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

CHARLIER ASSOCIATES

RMLUI – March 6, 2009
Terri L. Musser, AICP
Principles
BICYCLE SYSTEM PLANNING

1. There is no “bicyclist/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 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 benefit 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 includes 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.
Our Work:
Multi-Modal Transportation Projects
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
Context Sensitive Design

Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities

Institute of Transportation Engineers
Functional Classification

**Place Type**

- **Arterials**
  - higher mobility
  - low degree of access

- **Collectors**
  - balance between mobility and access

- **Locals**
  - lower mobility
  - high degree of access


Figure 5. Components of an urban thoroughfare.
“Pedestrian Science”

Pedestrian Intolerant

Pedestrian Tolerant

Pedestrian Supportive

Pedestrian Place

Pedestrian Friendliness
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
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

<table>
<thead>
<tr>
<th>Transect Zone</th>
<th>Collector Roadway</th>
<th>Avenue</th>
<th>Connector Street</th>
<th>Local Street</th>
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Haliʻimaile, Maui
CONTEXT
SENSITIVE
DESIGN

Haliʻimaile, Maui
Design Tutorial

Most observers could look at a street like the ones 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?”
Transportation is not an end — it is a means to having a better life, a more enjoyable life — the real goal is not to improve transportation but to improve the quality of life.

- Enrique Peñalosa

DENVER LIVING STREETS

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 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 -
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 paths
- 0 miles on-street bike lanes
- 0 miles paved shoulders

Wichita, KS
Non-Connected Pieces

Wichita, KS

off-road paths
Prioritized Primary Corridors

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

Wichita, KS
Prioritized Primary Corridors
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 Sidewalks

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
Transit Integration
Transit Integration

Arvada Transit Station
Framework Plan
August 20, 2007

Section A-A

Arvada, CO
Transit Integration

Gold Line Station Planning, Arvada, CO
Transit Integration

Community Transit Network, Boulder, CO
Safe Routes to School

Longmont, CO
SRTS 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

Results

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<th>School</th>
<th>Day</th>
<th>Week</th>
<th>Month</th>
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The chart below show the increase in rides that we have see at Crest View Elementary since the programs inception. We have found that temperature has the biggest influence in whether a kid rides on a particular day, so the charts break down the data based on the average temperature and the average number of riders.
Community Empowerment
Bicycle User Groups

Redmond, WA
Wichita, KS
Transportation-Land Use Connection

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