

## IV. SUSTAINABILITY PRINCIPLES

*"The city is an invention to maximize exchange opportunities and minimize travel. These exchanges may be of goods, friendship, knowledge, culture, work, education, and emotional or spiritual support. We choose to live in cities because exchanges are the real stuff of life."*

David Engwicht<sup>1</sup>

### KEY PRINCIPLES

The following guiding principles offer an innovative and comprehensive perspective as to how to move the City of Santa Cruz towards a sustainable transportation future and become a model for the region and the world. Implementation of these principles can be achieved through updating the City's General Plan, zoning ordinance and other transportation planning.

1. **The "joie de vivre" (keen and buoyant enjoyment of life) for people living, working and visiting Santa Cruz, from all stages of the life, and from diverse social and economic backgrounds, is to have the opportunity to connect and experience the richness and unlimited potential of this unique place.**

*Santa Cruz is more than just a city -- with its vibrant downtown, beautiful natural setting from redwood covered coastal mountains to bright sandy beaches, entertaining boardwalk attractions, rich university life, diverse residential neighborhoods - Santa Cruz reflects an open-minded attitude, inclusive of community building, environmental consciousness, celebrating diversity and enjoying outdoor lifestyles.*

*To live, work and visit Santa Cruz is to connect to new ways of thinking, experiencing and relating to oneself, others and the world. Santa Cruz is a compact arrangement of these diverse opportunities.*

2. **The purpose of travel is to reach opportunities available at destinations; it is a means to connect, not an end in itself<sup>2</sup>.** Travel is a "derived demand," in that people occasionally travel for pleasure of movement, but principally travel to reach opportunities available at destinations. Cities are composed of two types of space, exchange space and travel space. The more space a city allocates to vehicle travel, the more the exchange space becomes diluted. The purpose of transportation is to reduce vehicle travel and maximize exchange.

3. Increasing accessibility is the key to reducing travel and maximizing exchange.

Greater accessibility reduces the total travel costs to reach multiple destinations, while increasing the social, economic, and environmental value of the location.

*Therefore, an effective and efficient transportation system for the City of Santa Cruz is one that seeks to maximize connection and exchange, without unduly increasing vehicle travel.*

4. **The most accessible spatial configuration, for people throughout the life cycle, is the clustering of multiple destinations where people can meet their daily needs within a five to ten minute walk.**

