1998 Manhattan Bike Master Plan

- Complete Linear Trail
- Develop inter-city bicycle facilities
- Bicycle parking
- Policies for future growth
Types of Cyclists

- A: operate under most conditions
- B: casual riders. Prefer low-speed, low-volume streets or paths
- C: child riders. Require comfortable areas.
1998 plan for completing the bike network

- “wheel and spokes” concept
- “All streets should be accessible to bicycle travel.”
- “An inter-connected network of designated bicycle routes – spokes – should be developed throughout the community.”
- “ideally, a rough grid of approximately ¼ - ½ mile spacing”
- Designated major streets as bicycle routes (College, Browning, Kimball, Poyntz, 14th, Juliette, etc.)
Map 1.2: Suggested On-Street Bicycle Facilities for Manhattan, KS

Proposed by 1996 Manhattan, KS Bicycle Master Plan

Legend:
- Proposed On-Street Bicycle Route
- Manhattan Road Network

0 0.25 0.5 1 1.5 Miles

Map based on data obtained from the City of Manhattan, KS and Riley County, KS. Map created by BME, Kansas State University, March 2004.
Ehreth’s 2004 critique of the Master Plan

Map 1.2: Suggested On-Street Bicycle Facilities for Manhattan, KS

Map based on data obtained from the City of Manhattan, KS, and Riley County, KS. Map created by IKE, Kansas State University, March 2004.
Curb lane widths under 12 ft.
Map 2.2: Conditions Associated with Bicycle Safety Concerns in Manhattan, KS, 2004

Topography
Traffic Speeds

Map 2.4: Conditions Associated with Bicycle Safety Concerns in Manhattan, KS, 2004

Classification of Traffic Speeds in Miles Per Hour:
- 45 or greater
- 40-45
- 30-40
- 25-30
- 25 or less

Map based on data obtained from the City of Manhattan, KS, Riley County, KS, and the Kansas Department of Transportation. Map created by JIE, Kansas State University, March 2004.
Expert Observations

Map 2.9: Areas with Potentially Unsafe Cycling Conditions, Manhattan, KS, 2004

Areas identified by Expert Panel

Map based on data obtained from the City of Manhattan, KS and Riley County, KS. Map created by BJE, Kansas State University, March 2004.
Final calculations

Map 3.1: Resulting Manhattan, KS Bicycle Safety Conditions, 2004

Based on 8 Criteria Used for Evaluation
Ehreth’s 2004 critique of the Master Plan
“on-street road segments suggested by the Master Plan were very unsafe for shared use of bicycles and automobiles”
– Ben Ehreth 2004
2008 BICYCLE MASTER PLAN UPDATE,
CITY OF MANHATTAN, KANSAS

by

CHAD BUNGER
BIKE THE
CITY OF MANHATTAN
BIKE LANE
Aggieville
Current shortcomings

• Not up to date with latest paths
• Unfamiliar with backroads, cut-throughs, unofficial paths, and B-biker workarounds
• Focus on A-bikers (<2%)
• Recent innovations in bicycle planning
A revised approach ...

• Focus on B-bikers not A-bikers
• Focus on everyday commuting, not just recreation
• Goal: Complete ½ mile unbroken grid network
• Use separate low-traffic routes when possible (B-biker friendly)
Why B-bikers?

• Over 85% of potential riders
• A-Bikers will ride anyway
• B-bikers not swayed by A-focused improvements
Types of Cyclists (Portland DOT Revision)

- Strong & Fearless = 1-2% (prefer no amenities ... ride with traffic)
- Enthused & Confident = 6% (will ride with traffic, but prefer amenities)
- Interested but concerned = 60%
- “No way. No how” = 32%
- Aim for the 60%
How to Get More Bicyclists on the Road
To boost urban bicycling, figure out what women want
By Linda Baker

Getting people out of cars and onto bicycles, a much more sustainable form of transportation, has long vexed environmentally conscious city planners. Although bike lanes painted on streets and automobile-free “greenways” have increased ridership over the past few years, the share of people relying on bikes for transportation is still less than 2 percent, based on various studies. An emerging body of research suggests that a superior strategy to increase pedal pushing could be had by asking the perennial question: What do women want?

