

Transporting Ecologies

Alachua Countywide Bicycle Master Plan Update

prepared for the

North Central Florida Regional Planning Council

Metropolitan Transportation Planning Organization



Background

Martin Gold

Associate Professor
School of Architecture
University of Florida

Gainesville Eco-History Trail Design Competition

July 2002

Luoni Gold Design Studio

Robert Wood Johnson Active Living by Design

January 2003

Martin Gold, Stephen Luoni, Ruth Steiner & Kristin
Larson - UF

Internationalizing the Curriculum - Finland

July 2003

Martin Gold



Environmental Stewardship

- **Natural Capital**
Recognizing the value of natural systems
- **Closing the Loop**
Cycling resources at the point of use
- **Factor 4 Principle**
Halving resource use and doubling productivity

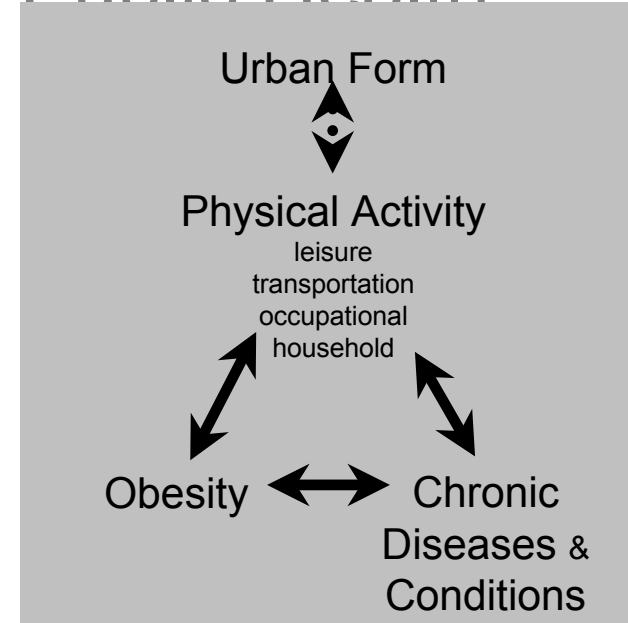
Ecology



Public Health & Community Design

- CDC initiates research (1997)
- Suburban sprawl linked to:
 - Obesity
 - Cardiovascular Disease
 - Diabetes
 - Asthma
 - Depression
- Degree of sprawl related to obesity
(31% of Americans) (+ 6 lbs.)
- Recreational Activity
 - parks
 - trails
 - public amenities
- Routinized Activity
 - alternative transportation infrastructure
 - smart growth communities
- European Models (walk/cycle)
 - lowest rates of obesity, diabetes and hypertension
 - life expectancy +2.5 to 4.4 years

Public Health



Relationship Between Urban Sprawl and Physical Activity, Obesity and Morbidity
Ewing, Schmid, Killingsworth, Zlot & Raudenbush

"More walking and cycling for practical daily travel is an ideal approach to raising physical activity levels"

Surgeon General, USA (1996)

Transportation & Planning

- **Transportation Economy**

Consumes 30% of national energy expenditures
(vehicles only)

