, due to custom—and incorporated into plans for renovation, construction and expansion. The elements here are introduced as a framework of elements to be incorporated, but not as required standards. The question now will be to assess which tool(s) might best satisfy the goals. Will regulations or incentives provide the greatest efficacy and widespread even-handedness? What are the obstacles that might prevent adoption of tools to increase or facilitate access to urban open space in Chicago?

Design elements will certainly vary with the different types of open space and levels of access. The matrix of access resembles an inverted pyramid: each level encompasses the elements of the previous and requires additional elements not necessarily captured in the preceding level. Neighborhood parks should have pedestrian and minimal vehicular access, but should also be supplemented with secondary bus access. District or city parks and facilities should have pedestrian and minimal vehicular access, as well as primary bus access. Regional parks should have all of these, along with rail access (or an equivalent frequency, range and level of service such as bus rapid transit).
On visits to several parks in the Chicago area, it became clear that pedestrian access to and within some parks is heavily impaired. In several cases, pedestrian pathways end abruptly or cross vehicular routes unsafely. Creating a safe, convenient pedestrian environment creates an inviting atmosphere for patrons. An analysis framework should require continuous and clearly delineated pedestrian pathways that extend from the park area to the street, parking area, and/or transit node. These pathways should be well-lit and pleasantly landscaped or hardscaped with appropriate materials and accompanying trees, depending on traffic level. As stated above, this framework should include visual cues in transit areas indicating routes to park areas. Requirements stemming from the Americans with Disabilities Act have been a helpful tool to accomplish many of these elements, but the level of detail and perhaps even style implemented has been insufficient for the purpose of building widespread access to parks for residents in general. For a more systematic accounting of where and how design cues might be most useful, consult the table of typology and hierarchy or the collected recommendations that follow.
5.4 Collected recommendations

5.4.1 Early coordination between Parks District and CTA.

Regional parks facilities near rail stations: The Parks District and CTA should collaborate

- **during design** stages of parks facilities in order to determine which design cues are necessary to accommodate and promote transit in open space entry areas.
- **before opening** of parks facilities in order to outline updates to promotional materials for transit access

Parks facilities near bus lines: The Parks District and CTA should collaborate

- **during design** stages of parks facilities in order to determine impacts of beneficial route alterations to accommodate transit in open space entry areas
  - adjustments to entry area design to accommodate bus turnarounds or drop-off areas
  - adjustments to parking ratios based on transit accessibility.

5.4.2 Zoning for transit accessible open spaces.

Mixed development zones.

- Provide incentives for integrating open space in subdivisions with existing open space and public transit networks, rather than simply requiring creation of open space.
- Develop requirements or guidelines for accessibility to open space, as described above.

Parks Zone.

- Priorities connecting transit and pedestrian routes to entry areas by affording them visual prominence.
- Priorities connecting transit and pedestrian routes to entry areas by minimizing walking distances between entrances and transit stations.

Transportation Corridor Zone.

- Provide incentives for maintaining connections to greenscaped plazas at transit nodes where open space is a predominant or proximate use.
- Ensure connections to regional open space destinations to the same extent as other types of attractions.
5.4.3 Design guidelines.

CHICAGO TRANSIT AUTHORITY: Station and station-area design

- Station interior should reflect any open space programming specific to the proximate facility
- Greenery along connecting routes should be extended into station areas to promote immediate recognition
- Station exterior should be easily recognizable along connecting routes, rather than tucked away inside buildings. Where this is not feasible, clear signs should be placed along the route
- Neighborhood maps should be placed inside all stations and on websites, web example shown at right

CHICAGO PARKS DISTRICT: Park entry-area design

- Continue pedestrian paths outside parks to those within parks
- Separate--strategically--motorized and non-motorized modes with green strips where possible
- Place directional signage along predominant routes
- Place park maps at major intersections
- Greenways and connecting routes
- Provide ample tree coverage for shading, noise abatement, etc.
- Provide sidewalks and bike lanes of ample width for expected traffic
- Provide directional signs at key locations along pathways, and maps at major intersections
- Provide ample lighting
CHAPTER 6  SAN JUAN, PUERTO RICO: IF YOU BLINK, YOU WILL MISS THIS OPPORTUNITY

6.1  CONTEXT

6.1.1  PROFILE/CONTEXT.

While there are other urban areas in Puerto Rico, San Juan is the epicenter of the island’s growth. Metropolitan San Juan hosts 63% of Puerto Rico’s jobs and 37% of its residents. In comparison to the density of the San Juan metropolitan area, the remainder of the island is for the most part rural, though quite dense. Even within San Juan, the character of the downtown area is far different from that of the surrounding areas. Built around the port of San Juan, Old San Juan is a human-scale city that continues the colonial character and tradition established centuries ago. The majority of high-end residences and businesses are concentrated near the coast, in Condado and Hato Rey.

Average incomes in San Juan are typically lower than that of most cities in the mainland USA even though the cost of living is almost comparable. Auto-dependency in San Juan is therefore far more than a simple addition to a budget balance sheet; it is a more significant portion of the average income than in other parts of the USA. A viable alternative to auto-dependency would benefit the budgets of San Juan residents, just as much as it would the environment or quality of life.

Unbeknownst to many, San Juan, Puerto Rico is probably one of the most car-oriented dense urban environments. San Juan’s vehicle density per mile of paved road in the world is one of the highest in the world (146 vehículos por milla de carretera, la más alta densidad de este tipo en el mundo, tres (3) veces más alta que en los Estados Unidos; en el centro del área metropolitana de San Juan existen 4,286 vehículos por milla de carretera \[^{143}\]). So when planners were able to revive the idea of resurrecting rail service in San Juan, local politicians jumped at the idea. The first phase of the new heavy rail project, called “Tren Urbano”, runs for a total 17.2km (10.6miles) from downtown San Juan to nearby Bayamón. Phase 1 consists
TRANSIT PATHWAYS TO URBAN PARKS

of elevated, at-grade and underground track, strategically determined according to the neighborhood station areas, which is scheduled for revenue service later this year.

There is no other passenger rail service in San Juan; existing transit services are limited to bus and públicos, comparable to mini-buses or jitneys. The car-oriented development in areas beyond the old city has left San Juan riddled with expansive arterials, massive highways and wide feeder streets with narrow to non-existent sidewalks and few other pedestrian amenities, even crosswalks. Car ownership is more than the status symbol it has come to represent in other cities; it is a practical item that facilitates everyday life for many of San Juan’s metropolitan area residents.