In the U.S., men’s cycling trips surpass women’s by at least 2:1. This ratio stands in marked contrast to cycling in European countries, where urban biking is a way of life and draws about as many women as men—sometimes more. In the Netherlands, where 27 percent of all trips are made by bike, 55 percent of all riders are women.
“safe and comfortable”
Goal: An unbroken “green” grid

<table>
<thead>
<tr>
<th>Level</th>
<th>A-Bikers Only</th>
<th>Some B’s</th>
<th>B-Bikers</th>
<th>C-Bikers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Color</td>
<td>Red</td>
<td>Orange</td>
<td>Yellow</td>
<td>Green</td>
</tr>
<tr>
<td>Routes</td>
<td>7,000+VPD Shared lanes 40+ MPH No Shoulder</td>
<td>3,000+VPD 12-15 ft crbln 30-40 MPH</td>
<td>1-3,000 VPD 30 MPH Max</td>
<td>1500 max VPD Under 25 MPH</td>
</tr>
<tr>
<td>Crossing</td>
<td>None</td>
<td>Light but no Xwalk</td>
<td>Xwalk</td>
<td>X-walk with button</td>
</tr>
</tbody>
</table>
Ehreth’s 2004 calculations

Map 3.1: Resulting Manhattan, KS Bicycle Safety Conditions, 2004

Map based on data obtained from the City of Manhattan, KS and Riley County, KS. Map created by BIE, Kansas State University, March 2002.
A lot of student and community projects have explored Manhattan’s options....
Adding Points of Interests (POIs) with an iPhone using Mapzen
Sharing Tracks on iPhone
OSMTracker for Android
Students, community members plan to make city bike-friendly

Designers generate more than 1 million new ideas to improve Manhattan

Hilary Burton
staff writer

Students, city staff, community members and K-State faculty gathered together at the K-State Alumni Center on Wednesday afternoon to discuss the future of bikes in Manhattan. This is the second year the Department of Landscape Architecture/Regional and Community Planning has held this two-day event called Design Days.

Stephanie Rolley, head of the department, said Design Days was the faculty’s idea.

“A couple years ago an internationally known program held a design week at K-State that went really well,” she said. “After that success, we decided we could hold our own mini-event.”

This year, the department teamed up with Michael Wesch, assistant professor of cultural anthropology, and Ben Champion, director of sustainability for Design Days’ “Cruise, Commute, Connect” workshop to stimulate new ideas for a more bike-friendly Manhattan.

“The purpose of Design Days is to tackle a community dilemma,” Rolley said. “In Manhattan, city boards and committees, as well as community members, have expressed high concerns for cyclists.”

Divided into 21 design teams, 170 students were given 48 hours to develop new design plans.

Student teams were assigned various locations in Manhattan. These on-site teams addressed a number of questions about the location. Questions included, “Can a biker get to the K-State campus from that area?” and “Are these routes safe?”

Based on the analysis of the area, students then worked together to create a design catering to the needs assessed. This year, after the 48 hours had been completed, the design teams had developed 1,789,562 new ideas for a more bike-friendly Manhattan.

After coming up with improvement plans for the cycling community, students created an interactive exhibit set up in the center to showcase their ideas.

See DESIGN, Page 5
Conclusions....?
We’re closer than we think ...

Bike everywhere. the best routes to anywhere in the Little Apple

Bike Path
Road (color indicates bike-ability)
Bike Lanes
Bike-able Sidewalk

Complete map at bikemanhattan.info/map.htm
iPhone version: bikemanhattan.info/mobile

1 mile / 5 minutes
Bike anywhere in less than 30 minutes.

very safe
ride with caution

Sign the petition to "Make More Green" at bikemanhattan.info
Where are the barriers?
“B bikers” Practical Cycling Map

Map Key:
- Kansas State University
- Shopping Area
- Park
- School
- Bike-able Road or Pathway
- Path Needed
- Critical Crossing
- Signage Needed
B-biker accessibility

connected by accessible roads spaced no more than 1/2 mile apart
"B bikers" Practical Cycling Map

routes ridden despite dangers
Projects Needed

"B bikers" Practical Cycling Map

Map Key:
- Purple: Kansas State University
- Blue: Shopping Area
- Pink: Park
- Green: School
- Black: Bike-able Road or Pathway
- Cyan Dots: Path Needed
- Red Circle: Critical Crossing
- Yellow Circle: Signage Needed
Manhattan Bike Routes
(as of Jan 2011)
connected by accessible roads spaced no more than 1/2 mile apart
How do we get there?
Step One: Mark and promote current network
Step Two: Transform informal network into official Bicycle Boulevards
Fundamentals of Bicycle Boulevard Planning & Design

Lindsay Walker
Mike Tresidder
Mia Birk

ibpi
alta
Portland State University
Traffic Calming

Signage

Prioritize Travel On Bicycle Boulevard

Traffic Reduction

Intersection Treatment
Downtown Milwaukie
1.6 MI. 10 MIN.