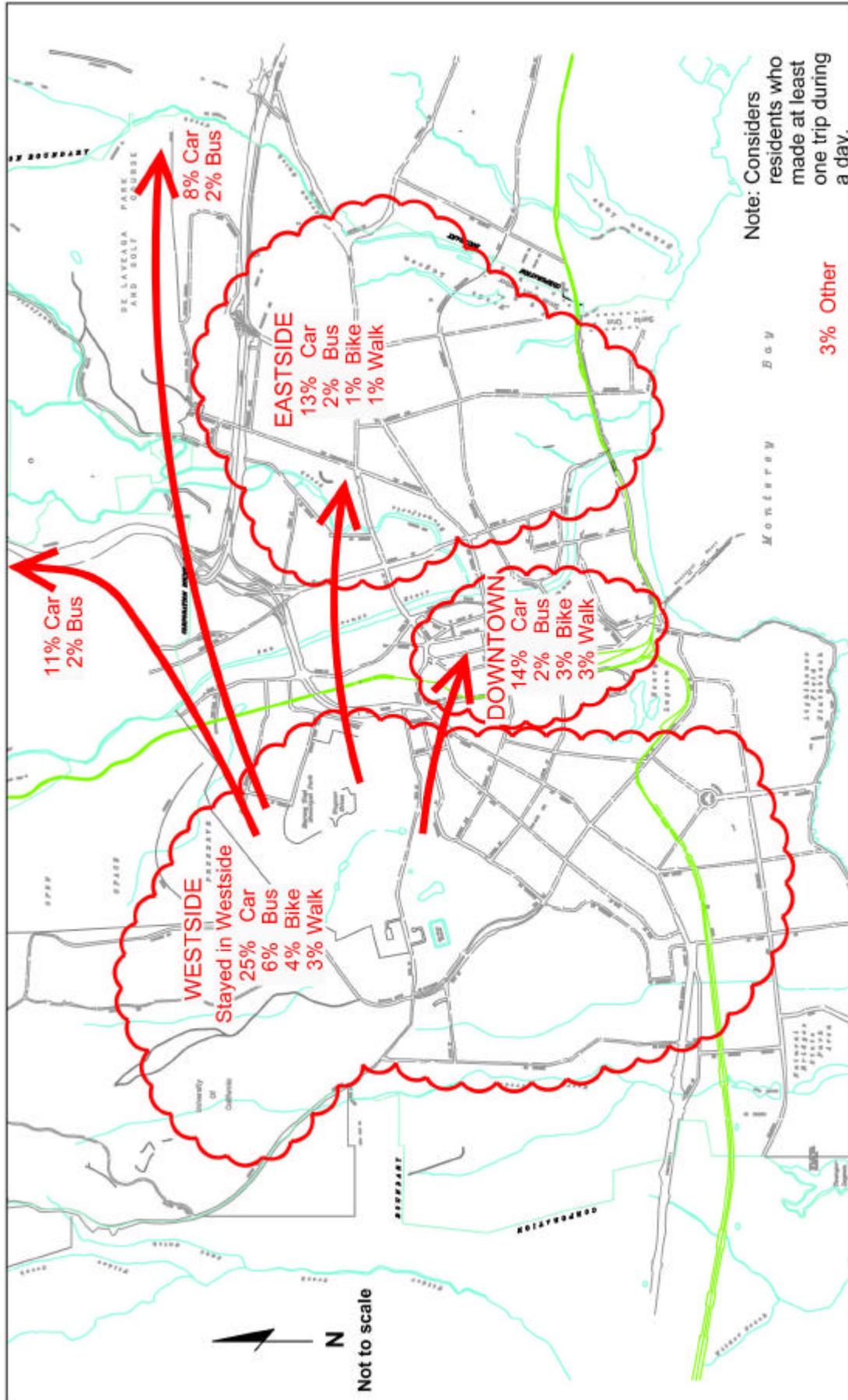
Another benefit of clustering a diversity of destinations is that a variety of choices, connections and exchanges become more easily available, enabling greater richness of life.

*Santa Cruz with its walkable-scale street and block pattern, highly interconnected street network and clustering of employment and commercial uses into centers of activity, has the potential to be a highly accessible city.*

5. Increasing "person-trip" mobility is a more cost effective, sustainable approach to transportation planning than solely increasing "vehicle-trip" mobility. Planning to increase mobility, the ease of movement to and from destinations, is to first maximize the potential for walking. All travel starts with walking, whether it is a transit, carpool or bicycle trip. Traditional traffic engineering focuses exclusively on "improving vehicle mobility," by expanding roadway capacity without consideration, and often to the detriment of the increasing person trip travel.
6. **Planning for multi-modal solutions enhances both person and vehicle trip mobility.** Expanding multi-modal travel options provides greater overall balance to the transportation system, supporting single and multiple occupant vehicles, transit, bicycles and pedestrians. It is the most effective investment strategy to increase person-trip mobility.

*For Santa Cruz, the key is to balance multi-modal solutions to increase person-trip accessibility to support **higher-occupancy vehicle mobility**. Conversely, vehicle mobility gains cannot translate into person-trip accessibility losses. For example, widening a local street increases vehicle mobility, but reduces pedestrian accessibility.*

7. **You cannot build your way out of vehicle traffic congestion -- the "triple convergence" principle<sup>3</sup>.** When road capacity is increased, total travel time will ultimately equalize over time, until traffic moves at the previous levels of congestion. Expansion of roadway capacity cannot eliminate periods of frustratingly slow speeds, due to drivers who previously :
  - Used alternative routes during peak hours switch to the improved roadway (*spatial convergence*);
  - Traveled just before or after the peak hour start to travel during those hours (*time convergence*); and
  - Used public transportation during peak hours now switch to driving, since it has become faster (*modal convergence*).
8. Vehicle traffic is both local and regional. Peak hour congestion arises because vehicles from throughout the regional area are trying to move to destinations