The imbalance between jobs and housing causes huge unidirectional peak-hour traffic flows. San Juan’s transportation professionals are necessarily worried about peak flows into San Juan. Because San Juan hosts 63% of Puerto Rico’s jobs and only 37% of its population, each day commuters pour into the city from outlying areas. This unidirectional surge not only causes congestion, it causes peak spreading, energy waste, higher pollutant emissions and many other detrimental conditions.

6.1.2 SAN JUAN AND ITS OPEN SPACES

Figure 28: aerial view of San Juan, personal photo

On the whole, San Juan lacks green space, particularly parks and even more particularly good quality parks. This is only exacerbated by the poor level of access afforded city residents because of San Juan’s car-oriented culture and development pattern, as well as the poor perceptions of open spaces. The proliferation of development along the northern coastline, mostly high-end businesses and residences, many of San Juan’s residents are disconnected from a significant natural resource. Added to that is the fact that many of San Juan’s quality parks are located in Santurce and Hato Rey, also not lower-income neighborhoods. Perhaps a caveat should be added at this point: though San Juan has high rates of vehicle density per mile, its geography, topography and natural climate make airborne pollution levels relatively low. This reduces the relative impact of arguments for sustainable development, transit ridership and the like. That said, there
were several parks created during the 1990s that have enjoyed substantial use, much to the surprise of open space detractors.

6.2 Tren Urbano Impacts

6.2.1 Building ridership

Tren Urbano can build riders by combining advertising with green spaces. Combined advertising would build a culture of transit access to various activities in life, rather than just travel to work. Choice riders will hopefully notice the benefits of riding the system, and choose to ride during work times as well. Captive riders on the other hand will note that the system is available for more than just work trips, but for general activities that one might want to pursue in life. They might then feel a greater sense of delight with the service, rather than associating it only with going to work.

6.2.2 Save park space by reducing need for parking areas

At many destinations in Puerto Rico, the first and/or more prominent features that visitors approach are parking lots. The car-oriented culture requires large lots to maintain it, many of which consume copious amounts of land that could well be used for green spaces. In fact, one architect and urban designer in particular, Andres Mignucci, is beginning to make a habit of converting parking lots to parks, arguing that the proportion of spaces to each other and to the lot configuration is generally ideal for placement of trees, street furniture and play areas. Rather than continuing to erode park

6.3 Most problematic issues

6.3.1 Building transit patronage

This problem is not particular to open space attractions, in fact TU will need to devise ways of building transit patronage to all destinations since TU is new to this car-oriented society. However by associating TU with San Juan’s many prominent destinations, it will help to reinforce transit as equitable and sustainable form of accessing the San Juan of the future.

6.3.2 Providing patrons safe travel to and visits within parks

Parks patrons and designers in San Juan have faced a very difficult problem in planning and creating parks in San Juan: the perception of crime. Due to the poor quality of parks and the relatively high crime rate in the area many residents associate parks and open spaces with criminal elements and danger.

6.3.3 Coordination between agencies

Coordination between agencies is far more of an obstacle in San Juan than in Chicago. Since Tren Urbano heralds many changes in the political culture as much as the transportation culture, this issue promises to worsen without aggressive action to build better relationships. Several incidents elucidate the lack of concordance among agencies, for example the construction of
the State Insurance Fund building completed in the late 1990s. Students and nearby residents protested its construction due to its location in the recently designated Bosque Urbano, on the banks of the Rio Piedras and even within its flood zone. When the DNRA asserted that in fact the building was not in violation of its environmental impact statement discussion began as to whether it was the building itself that was located inappropriately, or only the construction staging area and the silt/runoff it produced. The transportation agencies and the Junta Planificación joined the discussion of impropriety when the 1,000-car garage was erected, though the structure was located just slightly on the bounds of the 500m transit-oriented development area near Cupey Station. Representatives of these agencies asserted that the large government facility could have been sited squarely within the planning modification zone, so as to encourage use of public transit and decrease the need for the massive garage facility. This event, and others like it, demonstrates a need for local agencies to recognize the synergies and dynamics between the various projects they govern.

6.4 Most Problematic Conditions

6.4.1 Open Space is Lacking in San Juan

Among the larger green spaces in San Juan there are only a few: the reservation of the Caño Martín Peña, the Caño de San Antón. A major green space resource in San Juan is the Jardín Botánico and Bosque Urbano, which just happens to be in close proximity to Cupey Station. The Jardín Botánico is a lush, 75-acre tropical garden featuring approximately 200 different species of vegetation and possibly one of the largest tracts of land in San Juan that has been left virtually untouched. The park hosts several dedicated garden areas, such as the orchid garden and lotus lagoon, all connected by a series of foot paths. The Jardín is administered by the University of Puerto Rico at Rio Piedras (UPR) and neighbored by the Universidad Metropolitana (UMet). Development around Cupey should account for the immense opportunity to connect this park to residents of Metropolitan San Juan. While some local planners and parks advocates realize this opportunity, the parks and the station are nestled in the midst of a transitional area. Like several other projected transit nodes in Metropolitan San Juan, Cupey is dominated by car dealerships, repair shops, parking lots, and poor sidewalks where they are any at all.

6.4.2 Development Pattern Hinders Connectivity

San Juan has evolved into a somewhat socio-economically segregated society, where families tend towards living in developments with little possibility for through-traffic. This phenomenon has been caused partially by perceptions of crime and also by the status of living in exclusive communities. Results seem to vary with the topography, location within the metro area, and level of income, but this manifests in everything from subdivisions heavily laden with cul-de-sacs to gated communities. The impact of this development pattern is large. Structures and infrastructure in these communities turn their backs on main roads, as well as any public structures and even public spaces. The lack of thru roads—whether due to cul-de-sacs, gates or walls—prevents not only cars from getting through, but pedestrians and bicyclists as well. This pattern complicates the prospect of...
connecting networks that would otherwise pass through these neighborhoods.

6.4.3 Maintenance

During interviews with Tren Urbano staff, I discovered that a major concern for including green spaces along the railway alignment is maintenance. The same is true of including green spaces in station areas. Personnel are concerned with access to greenspace along the alignment, particularly in areas not directly in the downtown that do not have vehicular access for maintenance vehicles and personnel. Another stressing concern is that of funding for maintaining greenspace. With all the other concerns involved in maintaining railway corridors and station areas, the last thing transit engineers and facility personnel want to be concerned with are the trees and shrubs outside of the alignment or station. But it is precisely at that point that transit professionals must be reminded that the service is for the people, not for the service.

