Growing the New American Economy

Public-private partnerships for the development of Transit Greenways, Advanced TODs, the national multimodal transportation system and jobs for all Americans

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Abstract

As the new Obama-Biden Administration begins to plan for the implementation of a stimulus plan to jump-start the economy and create new jobs by various tax cuts and spending programs, this panel of experts shows how a multimodal approach could enhance the infrastructure benefits expected from the infrastructure expenditures proposed. By proposing unique public-private partnerships in connection with new transit communities, immediate and long-term economic growth can be projected. Specific methods, applications and implications are presented and discussed, and a specific stimulus policy is recommended.

Among the common themes that urban studies in America share, two are critically important. One is the need to return to denser urban planning, which contributes to economic development and commerce, while facilitating a high quality of life, social and economic integration, and environmental sensitivity. The second is the need to mitigate traffic congestion that has persisted even with the continuing expansion of the road network. Negative and destructive consequences from traffic congestion include: environmental and global weather consequences, public health threats, and productivity losses.

By coordinating investments in mass transit with housing and mixed-use development at passenger rail station sites and transit stops, passenger rail and transit use will significantly increase. Only by providing for high quality pedestrian linkages to and within these new American transit communities and providing for enhanced opportunities for higher education and job training, will such communities substantially contribute in the near and long term to growth of the economy. Only with a proper concern for the impacts of such built environments, will the quality of life for residents and visitors be improved and sustainable natural environments preserved.

Merely rebuilding aging bridges, rail beds, and creating new highways will not solve our mobility, energy, and economic problems. A change from past transportation and community planning is necessary and a new integration of policy, political, and implementation efforts must evolve. Public-private partnerships leverage public investment and allow market-based economics to support synergies of interest. Substantial public investments in infrastructure serve as the catalyst. By focusing on pedestrian urban mobility, education and a decision to build a globally competitive multimodal transportation system, we can move people to employment through investment in infrastructure, growth in the economy, and predictable improvements in the quality of life.

The authors (26 individuals with expertise in community development, public finance, and public policy development) welcome opportunities to discuss these matters with national and state policy makers. The following article describes proposed tools for economic growth and the preferred community in the 21st Century and clearly defines these unique pedestrian-oriented, educationally-enhanced transit communities. The Author Resumé Statements, Endnotes and Appendices are available from Tom Gustafson on request at: tgiscis@aol.com or tgustafs@nova.edu.
Growing the New American Economy

Public-private partnerships for the development of Transit Greenways, Advanced TODs, the national multimodal transportation system, and jobs for all Americans

By:


Introduction

Proposed Stimulus Policy: Federal funds provided by the American Recovery and Reinvestment Act should be collectively examined by state and local officials to determine if the infrastructure projects to be funded can be combined to provide for the development of transit greenways and to establish a public-private partnership plan for the development of Advanced TODs that will help to grow the new American economy.

President Barak Obama has clearly stated that one of his main goals is to determine how best to grow the American economy. The new administration and members of Congress are hard at work to timely frame such strategies. The stimulus package is one of three requirements the President has suggested he needs for a fully implemented economic recovery (the other two being getting the credit markets working again and fixing the collapsed housing market).
It is the intent of this paper to recommend the above \textit{stimulus policy} in order to fund at least 12 transit greenway projects (\$624 million of stimulus projects that would need to be coordinated for this purpose by state and local officials) and to plan for at least 36 related pedestrian-oriented, educationally-enhanced, mixed-mode and mixed-use transit oriented developments within compact urban centers (Advanced TOD’s) through the establishment of private-public partnerships. Transit greenway and Advanced TODs are comprehensively described in Sections 1, 2 and 3 below.

The 36 Advanced TODs plans would include ample structured parking and a request to authorize the use approximately \$3.9 billion in transportation trust funds when the Safe, Accountable, Flexible, and Efficient Transportation Act: A Legacy for Users (SAFETEA-LU) is reauthorized in October 2009\textsuperscript{2}. Such governmental funds would pay for the specialized infrastructure during the six year term of the new federal transportation act in partnership with real estate developers who would build with private sector funds the mixed-use facilities associated with these transit-related urban centers (\$7.8 billion).

This strategy will establish the financial basis for superior access to an emerging national multimodal transportation system and an exceptional platform for higher education and jobs training. The jobs created when building and operating these new American transit communities and associated business activities will grow the new American economy. Advanced TODs will help to alleviate the housing problems and provide the American banking institutions with very credit worthy projects.

\begin{wrapfigure}{r}{0.45\textwidth}
\centering
\includegraphics[width=\textwidth]{image.png}
\caption{All over Europe (in this case, Palma de Mallorca), typical public areas are special places within the urban fabric. Such places exist in America less frequently and that sours the public psyche in many ways. In the public spaces between the buildings of a sustainable urban environment, a community dialogue develops from the many intended, random and intermittent positive social inter-actions that frequently occur. Public wealth forms from the advancements of thought arising from such discussions. By adding higher education facilities to the mix along with state of the practice science parks components, the economy will grow with the expanding educated work force and the urban mobility arising from a multimodal transportation system linked to such places. Such a transportation and education policy when applied to the pending federal stimulus and transportation legislation will sustain our economic growth into the next century.}
\end{wrapfigure}
Section 1:
What America Needs Now

Real and sustainable economic growth can best be realized in the 21st Century by changing the way America builds and redevelops its communities. This can be best undertaken by building transit greenways for immediate economic stimulus and establishing public-private partnerships to plan and build Advanced TODs that become, over the next few years, the new American transit communities that grow the economy over the next 50 years.

What America needs right now is an immediate stimulant for the economy and specific near-term actions that will over time change the way America does business. It is also important to select stimulus strategies that will improve the productivity and skills of American workers over the longer term of our recovery and reinvestment in America given the economic constraints, challenges, and opportunities that confront us in the world today.3

Instead of determining what will immediately grow the economy, maybe a better question to answer is: How do we best grow a sustainable economy starting today?

When answering this question, if must be recognized that some strategies need to start small and be allowed time to bloom. After planting a small seed, it must be given continuing support so that the concept can grow to sufficient size to impact the new American economy.

Both short-term and long-term economic growth should be pursued with equal vigor, especially when a single strategy accomplishes both goals.

21st Century Infrastructure:

It is obvious to international travelers that America has been losing its infrastructure advantage over other developed counties. This is true not only in terms of the quality and adequacy of American roads and bridges that defined the 20th Century, but also in the infrastructure which defines the 21st Century. For example, multimodal
transportation systems, fiber optic connectivity, access to mass data storage, space-based communications, sustainable power and resilient energy distribution networks are considered important parts of any 21st Century community infrastructure. While American technology and expertise in these areas is advanced, we have no solid claim to consistent and superior installations of such 21st Century infrastructure across America.

To grow the economy, it is therefore important to establish federal policies and directives that provide for a selection of infrastructure projects that not only produce immediate jobs, but also help America remain competitive in the global marketplace. Such policy directives should recognize that typical 20th Century infrastructure projects may not be the best way to produce sustained growth in the economy and good jobs for all Americans. It must also be acknowledged that the costs and time to repair our old and install our new infrastructure will be very long and involve many years of focused planning and construction. Finally, it must be recognized that America can not afford to repair its 20th or 21st Century infrastructure until it finds a way to grow the economy right now and continue economic growth for the foreseeable future.

As fully discussed below, given such an infrastructure decision matrix, it is fair to conclude that transit greenways and Advanced TODs are the best way to grow the new American economy in the near term as well as for the next 50 years. It is the best way to begin to build the 21st Century infrastructure we will need as part of the long-term economic recovery and reinvestment in America.

**New American Transit Communities:**

These new pedestrian-oriented, educationally-enhanced, transit communities need to empower and inspire people to improve their productivity, while reducing consumption. They must be diverse and culturally exciting communities largely free of crime. They must also constitute ideal healthy walking environments, provide significant higher education and job training opportunities, and improve our quality of life. They must have the capacity to sustain themselves and grow for the next 50 years.

To secure America’s continuing prosperity, these new or redeveloped *Jane Jacobs* inspired American transit communities must be located adjacent to transit stops and passenger rail stations as:

- A compact arrangement of mixed-use buildings positioned around narrow and linked parking structures and pedestrian areas that initially occupy a 20 acre urban center site. These mixed-use buildings line the perimeter of the parking structures (liner buildings) and provide appealing store fronts facing the traffic-
calmed streets\textsuperscript{7} that circulate cars into and out of the parking structures and the mixed-mode streets\textsuperscript{8} that lead pedestrians to carfree plazas and courtyards\textsuperscript{9}.

- Specialized multi-use greenways or linear parks (transit greenways\textsuperscript{10}) that radiate outwardly to form large-scale pedestrian-oriented environments that access significant suburban destinations located within a two mile radius of the urban center using narrow gauge rail parking shuttles or similar vehicles.\textsuperscript{11}

- Components of the state of the practice science parks and easily accessible opportunities for higher education and job training within the urban center.

This new urban center and transit greenway complex provides large-scale pedestrian access to support a much larger multimodal transportation system then we currently possess. They would be built by organizing public-private partnerships to supply the required construction and operating funds (e.g., two-thirds private sources, one-third governmental grants). Such arrangements would fully use available market forces to develop these new American transit communities (see Public-Private Partnerships Funding subsection at page 20).

Some experts in urban planning will suggest that much has been written on the subject of transit communities and that there is nothing further to add to this discussion. A careful reading of the materials to follow will suggest otherwise. This paper provides unique descriptions of what should be built and discusses innovative ways for federal, state and local governments to partner with the private sector to grow small infrastructure investments in American communities into much larger engines of the American economy.

With a grand vision of the future for American productivity and prosperity, we will need a clear national policy that empowers the states, local communities, and the business sector to make the right local decisions and collectively impact the nation. Each American community needs to be asked to build one project at a time and find the right mix of development, education, job training, and mobility that will grow the economy today and in future generations.

We can recover from the current economic crisis best by having many communities collectively engage with the business sector in the community building and redevelopment until these initial efforts grow the many new American transit communities we will need over the next 50 years.
As depicted by the image below, the proper foundation for sustainable economic growth will require America to commit to the use of transit greenways and public-private partnerships that will build and operate a complex of pedestrian-oriented, educationally-enhanced, mixed-mode and mixed-use, transit oriented development within a compact urban center that effectively link our highway system to a national multimodal transportation system.\textsuperscript{12} Referenced as Advanced TODs, they represent the next generation of transit oriented development.

This diagram depicts how cars and trucks would drive to, but not through, these very compact urban centers. After arriving via traffic-calmed streets or otherwise, cars would proceed to or through the narrow and linked parking structures and would exit from a different parking structure linked to the first and depart the urban center via a traffic-calmed street or otherwise. This allows for superior pedestrian access to the transit stops and train stations provided via the traffic-calmed streets, transit greenways, mixed-mode streets, and carfree pedestrian corridors, courtyards and plazas. These transit greenways would extend outwardly from the urban center to provide linkages to significant destinations using narrow gauge rail parking shuttles or similar transit greenway vehicles. Narrow and linked parking structures with mixed-use liner buildings along their perimeters would frame the traffic-calmed streets, mixed-mode streets and carfree pedestrian areas to provide ideal walking conditions to the transit stops and train stations within the urban centers.

This change in community building should be undertaken immediately through the provisions of the American Recovery and Reinvestment Act slated for enactment in February 2009 and through the reauthorization of the SAFETEA-LU when enacted next October 2009.
This paper will explain why sustained economic growth can best be structured through the establishment of public-private partnerships that could build these new American transit communities.

As infrastructure projects to stimulate the economy are selected and built, thought should be given to the degree that the stimulus projects:

- Collectively produce **4 million or more new jobs**
- Produce a sustainable growing economy that can retire the national debt
- Provide for a means to measure success
- Identify project managers that can be held accountable for performance

Building the essential infrastructural components of these new American transit communities will provide economic growth that can be immediately realized and that will be continued over the next 50 years or more.

Place Jacques-Cartier is a plaza located in the historic section of Montreal at the entrance to the Old Port of Montreal. While committed to pedestrian use in the summer, it retains its street and wide sidewalk configuration for automotive use during the rest of the year. The street hosts many artists, kiosks, and facilities to provide various commodities and services in response to their needs. Small cobblestone side streets, with one-way slowly moving traffic and parallel parking, extend outwardly from the square providing Montreal residents and visitors with access to many other stores, restaurants, offices, and residences. This multiple use of the same outdoor space is frequently used in Europe so the same public square is used for marketing in the morning, lunch in the afternoon, and festivals in the evening. In this case, the plaza reverts to street origins each year as summer comes to a close, the winter chill drives away the customers, and the need to move goods overrides the urge to keep the Place Jacques-Cartier free from traffic. This bifurcated use space for pedestrians and traffic can also be seen where delivery trucks use pedestrian and mixed-mode streets before 8:00 AM for deliveries and then give way to pedestrians as they make their way to work for the day. The Yamato Road Tri-Rail Station Development Proposal makes use of this strategy with two mixed-mode streets that arrive at the central pedestrian only-plaza adjacent the Tri-Rail Station. These corridors are carfree areas during the day and evening to bring people to the plaza and they are designed to be used by delivery trucks each morning for the residents and businesses within the Advanced TOD. See page 14.
Section 2:

A Case for Advanced TODs and Transit Greenways

Americans will need infrastructure changes to grow the economy in the 21st Century and the education and skills required for a well paid workforce. Projects organized to build transit greenways and Advanced TODs, which support large-scale pedestrian-access to a functioning multimodal system of transportation for an educationally engaged urban populace, will provide that change.

City building is not as well understood as town planning by many professionals in the field. While America has internationally renowned architects, engineers, landscape architects, and planners, our cities fall short when compared to world-class European and Asian cities. More and more, the very best quality of life, productivity, and mobility is found elsewhere. We dare not allow the phase “No longer available in America” to be applied to modern necessities and conveniences of our cities.

Many informed urban planners and transportation planning experts now point to sustainable, livable or transit oriented design communities as a way to rebuild American urban centers. They suggest that we can best reduce traffic congestion and its adverse impacts and costs by driving less and using alternate modes of transport more.

The issue is significant given the estimated cost of congestion in 2003 was $69.5 billion per year using data from 2001 obtained from 75 of the Nation’s large urban areas. In 2007 (using data from 2005) that cost estimate grew to $78 billion per year. This corresponds to 3.5 billion hours of delay and 5.7 billion gallons of excess fuel consumed in 2001 and 4.2 billion lost hours and 2.9 billion gallons of wasted fuel in 2005.14

In addition, a continued reliance on the car and truck for most movement in America has many other significant and probably more costly impacts (e.g., air quality, the environment, traffic mortality rates, health care, and global weather); costs that should no longer be borne by the American people. Certainly America, with its substantial transportation trust fund, could easily afford to build communities that have all these sustainable, livable and transit accessible qualities and built-in cost avoidances.
What is missing to change the American condition is a clearly announced transportation plan by the U.S. President to implement what has recently been discovered about successful transit oriented design communities. What is missing so far is the will to rid America of its wasteful ways that make any economic progress hard to comprehend.

Without an expression by President Obama that he wishes to pursue an objective that involves building new American transit communities no change will occur. Without a change in direction, the ongoing and automatic expenditure of most of the transportation trust funds on roads and bridges as they have been built for the last 50 years will continue. The adverse consequences of continuing 55 year-old transportation policies will be significant; the American economy will not grow in the short-term or long-term.

Without a change in the kind of infrastructure we build and that defines our communities, there can be no rapid or cost effective change in the skill sets of most Americans that must now compete in the global work force.

While America’s transportation trust funds are currently used to build roads, bridges, and transit systems, existing laws allow for the funding of all the components that make up transit greenways and Advanced TODs. With no affirmative policy statement to do otherwise, roads, bridges, and transit expenditures will continue year after year based upon national policy established over fifty-five years ago by President Dwight D. Eisenhower (as to the Interstate Highway System) and over 45 years ago by President John F. Kennedy (as to urban mass transit).

Efforts to establish multimodal transportation system requirements have been weakly expressed in federal law and policy and certainly no federal law or statement has yet directed the United States to make major investments to build transit greenways or Advanced TODs (or similar TOD-related improvements). This represents a half century of American policy silence and continuation of the status quo, while Europe and Asia progressed beyond road building and spent the last 45 years developing their soon to be completed multinational multimodal transportation system.

Starting with a discussion about transit oriented design or development (TODs), the following will present a case for transit greenways and public-private partnerships that develop Advanced TODs as a way to build our cities, grow the new American economy, and effectively connect America to the current fragments of our nascent multimodal transportation system. It will be further suggested that the customer base for the current Amtrak, regional passenger rail service, metropolitan fixed-guideway transit, and bus transit, can by this means be expanded to justify and help pay for a fully implemented
national multimodal system, including the necessary implementation of high speed rail service.

**TODs:**

Advocates for TODs and public transit frequently suggest both transit systems and TODs are important to the American economy. There is general agreement in the public transit community that TODs will significantly improve pedestrian and bicycle access to transit. Encouraging transit ridership and the use of other modes of transport, reducing automotive trips, and generating non-farebox revenue for transit systems are suggested outcomes with the establishment of TODs.

With TODs, people move through dense, mixed-use development within a ¼ to ½ mile walking distance from a train station or transit stop. This represents ample opportunity for retail and cultural activities to blossom over a relatively large urbanized area of ¼ square mile to one square mile or approximately 16 to 64 city blocks. TODs require high quality transit and train systems that transport people from one TOD to the next and therefore allows a higher quality of life without complete dependence upon the car for mobility and survival. TODs greatly reduce the need for driving and the burning of fossil fuels. TODs provide to active citizenry a rich mix of housing, shopping, work, and transportation options to satisfy their specific needs.

Within a TOD: buildings are located much nearer the streets; less private and more public space exists; and, small blocks, narrow streets, wider sidewalks, street trees and lights are present. Lower parking ratios, shared parking, parking behind buildings and on-street parallel parking are typical. TODs tend to generate higher property values and revenue for the public and private sector. A TOD may be a single or group of buildings or a multiple block district where people are actively walking from one destination to the next from early morning to late in the night. For this reason, the public areas are safer and customers are provided to transit at both peak and off-peak hours.

It must be recognized that people coming from suburban areas to urban centers need many places where they can park their cars and walk: without fear from oncoming traffic; without annoyance from excessive noise and unpleasant smells; without the heat of the day or the discomfort that arises from cold, windy or wet conditions. There must be light, landscaping, open doors and windows, well-behaved people and mixed-modes of transport to extend the walk or ride to any destination. It must also be understood that the very presence of young people who are pursuing higher education and job training represent, at a molecular level, the lubricant that prevents such dense communities
from becoming slums and distressed properties over time (properties that are worn out so that it no longer functions well in economic terms due to physical and social decay).

**ADVANCED TODs:**

Given the complexity of urban needs, the value of a strategy that would focus on the relatively simple efforts to first build transit greenways, and to thereafter fund the transportation components of a more compact, multidimensional, and cost efficient TODs (an Advanced TOD)\(^{23}\) should become more obvious. Transit greenways and planning for Advanced TODs would likely meet federal policy and criteria established to identify stimulus projects (immediate or near term jobs and economic growth). These transit greenway and Advanced TOD projects will quickly grow the size and value as a new American transit community.

Advocates who are independently seeking increased federal funding for traditional road and bridge infrastructure, pedestrian-oriented livable communities, for educational enhancements and career training, or for transit and passenger rail systems, including high speed rail systems, should coordinate their efforts in support of such stimulus funded transit greenways.\(^{24}\) A motivation for such joint efforts comes from the fact that traffic-calmed streets, mixed-mode streets, pedestrian-oriented corridors, courtyards and plazas, and narrow and linked parking structures are very useful to transit systems (due
to an expected increased customer base), they are very kind to the environment and they can be built by the same contractors who historically built our roads and bridges.

Advanced TODs are distinguishable from TOD descriptions in current literature due to several unique components (transit greenways, narrow gauge rail parking shuttles or similar transit greenway vehicles, abundant structured parking, carfree mixed-use urban centers, plazas, corridors, courtyards and mixed mode-streets and education and trade school uses). These narrow easy to build infrastructure projects can all be funded through either the coordination of stimulus projects or by transportation trust funds associated with the reauthorization of the SAFETEA-LU legislation. Even higher education and trade schools can be funded through a thoughtful use of Advanced TOD funding strategies.

Advanced TODs can be developed by the following steps:

1. The listing of “ready to go” projects identified by state and local governments throughout the nation represent useful but isolated improvements that are not likely to rise to the level of improvements that will stimulate or sustain a growing economy. When road, bridge, landscape, streetscape, sidewalk, parking, transit stop and train station improvements are organized for a single collective use, however, they can be very useful. In the case where such funds are used to build transit greenways and plan for Advanced TODs, these projects that will grow the economy. Improving the fundamental pedestrian conditions in the urban site at or adjacent transit stops and train stations can induce large-scale pedestrian movements that support enhanced transit access and growth in the economy. Such economic growth can be accurately projected based upon the understanding of values associated with properly developed cities and their role in the economy. Such stimulus and transportation projects, when properly organized, are but components of the transit greenway projects and Advanced TODs.

2. Advanced TODs should include facilities that specifically provide enhanced opportunities for higher education and job training. Affordable student housing, classrooms and lecture halls should be built as part of the civic and entertainment fabric of the Advanced TODs. Cultural and social events, markets or restaurants, consistent with student interests, should be included in specific Advanced TODs proposals.

3. Advanced TODs, when positioned along a regional transit or rail corridor, need to collectively include components of the state of the practice science parks as evidenced by case studies of successful international science parks.
4. Advanced TODs and transit greenways should link within an urban center and outwardly to the broader community and major destinations that provide opportunities for work and job training. Trade schools that are established within such communities prepare the populace with skills needed within the Advanced TODs and broader community. These jobs may involve: computer and technology services; culinary arts; craftsmanship; the fine arts; facility/systems operations and maintenance; medical services; office and administrative work; child care and after school programs; construction, plumbing and electrical trades; retail services; and all the other trades that are required in the modern world.

5. Road and bridge improvements are part of the mix, but should not dominate the transportation expenditures. Instead of taking a position responsive to either traditional bias or any of the several industry-led interest groups (roads and bridges versus transit expenditures), transit greenways, narrow and linked parking structures, mixed-mode streets, pedestrian corridors and carfree plazas should be built to improve existing TODs or build new Advanced TODs. By these means traffic congestion is mitigated (most car trips become multimodal trips) without building new roads or widening the road network. Such a strategy is already authorized by federal law and can be implemented through the approvals of the U.S. Department of Transportation Secretary. Such a policy will keep the road construction industry busy at what they do best (building transportation-related structures), while filling the trains and other elements of a multimodal transportation system with paying customers.

Through close attention to development details, transit greenways and Advanced TODs can cause large numbers of people to walk longer than typical distances (beyond the expected ¼ mile or ½ mile walk). The urban center, with its many destinations responsive to the daily needs of the traveling public, holds larger numbers of people than expected who congregate in the plazas before they become transit and train customers.

While traditional TODs require a commitment of many hundreds of millions of dollars to retrofit larger urban centers for pedestrian movements and many years of community planning, small compact Advanced TODs (20 acres or so in size that cost somewhere in the $300 million range) will be easier and less expensive to implement. In addition, assuming Advanced TOD budgets will involve more private funding then governmental, transportation trust funds available when SAFETEA-LU expires September 30, 2009 can be newly authorized to pay for the transportation infrastructure-related costs of Advanced TODs (estimated to be about one-third of total cost of an Advanced TOD).
Advanced TODs should be developed in many urban and intercity locations where the job market is most challenging. These new American transit communities will be able to grow over time and continue to provide good jobs as more parking structures and related infrastructure is approved to be built adjacent the transit greenways using transportation trust funds and developers are identified who will build the related mixed-use liner buildings and destination buildings. This growth pattern will ideally occur in more or less concentric rings outwardly from the original 20 acre Advanced TOD development site.

These very livable communities will over time function as intermodal systems for a globally competitive national multimodal transportation system and as an instrument for...
the financial, educational, physical, emotional, societal and cultural advancement of all Americans in a New Inventive Age.  

TRANSIT GREENWAYS:

Transit greenways are linear parks (wide sidewalks with lighting, landscaping, hardscaping and the like) that provide space for walking, bicycling, and small specially designed pedestrian-oriented transit vehicles. They have a tremendous capacity for the movement of people in large numbers.

While working on a project to improve Sunrise Boulevard in Fort Lauderdale, FL, in 1997, the idea to propose a greenway corridor that was also a transit corridor was born based upon the need to seek significant funding. It was thought that there would be more money available for a transit greenway corridor than was available for a greenway corridor. In the ensuing 12 years, communities around the county have sought transit greenway funding, several have secured funding, but none have been built. By adding a transit greenway as a part of advanced TODs, significant benefits arise and multimodal transportation and economic growth in the 21st Century becomes possible. By linking destinations to multiple modes of transportation and well-designed, educationally-enriched, pedestrian-oriented urban centers, a new community paradigm will arise.

Transit greenways are relatively inexpensive (at $6 million per mile or less when compared to $50 to $100 million dollars per mile for traditional light rail installations) and transit greenway projects can be quickly undertaken using federal stimulus funds before the Advanced TODs are built. These transit greenways will assure immediate improvements in the customer base of transit, passenger trains, and other elements of the multimodal system and will form the DNA from whence the Advanced TODs will be born and grow.

Transit greenways, extending outwardly within a two mile radius, provide linkages to major suburban destinations. The number of transit customers, with an easy walk and ride to the Advanced TOD and related transit stops and train stations, will thereby increase. In addition, the transit greenway will provide a basis to grow the Advanced TODs outwardly of their original boundaries through long-term development strategies.
that place narrow and linked parking structures, mixed-mode streets, pedestrian corridors, liner buildings, plazas and courtyards adjacent the transit greenways. The road grid used in typical American cities and suburbs would be incrementally redeveloped into traffic-calmed streets that lead to and away from the narrowed parking structures and Advanced TODs. These evolved roadways would thereby be rebuilt over time to go to, but not through, the expanding urban centers.32

Transit greenways become the mixed-mode streets of an Advanced TOD once the initial Advanced TOD (built on 20 acres site or less), grows outwardly through the use of transportation trust funds to build Advanced TOD infrastructure while the private sector builds the mixed-use liner buildings that surround the parking structures that are privately funded and built. The liner buildings face the plazas, pedestrian corridors, mixed-mode streets, and traffic-calmed streets, so that the large-scale pedestrian movements are supported and encouraged in order to cause a significant increase in transit access to occur.

This represents a less expensive and better way to improve access to the transit stops and train stations and provides a basis for new jobs that operate the transit greenway and narrow gauge rail parking shuttle vehicles. More significantly, many more jobs arise from the continued urban center growth and the economy will grow as this sustainable urban center expands.

As transit greenways enter an urban center and become mixed-mode streets, they tend to converge at the plazas that front the regional transit stops and train stations. As large numbers of pedestrians converge at that one location, they “gather” at the transit stop or train station and increase passenger rail ridership.

These thousands of pedestrians that surge into the plaza are temporarily held in place, not only by the physical beauty of the public space (architecture, streetscaping, landscaping, store windows, sidewalk cafes and vendors, and urban adapted wildlife), but also because a properly designed and positioned plaza becomes an attractive social center in its own right. It becomes “a place for dialogue and discussion, meetings and greetings, for shared experiences and forming bonds…This significant conversation and dialogue…creates community. [By such means, a plaza can become]…a powerful context for socialization, acculturation, and democratization of society”.33

Such transit greenway and Advanced TOD strategies will likely cause:

- Significant increases to the quality and size of transit access
- Social integration
- Reduction in traffic congestion and related air quality problems
Growing the New American Economy 02.12.2009

- Inexpensive alternatives to housing, mobility and educational needs

With air quality improvements and more quality time with family and friends, significant health improvements can be projected. Property values in the well-managed urban centers will increase and it would be expected that there will be an overall increase in the reliability, redundancy, resiliency of the existing elements of America’s multimodal transportation system (e.g., Amtrak, regional passenger rail service, metropolitan fixed-guideway transit, and bus transit). These air quality improvements, increases in property values, quality time not wasted in traffic, and other transit greenway and Advanced TOD benefits will accompany the general improvement to social conditions and economic growth.

More specifically, for every $260,000 of stimulus funding spent on transit greenways, one permanent transit greenway operations and maintenance job (about four sustainable jobs for every million dollars of transit greenway stimulus funding) will be created in 2009. In addition, there will be many more jobs that will arise from the growth in and inherent benefits to the community that such infrastructure will cause. Many more construction and community based jobs will be created due to development and growth of the Advanced TODs using SAFETEA-LU funding when authorized in October 2009.

These results can be assured when stimulus and transportation funds are programmed to:

- Start with an affordable network of transit greenways that extend from underperforming transit stops and train stations
- Spread transit greenway funding to 12 locations across America with a requirement that local communities involved develop a plan for Advanced TODs that would improve properties adjacent the transit stops and train stations assuming at least 20 acres of development per site
- Assume a funding request for 36 Advanced TODs that would seek federal transportation trust funds for the parking structures, traffic-calmed streets, mixed-mode streets, corridors, plazas, and parking shuttle transit greenway systems for consideration during the reauthorization of SAFETEA-LU
- Require a public-private partnership for the development and operation of all transit greenway and Advanced TOD components (publicly owned assets built and operated by the private sector for a fair fee and with bonuses provided for growing property values or some other element of the economy beyond expectations)
- Plan to grow 36 Advanced TODs outwardly along the perimeter of the transit greenway system over the next 50 years
We suggest the federal government launch a coordinated national funding policy directing stimulus infrastructure projects including streets, bridges, sidewalks, landscaping, transit stops, and train stations be built to represent all the components of a system of transit greenways.

