

Planning Greenway along the Abandoned Railway in Gwangju City, Korea: Key Components to Successful Greenway Plan

Bonghyun Jeong (PhD), Professor

Dep. of Regional Development, Chonnam National University, Gwangju, Korea

Tel: 82-62-5301565, Fax: 82-62-5301579, Email: bhjeong@chonnam.ac.kr

Hyecheon Kim (PhD), Professor

Dep. of Urban Engineering, Mokwon University, Deajeon, Korea

Tel: 82-42-8297664, Fax: 82-42-8225260, E-mail: kimhc@mokwon.ac.kr

Abstract

This paper is aimed at identifying key components to successful greenway planning in Gwangju city, Korea. This paper consists of three main sections: concepts of greenways; transport and railway systems in Gwangju; key components to successful Gwangju Greenway Planning. It is identified that key components to successful Gwangju Greenway Planning are composed of quality greenway planning, creating and strengthening coalition, development of feasibility study, funding, collaboration with government agencies, publicity, and cooperation with elected officials and maintenance / monitoring / management.

I. Introduction

Greenways are a special kind of linear landscape. Policies for their design and planning can make a major contribution to environmental quality and its enjoyment by the public. In metropolitan cities, greenways can provide routes for pedestrians, cyclists and natural process. Greenways can function as environmental corridors in overcrowded metropolitan cities, Korea. The term greenway in Gwangju, Korea can identify in the word "green" a network only for pedestrians and non-motorized vehicles mobility. The attention should be focused on the possibility of using greenways as a part of a "slow" mobility plan. The greenway of Gwangju can be seen an example of an important change in the Korean urban transport planning that can use networks for "slow" mobility as one of the most important element for a higher quality level of life.

With these considerations in mind, this study focuses on planning greenways along

the abandoned railway for sustainable community in Gwangju city, Korea. This is aimed to identify key components to successful greenway planning in Gwangju city, Korea. This paper consists of three main sections: an overview of greenways; transport and railway systems in Gwangju; key components to successful Gwangju greenway planning. This paper is mainly based on a review of current research reports/papers and an analysis of secondary data.

II. An Overview of Greenways

2.1. Definition and Aim of Greenways

Greenways are now applied to a variety of 'ways' that are 'green' in the environmental sense. Greenways are corridors of protected open space managed for conservation and recreation purposes. They are an open space connector linking natural reserves, parks, cultural features and historic sites each other and with populated areas. Greenways are the results of public/private partnerships. Greenways are paths used for walking, bicycling, or other forms of recreation or transportation.

The term greenway in Korea can identify in the word "green" a network only for pedestrians and non-motorized vehicles mobility. The attention should be focused on the possibility of using greenways as a part of a "slow" mobility plan. In Korean metropolitan cities, we provide relatively narrow footpaths running beside wide vehicular roads. There is a need to plan networks of interlinked pedestrian greenways. Cycling is the most environment-friendly mode of mechanized transport. But cycling in urban areas can be dangerous and unpleasant. Cycle greenways can provide routes that are safe, beautiful and enjoyable. The creation of cycle greenways should increase the percentage of the population, which travels to work without consuming nonrenewable energy resources.

The aim for greenways is to promote more sustainable and healthy transport through the creation of networks of attractive routes on which walkers and cyclists can travel for business or pleasure in safety. Greenways will provide non-motorized routes as part of an integrated transport package; increase people's access opportunities; help to improve the fitness of people of all ages and abilities; reduce car use.

2.2. Benefits of Greenways

Greenways positively impact individuals and improve communities by providing not only recreation and transportation opportunities, but also by influencing economic and community developments. Greenways provide a safe, inexpensive avenue for regular exercise for people living in urban and suburban area. They often offer environmental protection for important habitat and provide corridors for urban people. Greenways help improve air and water quality. They have the power to connect us to our heritage by preserving historic places and by providing access to them. Greenways help communities build pride by ensuring that their neighborhoods are good places to live. Greenways support communities through eco-tourism by protecting critical habitat.

