



*SUSTAINABLE ENVIRONMENT for QUALITY of LIFE*



## CONNECTIVITY FOR MULTI-MODAL TRANSIT

### What is it?

“Connectivity” means being able to get from one place to another WITHOUT having to go long distances out of the way, either because of dead-end road networks or because inter-modal links (bicycle to bus, for example) are not readily available. A balanced, well-designed transportation system that allows people to get around safely by bicycles, walking and public transit, as well as by automobile, is a key element of a livable community.

### Costs

The costs associated with expanding transportation choices will vary widely. Sidewalk runs roughly \$12 per linear foot. Buying benches or planting street trees in a downtown area to create a more pedestrian-friendly environment may cost less than \$5,000. Planning for public transportation may involve hiring a new staff member with expertise in transportation planning or hiring a consultant.

### Shared Impact and Benefits

- Reducing vehicle emissions, by decreasing the need for people to drive everywhere, can potentially lead to dramatic improvements in air quality and related public health.
- Connectivity promotes walking and bicycling, both of which are important elements of programs designed to reduce obesity and improve cardiovascular fitness.
- Access to biking and walking trails increases property values.
- Walking is the most inexpensive and broadly accessible form of transportation and recreation. Walking requires no fare, fuel or license. For those who cannot afford other modes of transportation or for those who are too young to drive, the ability to walk is essential.
- Neighborhoods that enable residents to walk and bike encourage social interaction, which studies show, discourages crime in these areas.

### How long does this take to implement?

Increasing transportation choices is a multi-faceted endeavor that includes increasing pedestrian and bike facilities as well as longer-term projects like providing for public transportation and transportation corridors and reducing the number of cul-de-sacs in communities. Projects such as new bike facilities or pedestrian amenities such as bike racks and benches, can be accomplished relatively quickly. Transportation corridors will take much longer. Developing a thorough plan for transportation options can take 18 months or more.



This Action Item can be implemented as a

- POLICY
- ORDINANCE
- PROGRAM

### The Bottom Line

- One of the best ways to curb sprawl and reduce vehicle miles traveled (VMTs) is through better transportation planning, balancing the need for the automobile with public transportation, sidewalks and bike paths, and ensuring connectivity among transportation modes.
- Small improvements such as bike facilities and certain pedestrian amenities, can be implemented almost immediately.

**Interested? Read on!**



## Who needs to be involved in implementation?

- Local governing boards
- Planning officials and staff
- State and local transportation experts
- Local citizens and groups, including the development community
- Regional organizations
- Neighboring communities (to establish networks)
- Parks and recreation department
- Public works department
- Homeowner associations

### Action Steps

1. Read the **Basic Information** section below.
2. Evaluate existing conditions for motor vehicle connectivity, as well as for bicycle, pedestrian, and transit connectivity.
3. Identify and propose implementation of very visible connections first. Making your system connect *destination points* such as shopping, schools, etc. is important to help demonstrate the benefits of connectivity early on.
4. Seek public input. There are many interested people and groups in every community who are able to assist. Bicycling clubs are a particularly good resource. Developers are important because of their role in subdivision design.
5. Develop an action plan and/or incorporate multi-modal transportation into the comprehensive plan.
6. Develop an implementation plan, remembering that federal transportation funds can be used to help with funding. Wherever possible, try to use existing rights-of-way or easements.
7. Educate citizens, community and homeowners' groups, business associations and developers on

### Resources

- The Transportation Equity Act for the 21st Century (TEA-21) was enacted June 9, 1998. TEA-21 expires on September 30, 2003, but the US Department of Transportation is currently working on reauthorization. Among the projects that may be funded by TEA-21 are: pedestrian and bicycle facilities, acquisition of scenic easements and historic easements and sites, and preservation of abandoned rail corridors and rights-of-way. <http://www.fhwa.dot.gov/tea21/sumcov.htm>
- Transportation projects in North and South Carolina progress through a standard process of planning, design and construction. Improvements for bicycling and walking may be included in the Transportation Improvement Program (TIP) as part of the construction of a highway project or, where no highway project is programmed, as an independent project. Bicycle and pedestrian projects follow essentially the same TIP process as do highway projects. Inclusion of a bicycle or pedestrian project in the TIP does not guarantee that it will be implemented; rather, it means that it will receive further study and will be implemented if feasible. Incidental projects are considered in conjunction with the planning study for the given highway or bridge project and implemented, if feasible. For a complete explanation of the process, see <http://www.ncdot.org/transit/bicycle/funding/funding.html#needs>.
- Funding is always more easily accomplished if projects are broken into readily-identifiable phases so that they can be funded incrementally. Also, a great deal of the cost for pedestrian and bicycle facilities is the "site prep" work such as design and grading. If these are included in the design and initial grading work for ALL street and highway projects, then the cost of adding the actual facility drops dramatically.
- Do not discount the value of volunteer efforts in greenway, bicycle path, or pedestrian facility development. Many grant programs will permit the use of volunteer time as in-kind match, or will give higher priority to projects that show strong volunteer/community support.
- Multi-modal and inter-modal facilities should be incorporated into capital improvement plans.