The policy would require local communities who develop transit greenway projects, to plan for the development of the many components of one or more Advanced TODs. The Advanced TODs would be built in part using federal funds provided in October 2009 with the reauthorization of SAFETEA-LU. The Advanced TOD components would include: an expanded transit greenway network, narrow gauge rail parking shuttles, narrow and linked parking structures, mixed-mode streets, pedestrian corridors and carfree plazas. This built environment would frame educationally-enhanced pedestrian-oriented communities containing components of the state of the practice science parks.

In Zurich, Switzerland all trams operate on a meter gauge track (there is a one meter separation between tracks). The vehicles are narrower than American transit by several feet and therefore the trams represent less of a threat to passengers as they walk the street before entering the vehicles. 65% of the people commuting within the city do so by public transit. With one of the world’s highest standards of living, Zurich’s citizens choose transit because it is convenient and because the intermittent walking experience is enjoyable. The Zurich meter-gauge tram system was built at a fraction of the cost of standard gauge systems or subways. It links to a national and European multimodal transportation system by pedestrian movements at transit stations.

It is fully expected that many opportunities will arise to improve the qualities and expand the reach of an Advanced TOD and related transit greenways. By these means, transit and passenger train systems connected to ports and airports will represent a fully optimized multimodal system of transport providing the mobility and social integration essential for economic growth.

Such transit greenway infrastructure stimulus will not be limited to short-term economic impacts of borrowed federal funds and it will involve, through Advanced TODs, a significant involvement by private capital. Initial transit greenway stimulus projects will
spawn far larger and economically significant Advanced TODs and will therefore help to establish a proper foundation for long-term economic growth and job opportunities for all Americans. By way of these mobility improvements and academically-enhanced livable community environments, Americans will prosper again.

These Advanced TODs and transit greenway networks will have immediate positive impacts on the local economy as jobs are immediately created and filled and supplies are immediately required and delivered for “ready to go” projects. There will be no short-term adverse economic impact due to construction disruptions. Much of the transit greenway will be constructed at night or within warehouses equipped for purposes of fabricating the narrow gauge vehicles and rail assemblies.

Positive long-term impacts on the new American economy are expected when Advanced TODs are built and stores, offices, residential units and businesses are occupied. Such Advanced TODs will also provide a long-term foundation for economic growth through the establishment of a mobile educated populace in very livable communities.

The benefits that arise from transit greenway projects and Advanced TODs should put any possible transit greenway project high on the list of stimulus projects. It is recognized, however, that any transit greenway implementation must become established not by any federal earmark process, but instead by the statement of public policy such as:

**Proposed Stimulus Policy:** Federal funds provided by the American Recovery and Reinvestment Act should be collectively examined by state and local officials to determined if the infrastructure projects to be funded can be combined to provide for the development of transit greenways and to establish a plan for the development of Advanced TODs that will help to grow the new American economy.

By first providing stimulus funds for coordinated transit greenway projects, the federal government can request or require local planning for Advanced TODs that would arrange with the development community for funding matched in part through the SAFETEA-LU reauthorization legislation scheduled for reenactment by October 2009 (assume one-third of total funding is governmental and that two-thirds of total funding is from the private sector).

A properly organized public-private partnership can be used to achieve the full array of expected transportation, social, and economic benefits derived from Advanced TODs and transit greenways and the specifics of such arrangements are explored below.
Section 3 will further discuss the specific transit greenway characteristics and strategies in greater detail and will examine how the critical elements can be established over time.

**PUBLIC-PRIVATE PARTNERSHIP FUNDING:**

Public-private partnerships can develop and manage these new American transit communities and regional or high speed rail transit corridors with private sector efficiencies and well-stated public policy-oriented performance requirements that clearly define the expected outcomes from the governmental services contract.

The Advanced TODs must integrate as a single pedestrian-oriented operating system transit greenway and mixed-mode street walking environments, narrow and linked parking structures and the superior access via pedestrian plazas, courtyards and corridors to train stations and transit stops that receive and discharge frequent, clean, and on time regional passenger rail vehicles. Higher education and job training must be incorporated into the pedestrian-oriented public space and building purposes. Public-private partnerships, when such outcomes are clearly agreed upon, can best manage the complex relationships between the transportation and land development elements of a successful multimodal transportation system.

The parking structure, transit greenway, plaza, mixed-mode streets, and traffic-calmed streets infrastructure improvements need to be matched with mixed-use liner buildings that are privately developed, but built so that all the components of an Advanced TOD can be coordinated. Densely built properties will over time become undesirable, distressed, and crime ridden, unless long-term management is in place to maintain the high quality public space, maximize the revenues and achieve other benefits of such new American transit communities.

Transit and passenger rail service, when operated as a stand alone entity, will always lack the ridership to assure its financial survival even if operated professionally and therefore it can never really help grow the economy when operating independently of the communities it links.

To start moving in the right direction, federal funding available in February 2009 from the stimulus legislation should be used for the initial transit greenway projects. At least 12 prototype transit greenways projects can be developed to provide the proper foundation for 36 educationally-enhanced, urbanized transit communities. Based upon estimates developed for various proposed transit greenways, assume for every eight miles of transit greenway, $52 million\(^38\) will be spent so that 12 transit greenways would cost $624 million dollars. Such transit greenway projects are easily and quickly installed.
as simple pedestrian improvements (landscaping, hardscape installation, wider sidewalk, plazas and minor street alterations).

Additional federal funds becoming available in October 2009 by way of the reauthorization of SAFETEA-LU (federal transportation trust funds authorization legislation) can be used to build the structured parking, plazas, mixed-mode streets, and other pedestrian-oriented components of this new American transit community.

Expected funding for Advanced TODs would be approximately $326 million per 20 acre sized Advanced TOD or $11.736 billion for 36 Advanced TODs. Approximately one-third of the expected Advanced TOD costs would likely be spent on parking structures, plazas, mixed-mode streets and further transit greenway improvements (about $3.9 billion in transportation trust funds over a five year term) and two-thirds of the expected Advanced TOD costs would likely be spent using private sectors funds ($7.8 billion) on mixed-use liner and various destination buildings from private development funds (except as to already programmed public use buildings such a libraries, museums, schools, medical facilities, civic centers, or other government buildings appropriate for the area).

These two federally funded efforts (right now stimulus funds and longer term transportation trust funds to be spent over a six year time frame beginning October 2009) will help to grow the new American economy when components of an Advanced TOD include state of the practice science parks and platforms for higher educational and job training.

To accomplish economic growth through the specified transit community development strategies, transit greenway and Advanced TODs need be specifically mentioned in federal policy documents as expected outcomes or in the language of the American Recovery and Reinvestment Act. Specific mention of public-private partnerships and the parameters of these agreements can wait until SAFETEA-LU reauthorization legislation is being discussed, but it is safe to say such public-private agreements should provide at least the following:

- Performance-based measurements need to include:
  - **Operational conditions** (on-time arrivals, clean and well maintained equipment and facilities, customer satisfaction, successful capital expansions);
  - **Economic measurements of success** (passenger revenues, property values, job growth, gross sales, gross income and the distribution of income levels); and,
  - **Social indicators** (crime statistics, high school and college graduation percentages, low birth weight babies, homelessness).
Management of passenger rail service and Advanced TOD operations would require long-term coordination through an agreement that pays management for expected performance and rewards management for performance above expectations.

Recognition that the government service being sought is the effective and efficient combining of transportation services with Advanced TOD development and long-term operations.

Such public-private partnerships can be directed to help America grow and prosper, not just run trains and develop residential and commercial properties; profits from such efforts must be structured so they are highest when the entire system of mobility and community building works best and achieves all identified objectives: economic growth, mobility, and social and educational advancement. By these means, government and private assets can be properly managed and used to grow the new American economy.

Such policy or law references would hopefully recognize that as the newly built American transit communities interact with higher education and trade schools, they will support the development of the knowledge and skills important to the people of America and the world. With deeper knowledge and greater skills, Americans will be able to compete well in global economies. In this way, America will grow and prosper in a New Inventive Age that will span the 21st Century.

Over time, improvements to this urban form (transit greenways and Advanced TODs) will be discovered. As lessons from the Preferred Community Development in the 21st Century are learned in the United States, they will pass to other nations, cities and towns around the globe.

Given the funding that will shortly be committed to infrastructure improvements in the American Recovery and Reinvestment Act (some projects will likely be configured as improvements to streets, bridges and an assortment of streetscape, transit, landscape, sidewalk, and transit improvements), some time should be spent determining if any of these projects should be coordinated and organized to fund transit greenways to be built within the next 12 months. Stimulus bill language and U.S. Department of Transportation policies should be crafted requiring planning efforts to be undertaken for Advanced TODs to be built within the next three to five years by way of public-private partnerships.

Such coordination between stimulus projects and transportation trust funds will optimize federal, state and local governmental efforts to grow the economy in partnership with the private sector through the development of retail, office, child care, medical, residential, financial, entertainment, higher education and trade school uses within these new...
American transit communities. For this reason, Advanced TODs associated with existing or soon to be implemented passenger rail systems should be favored and prioritized by way of federal policy stated within the American Recovery and Reinvestment Act and related documents.

Further, preparations must begin now to determine where additional Advanced TODs and transit greenways should be planned and funded as part of the SAFETEA-LU reauthorizations scheduled for October 1, 2009. While the development of transit greenways and Advanced TODs may not be the only way to grow the economy, they fit very well within the stated goals expressed by the President and as further articulated in the recently published “The Job Impact of the American Recovery and Reinvestment Plan (January 9, 2009).

By development of such transportation improvements and educationally-enhanced and pedestrian-oriented intermodal communities, jobs across a diverse population will be created and sustained by a growing economy that will continue well after the stimulus is enacted and new federal transportation trust fund expenditures are authorized. Such strategies have been well understood in Europe and Asia for over 45 years.

To make the correct national policy decisions, there needs to be a full appreciation of what European and Asian nations have accomplished in the last half century and how transit greenways and Advanced TODs would substantially improve access to a globally competitive multimodal transportation system within the United States. Such policy goals and strategies need to be a specific component of America’s economic recovery given the fact that these transit greenway and Advanced TOD projects can be quickly implemented at many strategic locations in major cities with significant transit and passenger rail systems and within the jurisdictional authority of community redevelopment agencies or other local government structures that can use local taxes, assessments, and tax increment financing tools.42

In the alternative, America can continue down the path it has followed for the last 50 years. It can continue to build the infrastructure of the 20th Century and ignore the progress being made in Europe and Asia to develop national and international multimodal transportation systems with large-scale pedestrian accessible transit stops and train stations and state of the practice science parks. It can continue to fall further behind its European and Asian economic competitors.

Americans may want to continue to love their cars, even when the rest of the world knows these cars will not love us back. This love affair with the car and focus of road
and bridge constructions, may in fact be the reason America finds itself in a difficult position today; a world power with a very large, but not very sustainable, economy.

Strasbourg is the capital city of the Alsace region and the 7th largest city in France. Major European institutions such as the European Union Parliament, the Council of Europe and the European Human Rights Court have made their headquarters in Strasbourg. In 1994 the tram system lines A and D of their tram system, Lines B and C were opened in 2000 and line E was opened in 2007. The total length of the tram system is 55 km (34 miles). It was built with the intent to enhance pedestrian movement, improve the quality of life and grow the economy. What is still quiet startling were their statements at the time they planned and developed their multimodal systems: “In Strasbourg, we have opted for sustainable development. Our ‘utopian objective’ is to reconcile economic and social development with the well-being of our environment. A coherent transport policy is an essential pre-requisite for achieving our objective. Strasbourg Conurbation [the government of the Strasbourg region] wishes to share its experience in the field of transportation with other cities. The urban transportation structure is the result of a directive policy aiming to strike a new balance between the various means of transport.” In the 15 years since they have undertaken this less space-consuming development strategy that would ensure the mobility of persons as well as goods, Strasbourg has been able to achieve remarkable continuing economic successes. The Strasbourg Conurbation has extended the pedestrian zones, reorganized the road network and embellished urban space to promote intermodality involving the train and provide users a real alternative to the automobile.


If the Obama-Biden Administration is to be a catalyst for change, then the opportunity to change America for the better is within its grasp. It may not be wise to further increase the national debt by stimulating the U.S. economy of the 20th Century when there exists an option to build communities that will grow the economy in the 21st Century.
Maybe when we look at what other countries and cities have done to grow their economies, we will look at: Ireland; Strasbourg, France; Montreal, Canada; or, the Savannah School of Art and Design and its impact on the City of Savannah, GA. Maybe we should ask: What was done in Ireland, Strasbourg, Montreal or Savannah to grow their economy? How did they use higher education, multimodal transportation, and innovation to leap over obstacles and find their way forward by producing much more and learning to consume only what they could afford? What systems of transportation are being pursued in Europe and Asia?

Europe and Asian countries (Japan, China, South Korea, and Taiwan) are more than 45 years ahead of America in the development of a fully operational multimodal system of rail, air, road and water-borne transport. To walk in the pedestrian cities of Europe and some of the emerging Asian countries, is to be free of the car and free of the suburbs that have made all of us content, dumber and crazier than our ancestors. Europe has cities with hundreds or thousands of years of culture, architecture, and an extended walking infrastructure that creates human-supportive built environments that surpass the world. Europeans seem to be healthier and enjoy life more. How competitive will America be when all those lines on the map link? In 2004, Jane Jacobs published her last book, Dark Age Ahead. She suggested five pillars of society were in jeopardy: the nuclear family or community, representative government, education, science, and taxes. She asked: Would Americans adapt and return to vigor or continue down a path to decay? She concluded that it could turn out either way. Americans voted for change; change is needed now.
No one will likely be there to bail out America should the economy worsens and therefore we need to get the economy back on track right away. We need to do it right the first time; moving in all the right directions with a high level of expertise. The best strategies lie in using the stimulus to start the journey and finish it off with the full capacities of the transportation trust fund during the next several decades while these funds are still available to pay for a national multimodal transportation system.

For those advocates in the transportation industry that do not wish any such changes in transportation policy, they should consider where America will next go to pay its debts should the economy not grow after spending nearly a trillion dollars onstimulating the economy. The transportation trust fund created to build the Interstate Highway System may not be as relevant to the 21st Century as it was to the 20th Century.

It could easily be used, therefore, to balance future budgets instead of building roads and bridges should the American economy continue to falter. If transit greenways and the many road-like components of Advanced TODs can be built and grow the economy, we will never be faced with such a terrible choice requiring us to use that national infrastructure nest egg for ready cash in hard times. Further, the use of transportation funds for these Advanced TOD and transit greenways purposes would be very relevant to the 21st Century American needs and therefore less likely to be removed from infrastructure use.

Such a transit greenway and advanced TOD public policy will help Americans to consistently produce more than they consume and to refrain from borrowing more money than they can repay in the future. In this way, the Obama-Biden Administration can provide a change in leadership that will grow the American economy and preserve the transportation trust fund for future generations.

By the submittal of this paper, the Obama-Biden Administration is requested to consider these recommendations to improve pedestrian, transit, passenger rail, and TOD strategies before completing the stimulus package and while preparing for the October 2009 reauthorization of federal transportation funding that will direct federal transportation for the next six years.

We suggest that this transit greenway and Advanced TOD approach is the best way to go to immediately stimulate economic growth and to establish a sound basis for sustainable economic growth in the future. With a sustained economic growth, America can afford to pay for its infrastructure and other needs as necessary for our economic future and to maintain an American way of life.
Since 1945 Japan has lead the way in the development of a national high speed rail system that links its major cities. Japan’s Tōkaidō Shinkansen is the world’s busiest high-speed rail line. It carries 375,000 passengers a day and has transported more passengers than all other high speed lines in the world combined. The Shinkansen serves as both a long-distance transport system and as a commuter service for workers in metropolitan areas. China holds the record for the fastest maximum operating speed of any segment of any high speed rail line in the world (217 mph) and its Beijing-Tianjin Intercity Rail line went into operation last August 2008. There are now six high speed rail countries in the world that have the capacity to manufacture and install high speed rail trains (e.g., Japan, Germany, France, Italy, Spain, and South Korea). The United States currently lacks this capacity. Canada, Brazil, India, Pakistan, Saudi Arabia, Malaysia-Singapore, Algeria, and Egypt are now examining its high speed rail options. Israel is building a high speed rail link between Tel Aviv and Jerusalem that is expected to be completed in 2015. Vietnam is building a high sped rail link between Hanoi and Ho Chi Minh City that will be built by 2013 and fully operational by 2025. Argentina and Morocco have selected Alstom (they built the TGV system in France) to construct high speed rail lines in the next decade. Iran had signed an agreement with Germany for a maglev system and have two high speed rail lines under construction, but work has been put on hold due to the countries deepening financial difficulties.
Section 3:

The Preferred Community Development in the 21st Century

To prosper and retain our quality of life, Americans must agree to build sustainable communities that reinforce productive and creative behaviors and which also support all modern means of transport. Preferred community development recognizes the value of walking and daily random and intermittent social interactions that keep us healthy and helps us to invent solutions for all the challenges we face every day. Enlightened leadership should recognize that: “Intellectual property is the gold of the 21st Century and it should be the fundamental policy of the United States to make sure that everyone has a pick.”

Given the existence of other high tech economies in the world, near-term and long-term sustainable economic growth requires:

- An educated populace
- An environmental and climate policy that is science directed
- Laws to protect employees from injuries and to provide affordable health insurance and reasonable unemployment compensation.
- A low corporate and capital gains tax rate
- A rebuilding of our urban centers and the transportation systems so that they are best suited to provide reliable and efficient mobility and economic growth.

This paper is not attempting to address the many needed improvements of America’s educational system, our health care requirements, employment laws, environmental protection, or tax policy. Instead, it explores how to achieve a new American prosperity through innovative community building efforts undertaken during the post high-tech economy in what should be a New Inventive Age. In a short Introduction to The New Community Paradigm, attached to this paper as Appendix 1, an attempt was made several years ago to describe the type of community (an Advanced TOD) that would result from these community building activities.

By undertaking a process of sustainable, mixed-use, pedestrian-oriented “community building”, Americans will become highly productive, mobile, and culturally fulfilled. When supported by fully integrated multimodal transportation policies, new American
transit communities can develop superior urban living conditions within the context of the higher education and career pursuits. In these walking urban environments and at the colleges, universities, and trade school facilities embedded within these “built environments”, critical and creative thinking and job skills important in the global marketplace would become commonplace. Americans would become highly productive, mobile and culturally fulfilled. People will tend to stay healthy and think more clearly and innovatively when they are frequently and systemically engaged in large-scale walking. Frequent intended, random, and intermittent social discourse and other thoughtful interactions inherent in such large-scale walking environments will occur.

As suggested in this paper, a fair and equitable continued performance-based public-private partnerships would be useful in order to build these multimodal linked communities, new passenger rail components of the multimodal system and transit greenway systems. Government funded infrastructure (transit greenways, narrow gauge rail parking shuttles, traffic-calmed streets, mixed-mode streets, narrow linked parking structures, pedestrian corridors and plazas) will be needed to help properly frame the associated private sector mixed-use developments built adjacent to transportation system components.

Within such urban environments, nearly all Americans will more likely freely choose to produce more and consume in a responsible, sustainable way. Further, due to the coordinated efforts with higher education and trade schools, a more egalitarian American culture will evolve. This has been shown to naturally arise from a well-formed curriculum of higher education. In addition, where mixed-use environments at higher densities are developed to include social and income integration, disadvantaged people benefit from living in mixed-income communities, especially when education takes place in many different settings (libraries, Wi-Fi plazas, and other elements of an Advanced TOD).

It is expected that over time productivity will substantially increase, crime will dramatically decrease, energy will be conserved and healthy lifestyles will be more typical. The economic and social conditions of daily life will significantly improve and the wide variety of financially rewarding intellectual pursuits will become normal. When these new communities are developed, the adverse individual and collective human impacts on the environment, global weather and the quality of life enjoyed by others will reduce. These benefits arise from historically well established mechanisms inherent to well planned and operated cities and urban centers.
As part of these stimulus plan discussions, it should be recognized that to improve the American economy, a far greater number of Americans need to be graduating from high schools, trade schools, and universities. Students who graduate from these institutions need to possess the knowledge, expertise, and learning skills necessary to succeed in today’s economy. College education, career training and related living expenses must be affordable to all who show the willingness to master these academic subjects and 21st Century job skills. In addition, living conditions and travel opportunities must stimulate original and creative thinking through a variety of distinctive urban and other experiences.

In addition, in any well managed country early childhood development needs to be enhanced through supportive federal and state programs. All children will be given a helping hand (a loving one as well). The hope and goals of this nation should always be that children can choose a productive life through higher education and job training.
To accomplish these educational missions, colleges, universities and trade schools need to be expanded into communities located at and adjacent to train stations and fixed transit stops. Locating educational and student housing opportunities at transit stations interspersed with workforce housing and market rate housing tends to improve mobility and social interactions of these very productive citizens. These improvements include: the linkages between the working community; training for careers and jobs; and, the social cohesion and crime prevention through environmental design strategies important to more densely developed urban areas.

Collectively, these urban improvements will reduce crime through the design of the “built environment” so that many eyes are focused on the street and a community awareness of what is normal and correct is well established by local residents. Such urban design strategies are sometime referenced as “crime prevention through environmental design” (CPTED).61

In this way, the pedestrians and the active student population will constitute the many well recognized customers, friends, family members or other welcomed community visitors. Criminal activities or other undesirable actions are quickly recognized and prevented through reports to police or a more informal citizen warning to “Behave yourself!” or “Tone it down, young man!” Within the state laws of Florida, there is statutory support for such “safe neighborhood” efforts that should have a positive financial impact on the feasibility and sustainability of any proposed Advanced TOD project.62

These educationally-anchored transit community development efforts should be undertaken within the context of community-based, pedestrian-oriented, mixed-use intermodal facilities developed as Advanced TODs. These Advanced TODs and associated transit greenways can be built in part with existing federal transportation funds authorized for that purpose (i.e., Fringe and Corridor Parking Facilities at 23USC137; Transportation, Community, and System Preservation Program; Small Starts; FTA TOD Joint Development projects; Congestion Mitigation and Air Quality; 49USC5307 Transit Capital projects; Livable Communities projects; or, other intermodal funding strategies).

Some transit systems can be expanded into existing universities, colleges and trade schools. In such cases the urbanized mixed-use and pedestrian-oriented communities for large-scale transit access would need to be built on such university or school campuses. In either case, by establishing public-private development partnerships,63 parking in narrow and linked parking structures64 and walking areas positioned adjacent the mixed-use liner buildings and significant community destinations. Such parking is positioned at
the rear of the buildings and mixed-mode streets and pedestrian plazas are positioned at the front or side entrances of the mixed-use or destination buildings.65

**Advanced TODs** with the education, job training and transit greenways components should be viewed as **sustainable engines for economic development** that will help link America within the context of an efficient national multimodal transportation system. They have been the subject of study at several South Florida locations and are ready along with the associated transit greenways for near-term development.66

An Advanced TOD would have many, but not necessarily all, of the characteristics of a state of the practice research and science park.67 In the several locations along the train system route, they would collectively need to have all of these characteristics.

In Jack Pinkowski’s *State of the Practice Opportunities for the St. Lucie County Research and Education Park: Research and Science Parks for Economic Development* (2005) report, he identified 12 factors critical for the success of science parks when they are examined around the world. They were:

- A business incubator
- University partnerships
- A collaborative alliance and partnership between business, academic and public resources
- A culture of innovation
- Industry clusters
- Appealing quality of life and cultural facilities
- Research and innovation embedded with commercial activities in the community design
- Transportation multimodal networks
- Supportive institutions
- Proximity to flexible space
- Technology infrastructure
- A community of practice that contributes to the dynamic development of knowledge

Further, Dr. Pinkowski observes that success for research parks is generally defined in economic terms, such as the number of companies started, the number of jobs created, and the growth of the property values. These same measurements could be used in a public-private partnership to define desired results from the combination of a well-built and professionally operated passenger railroad or transit service, well-built and maintained Advanced TODs, and well-integrated and successful strategies to integrate higher education and trade school opportunities into the fabric of the Advanced TODs. Payment for such governmental services could be appropriately agreed upon based upon meeting the minimum operational, economic and social performance requirements and to provide for bonus payments based upon exceeding such expectations.
Under the terms of a carefully written agreement, this rich Advanced TOD environment of thoughtful people, creative thinkers and subject experts need to be well-managed so there can freely exchange ideas and engage in discourse that leads to invention and new ideas to benefit themselves and mankind.

Advanced TODs located within community redevelopment districts, community development districts or other similar local governmental structures that have access to tax increment financing, property taxes and property assessments are ideal locations for such transit related community development and redevelopment. With tax increment financing induced through near-term stimulus funding and longer term transportation funding, local property taxes and assessment revenues, quickly funded and developed sustainable Advanced TODs are possible.

By way of Florida’s safe neighborhood district, property taxes, assessments or tax increment financing can be used so that all funding tools for transit greenway and Advanced TODs construction and operations can be leveraged with stimulus and transportation funds for long-term growth.

The attached image was created in 2004 as a part of a Park West planning effort undertaken for the Miami CRA. It depicts how an alley, long ago used for a freight railroad spur track, could have been changed into a mixed-mode street. A transit greenway proposal was first suggested as an amenity for a proposed Miami baseball stadium when it was proposed at Park West. Now that the proposed Florida Marlins Baseball Stadium has been located at the Orange Bowl site, a similar transit greenway application could be placed there. Further, similar proposals in Miami-Dade county were developed as the FIU CIS Conceptual Plan Project and the 107th Avenue Pedestrian Transit Greenway Corridor for the City of Sweetwater and these planning strategies could be applied to the Dolphin Stadium at the terminus of the planned North Corridor Metrorail Extension. See: Appendix 7 and the MIAMI AT MIDNIGHT report at endnote 67.
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State transportation laws should be reviewed for other opportunities to plan for and build transit greenways and Advanced TODs. For example, in Florida there would be more than adequate support for such efforts given the provisions of the Florida Public Transit Act (Florida Statutes, Chapter 341) and the Florida Strategic Intermodal System (F.S. 339.61 et. al.).

These Advanced TODs would systemically cause large numbers of people (calculated as hundreds of thousands of people per day per Appendix 2) to walk longer than typical distances (one or more miles with the assistance of transit greenway vehicles) and access public transportation in larger than typical numbers (likely to be a three fold or more increase in transit use when compared to current American experience). Systemic community patterns and strategies necessary to achieve these desired results will require close attention. The results will likely be remarkable in terms of sustained economic growth (due to frequent intended, random, and intermittent positive social and intellectual interactions). The customer base for transit and passenger trains will substantially increase during the 18 hours a day operational schedule (where the vehicles are full of customers) and therefore transit systems operate without ongoing operating subsidies.

Within these urbanized areas where Advanced TODs are located, the development methods and priorities must change to provide more attention to the organizational and architectural details in the spaces between buildings. Given current attention to details that is typically undertaken when developing the buildings and providing for their interior design, this shift of focus will require much more attention to the spaces where people walk between buildings. In traffic-calmed streets, mixed-mode streets, pedestrian corridors, courtyards and plazas, the components of an “outdoor” living room must be present. This focus on outdoor urban conditions requires an environment that protects the pedestrian from the rain, wind, sun, heat, and cold when they are walking to or adjacent to all buildings within the Advanced TODs.

This is accomplished by continuous building forms positioned adjacent to the pedestrian areas that provide shelter from adverse climatic conditions. Through the use of strategically located landscape canopies and the building mass, entries, arcades, passages, awnings, roof overhangs, and other building features, a continuous cover when needed and “open to the sky” environments when desired is available. When properly developed as outdoor living rooms, such public places within the Advanced TODs provide “micro-climates” that allow a pedestrian to change the environmental conditions based upon where they stand, walk, shop or sit.

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These micro-climates help to extend the typical walk by providing a variety of conditions at different times of the day that appeal to the needs of different pedestrians (some want to cool off, while others want heat from the direct sun). These pedestrian environments include buildings that open to the streets and provide for the needs of daily life. These conditions stimulate the five human senses and help to steer pedestrians to desired transit stations and other destinations.

These preferred community environments provide open access to building interiors, shading, seating arrangements, fountains, art, and lighting to “furnish” this public outdoor living room and establish a superior level of comfort, interest, use and safety to pedestrians. In addition, narrow gauge rail parking shuttles, similar human-scale pedestrian-oriented vehicles, or other mechanical devices are embedded into the walking corridors to extend the typical walking range of pedestrians outwardly one to two miles from the urban center.

These transit greenways should be developed outwardly from the Advanced TODs as wide (30 feet or so), well-lit, and attractively landscaped sidewalks or linear parks. As multimodal corridors, they provide a route for small fixed-guideway trams (transit greenway vehicles initially configured as narrow gauge rail parking shuttles) to major suburban or other destinations (and their related parking spaces) within a one to two mile radius.

Over time, as additional mixed-use and destination buildings are developed on both sides of the transit greenway, the Advanced TOD perimeters will grow and better

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provide support for high quality, productive, law abiding, and interesting lifestyles. Highly efficient and effective intermodal transfers from cars to transit and passenger rail systems (which in turn connect with air and water-borne modes of transport) will result.