<Table 1> Benefits of Greenways

Benefits	Detailed Contents
Economic	• Opportunities for economic renewal and growth.
Health	• Realize the importance of exercise
Environmental	• Offer environmental protection for habitat and corridors for people
Preserving history And culture	• Have the power to connect us to our heritage • Draw the public to historic events
Benefits to Communities	• Help communities build pride • Provide safe and enjoyable place communities

Sources: Choi(2001); RTC(2000); GCG(2002)

2.3. The Need for Greenways

Uncontrolled and scattered development has characterized urban planning all cross the Korea. More urban communities recognize the detrimental costs associated with urban sprawl. Financing sprawling development costs taxpayers money, sometimes creating significant budgetary crises for local city government. Infrastructure costs related to urban sprawl, such as roads and subway systems was going to cost urban residents a lot of money to keep up with urban developments. Local governments unable to ignore the costs associated with sprawl, and citizens alarmed by their diminishing quality of life are calling for an end to sprawl. Many are using trails and greenways to manage development in their communities. Conservation of open space

and higher density development were essential to preserve a higher quality.

As the twenty-first century approaches, there is a great need to improve environmental quality in Korean large cities. High density living and working can make cities more sustainable. Greenway policies should be used to establish webs of high quality pedestrian space running through urban areas. City center greenways can be pedestrian streets with a range of policy objectives: good spatial articulation, harmonious architecture, excellent paving, a favorable microclimate, well-placed seating and a high level of personal safety from vehicles and auto bikes. The urban greenway web should include enjoyable walk from public transport interchanges to commercial centers.

III. Transport and Railway Systems in Gwangju

3.1. Transport Conditions

Gwangju metropolitan city is located in the center of Honam providence in the southwest part of Korean Peninsula. It has approximately 1.4 million people as one of the five largest cities in Korea. The population of Gwangju increased at an annual average growth rate of 2.9% during the 1984-2000 period. The average growth rate over the last 16 years in car ownership has been 20.2% per annum. It is the most reliable determinant of travel demand in Gwangju. The growth in road traffic volume in Gwangju closely parallels the increase in socio-economic indicators. The number of cars per road-km has increased from 38.0 cars in 1984 to 182.7 cars in 2000. This indicates the increasing intensity of the road network problem in Seoul. As a result of the drastic increase in the number of private cars in Gwangju, the share of private cars by traffic mode grew rapidly from 3.2% in 1984 to 22.56% in 2000. This resulted in heavy traffic congestion and air pollution in Gwangju.

<Table 2> Growth of socio-economic and traffic

Division	Unit	1984	1991	2000	AAGR ('84-'98)
Population	1,000 persons	870	1,179	1,375	2.9%
Car registration (Private car's ratio)	1,000 vehicles	22 (41.7)	106 (62.2)	337 (64.7)	20.2% (+23.0)

	(%)				
Trips by mode	1,000 trips/day	1,534	2,028	3,255	4.8%
Cars per road km	Cars/km	38.0	65.4	182.7	11.4%

Note: AAGR (Average Annual Growth Rate)

Sources: GCG(1999; 2001), KRA(2001); Jeong(2001)

3.2. Urban Developments and Railway Systems

There are two regional rail lines and five railway stations in Gwangju City. The Honam Line with 250.6km in length that links Seoul with Mokpo passes through the city of Gwangju. Gyungjeon Railway Line, linking Gwangju with Busan goes through the city center of Gwangju City. Gwangju railway station is located in the city center of Gwangju, and is the final station of regional truck rail line between Seoul and Gwangju City. The train for Mokpo passes through Songjeongri railway station situated in the outskirts of Gwangju City.

Gwangju went through a period of rapid urbanization during the last 30 years; horizontal expansion necessitated road networks and resulted in the large-scale construction of housing sites outside its old city center. Gwangju City has expanded around the core that is diagonally crossed by a stream. The Honam rail line was laid along the perimeter of the city. When the railway was built, the abandoned railway site was actually situated at the outskirts in Gwangju City. The growth of the city skipped over the area, which has now become a part of city core. The process of its enlargement is not so special, save for the closing of Gyungjoen Line- a railway built back in 1930, extending 10.8 km across Gwangju. In its later days, it had been accused of having a negative influence on traffic flow and degrading the living environments of neighboring towns. The abandoned railroad is where the wave of urban sprawl overran, where the development was reserved for another time, and where the trace of time was craved into the city itself.