6.5 Catalyzing Opportunities

6.5.1 TU’s Infancy Allows Grand Quality of Life Impacts

If both the public transit sector and the environmental quality advocates join together in their marketing plans, they will be able to market not only transportation service and environmental quality improvements but also access to a better life. Assuming both will be successful, associating one with the other will broaden its exposure, expand its constituency and improve its image.

6.5.2 TU Will Likely Bring Land Value Increases

There is more to transit than getting from place to place. Just as streets are more than routes for cars, a transit station, be it a bus stop or a train or subway station, can be much more to a neighborhood than just a place where people come and go. Transit can be part of a neighborhood revitalization strategy to bring several needed improvements to a neighborhood that work together to create a more livable community. There are challenges involved in coordinating transit and development in city neighborhoods, where new development must be well integrated with the existing community. But with sustained, collective effort that includes significant community participation, transit-oriented development can bring important economic, mobility, and environmental benefits to a neighborhood.147

6.5.3 Support for Development of Bosque Urbano and Other Urban Greening Projects

For several years now, residents of San Juan and students of the UPR at Rio Piedras campus have organized to proclaim a need for green lungs near the heart of urban San Juan—Bosque Urbano del Nuevo Milenio, New Millennium Park. In 1997, legislation authorized its creation, and authorized land acquisition where necessary for expanding its limits or buffer zones. The Department of Natural Resources and the Environment (Departamento de Recursos Naturales y Ambientales, DRNA), also holds projects for reforestation called “Sembrando por Puerto Rico”.148
Cupey Station will be located where PR-21 intersects PR-176. This station will primarily serve the Villa Nevárez neighborhood, the Botanical Gardens, Universidad Metropolitana (UMET) and the San José Shopping Center. Cupey Station will have two entrances: one located west of PR-1 towards Rio Piedras and the other one east of PR-1 next to the San José Shopping Center. The station will consist of elevated side platforms and will include facilities for transferring from buses and públicos. There will also be a designated "Kiss & Ride" area.

6.6 Prioritized solutions

While information and perhaps even training will be an integral component of any plan for this hopefully budding transit society, design cues are just as crucial, if not more so. Many existing transit riders and local residents or patrons have existed within a culture built on word of mouth, questioning veteran users on the street and simply finding one's way. Information and training will not be simply in words for San Juan's transit riders and park patrons, it must take the form of design cues as well.

6.6.1 Design cues

Station-area design

Simply because there are several uses vying for prominence at Cupey Station does not mean that they must be in competition. A collaborative effort to address the design of the entrance to the Jardin Botanico, the Bosque Urbano and Universidad Metropolitana might well yield a product that would satisfy all parties. Greening the routes between the transit station and the park entrance will certainly direct patrons and potential commuters or passers-by to the route to the park entrance. However, this additional landscaping will also beautify the entrance to the University. This entrance/cue area might include street furniture, ample trees for shading sitting areas, bicycle parking, and perhaps even a concession area.

Like Chicago, San Juan can also benefit from the general design cues described earlier in this thesis. To recap they are:

- Prominence at station exits
- Directional signage (to parks, attractions)
- Greening station interior and exterior

There is far more possibility for greening the station interior and exterior in the case of San Juan than in Chicago, at least when considering the climate. There are maintenance and funding concerns to be sure; however, with several outdoor stations and significant sunlight, Tren Urbano's rail stations are a prime opportunity to incorporate greenery, particularly at those stations where green space destinations exist, such as Cupey, Hato Rey, etc.
At first it may seem that in Third World cities with so many unmet needs, high quality pedestrian spaces would be a frivolity. On the contrary, where citizens lack so much in terms of amenities and consumption, it is quicker and more effective to distribute quality of life through public goods such as parks, plazas, sidewalks, than to increase the personal incomes of the poor. It is impossible to provide citizens certain individual consumer goods and services such as cars, computers, or trips to Paris. It is however possible to provide them excellent schools, libraries, sidewalks and parks. Low-income privations are not really felt during work time. It is during leisure that the difference is felt. While the upper income people have cars, go to clubs, country houses, theater, restaurants and vacations, for the poor public space is the only leisure alternative to television. Parks, plazas, pedestrian streets and sidewalks are essential for social justice.

7.1 Context

Chile’s capital city, Santiago, is nestled in a fertile valley between two mountain ranges in southwestern South America. Región Metropolitana de Santiago (RM) is the smallest of Chile’s 9 regions and has a population of over 6 million people. The RM is composed of 34 municipalities with Santiago at its core. Each is governed separately but relies heavily on the central government for both political decisions and support as well as funding for large-scale projects.

7.1.1 Demographics, etc.

Details and analysis of spatial demography

Greater Santiago makes up 14% of the land area of the Región Metropolitana (RM), but hosts 89.7% of the Región Metropolitana’s population. Suburbanization is clear, considering that Santiago hosts only 3.8% of the residents of Greater Santiago. In addition, Santiago’s growth has declined 10.8% over the last decade, while that of the peripheral municipalities has increased almost exponentially. Though analysts disagree on the precise magnitude of proportions, all agree that growth in the metropolitan region of Santiago is expected to continue to increase, and much more so than the rest of the country. The Región Metropolitana, or RM, is largely urbanized and has even incorporated new zones of development in recent years. Santiago’s metropolitan center has largely developed in radial or hub-and-spoke layout on road-based modes, while the public transit system has
TRANSIT PATHWAYS TO URBAN PARKS

developed more in a π-shaped layout. Though car-ownership rates in Santiago are lower than in North American cities, residents of the RM have also fallen prey to the rapid global growth in maturation in the past 4 decades. Like many of its northern counterparts, Santiago’s RM has also fallen to suburban flight, leaving many of the central municipalities with significant amounts of vacant land or buildings. From 1992 to 1997, over 8,000 hectares in Greater Santiago were urbanized - a rate of 1,600 per year, with most of the growth concentrated in four peripheral municipalities. Between 1982 and 1992, the total urbanized area of the city grew by 20%, with over 60% of that urbanization in four outlying municipalities: Quilicura, Maipú, Puente Alto, and Peñalolén[153].

Transportation

Though the RM’s Metro is quite efficient and well-used, the stigma of public transit also prevails in Santiago, while auto-ownership conveys a higher social status or the impression that one is advancing up the socio-economic ladder. Rail service as we know it today began with Metro’s Line 1 service along Av Apoquindo, Av Providencia and Av O’Higgins about 25 years ago. Over a decade later, Line 2 opened in the western part of the city, followed in 1997 by Line 5 in the east. The system currently in service runs approximately 40km, covering 51 stations. Plans and construction are underway for opening Line 4, and extending Line 5 south. Metro enjoys significant ridership; alone its rail service boasts 800,000 trips each workday. Of metropolitan Santiago’s 8.8 million motorized trips, public transit modes capture 69%. The city-centered Metro is complimented by MetroTren, a 9-station suburban rail line running south to Rancagua a nearby municipality. Metro is a success story for the most part: its mode share seems to be increasing and it is one of only a few public transit systems worldwide that is able to cover costs through revenue service.

