Out of the Car and Onto the Bike Making Bicycle Commuting a Reality



CHARLIER ASSOCIATES

RMLUI – March 6, 2009 Terri L. Musser, AICP

Out of the Plan and Onto the Pavement Making Bicycle Commuting a Reality



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Principles BICYCLE SYSTEM PLANNING

1. There is no "bicycle/pedestrian" user. The two modes have different mobility characteristics, travel sheds, trip purposes, and facility design preferences. Non-motorized planning must address each as a **unique transportation mode**.

2. Planning for bicycles must address that there are different **types of bicyclists** with different skill sets and needs. Type A, advanced cyclists, are experienced riders comfortable sharing roadways with motor vehicles. Type B/C includes basic/child bicyclists who are less confident of their riding abilities. Although some will progress to the advanced level, nationally there will always be millions of basic bicyclists who prefer well-defined separation from motor vehicles.

3. Streets provide the principal infrastructure network for all modes of travel. Sustainable transportation systems require significant investments in **complete streets**, including bicycle facilities appropriate to **type of street**. Bicycles and motor vehicles can share the road when vehicle speeds are low and traffic volumes are low to moderate. Extra operating space and designated bicycle facilities are appropriate and needed within corridors with heavier traffic.

4. Appropriate bicycle facility types vary with **land use context**. Well-designed communities include a variety of place types, and well-designed street systems change in character and cross-section as they pass through and connect different areas within the community.

5. Bicycles, like motor vehicles, benefit from enhanced street network connectivity. A **well-connected network** of narrow streets is safer, more efficient and provides better mobility than a poorly-connected network of wide streets. Arterial street widening projects often create barriers, limit non-motorized crossing opportunities, and rarely improve bicycle mobility.

6. **Multi-use paths** are a key component of most urban bicycle systems and offer benefits to bicyclists and pedestrians alike. However, development of a greenway trail system alone will not likely meet the needs of commuter bicyclists. Seamless transitions between a community's on-street and off-road systems are necessary.

7. Utilitarian cyclists benefits from a system-level planning approach. Community infrastructure investments must therefore prioritize **completion of gaps** in the bicycle network to create a system of continuous, barrier-free primary bike corridors. Secondary corridors and neighborhood connections can be added over time to create a finer grain to the network.

8. Integration of bicycling with public **transit systems** improves personal travel choices and economic vitality. Flexible personal mobility is a realistic objective for both modes, achievable through enhanced access to transit stops and stations, allowing bikes on buses and rail, and providing ample quantities of well-designed and well-sited bicycle parking.

9. High quality walking and bicycling environments enable **active living**, which improves community and individual health and well-being. Children benefit when bicycle planning indudes **Safe Routes to School** projects and programs.

10. Good transportation planning requires the direct, committed and continuing involvement of a broad cross-section of **empowered community members and stakeholders**. This can be expensive, time-consuming and difficult. It is also essential, and must involve local bicyclists.

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 Users
 Contexts
 Networks
 Additional Needs





Our Work: Multi-Modal Transportation Projects



Charlier Associates, Inc.



The "Bicycle/Pedestrian" Mode



Types of Cyclists

Type A – Advanced



- comfortable in traffic
- prefers direct but safe routes
- rides with or without bicycle facilities present

Type B/C – Basic/Child



- less skilled adults and children
- intimidated by traffic
- prefer designated facilities (bike lanes and multi-use paths)





Congress for the New Urbanism





Context Sensitive Design







"TRANSECT"

Transect as Organizing Tool



Transect Details





Context Sensitive Design

Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities



Institute of Transportation Engineers



Functional Classification

Place Type



Figure 5. Components of an urban thoroughfare.



Automobile

Design SpeedLane Widths



"Pedestrian Science"



Pedestrian Intolerant

Pedestrian Tolerant

Pedestrian Supportive

Pedestrian Place

Pedestrian Friendliness

Charlier Associates, Inc.



Bicycle

-Type of Cyclist -Type of Corridor -Type of Place





Shared Use Paths

Facility Widths:

- 10' AASHTO min. for bike use
- 12' recommended for multi-use
- >12' if >150 users per hour







Paved Shoulder Widths:

- 4' AASHTO min. for bike use
- 6' recommended if >10,000 ADT with speeds >40 mph







Bike Lanes:

- use on Collectors & Arterials
- 4' AASHTO min. lane width
- 5' min. with on-street parking
- "Road Diet" applications





Shared Streets

Applications:

- low to moderate traffic volumes
- traffic-calmed streets
- use signing and/or "sharrows" to identify primary corridors



CONTEXT SENSITIVE DESIGN

- By Transect Zone
- By Roadway Type



Hali'imaile, Maui

CONTEXT SENSITIVE DESIGN







Home 🗇 Design Tutorial

Choose a Place Type

Home

Downtown Main Street Mixed-Use District Small Town Downtown Residential Neighborhood Office Employment Area Civic/Educational Corridor Neighborhood Shops Commercial/Service Corridor

Resources

Document Library Design Tutorial Related Events Demonstration Projects Why Great Streets?