It is identified that transport has a major impact on the spatial and economic development of city. The attractiveness of particular locations depends in part on the relative accessibility, and this in turn depended on the quality and quantity of the transport infrastructure. The addition of new road links and railways means that more traffic will be generated, making the environment more polluted and increasing the

mobility problems for those without access to a car.

3.3. Urban Transport and Railway Problems

Urban development did not occur adjacent to the transportation network where it could most easily be served. Many grid systems in Gwangju provided an almost infinite number of paths between various points. The spacing of network elements was not dependent upon the density of the development they served. Furthermore, the hierarchy of streets was not functionally classified and well established. The capacity of radial road networks was not large enough to accommodate the inbound and outbound traffic volumes, so that eventually they came to be heavily congested. Congestion is a problem in Gwangju as a result of relatively high levels of car ownership and poor road infrastructures. The total congestion costs in Gwangju grew at an average rate of 26.0% per annum since 1984.

<Table 3> Changes in congestion costs

	Unit	1984	1991	2000	Change ('84-'00)
Time	Minutes/line	52.1	60.1	75.4	+23.3
Cost	Billion Won	17	84	689	AAGR: 26.0%

(Average Annual Growth Rate)

(1999; 2001), KRA(2001); Jeong(2001)

Traffic accidents are, on the whole, the most dramatic and terrifying of Gwangju transport problems. The total number of traffic accidents increased at an annual average rate of 6.9% during the 1983-2000 period. Road accidents in Gwangju metropolitan area are thought to cost about 219 billion won, a 31.8% share of the city's total congestion cost in 2000.

The rail line of 10.8km, a section between Gwangju-Hyochun railway stations extended to downtown Gwangju. The railway line aggravated traffic jams and caused traffic accidents in the city center of Gwangju. It resulted in urban underdevelopment and traffic noises there. That was why GCG and local residents asked Korea National Railroad (KNR) to move the railway into the outskirts of Gwangju City during the past 28 years. The railway was moved to the suburb of Gwangju at last. The total residents

of 340,000 people reside within a radius 1km from the abandoned rail line. There was the total number of 65 urban facilities, including elementary school, middle and high school, and university as well. The total population around the railroad decreased owing to worsening living environments. The original settlement of Gwangju City was formed in accordance with the rules of urban design that are present already in several Korean cities: Mountains in the back, river in the front. The construction of railway infrastructure that crosses between the hills and former city center obstructed the smooth flow between the hillside and the traditional city center.

The present site of the disused railway lies in various states of ruins. Except for a small portion, the railroad has been removed, and only the gravel remains. Where it is not covered with gravel, the site is now green as it is either covered with weeds or is used by the local residents for planting crops. Local usage has transformed part of the site into strolling trails, morning market places, resting area for the elderly, and playground for the young. Although the site is officially considered abandoned, it is actually full of life as an organic entity within the community.

IV. Key Components to Successful Gwangju Greenway Planning.

4.1. Outline of the Gwangju Greenway Plan

4.1.1. Background

The railroad of 10.8km, crossing the city center of Gwangju has resulted in severe road traffic congestion, traffic noise and urban underdevelopment. It became a serious obstacle to check the balanced growth of Gwangju city. The citizens in Gwangju City and Gwangju City Government (GCG) have petitioned Korea Railroad Administration (KRA) for moving railway in built-up area into the outskirts of Gwangju City (GC) since 1974. The KRA granted the petition in 1990. It took about five years to complete the abandonment work of railway from the year 1995.

A great concern of Gwangju City was what to use the abandoned railway. The use of abandoned railway has attained a considerable public attention in Gwangju City and stirred up a continuous social dispute among related interests, such as GCG, local residents, elected officials, civic groups and environmental bodies. The initial plan of

the city government on the abandoned railway was to build light-rail transit along the railway. According to a public opinion, support for the greenway plan was still lingering above 67 percent. Local residents and citizen groups have spared no effort to construct greenway along rail line in built-up area. Especially, citizen groups, including Gwangju Citizen Coalition for Environment Movement (GCCCEM) and Gwangju Green Transport (GGT) organized a citizen group, so-called “Citizen Coalition for Greenway Construction (CCGC)”, and got into various actions. CCGC has organized colorful public events in order to stir the public opinion that was for the greenway plan. Local residents demonstrated against light-rail transit plan along the abandoned railway, and had several interviews with the mayor of Gwangju City.