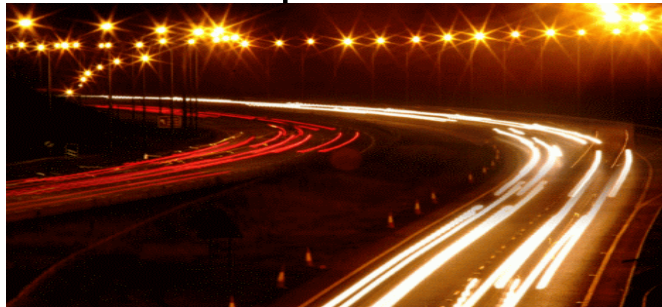
- **Combustion Emissions**

Toxins and corrosives
Concentration plumes at arterioles

- **Human Resources**

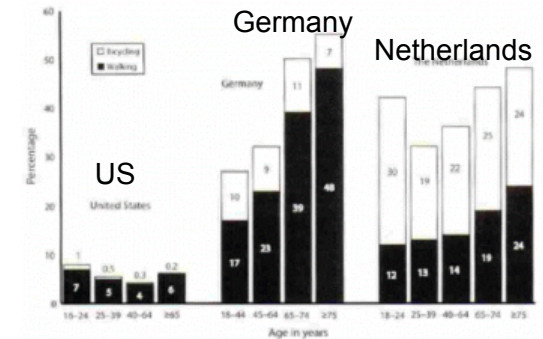
16 to 62 hours per year in traffic delays

- **Social Capital**

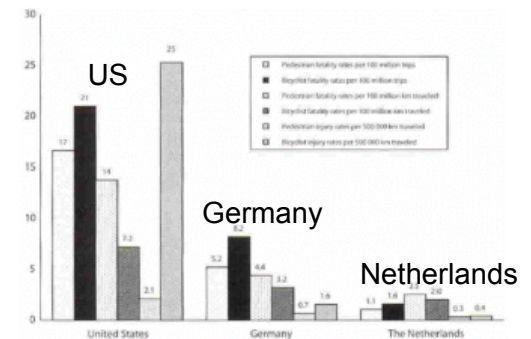


Infrastructure

Alternative Transportation Modes



Percentage trips by walking or bicycling



Pedestrian and bicycle fatalities and injuries - trips and miles traveled

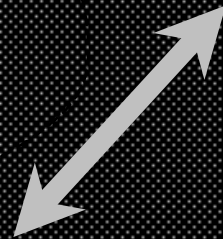
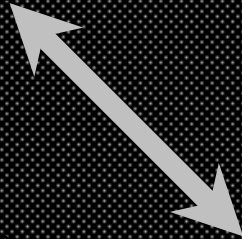
Advancing ○non-reductionist○ policy

Process

Public Health
mobility & fitness
environment

Environmental
Stewardship
natural capital

Transportation & Planning
economic growth
human resources
social capital



Review Summary

Master Plan 2001

Sprinkle Consulting, Inc
Washington, Baltimore, Tampa

- Identified 4 points of focus:
 - off-road expansion
 - on-road expansion
 - safety improvements
 - mode shift - more use of infrastructure
- Establishes criteria for need
- Conducted critical community assessment/expectation
- Established detailed inventory of Quality of Service (QOS)
- Established latent demand
- Defined design goals and objectives
- Identified critical cost benefit analysis
- Provided safety assessment through crash analysis
- Identifies outreach strategies
- Identifies outside funding potentials

The report represents a substantial body of work, detailed analysis of multiple network segments and a concerted effort to include all stakeholders.

Advancing the Bicycle Pedestrian Master Plan

- Utilize prioritization initiative Identified in 2001
- Establish conceptualization of a complete regional system

Destination based analysis

Map system networks and phases

- Identify strategies for implementation (case studies)

Study infrastructure in other communities

Feedback information for priority and costs

Research potential for integration of multiple services and ecologically sensitive strategies

- Expand issues of public health
- Link with planning initiatives where appropriate
- Visually define Quality of Service options (drawings)
- Develop design vignettes for high priority projects
- Reinforce and suggest policy initiatives to support this effort

Proposal

“To improve the quality of life of Alachua County residents by increasing their choices through the development of a safe and convenient countywide system of on-road and off-road bike facilities that connect neighborhoods with schools, businesses, transit and recreational areas”

Sprinkle Vision
Statement

Case Study Cities

eleven

Phase 1

Jan 30th - March 9th

Case study cities provide a basis for developing potential urban designs, leveraging experience and resources. A range of urban sizes, densities and functions, including historic and modern, are included. The study cities provide the most view in terms of potential strategies.