## Who's doing this?

- The vision of Oakland, California's pedestrian master plan is to promote a pedestrian-friendly environment where public spaces, including streets and off-street paths, will offer a level of convenience, safety and attractiveness to the pedestrian that will encourage and reward the choice to walk. The plan can be viewed at <http://www.oaklandnet.com/government/Pedestrian/index.html>
- The City of Rochester, New York has embraced smart growth principals, including improved transportation choices. Last year, the region spent \$5 million to upgrade walking and biking trails connecting 19 towns in the county surrounding Rochester. <http://www.cityofrochester.gov/mayor/smartgrowth/index.htm>
- The Charlotte, North Carolina Department of Transportation bike plan can be viewed at <http://www.charmeck.org/Departments/Transportation/Special+Programs/Bicycle+Transportation+Plan.htm>. The plan seeks to make bicycling an accepted component of a transportation system that seamlessly links pedestrians, bicyclists, mass transportation users and motorists to fulfill their daily travel needs.
- The Rosslyn-Ballston Metro Rail Corridor in Arlington County, Virginia won the "Overall Excellence in Smart Growth" award from the US Environmental Protection Agency. Many of Arlington's policies and procedures can be implemented in other communities. The corridor includes five Metro stations with concentrated, mixed-use development, each of which maintains a distinct sense of community.
- The Land of Sky Regional Council in western North Carolina has developed a plan for regional mobility choices. "Transportation Options for Western North Carolina" is available at [http://www.landofsky.org/planning/lu\\_transp\\_transp\\_opts.htm](http://www.landofsky.org/planning/lu_transp_transp_opts.htm). The plan includes recommendations for walking, bicycling and transit.
- The City of Rock Hill, South Carolina recently adopted a trails and greenway master plan designed to connect existing and future sidewalks and multi-use trails with major attractions and neighborhoods. Contact Eric Hawkins at (803) 329-7080 or [ehawkins@ci.rock-hill.sc.us](mailto:ehawkins@ci.rock-hill.sc.us).
- It is the goal of the City of Davis, California, to create and maintain an integrated system of bikeways. The City recognizes the need to encourage bicycle travel for both transportation and recreation and works to promote bicycle use as a viable, attractive, non-polluting form of transportation and to assure safe and convenient access to all areas of the city. <http://www.city.davis.ca.us/topic/bicycles.cfm>
- The City of Lincolnton, North Carolina just adopted a new land use plan that urges connectivity for motor vehicle, pedestrian, and bicycle modes of transportation. Among the City's goals are completion of a greenway and trail system throughout the City. The City already has a portion of the system in place through the Rails to Trails program, and it receives heavy use. For more information contact Steve Gurlley, Planning Director, at 704-736-8930 or [stevgurley@ci.lincolnton.nc.us](mailto:stevgurley@ci.lincolnton.nc.us).



## Tracking Progress

- **Let Centralina Council of Governments know when you've implemented this action by contacting Carol Lewis at 704-348-2730 or [clewis@centralina.org](mailto:clewis@centralina.org).**
- Keep current maps and records of pedestrian and bicycle amenities. Provide the maps to Centralina in hard copy or digital format so that we can add them to our Regional GIS Database.