These Advanced TODs include the use of very specifically built components:

- Very narrow and linked structural parking structures developed within or adjacent to such mixed-use and major destination buildings
- Small transit greenway vehicles or parking shuttles that run to or through such buildings within mixed-mode streets and along transit greenways
- Pedestrian areas and plazas that dominate these urbanized town and city centers and intuitively lead large numbers of potential customers to train stations and transit stops
- Traffic-calmed streets that run to, but not through, the urban centers
- Transit greenways outward of the urban center that link with suburban destination within a two mile radius and transform into mixed-mode streets as they enter the urban center and continuous building faces are established (liner buildings or destinations buildings) on both sides of the corridor

Properly built Advanced TODs and transit greenways are likely to produce very large numbers of passengers to such transit and passenger rail systems (potentially hundreds and thousands of people every time the transit vehicle or train stops for passengers) so that fully integrated multimodal transportation systems can become financially feasible in the United States. In circumstances where transit demand is high, finding the trains and transit vehicles that can load and unload such large numbers will not be a problem.70

Roadways that calm car traffic as they approach these urbanized centers, tend to run to, but not through, the well-planned Advanced TODs. These roadways provide transit access and terminate at very narrow linked structured parking facilities. These same roadways reappear as cars exit at another narrow structured parking facility that, by connecting traffic aisles or otherwise, is linked to the first entry parking structure.

In this way, car and truck traffic can enter and depart the urban centers without causing traffic congestion on the local roadway network or interfering with or discouraging large scale pedestrian movements. Further, in such a built environment, most car trips become multimodal trips and include both walking and transit trip segments.

This strategy of traffic flow (car and truck movement to, but not through the urban center) will intrinsically motivate the residents and visitors of these communities to use their cars less frequently and for shorter trips. By treating each Advanced TOD as a car
or truck trip destination and supporting large-scale pedestrian movement, there will be a greater tendency to rely upon the community for consumer goods and services. Energy requirements are thereby reduced without a sense that mobility has been compromised or that one’s quality of life has diminished. Freight is delivered by rail or truck at off-peak hours in easily accessible loading docks.

These Advanced TODs and transit greenway systems are built with American materials and supplies, are operated with American produced fuels and sustainable energy sources, and provide an employment base for the necessary operational components of such innovative intermodal and livable community systems. Transit greenways construction projects will not disrupt the major highways and business districts because they represent a coordinated series of smaller projects (streetscape, sidewalk, landscape, lighting, plaza surfacing, road resurfacing, bicycle lanes built to fit narrow gauge rail vehicle widths, transit stop or train station improvements) that can largely be built in evening or at other non-peak hours. Even Advanced TODs are not as disruptive as major transportation projects in that they can be built in localized phases off the highway or rail system.

Transit greenway and Advanced TODs will be easier to construct as multiple low impact projects within urban settings without disturbing ongoing businesses. They will avoid the unintended consequence of losses in the local economy arising from disruptions that occur when undertaking large-scale construction projects. These transit greenway and Advanced TOD projects will not be isolated small infrastructure improvements that lack any continuing positive economic impact.

These urbanized spaces become more beautiful, interesting, safe, useful, satisfying, efficient, convenient, and comfortable as one approaches the train station or transit stops. Vendors at the street level timely meet every need of the traveling public. The spaces between buildings are increasingly attractive to the five senses given the perceptual range of each human sensory organ.

If you want to improve society and its economic conditions, build beautiful places for people to walk in the cities where all adverse conditions are mitigated and strong reasons exist to stimulate the walking impulse.

People walk when the built environments support that behavior.

When people walk, society improves.
Summary and Conclusion

Economic development and stability in the United States can be stimulated into existence through the expenditure of new federal dollars on infrastructure projects throughout the nation. However, as Jane Jacobs has explained, the wealth of nations rests largely upon the productivity of its cities. This observation should cause Americans to question if the federal stimulus funds being proposed have been properly directed so as to grow the new American economy.

This paper suggests such directions should come from President Barack Obama in the form of a proposed stimulus plan policy stated as follows:

*Federal funds provided by the American Recovery and Reinvestment Act should be collectively examined by state and local officials to determine if the infrastructure projects to be funded can be combined to provide for the development of transit greenways and to establish a plan for the development of Advanced TODs that would help to grow the new American economy.*

To grow a sustaining economy it is necessary to develop Advanced TODs that are:

- Educationally anchored
- Pedestrian-oriented
- Components of a state of the practice science park
- Linked to:
  - transit greenways and transit greenway vehicles;
  - transit stops;
  - passenger rail stations;
  - significant destinations within a two mile radius;
  - higher education and trade schools; and,
  - the current highway system

When American cities develop the components of Advanced TODs in the spaces between buildings, new American transit communities will grow in size and value. These engines of economic growth will provide exceptional mobility via links with the highway system and the many local and distant significant destinations via transit greenways and a national multimodal transportation system. American cities that build such intermodal communities will prosper. Their tax base will rise. People who live there will find meaningful work and the economy will grow faster than the national debt.
When states and local governments expend the funds obtained through the American Recovery and Reinvestment Act, the preferred policy to embrace is:

- All stimulus projects in a given area shall be grouped together whenever possible as a coordinated effort to build transit greenways and plan for Advanced TODs.
- Advanced TODs should be planned as public-private partnerships that will make requests for the use transportation trust funds to build the necessary Advanced TODs infrastructure and will receive funding approvals with the reauthorization of SAFETEA-LU. The private sector will handle mixed-use development costs. About one-third of the total costs will be paid by transportation trust funds and used for necessary infrastructure and two-thirds of the total costs will be paid by other sources and used for the mixed-use development and destination buildings and facilities.
- State and local transportation trust funds will be used to expand transit and passenger rail services as significant passenger counts occur that warrant such expenditures. It is expected that such passenger increases will occur as transit greenways and Advanced TODS are built. With these new transportation expenditures, America will able to fully implement a national multimodal transportation system.

As a type of intermodal system, these Advanced TODs and transit greenways will provide for very large scale intermodal transfers within very productive, economically-sustainable, mixed-use community environments. If 12 transit greenway projects were launched through stimulus funds by coordinating about $624 million dollars of infrastructure projects and 36 Advanced TODs could be planned at this time to be implemented through the reauthorization of SAFETEA-LU, immediate and sustained economic growth could be projected.

Building 36 of these Advanced TODs throughout the nation would use $3.9 billion of transportation trust funds and $7.8 billion in private funding, but it would begin a much bigger recurring growth pattern as the compact Advanced TODs and transit greenway system evolve over time to grow American cities and help to fuel the new American economy for the next 50 years.

In Florida and elsewhere, specific transit greenway projects using narrow gauge rail parking shuttles along a transit greenway corridor can be programmed as federally supported near-term economic stimulus initiatives along with the Advanced TODs that can be funded through the reauthorization of the SAFETEA-LU. By these means, an array of infrastructure projects can be coordinated within the context of the best livable community strategies and a long-term federal commitment to a world-competitive national multimodal transportation system.
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Such initiatives can provide to all American communities the opportunity to build new American transit communities and grow the new American economy throughout the 21st Century. Improving our urban infrastructure in this way means we will not have to short change future generations with a national debt larger than the economy.

By growing the new American economy, we will therefore grow hope and, with it, our long-term national prosperity and security.

The Orlando Railroad Depot at Church Street Station is Orlando’s historic railroad station that will be revitalized with the final approvals for SunRail: the Central Florida Commuter Rail Service. When these approvals are granted this year, SunRail will operate between Kissimmee and Deland with stops at 3 locations near downtown Orlando (Orlando Health/Amtrak Station, Church Street Station, and Lynx Central Station) that are the subject of an Orlando Downtown Parking Shuttle (ODPS) Transit Greenway proposal shown at Appendix 8. The proposal would link most downtown destinations (Orlando Events Center, Citrus Bowl, and the Orlando Performing Arts Center), medical facilities, schools, office buildings and retail establishments) and require 8 miles of transit greenways to be installed and operated. See: http://www.sunrail.com/. The ODPS Transit Greenway proposal consists of: i) 30 pound rail to be configured as 30 inch narrow gauge (NGR) track; ii) 615,000 square feet of decorative sidewalk; iii) 14 powered parking shuttle NGR tram vehicles and 24 ultra-low floor, unpowered, parking shuttle NGR tram trailer vehicles to expand passenger carrying capacity; and, iv) maintenance facilities and equipment. The total estimated costs for this proposal is $52 million dollars and it would produce just from the transit greenway efforts the following jobs: i) 98 new jobs to fabricate the parking shuttle, install track and construct or reconstruct the sidewalk; and, ii) 180 new jobs once the system is completed in order to operate and maintain the ODPS Transit Greenway. Operating costs within a four year term will be fully paid by users of the system. The ODPS Transit Greenway will support three Advanced TODs that will be developed as 1188 residential units (market rate, workforce, and rent assisted), 1,380,000 square feet of retail, office and hotel use, and up to 10,000 parking spaces. Developed at a cost approximating $1.5 billion dollars, the three Advanced TODs will be built over a five year or more term as a public-private partnership.
Endnotes and References

1 The names listed have all contributed in many ways to the crafting of this paper and the thought process that went into this work product. Although Tom Gustafson was the primary author, many discussions, encouragements, and observations were collected from the individuals as listed over the course of the last 35 years. Each individual has been provided draft copies, provided edits or made comments regarding the presentation of these materials, and approved of the use of their name as shown above.


3 Palm Beach Post AP article, Congress must act boldly on economy, Obama warns, January 8, 2009 and the text of Barack Obama’s economic speech at George Mason University, January 8, 2009 at: http://change.gov/newsroom/entry/dramatic_action/. This paper would suggest that by spending the initial $624 million of transit greenway via the coordination of infrastructure projects identified with stimulus funds and requiring transit greenway communities to plan for Advanced TODs, sustained economic growth will arise out of these pedestrian-oriented, educationally-enhanced new American transit communities and the multimodal transportation systems they support.


5 When Herbert Hoover was the U.S. Secretary of Commerce (before he was President), he led the efforts of the federal government to establishment of Euclidian Zoning (designating permitted uses of land based on mapped zones which separate one set of land uses from another—such zoning may be use-based in order to regulate the uses to which land may be put, it may be written to regulate building height, lot coverage, and similar characteristics, or it may use some combination of these characteristics). There is now an opportunity to fix some of the unintended consequences of that federal policy (authorizing sprawl development that contributes to traffic congestion, a sedentary suburban lifestyle and the discouragement through zoning patterns of multimodal transportation and mixed-use development) that currently retards America’s economic growth. Specifically, as suggested by this article, the current American policies should encourage and support public investment in multimodal transportation system components and pedestrian-oriented mixed-use development at transit stops and train stations as part of an overall economic stimulus and growth policy.

Traffic-calmed streets have been the focus of efforts in the City of West Palm Beach and many other cities throughout the world. See the Project for Public Spaces at: http://www.pps.org/imagedb/category?gallery_id=1095; the Transportation Alternative Archive website at: http://www.transalt.org/files/resources/blueprint/chapter4/chapter4f.html; Nozzi, Dom, In Praise of Traffic calming at the Walkable Streets website at: http://www.walkablestreets.com/calm1.htm; Litman, Todd, Calming Benefits, Costs and Equity Impacts, Victoria Transit Policy Institute (1999) at http://www.vtpi.org/calming.pdf; and, the Walkable Communities website at: http://www.walkable.org/.


10 Transit greenways are designed for the safe, comfortable, convenient, timely and efficient movement of pedestrian, bicycle and greenway transit vehicles. They provide tree-covered corridors and open space, separated from car and truck traffic, that guide people to community destinations, parking and transit access points. See the Size and Dimensions Matter article (Appendix 2) and the description of the suggested transit greenway vehicles and parking shuttle system proposed to be installed should the Orlando Downtown Parking Shuttle (ODPS) Transit Greenway project be undertaken (Appendix 8). The carrying capacity of the properly designed transit greenway to carry pedestrians up to 2 mile from structured parking facilities to significant destinations and the mixed-mode streets and the plazas of the Advanced TODs located adjacent the transit stops and passenger rail stations is immense and even with nominal fare per ride, there should be adequate revenues for operational costs. If operational costs are established at $8 million per year, $2.00 per passenger trip revenues would need to be obtained for approximately 4 million rides per year or 10,958 per day. Operational costs and sustainable revenue strategies need further review and can be completed to the satisfaction of the City of Orlando and necessary federal and state agencies once a project proposal and implementation strategy is approved by the City of Orlando. Transit greenway projects have been proposed for development in many communities since the initial proposal in Fort Lauderdale, FL in 1997 summarized in “Building the Urban Greenway: Greenway Transit Corridors for Multimodal Use”. At times, state agency support was secured and at least one transit greenway project went beyond the planning stage and secured federal transportation funding authorizations to construct such improvements. See: http://www.dep.state.fl.us/gwt/newsletter/pdf/mayjun00.pdf and the Central Plantation Transit Greenway System in Plantation, FL that received a $1.23 million federal authorization in SAFETEA-LU (see: http://www.house.gov/list/press/fl20_schultz/TEALU.html and http://www.plantation.org/docs/news/tea21-greenway.pdf). The City of Plantation is now seeking $6.9 million in federal Economic Recovery funding through the U.S. Conference of Mayors at: http://www.usmayors.org/mainstreeteconomicrecovery/default.asp?Area=Transit. This U.S. Conference of Mayors report also requests: landscape, streetscape, pedestrian, and sidewalk improvements throughout the nation that could be configured as transit greenway projects; a $5 million contribution to the Jacksonville Regional Transportation Center (see the detailed information and renderings of the mixed-use intermodal and parking facilities at: http://www.metrojacksonville.com/content/view/76/2/), and $6.2 million for Commuter Rail Station improvements at Amtrak/ORMC, Church Street, and LYNX Central that could collectively be used as an additional basis for a newly drafted $52 million proposal to fund a transit greenway and system of Advanced TODs for Downtown Orlando (see the Central Florida Commuter Rail System at: http://www.efrail.com/ and attached materials). In addition, over the last 10 years many other transit greenway and related multi-modal greenway projects have been conceptualized and pursued using varying funding strategies (see: Beltline for Atlanta, GA at: http://www.parkpride.org/atlant.html, http://www.bncatlanta.org/pdfs/contrbeltline.pdf, http://beltline.org/LinkClick.aspx?fileticket=7F059781bA%3D&tabid=1818&mid=3492, and http://www.millionmilegreenway.org/index.php; 10th Avenue Pedestrian Transit Greenways Corridor at City of Sweetwater, FL at: http://www.miamidade.gov/MPO/docs/MPO_107av_greenways_200312.pdf.
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11 See Appendix 8 and similar references to such narrow gauge rail parking shuttle in Appendix 4 at page 6, Appendix 6 at page 3 and Appendix 7 at page 9.

12 All infrastructure projects should continue as currently funded, but additional funds for the multimodal transportation system needs will arise when a growing American economy is fueled by creative men and women who live in these sustainable and growing educationally-enhanced, pedestrian-oriented transit communities.

13 Zeleny, Jeff and Andrews, Edmund, Obama Warns Trillion-Dollar Deficit Potential, New York Times, January 7, 2009. This newspaper article reported that on Tuesday, January 6, 2008 President-elect Barack Obama, following a meeting with his economic team in Washington, D.C., braced Americans for the unparalleled prospect of “trillion-dollar deficits for years to come”. Speaking about the stimulus plan he said: “We’re not going to be able to expect the American people to support this critical effort unless we take extraordinary steps to ensure that the investments are made wisely and managed well.” The article reported that Mr. Obama called for the creation of an economic recovery oversight board that would include advisors to monitor spending – and find abuses – of the economic stimulus plan and that he stated that earmarks for lawmakers would be banned from the bill. This newspaper article also reports that Mr. Obama had not so far backed away from any of the initiatives he ran on, including his plan to expand health insurance, and that he “has begun making a case that the economic prudent course is to invest now in addressing the nation’s big challenges rather than avoiding them in the name of saving money in the short run.” It is believed by the authors of Growing the America Economy that such investment strategies and planned oversight and review would further point stimulus spending towards the strategies discussed herein that would develop transit greenways and Advanced TODs as described at page 30, respectively as a unique and innovative way to more quickly grow the American economy.

14 See the U.S. Department of Transportation Federal Highway Administration website article entitled Congestion is the Problem at: http://www.tfhrc.gov/pubrds/04may/07.htm and the Texas Transportation Institute website press release entitled, Annual study shows traffic congestion worsening in cities large and small at: http://mobility.tamu.edu/ums/media_information/press_release.stm.

15 As discussed at page 30, there are programs that allow for minor TOD-related or greenway expenditures, but nothing rising to the level of a similar Presidential direction has occurred during the last half century. Recently, federal law has authorized significantly more railroad safety and passenger rail
funds, including a U.S. Department of Transportation led process to seek high speed rail proposals in various regions of the country. See Rail Safety and Improvement Act of 2008 as enacted into law October 16, 2009 and the Wall Street Journal article entitled, Bush to Sign Bill to Nearly Double Amtrak Funding at: http://online.wsj.com/article/SB122298615110699903.html?mod=googlenews_wsj.

16 See page 23 (Strasbourg image and text) and page 25 (European high speed rail network map).


19 John Zacharias believes that a ¼ mile walking radius is too conservative and that studies of New Yorkers indicated than an environment of wide sidewalks, convenient subways and street transit and great architecture, streetscaping, and parks that people will walk further. In similar studies, Dr. Zacharias did in San Francisco, office workers showed that, just at lunch time, they walked an average of 1998 feet in that compact town. See Pusharev, Boris and Jeffery Zupan, Urban Space for Pedestrians (1975) and Calthorpe, Peter, The Next American Metropolis (1993) and Transit –Oriented Development Guidelines at: http://www.calthorpe.com/Project%20Sheets/TOD%20Guidelines.pdf. Also see: Sullivan, Sean and John Morrall, Walking Distances to and from Light-Rail Transit Stations (1996) at: http://www.enhancements.org/download/trb/1538-003.PDF and Walking Distance Research from the Planning Commission TOD committee at: http://www.fairfaxcounty.gov/planning/tod_docs/walking_distance_abstracts.pdf. What is obvious from the literature and common experience is that most American streets where pedestrian creature comforts for pedestrians are lacking, people walk shorter distances. Where ideal walking areas are provided with shelter from the weather, they walk further.

20 Calculating the size and dimensions of typical TODs in city blocks is difficult due to the varying sizes of city blocks themselves as they can vary in size from 1/20 of a mile (264 feet) to 1/16 of a mile (330 feet) to 1/8 of a mile (660 feet) to 9/50 of a mile (550.4 feet) and calculations must account for the width of intervening roadways not to mention the pedestrians walk generally, not in a direct line outward from the transit stops and train stations, but in straight lines along the perimeters of these mostly rectangular city blocks. Therefore each application of TOD must assume a different shape and employee different strategies to optimize the walking environment. See: http://www.answerbag.com/q_view/34188; http://en.wikipedia.org/wiki/List_of_unusual_units_of_measurement; http://wiki.answers.com/Q/What_are_Dimensions_of_a_US_city_block; http://www.onlineconversion.com/length_all.htm; www.detroittransit.org/UserFiles/TOD%20Guidelines.ppt; http://www.designcommunity.com/discussion/19066.html.


The term “advanced TOD” is used to describe an educationally-anchored, pedestrian-oriented, mixed-use community configured as a transit oriented development adjacent a transit stop or passenger train station that has qualities (methodologies, strategies, etc.) that cause large numbers of people to walk longer than typical distances and access transit and trains in greater numbers and that constitute de facto research and science parks, possess transit greenway linkages to destinations within a two mile or so radius, and provide an enhanced platform for job and career training. An Advance TOD is distinguishable from the current and typically developed TODs described in transportation literature based upon the clear stated inclusion of educational and job training components, the extensive use of narrow and linked parking structures within a cocoon of mixed-use buildings (liner buildings), a car-free center, street routing that goes to but does not go through the TOD, and the use of transit greenways and mixed-mode streets to direct very large numbers of pedestrians to specific transit stops and trains stations. Also see ongoing work to plan improvements along the State Road /U.S. 441 corridor in Broward County (State Road 7/U.S. 441 Collaborative) were transit greenway improvements and the components of Advanced TODs could be easily included: http://www.sfrpc.com/sr7.htm and opportunities in the City of Dania Beach (see: http://www.ci.dania-beach.fl.us/index.asp?nid=207) and Riviera Beach (http://www.rbcra.com/). Similar opportunities exist in Jacksonville associated with the Jacksonville Regional Transportation Center, proposed commuter rail expansions, and proposed streetcar improvements and related transit oriented development opportunities at: http://www.jtaonthemove.com/.


European and Asian cities have been pursuing these strategies for decades and, without further reference, the authors would just quietly suggest traveling to such international locations to observe what has occurred over the last 45 years while America slept. A specific reference is made to Strasbourg, France at pages 23 to identify but one example of this world-wide phenomenon.

26 See: State of the Practice Opportunities for the St. Lucie County Research and Education Park: Research and Science Parks for Economic Development by Jack Pinkowski, dated April 21, 2005 at: http://www.huizenga.nova.edu/faculty/Publications.cfm?id=1481.

27 Fringe and corridor parking facilities authorized by 23USC137at: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=browse_usc&docid=Cite:+23USC137.

28 See Appendix 6, 7 and 8.

29 America’s Inventive Age has been described as that period in the later half of the 19th century and first half of the 20th Century when American technology and inventions were recognized as world changing and that help to establish America as a powerful and wealthy international leader. See: http://www.aynrandbookstore2.com/supplements/HD69_Daniels.pdf; and, http://www.andrewbernstein.net/capitalists/9_inventive.htm. It is suggested that the New Inventive Age will be a time when critical and inventive thinking become typical, all economies grow, and the world’s people prosper based upon a world changing approach to community building sparked by American leadership that understands the importance of enhanced urban walking environments.

30 See endnote 10.

31 See Appendix 2.

32 Community building is much like any organic growing process. Communities are “life-like” in the development, growth and decay. Biological science analogies are frequently used in urban planning work by Jane Jacobs and others. See endnote 6.


34 See Appendix 8. Note that after the initial stimulus funding of the Orlando Downtown Parking Shuttle Transit Greenway ($46.8), operating subsidies will be temporarily required until FY2013 obtained through the usual transit funding channels and that after a construction team of 98 people have finished their work
to build the transit greenway as proposed in FY2009, 180 people will be required for day to day operations or one employee per $260,000 of stimulus funding or about 4 permanent jobs per million of stimulus funding.

Atlantic Coast Developers and others will be working up a projection of these numbers, but the economic and jobs creation impact is expected to be very large (thousands or more new construction jobs and other sustaining jobs associated with the mixed-use space that is built and occupied) when assuming that the Orlando Downtown Parking Shuttle Transit Greenway would spawn three Advanced TODs at $326 million each over a six year rapid planning and build out schedule FY2009 through FY2014. What is most significant about such economic growth is that it starts with a federally funded transit greenway included as a stimulus package objective and an associated requirement the recipient communities of transit greenway funding to plan for the related Advanced TODs and it concludes with public-private partnerships to build and operate regional transit and Advance TODs on a sustaining basis using transportation trust funds available within the current tax structure of the United States. See Appendix 8.

Based upon these estimates and work done in Miami-Dade County and elsewhere, a good rule of thumb estimate for building transit greenways is between $3 to $6 million per mile depending on the linear park features that need to be built or that already exist and need simply to be further improved. The use of 30 pound track and 30 inch or so gauge vehicle helps to remarkably reduce the installation costs whether the narrow gauge rail vehicle and tracks are located within the widened bike lane of the road surface or within the walkways adjacent or divergent thereto.


38 See Appendix 8 for costs associated with the Orlando downtown Transit Greenway.

39 See costs and specifications for a nine acre Advanced TODs at Appendix 7 and assume double costs and square footage built when both side of the railroad tracks are developed as a 20 acre site.

While there are many examples of light rail transit systems and their positive influence on the local economy and property values (see: http://www.wftv.com/news/18478998/detail.html and http://www.charmeck.org/NR/exeres/811BE505-0DAE-4CB0-8685-C601E738A03C.htm), the next leap forward to economically compete in the 21st Century will be through the development of Advanced TODs and transit greenways as higher-education based, transportation induced, economic development strategies to support a fully implemented national multimodal system. By packaging all forms of transit, passenger rail systems, and high speed rail systems into a single national multimodal system of large-scale movement that links transit and rail systems to port, airport and road network systems through community intermodal systems that constitute sustainable livable communities at every train station and transit stop (Advanced TODs and transit greenways) and improved freight intermodal improvements, a new national transportation improvement strategy can be formed to organize American resources to build and fully implement a national multimodal system. It would replace the existing highway-oriented policy that was provided to Americans by President Dwight D. Eisenhower in beginning in 1955 when he organized and supported the Clay Committee (General Lucius Clay, Frank Turner, Steve Bechtel, Sloan Colt, William Roberts and Dave Beck) recommendation to build an Interstate Highway System across America. See Appendix 7, page 5 for suggested dialogue that points out that no President has discussed or determined what to build as a national transportation system improvement since that time. Also see the U.S. Department of Transportation web site at: http://www.fhwa.dot.gov/planning/nhs/ and the American Highway Users Alliance website article at: http://www.publicpurpose.com/freeway1.htm. Because the Interstate Highway System, as originally authorized, was completed over a decade ago, it is time for such a President-led change in transportation policy that will be essential for America’s near-term and long-term economic growth.
In due time, these community-based, educationally-enhanced, pedestrian-oriented, mixed-use intermodal facilities will be built internationally and other community designs will be developed to suit many diverse needs of communities around the globe.

Projects described by Appendix 6, 7 and 8 can be quickly initiated along with the elements of the City of Plantation Transit Greenway project, the State Road 7/U.S. 44 Collaborative, the City of Atlanta Beltline project, City of Seattle’s parks plan for transit greenway projects, the collective City of Jacksonville efforts to establish a regional multimodal transportation system and the additional projects that should be given consideration based upon the ability to coordinate the committed infrastructure projects contained within the American Recovery and Reinvestment Plan so as to fit the described end products (transit greenways and Advanced TODs supporting a sustainable economy). Note that ideally any location with: a viable transit or passenger rail system; land available for development or redevelopment at transit stops and train station; and, within the jurisdictional district boundaries of a community redevelopment agency or similar tax increment district should be given stimulus funds and time to assemble a transit greenway and Advanced TOD planning documents for the reauthorization of SAFETEA-LU based upon the built-in mechanisms to fund sustaining redevelopment once stimulated. With the innovative use of state and federal transportation funds, safe neighborhood district or similar revenues, and tax increment financing, public-private partnerships can quickly develop transit greenways and Advanced TODs in order to build and sustain many examples of The Preferred Community Development in the 21st Century.

The following thematic statement was crafted in discussions between Tom Gustafson and his son, T. Andrew Gustafson on December 28, 2008. Andrew, along with his sisters, Rachel Gustafson and Cortney Gustafson (daughters to Tom and Lynn Gustafson) and their school friend, Marcelo Mejia, have been editing this paper throughout much of the 2008 Holiday Season. Note that the word “pick” has at least 26 different American language definitions. Most or all of these definitions are appropriate in this thematic statement. See: http://www.merriam-webster.com/dictionary/pick.


and, http://en.wikipedia.org/wiki/National_Development_Plan. The next opportunity to “leap frog” other world economies might well be through the development of a national multimodal transportation system linked through sustainable livable communities (Advanced TODs and transit greenways) as described herein.

45 Providing for an urban environment where walking longer distances in larger numbers is a common occurrence should, however, reduce health care costs by many billions. By reducing the health care risks due to obesity and sedentary lifestyles, fewer chronic health conditions will occur. John Zacharias suggests that in Canada, getting citizens to walk on an average of 15 minutes a day will result in billions of dollars of saved health care costs. In the United Kingdom walking has been recognized for its therapeutic benefits through endorsements of health walks by British Association of Cardiac Rehabilitation and the Medical Protection Society (see: http://www.whi.org.uk/uploads/documents/AX707/BACR-WHP%20leaflet.pdf and http://www.whi.org.uk/uploads/documents/AX707/MPSleaflet.pdf. Also see a description of health walks at the Walking the way to Health web site at: http://www.whi.org.uk/ and Walk England we site at: http://www.walkengland.org.uk/. In Traditional Chinese Medicine, such as Qigong and Tai Qi, the activity of walking to improve health through stress reduction and exercise is well recognized.

46 The term high-tech economy is usually referenced to include several sectors: Aerospace Technology, Biotechnology, Information technology, Nanotechnology, and Robotics. See: http://en.wikipedia.org/wiki/High_technology. A “post high-tech economy” is what comes after or what leads to the other high tech economies of the world. To identify what will be the post high tech economy suitable for the American character, one should review other ways the creative and innovative citizens of American could create wealth and sustainable technologies valuable human progress.


48 Also see the materials provided to the Association for Budgeting and Financial Management at the 2004 Annual Conference in Chicago, IL (a PowerPoint presentation and article entitled “Transportation Renaissance: Community-Based, Pedestrians-Oriented Intermodal Facilities -- Defining Community Intermodal Systems as a Tool for Economic Development and Redevelopment”, Tom Gustafson and Jack...
Community building in this context assumes that thought is given to the community end products over time (the health, wealth, and happiness of its citizens in a free and open society) and that three central questions that are distinctive to the preferred community development in the 21st Century are discussed frequently: How do buildings link from one to the next so that, as you walk from one destination to another, you stay comfortable and safe? How are the spaces between buildings interesting, useful, and appealing, without discomfort from the rain, wind, sun, heat, and cold, such that they attract pedestrians toward transit stops and train stations? What things and activities in the Advanced TODs become progressively more beautiful and attractive to the five senses (what you see, hear, small, touch, and taste) as you approach the transit stop and train stations of the TOD? Does the process of community building include elements to assure community sustainability?

