Greenway Planning and Design
Application to Ecological Design of Integrated Regional Systems
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Greenway is a long, narrow piece of land (linear corridors), often used for recreation, pedestrian, bicycle traffic, and sometimes including multiple transportation or retail uses. The word “Greenway” comes from the “green” in green belt and the “way” in parkway. Tom Turner, who is an English Landscape architect, Garden designer and Garden historian, has theorized the team Greenway in the publication in 1955. He has pointed out “greenway, blueways, skyways and other ways to a better London landscape and urban planning.”(Turner. 269)

Since the urban developing, green lands in urban area have been interrupted into patches. Greenway is a linear corridor to connect the patches, which has same environmental conditions. By linking ecological structure and function, a regional greenway system may be able to protect biodiversity, provide present and future open space needs, and allow for economic growth and development.

Greenway planning provides an opportunity to reduce the impact of habitat fragmentation, include loss of habitat and habitat isolation. (Linehan. 179-193) These two effects are common in urban system, which can be found in almost every large city, such as New York City, London, Beijing, and etc.

By connecting the interrupted patches, greenway increased immigration, which could increase or maintain specie richness and diversity; Increase population sizes of particular species; Decrease probability of extinction; Permit species re-establishment; Prevent inbreeding depression or maintain genetic diversity. Greenway will also increase foraging area for wide ranging species. In urban area, human activities will influence the patches’ habitats and habitat isolation. Wildlife does not have way to escape. Greenway
provides such way for movement between patches, in the same time increases accessibility to a mix of habitats and provides alternative refuge from large disturbances. Greenway also has potential advantages for urban development. It provides greenbelts to limit urban growth, abate pollution, provides recreational opportunities enhance and protect scenery, and improve land values. Greenway provides a multiple transportations, which could help improve the urban circulation system and create park system.

One good example is Boise River Greenbelt In Boise, Idaho. The greenway is more than 30 miles beginning at Lucky Peak Dam, taking into account both sides of the river and other parallel trails and spurs. (Pete. 2) The green way connects several riverside parks and connects Boise with neighboring municipalities. The start, Lucky Peak Dam is located in the west side of Eagle, Idaho. And the greenway includes a bicycle route on residential streets, in the same time, motorized vehicles are prohibited on all parts of the greenway. (David. 1)
To consider about the potential disadvantages is another aspect of greenway planning. The increased immigration could also cause lots of issues facilitate the spread of disease, pests, etc. Decrease the level of genetic variation between population; Facilitate spread if fire and contagious catastrophes; Increase exposure to hunters, poachers, and predators and may not function for species with conventional conservation direction of preserving endangered species.

Greenway design should start with land cover assessment, which based on vegetation, hydrology, patch size, and the degree of urbanization. These contexts could be finished with GIS. The wildlife assessment should on three aspects, species inventory, guild formation, and indicator species selection. Habitat assessment, node analysis, connectivity analysis, network generation and evaluation should also be considered.

Greenway design may not only consider about habitat protection and recreation. Create a multiply transportation should also be aspect of the design goal, especially in urban greenway design.

Rose Kennedy Greenway in Boston, Massachusetts is an example for urban greenway design. The Rose Kennedy Greenway has been created in downtown Boston. The project is about 1.5 miles, compose by series of parks and public spaces. It puts Interstate 93 underground and removed the elevated freeway that served as the main highway through downtown for more than 40 years. The project finished in 2008, due to numerous delays, cost overruns, and the big dig ceiling collapse.

http://www.bostonbyfoot.org/imagelib/photos/greenway/viewable/c-inline/greenwayBBFV0001-1c.jpg
After it opened, this greenway did not be as functional as the planner and designer wished. People do not use city open space. By contrast, the greenway is placeless desert. The series of oversize shapeless spaces, not of which has a purpose. They failure of Rose Kennedy Greenway leads us a pointed and educated discussion on the future of the greenway design.

Greenway planning includes the site analysis and assessments are one of the most processes. The greenway design should consider the connection of neighbors with pedestrian and bicycle traffic. The Rose Kennedy picked a site in the downtown, however, the planner and designer ignored the circulated connections. And the oversize shapeless spaces without purposes made the people lost interests to go into there. After this project finished in 2008, reporter said the greenway became a “Landscape desert” in downtown Boston. The maintenances and re-design program cost too much, it is about 25% of the primary cost of construction.

Greenway planning and design can be a good application to ecological design for our study area. Due to the urbanization, patches in our study area are becoming fragmentation. Habitats are broken into pieces. Especially, since 1990s great amount of patches were lost along the creek and river, which caused serious erosion issue. Till 2000s, although government begun to realize
the importance of maintaining ecological structure, the area of patches, include of parks, vegetated areas are increasing. Habitat fragmentations are still existed. Most of the patches are located around the urban area, along the creek and the road system. They provide great opportunities to greenway planning and design. Greenway could connect each isolated patches, create a “bridge” to wildlife immigration. The greenway system is also able to provide multiply transportation, combine bicycle traffic and recreational areas together. The greenway system may lead people from urban area to rural area. By connecting the patches around the urban area, especially the patches or habitat areas along the creek, river and the lake. Flooding issue in our study area may be solved. Connecting the patches and habitats along the river and creek could reduce the erosion issue in our study area.
Reference:

- Greenways, blueways, skyways and other ways to a better London Landscape and Urban Planning 33 - Tom Turner (1995) 269-282
- Map from http://ortho.gis.iastate.edu/