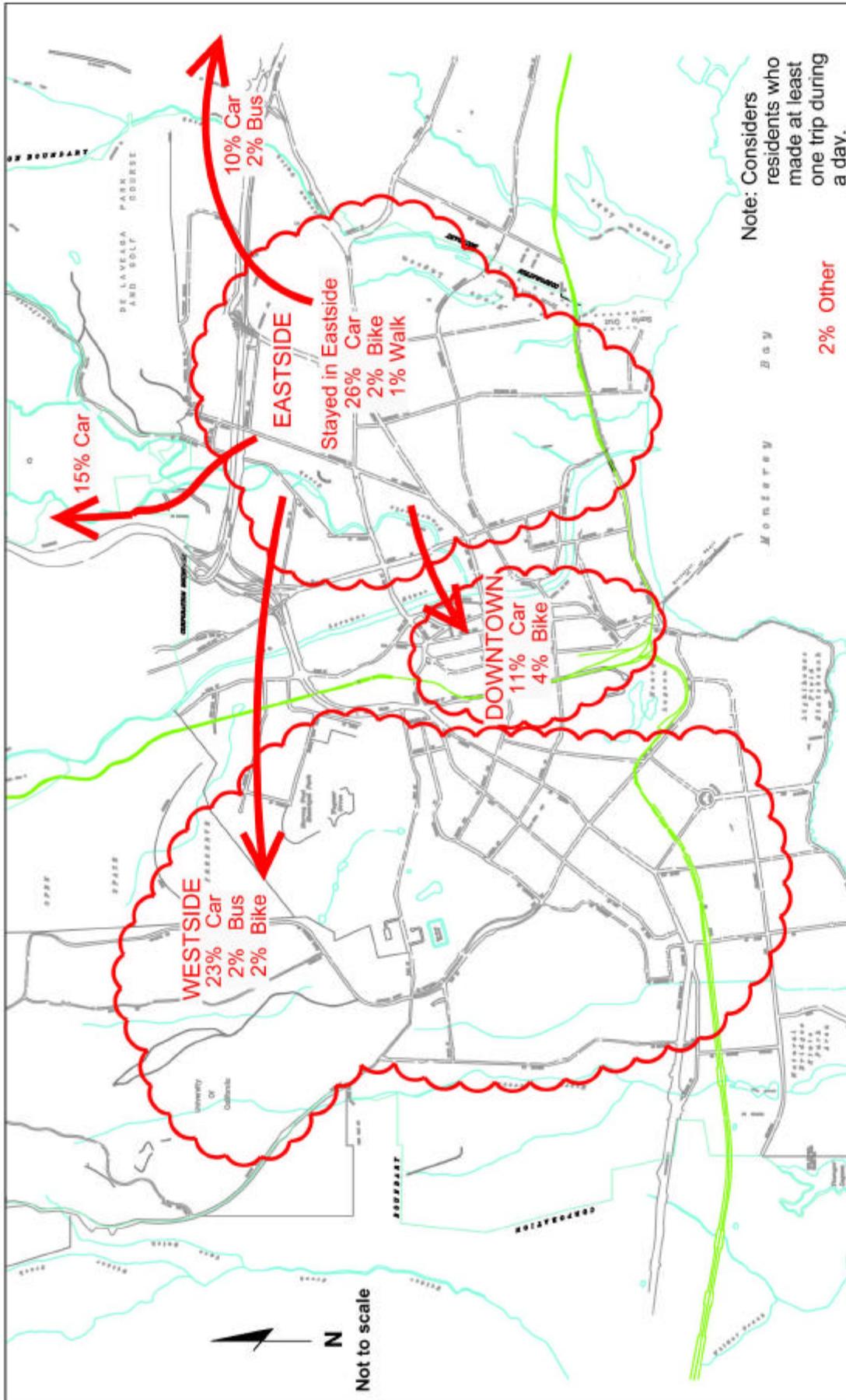


Santa Cruz Master Transportation Study

**95060 ZIP CODE  
RESIDENT DAILY TRAVEL PATTERNS  
FIGURE 1**

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Santa Cruz Master Transportation Study

**95062 ZIP CODE  
 RESIDENT DAILY TRAVEL PATTERNS  
 FIGURE 2**

**fp** FEHR & PEERS ASSOCIATES, INC.  
 Transportation Consultants

February 2001  
 1504-01

throughout the regional area on the same street and highway network at the same time<sup>4</sup>. The street and highway network crosses local government boundaries, but does not differentiate between communities. Local government can only directly influence local and regional commute-in travel.