There are also conceptual plans underway to redevelop a defunct railway corridor running more or less around the municipal boundary of Santiago. The right of way is for the largely unused or underutilized, but several visionary urban designers and planners realize the potential that this project, the Anillo Metropolitano, or Metropolitan Ring, has to reconnect Santiago with the municipalities that surround it and revitalize the communities that abut it through open space and transportation investments. The ring was divided into 5 sections and studied by 4 of Chile’s top universities as well as the planning organization, each preparing a Plan Maestro del Área del Anillo Metropolitano de Santiago, or Master Plan for the Metropolitan Ring of Santiago. Though few decisions have been made regarding the actual character of the right-of-way, the project is gathering quite a following because the preliminary concept plans have inspired visionaries and skeptics alike to imagine the possibilities of this new connection integrating community developments, transportation infrastructure and open space.
7.1.2 Santiago's Open Space and Environmental Conditions

Much like Mexico City, Santiago is well-known for its high amount of air pollution. Also like Mexico City, the RM suffers partially due to the climate and topography which together prevent dispersion of much of the pollutants that plague the city. CONAMA, Comisión Nacional del Medio Ambiente, the local environmental management agency also sites land conversion, water pollution, noise pollution, improper solid waste disposal and lack of open space as major ecological concerns for the region. As of 2001, green spaces make up less than 2.5% of the urbanized area in metropolitan Santiago. The largest green space in the urbanized area, the park at Cerro San Cristobal, accounts for about half of the green area in the inner municipalities, leaving many areas with even smaller amounts of open space. As might be expected, the municipalities with the greatest dearth of green spaces are the lower-income municipalities. Overall, San Joaquin has more open space than the regional average, but not as much as its neighbors Macul and Nuñoa.

Regional Connectivity: the Zanjón de la Aguada, the Metro, the Metropolitan Ring

The majority of this section on Santiago de Chile will focus on an opportunity for community revitalization and integration of transportation and open space networks in Santiago’s neighbor to the Southeast, San Joaquin. San Joaquin is strategically located between several major road-based arterials, as well as Line 5, which forms its eastern boundary and potential exclusive busways on both its eastern and western boundaries. In addition, San Joaquin is one of several municipalities that host the Zanjón de la Aguada, which is the major stormwater collector for the inner metropolitan area. Finally, San Joaquin is strategically poised for regional connectivity, and currently working proactively to devise methods that will lead to a newly revitalized and sustainable community.

Regional connectivity is granted a high priority in most if not all of the regional development and infrastructure plans, from the Plan de Transporte Urbano para la ciudad de Santiago 2000-2010 (PTUS) to the Plan Regulador Metropolitan de Santiago (PRMS) to projects for the Metropolitan Ring. Emphasis is placed on connectivity of not only roadways, but also transit service, open space and waterways. Redevelopment of this corridor has the
potential to benefit not only the residents of San Joaquín, but also the social and ecological health of the region. It has the potential to fulfill the role that green space and public transportation is meant to do: to act as a focal point or nexus where residents can socialize, congregate and even exercise. The Zanjón de la Aguada is a small but vital water body coursing along the lowest points in the region, and collects the majority of stormwater runoff in Greater Santiago. The Zanjón connects with the RM's 2 major rivers—the Rio Mapocho and the Rio Maipu—further downstream to complete the waterway network. Though it has its problematic conditions (see below) the Zanjón is unique in that the combination of the need to revitalize the Zanjón and the potential to leverage the unrealized capacity of the Carlos Valdovinos Metro station offers an opportunity for a symbiotic redevelopment in a lower income community in a strategically accessible location.

Both regional and national plans for accommodating growth will greatly affect San Joaquín. Several arterial roads passing through San Joaquín are planned for expansion due to regional pressures. East-west routes Av. Pintor Cicarelli and Av Isabel Riquelme and North-south route Av. Las Industrias are slated for expansion in order to connect with the Americo Vespucio and Accesso Sur highways, respectively. In addition, several improvements in public transportation service are planned. The Metro’s Line 5 that now runs above San Joaquín’s eastern boundary is slated for extension, and Av Santa Rosa, the western boundary, is being advanced as a possible trunk lane for a new bus rapid transit system much like Bogotá and Curitiba.

Figure 30: Context for site redevelopment in San Joaquín

Impacts of modifying San Joaquín’s northern section

San Joaquín owes its large percentage of industrial land to the political history of Greater Santiago. In the early 1980s several large municipalities in Greater Santiago were reorganized to create smaller, more manageable units. In many cases, the land area or population were somewhat equitable
but the land uses were not. San Miguel, Pedro Aguirre Cerda and San Joaquin were once a single consolidated municipality, where the portion of the municipality now called San Joaquin hosted the overwhelming majority of industrial uses. Urban growth, suburban expansion and global competition for many of the various industries in this area have created both push and pull factors forcing industries out of San Joaquin. Both residential flight (see above) and industrial flight have left San Joaquin with a large portion of vacant and/or underutilized land and created a deficiency in the small amount of revenue trickling into the municipality's coffers.

Seeking to ameliorate the situation and also improve up its image in the Greater Santiago area, in 2002 the municipality of San Joaquin decided to modify the Plan Regulador Comunal (the PRC), similar to a municipal master plan or zoning map, in order to facilitate converting a significant portion of the industrial uses in San Joaquin into mixed use areas and to create more residential zones. The process for this conversion is somewhat tedious, requiring a formal proposal to the central government that must be approved before proceeding with new development. The proposed modified area lies in the North of the municipality directly abutting Santiago’s Franklin neighborhood, and bordered by San Miguel to the west and Ñuñoa and Macul to the east. The population of this area is just over 20% of that of the municipality’s 98,000. Population density in this area is currently only 70 residents per hectare, compared to 99 residents per hectare in the remainder of San Joaquin.