On the other hand, the main opinions of experts in forums and workshops presentations were on the construction of a greenway along the moved railway. It has brought about arousing the friendly public opinion on greenway plan. Gwangju City Council (GCC) and three-district councils made a speech in support of the greenway plan. GCG made a final decision on planning a greenway along the abandoned railroad on December 2001. After numerous civilian efforts, a greenway of dense trees could be finally created at the heart of the city in the near future.

4.1.2. Recent Process of the Greenway Plan

The following chronology of events is a record of discussions by citizen groups and city authority on the issue of the utilization of the disused railway before and after the abandonment.

-
- ◆ December 1990 – Korea Railroad Administration (KRA) decided to move the railway in built-up area into the outskirts of Gwangju city.
 - ◆ December 1995 – KRA started an abandonment work of the railway.
 - ◆ February 1998 – Local residents presented a petition to Gwangju City Council (GCC) for a greenway planning of the railroad.
 - ◆ March 1998 - Gwangju Citizen Coalition for Environment Movement (GCCCEM) and GCC hold a policy debate on the railroad utilization.
 - ◆ July 1998 – Gwangju City Government (GCG) organized a preparatory council on abandoned railway use planning.

- ◆ June 1999 - Citizen Coalition for Greenway Construction (CCGC) was founded, and it held a policy debate on the railroad use.
- ◆ September 1999 – Local residents staged a demonstration against light-rail construction along the moved railway in GC.
- ◆ October 1999 - CCGC launched a signature collecting drive for greenway planning. A representative of the local residents spoke in favor of greenway planning in a talk with Gwangju City Mayor.
- ◆ October 1999 – CCGC organized an informal gathering for discussion about abandoned railway use planning.
- ◆ October 1999 – Local residents demonstrated against light-rail transit plan along abandoned railroad.
- ◆ January 2000 – A citizen festival desiring for greenway planning was held.
- ◆ April 2000 – There was a contest of clambering up the building wishing for greenway planning.
- ◆ May 2000 - Gwangju Green Transport (GGT) and 21 Gwangju Green Council (GGC) debated on the abandoned railroad use planning.
- ◆ August 2000 – There was a citizen festival in celebration of abandoning railways in built-in area and for arousing a public response on greenway planning everywhere.
- ◆ August 2000 – Gwangju Subway Construction Headquarters held a local explanatory meeting on the modified Gwangju subway planning.
- ◆ August 2000 – GCG conducted a questionnaire survey on 3 major urban transport issues.
- ◆ September 2000 – District Councils of Dongju and Seogu memorialized the mayor of Gwangju City for a construction of new greenway along the railroad.
- ◆ September 2000 – The president of GCCEM insisted on greenway planning in an interview with the Mayor of Gwangju city.
- ◆ October 2000 – GCCM and CCGC regularly held open invitation meetings for local residents.
- ◆ October 2000– GCCM and GGT held workshops on greenway planning four times.
- ◆ December 2000 – GCG finally decided to build greenway along the abandoned railway.
- ◆ March-July 2001 – GCG organized a steering committee for the greenway planning and held a meeting eight times.

- ◆ July 2001 – GCG completed a final draft of greenway master plan and explained it to Gwangju City Council.
- ◆ July 2001 – GCG had a briefing session tour of the greenway master plan by district.
- ◆ July October - The vice mayor of GCG received a report on maintenance plan around the greenway.
- ◆ March 2002 - GCG designated the abandoned railway as a city planning facility (neighborhood park).
- ◆ March 2002 - GCG came out a final report of greenway master plan.
- ◆ May 2002 - Expert’s Discussion on the utilization of the abandoned railway was held.
- ◆ May 2002 – Meeting of the Gwangju city park committee took place: item was passed with a condition of overhauling the greenway land use planning.