*For Santa Cruz, 70 percent of daily residential mobility is for local trips as shown in Figures 1 and 2. For peak-hour travel citywide, 50 percent is local and 50 percent is regional travel. Of regional trips, commute in and commute out trips are roughly split in half (46% vs. 54%) therefore 25 percent of all peak-hour travel is not directly susceptible to local management, and requires a regional approach.*

9. **Population and employment growth offset beneficial impacts of any remedies to traffic congestion.** This creates a circular problem, where local governments improve streets and highways to fight congestion, but those improvements create incentives to:

- Increase automobile ownership and use: and,
- Further disperse the location of residential and non-residential growth.

A remedy that cuts peak hour congestion in year 1 by 4 percent will have no visible effect in year 3 if the number of vehicles increases by 2.5 percent a year. Growth is a pattern of regional development, and therefore local governments have a limited capacity to effect regional population and employment growth.

*Even though Santa Cruz is an already built-out residential community, there is the potential for employment and UCSC growth. There is an opportunity for Santa Cruz to build upon UCSC's success at managing their vehicle traffic impacts as a local model to manage and offset the transportation system impacts of future employment growth in town.*

10. **No single policy option can fully manage traffic congestion.** As many experts have pointed out, remedies must be combined to be effective, however, due to triple convergence, congestion remedies cannot be expected to eliminate the problem altogether. Rather, they should aim to:

- a. Reduce the duration of maximum congestion appreciably
- b. Reduce the average length of time for commuting
- c. Increase the proportion of all commuters traveling during periods of maximum convenience
- d. Reduce the intensity of commuter frustration

*For Santa Cruz, the key is to achieve community clarity of understanding of the nature and limits of remedying vehicle traffic congestion, and that ensuring travel choice, community livability and long-term sustainability are of equal, if not greater, social, ecological and economic value.*

11. **Providing real travel choices is the best alternative to being "stuck" in peak-hour traffic congestion.** Real travel choices provide independence from the effects of vehicle traffic congestion or offer other non-travel benefits that moderate the effects of vehicle traffic congestion. Choice is also about giving people freedom and independence to be responsible to take care of their own needs, whether children, seniors or disabled, without being dependent or needing assistance from someone who can drive. Freedom to choose how, when and whether to travel empowers people to take control over their own lives and supports achievement of their aspirations.

*Santa Cruz's pioneering policy direction already is committed to offering and expanding real travel choices.*

12. **The key to offering real, effective travel choices is to support higher-occupancy transit with either: 1) a priority for transit on the public right-of way or 2) a travelway or right-of way which is independent from local and regional vehicle traffic congestion.** By providing a priority and/or independent transit strategy from vehicle traffic congestion, transit can provide real time travel savings to make transit a competitive choice to the freedom of mobility and flexible, door-to-door, no-transfer features of solo driving.

*Santa Cruz needs clear policy direction and commitment to support local and regional transit as 1) a priority on local and regional streets and 2) as an integrated land use and transit strategy to offer and expand real travel choices.*

13. **Transportation infrastructure is the basic public realm of Santa Cruz; investment needs to create a high quality physical public environment.** Streets are the centers of activity and public social life, therefore public investment needs to focus on place making, providing identity and orientation to the city and region, and setting the stage for public social and economic contact.

*Santa Cruz needs to build on the success of the downtown as a citywide model to invest in the public realm to become a city of great, livable, tree-lined streets and districts.*

14. **Transportation resources are a finite, limited resource, requiring conservation, stewardship, and maintenance.**

***Santa Cruz can achieve this by:***

- *Reducing total travel resources required to access destinations.* Through land use strategies, Santa Cruz can maximize the effectiveness of its already compact urban development, mixed land uses, and development clustered around high quality public transportation increase accessibility and reduce total travel resources to access a destination by emphasizing accessibility over separation of land uses and mobility.
- *Conserving and reducing consumption of transportation resources* by shifting to "transportation services economy", rather than, "transportation goods made and

sold economy," where the goal is selling results, rather than selling equipment and materials. For example, car pooling doubles the effectiveness of the vehicle