Approximately 28%—2.81m² (281.29 hectares)—of the land area of San Joaquin is currently being modified by amending the PRC. There is a significant amount of vacant or underutilized land in the modification area: approximately 78.4 hectares or 27.87% of the modification area. Specific information on land use and land use changes are shown below:

<table>
<thead>
<tr>
<th>Land Use</th>
<th>% Municipality</th>
<th>%PRC</th>
<th>%Modified PRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>20.77</td>
<td>17.72</td>
<td>17.6</td>
</tr>
<tr>
<td>Residential Mixed</td>
<td>31.97</td>
<td>12.78</td>
<td>35.6</td>
</tr>
<tr>
<td>Industrial Mixed</td>
<td>10.31</td>
<td>8.59</td>
<td>1.1</td>
</tr>
<tr>
<td>Industrial Exclusive</td>
<td>22.66</td>
<td>40.76</td>
<td>23.7</td>
</tr>
<tr>
<td>Municipal Services</td>
<td>9.43</td>
<td>9.55</td>
<td>11.4</td>
</tr>
<tr>
<td>Green spaces</td>
<td>4.86</td>
<td>10.60</td>
<td>10.6</td>
</tr>
</tbody>
</table>

Because of the large imbalance of uses in this zone, the density of green space is 8.8m² per resident, almost double that of the municipality as a whole. Note that the modification area has about 6.3% green space at present. Due to their plans for increased residential development, the municipality still projects a need for more green space in this portion of the municipality.

**Land conversion**

The potential to reuse the lots now lying fallow in the northern area of San Joaquin is great. San Joaquin is strategically located between several transportation routes, both public transit and auto-oriented, as well as between Santiago and several newly developing areas in the southern
portion of Greater Santiago. If San Joaquín is able to surmount the perceived stigma of its industrial past and its poverty relative to its neighbors, it stands to reason that many prospective developers will be attracted to the smaller parcels along the major north-south transportation corridors as well as the larger parcels within the interior along the east-west corridors. Those sites are well placed for pedestrian, transit and vehicular access, and are relatively inexpensive compared to parcels in neighboring communities characterized as middle-income.

Reuse of vacant lots and buildings now holding for news of zoning approvals
The modification of the northern portion of San Joaquín represents a resounding opportunity, but a possible hindrance as well. Many economists and developers have surmised that a significant portion of gains in real estate development derive from land speculation or land banking, where landowners hold parcels of land without developing it because they suspect coming changes in the market will drive land costs up high enough for their profits to increase significantly. This is possibly the case in San Joaquín, but it is just as likely that landowners are unable to sell land or finance projects due to the pending change in zoning, perhaps even coupled with the possibility of expanding the right-of-way on which the property fronts. Developers and/or landowners may be unable to find buyers or financiers at a purchase price or rate that makes development reasonable at this time. So rather than lose money developers and landowners are likely to hold the land until market prices and environment are more favorable. Though it may seem reasonable to the landowner, while s/he waits for the market, the property lies vacant and inactive, possibly even derelict.

7.1.3 Most Problematic Issues

Configuration of major roadways poses safety concerns
Pedestrian connections across Av. Vicuña Mackenna and Av. Carlos Valdovinos
As mentioned earlier the Line 5 runs on an elevated track in the center of Avenida Vicuña Mackenna, a 3-lane arterial running through several municipalities. Carlos Valdovinos Metro Station sits at the crossing of Av Vicuña Mackenna and Av Carlos Valdovinos, a 2-lane feeder route. Each day several hundred school children pour through this crossing as they enter and leave the schoolyard of the Colegio Saint Lawrence. Transit riders at this node must first walk through the gas station that sits at the corner of the intersection, then navigate crossing 6 lanes of traffic on Av Vicuña Mackenna. This is further complicated by the short distance between the curb cuts for Av Isabel Riquelme and for Av. Carlos Valdovinos, making coordination between vehicular signals and pedestrian signals that much more complex.

Possible traffic surge(s) as east-west connections increase over time
The Plan de Transporte para la ciudad de Santiago (PTUS) identifies several of the routes in San Joaquín for expansion by several lanes, particularly those roads in the area being modified. Though the actual expansion dates are long off, possibly 10 years, the expansion does pose a threat both because it prevents development on lots affected by the expansion and because it heralds increased traffic on an already difficult road. Expansions to the roadway network vary from simply adding lanes of traffic, as is the case for Av. Pintor Cicarelli, to adding several lanes of traffic and also connecting routes to the regional network, as is the case with Av Isabel Riquelme, which may be connected to the ring road, Americo Vespucio.
With traffic flowing into the municipality from new regional connections, traffic volumes are sure to soar, but it is unsure the exact extent.

**Little funding**

The majority of funding for road-based improvements in most regions tends to come from the local municipality or local transportation agency. In the case of San Joaquin funding measures are quite difficult to predict. The majority of funding in Chile derives from business licenses (patentes) and, to a much lesser extent, residential taxes. But San Joaquin's large percentage of vacant lots and large industrial lots decreases the commercial contributions to municipal coffers, and the largely low-income population is exempt from paying residential property taxes. Personnel in San Joaquin's government assert that the highest costs for open space improvements, after land acquisition and construction, will be irrigation—a cost usually born by the municipality. Improvements to San Joaquin's green space infrastructure will rely heavily on contributions from the central government, or innovative efforts to leverage private investors and/or form regional coalitions to approach prospective funders at higher levels of government.

**Coordination is typically at the central government level, not local**

There have been indications that authorities in Chile are attempting to collaborate on remedying various transportation- and development-related environmental problems. Chile has established an urban growth boundary surrounding 37 core municipalities, but rather than prevent development outright, it discourages urbanization by limiting expenditures in public infrastructure beyond the boundary. There has been some criticism as to the efficacy of the UGB, much like many others, but on its face, it shows willingness to attempt to remedy the trend towards suburbanization. In early 2000, the central government placed emphasis on improving urban transport conditions. They embarked on a transportation planning initiative joining several organizations SECTRA, MOP (Ministerio de Obras Publicas), MINVU (Ministerio de la Vivienda y Urbanismo), CONAMA (Comisión Nacional del Medio Ambiente), MINTRATEL (Ministerio de Transporte y Telecomunicaciones) among others. Efforts focus on integrating transportation infrastructure planning with systems management, recognizing and improving the links between transportation and urban planning, explicitly incorporating public participation and coordinating the not-so disparate initiatives managed by various government agencies.