Boulder, Colorado

Cambridge, Massachusetts

Houston, Texas

Leiden, Netherlands

Münster, Germany

Oulu, Finland

Palm Springs, California

Palo Alto, California

Phoenix, Arizona

Seattle, Washington

Washington, DC

- Free bicycle program (130 bicycles)
- Separated grade intersections
- Urban rural connectivity - multimodal corridors
- Public bicycle facilities - parking
- Event based outreach
- Wide Paths (12')



Boulder, CO

Population: 95,000

Student Population: 29,151

Climate 62.5 °F - 32 °F



Art in public space at grade separated underpass



Cambridge, MA

Population: 95,322

Student Population: 37,115



- Critical air pollution index (1990)
- Vehicle Trip Reduction Ordinance (1992)
- Infrastructure, education and outreach
- Public funded facilities provided

"... our roads not only accommodate people who bicycle but invite them to do so"

"...all roads are bikeways"

- Clean Air Act mandate
- Houston Comprehensive Bikeway Plan initiative
 - visionary 1,035 miles of on and off street bicycle
- Phase One: elevate Houston to a top US bicycle city
 - transportation focused rather than recreational
- Grade separated intersections
- Integration of existing and new infrastructure
 - city grid, renovated arterioles and new off-road paths



Pedestrian bicycle bridge



New trail construction

Houston, TX

Population 1.9 m

Students 210,000

Mean temp: 92°F - 65°F



www.houstonbikeways.org



Regional connector



Medieval core



Leiden, NL
Population 115,000 (15,000 students)
Leiden University
Climate 25°F - 80°F



Rural routes



Bus/bicycle

- Dedicated on street bicycle paths
- Urban to rural bike loops - commuter
- Bicycle support facilities
- Need for bicycle parking strategies



Münster, DE

Population 280,000
University 55,000

- Bicycle, pedestrian, auto, modal integration
- Substantial network
- Education and outreach
- Extensive parking facilities
- City bike design refinements

43% bicycle trips
48% auto trips



Transporting 72 people



Bicycle



Automobile



City bus



3000 bicycle Garage



5-speed Gazzelle city bike

- Urban rural connectivity
- Grade separated intersections
- Extensive path network (off-road)
- Adapts public utility and civil infrastructure
- Destination linked (public space)

Oulu, FI

Population: 125,000

Students: 15,000

Mean temp: S 70°F - W 30°F



Palm Springs, CA

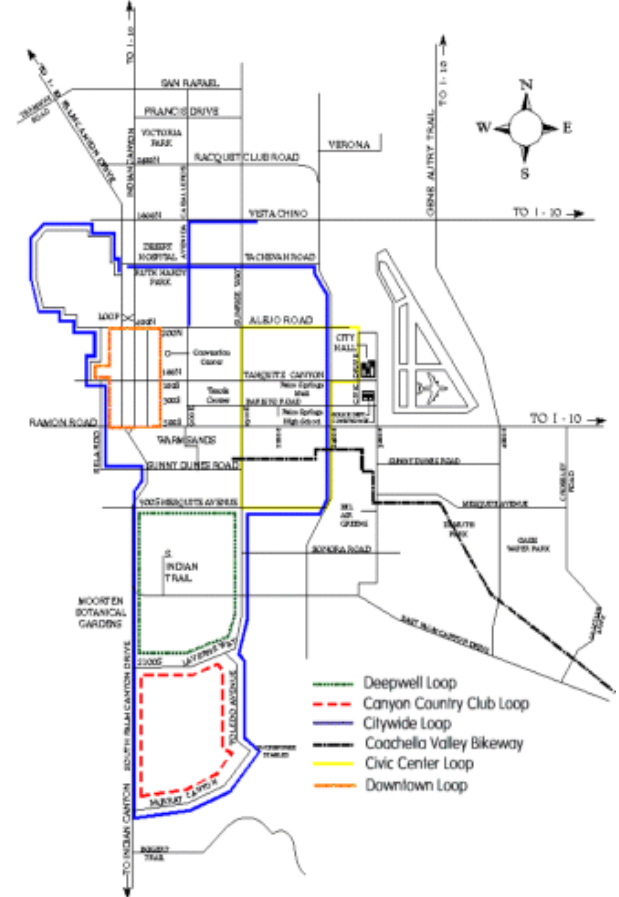
Population 43,000

Mean temp: 72°F

- Urban rural connectivity (city - country loops)
- Linkages to national parks
- Electric-assist bicycles
- Solar powered recharge hubs