King Rd.
Commercial Ctr.
1.7 MI./10 MIN.

Springwater Trail to Sellwood
1.7 MI./10 MIN.
### SW 14th Street - Bicycle Boulevard Improvements (continued)

#### Description

This project would provide bicycle boulevard treatments on a three-mile segment of SW 14th Street, continuing north as a shared-use trail segment connecting to the Meredith Trail. These projects would connect neighborhoods on the southwest side of Des Moines to the trail network along the river and to the Blank Park Zoo and to the proposed superblock at Fort Des Moines.

#### Proposed Improvements

- Traffic calming installations to discourage high school students driving on SW 14th Street
- Bicycle boulevard route markings and wayfinding signs on SW 14th Street from Cassidy Drive and Amos Avenue and along Cassidy Drive from SW 14th Street to Bell Avenue
- Trail connection from SW 14th Street to Meredith Trail

#### Planning-Level Cost Opinion

Costs for the SW 14th Street boulevard will vary depending on level of improvements:

- **Level 1: Signage**
  - $14,000 - "Bike Route" signs every 300'
- **Level 2: Pavement Markings**
  - $8,000 - Boulevard markings every 100'
- **Level 3: Intersection Treatments**
  - $600 - Turn stop signs at Park Avenue
  - $10,000 - Install bike signal at McKibben Avenue & Army Post Road
- **Level 4: Traffic Calming**
  - $10,000 - Traffic circles at Wabous Avenue, Hackley Avenue, Porter Avenue, and Amos Avenue
- **Level 5: Traffic Diversion**
  - $90,000 - Chicane around school (4)

Note that each treatment level would build upon the previous level - cost estimates presented do not combine treatment costs.

The cost of the connector trail from Bell Avenue to the Meredith Trail and Gray’s Lake Park will require additional engineering review. Costs could range from approximately $3.6 million for a route through the parking lot and a bridge to the trail, to $1.5 million for a route parallel to Fleur Drive.

Pavement markings indicate to both bicyclists and motorists that the roadway is a designated bicycle route and aid in wayfinding.

Wayfinding helps cyclists find connections between routes.

Traffic circles can be used along bicycle boulevards to reduce automobile speeds without hindering bicycle travel.
Costs for the SW 14th Street boulevard will vary depending on level of improvements:

- **Level 1: Signage**
  - $14,000 - “Bike Route” signs every 300’

- **Level 2: Pavement Markings**
  - $8,000 - Boulevard markings every 100’

- **Level 3: Intersection Treatments**
  - $600 - Turn stop signs at Park Avenue
  - $10,000 - Install bike signal actuation at McKinley Avenue & Army Post Road

- **Level 4: Traffic Calming**
  - $10,000 - Traffic circles at Watrous Avenue, Hackley Avenue, Porter Avenue, and Amos Avenue

- **Level 5: Traffic Diversion**
  - $80,000 - Chicanes around school (4)

Note that each treatment level would build upon the previous level - cost estimates presented do not combine treatment costs.
<table>
<thead>
<tr>
<th>Available Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Medians</strong></td>
</tr>
<tr>
<td>![Image of medians]</td>
</tr>
<tr>
<td><strong>Pinch Points</strong></td>
</tr>
<tr>
<td>![Image of pinch points]</td>
</tr>
<tr>
<td><strong>Partial Diverters</strong></td>
</tr>
<tr>
<td>![Image of partial diverters]</td>
</tr>
<tr>
<td><strong>Signage &amp; Markings</strong></td>
</tr>
<tr>
<td>![Image of signage and markings]</td>
</tr>
<tr>
<td><strong>Chicanes (Rio Grande)</strong></td>
</tr>
<tr>
<td>![Image of chicanes]</td>
</tr>
<tr>
<td><strong>Traffic Circles (Rio Grande)</strong></td>
</tr>
<tr>
<td>![Image of traffic circles]</td>
</tr>
</tbody>
</table>
9th & Houston
Advantages of BBs

• Cheap! (as little as $3,500/mile)
• Works for B-bikers (Portland State study)
• B-biker access to key destinations
• Preliminary studies show dramatic increase in ridership
• Creates *liveable* streets
• “For people concerned with safety and avoiding traffic, a well-connected network of low-traffic streets, including some bicycle boulevards, may be more effective than adding bike lanes on major streets with high volumes of motor vehicle traffic.”
  – Jennifer Dill 2009 JPHP
They don’t solve all our problems ... but they’re a great start!

Further planning needed for more capital-intensive projects to go where BB’s and education can’t.