The Zanjón de la Aguada is polluted and unpleasant to be near

The Zanjón de la Aguada is a channelized, partially covered stream that collects stormwater runoff directly from within San Joaquin, but as the lowest point in the Greater Santiago area most of the runoff from the region eventually runs into the Zanjón. Unfortunately the Zanjón also collects a significant amount of effluent from the industries that abut it. Residents in San Joaquin and other municipalities that abut the Zanjón complain that it changes color according to the level of rain and types of effluent dumped into it and emits unpleasant odors regularly. Restoring its natural functions may not necessarily mean “restoring” it to its “original” state, but simply restoring a natural stream bed, removing the concrete lining, daylighting the portion currently culverted under Av Isabel Riquelme, and certainly stopping the dumping of pollutants. Over time the stream would regain the ability to clean itself and better regulate its flow.
TRANSIT PATHWAYS TO URBAN PARKS

7.2 Catalyzing Opportunities

7.2.1 Modification of PRC

As mentioned earlier, the revitalization of the northern portion of San Joaquin through a zoning change presents opportunities for converting auto-oriented uses and configurations to transit-oriented uses and configurations. The modification, once approved, will also encourage landowners who have been landbanking to release their properties for development rather than allowing them to continue to sit vacant.

7.2.2 Metro Stations in San Joaquin have Underutilised Capacity

Based on Metro's Annual Report for 2000, both boardings and alightings at stations directly serving San Joaquin, notably Carlos Valdivinos and Camino Agricola, are far lower than at other stations along Line 5 despite similar station sizes and capacities when compared to other stations on the same line. With much of the destinations either in the downtown or in the near peripheral developments to the south at La Florida, few transit riders have reason to stop at Carlos Valdivinos. However, the current number of employees pouring into Macul's commercial and industrial developments on the opposite side of Av Vicuña Mackenna and the road-based expansions planned in the area provide a market to view San Joaquin's transformation—and be encouraged to stop by.

7.2.3 Government Plans for Redevelopment and Revitalization

One of the positive outcomes of the massive urban expansion and urban flight is Santiago's newfound commitment to re-densifying the core of Greater Santiago. In the last major metropolitan plan, Santiago established Urban Renovation Zones as part of a Strategy for Urban Development. Whereas in the first centennial celebration the RM concentrated on building anew as a form of urban development, for the bicentennial the RM is focused on renovating and refurbishing existing urban resources, particularly those in the core. Both in the Strategy for Urban Development and in the visionary plan for the Inner Ring, the following principles are stressed:

- Improving regional connectivity of transportation networks
- Recognition of resources for growth of municipal subcenters
- Centrality and connectivity of metropolitan public services in the municipalities
- Increase in residential development in inner Santiago
- Completion and improvement of a network of public and green spaces

7.2.4 Support for Sustainable Development Practices in the Municipality

The Municipality and its economic development corporation have already begun to compile marketing materials expressing their efforts to become a more sustainable community. They are pursuing the objectives outlined in Local Agenda 21.

7.3 Prioritized Solutions

7.3.1 Design Cues

During a cooperative studio on sustainable urban planning with participants from the Planning Department of the Universidad Católica in Santiago and that of the Massachusetts Institute of Technology in Cambridge, Massachusetts, proposals were made to attempt to remedy the detrimental conditions in the area and to help launch the revitalization of the municipality. After visiting San Joaquin and touring the revitalization area,
we worked for several months to develop plans that would benefit the residents of San Joaquin at a local level, and also attract residents from the Greater Santiago region as a whole.

**Gateway to San Joaquin at the Carlos Valdovinos/Vicuña Mackenna transit node**

To address both the prominence of green space at the station entry/exit area and also to “green” the station interior and exterior, the studio group proposed a Sculpture Garden and/or pedestrian-oriented plaza at the site of the gas station on the corner of the Carlos Valdovinos Metro Station. Not only would this transform the gas station to a far more pleasant feature, it would also provide more visibility along both avenues for pedestrians and cars approaching the intersection. Converting the gas station in the initial phases of redevelopment would also signal a transformation of the focus of the intersection in general: a transformation from auto-dominated to transit- and pedestrian-oriented. This plaza could be landscaped with native plant species and permeable or semi-permeable paved surfaces to minimize the drain on municipal funding. Providing a sculpture garden would also capitalize on the “MetroCultura” project run by the Metro to use public art in Metro stations, thereby leveraging some funding from Metro. This would be a means of identifying this revitalized transit node with a new San Joaquin, making residents more proud to be a part of San Joaquin’s revitalization, creating a sense of stewardship and attracting visitors from other parts of the region. This transit node would also feature an upgraded bus stop with bay or pull-in lane adjoining the pedestrian plaza to provide more safety to schoolchildren boarding buses on either side of Av Vicuña Mackenna particularly.

In developing countries, we try to solve problems by growing economies... We think that more money means better health, schools, arts, etc. But in the case of transportation, the richer you grow, the worse it gets. Time lost in traffic is doubling every 5 years. At current growth rates, it would take about 15 years for developing countries to build the infrastructure to become as jammed as the US is now. Jams only lead to cries for “more roads”, which lead to sprawl, and lower density cities, which make alternate modes harder to support. Longer distances make it harder for biking and transit to compete.158

Figure 31: Portion of the Carlos Valdovinos station neighborhood map

Source: Metro Santiago

7.4 **Collected recommendations**

7.4.1 **Development options**

**Flexibility**

Sustainable urban revitalization is possible through recognizing, developing and networking the site's latent resources. There seem to be many questions about the direction and timeframe for redevelopment of San Joaquin based on the prospects for approval of the modification to the PRC, funding and support for revitalizing rather than channelizing the Zanjón de la Aguada.
and probability of roadway expansions. Rather than proposing a specific plan for redevelopment, the studio participants decided to instead suggest projects that would complement each other well while still being able to stand on their own. This model has been successful in other cities, but the zoning regulations must be flexible enough to accommodate the ongoing changes in market forces and the political climate. At present, the zoning regulations are fairly open with respect to uses that might be acceptable on private land, but there is little flexible for beneficial uses that might be unforeseen on a particular location or for variety of uses on public land. For example, structures are forbidden in the core area of the revitalization zone, making it difficult for synergies between adjacent uses on the linear park proposed by the studio participants. Building in more flexibility is key, whether by adopting a process of review or by adjusting language to allow particular synergies in strategic locations.

Transit-Oriented Development

Av Carlos Valdovinos and Vicuña Mackenna are prime examples of corridors ripe for varied commercial developments. Siting offices, retail and small eateries along this route would allow a great amount of activity while also stimulating economic development in the area. As collector and feeder street lead towards Av Isabel Riquelme and the proposed linear park, they might becomes more intermingled with other uses, such as residences and pocket parks. The existing structures in this area would need to be investigated to determine which might be specifically reusable and which might not be; but the municipality might work with higher levels of government to undertake coordination of land assembly for public spaces along the Zanjón and in the interstichting areas between Av Carlos Valdovinos and Av. Isabel Riquelme.