This paper assumes a greater emphasis is placed on multimodal transportation policy that would: I) keep the current road and bridge transportation system repaired, while expanding rail, transit, port, and airport facilities; and, ii) develop innovative intermodal connections that would seamlessly link all modes of transport to each other (i.e., cars and trucks, transit and rail vehicles, airplanes, spacecraft, boats, ships, and other vessels). By this means, the resulting multimodal transportation system is more redundant, reliable, energy efficient, and uncongested then one that relies too strongly on the car and truck as primary modes of transport. This can not be accomplished by building new or expanding the existing bridge and road network; it can be accomplished by the development of a truly multimodal transportation system where no one trip is likely to rely on a single mode of transport. Such a public policy is consistent with the leasing of major roadways so that their maintenance and improvements can be funded with toll receipts and not “subsidized” by transportation trust funds.

The built environment should be considered as including all the structures and landscaping that is created by humans as opposed to the natural environment. It has been defined as: “The urban environment consisting of buildings, roads, fixtures, parks, and all other improvements that form the physical character of a city.” See: http://www.ci.austin.tx.us/zoning/glossary.htm. The walking components that dominate such communities help to sustain frequent intended, random, and intermittent social and intellectual contacts that are important for advanced thinking and human progress. See: Moving in All the Right Directions, Transit Greenway Conference Report, The Significance of Walking (2001).

People learn when their senses are stimulated and it is believed they will learn more rapidly when immersed within a vibrant, lawful, diverse, intellectually challenging, and pedestrian-oriented urban environment. This is not to say the quiet places to contemplate observations are not also useful; based upon the time of day or night and the urban setting size, such places may also be found in these well-developed sustainable, mixed-use communities when arranged to accommodate multimodal assess points. For a more rigorous analysis of the need for critical and creative thinking and job skills important to the world marketplace refer to: The New Commission on Skills of the American Workforce’s Tough Choices for Tough Times (2007).

To make higher education and job training affordable and easily accessible, a full array of scholarships, loans, and student employment should be used. Further, an ongoing analysis should be undertaken to identify and provide funding for the core intellectual and career pursuits important in the new world economy. These subject matters of study should be promoted in order to recruit students to undertake such studies whenever they demonstrate the necessary interest and aptitude; this would include town planning, ecological studies, and the social sciences that help validate the need to balance consumption and production and to establish some net gain for the world as a whole.

Conclusions reached pursuant to discussions with John Zacharias and his continuing urban studies. See: http://gpe.concordia.ca/about/facultystaff/jzacharias.php.

57 See Appendix 1.

58 While there are many sources for inspiration in the conceiving of such development, economic, and social improvement strategies, the following materials have been found to be most useful to the authors of this paper: Pattern Language at: http://www.patternlanguage.com/; Nikos Salingaros at: http://zeta.math.utsa.edu/~vxk833/; International Making Cities Livable at: http://www.livablecities.org/; An Alternate Future – Florida in the 21st Century 2020.2040.2060 at: http://www.1000friendsofflorida.org/PUBS/2060/UCFAldimateFlorida2060.pdf and http://metrocenter.ucf.edu/files/penn_design.pdf; and the Bogota Challenge at: http://www.ecoplan.org/votebogota2000/general/bogotaproject.htm and http://www.abs.net.au/pm/content/2005/s1303555.htm; and anything that can be found that was written by or references Ben Breedlove (and the ecological basics he discusses: nesting, resting breeding and feeding) such as at: http://www.bda-inc.com/ and http://media.wiley.com/product_data/excerpt/30/0471709530/pdf. Also see: http://en.wikipedia.org/wiki/Carfree.

59 Mumford, Lewis, the City in History (1961).


62 Pedestrian-oriented defensible space considerations are used in community designs funded through local property taxes and assessments. See: the Safe Neighborhoods Act (FS 163.501 – 163.526) at: http://www.flstate.gov/statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=Ch163/PART04.HTM. Also see the Florida law for multimodal transportation districts where planning efforts assign a secondary priority to vehicle mobility and primary priority to assuring a safe, comfortable, and attractive pedestrian environment, with convenient interconnection to transit. (FS 163.3180 (15) at: http://www.flstate.gov/statutes/index.cfm?mode=View%20Statutes&SubMenu=1&App_mode=Display_Statute&Search_String=multimodal+transportation+districts&URL=CH0163/Sec3180.HTM.
To define the fair and equitable continuing public-private partnership will be the work of the Obama-Biden Administration and the state and local governments involved, although it should start with the idea that government will own the land under the rail and transit systems, rolling stock, guideway systems, train stations/transit stops, parking structures, streets, corridors, and plazas that will be improved and developed by the private partners. Ownership of the land upon which the mixed-use building will stand needs to be with the private development partner. Capital funds and profits are shared equitably and long-term management of all equipment and facilities will need to be built into the overall development strategy. High quality results based upon performance-based contracts will be required for the development, construction management, facilities maintenance, and rail service contracts. Identified economic or social impacts can be measured and made a part of the performance criteria when considering impacts of Advanced TODs and multimodal transportation systems as described herein. See The Geo Group, Inc. for a well regarded formula for private-public partnerships that provides governmental services operates within the United States and internationally at: http://www.thegeogroupinc.com/.

While American parking garages are typically as wide as a city block (which can vary in size, but typically measure from 264 feet wide to as much as 950 feet long), dimly lit, and sometimes frightening after the normal work hours, narrow parking structures (say 100 feet wide by 200 feet long) that are linked from one to the next via overhead or underground traffic aisles have an advantage in urban redevelopment efforts based upon the fact that they fit within a typical city block with room the spare for mixed-use buildings that need to be positioned along the perimeter of the parking structures in order to induce walking between the two or more sets of these combined mixed-use buildings/parking structures. Further, in such parking structures, the traffic aisles provide for car and delivery truck movements that would otherwise have congested the local streets that need to be reserved for large scale walking (traffic-calmed streets, mixed-mode streets, pedestrian corridors, courtyards and plazas). Finally, by narrowing the parking structure and providing for a long and narrow air/light well along its center axis, the parking structure interior is less forbidding to the passengers who want to leave their cars and walk through the parking structure to adjacent mixed-use buildings (offices, residences, hotel rooms, restaurants and retail establishments) and the pedestrian areas and transit facilities outward therefrom.

By positioning the mixed-use buildings that line the perimeter of the narrow and linked parking structures (liner buildings) outward from the parking structures and using the spaces between the building complexes for large-scale walking activities, many cars can have access to the Advanced TODs and move from parking structure to parking structure without disturbing or interfering with the walking environment that dominated the city or urban center (therefore “carfree” from the point of view of the pedestrian but highly accessible by the car traveling public).

European experience suggests that 30% passenger modal shifts (from cars to transit) can be achieved in a fully integrated multimodal system. Current American experience ranges from less than 1% to say 5% modal share for transit and trains. Assuming the advanced TOD and related transit greenway systems achieve their intended purpose (after parking their cars more people walk longer distances and access the transit and train vehicles in larger than expected numbers because the barriers for pedestrian movement have been removed and conditions that induce pedestrian movements have been enhanced), obtaining a three fold increase in transit use (or more during rush hours) should be considered very reasonable goal and will enhance national mobility, flexibility, reliability, efficiency, and energy conservation within these and other transportation sectors. See: http://www.scotland.gov.uk/Publications/2003/09/18178/26361; http://people.hofstra.edu/geotrans/eng/ch3en/conc3en/modalshift.html; http://www.evaluate-energy-

70 American, European, and Asian technologies exist to fill any of the train or transit service needs imaginable. Variations in speed, size, optimum travel distances, distances between stops, will help to respond to any transport capacities required. In any case, however, the capacity of transit greenways and these state of the practice Advanced TODs to deliver large numbers of potential customers to transit stops and train stations should be an important component of existing passenger rail systems and any new passenger rail proposal, including proposals for high speed rail service in the United States (see: Public Law 110-432, 110th Congress regarding the Federal Railroad Safety Administration, Amtrak Reform and Operational Improvements, Intercity Passenger Rail Service Corridor Capital Assistance, High-Speed Rail, rail related authorizations, and other purposes at: http://frwebgate.access.gpo.gov/cgi-service bin/getdoc.cgi?dbname=110_cong_public_laws&docid=f:publ432.110.pdf ). When passenger revenues substantially increase because each train operates at or near 100% capacity for the 18 hours per day, revenue projections will allow for a business plan that requires little or no continuing operating subsidy and assumes some capital grants can be received as loans that could be repaid over time.

71 Humans are drawn forward or repealed backwards and away from something they can see and hear at a great distance, at middle distance, and up close. They are also drawn or repealed by what they can smell at some middle distances and up close. Further, humans are attracted or not to what they can touch at arms length and taste at very close distances. What humans can sense affects their behavior which is fundamentally a behavior that involves self movement through walking or other means. The more movement occurs through walking, the more human we are. The more we all rely upon this specific human behavior, the happier and more successful we will be as members of the human race. With all the many complex issues that exist, one simple truth remains: If you walk, you will survive and prosper. If those parts of the world that we occupy and the cities that we build accommodate such walking behaviors, we can all be engines of this continuing economic recovery. In these circumstances, everyone gets to enjoy life and to “pick” where and how to live. They get to share meaningful lives with others that they love and use whatever “gold” they can find during their time on this earth.
Author Resumé Statements

1. **Tom Gustafson** previously served for 14 years in the Florida House of Representatives (1976-1990). In his last two years as Speaker of the House, he led an effort to change the lives of Children at Risk as described in Save Our Children Now! (1990). He also served consecutive terms as House Majority Whip, Insurance Committee Chair, Transportation Committee Chair, Health Care Chair, and Criminal Justice Chair. His major interest while serving in the Florida Legislature included growing the economy through proactive education, transportation, tax, and social policies. After 30 years, he retired from the practice of law and currently works at the Nova Southeastern University Oceanographic Center as the Director of Government and Ocean Policy. In that capacity, he is actively engaged in policy development for coastal ocean observing systems and internationally-linked multimodal transportation systems.

2. **Mike Langton** is the President of Langton Associates, Florida’s oldest and largest public affairs consulting firm. He and the staff of Langton Associates specializes in grant writing, grant administration, and intergovernmental administration. Mike served as a member of the Florida House of Representatives (1985-1992). He has an extensive career in Florida State and local government. While serving as a member of the Florida House, he had tours of duty as the Chair and Vice Chair of the Advisory Council on Intergovernmental Relations, Chair of the Oversight Committee, Chair of the Committee on Children and Youth, and the Deputy Majority Leader. He was recognized for his service by numerous statewide organizations including the Florida League of Cities, the Florida Chamber of Commerce and Florida Taxwatch.

3. **Al Hadeed** specializes in public interest policy and public sector law and is presently serving as the County Attorney of Flagler County, Florida, one of the nation’s fastest growing counties before the 2008 economic crisis. His work has focused on building better communities through innovative planning and effective public – private partnerships using an interdisciplinary, team approach. He presently is on the Board of Trustees of the Florida Trust for Historic Preservation (serving as its president for two terms). He also chairs the Board of Advisors of the University of Florida’s Center for Governmental Responsibility. He was founding general counsel of 1000 Friends of Florida and the founding executive director of Southern Legal Counsel, Florida’s first public interest litigation firm. He served as general counsel for the A-1-A National Scenic Byway from its initial efforts in 1999 until 2007 during which it received national and state recognition for its master planning. He also served as special counsel to the Speaker of the Florida House of Representatives and as special or general counsel to many civic organizations and local governments.
4. **Steve Sauls** is the Vice President for Governmental Relations at Florida International University (a 38,000 student majority-minority urban-serving university in Miami, Florida and the top producer of minority baccalaureate degrees in the 50 states). Steve has spent more than 34 years working in governmental relations as a senior advisor to two U.S. Congressmen, Governor and then U.S. Senator Bob Graham, Florida Speaker Tom Gustafson and FIU’s President. Actively involved in the transformation of FIU into a research university, Steve returned to FIU in 2006 to help launch FIU’s new public medical school. While in the private sector, he managed corporate environmental responsibility as well as community and governmental relations for a Fortune 150 global corporation where he launched a $7.5 million education and diversity philanthropy program. Steve Co-Chairs the Greater Miami Chamber of Commerce Federal Advocacy Committee, is a member of Miami-Dade County's East-West Corridor Citizen's Advisory Committee and serves on the legislative committee for Urban-Serving Universities. He obtained funding to establish FIU's Lehman Transportation Center and has long been an advocate for research to build stronger communities to withstand hurricane destruction.

5. **Jorge Dominicis** joined The GEO Group, Inc. in May 2004 as Senior Vice President of Residential Treatment Services and President of GEO Care, Inc., a wholly-owned subsidiary of The GEO Group, Inc. He is responsible for the overall management, administrative, and business development activities of the Residential Treatment Services division of The GEO Group and of GEO Care. Prior to joining The GEO Group, Mr. Dominicis served for 14 years as Vice President of Corporate Affairs at Florida Crystals Corporation where he was responsible for all governmental and public affairs activity at the local, state and federal level, as well as for the coordination of corporate community outreach and charitable involvement. Prior to that, Mr. Dominicis served in several public and government policy positions within the Florida Democratic Party and the Florida House of Representatives.

6. **Irv Minney** currently holds the position of Community Transit Officer with the Broward County Transportation Department and formerly served as a Contract Grants Administrator. Irv is responsible for the day to day operations of the Community Bus Program which operates in partnership with twenty-two municipalities in Broward County. While holding the position of Community Transit Officer, Irv also served as the Interim Director of the Downtown Fort Lauderdale Transportation Management Association. Prior to joining Broward County’s Transportation Division, Irv worked with the Museum of Discovery and Science in Fort Lauderdale. In the capacity of Community Outreach Coordinator, he served as a Board Member on the Florida Foundation For Future Scientists, Project Manager for the Florida State Science and Engineering Fair, founder and coordinator of the Elementary School Science Fair in
Broward County, and community liaison for interactive science programs such as the Family Science Forum and the Choose Health Lecture Series. Mr. Minney also served as the Deputy Director of Insurance (1980-1987) and Legislative Aide to Florida’s Speaker of the House (1988-1990).

7. **Fausto B. Gómez** is a government relations and public affairs counselor representing clients before the Florida Legislature, state agencies, and local governments in South Florida. His firm, Gómez Barker Associates, Inc., develops and implements lobbying strategies for over thirty private sector organizations and public entities. Activities include legislative and agency advocacy, research and analysis, resource development, and strategic communications. Previously, Fausto served as Director of Legislative Relations for Florida International University (lobbying for the institution from 1980 to 1986) and as Administrative Assistant to the City of Miami Mayor Maurice Ferre (1975-1980). He was also been a special correspondent to the ABC and Univision television affiliates in Miami providing on-air political analysis during electoral seasons. Mr. Gómez is a graduate of Florida International University and is active in the community, serving in the leadership of various business and civic organizations.

8. **Ramon Trias** is a town planner and architect and the founder and president of Trias and Associates. Prior to reentering private practice in 2005, Ramon served in professional staff positions in local government, first as planning coordinator for the Treasure Coast Regional Planning Council (FL) and later as planning director at the City of Fort Pierce (FL) for a decade. During his work in the public sector, Ramon pioneered the standard use of the “Charrette” for broadly-based city redevelopment initiatives that involved public and private projects. His work sparked the renaissance of many historic cities in Florida, including Fort Pierce. Ramon’s town planning work focused on investing very limited infrastructure resources in the most effective ways. For the past ten years, Ramon taught history and theory of architecture at Indian River State College and was visiting professor of architectural design at the University of Miami. Ramon has served on many civic boards, including St. Lucie County’s Planning Board. He currently serves on the St. Lucie County’s Smart Growth Committee and the Florida Trust for Historic Preservation. Ramon currently serves as the Secretary/Treasurer of the Treasure Coast Regional Planning Council.

9. **C. Douglas Coolman** is a Principal at EDSA and has lead international team efforts for planning, landscape architecture, urban design, and graphic design. A strong sense guides Doug’s vision to exceed the expectations of his clients and colleagues. With his enthusiasm, EDSA has established partnerships with local and international communities and residents. Doug has personally facilitated many successful consensus-building public workshops and interviews with civic and special interest groups. The end results
have been EDSA’s positive impact on creating urban and resort environments where people can feel safe, comfortable and at home. The instinctive foresight and positive impact of Doug’s efforts can now be felt around the globe.

10. Robert W. Tuthill has been an active architect in Fort Lauderdale, Florida for the past 35 years. As Cum Laude graduate of the University of Miami School of Architecture, Bob taught architectural and interior design studies at Broward Community College and the Fort Lauderdale Art Institute. Bob has received over 40 awards for his architectural, interior design, appearance, and beautification awards and as the CEO of Tuthill Architecture, he has brought to the South Florida region architectural designs of merit; highly useful for the intended purposes. Mr. Tuthill’s past and present professional activities and achievements include: Broward County Chapter of the American Institute of Architects officer; Fort Lauderdale Historical Society Trustee; recognition in Who’s Who of Florida; Code Enforcement Board of Ft. Lauderdale Vice Chairman; Art Institute of Fort Lauderdale Board of Advisors; Art in Public Places Advisory Board; Capital Center Planning Commission gubernatorial appointments; recognition by Outstanding Young Men of America; Fort Lauderdale Beach Design Arbitration Board; American Institute of Planners; City of Fort Lauderdale Selection Committees; and, Broward County Central Examining Board of Building Construction Trades.

11. Milota “Mike” Srkal has over 35 years of experience in corporation acquisitions, funding and development of new multinational ventures, privatization of transportation facilities, restructuring operating companies and reorganization of state agencies in Central and Eastern Europe. He has extensive experience in management and operation of businesses in United States and Europe and is knowledgeable in multinational coordination of governmental agencies and elected officials, attorneys, lobbyists, architects, engineers, public relation firms, and funding and financial institutions. Mike has a strong background working in North and South America, Western Europe, Easter and Central Europe, Russia and the Middle East.

12. Katherine Beck Katherine Beck is managing member of Global Rail Consortium LLC, an organization created to implement a high speed rail system in the State of Florida. In this capacity she organized an international consortium of 29 companies and directed creation of the proposal submitted to the Florida High Speed Rail Authority. Katherine continues to promote high speed and light rail projects in the Southeast and has a continuing business relationship with many Asian technology suppliers. As the owner Beck Consulting Group (BCG), a state certified DBE, Katherine provides along with the other members of BCG (John Beck and Cynthia Henderson) consulting services and lobbying to clients in both the public and private sector. BCG’s expertise lies mainly in the transportation and growth management areas with emphasis on business development

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in the areas of engineering and construction of roads, bridges, railroads, and toll facilities; access management, permitting; right of way acquisition; outdoor advertising; growth management and airport development. BCG also provides a broad array of lobbying and governmental consulting services and represents clients before the State Legislature, as well as the Executive Branch and Cabinet agencies of Florida.


14. **Irving Rosenbaum, D.P.A., Ed.D.,** draws upon more than thirty years in local government, business, academia, and public service. Dr. Rosenbaum has been City Manager for the City of Hollywood, Town Administrator of the Town of Davie, and Assistant to the Mayor in the City of Lauderhill. At present, Dr. Rosenbaum is Provost and Executive Dean for the Health Professions Division of Nova Southeastern University. Dr. Rosenbaum is an organizer and director of Regent Bank, a community bank with branches in Davie, Fort Lauderdale, West Palm Beach, Pompano Beach and Boca Raton, Florida. Dr. Rosenbaum's public service activities include serving as Chairman of the Broward County Higher Education Facilities Authority, on the State of Florida Public Service Commission Nominating Council, as a member of the Broward County Charter Review Commission and as a member of the Governing Board of Palmetto General Hospital. Dr. Rosenbaum is past chair of the Davie Economic Development Council.

15. **Jack Pinkowski, Ph.D.,** is an associate professor of public administration at the H. Wayne Huizenga School of Business and Entrepreneurship at Nova Southeastern University in Fort Lauderdale, Florida. He was named a Fulbright scholar for 2008-2009 (http://www.fulbright.ie/) to consult the Dublin City Council concerning economic development issues and enhancements that will make Dublin, Ireland more attractive for immigrant entrepreneurs by encouraging business development and expansion among immigrant communities. Pinkowski has extensive experience consulting local governments on economic development in the United States. He is a successful entrepreneur himself have started and operated several international businesses based in the U.S.A. (http://www.huizenga.nova.edu/faculty/?id=1481).
16. Richard Dodge, Ph. D., is Dean of and Professor at the Nova Southeastern University Oceanographic Center. He is Executive Director of the Center's National Coral Reef Institute. He received the B.A. degree from Univ. of Maine in 1969, and the M.Phil. and Ph.D. from Yale University in 1973 and 1978. He is Editor of the international scientific journal Coral Reefs. Dr. Dodge is a recognized authority on corals and coral reefs. His research has centered on the growth rates of reef-building corals, coral reef structure, fossil coral reefs, the ecology of recent corals reefs, coral reef damage assessment, and oil effects on corals and coral reefs. He has conducted reef related research in Haiti, Saudi Arabia, Puerto Rico, Barbados, Jamaica, the Virgin Islands, the Bahamas, Panama, Cayman Islands, Bermuda and Florida. Dodge has held grants and contracts for reef related work from the National Science Foundation, the Department of Energy, the US Geological Survey, the U.S. Navy, Florida Sea Grant, NOAA, the Environmental Protection Agency, South Florida Water Management District, Marine Spill Response Corporation, Office of Naval Research, State of Florida, Broward County Department of Planning and Environmental Protection, and the US Department of Justice. He is the author of many publications in the scientific literature and reports for various agencies and companies. He has served as an expert witness. He has been involved in on coral reef ecosystem injury and restoration related matters. He serves as the Secretary of the Southeast Coastal Ocean Observing Regional Association and chaired the Local Organizing Committee for the 11th International Coral Reef Symposium.

17. Bill Sulzbacher, SCSM, SCLS, is the President and Chief Executive Officer of Atlantic Coast Developers and has been involved in the shopping center industry for over thirty years (leasing, asset management, construction, development and redevelopment). Bill began his career at Regency Square in Jacksonville, Florida with the organization that became Regency Centers. With a partner, he founded Lakewest Equity Management Company in the late-1970s and focused on the redevelopment of first-generation shopping centers. He became a principal in the Baita Group of Companies specializing in acquisition and management of retail and office properties in Jacksonville and Atlanta until 2000 when he spun off Agora Developments, LLC as an independent entity. In 2004, he organized Atlantic Coast Developers. Mr. Sulzbacher is a member of the International Council of Shopping Centers (ICSC) and holds the Senior Shopping Center Manager (SCSM) and Senior Certified Leasing Specialist (SCLS) designations. He is a member of the Urban Land Institute (ULI) and is a Florida Licensed Real Estate Broker. Bill is a graduate of the University of Pennsylvania and holds a master’s degree from Jacksonville University. He currently serves on the University of Florida Real Estate Advisory Board, the ICSC Florida Government Affairs Committee, and the ICSC North Florida Conference Planning Committee. He sits on the advisory board to the Jacksonville Housing Authority and the board of the Florida Theatre of the Performing Arts and previously served as board Chairman to both these organizations. Bill serves on the Catholic Charities diocesan board, the Ability Housing of Northeast Florida board, and the Sulzbacher Center board.

18. Chris Brown has been promoting the principals of redeveloping downtown urban cores his entire life. Mr. Brown is a real estate developer with LD Jax Development and is an...
urban planner as well. Chris’ interest in affordable housing dates back to his graduate school days at the University of Pennsylvania when he and his brother negotiated with the City of Philadelphia and HUD to approve a community based program of affordable housing, utilizing the existing historic brick row houses of West Philadelphia. Recently in his role as CRA Director for the City of Delray Beach, he created a multi-agency affordable housing program in the city, constructing over 150 new homes for families whose incomes range from 50% to 100% of the county’s median income. His philosophy is that downtowns and their edge neighborhoods must have residential units that are affordable to lower income residents. His rationale is that, “To makes a real city, we need a work force that lives downtown and works downtown.” Since the 1980’s, Mr. Brown, as a developer, concentrated on residential development, constructing over 2,000 rental apartments and for-sale townhomes. He also served as a senior manager for two large public companies, Mitchell Energy (Houston) and Campeau (Toronto). Mr. Brown is a graduate of Yale University and holds a Master of Architecture and Master of City Planning from the University of Pennsylvania. He is a licensed real estate broker and a licensed general contractor in the State of Florida and recently served as President of the Board of the Florida Redevelopment Association.

19. Jeffrey T. Weil, S.C.S.M., is a commercial real estate developer active throughout the southeastern United States. Mr. Weil has engaged in the development, leasing, and management of hundreds of commercial and mixed-use real estate development. His primary focus includes major malls, power strips, neighborhood centers and entertainment/lifestyle centers. A former senior Vice President of Regency Development Corporation, the Rouse Company and Aronov Realty, Jeff is currently working with Atlantic coast Development and BDB Miami, LLC on major big box development in Miami, FL and Jacksonville, FL. Mr. Weil is a graduate of the University of Florida with a B.S. in Journalism, a members of Florida Blue Key honorary fraternity and is a Florida licensed real estate broker.

20. Don Mizell, Esq., was awarded a Bachelor of Arts degree from Swarthmore College, a Juris Doctorate from Harvard Law School, and is an alumnus of the American Film Institute. He is a Thomas J. Watson Fellow and he has been a member of the California State Bar since 1976. Mr. Mizell has been active as an executive/producer and attorney in the music and entertainment media, music and cultural arts industry for nearly three decades, specializing in management of business affairs, business development and creative marketing of intellectual property. A few of Mr. Mizell's accomplishments include: development of the successful marketing strategy for creation of the Martin Luther King, Jr. national holiday; author of Stevie Wonder's speech that launched the campaign for a Martin Luther King, Jr. Day as a national holiday; the first NAACP Image Award for Broadcasting (1981); served as Interim Head of Business Mathematics.
Development/Consumer Products Division of the Walt Disney Company, responsible for marketing the *Little Mermaid* music products line; wrote and narrated a documentary film entitled *Ghana, Land of the Gold Coast*, a MonuMint Films Production; produced and directed a documentary, *Black Across the Tracks: Old Black Fort Lauderdale*, Broward County Florida Library, African American Research Library, Oral History Preservation Project, 2002. Mr. Mizell has taught documentary film at Pomona College, and has lectured University of California Berkeley, Wellesley College, Penn State, Rutgers University and the University of Rhode Island. In 2005 Mr. Mizell won the Grammy for *Album of the Year* as one of the producers of Ray Charles' *Genius Loves Company* (2004). Don is the co-author of the November 2008 comprehensive business plan for the *Gospel Complex for Education & Preservation* commissioned by Broward County Commission under the auspices of the South Florida Regional Planning Council.

21. **Jack Gillig** has 35 years experience in the golf industry. With extensive golf, chef and restaurant management experience, he has helped to design and create many upscale start-up golf resorts and community developments. As a Golf Pro at several prestigious golf facilities, Jack won over 40 World Long Drive events (ranking as high as 17th in the world). Jack taught golf with some of the greatest golf instructors in the world at the International Golf School at Boca West and at co-schools sessions with Golf Digest. In the 1990's, as a successful investment banker, he helped to bring over one hundred companies public and worked on the selection and marketing of many private placements. After five years in the financial industry, Mr. Gillig transferred to Morgan Stanley as an investment adviser and later went back to work as a multifaceted golf industry consultant. Golf equipment companies and restaurants have also hired Jack as a consultant. Mr. Gillig has been issued ten golf patents and opened his own intellectual golf company, Triple Tee Golf, Inc. (TTT) to manage them. TTT now has the rights to over fifty golf patents and many of the leading club designs today use these technologies.

22. **Slade O’Brien** is president of Florida Strategies Group. The firm, established in March of 2002, specializes in public opinion strategies, campaign & coalition management, strategic consulting for the development community & and grassroots & grass tops organizing. Before forming FSG Mr. O’Brien served as the Florida Director of Citizens for a Sound Economy, a Washington D.C. based free-market think tank and grassroots political organization from 1998 to 2002. He built the Florida organization from scratch and turned it into a 45,000 member grassroots powerhouse, with local clubs in 11 markets, which played key roles in passing a pro-economy agenda. Mr. O’Brien has also served as Special Assistant to the Chairman of the Republican Party of Florida for Victory 94.
23. **Mickie Leonard** is active as a Realtor and Mortgage Broker. She also holds an active Florida license as a Registered Nurse. Since 1988 she has served as President of LCI of Ft Lauderdale, a real estate investment and acquisitions company established in 1954. She has had an extensive executive career in finance and banking serving from 1986 through 2004, in capacities as president and chairman of the board of directors of a community bank in Broward County, as well as being a majority shareholder. She served on many civic and charitable boards, including the American Lung Association of Broward, Glades and Hendry Counties, the Greater Fort Lauderdale Chamber of Commerce and the United Way of Broward County. She helped organize and found the Broward County Banker’s Association and the Broward Women’s Alliance. She served on the Governor’s Counsel for Review and Reorganization of Florida Department of Children and Families (District 10). She was recognized for her service by organizations including the Greater Fort Lauderdale Chamber of Commerce and the Greater Fort Lauderdale Philharmonic Society.