## Basic Information

### **For pedestrians and public transit:**

The following tips come from Pedestrian and Transit Friendly Design: A Primer for Smart Growth, published by the American Planning Association:

1. Medium to high densities are important. Higher densities mean more residents or employees are living within walking distance of transit stops and stations and therefore are more able to walk.
2. There should be a mix of land uses. Again, a mix of land uses make it possible to walk or bike to shopping, restaurants or other activities.
3. Blocks should be short. Short blocks and frequent cross streets create more direct routes. A dense network of streets disperses traffic, making streets more pleasant to walk along and easier to cross. Blocks of 300' or less are desirable. There is also a psychological benefit of short blocks: pedestrians do not have a sense of having to walk "forever" to get to a crossing.
4. Sidewalks should be continuous and on both sides of the street. For light pedestrian traffic, sidewalks should be five or six feet wide. They should be wider if in heavily-trafficked areas.
5. Pedestrian crossings should be safe, with marked and lighted crosswalks and sidewalks flared at intersections, for example.
6. Sidewalks should be appropriately buffered from traffic using street trees, a planting strip or on-street parking. No pedestrians feel safe walking directly beside a heavily-traveled street.

7. Buildings should be oriented to the street, creating "visual enclosure" for the pedestrian. For retail, this also encourages the time-honored tradition of "window shopping."
8. Transit waiting areas should be comfortable and safe, ideally with some type of weather protection.
9. "Dead space" and visible parking lots should be eliminated as much as possible.
10. Parks and public spaces should be provided.
11. Functional street furniture and small-scale (pedestrian-oriented) signage should be provided.
12. Public art should be encouraged and supported.

### **For cyclists:**

1. A bicycle network plan should provide the most direct routes to major destinations. It is important that bicycle networks be connected to destinations; otherwise, they are useful for recreation but not as a transportation alternative.
2. The system should be continuous. If there is a significant break in a route, the route should not be part of the designated system until the gap can be connected.
3. Bikeways should be on streets with less traffic and lower speeds. On higher speed routes, bicycle lanes or side-paths should be considered.
4. Signage should be provided.
5. Sidewalks should not be designated as bikeways.

## FAQ's

### **Q: Are you trying to take my car away from me?**

**A:** Definitely not. With multi-modal transit opportunities, transportation choices are expanded, not limited.

### **Q: How can I possibly do most of my daily activities by walking or biking? I need my car.**

**A:** Again, no one is trying to take away the option of personal automobile use. But consider: ¼ of all trips people make are one mile or less, but ¾ of these short trips are made by car. We want to make it possible for people to save time in traffic and engage in "active living" for these shorter

trips if they do choose another form of transportation. Bicycling Magazine estimates that you'd save \$1 every time you walk or bicycle for one of these 2-mile or less round trips.

### **Q: Does my transportation choice really make a difference in the community?**

**A:** According to Transportation Secretary Norman Y. Mineta, "three decades ago I was Mayor of San Jose, California, and was focused on how I could improve the community where I had been born and raised. I had the usual range of policy tools that mayors use to try to improve their com-



## FAQ'S (cont.)

munities: city planning and zoning authorities, economic development programs, grants for housing and so on. But what I found in practice was that the tool that made the most difference in my community was transportation. Nothing else had as great an impact on our economic development, on the pattern of growth, or on the quality of life.”

**Q: I may never use public transportation. Why should I support it?**

**A:** Public transportation provides an important alternative to improve transportation efficiency. It benefits not only the people who use it but also other motorists and the state in general by improving our quality of life. Public transportation reduces or eliminates the amount of time spent in traffic jams; provides a much needed service to our elderly and disabled by giving them the freedom to leave their homes if necessary; promotes independence for those who need public transportation to get to work; and improves our air quality and environment by reducing the number of cars on the highways (for every bus full of passengers 40 cars are removed from traffic). Therefore, public transportation or the lack of efficient and affordable public transportation has an impact on all of us!

Furthermore, the American Automobile Association estimates that it costs \$.52 per mile to operate a current model car. If your commute is more than two to three miles and public transportation is available, public transportation can represent real cost savings (especially if downtown parking costs are added).

**Q: I realize that traffic congestion is a problem. Isn't that why we're widening our roads?**

**A:** Recent studies show that wider highways actually tend to induce more traffic. The increase in cars results in increased emissions of nitrous oxides, a main component in the smog that blankets Southeastern cities, especially during the summer.

**Q: What's so important about pedestrian connectivity and walking?**

**A:** According to federal health statistics, 65% of Americans are overweight. The average American driver spends 443 hours per year behind the wheel. Reid Ewing, an urban planner at Rutgers University, has studied 200,000 people in 448 different counties across America and finds that, taking into account age, gender, race and diet, the “walkability” of the neighborhood is a significant factor when it comes to obesity. According to the Surgeon General, creating more walkable communities and encouraging walking at least 30 minutes per day are recommended to reduce obesity and promote better health.