Integrated electric-assist bicycle design



Palo Alto, CA

Population: 61,000

Student Population: 12,000

Mean Temp.: 65 degrees

Land Area: 23.7 square miles

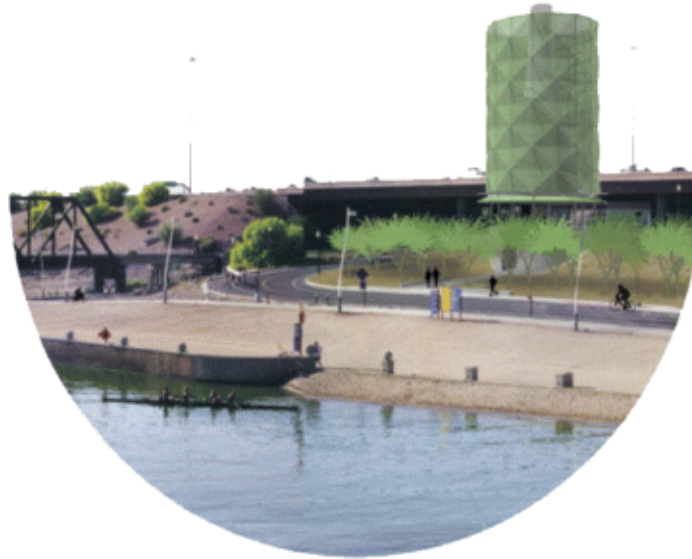
- Bicycle implementation plan
infrastructure in place -showers, lockers, etc.
- Bicycle friendly street navigation
- Licensing for bicycles



Phoenix, AZ

Population 1.3 m

Papago Salado Trail Loop



Tempe - 158,000
Scottsdale - 203,000

Climate ???



Arizona State University (57,000)

- 11 mile urban connector
- Utilizes water utility canal right-of-way
- Establishes greenways
- Cooling tower microclimates visual references

- Destination infrastructure
- Neighborhood connectivity
- Multimodal integration
- Pedestrian Program / Bicycle Board
- Education and outreach
- Drive Reduction Programs

commute trip reduction law
way to go seattle



Seattle, WA

Population: 564,000 (3 million regional)

Student Population: 65,000 (36,000 at UW)

Climate 35°F 75°F



Washington, DC

Population: 564,000 (3 million regional)

Student Population: 65,000 (36,000 at UW)

Climate 76°F 36°F

- Grass roots movement - avoid traffic congestion
- Community input 'rides§ and workshops
- Excellent greenway nature trail system
- Education and outreach initiatives
- Multimodal interface to be developed

Field Investigations

five



Portland, Oregon

Davis, California

Copenhagen, Denmark

Utrecht, Netherlands

Freiburg, Germany

Field investigations of significant cities focus on discovering and documenting the integrated relationship of bicycle pedestrian infrastructure with other transportation and planning infrastructures and facilities. Actual use of the system will reveal phenomenal issues such as perceived safety, ease of use and “ridability” — information impossible to gather from documentation of the systems. Photography, physical measurements, interviews and video documentation will be conducted.

Portland, OR

Population 536,000 (1.95 m metro)

Climate ???