- *Eliminating waste.* Reducing free parking and increasing shared parking can more efficiently utilize land. For example, a parked car creates three forms of waste, it:
  - 1) Provides no travel services
  - 2) Increases land used for storage of cars, which is a non-productive use
  - 3) Spreads out land use further increasing land and road infrastructure for travel

Therefore reducing car use liberates space, which can be used to improve walking; cycling and transit, further attracting people to these choices, further reducing car use. Land which has a developed road infrastructure can support higher density housing and mixed-use development in more compact, walkable neighborhoods at a lower development cost, preserving open space. Eliminate subsidies and market distortions by introducing the environmental and social costs of free parking and create pricing incentives for higher capacity vehicle travel.

- *Increasing transportation resource productivity* to slow resource depletion and reduce pollution by shifting person trips away from vehicle travel or to higher capacity vehicles, including carpooling and transit. Cluster small businesses within walking distance to encourage sharing of information and transportation resources (car and ride sharing). . Working together can stimulate a sense of community, as well as creative, entrepreneurial thinking.
- *Building partnerships and community capacity* to increase the community's tools, resources, and networks to effectively address transportation issues and solutions.
- *Investing in sustaining, restoring and expanding "natural capital"*<sup>5</sup> so natural systems can produce more abundant "ecosystem services" such as clean air, and natural resources - landscaping and planting street trees along the public right-of-way to create an urban forest ecosystem.

**15. Supply side strategies need to balance and support both multi-modal travel and community livability.** Supply side strategies deliver transportation infrastructure and services.

*For Santa Cruz, the physical design of street right-of-way and support of transit services should include:*

- Transportation systems management to increase efficiency of existing roadway capacity for all modes including autos, carpools and transit
- Increasing transit service capacity, frequency & directness of accessible routes
- Managing vehicle travelway capacity
- Managing the supply of public parking and on-street parking
- Completing pedestrian and bicycle networks
- Introducing traffic calming in residential neighborhoods

14. **Managing the demand for travel has the highest cost effectiveness to shift travel behavior.** The goal of managing travel demand is to effect travel behavior by shifting the travel choices to reduce vehicle congestion.

*For Santa Cruz, the choice to travel and by what travel mode, time-of-day or route can be influenced by either:*

- **Incentives:**
  - i. **Transit choice** incentives such as eco passes and guaranteed ride home programs
  - ii. **Encouraging new travel behaviors** through programs such as the "One in Five" and "Safe Routes to Schools"
  - iii. Encouraging **ridesharing** through preferential carpool parking
  - iv. Providing **car sharing** for mid-day errands
  - v. **Changing the location and affordability of housing**
  - vi. **Increasing housing density**
  - vii. **Concentrating job opportunities in settings where daily needs can be met within walking distance linked by transit**
- **Disincentives:**
  - i. The desire for **relief** from
    1. **Increased travel time**
    2. **Frustration and isolation of driving in vehicle traffic congestion**
  - ii. **Higher costs** associated with driving alone
  - iii. **Increasing the cost and reducing the supply of free parking**
  - iv. **Implementing TDM ordinances on new employment growth.**

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<sup>1</sup>David Engwicht. Street Reclaiming. Pluto Press, 1999.

<sup>2</sup>Jonathan Levine, "Congestion Pricing's Conditional Promise: Promotion of Accessibility or Mobility?" Urban and Regional Planning Program, A. Alfred Taubman College of Architecture and Urban Planning, The University of Michigan, Ann Arbor, MI USA

<sup>3</sup>"The converse, triple divergence, means that any factor that increases peak hour congestion on limited access roads tends to cause more auto-driving commuters to shift way from those roads in peak periods to 1) the same roads in non-peak periods; 2) alternative routes during peak periods; and, 3) public transit during peak periods.

<sup>4</sup>Anthony Downs, New Visions for Metropolitan America. Brookings Institution, Washington D.C. 199.

<sup>5</sup>Paul Hawkin, Amory Lovins and L. Hunter Lovins, Natural Capitalism, Creating the Next Industrial Revolution. Little, Brown and Company, Boston 1999.