24. **George LeMieux** is an attorney and shareholder of the Gunster, Yoakley law firm specializing in corporate counseling and litigation. In March of 2008, he was selected as Chairman of the Firm. George previously served as Florida’s Deputy Attorney General and Chief of Staff to the Attorney General’s Office (2003-2006). He served as the Executive Director of the Crist/Kottkamp transition team before his selection as Chief of Staff to Governor Charlie Crist (2007-2008). Mr. LeMieux also served as the National Finance Co-Chair of the Republican Governors Association (2008), Chair of the Broward County Republican Party (2000-2002), and campaign manager for the 2006 gubernatorial campaign of Charlie Crist. For his gubernatorial campaign efforts, George received the prestigious "Pollie" award from the American Association of Political Consultants as the nation's "MVP" in a Republican campaign for 2006. Mr. LeMieux is a native Floridian and grew up in Broward County, Florida. George graduated magna cum laude and phi beta kappa from Emory University with a degree in political science. He received his law school education at Georgetown University where he also graduated with honors.

25. **J. Michael Haygood** specializes in local government with emphasis on community redevelopment issues. He has served as general counsel to more than 10 community redevelopment agencies in Broward and Palm Beach County. He presently represents the Riviera Beach and Lauderdale Lakes Community Redevelopment Agencies. He also represents several community development corporations which are developers of affordable housing. He is a member of and sits on the board of directors of several civic organizations.
26. Richard A. Freiberg, OMD, began his study of Acupuncture and Oriental Medicine in 1985 as an apprentice to Dr. Robert C. Sohn, AP, Ph.D., and received his Masters in Acupuncture & Oriental Medicine from Atlantic Institute of Oriental Medicine in 1997. Richard studied under Dr. Anton Jayasuriya at Medicina Alternatina Institute (Colombo, Sri Lanka) and was awarded a Doctor of Oriental Medicine (OMD) degree in July 1998. Dr. Freiberg has been licensed in Florida as an Acupuncture Physician since January 1997, has been licensed as a Doctor of Acupuncture in Rhode Island since 1998, and has been licensed and registered as a Naturopathic Doctor in Washington, DC since 2004. Richard apprenticed in advanced studies with the well known traditional Chinese herbal expert Dr. Wu, Boping, MD, OMD, Ph. D. (China) from 1994 through 2000. Dr. Freiberg has created a synergistic treatment method consisting of two ancient modalities: Gua Sha (frictional rubbing) and Ba Gua (empty cupping) which Dr. Wu named Ba Gua Fa. Dr. Freiberg has successfully utilized this unique technique in resolving pain syndromes in over 20,000 patient treatments. In November 2008, Richard taught a two day workshop on Ba Gua Fa to the European Federation of Oriental Medicine (EUFOM) in Belgium. Attendees were mostly MDs and physiotherapists practicing acupuncture. See: EUFOM website at: http://www.eufom.com/. Dr. Freiberg in December 2007 presented his years of clinical experience in resolving soft tissue pain syndromes at the First International Fascia Research Symposium that was hosted by Harvard Medical, Boston, MA (http://www.fascia2007.com/abstracts.php). See published abstract by Elsevier ISBN: 978-3-437-55009-6 at: http://www.fascia2007.com/abstract_pdf/Freiberg%20(15)%20Carpal%20Tunnel%20Syndrome%20Resolved%20by%20Ba%20Gua%20Fa.pdf.

Dr. Freiberg and Dr. Wu in 2003 presented testimony to the Subcommittee on Standards and Security of the National Committee on Vital and Health Statistics, U.S. Department of Health and Human Services (see: http://www.ncvhs.hhs.gov/030129p6b.htm and http://www.ncvhs.hhs.gov/030129tr.htm#freiberg).
Growing the New American Economy

Public-private partnerships for the development of Transit Greenways, Advanced TODs, the national multimodal transportation system and jobs for Americans

February 12, 2009
Appendix 1

TheNewCommunityParadigm

2006
The New Community Paradigm:

Pedestrian-oriented community intermodal systems within the environments of urbanized and city centers

By Tom Gustafson
December 30, 2006

INTRODUCTION:

In *The New Community Paradigm*, buildings touch from one to the next. The dominant urban form would consist of mixed-use buildings positioned on the perimeter of very narrow parking structures. People live, work, and play in the pedestrian-oriented spaces between these urban forms. Automobiles and their passengers arrive from throughout the region on limited-access highways. Roads run to, but not through, these urbanized centers. Traffic-calmed streets and mixed-mode streets help to provide access to transit and to the structured parking that is dispersed along the fringe of the pedestrian-oriented city and town centers.

Cars within these structures are less visible to the pedestrian. Parking lots do not exist. A relatively small number of parking spaces parallel to the traffic-calmed streets are positioned between wider cross-sections of the sidewalk (bulbouts). People filter through transit access corridors, mixed-use pedestrian-oriented parking structures, and the community intermodal system to many destinations. Within car-free mixed-mode streets, they travel on foot, via bicycles, or by small pedestrian-compatible community transit or trams to regional and inter-regional rail or bus stations adjacent pedestrian-oriented streets, corridors, plazas, and courtyards.

Efficient and comfortable linkages via narrow gauge rail or similar parking shuttle vehicles are provided to aviation and shipping facilities and to other modes of transportation. Multi-purpose underground utility conduit systems provide for all current and future smart building needs. Truck and freight rail deliveries are scheduled to avoid busy pedestrian movements and use shared freight docks for neighborhood loading and unloading. Energy is conserved.

The streets, corridors, and all pedestrian areas are full of color, wonderful aromas, fresh food and every kind of refreshment. Pedestrians are drawn forward based upon what they see, hear, smell, taste, and touch. Stores, restaurants, places of employment, and homes open to the pedestrian-oriented streets, corridors, plazas, and courtyards. These outdoor living rooms are framed by beautiful trees, buildings, fountains, and public art. People dance in the streets and other pedestrian areas; they converse with perfect strangers and enjoy the warming sun, cool breeze, and even the rain. Runoff is filtered, water reused, and waste recycled or composted.

Balconies and windows connect building inhabitants with the people in these very attractive public places. No one architect designs more than fifty feet of the exterior wall length for any single city block. Solar and wind power are integrated within the urban form. Roofs and balconies are full of plants and trees.
Places to sit and watch the parade of daily events are located throughout these urban centers. Some areas are shaded, some are sheltered from rain, and some are located in direct sunlight. Sitting in any weather is relaxing and enjoyable. Pedestrian areas are 30 feet or wider to accommodate very large scale pedestrian movements, bicycles, and small trams; these corridor widths allow pedestrians to adjust their routes to suit changing weather conditions. Building features form continuous structural protection from the rain, wind, heat and cold and provide shortcuts from one destination to the next.

Birds sing, children play, and adults engage in economically and socially rewarding exchanges. The entire population walks more than thought possible; consequently, they remain much healthier and energized. People tend to be happy. Work tends to be accomplished with less effort and greater efficiency. Housing is affordable. Worksites can be found near at hand, or they can be easily reached by multi-modal and redundant regional (or inter-regional) transportation systems. Urban city and town centers are safe and secure from all likely threats due to the specific arrangement of buildings, streets, corridors, openings, and parking structures.

In *The New Community Paradigm*, streets are built of decorative stone and brick. Community gardens dot the landscape. People do not miss the asphalt or road construction. More often they fall in love with each other rather than their cars. Fewer of their friends die in car accidents. Once these urban centers are fully developed, the car is a less enjoyable place to sit when compared to the many public places responding to human needs that frame the city streets and plazas.

In coming decades, it will be effortless to adjust daily activities to take advantage of this sustainable and more productive lifestyle. When urban centers are systemically developed to provide for pedestrian-oriented outdoor spaces that are comfortable, safe, useful, and interesting, continued education and economic growth will be second-nature and ordinary. People will simply enjoy life, love their families and friends, and lead productive lives in a more beautiful and supportive environment. *Who would have thought that improving the life in the city could be so simple?*

Figure 1 depicts the very active and diverse pedestrian-oriented street life in Amsterdam, The Netherlands. As shown, the pedestrians, bicyclists, and trams can comfortably and efficiently share a public corridor. Referenced as a mixed-mode street by John Zacharias (*The Amsterdam Experiment in Mixing Pedestrians, Trams and Bicycles*, ITE Journal/August 1999, pp 22-28), such corridors constitute one of the elements of a community intermodal system (CIS) as developed by Tom Gustafson and others. A CIS can be described as a methodology to improve passenger train and transit access so that multimodal trips will substantially increase. When a CIS is applied to improve a transit oriented development (TOD), a CIS-related TOD should incorporate elements of a state of the practice science park in order to stimulate and sustain economic growth in a competitive world marketplace.
Appendix 2

Size and dimensions truly matter

2008
Size and dimensions truly matter by Tom Gustafson

The size and dimensions of many components of a transit greenway system and advanced educationally-anchored, pedestrian-oriented, mixed-use communities truly matter.\(^1\) For example, the overall size of small, fixed-guideway trams for transit greenways need to be carefully considered so that they can move through crowds of pedestrians without event or pedestrian concern. If they are too small, they get bogged down in the pedestrian crowd. If too large they frighten the pedestrians away. Understanding the human scale and the specific measurements of the components that allow for or induce large-scale pedestrian movement is critical to the success of any pedestrian sensitive transport system.

After much study and thought, current thinking suggests transit greenway vehicles should be seven foot wide by nine foot tall very low floored vehicles (the vehicle floor height matches with the height of the sidewalks at entry points) that operate on 30 pound steel track at 5 to 8 miles per hour. When configured as a 30 inch narrow gauge rail trolley (acting as a “bench of wheels”) using a diesel-hydraulic or an electric motor drive system, this tram can consist of a train of three 25 foot long railway vehicles with a carrying capacity of about 65 to 100 passengers per train.\(^2\)

Most transit operators, who might not be impressed with the carrying capacity of a transit greenway vehicle, would be impressed with the maximum carrying capacity of a transit greenway system. It is quite large; being the combination of the number of vehicles that circulate each hour (say six trams carrying 100 persons each within a one mile route) and the number of pedestrians walking along the same course between the rides they take in this “bench on wheels”.

If eight people walk abreast within the 30 foot transit greenway corridor with a 5 foot separation between pedestrians as they walk behind each other, there could be about 3,840 people walking or intermittently sitting per mile of transit greenway\(^3\). To form a mental image of this capacity, imagine a crowded airport terminal corridor or a slow night at Mardi Gras in New Orleans, LA.

If the trams operated at five miles per hour and the pedestrians walked at three miles per hour, this would bring up to 14,520 people to any destination along the transit greenway each hour.\(^4\)

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1. This terminology (“advanced educationally-anchored, pedestrian-oriented, mixed-use communities”) can also be referenced as an “advanced TOD” when applied to communities configured as transit oriented developments adjacent transit stops or passenger train stations that have the additional attributes as described in footnote 17 of Growing the American Economy (2009).
2. 65 passengers in the two car trains and 100 in the three car trains assuming the dimensions and specifications as proposed for the Orlando Downtown Parking Shuttle (ODPS) Transit Greenway.
3. Given there is 5280 feet in a mile, a theoretical row of pedestrians assembled 8 across in a 30 foot wide transit greenway can be positioned every 11 feet (five feet between rows of pedestrians that are themselves about one foot deep in dimension). This means there would be 480 such “rows” of pedestrian possible within a mile distance (5280 divided by 11 equals 480) and, with 8 pedestrians to a row, there would be a pedestrian capacity of 3840 people walking per mile.
4. Assume six vehicles carrying 100 passengers (600 passengers) that cycle through a one mile transit greenway 5 times in one hour or 3000 people and assume 3,840 people walking that cycle through a one mile transit greenway or multi-modal corridor 3 times in one hour or 11,520 so that the total transit greenway per mile capacity is 14,520.
When operating within an 18 hour day, the travel capacity of one mile of greenway is therefore an astonishing 261,360 people.\(^5\)

Assuming the convergence of up to six transit greenways or related mixed-mode streets (transit greenways within urbanized settings where mixed-use or destination buildings are continuously positioned along the corridor perimeter) from six or so separate directions, then up to 1,568,160 people per day could pulse through a transit greenway leading to a transit oriented development (TOD) and through the mixed-mode streets of an advanced TOD\(^6\) to one or more carfree public plazas of size (say 800 foot square or larger; 640,000 square feet or so).

Of these numbers, up to a third of all pedestrians would likely be candidates for completing the next segment of their trip by regional or interregional transit beyond the reach of the advanced TOD or transit greenway related to it. This would mean that the number of persons per day that might use regional transit from this advanced TOD to the next could be 522,720 people per day (the number of people that would have the opportunity to access transit from the public plaza or square). Assuming ten minute train cycles operating in two different directions, passengers that are likely to want to access the trains at such locations would number 2420 persons per train.\(^7\)

While the actual number of passengers boarding the transit vehicles and passenger trains will be lower then these capacity projections, it would be safe to say that hundreds and thousands of customers will be ready to board any transit or passenger train offering superior and timely service to desired destinations. Ultimately, the success of any multimodal system of transport will depend upon the desirable locations that can be accessed by regional and interregional trains, the variety of destinations that can be linked to the advanced TOD by transit greenways, the intermodal conveniences and the desirability of the TOD destinations themselves, and the quality of the built environment within this intuitive, but very complex, advanced TOD.

What this means in the art of community and nation building is that Americans will change from a nation of pedestrians that range outwardly ¼ mile of so from their origination point, to a nation of pedestrians that, without continuously walking (via the intermittent use of transit greenway vehicles), will have a travel range of 2 miles or more within a properly organized, sized and dimensioned transit greenway system and advanced TOD. Every American may then have local, regional, interregional, national and international mobility within an efficient and effective multimodal system that uses cars for some, but not all, trip segments. In the process, Americans are more healthy, wealthy, and wise.

This would establish clearly that size and dimensions do truly matter.

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\(^5\) Multiply 14,520 by 18 hours to arrive at a 261,360 pedestrian capacity per one mile of transit greenway or multimodal corridor in an 18 hour day.

\(^6\) The term “advanced TOD” is used to describe an advanced educationally-anchored, pedestrian-oriented, mixed-use community as described in the *Growing the American Economy* (2009) article that is related to this Appendix II document. Note that transit greenways radiate outwardly from an advanced TOD and become mixed-mode streets within the advanced TOD when they gain buildings continuously positioned along both sides of the pedestrian-oriented corridor.

\(^7\) Assume 6 trains per hour in both directions or 12 trains per hour for 18 hours (totals 216 trains arriving and departing a TOD equipped station). With 522,720 potential train customers divided by 216 trains, you can calculate a theoretical need for each train to embark and disembark up to 2420 passengers per stop.
Appendix 3

The Amsterdam Experiment in Mixing Pedestrians, Trams and Bicycles

1999
The Amsterdam Experiment in Mixing Pedestrians, Trams and Bicycles

Mixed-Mode Streets Are Being Proposed As a Solution to Local Traffic and Land-Use Problems. In the study described in this feature, a de facto mixed-mode street in Amsterdam with relatively high traffic volume was studied to determine how the modes and directions are accommodated.

Pedestrian zones have become a familiar feature in the central areas of European cities. Private cars are always excluded from these zones, while delivery vehicles are permitted during off-peak hours. Bicycles and taxis are typically relegated to a circumferential service road. Some have argued that such rigid traffic separation contributes to economic and environmental disparity between the pedestrian zone and its surroundings. The concentration of high-value retailing, services and pedestrians within the zone contrasts with low values and heavy car traffic at the periphery. Traffic-calming experiments during the 1970s and 1980s demonstrated that environmental design could reduce both the volume and the environmental impact of cars in local areas.

These results have led to speculation about how a controlled mix of traffic modes might be made to lessen these central-area contrasts. The role of the bicycle in particular has not been addressed in pedestrian zone planning. The bicycle is typically treated as a vehicle even in those cities where its use is encouraged. However, since environmental design cannot be used to exclude cyclists from pedestrian areas, planners have to rely on cyclist adherence to regulation, a dubious proposition in many cities.

The Netherlands has consistently embraced the principles of traffic separation while promoting use of the bicycle. Pedestrianized core areas and an extensive system of separate bikeways are found in all major towns and cities. Bicycles are routinely used for all kinds of intra-urban trips and are found not only on bicycle pathways but also on all other streets as well. The extensive pedestrian zones, some exceeding a 30-minute walk across the diameter, make the bicycle more attractive than pedestrian or public transportation alternatives. The bicycle offers significant time saving, relative safety and convenience. The pedestrian zones provide cyclists with alternative routes that are often illegal but are nevertheless used on a regular basis.

Authority and cyclist use of these pedestrian paths, as long as it does not contribute to pedestrian discomfort or accidents. Some Dutch observers argue that such a liberal approach works best since the level of cyclist use is largely self-regulating. According to the self-regulation theory, cyclists take responsibility for collision avoidance and pedal through pedestrianized zones if pedestrian traffic volumes allow them to do so comfortably and safely.

Effective width of the street is less than the real one because pedestrians do not use all of it. The design factors in preference for a particular path trajectory need to be examined. It has been suggested that walkway capacity will be reduced when there is two-way movement and when this movement is uneven. This is because the secondary flow will be dispersed in and among those moving in the opposite direction.

Even flows in opposite directions will tend to sort into separate streams but only at density levels somewhat greater than those in the Leidsestraat. In typical commercial streets, there is bound to be an uneven distribution of pedestrians in the observed stream, and the streams themselves may not be stable. While such conditions may be tolerable for pedestrian travelers, bicycle travelers may not be as well-adapted.

This de facto mixing of modes merits study for several reasons. If such systems can be made to work safely and efficiently, they can solve many planning problems. The major issues in addition to level of service are comfort, convenience, safety and attractiveness. While these questions have generally supported traffic separation as safer than mixing, not all agree with this view, citing the persistent accident rates at intersections of pedestrian and bicycle pathways with vehicular routes. The self-regulating theory, they say, can solve many planning problems.

In this feature, we examine the patterns of movement as they appear over time and in relation to the plan of the street. We show how the various identification streams of movement (eight of them) use various parts of the street surface, overlap, expand and contract. Secondly, we discuss the role of environmental design in the behavior of pedestrians and cyclists. Finally, we consider how variations in density impact on the space available for cyclists.

Our method involved videotaping sections of the street from elevated positions on bridges with a digital camera. Midday samples were taken at three sections of the street, each with the same cross-sectional design but with different intersection configurations and different pedestrian volumes.

The tape was sampled in single cross-sectional design but with different intersection configurations and different pedestrian volumes. The secondary flows in opposite directions will tend to sort into separate streams but only at density levels somewhat greater than those in the Leidsestraat. In typical commercial streets, there is bound to be an uneven distribution of pedestrians in the observed stream, and the streams themselves may not be stable. While such conditions may be tolerable for pedestrian travelers, bicycle travelers may not be as well-adapted. This de facto mixing of modes merits study for several reasons. If such systems can be made to work safely and efficiently, they can solve many planning problems.

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THE LEIDSESTRAAT CASE STUDY

The Leidsestraat is a particular case but typical for the questions raised by such de facto shared pedestrian corridors. The street is officially pedestrianized and directly linked with the most heavily traveled parts of the central walking system, including the Kalverstraat and Nieuwendijk (Figure 1). These latter streets are narrower with higher overall flow levels and no bicycles except in off-peak hours. The Leidsestraat is the most important north-south transportation corridor through the city, at least until the north-south metro line is completed.

The street is also the major traffic carrier in an area of four- to six-story buildings with high site coverage, even though the street itself is only 12 meters (m) wide. The Leidsestraat is lined with clothing, houseware and gift shops as well as small restaurants. The transversal streets also are lined with restaurants, which generate considerable traffic in the evenings. The Leidsestraat itself empties into the Leidseplein, one of the most important entertainment centers in the city and the junction of several tramlines, bicycle and car routes. During the peak period from noon until 3 p.m., pedestrian volumes vary from 3,000 to 4,000 persons/hour (h). Although the great majority of pedestrians are natives, tourists form an important minority, more for their conspicuous behavior than for their actual numbers. These tourists pass through these streets at headways of about two minutes, for a carrying capacity of 2,800/h. The cyclist volume varied between 200 and 300/h.

The street is demarcated by a single, overlapped tramtrack in the center, set in asphalt and bordered by a gutter grating. Both sides of the grating to the building faces are paved in brick. These wide strips of brick are divided into two parts, the inner building edge being finished in a variegated and unevenly laid brick while the central strip is flat and even (Figure 2). Part of the rough brick surface also is used for store displays, bicycle parking and refuse bins. Pedestrians are concentrated in the flat brick area but also stray onto the tramtracks when the density is high. Up to half of the bicyclists follow in the wake of the tram, share the asphalt strip between the rails or veer between groups of moving pedestrians. Faster moving pedestrians usually choose to venture into the tramtrack area, moving out of the way of oncoming pedestrians, cyclists or trams (Figure 3).

Movement in both dominant directions is heavily interrupted, with additional movement from side to side of the street. Through the center at two-minute intervals trams pass alternately in both directions. Bicycles weave through all of this movement. Dozens of collision accidents appear ready to happen at any one moment although very few are witnessed (none in several days of observation).

RESEARCH RESULTS

The Leidsestraat never experiences a density of traffic resulting in the overall slowing of pedestrian movement, although individual progress is impeded frequently and temporarily. The average peak of 4.6 persons/minute/m is below those levels found to result in reduced speed, platooning and reduced cross-movement, all of which can however be observed nearby on the Kalverstraat. The pedestrian density on the Leidsestraat is 0.18 pedestrians/m². This is much less than the critical value of 1 for a reduction of speed. Nevertheless, it has been suggested that truly unimpeded walking requires about 12 m²/pedestrian, equivalent to 6.5 pedestrians/minute/m of walkway width. The Leidsestraat average pedestrian density is 6.1 m²/pedestrian with a standard deviation of 2.1. If only effective walkway width is considered, i.e., the flat-bricked area, then the space/pedestrian would approach 4 m². While the average walking speed is a relatively high 5.3 kilometers per hour (kph), slower-moving platoons and meandering tourists frustrate free movement several times while traversing a single block.

The regularity of our data is important to our conclusions, especially in light of the variety of movement patterns. Several studies have related the volume of pedestrian movement and limited observations (see Ref. 11 for instance). Haynes provided a way to estimate the sampling error in pedestrian counts, using the pedestrian environment in Norwich. At the flow rate and for the sampling times in our street, we could expect about 10 percent error.
in speed in this arrangement although there is a need to be alert to possible collision with other pedestrians. For the cyclist in particular, the challenge is substantially greater since people in the street are moving toward and away from their own moving bicycle and in a constantly changing distribution across the width of the street. While cyclists tend to seek the underused central portion of the street, they share a relatively narrow strip. The space between the rails is just wide enough for two bicycles to squeeze by with a clearance of a couple of centimeters, otherwise requiring a fairly sharp movement to cross the rails at an obverse angle. Cyclists tend to keep to the right of each other within the available channel for them (Figure 4).

Moreover, the individual paths are clustered together in a relatively small part of the available channel. Figure 5 illustrates traffic density on the same section of the Leidsestraat as illustrated in Figure 1.

Shoppers make up only 5 percent of the traffic in any one section of the street. Since the street is long, a higher proportion of the pedestrians are also shoppers at some part of the street, but they do not behave as shoppers for the most part. Shoppers tend to weave across the streets of traffic, deferring to the through movement and only occasionally coming into conflict with others. Other shoppers cling to the relatively untraveled portion of the street next to the building facade. Much more cross movement is encountered at the block ends where transversal streets carrying car traffic cross the Leidsestraat. At this point, cyclists and drivers attempt to cross the Leidsestraat traffic streams without explicit rules or traffic lights to guide them. Cross movement defers to through movement, although this often amounts to edging into the stream until pedestrians yield the right of way.

Finally, we considered the question of whether pedestrians and cyclists tend to distribute themselves variably across the street surface at various densities. Our measurements from each individual to the three nearest neighbors were thought to capture all spacing maneuvers individuals were likely to engage in. These measurements included those individuals walking together who could not be expected to disperse at lower overall pedestrian density. We can nevertheless observe a tendency toward dispersion over the whole sample, as shown in Figure 6. This means that an increase in density does not produce a linear increase in pedestrian presence over the road surface.

Cyclists were observed to maintain a greater distance from each other and from pedestrians than pedestrians did from each other. The distances between cyclists and others include only nine instances out of 248, which are less than 1 m, representing comfort distance. No relationship is found between cyclists and others, as a function of overall density. Over the density range in our sample, the conflicts that occurred were not attributable to density but to chance encounters.

CONCLUSIONS

Visitors to Amsterdam are often amazed to observe the free movement of pedestrians, cyclists and trams and especially the skill of the Amsterdam cyclist. Others are impressed by the apparent insouciance of parents with babies mounted front and back of the bicycle, riding in the rain between tramtracks and pedestrians (Figure 7).

In this particular case, we were interested in sorting out the movements to develop an approach to measuring thresholds for such mixed-use streets. While the Leidsestraat seems to operate within tolerable limits of mixing, increased density will surely lead to an increasing number of conflicts and the eventual diminution of the bicycle presence over the street.

We have discovered that the variation in density observed here have little or no effect on cycling behavior. Moreover, overall density may be a poor measure of the capacity of the street, since the spatial distribution of pedestrians is clearly a more important factor in the accommodation of the bicycle. The most promising feature of the Leidsestraat case is the role of environmental design in the location of movement streams. Subtle changes in paving are closely related to the distribution of pedestrians and bicycles in the street.

To study thresholds for pedestrian and bicycle mixes for different street configurations, we will need a much larger set of visual records, covering a wider range of densities. It also would be useful to conduct a study of individual trajectories within a dynamic field to develop a more complete catalog of behaviors that could be incorporated into an eventual model.

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References


JOHN ZACHARIAS is an Associate Professor with the Urban Studies Programme at Carola University in Montreal, Quebec, Canada, where he conducts research in spatial behavior. The present feature is part of a program for developing new urban designs for Chinese cities.
Appendix 4

Community Intermodal Systems and the Transportation Renaissance

Association for Budgeting and Financial Management Annual Conference in Chicago, IL

2004
VisionBROWARD was a community economic development strategy initiative. Used state of the art in-person and online technologies to create a virtual community and efficient and effective consensus building process involving disparate parties and viewpoints. Copyright 2004 by Tom Gustafson

9 Recommendations
7 Task Forces
Economic & Community Development

Affordable housing, diversity opportunities and pedestrian-orient intermodal facilities connecting interregional multimodal transportation systems.

Transportation Integration

- Assumes a built environment that provides for all human needs (e.g., governmental, religious, commercial, health, education, entertainment, cultural, residential, employment).
- A transportation system that is safe, reliable, energy efficient, cost effective, technologically advanced and environmentally benign and that enhances the Nation’s and Florida’s global economic competitiveness, productivity and quality of life.
Transportation Action Plan
VisionBROWARD

- Encourage community redevelopment through a coordination of land use, community design and multimodal transportation improvements (pedestrian, bicycle and transit linkages for the movement of people and goods to each segment of every community).
- Use existing road funds to construct parking structures with mixed use liner buildings to support a sustainable world-class transportation system.
- Mitigate gentrification and economic hardship through use of available grant funds for housing, job training and community building.

The Core Funding Strategy

World-class mobility and exceptional economic growth can be more readily achieved if road funds are used to fund community-based, pedestrian-oriented intermodal facilities and related community improvements.
Community Intermodal Systems (CIS) Definition

Suggests a method of movement that develops, within the community context, high quality public spaces between buildings that are safe, comfortable, useful and interesting.

CIS Components

- Semi-enclosed Corridors and Public Squares
- Structural Parking with Mixed-use Liner Building
- Community Transit
- Carfree Center
- Limited Access Roadway Ramps
- Elevated Traffic Aisles between Parking Structures and Traffic Calmed Access Streets
Community-Based and Pedestrian-Oriented

Large numbers of people walk longer than typical distances because they enjoy the experience and the design features protect and support the traveler during both the walk and ride phases of typical multimodal trips.

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Carfree Center

Cars are still a dominant method of transport, but they are parked in shared-use parking structures surrounded by mixed-use liner buildings that help to form corridors and plaza that constitute a consistent pedestrian-oriented urban form and habitat.

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Community Transit Alternatives

The automobile and truck traffic is less visible in the street, air quality is improved, pedestrian safety is assured and multimodal trip needs are addressed so that a significant shift to alternative modes of transportation occurs.

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Structural Parking Component

- At parameter of pedestrian-oriented downtown or community center
- One directional vehicular movement from access to exit
- Parallel parking along parking structure outer edge
- Angled parking around central air/light well that also provides for landscape and run-off area
- Mixed-use liner buildings
- Elevated traffic aisle between parking structures

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Transportation Funding Options

- National Intermodal Transportation System Improvements/Intermodal Passenger Facilities (Proposed by USDOT and SB1072)
- Flexible Funding from Federal Highway Trust Fund (Highway Account)
- Fringe and Corridor Parking Facilities
- Transportation and Community and System Preservation Pilot (TCSP) Program
- Florida’s Strategic Intermodal System and State Transit Programs

Modal Choices within Urban Centers

- Port of Miami
- Metrorail, Metromover and Metrobus
- Intercity Bus/Greyhound
- Miami River/Biscayne Bay
- Automotive
- Walking
- Bicycling
- Airport (within 2 miles)
- Proposed Bay Link and Miami streetcar service
Community Intermodal Systems

Questions?

Nova Southeastern University
October 7, 2004

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Abstract

This paper addresses transportation and redevelopment recommendations that originated in Florida through a community visioning and strategic planning exercise, entitled VisionBROWARD. References in the literature regarding community building and transportation enhancements inform the proposal herein for multi-modal transportation hubs that offer new opportunities for community redevelopment.