Regional connections through the Zanjón de la Aguada and Av. Isabel Riquelme

The Zanjón- Isabel Riquelme green corridor can help San Joaquín reconnect within itself and with the greater Santiago metropolis through a combination of a linear park running the length of the Zanjón and programming for civic functions such as municipal offices, public institutions and recreational facilities. However, there are currently few points where it is possible to cross the Zanjón and Av Isabel Riquelme. It is crucial to reconnect residential and commercial areas on either side of the Zanjón de la Aguada and Av Isabel Riquelme, preferably through pedestrian bridges at a minimum, and with vehicular crossings at a small number of strategic crossings. When the space between the northern and southern portions of the municipality is activated, it is quite likely that residents in San Joaquin will take on stewardship of the Zanjón and participate in its restoration. This would allow creation of the linear park running along the Zanjón, and potentially allowing some of its natural character and functions to return. The best way to accomplish restoration of the Zanjón's natural functions is to join other municipalities along the Zanjón in a regional board of sorts. This would empower the municipalities affected by the Zanjón to combine maintenance functions up- and down-stream, to seek funding at higher levels of government, and also to encourage the central government to seek funding from larger foundations or agencies such as the InterAmerican Development Bank.

7.4.2 Design and guidelines as in other sections

Like Chicago and San Juan, San Joaquin should remember to combine existing design interventions that prevail in other transit- and pedestrian-oriented open spaces. To recap, they are:

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- Extend greenery along connecting routes into station areas to promote immediate recognition
- Leverage open space attractions by making them prominent in station area designs
- Provide directional signs at key locations along pathways, and maps at major intersections
- Safety is crucial: provide and encourage ample lighting along routes, and provide sufficient space for access to transit stations and pedestrian routes
- Continue pedestrian paths outside parks to those within parks
- Provide incentives for maintaining connections to greenscaped plazas at transit nodes where open space is a predominant or proximate use
Collaboration is key. Possibly the single most helpful recommendation at this point is coordination. Because transit's place in the integration between networks is such a new topic, it stands to benefit most from study by professionals, residents and patrons from many different sectors, backgrounds and specialties. In order to appropriately tackle integration, those involved in the design, management and operation/maintenance of transportation services and open spaces must integrate themselves. This does not necessitate formation agencies like England's Department of Transport and Local Government and Regions that house all agencies within the same umbrella organization. Being housed in the same organization does not necessarily mean greater collaboration. Integration does, however, necessitate communication between disparate agencies affecting the same or adjacent parcels or destinations. Such communication must be early, informative and consistent throughout the planning, design, construction phases of a project, and must be continued throughout the life of the project as well as once opened for normal service and activity.

8.2 Recommendations to public organizations

8.2.1 Recommendations to transit agencies

For transit agencies specifically, rethinking service provision would be the most pressing recommendation. Very few transit agencies, even in transit-rich environments, are addressing transit service for non-work trips. Because much of the infrastructure involved in direct transit service is fixed and expensive, transit agencies must work hard to ensure that connections to metropolitan and regional open space destinations warrant the same amount of attention that other transit destinations warrant. More importantly, the heavy infrastructure and cost implications require that transit agencies think more creatively than perhaps other agencies. The design and policy interventions certainly are not to be forgotten; on the contrary they should be explored further (see below). However, transit agencies often have farther reach than municipal planning agencies or parks agencies, since transit agencies often manage operations that cross municipal boundaries in order to provide access to them.

For these reasons and many more, transit agencies must begin to leave behind the concept of access zones within ¼ mile radii, ½ mile radii or even 1 mile radii. Most people—whether captive riders, choice riders or do not think
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- Station interior should reflect any open space programming specific to the proximate facility
- Extend greenery along connecting routes into station areas to promote immediate recognition
- Station entrances should be easily recognizable along connecting routes, rather than tucked away inside buildings. Where this is not feasible, clear signs should be placed along the route
- Neighborhood maps should be placed inside all stations and on websites
- Provide directional signs at key locations along pathways, and maps at major intersections
- Safety is crucial: provide and encourage ample lighting along routes

8.2.2 RECOMMENDATIONS TO PARKS AGENCIES

The specific design and policy recommendations discussed in earlier sections are important to the implement because they will be immediately experienced by parks patrons. They are the interventions that will affect their regular enjoyment of the space and can help to improve green spaces that are already in place as well as those currently in planning or design phases. However, the most important are

- Continue pedestrian paths outside parks to those within parks
- Separate--strategically--motorized and non-motorized modes with green strips where possible
- Provide incentives for maintaining connections to greenscaped plazas at transit nodes where open space is a predominant or proximate use.
- Place directional signage along predominant routes
- Prioritize connecting transit and pedestrian routes to entry areas by affording them visual prominence.
- Prioritize connecting transit and pedestrian routes to entry areas by minimizing walking distances between entrances and transit stations.
- Provide ample tree coverage for shading, noise abatement, etc. along routes

- Provide sidewalks and bike lanes of ample width for expected traffic
- Safety is crucial: provide and encourage ample lighting along routes

8.2.3 RECOMMENDATIONS TO PLANNING AGENCIES

Provide incentives for integrating open space in subdivisions with existing open space and public transit networks, rather than simply requiring creation of open space.

Develop requirements or guidelines for accessibility to open space, as described above.

8.3 RECOMMENDATIONS TO THE PRIVATE SECTOR

Impacts of and to the private sector are significant. Private companies stand to gain significantly from the synergies provided by open space and transit separately, and quite a bit more from the synergies provided by them both together. However, it is essential that private companies work with host communities and with public agencies to ensure proper placement, management and maintenance of open spaces. Whereas many private developers and landowners often create open spaces as a checklist-requirement of zoning, they are in a unique position to inform and impact appropriate development of these spaces. Private developers have seen the open spaces that they created go unused despite their expenditures on landscaping and maintenance. This inevitably causes developers and landowners to rail against the requirement instead of working to improve its implementation. Many of the recommendations that follow are commonly used to enhance connections between other uses or destinations; however I
am unaware of occasions where they have been applied to open spaces in this way previously.