**Q: I LIKE my cul-de-sac and I don't want through-traffic!**

**A:** Cul-de-sacs do have a place in subdivisions where there are natural barriers to connectivity. However, many neighborhoods are designed with almost nothing but cul-de-sacs: there is only one way in and out of the neighborhood itself, and any streets within the neighborhood are dead-ends. While this does eliminate non-residents cutting through the neighborhood, it also gives residents very limited options, and often means that traffic backs up into the neighborhood during rush hour, as everyone tries to get out the same street. It also severely limits emergency vehicle access, and limits kids from being able to visit their friends in neighboring subdivisions without taking bicycles or walking on main thoroughfares, or being driven by a parent. (Studies show that children who are always driven rather than walking or biking under their own power tend to be less spatially-oriented as adults.) Connective neighborhoods can be designed to be attractive, to slow through traffic by means of street design or traffic-calming devices, and to provide safety to bikers and walkers, all the while providing multiple means of ingress and egress. Mountainbrook-Beverly Woods East-Belingrath, in Charlotte, represent an excellent example of connectivity. The roads are winding and attractive, there are strategically-placed traffic calming devices, and residents can get to any number of major thoroughfares by an almost infinite number of routes.

## Intersecting Interests



### CLEAN AIR POLICY

Providing alternate means of transportation means fewer cars on the road. Fewer cars on the road means cleaner air. Providing better automotive connectivity means that cars do not have to drive far out of the way to get to their destinations.



### PEDESTRIAN-FRIENDLY STREETSCAPES

Developments with sidewalks and buildings that address the street are more comfortable for pedestrians. Pedestrian-friendly development can often incorporate bicycle-friendly elements as well.



### SEDIMENTATION AND EROSION CONTROL

Transit, bike and pedestrian-friendly development is generally more compact, requiring less pavement. This can aid with sedimentation and erosion control, particularly when pervious paving materials are used.



### GREENWAYS AND OPEN SPACE

Greenways contribute to a more bike and pedestrian-friendly community.



### EFFICIENT PARKING

With more transit options available, fewer people have to rely on automobiles, which helps diminish the demand for parking spaces.

## For More Information

- The National Center for Bicycling and Walking provides fact sheets with practical guides to building bike and pedestrian facilities – including bicycle parking, bicycle related maintenance, selecting roadway design treatments to accommodate bicycles, crosswalks, intersections, and pedestrian amenities. <http://www.bikewalk.org/>
- The Florida Department of Transportation has compiled “Walkable Communities: Twelve Steps for an Effective Program,” a summary of key planning, zoning, engineering and development recommendations. [http://www.dot.state.fl.us/safety/ped\\_bike/brochures/pdf/12STEPS.PDF](http://www.dot.state.fl.us/safety/ped_bike/brochures/pdf/12STEPS.PDF)
- Portland, Oregon has put together pedestrian design guidelines. The booklet may be downloaded at <http://www.trans.ci.portland.or.us/designreferences/Pedestrian/default.htm>.
- “Bicycle and Pedestrian Facilities Planning and Design Guidelines,” compiled by the North Central Texas Council of Governments, contains information useful in planning and designing safe and cost-effective facilities for bicyclists and pedestrians. Standards are provided on bicycle routes, pedestrian facilities, land use planning for bicycle and pedestrian travel, and bicycle parking. The facilities and strategies described are intended to increase bicycle and pedestrian transportation opportunities by providing citizens with accessible and quality facilities. The document is available at <http://www.nctcog.dst.tx.us/trans/bikeped/plandesign/index.html>
- The American Association of State Highway and Transportation Officials' Guide to the Development of Bicycle Facilities (AASHTO Guide) is available for purchase from the AASHTO web site bookstore at <https://www.transportation.org/publications/bookstore.nsf/Home?OpenForm>.
- NCDOT's Bicycle & Pedestrian Transportation Division has launched a newly designed website with expanded information and a user-friendly format for citizens seeking information on bicycle and pedestrian transportation topics. <http://www.ncdot.org/transit/bicycle/>
- Walkable Communities, Inc. provides guidance on pedestrian planning. See [www.walkablecommunities.org](http://www.walkablecommunities.org).

**Prepared by Centralina Council of Governments  
in collaboration with  
Catawba Regional Council of Governments,  
August, 2003.**