# 2.0

"More walking and cycling for practical daily travel is an ideal approach to raising physical activity levels"

> Surgeon General, USA (1996)

# Public Health & Community Transportation

The Centers for Disease Control (CDC) initiated research in 1997 that recently has revealed relationships among public health, urban form and transportation modalities. The CDC and the Governor's (Jeb Bush) task force on obesity reported that 31% of Americans are clinically obese, those living in sprawling areas are 6 lbs. heavier than those living in urban areas and 57% of Floridians are overweight. Cardiovascular disease — related to poor eating habits and sedentary lifestyle — is rapidly approaching and expected to soon surpass cancer as the leading cause of death in the United States. Hospitalization, treatment and lack of productivity related to obesity is estimated to cost the public billions of dollars. This has prompted the CDC to consider re-entering the community design and planning arena to address this health threat in a manner similar to the initiation of zoning in the early 20<sup>th</sup> Century.

Transportation Ecologies leverages these initiatives to direct the focus of transportation resources to facilities and infrastructures that promote healthier modes of transport by adopting the CDC recommendations for recreational activities (parks, bicycle pedestrian paths, and public amenities), routinized activity (alternative transportation options that promote walking and cycling) and reductions in automobile use (improved air quality). European communities with these models in place have low rates of obesity, diabetes and hypertension and citizens with a life expectancy 2.5 to 4.4 years higher than average.

Air quality and it's effects on public health (cancer related) has been the catalyst for the City of Portland's innovative bicycle and light-rail programs. More recently, Houston's *Comprehensive Bikeway Program* will add 1,035 miles of specified bicycle infrastructure to improve air quality. As public health agencies focus on more routinized physical activity, promote improved air quality (breathability) and maximize safety, off-road (separated from automobiles) commuter bicycle routes will naturally emerge as optimized strategies.

Relationship Between Urban Sprawl and Physical Activity, Obesity and Morbidity Ewing, Schmid, Killingsworth, Zlot & Raudenbush



"...the likelihood of being obese (having a body mass index of 30 or greater) is highest in the most sprawling environments. ...the proportion of obese white males in Atlanta increased from 13 to 23 percent as residential density went from more than eight to less than two dwellings per residential acre."

Larry Frank Health and Community Design: The Impacts of the Built Environment on Physical Activity

Alachua Countywide Bicycle Master Plan Addendum — 2003

#### Transporting Ecologies Nets, Braids & Loops

### **Environmental Stewardship**





In the book *Natural Capitalism - Creating the Next Industrial Revolution*, authors Hawkin, Lovin and Lovin argue for recognizing the "productive" value of natural habitats and systems in terms of ecological diversity and environmental health. Adopting a closed-loop cycle of resource management might capture resources such as storm water rather than channeling it away as soon as possible. This might lead to storm water parks or catchment gardens — rather than the typical buried storm drain, thus allowing the water to recharge in-place. Storm water could be filtered and recharge near the site on which it falls. Where hydrological systems become linear riparian systems, we might utilize them as non-invasive transportation (bicycle and pedestrian) corridors, as green ways, providing direct cycle commuter routes, habitat corridors and environmental cleansing systems.

The factor four principle (doubling productivity while halving resource consumption) suggests a paramount opportunity for the bicycle pedestrian investment in a small community such as Gainesville, Florida. Typically 95% of the energy used in an automobile is applied to move the vehicle and only 5% to move a single occupant. If even a moderate number of people shift to cycling for daily commuting there could be significant increases in the overall productivity of a community — work accomplished for a given energy input. If health benefits are factored, such as time saved from exercising at a gym and minimizing visits to a physician, the gains truly become multiples. Currently, and as part of the original air quality initiative in Portland, benefit is also measured in terms of carbon dioxide ( $CO_2$ ) emissions avoided — cycle and transit modes improve everybody's air quality.

A more connected overall bicycle network utilizing the Nets, Braids & Loops strategies outlined in this report provides alternative transportation options, utilizes the most energy efficient mode, provides more options for mobility and uses less resources while advancing a cleaner environment.

Transporting Ecologies Nets, Braids & Loops



Transporting Ecologies seeks to enhance all modes of transportation with an emphasis on the bicycle

## **Transportation Modality**

Transporting Ecologies optimizes bicycle infrastructure planning as part of a larger transportation initiative conducted by the Metropolitan Transportation Planning Organization. The year 2020 transportation plan calls for improvements to all modes of transportation to offer a more balanced system that provides legitimate options to the automobile.

Automobile dominated planning and infrastructure has been in-place since the 1950's. A balanced transportation system will require a strong focus on alternative modes of transportation. An important part of this master plan Addendum is to identify and promote connected routes that can transition current motorist trips into bicycle trips on a routine basis while integrating with existing infrastructure and promoting better public space.

Promoting Safe Walking and Cycling to Improve Public Health: Lessons From the Netherlands and Germany

> John Pucher and Lewis Dijkstra







Pedestrian and bicycle fatalities and injuries - trips and miles traveled

Recommendations for infrastructural and policy improvements are included to address safety issues reflected in the statistics above. Although the US has far fewer cyclists and pedestrians, the fatality rates for non-motorized person trips are far higher than European countries with very high rates of cycle pedestrian activity. Infrastructure is a key component yet only part of an initiative that includes policy, education and enforcement.



Non reductionist models find efficiency in the overlap of systems and the acceptance of complexity to leverage mutual benefits.

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Public Garden, Copenhagen, Denmark

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