### 8.3.1 FIND PARTNERS IN MANAGEMENT/MAINTENANCE

By creating partnerships with local residents and local agencies, the private sector can significantly reduce its costs while also improving the image of the company, as well as the use of the open space feature. Partners can be found in the local community gardeners or neighborhood youth who might take on maintenance of small-scale parks in exchange for public use—whether perpetual or periodic—of the open space or other in-kind exchanges. Partners might also include nearby schools who might also engage in maintenance of the space(s) in exchange for educational use of the open spaces. Proactive city agencies might engage in cooperative management if companies produce other benefits such as green roofs occasionally open to the public or utilize integrative drainage systems such as bioswales or erect street furniture that the city agency is unable to construct at the time.

### 8.3.2 SITE OPEN SPACES AT INTERSECTIONS BETWEEN USES, PREFERABLY BETWEEN DESTINATIONS AND TRANSIT NODES

Locating open spaces at nexuses will increase visibility of the open space and the volume of persons traversing it. This will allow more access to more patrons as well as employees, thereby boosting employee moral and also making these spaces safer for users. It also increases the visibility, attractiveness and patronage of nearby shops.

### 8.3.3 FIND PARTNERS IN FINANCE

The potential for financial partnerships is great, as they might benefit open space and transit by partnering with nearby developers or landowners to create connected open spaces. This would allow cooperative funding for construction and for maintenance. Developers must take care, however, to ensure that local zoning permits development of jointly-sited or jointly-created open spaces.

### 8.3.4 UTILIZE BENEFICIAL ZONING REGULATIONS SUCH AS TRANSFER OF DEVELOPMENT RIGHTS

Zoning regulations can be exploited to benefit both private developers, transit riders and open spaces. TDR will allow developers to develop near the downtown while still allowing preservation and creation of connections between open space, transit and destinations. TDR may be used to build higher or more densely, for example or to shift development to another parcel. However, TDR will also allow more space in densely developed areas by preserving and creating openness at such nodes. This would enhance the physical attractiveness and pleasance of Chicago’s Loop area for example, by increasing the light filtering into the area at ground level, as well as into office buildings now blocked by other structures (including the Loop itself).

### 8.4 RECOMMENDATIONS FOR FUTURE WORK

#### 8.4.1 MORE OBSERVATION

More information is needed on how residents, patrons and visitors use open spaces, and particularly access open spaces. Though many parks agencies
have surveyed their patrons to determine the activities they participate in, few know how they access open spaces because it is assumed that for regular access they will arrive by walking or driving. This is the case in instances where patrons are local residents or where parking facilities are ample and inexpensive. But parks agencies and environmental management agencies need to gain a better understanding of the real proportions. This might be a survey, but should also include actual visits to parks to determine more beyond stated preferences.

8.4.2 **More Research**

This topic has only begun to be recognized by urban planners, transportation professionals and urban residents. In order to better understand the intricacies of transportation access needs further data collection is needed. This might involve travel analyses that describe how and when patrons and employees move between residences, work, and destinations.

I would also encourage future research into the sheer numbers of park employees, their share in the population of those accessing parks and green spaces, and how their access patterns might differ from patrons who access parks for recreational or other non-work purposes. Due to maintenance schedules and peak park patronage times, facility employees may have very different access times, modes and curves from those of recreational patrons.

Information should be gathered on security measures in both parks and transit systems, funding mechanisms for measures described in this thesis as well as in other reports mentioned in this thesis, institutional constructs that facilitate collaboration, and finally combinations of transportation improvements that might lead to better connections between transportation networks and open space networks.

8.4.3 **Testing Design Guidelines**

Like all findings, these need to be tested. The reader will note that I have not offered specific dimensions for the design interventions mentioned in this report. Such information is extremely important to understand and incorporate into planning and design endeavours, but it is not the scope of this report. Both park/environmental management agencies and transportation agencies have established standards for widths of pedestrian pathways, bicycle paths and the like. Are these the same? If not, which of the two are more appropriate and under what conditions?

Specific interventions that could be explored further are those that contribute to safety considerations, such as lighting, mode separation, etc. as listed in section 4.3.6. In addition it would be helpful to gain a better understanding of accommodations to the station interior. While planners and developers spend a significant amount of time determining the course of development at transit nodes and engineers, architects and space planners spend an equally large amount of time determine optimum space for flows, but the station environment itself has only recently begun to truly emerge as an area for meaningful research. How might greenery be incorporated into station environments? Under what conditions might such integration be successful?
8.4.4 Expand the analysis

Transit-poor Communities. It would be interesting to engage in research of how these observations, findings and recommendations vary when comparing less dense environments, urban areas with less extensive transit service, and newer cities. This type of research might begin in much the same way that my report had begun, but rather than analyzing dense, transit-rich cities, it would be necessary to concentrate on similar or newly developing cities. The rationale for such an endeavor would be slightly different. Integration between networks would still be preferable to foster more livable communities, but suburban needs for open space connections are quite different when compared to those in urban environments. In such an endeavor, the researcher must analyze how transit agencies with lower mode shares can foster transit access to open space, with special consideration for those with little or no off-peak service. This type of research should also pay special attention to collaborations with road-based transportation providers.

Development Synergies. As described earlier in this thesis, many planning and transit agencies value density over open space at transit nodes, rather than density as well as open space at transit nodes. It would be helpful to gain a deeper understanding of criteria that will help to determine generally how much development is warranted in what settings within an order of magnitude or perhaps in proportions.

Special Events and special destinations. In addition, it would be helpful to understand how special event locations have fostered the use of collective transportation services such as trolley cars, tourist buses or shuttle services.

This might include an analysis of auto-restrictive parks such as Olympic Parks in Atlanta (Georgia USA) and Sydney (Australia), which are designed with a specific use and event in mind, and often large short-term events or occasional events. These types of spaces might differ greatly from special destinations such as the USA’s Yosemite National Park or Glacier National Park, which also draw patrons from long distances, but over a more constant period of time.

Accessibility curves. Determining accessibility curves warrant perhaps the most investigation. This is not meant to imply that other items suggested for future research are not worthy of more detailed analysis. Understanding how people truly access green space and other points of interest can only help to expand our awareness of how to structure transportation services. An endeavor into this research would likely include some level of modeling current travel patterns and access patterns based on the data and information collected (see above), not to prescribe systems operation or design, but to comprehend trends.

Hopefully such an investigation will lead to better understanding of planning for more sustainable, livable communities where complementary uses are not forced to compete with each other. Ideally, generating such information will instead lead to planning practices and policies that facilitate the synergies that are shared by mixed developments, greenery in the natural environment and sustainable modes of access to both.
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INTERNET RESOURCES


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City of Boston Department of Parks and Recreation. http://www.cityofboston.gov/parks/


Greenwich Peninsula Master Plan. http://www.greenwichpeninsula.co.uk/


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