Design Tutorial



Most observers could look at a street like the those in the photos shown here and recognize that these are great streets. But what, specifically, is it that makes these streets great? The sidewalks? The trees?

The purpose of this Design Tutorial is to provide a systematic description of the primary elements of streets and a guide to the key physical characteristics of these elements with an eye to the question: "what makes a street great?"

www.greatstreetsstlouis.net

St. Louis



- Enrique Peñalosa

DENVER LIVING STREETS

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What are Living Streets?

Living Streets are vibrant places where people of all ages and physical abilities feel safe and comfortable using any mode of travel (walking, biking, transit, or private auto). While Living Streets are designed to maximize the efficiency of a corridor's person-trip capacity (compared to solely auto-trip capacity), they are also intended to integrate with the use and form of adjacent development to achieve great destinations for people—not just the movement of people.

By supporting multi-modal access, Living Streets provide a more sustainable transportation balance than just relying on private autos. By integrating the street with the adjacent built environment, Living Streets add value to communities. By encouraging the creation of great places with transportation options that work for everyone, Living Streets can



Photo: City and County of Denve

simultaneously promote healthier living, economic development, and increased mobility instead of enhancing one of these goals at the expense of the others.



Financing Living Streets

Thursday, February 26, 2009 Oxford Hotel, 7:30-10:00 AM Presenters: Anne Canby, President, Surface Transportation Policy Partnership (STPP) Russ George, Colorado Department of Transportation -

Denver

www.denverlivingstreets.org

Place Type: Transportation-Land Use Connection

- Mixed & highly compact land uses, designed for pedestrian accessibility
- High degree of transportation network connectivity
- Short trip lengths to reach destinations
- Reasonable vehicular parking & access policies
- Multi-modal streets vibrant, comfortable, relatively narrow, slow-speed





Bicycle "Systems"





421 miles off-road paths0 miles on-street bike lanes0 miles paved shoulders

Wichita, KS

Non-Connected Pieces





off-road paths

Wichita, KS

Prioritized **Primary Corridors**



Wichita Area Metropolitan Planning Organization Regional Pathway System Plan



164 miles	off-road paths
67 miles	on-street bike lanes
18 miles	paved shoulders

Wichita, KS

Maple / 6th

Prioritized Primary Corridors





Boulder, CO

2003 TMP Complete Streets



Current Funding

Action Plan

Vision

Boulder, CO

Connected Network





- Distance and safety impediments are the major obstacles to overcome
- Facility type may change based upon context
- Transitions need to be seamless

ADDITIONAL NEEDS

Design Details



DESIGN DETAILS Corners and Crossings



Single diagonal curb cut

DESIGN DETAILS Corners and Crossings



Pair of perpendicular curb cuts

DESIGN DETAILS Desired Separation from Vehicular Traffic



"Pedestrian Buffer Strip"

- Travel Speeds
- On-Street Parking

DESIGN DETAILS Desired Separation from Vehicular Traffic



Bicycle Sidepath per AASHTO

- 5' min. horizontal separation
- or suitable physical barrier

DESIGN DETAILS Intersection Design with Sidepaths



Crossing Location: <3'-6' or 15'-33' or >98'

Single diagonal curb cut Pair of perpendicular curb cuts

DESIGN DETAILS Intersection Design with Bike Lanes



DESIGN DETAILS Major Arterial Crossings











Gold Line Station Planning, Arvada, CO



Community Transit Network, Boulder, CO







Safe Routes to School



Longmont, CO

SRTS Infrastructure



SRTS Non-Infrastructure



SRTS Non-Infrastructure



www.freiker.org

SRTS goes High-Tech



Rides Counted Since 2005:

103,227 Click here to see ride totals by school





How It Works

Freikometer Prizes Results FAQ

	School	Day
	Eagle Crest	106
	Sanborn	97
	Foothill	85
Cr	Crest View	69
	Burlington	54
E	Eldorado	28
	Roosevelt	20
	Horizons	18
AI Pa	Almond	1
	Palo Alto Bike Demo	2
	St. Marv	1

Results

last 20 school days.

Freiker's success is measurable due to fanatical

The chart below shows real-time results of our p school day, the Week Column shows aggregate

Week Month

430 1,641 399 1,440

123 535

110 451

229 2 2

485 1.830

322 1,181 247 755



www.freiker.org



Community Empowerment Bicycle User Groups



Redmond, WA

Wichita, KS

Transportation-Land Use Connection

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THANK YOU

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