Infrastructure Design Recommendations

AASHTO guidelines provide a minimum bicycle infrastructure standard for various quality of service and road categories. The Alachua County Corridor Design Manual (November, 2002) begins to assign more specific guidelines for bike lanes based on land use adapting AASHTO guidelines. A similar study that focuses on the bike lanes and paths themselves within this land use framework should be conducted. Important innovative cycle strategies and examples of those strategies are included as "best practices" for providing cycle infrastructure and negotiating conflict points between autos, cycles and pedestrians.

Lanes and Paths



In Copenhagen, many cycle lanes are slightly raised and in many cases such as this buffered from the motor way with auto parking. The raised platform allows cycles to move in and out of the lane while diverting autos that might drift into the lane. This would be an appropriate strategy for arterial roads where autos travel at higher speeds.



Amsterdam is famous for it's cycle infrastructure (some of the best facilities encountered in this research). Colored lanes are used quite successfully in defining the cycle track and improving safety. Materials and upkeep research to find the most efficient means to maintain them is part of the effort.



Arterial connectors have bike lanes separated whenever possible. Lighting and shade is provided. In the Netherlands, cycles are not considered single passenger vehicles. Adults with 3 children were observed on bicycles on more than one occasion — the lawful limit is one adult and two children (with seats).



ways that organize vehicle, cycle and pedestrian movement and parking. Note that the cycle lane is marked through the intersection. The white triangles "sharks teeth" are combined with the yield sign to signal the auto and cycle spatial domain and point of right-of-way. Trees organize the boulevard street type reinforcing the spatial zones and providing shade in the hot summer.

Suburban planning models include public

Suburban office park models in Utrecht provide wide separated cycle paths (pedestrian - cycle - vegetative buffer - auto way) to accommodate busy commuting cycle traffic and two-way flow. The red color is maintained to consistently convey the cycle path network.



Not just a place to sit and study. This cycle only transportation network utilizes roundabouts and pedestrian crossways (angle lines in foreground) to manage large volumes of cyclists on the UC Davis campus and adjacent areas. This greatly reduces the accident rates and makes cycling more desirable to a wider segment of the population (although mostly students here).



Headstart lanes are common in Europe and progressive cities in the United States. This intersection in Freiburg, Germany includes a headstart lane for cycles to spread-out and occupy the space in front of the cars. A pedestrian island is included along with the crossing bike lane in the foreground. Continuing the space of the bike lane through the crossing intersection with the broken line is an important design element — notifies motorists to be cautious while crossing this zone and organizes cyclists.

Riparian corridors can be adapted to act as "greenways" combining ecological stewardship of the natural ecosystem while contributing to the non-motorized transportation network and providing enhanced public space. The Hogtown Creek near NW 34th Street could look like the image to the left rather than the concrete storm sewer it currently resembles.

Portland is leading the US in innovative shared use corridors. This active rail and utility easement is also used regularly as cycle path for recreation and commuting. In this case, the rail line was moved over to make room for the cycle / pedestrian path allowing both to share the easement.

Intersections



Roundabouts and traffic circles are becoming more common in the US as they ironically move traffic faster using lower speeds (average speed is higher when not stopped at an intersection). Design for these new intersections must include cyclists especially when the intersection is part of a major cycle artery (Braid) such as the South Main Street and Depot Avenue intersection. Here a cycle lane, pedestrian islands and clearly marked zones for all modes are included.

Conflict points such as this "T" intersection in Utrecht are clearly marked with the cycle lane colored, textured and defined with a broken line. The yield (rather than stop) sign for traffic approaching the intersection is combined with slight hump (difficult to see in image), paver surface changes and markings. The hump magnifies the slowing of the vehicle at the point of conflict.

Colorized cycle lanes identify the cycle ways to motorists passing through the intersection. Motorists can check for cyclists as they approach and use caution when turning while cycles are in the lane. The designation supports cyclist lane adherence as they move through the intersection rather than cuttingacross in an unpredictable manner.

Grade separated intersections such as this one in Malmö, Sweden opens up the space to provide an open lawn suitable for public occupation with benches and shade (just out of frame). Cycle and pedestrian access is provided to provide the easiest route for the different modes (stairs near the street for pedestrians). Both through connectivity (intersecting path) and comfortable vertical connectivity are integrated. This is needed on 13th Street at the Depot Trail, Norman Hall and NW 8th Avenue.





Bicycle directional lanes are provided in Copenhagen in areas with high auto & cycle traffic. The lane is approximately 12' wide with left turn/straight ahead lane and right turn lane. Signalization choreographed with automobiles and pedestrians should be provided. Likely a tuning phase (or phases) to work out timing sequences would be conducted to "set" the system.

At this intersection in Malmö, Sweden the raised auto way effectively provides a shelf at the intersection allowing cyclists to maintain a level path. This technique assists in slowing the vehicle at the conflict point. The cycle path is separated and raised from the adjacent auto arterial.

Facilities



Large monitored parking facilities could be provided that are covered and maintained 24 hours a day near campus or the downtown for commuters. This reduces thefts of bicycles or attached accessories.

This Sacramento, California cycle parking facility protects bicycles from the elements and protects personal belongings left with the bike. There are many of these lockers in the government center utilized at a 90% occupancy rate. Monthly rents support the project (much less than auto parking costs). Some employers reimburse the rental costs.



Parking structures could be opportunities for art in public space especially along trails and park play areas. The one illustrated here is on a school playground in Portland, Oregon.

Cycle and pedestrian bridge facilities are important to provide the most direct routes for commuting. An integrated network should favor the cycle over the auto when designing the most direct routes — autos can easily negotiate longer distances.

A bicycle - pedestrian only bridge in Davis, California is shown to the left. One of 27 grade separated crossings, it spans multiple auto lanes (9) plus two rail lines and vegetative buffers in between. It provides linkages between neighborhoods and a large sports park area. Clearly feasible, as it is in-place, demonstrates that small communities can afford this quality — Davis is approximately 1/3 the size of Gainesville with no industry.

A cycle storage facility provides security, rental service, repair and sales. Other businesses in the facility include tourist information, coffee shop and offices. It is strategically located near the rail transit hub. This could be a model for a park-n-ride facility in Gainesville.

Signalization



Cyclist designated signal devices incorporated with automobile signaling provides legitimacy for cyclists and commands obeyance of traffic laws.

Davis, California intersection where an offroad cycle path interfaces with the on-road systems. Cyclists and motorists have independent traffic signals. Autos are stopped and cyclists have the green light in the illustration at the left.

Warning Signage



Warning sign in Portland, Oregon alerting cyclists to the hazard of the light rail track.

A good bicycle infrastructure, especially offroad paths, facilitates transportation for both the young and old — populations that do not have access to an automobile. This is particularly important in providing active and rewarding lifestyles for the aging population. This intersection shows a sophisticated auto, cycle, pedestrian interchange with designated lanes spatially marked and yield indicators on signs and marked on the ground.

Extended Mobility



Portland, Oregon Bicycle Network Map