The Urban Planning Department of GCG was in charge of managing and planning the abandoned railway in Gwangju. The department commissioned a consulting company to produce a report on Gwangju Greenway Master Plan in August 2000. A public advisory committee called “Greenway Development Committee” assisted the department, and consisted of civic groups, experts, and resident’s representative and city officials. It conducted advisory activities on Gwangju greenway master plan, and confirmed a tentative master plan on July 2001. Explaining sessions were held to supplement the plan with citizen’s opinion three times. Gwangju City Park Committee was held on May 2002, and passed the plan on the condition of revising it drastically. A fundamental notion of the plan was named as “the greenway of light and life”. The Gwangju Greenway Master Plan established five broad themes for management of the greenway. Four locations in the railroad were created as development cores. The Park and Green Belt Department of GCG is responsible for implementation of the greenway master plan in 2002. GCG is scheduled to complete a 10.8km long greenway in 2010 with an investment of 12.3 million US \$. The master plan is a pragmatic plan intended to be implemented within a ten-year timeframe, and has been into four phases.

4.1.3. Prospect of the Greenway Planning

A great concern of Gwangju City Government was what and how to use the abandoned railway. The strong need for establishing the Gwangju Greenway Master

Plan was keenly left in Gwangju city. The greenway in Gwangju can serve as a symbolic open space in overcrowded city center in terms of urban structure. It can turn out to be a famous sight of Gwangju in tourism perspective. Gwangju greenway policy can be used to create a new landscape value or to conserve an existing landscape value. Greenway should be based on pedestrian streets, bikeways, small parks or other linear features. All along the abandoned railroad throughout the Gwangju city, the multi-purpose greenway can change lives and communities. Paths, wide enough to accommodate bikers and walkers would become public greenways connecting communities. A significant public demand for this type of greenway has arisen for one reason:

There was a still-growing desire to see nature in Gwangju City, and to create new habitats in Gwangju. Greenway will assist the city government to realize its aims for cycling and walking in the “City Cycling Strategy” and “Encouraging Walk”: advice to city government. In particular, the development of greenways with a quality guarantee, will help to provide the coherent network which people need if walking and cycling are to increase as modes of transport in Gwangju City. Policy for the design and planning of greenway can make a valuable contribution to environmental quality in Gwangju City. Greenway in Gwangju should provide routes for pedestrians and cyclists. Greenway development policy should become a significant aspect of city planning.

4.2. Key Components to Successful Greenway Planning

A greenway project encounters opposition when it was proposed. Citizens and landowners may well be dubious when this project is proposed. The conversion of abandoned railway to public greenway also stirs considerable public interest. Greenway is a public work project that has to go through a public approval process. The length of this process and the quality of the debate over a greenway development depends on a great many factors, including the level of community support, the involvement of government agency and the presence of an individual or an activist or enthusiastic group. Intense and illegal opposition takes different forms. Opposition to greenway project is usually fueled by a lack of information and unanswered criticism of greenway proposal. Once the community, citizen activists, and public agency have shared vision for the greenway, it is important to develop a written action plan. Successful greenway project results from the ability of greenway proponents to sell their vision for the

greenway to the community.

4.2.1. Quality Greenway Planning

Quality planning is a key component to a successful greenway system. Some greenway systems may start with very simple plan in relation to a fledgling idea while other efforts may have highly sophisticated, well funded planning efforts; but all are planned. In each case, the people implementing the greenway system should have a vision, criteria for creating and linking different segments of the greenway system, and consider how the system may be sustained and maintained over the long term. The initial presentation should be clear, concise and imaginative. The plan also should have the following components: context; inventory/analysis/synthesis; needs and desires; vision; plan development, implementation strategies. Gwangju City Government established the Gwangju Greenway Master Plan on May 2002. But, the plan didn't analyze inventory data in detail and provide how the plan will be maintained and implemented. All greenway proposals should be based on a full appreciation of the local context.

4.2.2. Creating and Strengthening Coalition

The long-term success of community's greenway project will be in the maintenance, advocacy and improvements made to it. Converting a railway into a greenway requires the help of a broad-based constituency. It is important to develop a diverse greenway coalition group, strong enough to overcome any hurdles along the railway. Greenways appeal to a variety of groups and many different types of people. They can include bicycling and walking clubs, environmental organizations, neighborhood associations, city council, landowners, and youth oriented organizations. Many residents and individuals were interested in working on a rail-to-greenway in Gwangju. Gwangju Citizen Coalition for Environment Movement (GCCCEM) and Gwangju Green Transport (GGT) would do much for launching a successful rail-greenway project.