Such development affords opportunities for affordable housing, diversity opportunities and pedestrian movements because of the unique use of automobiles to reduce traffic congestion and the abundance of shared, structured public parking to reduce private developer costs normally associated with parking requirements.

Moreover, by using Highway Trust Funds to develop intermodal transportation solutions and private investor funds for projects that support economic development, financial burdens on local governments are reduced. Further, this innovative use of highway funds helps to grow the local tax base and enables the community and transportation improvements to be self-supporting.

These recommendations require a paradigm shift. Communities need to be built such that people willingly let go of their nearly exclusive dependence on the single-occupant, private passenger automobile and interact in new pedestrian-oriented urban centers along major highway corridors and in redeveloped urban centers.

In summary, a simple truth should be observed: World-class mobility and exceptional economic growth can be more readily achieved through the development of seamless multi-modal transportation systems, not more road building; therefore a prudent transportation policy would be to use these available road building funds to fully develop community-based, pedestrian-oriented intermodal facilities and related community and transit improvements.
Introduction

For two years Broward County, Florida has undertaken a strategic planning and visioning project titled VisionBROWARD whose deliberations and results are chronicled online at www.VisionBROWARD.org. This effort was a community economic development public-private partnership including: The Broward County Board of County Commissioners; The Broward Alliance, itself a public-private collaboration for economic development; The Broward Workshop, a group of CEOs and heads of major corporations (including the largest public organizations in Broward County); and the project facilitator, Nova Southeastern University (NSU).

Using state-of-the art in-person and online meeting and virtual community technologies and procedures, over seven hundred people participated in the community visioning process to chart the future course of Broward County and finalize a plan of recommended action steps to optimize the continued development and economic growth of the South Florida region.

Several of the key recommendations from VisionBROWARD focused on the creation of a regional transportation network. Such a network would include transfer hubs and intermodal connectors that would link multi-modal transportation corridors. The transportation improvements and coordination of land use and transportation would be part of a master strategy that would implement mixed income, workforce housing in revitalization and redevelopment and utilize public private partnerships to achieve objectives. This paper addresses those specific recommendations in a way that not only contributes to the transportation network but also to improved quality of life, affordable housing, community building, and economic development in such a novel way that, we believe, it represents a paradigm shift and will change the manner that transportation improvements will be thought of in the future.

The transportation renaissance concept is applicable anywhere in the United States where there is Interstate or intercity highways and where population growth has resulted in traffic congestion that increasing saps the productivity and economic vitality of the region. Moreover, the community development strategies to be discussed herein will predictably produce a healthier and safer community environment than is typical in America today and substantially improve the quality of life enjoyed by the community residents, business owners, and visitors.

Literature Review

Not all transport improvements stimulate economic development (Adler, 1987). Pork barrel spending may account for many highways, bridges built to nowhere, and transportation projects that bring government expenditures to a jurisdiction, which may not be economically justified. Port expansion has at times resulted in overcapacity more than as a catalyst for business growth in regional economic development (Jansson and Shneerson, 1982). In many cases the economic benefit and developmental impact of road projects have extended beyond the local jurisdiction more than to the immediate environs of the project (Carnemark, et al., 1976). This is especially true regarding rural roads and agricultural development. For transportation improvements to stimulate economic development, a basic premise is that the economic development would not have taken place without the transport improvements (Adler, 1987).

Still transportation improvements include a history of manipulation in the United States. It is alleged that in Los Angeles the rapid rail transit was undermined by investments of General Motors Corporation in urban railways there and elsewhere in order to sell cars and diesel buses (Bottles, 1987). National City Lines was a company in the 1930s that was backed by the Big Three automobile manufacturers as well as major oil companies, automobile tire manufacturers...
and the trucking and construction industries. It systematically bought and subsequently closed more than a hundred electric trolley lines in 45 U.S. cities (Warren, 1998).

One consequence of these efforts was the expansion of freeways that gave rise to suburban sprawl and with it dependence on the single-occupancy automobile as the transportation mode of choice for many commuters. Electric streetcar lines were eventually replaced by buses built by General Motors and highways filled with cars. The resulting transportation system in Los Angeles is “an accumulation of poorly integrated elements representing different concepts of political expediency” (Wachs, 1996, p. 107). Government planning as well as state and federal programs and tax policies such as the deductibility of home mortgage interest encouraged and promoted suburbanization. In 1956, the passage of the Interstate Highway Act committed federal funding of 90 percent for a network of toll-free expressways and assured the triumph of automobile transportation over other mass transit alternatives and balanced public transportation systems (Flink, 1988).

However, blame cannot be laid solely at the doorstep of American corporate greed and politics. In Sendai, Japan, for example, streetcars were introduced in 1926 shortly after the first urban planning area was established in 1925 with 38 major roads. The demand for streetcars grew in the subsequent decades and peaked in the 1950s. In their place came an increasing expansion of automobiles in the post-war period so that by 1976 streetcars were finally abandoned in that Japanese city. Although bus transportation attempted to substitute for streetcars in Japan, ridership on public buses has continued to decline. Rapidly increasing demand for urban transportation there has turned to subways and rapid rail transit (Kitano, 2001).

By the late 1930s in the U.S. declining transit and the growth of the automobile coupled with regional transportation plans based on limited access highways in Chicago, San Francisco, Los Angeles, and elsewhere was typical. Such conditions still define regional transportation planning to this day in many locations. Multi-modal plans in that era consisted of bus transfer stations at the intersections of major highways, heavy rail with grade separations, and subway trains in some locales that linked the downtown core with outlying suburbs in a radial pattern that can be seen in many older megalopolises and large densely populated areas across the country. Expressways utilized circumferential routes that allowed traffic to bypass the congested center. Median landscaping on the green-belts was intended to make the highway environment more appealing and less hostile, leading to their description by the oxymoron “parkways.” Eventually the bypass roads and ring-radial plan led to inter-district routes connecting expanding areas of growth and commerce.

Decades of transportation investment in limited access highways have led to greater and greater traffic congestion on the very roads once intended to relieve congestion in the downtowns. Transportation infrastructure including roads and subways has not been able to keep up with the increase in traffic demand since mid-century. It has facilitated suburban residential development using ever expanding ring-roads and also expanded the commuting distances. For example, drivers in Atlanta now drive an average of 34 miles a day, which is 50 percent further than drivers in Los Angeles (Chapman, 2000, p. 71).

One unintended consequence of this progress is that the increasing pollution of the air affects not only the occupants of vehicles and those in proximity to major highway systems, but also entire urbanized regions. With such localized and regional pollution there arise dire health consequences and with these conditions, significant adverse economic impacts (i.e., direct healthcare costs, business relocations, reduced tourism revenues, loss of citizen respect for community needs and priorities, etc.). The Metro Atlanta area is a region with one of the nation’s
worst ground level ozone standards and is facing an air pollution crisis, generated by car exhaust and pollution from other sources when they are combined with heat and sunlight (American Lung Assoc., 1999). Atlanta’s long-range plans for transportation improvements call for projects that include mass transit, bridges, highways, bicycling, and walking facilities (Goldberg, 1996).

The average trip distance for people in the periphery of the urban core is longer on average than in the central area today. Conversely, greater automotive usage corresponds with fewer walking and bicycling trips. Such sedentary lifestyles have measurable adverse physical health impacts (Sturm, 2004).

To reduce trip demands, fossil fuel consumption, and the associated pollutants, some have called for the creation of high-density cities by re-urbanizing existing cities or developing multi-center cities (Steiner, 1994). Given the expected bottlenecks in the highway system and congested linkages between the outer urban centers and their central core, it is essential to reintroduce highly utilized public transportation systems and pedestrian-oriented design strategies to the growing urbanized environments. Further, it has become necessary to address improvements to the urban and suburban environment and quality of life due to the adverse affects arising from automobile congestion and pollution (Kitano, 2001).

A growing need has been recognized to structure intercity networks to connect clusters of individual manufacturing establishments that have begun to concentrate in small geographical areas because they value various economic and social benefits that have come from their agglomeration (Scott, 1996). Our economy is increasingly dependent on regions and interregional resources instead of exclusively on those in the downtowns. Our city-regions are today the major nodes and focal points of a globalizing economy (Friedman, 2001).

American cities have been disadvantaged by the assumption that high density is itself responsible for ailing cities’ problems such as traffic congestion, poverty, and high crime rates (Warren, 1998). Over the last fifty years, older and fully developed cities were unable to provide sufficient high quality building sites for industries that needed expansive space and who consequently were drawn to suburban office parks. However, in the knowledge economy, many light industries have less demanding spatial requirements and benefit from a city’s diversity, interrelated industries, specialized skills and services that can be found in either geographical clusters or historic downtowns.

Because such development opportunities are best created around transportation nodes, new urban centers can be developed on the fringes of cities and will be more sustainable and viable when multi-modal transportation systems are developed to connect such urban centers with each other and the historic downtowns. With the use of pedestrian-oriented design strategies, new opportunities for improved quality of life, creative industries, and economic growth will emerge.

“Compact development” is also associated with energy savings and substantially reduced dependence on the automobile in favor of higher capacity, shared transit modes that are more efficient and contribute to un-congesting urban areas. “One of the great values of compact development is that it can enrich the sphere of each individual’s social, cultural, employment, and other opportunities within a small area” (Warren, 1998, p. 30).

Finally, there is a strategic importance for face-to-face interaction, learning and innovation in metropolitan economies (Storper, 1997) that can be best and most frequently achieved in compact, pedestrian-oriented, multimodally accessible communities. Examining new global city-regions, some are dominated by the developed central core, but most are polycentric urban networks. These global city-regions are expanding rapidly and present new challenges in
mobility on an intercity and interregional basis. The city in the narrow sense is less appropriate as a unit of local, social organization than city-regions or regional networks of cities (Scott, et al., 2001). This new structure calls for transportation systems to think in terms other than the radial spoke-and-hub planning or highway by-pass planning of the past. Nodal hubs, multi-modal connections, and urban planning to encourage and enhance face-to-face interactions are now important components of quality of life and contribute to commerce and economic development.

The new economics of competition involves a transition from macroeconomics to microeconomics. The drivers of prosperity are the capabilities and behavior of units below the whole economy level including geographic clusters. Productivity has been shown to be enhanced by the micro business environment (Porter, 2001). The new challenge for competitive economic advantage is to incorporate cluster development and enhanced innovation zones with a transportation system that connects regions and serves the outlying nodes of activity that ring cities and inter-regional commerce.

Even where new development is planned in coordination with mass transit, most zoning laws and land use plans as well as mortgage bankers, dictate expansive commitment to parking and access roads. More land is committed to roadways, parking lots, and garages than is devoted to housing in new development (Egan, 1996). The cost of land acquisition, financing, design and construction of surface lots, is approximately one fourth the cost of freestanding multi-level parking structures, $7,967 vs. $29,130 per parking space (Smith, 1990, p. 38). Therefore providing for car movements and parking are major issues that affect what gets built, where it gets built, and how it gets constructed.

The developer of office space, for example, has no choice but to provide one and one-half times as much space for cars as for employees. This is in addition to access roads. Consequently, the common cost saving formula for commercial development is to build a one-story structure on 40 percent of the building lot with the remaining 60 percent devoted to parking. Further, the upkeep and taxes on employee parking areas amount to a fringe benefit paid for by the employer/property owner in terms of free employee parking of more than $1,000 per year per employee (MacKenzie, 1992, pp. 10-11). The combination of the car-related factors as described above encourages private motoring and contributes to traffic congestion and pollution while virtually assuring low patronage of mass transit. They also result in detrimental effects on the natural environment and quality of life.

**Vision Broward**

In the discussion that follows, we concentrate on the VisionBROWARD transportation and redevelopment recommendations and build upon the references to community building and transportation enhancements that are in the literature. Our proposal will relate to city-fringe development that encourages face-to-face personal interaction built around geographical tight business clusters. It supports inter-regional transportation and multi-modal hubs and connection points between various modes of transportation, which are intended to relieve congestion on existing highways. The development at the nodes and hubs encourages new development and redevelopment that affords new opportunities for affordable housing, diversity opportunities and pedestrian movements. Similar development strategies can also be incorporated into existing urbanized redevelopment areas.

We also address the cost and burden that is inherent when automobile parking places are financed as part of the private development and suggest specific sources to pay for the improvements that do not overburden local government resources. With the development and redevelopment strategies proposed, we demonstrate how such transportation investments and
community intermodal systems, which we will describe in detail below, will contribute to a paradigm shift where people are willing to let go of their nearly exclusive dependence on the single-occupant, private passenger automobile and interact within the community in many beneficial ways. These proposals are also structured to encourage private development and public-private investment that will grow the local tax base and enable such community improvements and transportation solutions to be self-supporting.

Discussion

To understand the premises upon which our strategies are based, it is necessary to focus on both the macro-transportation systems and human-scale community issues that are required for the development of creative, successful, and historically inspired communities. Broadly speaking, transportation systems are large capital investments and must accommodate large numbers of private passenger automobiles and/or large numbers of pedestrians in the case of transportation systems using aircraft, transit or vessels.

What should be readily understood, however, is that the travel needs of a speeding automobile (wide, smooth asphalt or concrete surfaces) are exactly the opposite of the safe, comfortable, useful and interesting environment that humans respond to favorably. In short, the natural and best environment for the automobile is inherently a risk and a hazard to humans who are not enclosed within the protective cocoon of their own automobiles.

While this may sound too obvious to state, in America typical architecture and community designs assume the automobile is welcome everywhere. It is precisely this lack of awareness that moving cars and people don’t mix very well, that causes most of the design flaws of our built environment that will hopefully be rectified by the strategies described below.

Once we accept the premise that cars moving faster than 15 miles per hour should not be mixed with humans unprotected by a similar vehicle and that the best human habitats do not have any cars in sight (i.e., a quiet restaurant with family and friends, inside any major league baseball park, at a neighborhood swimming pool, etc.), you begin to see the problem for every urban environment in America.

Everyone wants to drive to their destination and in doing so, hundreds of thousands of Americans suffer sudden accidental death on congested highways; millions of Americans suffer with chronic illnesses due to stress, air pollution, and lack of physical exercise; and, the social behavior amongst Americans looks less fraternal and more aggressively adverse with each passing year.

It will not be proposed that Americans give up their automobiles for the greater good of this nation, but it will be proposed that if you want a sustainable, economically vibrant and world-class community where citizens interact in healthy, safe, and socially beneficial ways, then you have to get rid of the car within the urban centers. This proposal essentially is a way to divest the driver from his/her car by parking them in garages that are buried within mixed-use structures (residential, commercial and retail uses) that are connected directly via off ramps to intercity highways.

In defining a specific transportation strategy that will positively impact and support plans for economic growth, we propose innovative but legally authorized planning efforts to redirect the use of existing state and federal transportation revenue sources to fund development of community-based, pedestrian-oriented intermodal system improvements that constitute an enhanced system for access to modern multi-modal systems of transport for people and goods. This will result in new micro-communities and compact development at the nodal hubs and will
encourage local, private investment in response to these federally financed pedestrian-oriented intermodal improvements. It is important to note that up to 50% of such intermodal project costs are expended on the parking structures that collect the cars and convert automotive drivers and passengers to pedestrians and multimodal system travelers.

Similar strategies can be used to redevelop existing urban centers especially when local and state laws provide for community redevelopment districts and tax increment funding strategies to be used to direct and undertake community-based local transit services. In either situation, because private developers are relieved of the burden of paying for construction and maintenance of access roads and parking, the transportation improvements and parking structures that are financed with federal funds serve as a catalyst for economic development.

**Community Intermodal Systems**

Such a process of intermodal movements can be best described as a community intermodal system (CIS). A community intermodal system proposes a method of movement that relies upon, within an urban community context, high quality public spaces between buildings that are safe, comfortable, useful, and interesting. In terms related to the development of urban adapted wildlife habitats, such environments provide places to nest, rest, breed and feed. The urban form is composed of the exterior of and the entrances or openings to the series of buildings along wider sidewalks, more walkable traffic-calmed streets, and mixed-mode corridors that is attractive to the five human senses (what we see, hear, smell, taste, and feel).

Large numbers of people will walk longer than typical distances because they enjoy the experience. The architectural features provide a physical protection from the natural elements (the sun, rain, wind, heat, and cold) and support the traveler during both the walk and ride phases of typical multi-modal trips (i.e., provides comfortable places to sit, eat, socialize, etc.). Cars are still a dominant method of transport, but they are parked in shared-use parking structures surrounded by mixed-use liner buildings that help form the consistent pedestrian-oriented urban form and habitat.

The defining characteristics of a CIS include: semi-enclosed corridors and public squares, structural parking (with mixed-use liner buildings), community transit, a car-free center for all or part of the day, week or month, limited access roadway ramps to provide direct access from highway to parking structure, and elevated traffic aisles between parking structures and traffic-calmed streets. The parking structure with its liner building is the key to this strategy and provides a significant contribution to economic development. By providing small and affordable residences (homes, condos and rental apartments), retail outlets and business locations, neighborhoods thrive and the community prospers. The shared parking is an essential component of a successful multi-modal transportation system where cars are still part of the multimodal trips and the three-story or more parking structures are required to help frame the public areas within the urban clusters and, with the easy to build, rent and sell liner building units, protect pedestrians from the natural elements (i.e., the rain, wind, sun, heat, cold, etc.).

The corridor and plaza component assumes: wide (30 feet or more) pedestrian-oriented corridors and wider plazas; brick, stone or similar corridor surfaces; continuous building faces that protect the pedestrian from the sun, rain, wind, heat, and cold; elevated and covered entry structures for mid-block crossings; attractive and useful landscape and hardscape; a partial tree canopy along the corridor and plaza areas; places to sit; mixed-use buildings open to the street at frequent intervals (doors, balconies, courtyards, zaquanes, and windows at 30 foot or more frequent intervals); narrowed traffic lanes (10 feet or so wide); limited on-street parking (configured as intermittent parallel parking with large sidewalk movable or stationary bulb-outs...
at each end of city blocks and at mid-block in coordination with identifiable pedestrian-oriented street crossings) or no on-street parking; environmental street shutters: and, calmed or no vehicular traffic for all or most of the day, week, and year.

The structured parking component assumes: parking structures are located at the perimeter of the pedestrian-oriented downtown or urban center; one-directional vehicular movement within the parking structure from access to exit points; parallel parking along the parking structure outer edge; angle parking around a central air/light well that provides for landscape and water run-off areas; longer and more narrow parking designs that are typical in urban setting today; mixed-use liner buildings that surround the parking structure; self-powered, handicapped accessible elevator systems; and, elevated traffic aisles between parking structures.

The community transit component assumes: small, fixed guideway community transit (seven feet wide by nine feet tall) with a vehicular floor five inches from the road surface or flush with the sidewalks to improve access at all places where the transit vehicle might stop; fixed rail and “on demand” rubber tire community transit service between downtown and urban center destinations beyond the length of a comfortable walk (beyond a one-quarter mile distance) and between nearby modal access points, major community destinations, or other CIS sites; sound notification vehicle arrival systems built into the fabric of the community’s music and sound systems; and vehicles that quietly operate at low speed (five to ten miles per hour) on mixed-modes corridors within downtowns and urban centers and at higher speeds (ten to twenty miles per hour) within wide bike lanes on traffic-calmed streets outward for up to a five mile radius of the CIS.

The car-free center assumes: the absence of a vehicular street grid at the downtown or urban center; access to direct freight deliveries at specific times of the day; convenient shared loading docks for nearby freight movement at any time of day; pavement surfaces of decorative stone, brick, or similar surfaces that provide a pedestrian supportive pattern, natural drainage, rough ride to rubber tire vehicles and ADA acceptable walking conditions; extra efforts to make the building faces unique, memorable, and characterized by features that provide a continuous protection to pedestrians from the natural elements (the sun, rain, wind, heat, and cold) and to make the plaza area comfortable as places to sit, rest, and socialize (i.e., market in the morning, lunches in the afternoon, festivals at night, etc.); smaller corridors that open to much larger plaza areas. In the car-free areas, property values substantially increase (at least ten times the pre-CIS values) because people converse more frequently and with greater civility, freight moves efficiently to and from CIS destinations and beyond, the cultural, civic, and family life of the citizens improves and the local economy grows.

The limited access roadway ramps assume: that from existing or redeveloped Interstate Highway System, toll road and other major roadway intersections, access ramps can be designed and built that will give direct or nearly direct access to the parking structures; and, that such direct access will reduce traffic congestion by providing an alternative to sitting on the congested segments of the Interstate Highway System, interregional toll roads and other major or limited access roadways (e.g., park and find things to do, places to eat or entertainment within the CIS; park and access transit modes that are timely alternatives for local, regional or interregional destinations; park and visit friends, businesses within the CIS, or nearby CIS sites).

The elevated traffic aisles and traffic-calmed access streets assume: that vehicular movement will generally occur from one parking structure to the next along elevated traffic aisles to minimize car/pedestrian conflicts in the car-free center; that when the elevated traffic aisles are routinely positioned at the third level, mixed-use space can be constructed underneath it (at the
second level) to provide useful and interesting vistas, additional structural components of the CIS and shelter from the weather when pedestrians cross the street (at the ground floor level) beneath this mixed-use and vehicular aisle street-spanning structure.

As described herein, the CIS would differ from current transit-oriented development designs (TOD) (see e.g., Victoria Transport Policy Institute, 2004) by the provision of: an abundance of structured parking immediately accessible from the Interstate Highway System, toll road or other major roadway; liner buildings that surround long and narrow parking structures that are positioned and constructed to shape the mixed-mode corridors and plazas and to maximize pedestrian movements; a car-free center that would diminish or eliminate the traditional street grid at the center where pedestrian-oriented mixed-mode corridors and plazas connect destinations; traffic-calmed streets that access the parking structures and connect the CIS to other CIS, TOD, or significant community destinations (one to five miles outward from the urban center) on roadways constructed to provide for multi-modal movements (specifically including seven foot wide bike/narrow transit vehicle lanes and TOD sites along the corridor at one mile or so frequencies); and, community transit that moves to, from, and through the CIS to such adjacent destinations.

Such CIS improvements would provide for sufficient parking and density and intensity of use within a one-mile or so radius from the intermodal access points to assure the efficient and effective conversion of substantial automotive trips into multi-modal trips where pedestrian, bicycle, transit, rail, water-based and air transport movements complete the automotive trip segments. The parking structures require the investment of available public funds that typically have been restricted to road capacity building uses.

Another very desirable outcome of the publicly financed, pedestrian-oriented parking structures is the private development that it will be stimulated because of the elimination of private sector responsibility for provision for cars. Further, the liner building development along the perimeter of the parking structure provides for multiple small developments, affordable as well as market rate housing opportunities, and small business locations. Because of the private ownership of associated structures and businesses, the likely result is substantial growth in the local economy, property tax base, and related governmental revenues and personal incomes.

Presented below is a review of the existing law and pending legislation that authorizes federal and state transportation expenditures for such improvements when constructed to reduce congestion on the highways and enhance intermodal access. Because road building alone can not solve traffic congestion problems, and road projects without multi-modal and intermodal characteristics can lead to other problems as previously cited, we argue for the substantial use of the Nation’s Highway Trust Fund and state transportation trust funds for community intermodal system improvements as the most appropriate way to develop safe, cost efficient, energy efficient and seamless multimodal linkages to strength a region’s ability (and the Nation’s ability) to compete in the global economy and provide a strong foundation for sustainable economic growth.

**Funding Strategies**

To appreciate how such an undertaking can be successfully funded, constructed and operated, a brief overview of transportation laws and policies is required. In 1921, Florida imposed its first gas tax (one cent per gallon). Many times over the subsequent 83 years, the gas taxes levied were statutorily increased and the authorized uses of the State Transportation Trust Fund were revised. Currently, the State Fuel Sales Tax is set at 10.1 cents per gallon; and it is dedicated for any
legitimate state transportation purpose, provided that at least 15 percent of the tax receipts must be dedicated to public transportation.

In addition, a State Comprehensive Enhanced Transportation System (SCETS) Tax was imposed in 1991 and the proceeds from the 4.6 cents to 5.6 cents per gallon tax must be spent in the transportation district where it was generated and, to the extent possible, in the county where it was generated. While this tax, like all sales taxes, can be characterized as regressive (falling most heavily on those least able to pay), such a tax used for community intermodal systems (and the workforce housing and small business environments that it helps to create) beneficially affects less fortunate socio-economic sectors of the community to somewhat mitigate the present regressive effects of the tax.

Further, three cents additional of state fuel tax are distributed to the counties and one cent of fuel tax is distributed to the cities. A local “9th cent” fuel tax is available for any legitimate county or municipal transportation purpose and a local option fuel tax (5 cents to 11 cents per gallon) is available for local transportation purposes (small counties may also use these funds for other infrastructure purposes).

Specified counties are also authorized to approve a one percent sales surtax for: fixed guideway rapid transit systems; countywide bus systems that service the fixed guideway system; or, the construction and maintenance of roads or the debt service on bonds issued for that purpose. Finally, the State Transportation Trust Fund receives revenues from the imposition of various Florida motor vehicle license fees and the 6.9 cents per gallon aviation fuel tax (Florida DOT, 2003).

In 1932, the federal government imposed its first gas tax (one cent per gallon) and has periodically increased and revised the fuel taxes and their use when appropriated from the Highway Transportation Trust Fund. The federal highway fuel tax now amounts to 18.4 cents per gallon on gasoline, 13.2 cents per gallon on gasohol, and 24.4 cents per gallon on diesel fuel. Of the fuel tax revenues collected, 2.86 cents are used to finance the capital expansion needs of local government transit systems (Mass Transit Account), 1/10 of a cent is used for leaking underground fuel storage tanks, 2.5 cents of tax on gasohol is used for deficit reduction, and the remainder of the federal transportation revenues are generally used for roads and bridges (Highway Account). In addition to these fuel taxes, the Highway Trust Fund also receives revenue from federal excise taxes on heavy vehicles and tires (sales and use) and the proceeds from various federal aviation related taxes are directed into the Federal Airport & Airway Trust Fund (to fund aviation system programs) (Florida DOT, 2003).

Throughout the development of state and federal transportation related programs, it has been consistently argued that our transportation systems should be user financed and multi-modal. More importantly, over the last 45 years transportation systems literature and transportation expenditures have trended away from road construction and towards alternative modes of transport and seamless intermodal linkages between each mode of transportation.

Since the passage of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), the federal government has recognized the need to create a national intermodal transportation system to move people and goods in an energy efficient manner that provides the foundation for improved productivity growth, that strengthens the nation’s ability to compete in the global economy, and that obtains the optimum yield from the nation’s transportation resources.

This statutory recognition of the importance of intermodal transportation linkages was further refined in the Transportation Equity Act for the 21st Century (TEA 21) with language that provided for the system to be economically efficient and environmentally sound. More
importantly, it was recognized that such transportation system improvements would be funded from the Highway Trust Fund and that state and local governments would be provided financial assistance to help carry out national goals related to mobility for elderly individuals, individuals with disabilities, and economically disadvantaged individuals.

Since the enactment of ISTEA, federal law allowed for state and local planners and decision makers to use statutory tools to authorize unprecedented discretion in the development and implementation of plans, improvement programs, and projects which meet locally determined goals and objectives. One such tool, “flexible funding”, supports multi-modal planning and project development by eliminating strict modal criteria as a condition for use.

Because flexible funds may be used for highway, transit, and multi-modal investments, federal dollars may be directed to the most appropriate transportation solutions as determined by state and metropolitan planning processes. In addition, the broad eligibility provided for by the Surface Transportation Program, the Congestion Mitigation and Air Quality Improvement Program, and other “flexible” programs empower state and local transportation officials to look beyond developing “highway” and “transit” agendas and instead consider more innovative, truly intermodal solutions to transportation problems (USDOT, 1995).

At the present time, federal transportation law is scheduled for TEA 21 Reauthorization (FHWA, 2004) by the United States Congress and transportation law revisions have been proposed by the USDOT (2003) (SAFETEA) and approved by the United States Senate (SB 1072) that would provide for program funding of intermodal passenger facilities at the direction of the USDOT Secretary (i.e., a passenger terminal that does, or can be modified to, accommodate several modes of transportation and related facilities, including some or all of the following: intercity rail, intercity bus, commuter rail, intra-city rail transit and bus transportation, airport limousine service, airline ticket offices, rent-a-car facilities, taxis, private parking, and other transportation services). The U.S. House of Representatives has passed its transportation bill, H.R. 3550 which contains no such provision for intermodal passenger facilities and instead provides funding to specific member projects.

While highway projects still dominate nearly all transportation work programs, despite the completion of the Interstate Highway System, both USDOT and FDOT have supported large scale intermodal projects that will in time support an ever larger commitment of transportation trust funds to alternative modes of transportation and intermodal linkages. In Florida, very substantial state and federal funding (just the first phase will require $1.322 billion during the next five years) was made available for construction of the Miami Intermodal Center (MIC, 2004). The MIC is but one example of a project that has used innovative financing and highly flexible funding strategies to develop intermodal improvements.

In addition, clear federal statutory authority exists for the development of fringe and corridor parking facilities (USCODE, 2004) where the USDOT Secretary approves a project and the necessary funds to: acquire land adjacent to the highway right-of-way and outside a central district; and, construct publicly owned parking facilities on the land acquired that would serve an urban area of fifty thousand or more. Such a parking facility or group of parking facilities would need to be located and designed in conjunction with existing or planned public transportation facilities. Significantly, the term “parking facilities” is defined in these federal statutory provisions to include access roads, buildings, structures, equipment, improvements and interests in land.