- Critical air pollution index

100 carbon monoxide violations in 1972

- Extensive route network
- Multimodal integration
- Bike Central Program (facilities)
- Research and development - Safety





Bicycle pedestrian interstate underpass

- City Council initiated long range plan
- Grade separated intersections
- University town connectivity coordination
- Innovative bike only intersections
- Shower and changing facility policy

Davis, CA

Population 62,000
UC Davis Campus



Bicycle priority streets

Utrecht, NE

Population: 750,000

Mean Temp: 50 °F

- Separated grade intersections
- Bicycle path standards

10' wide lanes, stripes, separation, colored areas

- Aesthetic sensibility
- Convenient bicycle storage, parking, rest stops
- School route safety program



Copenhagen, DK

Population: 1.7 m

Mean Temp: 68 °F - 32 °F

- Everyone owns a bicycle
- Excellent urban and rural connectivity
- Paths as independent network

auto, bicycle and pedestrian (combined when needed)

- Car free downtown as pollution control
- Multimodal integration - bus, train facilities
- Free & sponsored bicycle program (1500 bikes)



Covered Bicycle parking



Pepsi Sponsored City Bikes



President Clinton at City Bike ceremony in 1996

"...combines the idealism of the 1960s with the realism of the 1990s"

Freiburg, DE

Population: 227,000

Students: 32,000

Mean temp: ???

- Integration of transportation and planning - routing
- "Displacement" more mobility - fewer car trips
- Transition from auto to bicycle
- 90% of students use bicycle/public transport
- 14% reduction in auto use in 16 years

(w/25,000 new inhabitants)



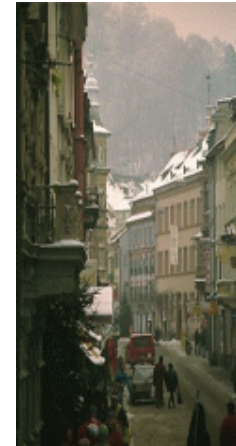
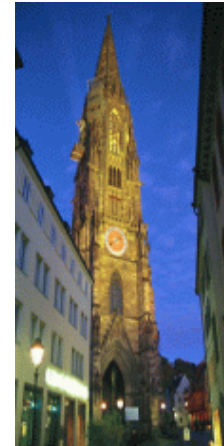
Bicycle parking facilities