Many enthusiasts in Gwangju choose to create a "Citizen Coalition for Greenway Construction (CCGC)" group. The single most important function of the organization was to act as the advocate of the greenway, defending it when necessary and promoting it at all times. CCGC provides many important services to the greenway and often work

in cooperation with the GCG to help maintain it. After compiling a master list of potentially interested organizations, it is important to hold a coalition-building meeting. The meeting itself should be carefully planned in advance. An open invitation meeting is needed for taking message to community organizations.

4.2.3. Development of Feasibility Study

A project feasibility report is an ideal tool for greenway advocates to ensure they check out all the angles and to communicate the project to the railway. Nearly successful rail to greenway effort is achieved its initial level of public support by preparing a well-researched feasibility study. The purpose of a feasibility study is to outline the corridor's potential as a multi-purpose trail. Its benefits include giving the project credibility and providing a vision of how an overgrown or trash strewn corridor could become a beautiful public park. It would help us think through all the aspects of the conversion process in a realistic manner. A typical feasibility study doesn't cover the technical and more difficult research about abandonment rail line. A feasibility report includes the list of issues to be examined in a project feasibility study. Although supporters and planners advocate greenway for many reasons including economic benefits, the benefits of Gwangju greenway often are not estimated, and information on the benefits of Gwangju greenway generally is not available.

4.2.4. Funding

Funding greenways takes a bit of ingenuity and a lot of research. Between central and local government funding mechanisms as well as grants, private partnerships and other creative funding methods, there are many ways to fund your trails and greenways. The first key to funding is to identify, evaluate and document the transportation value of rail-greenway proposal. Fundraising is a critical and crucial element of developing a greenway coalition. Funding can be obtained from community groups, private donors, companies and public bodies.

The most common sources of central funding include general appropriations to central Department of Urban Management (DUM). The most common sources of funds at the city level include allocations from a specific department, such as the Park and Green Belt Department, and the Urban Planning Department of GCG. Another funding

sources are the Transportation Facility Special Account of GCG or local voter-supported bond issues. Foundations and trust funds can be the important source for funding. A large, diverse citizen constituency is the most effective lobby group for greenway acquisition spending. In Korea, Urban Planning Act has funded roads and highways in urban area. Bicycle Use Promotion Act is a critical funding source for rail-greenway because all type of bicycle projects is identified in the law as activities eligible for funding. The 20-year, long-range transportation plans based on Urban Traffic Readjustment Promotion Act must incorporate identification and preservation of transportation rights-of-way for future transportation use. It is also necessary to think of innovative ways to reduce the greenway development costs.

4.2.5. Collaboration with Government Agencies

City government is responsible for delivering services –like rail to greenway-to citizens. A partnership with a government agency should start shortly after a citizen group is formed. The partnership evolves over the course of the rail-greenway project. Concerned and organized citizens can occur much beneficial government action after persistent efforts. Understanding the agency’s mission is effective to receive the most help from a government agency. To convince an agency to expand its mission, we need to persuade an elected or other high-ranking official to set a new course of action.

It is necessary to present the agency with a well-articulated plan for the corridor backed with research. Another challenge is to find an agency both supportive or of rail to greenway conversion plan, and in the position of to do something about it. The best agencies to work with are those with authority to plan and implement, such as the Park and Green Belt or Urban Planning Department. The government has the ability to fund or to finding funding for the rail-to-greenway. The agency should create a rail to greenway advisory group consisting of a broad cross section of the community. A citizen group should use the political process to help remove any restraints placed on the agency. It is desirable to publicly support the government agency and to arrange a public-private partnership for maintenance of the greenway.