Further, Interstate Maintenance funds can be used for fringe and corridor parking facilities where such facilities are located outside of a central business district and within an Interstate
highway corridor and have as their primary purpose the reduction of vehicular traffic on the interstate highway (e.g., vehicles that directly exit the Interstate highway and park within a CIS no longer congest the Interstate Highway System).

Finally, TEA 21 provided for a Transportation and Community and System Preservation Pilot (TCSP) Program (USDOT, 2004) to establish, in cooperation with appropriate state, regional and local governments, a comprehensive initiative to investigate and address the relationships between transportation and community and system preservation and identifies private sector-based initiatives.

For purposes of this analysis, it is important to note that the specific types of TCSP projects were referenced that include corridor preservation activities that are necessary to implement transit-oriented development plans, traffic-calming measures or other coordinated transportation and community and system preservation practices. Further, Congressional interest in these kinds of projects has been demonstrated by the numbers and variety of TCSP projects that have been established through the appropriations process (e.g., by 2003, $89.5 million was appropriated under the FY 2003 Omnibus Appropriations Act for 139 TCSP projects in 41 states).

What should be clear from the foregoing description of transportation funding programs is that there is ample legal support for such local decisions to request and receive state and federal funding support for CIS improvements from the Highway Trust Funds. Further obstacles lie in the predisposition of the transportation industry, and its governmental managers, to continue to build the road systems that have served us so well over the last 50 years. Even when the benefits of future road building have been credibly challenged, many state and federal officials equate road construction with economic growth.

What is needed is a clear understanding at all levels of government, in every segment of the business community, and within each residential community, that continuing to build a road network (given our current traffic capacities, right-of-way availability and costs and the expected population and commercial growth) has become counterproductive and must stop immediately in favor of projects to implement the construction of transportation improvements that support multi-modal movements and community-based, pedestrian-oriented, intermodal systems.

At its core, this innovative approach to intermodal and transit improvements aims to convert automotive travelers to pedestrian, bicycle, and transit users while encouraging private sector investments in community economic development (i.e., liner buildings related to the parking structures and other building projects supporting the CIS that provide places to live, work, pray, market and socialize). Mixed-use liner buildings would be built upon land acquired in bulk to construct parking structures, the pedestrian-oriented mixed-mode corridors and plazas, and the traffic calmed streets and sold to the highest bidder absent a private/public partnership to reserve such land for the property owners who pursue with the affected local governments a cooperative development strategy.

While such CIS improvements can be built with federal highway trust funds as previously discussed (where traffic is reduced in response to significant modal shifts from car use to transit, pedestrian, and bicycle use), in Florida, such improvements can also be funded with state transportation revenues using several state transportation program strategies.

First, a CIS can be designated as an intermodal connector linking a SIS corridor to a SIS hub, as a planned intermodal passenger terminal facility, or as a project on the regional or local systems that would improve the performance of the SIS. In all cases the CIS improvements would have to show how it would provide for: significant interregional movements that meet or
 exceed the established thresholds or criteria that would justify inclusion in the Florida’s Strategic Intermodal System.

In addition state revenue would be available to the CIS project by the use of a variety of state transit programs (Public Transit Service Development Program, Transit Corridor Program, Public Transit Capital Projects, Commuter Assistance Projects, Public Transit Block Grant Program, and projects that assist the Florida transit system to become fiscally self-sufficient). This last program category would be based upon the use of parking revenues to support the cost of transit operations and maintenance.

Further, liner buildings can be funded by private sector funding or financed with a variety of HUD, SBA or other federal and state programs. A liner building can be developed through contracts with a single developer (using varied architectural firms to design the sequence of distinctive and varied 30 to 50 feet long sections of corridors and building facades), or through incremental development of small, separate out-parcels (60 feet deep by 30 to 50 feet wide) that surround the parking structure and functionally connect the parking spaces with the pedestrian-oriented mixed mode corridors, plazas and community transit services.

Density that adds value to land use and enhanced transit ridership is accomplished by both building heights (uniformly three to six story buildings with occasional taller buildings as approved by city ordinance) and the reduced use of land for automobile transport. Because the public spaces are well designed and represent public living areas, residential units can be reduced in size as more life can be enjoyed out of doors. Smaller units mean reduced housing costs even in high land value communities. Fewer cars (the return of one and two car families) mean more disposable income for travel and cultural events. Housing costs are further reduced in that parking costs have been shifted to federal and state transportation funds and parking spaces are shared with commercial/customer daytime users. When all of the development investment is spent on residential and commercial structures (not the road access improvements, the parking or the public spaces between buildings), costs are reduced and even high value properties become more affordable.

Simultaneously, community development can proceed without the use of local governmental general revenues because CIS funding is provided principally from federal and state transportation sources, from TIF funds and from private sources, augmented by HUD, SBA and other federal and state financing tools. In the meantime, because of the conversion from automobile to pedestrian, bicycle, and mass transit modalities, community health and vitality is substantially enhanced. Further, these community environments improve the urban lifestyle by incorporating educational resources, public art, the creative industries, commercial, retail, and entertainment districts within the clean-and-safe, 24-hour activity zones.

Conclusion
As presented herein, the simple act of not building additional road capacity and the use of road funds for multi-modal and intermodal projects will have a positive impact on economic development and transportation in communities such as Broward County, Florida and other communities built near interstate highways, toll roads and other major transportation corridors. The benefits from the economic growth associated with these multi-modal, intermodal and flexible transportation funding opportunities and trends will require a clean break from the single-minded, road-building past and embracing the development of a modern and sophisticated multi-modal transportation system that will provide for a built environment supporting large scale pedestrian movement at the urbanized centers, structured parking and liner buildings at the
perimeter and community transit to extending the walking and bicycle distances through and beyond these transit-serviced urban centers.

The automobile and truck traffic will be less visible in the street; air quality will be improved and pedestrian safety and health will be assured due to the very limited vehicular movements within the urban center. All modal trip needs would be addressed (bike racks, public wash rooms, lockers, phone and Internet services, food and drink outlets, way finding, mobility centers, abundant structured parking spaces, seamless transportation services and modal transfers for individuals and groups, transportation demand manage, etc.), so that significant modal shifts to alternative modes of transport occur.

Such community intermodal systems assume a built environment that provides for all human needs (e.g., governmental, religious, commercial, health, education, entertainment, cultural, residential, and employment). Further, it assumes that the transportation systems between community intermodal system community centers and modes of transport are safe, reliable, energy efficient, technologically advanced, and environmentally benign and that they enhance global economic competitiveness, productivity, and quality of life.

While community intermodal systems may support high quality community redevelopment efforts and broad based economic development across diverse socio-economic groups, the transportation funds used to construct such improvements still require a broad community consensus by the local governmental entities as to how they want the federal, state, and local transportation funds to be spent as determined by the metropolitan planning organization (MPO) in urbanized areas or the county commissions in non-urbanized communities.

Moreover, all funding sources available on a federal, state and local level must be aligned with the property owners, development community, and service providers to build and operate such regional 21st Century intermodal complexes. Further, multiple interregional linkages (i.e., education, transportation, business, governmental, etc.) must be established to make the project improvements relevant to a state, national, and international audience. Finally, construction standards and parking structure designs should be developed that would protect such CIS communities from hurricane force winds and flood conditions, or other location-specific potential natural disasters.

More importantly, such CIS improvements would provide for sufficient parking and density and intensity of use within a one-mile or so radius from the intermodal access points to assure the efficient and effective conversion of substantial automotive trips (30 to 50 percent) into multi-modal trips where pedestrian, bicycle, transit, rail, water-based and air transport movements complete the automotive trips. As many modern airport terminals provide easy access from automotive, transit or rail modes to aircraft point of entry gates, such community-based, pedestrian-oriented intermodal systems will provide seamless intermodal transfers for multiple modes and increase rail, transit and intercity bus use to levels currently only experienced in other world-class settings. See: Strasbourg, France (Strasbourg Conurbation, 2004), Victoria Transport Policy Institute (Victoria Transport Policy Institute (2004) and TDM in Europe: A Synthesis of Research Findings (Volinski, 2003).

Transportation is all about the movement of people and their goods from one place to another. CIS development, using highway funds in coordination with private development, sophisticated community design, and innovative development and redevelopment strategies has the capacity to define the next half-century of significant transportation improvements, just as Interstate Highway construction and road building defined the last half-century of American transportation expenditures.
References

American Lung Association of Georgia (1999). “We All Share the Same Air,” Legislative Update, August/September.


Appendix

What Community Intermodal Systems Would Look Like

Strasbourg, France
Community Intermodal System Improvements at College Avenue and I-595 in Davie, FL

FROM THE MIAMI AT MIDNIGHT REPORT

The Promenade as proposed by Dover, Kohl & Associates as rendered by Steve Price of Urban Advantage

The Promenade as it exists today
MIAMI AT MIDNIGHT: Community Intermodal Systems
Appendix 5

State of the Practice Opportunities for the St. Lucie County Research and Education Park

Research and Science Parks for Economic Development

2005
State of the Practice Opportunities for the St. Lucie County Research and Education Park

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Introduction

Over the past several decades, growing numbers of communities within the United States and around the world have implemented strategies to achieve economic development and growth by promoting technology and innovation. Geographically based places in urban as well as rural regions have been set aside or created to attract research and technology-oriented firms, often in connection with local, university-based research affiliation. These research parks, or science parks, are public or public-private partnerships that are characterized by substantial investment, which is not without risk. Consequently, new initiatives in such a strategy can fast track a path to success by taking account of the state of the practice to determine reasons behind previous success or disappointment. There are after all more than 800 science or research parks in 55 countries around the world and nearly 200 in 40 states in North America alone (Soltani, et al., 2003; AURP, 2004).

This paper presents an overview and evaluation of the critical success factors for technology parks to achieve their objectives. St. Lucie County Research and Education Park planners may benefit from lessons learned and the present state of the practice in crafting their master plans and strategies. We will review domestic and international cases that offer relevant comparisons and documented outcomes from the development of technology transfers and new research.

Overview

Research parks have been labeled by many different names; e.g., science parks, technology parks, technology precincts, technopoles,1 business innovation zones, learning villages, science cities, centers for technology, and other similar titles that essentially relate to applied science. Whether the appropriate title is Research Park or Science Park or Technology Park turns on the park’s activities. When the central concept is principally development, transfer, and commercialization of technology instead of the site where the research is actually conducted, Technology Park seems to be a more appropriate moniker; otherwise Research Park is suitable.

Regardless of the nomenclature, research parks are fundamentally property-based developments that offer high quality, park-like settings, which include several important program components. If not within the campus-like setting, they are located adjacent to or within a reasonable distance

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1 Technopole is a French word that translates in English as “science” or “technology park” (Malecki, 1991)
Consulting two established organizations in the field with broadly accepted and used definitions, the Association of University Research Parks (AURP) and the International Association of Science Parks (IASP) would produce the following amalgamated definition of a research or science park (www.aurp.net; www.iasp.ws):

- Master planned property and buildings designed primarily for private/public research and development facilities, high technology and science based companies, and support services;
- Formal and operational relationships with one or more science/research universities, other institutions of higher education, or other major centers of research;
- Designed to encourage the formation and growth of knowledge-based industries or high value-added firms, normally resident on site;
- A role in promoting research and development through education-industry partnerships, assisting in the growth and promotion of new ventures and promoting economic development;
- Aiding the transfer of technology and business skills between the university and research teams;
- Providing other value-added services, such as business/technical advice, financial consulting, and assistance in finding venture capital, in addition to high quality spaces and facilities;
- A management team of specialized professionals actively engaged in fostering the transfer of technology and business skills to tenant organizations and new venture start-ups whose main aim is to increase the wealth of the community by promoting the growth of knowledge-based institutions through the creation and development of innovation-based companies through incubation and spin-off processes.

**Critical Success Factors**

**A. Small Business Incubators**

The technology incubator is an integral part of research parks and is a major component of their success. Business incubators can effectively link talent, technology, capital, and professional expertise to overcome institutional constraints that otherwise would inhibit innovation and risk taking. Nearly two-thirds of the research parks in the United States and Canada have a business incubator component (www.aurp.net). The physical presence of space for the incubator within or near the research park distinguishes this approach from generic small business service centers that provide advice to small and medium size enterprises. Select examples of business-technology incubators that are in geographical proximity to the proposed St. Lucie County Research and Education Park include the Stuart Square Technology Business Incubator Center at Indian River Community College (www.ircc.edu). It provides affordable space and ancillary business facilities, such as marketing consulting, which significantly reduces the costs and exposure associated with start-ups. Incubators need to provide advisory services, training and information resources, management support, and access to capital to increase the success of start-ups in their early stages.

The University of Central Florida (UCF) Technology Incubator (TI) in Orlando provides mentoring and advising in all aspects of business development and growth including business and strategic planning, legal counsel, accounting/tax, human resources, government contracting, grant preparation, insurance and risk management guidance. The Central Florida Innovation Corporation in partnership with the UCF Business Development Center aids the UCF TI through introduction and networking of the incubator tenants with experienced entrepreneurs to create and nurture relationships, which are intended to create successful new companies through partnerships (UCF, 2005).

Florida Atlantic University (FAU) has established a Technology Business Incubator (TBI), which is located in their Research and Development Park adjacent to their Boca Raton campus. The Florida Atlantic Research Corporation (FRAC) offers business assistance to its tenants through the Enterprise Development Corporation of South Florida (EDC) including mentoring and the search for “angel investors” among wealthy individuals (FAU, 2005).

The major success factors for technology incubators are: availability of on-site business expertise; access to financing and capitalization; provision of entrepreneurial education; and links to a university or research center (Petree, Petkov, and Spiro, 2005).

**B. University Affiliations**

Most of the research, science, and technology parks, especially in the United States, are built in association with universities (Luger and Goldstein, 1991). Some of the proven reasons for these successful collaborations include access to:

- Faculty and staff for consultations;
- Graduate students for assistantships;
- Undergraduate students through internships and work study arrangements;
- University facilities, proprietary technology, and intellectual property protection;
- The university library system;
- On-site customized training and continuing and executive education;
- Adjunct faculty appointments for park tenants; and
- World-wide university linkages through high speed fiber optics and the Internet.
The St. Lucie County Research and Education Park, a.k.a. St. Lucie County Research and Innovation Park, is unusual in that the education establishment is not already fully developed onsite. University research facilities and education and workforce training centers are frequently tenants in University Research Parks. This includes joint use by university and industry of wet-lab facilities. The lack of access to university resources is a “significant barrier” impeding growth of research parks for nearly one-eighth of all university research parks in North America. The presence of education providers on-site is not enough; there must be “continued funding of university research in core technologies – biotech, non-technology, photonic/optics, and advanced materials” (AURP, 2004).

The most successful research parks have been developed as an outgrowth of university-related research. Stanford University was influential in the creation of the Stanford Industrial park, which was established in 1953 as the first such endeavor. Boston-Cambridge, Massachusetts’ Route 128 Corridor developed because of Harvard University and the Massachusetts Institute of Technology (MIT). The Research Triangle Park, the nation’s largest park centered on its three major area universities: Duke in Durham, the University of North Carolina in Chapel Hill, and North Carolina State University in Raleigh. The Stockholm Bioscience Park is a collaboration between Karolinska Institute, KTH – the Royal Institute of Technology, and Stockholm University, three of Sweden’s most prestigious universities. They account for more than 90% of the total academic research conducted in the Stockholm region (Björkman, 2004).

Although research parks have been mainly associated with universities, other science and technology parks have coordinated with the private high-tech firms in order to improve industry’s access to their research. A case in point is Sandia National laboratories in Albuquerque, New Mexico. Sandia, along with local and state government, set aside 200 acres near its facility to facilitate high tech startups besides attracting new locations for branches of established companies. The objective of the private initiative is for these new entities to build production facilities on the land to take advantage of the transfer of technology from Sandia Labs and thereby serve the company’s mission and growth (Brown, 1998). Other private efforts, such as the national labs at Oak Ridge and Los Alamos, have involved partnerships with industry and local government for the purpose of local economic development rather than specifically for technology transfer from the labs to new ventures.

Knowledge communities depend on information resources, such as libraries, colleges and universities, and a history of valuing education. The labor force for new businesses and research labs can first be provided by in-migration from other knowledge rich areas, but sustainability and return on economic development depends on developing local assets and opportunities for residents in the existing communities and for their children. Universities function in this mix as generators of knowledge that flows both in and out of the region. They become closely related to firms who need new employees trained in addition to business advice and expertise, which may be beyond the skill sets of the core innovators. One advantage of knowledge as an economic good is that it is not subject to the law of diminishing returns as is capital, labor, and natural resources, which are the traditional building blocks necessary for economic development. That is, it is not used up but instead can be thought of as reused or recycled without diminishing its supply or value. Focus on knowledge for creating opportunities can lead to nearly boundless economic growth (Cortright, 2001).

In the transition from agrarian economies or single industry dominant community revitalization, economic growth may take longer. New city regions or research parks need to be a collaborative alliance and partnership between regional business, academic, and public resources for the ultimate purpose of knowledge transfer, business formation, and business establishment. The university and research interests should result in a quality workforce that is engaged in cross-learning because of the proximity to others with similar interests. This leads to high value-added employment in the community and growth of the economy through innovation.

### C. Culture of Innovation and Industry Clusters

What really makes a high-tech zone success story like Silicon Valley work is its culture of risk taking and competitiveness (Kenney, 2000; Saxenian, 1996). Clusters are geographical concentrations of interconnected companies and institutions in a particular field (Porter, 1998). They are networks of interdependent firms, research institutions, educational centers, and knowledge-producing firms who, along with bridging institutions, such as technical and business consultants, link the production chain to customers, which creates added value. Perhaps the most important job for economic development strategy is to create an institutional environment that supports technological change (Romert, 1994, p.21). These institutions will shape the incentives for the creation of knowledge including new businesses, spin-offs, opportunities for investing, wealth creation, and job creation, including retraining, and community financial vitality. The regional research universities also provide a continuous stream of engineers and scientists with ambition, innovation, and drive (Angel, 2000; Saxenian, 2000). The complexity of scientific problems is associated with the proliferation of highly educated specialists.

There is “social glue” that binds clusters together. It facilitates access to important information and resources that benefit from personal relationships, face-to-face contact, and a sense of common interest (Porter, 1998). Together, these constitute an “organizational community” wherein suppliers, resource and product consumers, and other organizations that produce similar services and products create a synergy of interaction and interdependence resulting in a collective identity (Astley, 1985; DiMaggio and Powell, 1983). Along with shorter product cycles, rapid technological change requires highly focused and dependable networks of suppliers. Cultural and institutional factors influence knowledge flows among firms that are located close to one another. The features that encourage and promote cooperation and collaboration among clustered firms include reciprocal sub-contracting, shared marketing, industry-wide research and promotion activities, favorable local government regulatory environment, and a highly developed and specialized labor pool (Cortright, 2001).

Decentralized production relies on outsourcing instead of vertical integration. A social division of labor results in the parceling out of different tasks between individual firms who function as integrated production units in a pattern described as “vertical disintegration” (Scott, 1993). Trust-based partnerships and inter-firm collaboration, inter-firm mobility, and networking distinguish this new paradigm of business that is typical of the Silicon Valley. We have witnessed a similar
phenomenon in previous eras where, for example, automobile design and production centered in Detroit, the motion pictures and entertainment industry made its home in Hollywood, and the garment district in New York became the home for fashion. The high technology industry is different in that it is not as dependent on immovable physical means of production.

In the industrial economy, the model for most of the last century, solid products were produced by mostly labor-intensive, place-based industry whose assets were primarily its hardware, machine tools, and production facilities and may have relied on geographical advantage from natural harbors, navigable rivers, or sources of power generation. Although thousands of workers might contribute to production, they were not generally conceived of as the principle assets of the enterprise. The hardware-based character of the industrial age found industries rooted to regions because of the immovable nature of their physical plants; workers were treated as replaceable parts in the production process. In the knowledge economy, production does not owe allegiance to any territory in particular as capital, decentralized production, and people can move with impunity across the world rapidly and without constraints. The main assets today are ideas and intellectual property. Today, workers no longer follow companies wherever the company chooses to relocate; companies follow knowledge workers wherever they can be found and knowledge workers move to where they find personal rewards outside of work. Richard Florida describes these workers as belonging to the “creative class” (Florida, 2002).

D. Appealing Quality of Life Communities

In the knowledge economy, the creative classes are highly mobile. People whose job it is to be creative with their ideas are stimulated by urban life and especially quality of life and cultural facilities (Florida, 2002). The new “knowledge cities” must place more emphasis on quality of life and lifestyle issues and think globally (Bjorkman, 2004). Because they can do their work where it pleases them, they are attracted to communities that include educational and library resources for their families as much as colleagues with whom they can share ideas. The creative class as a group constitutes approximately 30 percent of the workforce but the distribution where they live indicates their affinity for urbanism.

The appeal of the location for knowledge workers has to do with how the workplace is organized and the opportunities for financial and business success. But it also mandates quality activities for leisure time in addition to a stimulating family environment that includes education of their children and after school activities. Cities known for their cultural attractions, open-minded lifestyles, diversity and cross-cultural character seem to do better at attracting highly skilled knowledge workers (Sanz, 2003). The knowledge city paradigm calls for research and innovation to be imbedded with commercial activities in community design. Natural meeting places “provide the seedbed for innovation and value creation” as in the model being implemented today in Stockholm in the healthcare industry and other bio-sciences (Bjorkman, 2004).

Besides the physical, the social infrastructure of the community needs to be committed to providing suitable capacity for innovation. Proximity to others and common resources that are shared provide a matrix that results in a rich collaborative innovative milieu that accounts for the success of industry specific knowledge clusters and regions (Brown and Duguid, 2002; Porter, 1988; Saxenian, 1996). Not to be underestimated are the social and cultural aspects enjoyed in common. The process of creating skills is an important influence on the rate of improvement and innovation and is “intensely local” (Porter, 1990, p. 158). The physical environment is important including pleasant surroundings and the attributes of the built and natural space that stimulate the “creative juices.”

In Stockholm, the “Knowledge City for Innovation” combines the functions of Science Park with city functions to appeal to knowledge workers. The cornerstone of this approach includes: large multidisciplinary collaborative efforts; commercial activities in close proximity; connection to global networks of business and scientific communities; natural, pleasant meeting places that stimulate sharing of information and informal discussions; a lively urban environment; fostering creativity and entrepreneurship; and easy access in and out of the area via public transportation, which includes highway access and access to an international airport (Bjorkman and Skar, 2004),

E. Transportation

There are limitations in economic development. One cannot think that literally “if you build it, they will come.” Certain prerequisites have been found necessary that are ancillary to the actual site of the research park. These include a transportation infrastructure to get raw materials needed by innovative experimentation and the work product to collaborators and markets. The opportunity to come and go for conferences, conclaves, and meetings is important to the scientific research community. Such movements need to be intermodally connected with regional, interregional, and international multi-modal transportation systems for redundancy and efficiency. The access to urban amenities and an international airport contribute to success. “Frequent flights and short distance to major international cities are a prerequisite to attract significant foreign investment” (Unesco, 2005). Public transportation, rail networks, and walking environments are important components that contribute to the interaction between researchers, educators, and business and the campus-like character of the research park.

F. Technology Infrastructure

Investment in technology infrastructure is essential to facilitate the worldwide collaboration of theories, experimentation, and results. In the age of globalization and the global factory, commercial success of new ideas frequently depends on speed to market and flexible production. High speed Internet communication facilitates collaboration between local spin-off entrepreneurs in addition to more distant research colleagues. Increasing computer power is needed to process complex calculations and this should be available on local area networks. The new skills teams include scientists with complementary skills on a worldwide basis. Biotechnology is a global business and the community of researchers forms a global network of relationships with other scientist sharing a common research interest. Collaborative scientific teams and communities now are actually partly local and partly virtual (Bjorkman and Skar, 2004). Global markets, world-reaching transportation and communication may diminish the role
of location in competition but the critical mass in one place and the synergy that it creates is the catalyst that contributes to competitive advantage in a global economy from the personal interaction, knowledge sharing, relationships, and motivation (Porter, 1998).

Research institutions frequently act as a lure for other researchers who hope to benefit from experience and proximity to experienced and knowledge coworkers and graduate students. Computers, networks, and the Internet themselves do not sustain economic growth but they facilitate the process. Economic clusters of like activity and the creative individuals that pursue innovation are still vital. Place still matters. Globally competitive firms in the same industry are frequently found in concentrated particular regions that develop certain synergies, which attract knowledge workers and contribute to innovations (Porter, 1990). Regional clusters and local research and technology parks may portend the “death of distance” (Cairncross, 1997) not due to telecommunications and the Internet but because of the true synergy created by active communities of practice in close proximity. In Silicon Valley, it has been observed that having suppliers nearby develops trust, interdependent interaction, and reciprocity networks that distance cannot do as well (Cohen and Field, 1999; Meyerson et al., 1966). New product development requires shared problem solving across disciplines as well as across cognitive, geographical, and cultural boundaries (Leonard-Barton, 1995). The new model of competitive advantage capitalizes on the worldwide interconnection of local clusters that share in common continual innovation.

The new model for research or technology park planning is a community of practice that has interdependent members who circulate and reproduce actionable, community-based knowledge (Lave and Wenger, 1991). In communities of practice, there is an interaction of experience and competence that results in the fine tuning of knowledge, experience, and competence through mutual engagement (Wenger, 1998). It also results in new knowledge, which is dynamic, whether theoretical or applied (Constant, 1987; Brown and Duguid, 1991). Collaborative practices contribute to the dynamic development of knowledge and are more important than communications technologies in explaining the success of clusters. It is the practice-based account of knowledge and the internal and external flows of organizations knowledge that are most important. All this would be for naught unless the new knowledge could find commercially exploitable applications.

G. Adjacent Ancillary Sites and Services

The development of any region is constrained by its own economic situation, its institutions, politics, beliefs systems and also its past history (North, 1995). Also necessary are the supporting institutions, such as venture capitalists, intellectual property legal firms, and specialized marketing firms. These have been described as constituting a “second economy” in support of the core industries in the Silicon Valley (Kenney and von Burg, 2000; Lynn et al., 1996). The sub-contractors, cross-licenses, joint ventures, etc. are essential intermediaries between the firm and the market (Hennart, 1993).

New business spin-offs and the path to commercial production and access to markets are essentially components. This includes financial and business formulation and management advice in the formative stage. It also goes to manufacturing and distribution with respect to the supply chain. The proximity of flexible space is a definite advantage. This is where management, sales, and manufacturing share the facility in a fluid arrangement while commercially viable outputs are developed and systems are evaluated. Large firms in the cluster environment intentionally spin off small firms to test markets, explore niches, and develop new networks of users (Kogut, et al., 1995). Sometimes, spin-offs are competitive breaks with colleagues. Nevertheless, venture capitalists rely on growth and turnover of capital.

The scientific research community has been described as a process of “failing forward” (Leonard-Barton, 1995). Forward momentum comes from the learning derived from failures. Sometimes, unsuccessful experimentation results in a find for another, unrelated development, which could even be capitalized upon by someone other than the original researcher. This is an expensive learning process. A technical infrastructure of prototyping new devices and outsourcing components helps in addition to a deep well of venture capital, which in Silicon Valley is approximately one third of the U.S. total (Kenney and Florida, 2000). Venture capitalists provide the seed money for experimentation and start-up of new, risky enterprises in exchange for the potential reward of their equity interests in the occasional successes.

Although a great deal of knowledge exists in the public domain and ideas in knowledge communities are readily shared, economic success and return on venture capital investment must rely on proprietary protection. The technology transfer results from individual research and the collective interaction of these communities of learning and practice. The research park facilitates the technology transfer from experimental research to commercialization in the development stage in addition to the formative business stages. The path from the laboratory to the marketplace requires practical assistance in establishing a business and its supply chain. Other expertise on the part of business consultants is necessary in the marketing area, new venture creation, and staffing and compensation of inventors through, for example, royalties or equity interest. In addition to financial resources, business and legal expertise are required to prepare commercially viable business plans and legally defensible protection of intellectual property. The protection and commercialization of intellectual property has also become of increasing interest to universities (McSherry, 2001). Specialized legal advice is required to negotiate the options for ownership, licensing, and assignment of interests in ideas and processes.

Conclusion

The mission of science, research and technology parks is essentially to significantly contribute to economic development by providing business and technical support to industries that can provide growth in high value-added jobs in the community through innovation and commercialization of scientific research. The parks forge synergies among research centers, educational institutions, and technology-based companies through supportive infrastructure and by providing professional, technical, administrative, and legal assistance. In order to capitalize on the knowledge economy, incentives have been offered to high-tech companies and prospects that offer high value-added jobs. These incentives include building suitable places where scientists,
corporations in the technology field, and the education and research community can interact and collaborate.