Park destinations



'Woonerf' street principles



Conceptualization

Phase 2

February 9th - March 31st



Submit Case Study Report

Develop Conceptual Organization

Asses Recent Projects

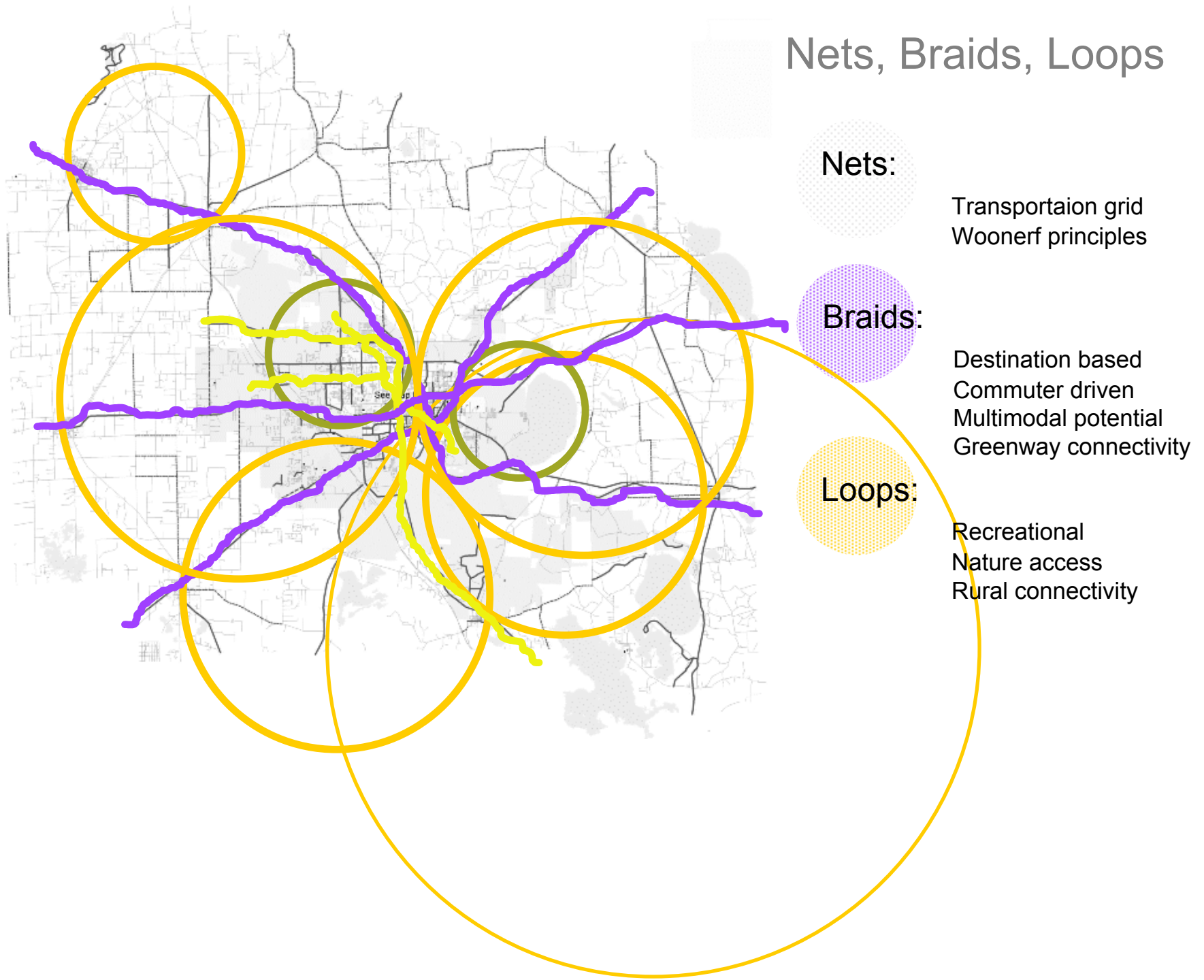
Conduct Design Charrette

New Path Studies

Integrate Priority Matrix (2001)

Submit Project Maps & Meet

Nets, Braids, Loops



Design Scheming

Phase 3

March 15th - May 1st



Finalize Conceptualization

Integration of ecological strategies

Develop integrated designs

Finalize Report, posters and web

Design Alternatives

Ecology:

- Stormwater
- Habitat islands
- Greenways

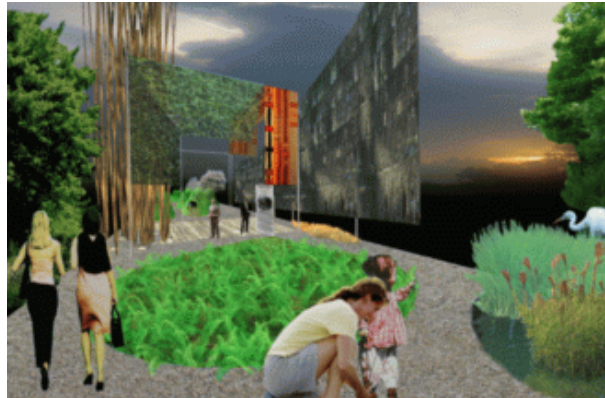
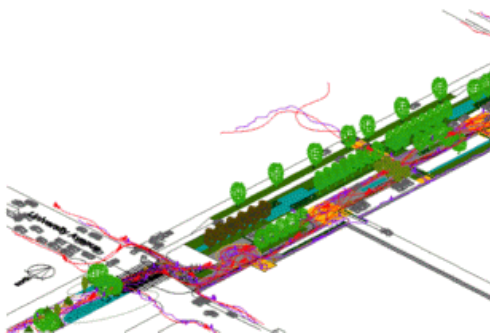
Infrastructure:

- Reconciling auto -
bicycle

- Path alternatives
- Support facilities
- Greenway connectivity

Civic:

- Social space
- Public health
- Outreach & policy
strategies



Transporting Ecologies

Alachua Countywide Bicycle Master Plan Update

prepared for the

North Central Florida Regional Planning Council

Metropolitan Transportation Planning Organization