The critical success factors for research parks include:

- **A business incubator** that links talent, technology, venture capital, and professional business formation and operational advice with legal expertise to overcome institutional constraints that otherwise would inhibit innovation and risk taking.
- **University partnerships** because knowledge communities depend on information resources and research in academic environments generate ideas and involved workers.
- **A collaborative alliance and partnership between business, academic, and public resources** for the ultimate purpose of knowledge transfer, and new business establishment.
- **Culture of innovation** and risk taking by firms that are located close to one another that encourages and promotes cooperation and collaboration and influences knowledge flows in and out of the community.
- **Industry clusters** that are networks of interdependent firms, research institutions, educational centers, and knowledge-producing firms who, along with bridging institutions, such as technical and business consultants, link the production chain to customers, which creates added value.
- **Appealing quality of life and cultural facilities** that contribute to an urban lifestyle where social and cultural aspects are combined with quality activities for leisure time and a stimulating family environment.
- The knowledge city paradigm includes research and innovation embedded with commercial activities in community design with natural meeting places in a physical environment with pleasant surroundings; yet connecting to global networks of business and scientific communities.
- **Transportation multimodal networks** as planned urban amenities that include public transportation, local and intercity rail linkages, intermodal access in and out of the area including an international airport and walking environments that contribute to the interaction between researchers, educators, and business on the campus-like research park.
- **Supporting institutions**, such as venture capitalists, financial and business advisors, intellectual property legal firms, and specialized marketing firms that support the core industries with special expertise in marketing, new venture creation, financial resources, and business and legal expertise.
- **The proximity of flexible space** for establishing new commercial enterprises at favorable rents with the flexibility of use as office, lab, production and shipping functions.
- **Technology infrastructure** that facilitates the worldwide collaboration of theories, experimentation, and results, plus the availability of local area networks capable of higher computer power in order to serve collaborative scientific teams and communities worldwide on a local and virtual basis.
- **A community of practice** that contributes to the dynamic development of knowledge.

### Outcomes Measures

Success for research parks is generally defined in economic terms, such as the number of companies started, the number of jobs created, and the growth of property values. Other evaluation metrics relate to the purposes for the parks creation. These include, for example, reindustrialization for regions with declining industries, such as coal mining, iron and steel production, shipbuilding, or automobile manufacture. In other instances new parks have been created to stimulate high growth industries, such as computers, software, and biotechnology where none or little of these industries was present. In other cases, the motivation has been to create new opportunities and synergies for existing firms so that they would benefit from and enhance their own capabilities for technology transfer (Luger and Goldstein, 1991).

Outcomes measures that are quantitative include growth in the number of patents, new processes, R & D contracts, companies involved in R & D contracts, licensing contracts and products produced by park tenants. These are valuable and measurable outcomes along with the revenue associated with them. There will obviously be direct and indirect beneficiaries of growth and economic development that one may not be able to directly relate to the research park. There are also the intangible but real benefits concerning the benefit to the human race of scientific discoveries in health, ecology, and food sciences resulting from the scientific discoveries in high-tech and biotech research parks.

Add to new job generation and income growth, other expected outcomes, such as greater income equality, expanded opportunities within the existing labor force, growth in educational attainment and growth of employment and payroll outside the park in support and ancillary sectors. The growth in business services, headquarters functions, retail and consumer services, and production of the region’s firms could also relate to the success of the park but might be due to the local economy in general. Nevertheless, if there are positive changes in a region’s economic stability, enterprise/ownership mix regarding diversity of opportunities, productivity, product and industry mix, wage structure, labor force participation rate, the in-out migration pattern of labor, poverty and unemployment rate, level of income inequality, land and housing prices, and even labor-management relations could be good and valuable outcomes regardless of the proven direct linkage to the research park.

Longevity may be the best measure of the research park’s success. Some measures are quantifiable but others that cannot be directly linked are nevertheless beneficial outcomes. If the region “takes off” after the development of a research park, and the tenants are happy to stay in the park, and new businesses are being created with associated new and expanded private investment, it may be reasonable to conclude that the investment in the **knowledge economy** was worth it.
References


The revised Yamato Road Tri-Rail Station Development Proposal (YRTSDP) reduces the proposed building sizes by a floor or two, reduces onsite parking by 544 spaces, increases office space, reduces hotel and residential use, and keeps the retail space at 55,000 square feet. The retail space is required to support the large scale pedestrian activities in the plazas, courtyards, and corridors that adjoin the proposed Tri-Rail Station mixed-use buildings.
YRTSDP REVISIONS MAKE IMPORTANT IMPROVEMENTS FOR THE BOCA RATON BUSINESS COMMUNITY ACCESS TO TRI-RAIL SERVICES

In conjunction with Tri-Rail service, the proposed transit oriented development (TOD) and parking shuttle services will support redevelopment of office space in northwest Boca Raton as locations for regional, national, and international corporate headquarters and research facilities.

THE REVISED YRTSDP CONSTITUTES SUBSTANTIALLY THE SAME PROJECT FROM SFRTA’S POINT OF VIEW

YRTSDP represents a mixed-use development that will generate a market rate return for the land SFRTA owns and has the potential to significantly increase ridership at this location. Properly implemented, significant customer growth from Boca Raton citizens and FAU students can be projected.
PEDESTRIAN, BICYCLE & PARKING SHUTTLE IMPROVEMENTS

Commercial, hotel, university, and residential communities will be provided: i) improved pedestrian, bicycle, community transit and parking shuttle access to Tri-Rail services; and, ii) through Tri-Rail services, linkages to the major commercial, residential, and airport destinations north and south of the City of Boca Raton.

YRTSDP WILL REDUCE TRAFFIC CONGESTION

Through the use of fringe and corridor parking and parking shuttle system, local traffic congestion, within a four square mile area as well as along the Interstate 95, will be reduced within the context of the proposed multimodal transportation district for the City of Boca Raton.
Pedestrian Space Reduces Crime

Multimodal transportation districts should consist of a TOD at their center with pedestrian-oriented corridors and community transit/parking shuttle transport linking the TOD outwardly to major community destinations in order to improve safety and reduce the opportunities for criminal activities. State authorized safe neighborhood districts will provide ongoing support.

Yamato Road TOD, LLC (LBJax Development, LLC and Atlantic Coast Developers, LLC)

- Specialize in Similar Developments
- Principals Associated for 30 Years
- Assembled an Impressive Team
- Demonstrated Ability and Financial Resources
- Large-scale Mixed-use Project
- Consistent with City Plans
- Innovative and Unique
- Consistent with Your Mission
DEVELOPMENT SUMMARY

- Parking
  - Approximately 1187 Parking Spaces
- Office Use
  - 105,600 Square Feet
- Hotel Use
  - 70,000 Square Feet or Approximately 140 Rooms
- Residential Use Including Work Force Housing
  - 206,200 Square Feet or Approximately 171 Units
- Retail Use
  - 55,000 Square Feet

PHASING

- Phase I: Parking (Currently Built)
- Phase II: Residential, Office, Retail
  - Build Structural Parking and Liner Buildings
  - Existing Parking in Phase I At-Grade Lots Moved when Structural Parking Built
- Phase III: Office, Hotel, Retail
  - Build Structured Parking over Bus/Shuttle Terminal to Create Covered Terminal
  - Temporarily Use Existing Phase I At-Grade Parking Lots for Bus/Shuttle Parking
- Phase IV: Residential, Retail
  - Build Structured Parking and Liner Buildings to Complete Project
FINANCIAL DATA

- YRJV Agrees to Pay $1.1 Million More than Boca Tri-Rail Center, LLC in Expected Rents For the First 15 Years and More Over Time
- YRJV Understands that SFRTA Will Require a Share of Gross Revenues as Additional Rent
- YRJV Agrees to Negotiate a Fair and Appropriate Rent with SFRTA Given a Sharing of Both Risks and Rewards by the Parties

DEVELOPMENT SCHEDULE

<table>
<thead>
<tr>
<th>Year 1</th>
<th>SFRTA Approval for YRJV and Negotiate Contract within 30 Days with YRJV now organized as Yamato Road TOD, LLC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Begin Negotiations With LWDD and SFWMD</td>
</tr>
<tr>
<td></td>
<td>Begin negotiations with FPL</td>
</tr>
<tr>
<td></td>
<td>Begin Negotiations with FDOT and USDOT</td>
</tr>
<tr>
<td></td>
<td>Submit Development Entitlements Applications with City, TCRPC &amp; State</td>
</tr>
<tr>
<td>Year 2</td>
<td>LWDD and SFWMD Agreements Approved</td>
</tr>
<tr>
<td></td>
<td>FPL Approval</td>
</tr>
<tr>
<td></td>
<td>FDOT, USDOT Approval of Grants for Transportation Infrastructure Improvements</td>
</tr>
<tr>
<td></td>
<td>Development Entitlements Approved with City, TCRPC &amp; State</td>
</tr>
</tbody>
</table>

| Year 3                 | Phase II Construction Begins                                                                         |
| Year 4                 | Phase III Construction Begins                                                                        |
| Year 5                 | Phase IV Construction Begins                                                                         |
| Year 6                 | All Construction Complete                                                                           |

<table>
<thead>
<tr>
<th>Boca Tri-rail Center, L.L.C.</th>
<th>$44,000</th>
<th>$75,000</th>
<th>$290,000</th>
<th>$215,000</th>
<th>$215,000</th>
<th>$245,000</th>
<th>$260,000</th>
<th>$275,000</th>
<th>$290,000</th>
<th>$305,010</th>
<th>$320,000</th>
<th>$355,000</th>
<th>$350,000</th>
<th>$365,000</th>
<th>$380,000</th>
<th>$1,895,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yamato Rd TOD, L.L.C.</td>
<td>$0</td>
<td>$0</td>
<td>$250,000</td>
<td>$250,000</td>
<td>$250,000</td>
<td>$275,020</td>
<td>$386,250</td>
<td>$397,838</td>
<td>$409,773</td>
<td>$422,066</td>
<td>$434,728</td>
<td>$447,770</td>
<td>$461,203</td>
<td>$475,039</td>
<td>$489,290</td>
<td>$5,048,955</td>
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</tbody>
</table>
# Overall Development Summary

<table>
<thead>
<tr>
<th>Category</th>
<th>Phase II</th>
<th>Phase III</th>
<th>Phase IV</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>190,400</td>
<td>20,000</td>
<td>79,600</td>
<td>290,000</td>
</tr>
<tr>
<td>Office</td>
<td>105,600</td>
<td>-</td>
<td>105,600</td>
<td></td>
</tr>
<tr>
<td>Hotel</td>
<td>13,000</td>
<td>-</td>
<td>13,000</td>
<td></td>
</tr>
<tr>
<td>Retail</td>
<td>30,000</td>
<td>10,000</td>
<td>50,000</td>
<td></td>
</tr>
<tr>
<td>Parking</td>
<td>401</td>
<td>310</td>
<td>1,151</td>
<td></td>
</tr>
<tr>
<td>Total Parking</td>
<td>600</td>
<td>600</td>
<td>1,200</td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td>236,000</td>
<td>106,000</td>
<td>94,800</td>
<td>436,800</td>
</tr>
</tbody>
</table>

## Site Area Summary

<table>
<thead>
<tr>
<th>(Acres)</th>
<th>Overall</th>
<th>Phase II</th>
<th>Phase III</th>
<th>Phase IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFRTA</td>
<td>8.6</td>
<td>2.6</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>LWDD</td>
<td>1.4</td>
<td>0.6</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>FPL</td>
<td>1.0</td>
<td>0.4</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9.0</td>
<td>3.6</td>
<td>2.4</td>
<td>2.0</td>
</tr>
</tbody>
</table>

## Land Area Per Building

### Phase II

<table>
<thead>
<tr>
<th>Building</th>
<th>Land Area (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLDG-A</td>
<td>10.00</td>
</tr>
<tr>
<td>BLDG-B</td>
<td>18.00</td>
</tr>
<tr>
<td>BLDG-C</td>
<td>8.00</td>
</tr>
<tr>
<td>BLDG-D</td>
<td>12.00</td>
</tr>
<tr>
<td>BLDG-E</td>
<td>12.00</td>
</tr>
<tr>
<td>BLDG-F</td>
<td>12.00</td>
</tr>
<tr>
<td>BLDG-G</td>
<td>10.00</td>
</tr>
</tbody>
</table>

| Total    | 77.00             |

## Parking Summary

<table>
<thead>
<tr>
<th>Phase II</th>
<th>Surface</th>
<th>Subgrade</th>
<th>Garage</th>
<th>Total sqft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>56</td>
<td>0</td>
<td>401</td>
<td>433</td>
</tr>
</tbody>
</table>

### Phase III

<table>
<thead>
<tr>
<th>Phase IV</th>
<th>Surface</th>
<th>Subgrade</th>
<th>Garage</th>
<th>Total sqft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24</td>
<td>-</td>
<td>420</td>
<td>444</td>
</tr>
</tbody>
</table>

### Phase IV

<table>
<thead>
<tr>
<th>Total</th>
<th>Surface</th>
<th>Subgrade</th>
<th>Garage</th>
<th>Total sqft</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>56</td>
<td>0</td>
<td>401</td>
<td>433</td>
</tr>
</tbody>
</table>

## Parking Provided

<table>
<thead>
<tr>
<th>Use</th>
<th>Note</th>
<th>Total Spcs</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRU-RAIL</td>
<td>80 spaces*</td>
<td>80</td>
</tr>
<tr>
<td>RESIDENTIAL</td>
<td>1 space/unit</td>
<td>257</td>
</tr>
<tr>
<td>U.H.H.</td>
<td>1 space/30sf</td>
<td>352</td>
</tr>
<tr>
<td>HOTEL</td>
<td>1 space/200 sf</td>
<td>168</td>
</tr>
<tr>
<td>RETAIL</td>
<td>0.25 space/200 sf</td>
<td>275</td>
</tr>
</tbody>
</table>

| Provided Parking | 1,167 |
| Required Parking | 1,132 |

## Excess Parking

| Use       | 55 |

# Detailed Development Summary

## Phase II (East Parcel)

<table>
<thead>
<tr>
<th>Building Code</th>
<th>Height</th>
<th>Building Use</th>
<th>Sub Categories</th>
<th>Total sqft</th>
<th>Parking Spcs</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLDG-A</td>
<td>6 stories</td>
<td>Office</td>
<td>Office</td>
<td>55,200</td>
<td>55,200</td>
</tr>
<tr>
<td>BLDG-B</td>
<td>6 stories</td>
<td>Mixed Use</td>
<td>Residential</td>
<td>45,000</td>
<td>60,000</td>
</tr>
<tr>
<td>BLDG-C</td>
<td>6 stories</td>
<td>Mixed Use</td>
<td>Retail</td>
<td>15,000</td>
<td>71,400</td>
</tr>
<tr>
<td>BLDG-D</td>
<td>5 stories</td>
<td>Office</td>
<td>Office</td>
<td>50,400</td>
<td>50,400</td>
</tr>
</tbody>
</table>

## Phase II Total Development

<table>
<thead>
<tr>
<th></th>
<th>237,000</th>
<th>237,000</th>
</tr>
</thead>
</table>

## Phase III (South West Parcel)

<table>
<thead>
<tr>
<th>Building Code</th>
<th>Height</th>
<th>Building Use</th>
<th>Sub Categories</th>
<th>Total sqft</th>
<th>Parking Spcs</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLDG-F</td>
<td>7 stories</td>
<td>Hotel</td>
<td>Hotel</td>
<td>70,000</td>
<td>70,000</td>
</tr>
<tr>
<td>BLDG-G</td>
<td>4 stories</td>
<td>Office/Mixed Use</td>
<td>Residential</td>
<td>28,000</td>
<td>38,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sub Total</th>
<th>106,000</th>
<th>106,000</th>
</tr>
</thead>
</table>

## Phase III Total Development

<table>
<thead>
<tr>
<th></th>
<th>106,000</th>
<th>106,000</th>
</tr>
</thead>
</table>

## Phase IV (North West Parcel)

<table>
<thead>
<tr>
<th>Building Code</th>
<th>Height</th>
<th>Building Use</th>
<th>Sub Categories</th>
<th>Total sqft</th>
<th>Parking Spcs</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLDG-D</td>
<td>6 stories</td>
<td>Mixed Use</td>
<td>Residential</td>
<td>40,200</td>
<td>40,200</td>
</tr>
<tr>
<td>BLDG-E</td>
<td>6 stories</td>
<td>Residential/Mixed Use</td>
<td>Retail</td>
<td>33,200</td>
<td>33,200</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sub Total</th>
<th>66</th>
<th>94,800</th>
</tr>
</thead>
</table>

## Phase IV Total Development

<table>
<thead>
<tr>
<th></th>
<th>94,800</th>
<th>94,800</th>
</tr>
</thead>
</table>

---

*Note: Space calculations are approximate and may vary based on specific design and construction details.*
Appendix 7

FIU CIS Conceptual Plan Project Proposal

2006
A proposal for a
FIU CIS Conceptual Plan Project

Submitted for consideration by:
Florida Department of Transportation,
Miami-Dade County Fair & Exposition,
The City of Sweetwater,
Miami-Dade County,
and
Miami- Dade MPO

February 28, 2006

Overview

The Florida International University Community Intermodal System Conceptual Plan Project (Project) is proposed to:

• Be directed by the Project Steering Committee and their selected Project Manager during the 2006 calendar year
• Depict community intermodal system (CIS) improvements within the Study Area to enhance Metrorail, Metrobus, and community transit access
• Develop preliminary designs for multi-purpose perimeter parking structures and the mixed-use liner buildings that provide community hurricane, storm surge, and flood protection
General Project Description
Large-scale pedestrian movements & transit access

A mixed-mode street in Amsterdam that is used by pedestrians, bicyclists, and trams who share the corridor between mixed-use buildings.

Safe and Secure Community Development

Pedestrian-Oriented Parking Structure for Use with Mixed-Use Liner Buildings

Depicted by Juan Dominguez as conceived by Tom Gustafson
Other Benefits and Design Considerations

Health and social interactions improve, and with additional educational opportunities, the economy prospers

Project Objectives

1. Improve transit access, multimodal systems, and intermodal linkages
2. Reduced traffic congestion and foreign oil dependency
3. Transportation redundancy, reliability, efficiency, and financial self-sufficiency
4. Hurricane resistant communities
5. Dependable evacuation strategies
6. Improved social, educational, and economic conditions
7. Workforce housing
8. Enhanced public health
9. Balanced budgets and self-sufficient transit systems
Project Justification

American communities, designed in the 20th Century for automobile-oriented open and sprawling suburban lifestyles, are vulnerable to catastrophic events. CIS strategies, associated with interstate and arterial highways, provide designs for 21st Century communities that:

- Are very durable, safe, secure, mobile, economically competitive urban environments
- Yield health and productivity improvements
- Increase property values and higher education opportunities
- Support regional multimodal improvements
“When we finish building this thing, what should we do next?”

“Gee wiz, I don’t know. Whoever is here in 54 years can figure that out!”

January 11, 1955
Strasbourg, France

Vienna, Austria
Berne, Switzerland

Montreal, Canada
Nassau, Bahamas

Barcelona, Spain
New York, USA

Orlando, Florida

Narrow-gauge rail trolley for 30 inch gauge track using 30 pound rail segments and installation examples

Rubber tire tram for "on Demand" community transit service
MIAMI AT MIDNIGHT

Grande Promenade as depicted by Dover, Kohl & Partners/Urban Advantage

Davie, Florida

Community
Intermodal System
Improvements at
College Avenue and
I-595

TTCad/Cam Ector
During the Calendar Year 2006

The proposal for a FIU CIS Conceptual Plan Project should be reviewed and approved by each of the planning participants and work initiated in cooperation with:

- FIU
- FDOT - District VI and Turnpike
- Miami-Dade County
- The City of Sweetwater
- Miami-Dade Fair & Exposition
- Miami-Dade MPO

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Institute of Government and Public Policy

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Nova Southeastern University
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Fort Lauderdale, Florida 33314-7796
Telephone: 954-262-5050 • Fax: 954-262-4241
www.huizenga.nova.edu/igpp
Appendix 8

Orlando Downtown Parking Shuttle (ODPS) Transit Greenway System

2009
This 24 inch gauge diesel powered tram vehicle has been operating in Orlando, Florida on International Drive for the last six years. This power car vehicle, when configured for use on a 30 inch gauge track, would be installed to link three downtown Orlando train stations of the Central Florida Commuter Rail System (Orlando Health/Amtrak Station, Church Street Station and Lynx Central Station). Ultra-low floor air conditioned trailer cars would be built to complement the power unit (to increase passenger capacity via a two or three car tram). The proposed Orlando Downtown Parking Shuttle (ODPS) Transit Greenway System is budgeted at $52 million will provide for transit greenway linkage between tens of thousands of structured or other parking spaces and the many downtown Orlando destinations.

- Installation of up to 8 miles of 30 inch narrow gauge rail track (30 pound weight) built to service strategic destinations within an approximate one mile radius of the Orlando Events Center;
- Fabrication and installation of the NGR parking shuttle vehicles as shown above consisting of 14 diesel hydraulic power cars and 24 air conditioned ultra low floor trailer cars to 7 foot wide by 9 foot tall providing seating for a approximately 20 (power car) to 25 (trailer car) passengers for each vehicle and additional standing capacity (say 7 to 8 or so) and acquiring two tilt-floor recovery vehicles;
- Storage and maintenance provide on city owned property in 2 trolley barns built as part of these project efforts.
- Sidewalk improvements to expand walking opportunities adjacent to and linking with the parking shuttle system so that destinations within the area served (approximately 4 square miles) will have short enjoyable walks and opportunities to ride on the parking shuttle vehicles between parking spaces and major Orlando events or other destinations.

11 Major event destinations like the Orlando Events Center, Citrus Bowl, and Orlando Performing Arts Center; Orlando medical facilities like the Orlando Regional Medical Center and related facilities; schools like Florida A&M University Law School, Orlando Tech and Lake Eola Charter School; major downtown office and retail establishments, and, residences.
This ODPS Transit Greenway proposal allows the City of Orlando to address the additional transit oriented development (TOD) opportunities associated with the area served by the ODPS Transit Greenway and the associated commuter rail stations and transit stops. Additional TOD and transit greenway planning efforts should be undertaken immediately so that such planning efforts will be well underway before SAFETEA-LU is reauthorized in hopes that various TOD components and further improvements to the ODPS Transit Greenway will be authorized for federal funding.

A five year ODPS Transit Greenway operations and maintenance budget would be based upon an estimated cost of $8 to $10 million annually.

**Power Car Vehicle Specifications:**

<table>
<thead>
<tr>
<th>Size</th>
<th>25 Seated Passengers (plus 8 Standing Passengers)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overall Length – 300 inches</td>
</tr>
<tr>
<td></td>
<td>Overall Width – 84 inches</td>
</tr>
<tr>
<td></td>
<td>Overall Height – 108 inches</td>
</tr>
</tbody>
</table>

**Chassis:**

- Custom Built 6” x 10.5#, Trussed Heavy Wall Structural Steel Channel Main Frame Weldment with Formed A-36 Structural Cross Channel Braces
- Custom Engineered Wheel Sets with Hardened High Carbon Alloy Steel Wheels
- Parallel Shaft Pass-Through Gear Reducer and Hydraulic Motor on Each Axel
- Speed Ratings Variable to Meet Operating Requirements
- 25 H.P. to 50 H.P. Diesel Engines Available for Solo or Tandem Operation; Capable of Negotiating a 3% Grade with 2 Trail Cars
- On-Board Generator for Air Conditioned Units

**Frame:**

- Floor – 1½” square tubing (steel)
- Walls – 1¼” square tubing (steel)
- Roof – 1” x 2” rectangular steel tubing
- (Floor and walls treated with rust inhibiting primers and undercoating)

**Body Panels:**

- Exterior - .063 Aluminum riveted on 6” centers and bonded to steel framing

**Roof:**

- Seamless Fiberglass Exterior Panel Bonded to Steel Frame
- Birch Ceiling Panels and Solid Mahogany Trim
- Clerestory Window Details
- Signage opportunities

**Flooring:**

- 11-Gauge Steel Sub-Floor Covered with 3/4” Marine Plywood and Skid Resistant Vinyl Transit Flooring

**Windows:**

- Operable Lower Windows in Closed Section with Etched Fixed Glass in Arches, Doors, and Front and Rear Wall Sections
- All Glazing meets FMVSS Standards

**Seats:**

- Slatted Wood Bench-Type Seats. Body Details Create Arm Rest/Restraint Details

**Trim Details:**

- Solid Brass

**Specifications:**

- Weight – 16,000 lbs.
- Track Gauge – 30”
- Recommended Track Curve Radius – 50 ft.
- Minimum Track Curve Radius – 38 ft.
- Recommended Grade – 3%*
- Maximum Grade – 5%*
- Recommended Ride Speed – 5 to 10 mph
- Maximum Ride Speed – 18 mph

**Other:**

- All Exterior lighting Details meet FMVSS Standards
- Courtesy Lighting
- Driver Interrupt P/A System
- Choice of Single Color Paint with Pin Striping and Client Logo
Legend:

- North South Blue Line: 3.8 Miles*
- East West Green Line: 2.4 Miles
- East Side Orange Line: .8 Miles
- Areas for advanced TODs

*Plus .6 Miles to and from machine shop
## Orlando Downtown Parking Shuttle (ODPS) Transit Greenway System and Community Intermodal System Related Advanced Transit Oriented Development

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Transit Greenway (TG) Jobs</th>
<th>VocEd&amp;Job Placement (JP)</th>
<th>Federal Funds</th>
<th>State Funds</th>
<th>City Funds</th>
<th>Private Funds</th>
<th>Total TG Funds</th>
<th>Economic Impact (TG)</th>
<th>Workforce Housing</th>
<th>Retail, Office&amp;Hotel</th>
<th>Advanced TOD Costs</th>
<th>Economic Impact (TOD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2009</td>
<td>98 construction</td>
<td>170 graduates/JP</td>
<td>$46.8 million</td>
<td>$2.6 million</td>
<td>$2.6 million</td>
<td>$52 million</td>
<td>$75 million</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FY2010</td>
<td>180 operations</td>
<td>34 graduates/JP</td>
<td>$6.2 million°</td>
<td>$0.4 million°</td>
<td>$0.4 million°</td>
<td>$1 million</td>
<td>$8 million</td>
<td>$12.5 million</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FY2011</td>
<td>180 operations</td>
<td>25 graduates/JP</td>
<td>$5.7 million*</td>
<td>$0.4 million°</td>
<td>$0.4 million°</td>
<td>$1.5 million</td>
<td>$8 million</td>
<td>$12.5 million</td>
<td>297 units</td>
<td>345,000 sq ft</td>
<td>$244.5 million</td>
<td>$366.75 million</td>
</tr>
<tr>
<td>FY2012</td>
<td>180 operations</td>
<td>25 graduates/JP</td>
<td>$5.2 million°</td>
<td>$0.4 million°</td>
<td>$0.4 million°</td>
<td>$2 million</td>
<td>$8 million</td>
<td>$12.4 million</td>
<td>297 units</td>
<td>345,000 sq ft</td>
<td>$244.5 million</td>
<td>$366.75 million</td>
</tr>
<tr>
<td>FY2013</td>
<td>180 operations</td>
<td>25 graduates/JP</td>
<td>$3.7 million*</td>
<td>$0.4 million°</td>
<td>$0.4 million°</td>
<td>$3.5 million</td>
<td>$8 million</td>
<td>$14 million</td>
<td>297 units</td>
<td>345,000 sq ft</td>
<td>$244.5 million</td>
<td>$366.75 million</td>
</tr>
<tr>
<td>FY2014</td>
<td>180 operations</td>
<td>25 graduates/JP</td>
<td>$0.0 million</td>
<td>$0.4 million°</td>
<td>$0.4 million°</td>
<td>$7.2 million</td>
<td>$8 million</td>
<td>$15.5 million</td>
<td>297 units</td>
<td>345,000 sq ft</td>
<td>$244.5 million</td>
<td>$366.75 million</td>
</tr>
<tr>
<td>TOTALS</td>
<td>998 job years</td>
<td>304 graduates/JP</td>
<td>$67.6 million</td>
<td>$4.6 million</td>
<td>$4.6 million</td>
<td>$15.2 million</td>
<td>$92 million</td>
<td>$141.9 million</td>
<td>1188 units</td>
<td>1,380,000 sq ft</td>
<td>$978 million</td>
<td>$1,467 million</td>
</tr>
</tbody>
</table>

Notes:
1. Jobs created to build and operate a Transit Greenway parking shuttle system for Downtown Orlando are actual estimates as expected to be required per George Brenyo/Tom Gustafson ODPS Transit Greenway worksheets.
2. Vocational education/training and job placement numbers represented are expected training needs on a recurring basis.
3. Assumes a $52 million construction budget based upon the George Brenyo/Tom Gustafson ODPS Transit Greenway worksheets and assumes a 10% state/local matched funding.
4. Assumes private funds arise from operational revenues, the sharing of parking revenues, Safe Neighborhood District revenues, or similar support.
6. The calculations for workforce/student housing units and the square feet for retail, office, and hotel use assumes three advanced TOD projects sized at 200% of Yamato Road Tri-Rail Station Development Proposal (YRTSDP 2.0) project after a two years of planning.
7. Economic impact from advanced TODs construction costs assumes a multiplier output effect of 1.55 in 2011, 1.55 in 2012, 1.55 in 2013 and 1.55 in 2014. See [The Job Impact of the American Recovery and Reinvestment Plan](January 9, 2009). Additional and more expert analysis of such economic impacts would be welcome. Advanced TOD costs will be paid by a mix of transportation funds that pay for parking structures, parking shuttles, and pedestrian public access improvements (mixed-mode streets, pedestrian corridors and plazas). Cost estimates are based upon three projects (south, north, and west) sized at 200% of the YRTSDP 2.0 project phased over a four year build out (assumes a two year planning effort). There has been no attempt to calculate the significant additional economic impacts that arise from a fully functioning advanced TOD once business enterprises locate there with the employees and management who possess higher education and job training skills as described in [Growing the American Economy]. These improvements would be collectively presented as a part of the Florida’s Strategic Intermodal System (SIS) similar in nature and scope to the Miami Intermodal Center and the Jacksonville Regional Transportation Center.

* Temporary operating funds until private funds are sufficient for payment of operations and maintenance costs.  ° Revenue sharing for economic growth arising from transit greenway development.