4.2.6. Publicity

Few successful rail-greenway conversions have taken place without the awareness

and involvement of active people in the community. Publicity takes many forms, including brochures, mailings, posters, newsletters, and articles in the daily press, advertisements, public service announcements, speeches, rallies and debates. The basic publicity tool is the one page general information brochure. A press release is basically a new article written just the way we would like to see it in print or hear it on the air. Following up an areas mailing by telephone will increase our coverage. Rallies are time tested publicity devices. GCG was planning to construct a light-rail transit along the abandoned railway on September 1999, but local residents showed negative attitudes towards the city's plan for light rail-transit. Over 8000 people petitioned the GCG for discouraging a light-rail transit and promoting a greenway. It brought about a considerable public and media attention in Gwangju city. Over 200 people marched through the streets to demonstrate against the plan of light rail transit. It went into headlines of local newspapers. Civic walks, sketch contest, composition contest, discussion meeting on the railroad were hosted by citizen groups, and produced positive press. An event, such as a walk or cycle ride, can be held to attract public and media interest in the project. When a plan has been drawn up, it must be discussed with those who will be affected. Public consultation should take place through meetings, exhibitions, press articles, leaflet distribution and the deposition of reports in libraries. Initial plans should be modified, or discarded, in response to the results of the public consultation.

4.2.7. Cooperation with Elected Officials

For rail-greenway project to succeed we need to know how elected officials and government agencies make decisions about moving forward on the greenway project. To gain an official's support, we need to understand the strengths and liabilities of politicians, and then should use the political process to our best advantage. To stimulate the interest of politicians, we should stimulate the interest of their constituents. We need to keep elected officials informed about project and the development of the campaign. Officials have access to useful documents and official records, and can gain attention in numerous ways, such as legislation, public hearing, speeches and articles. Elected officials know other politicians from different levels of government, and may be a member of regional board that could help rail-greenway project. Local residents presented a petition to Gwangju City Council (GCC) for a greenway planning of the

railroad on February 1998. The Councils of Dongju and Seogu Districts memorialized the mayor of Gwangju City for a construction of new greenway along railroad on September 2000.

4.2.8. Maintenance, Monitoring and Management

If greenway is initially well planned, designed, and constructed, long-term maintenance and management will be reduced. In addition, if greenway is well managed to lesson impacts, the greenway will remain successful. Therefore, maintenance and management should be addressed at the outset of a project to ensure: long-term success of the greenway; planning, design and construction focuses on long-term maintenance issues; a greenway monitoring system is established so impacts are understood.

Greenway construction and maintenance must be accomplished correctly or management can have endless headaches and the greenway can be an unpleasant and unsafe experience. Whoever is doing greenway design, construction, and maintenance should be well trained. Volunteers who are constructing, maintaining, or monitoring greenway can be extremely helpful and are critically important for public agencies so positive relationships can be established. Project is often initiated and carried out by a small, grassroots organization comprising a group of involved citizens. The cost for ignoring management and maintenance issues necessitates the need to re-build project enthusiasm and project relationships at a time when most people are just beginning to value the project. Greenway is generally managed and maintained through a variety of partnership arrangements. It is also essential that responsibilities for maintenance – both human and financial resources – be determined when selecting the potential partners that will sponsor a greenway project.

V. Conclusion

This paper concentrates on greenway planning, from a macro perspective, and is aimed at identifying key components to successful greenway planning in Gwangju city, Korea. This paper consists of three main sections: an overview of greenways; transport and railway systems in Gwangju; key components to successful Gwangju greenway planning. This paper is mainly based on a review of current research reports/papers and

an analysis of secondary data.

Greenways are paths used for walking, bicycling, or other forms of recreation or transportation. The term greenway in Korea can identify in the word "green" a network only for pedestrians and non-motorized vehicles mobility. A policy for greenway design and planning can make a major contribution to environmental quality and its enjoyment by the public. Greenways positively impact individuals and improve communities by providing not only recreation and transportation opportunities, but also by influencing economic and community developments.

As a regional metropolitan city, Gwangju has approximately 1.4 million people as one of the five largest cities in Korea. Rapid increase in population and personal income since the 1980s has resulted in a huge increase in the number of vehicles in Gwangju City. The city is suffering from several transport problems: congestion; traffic accidents; and a worsening urban environment. Gwangju City has expanded around the core that is diagonally crossed by a stream. The horizontal expansion necessitated subway networks and resulted in large-scale housing sites outside the old city center. When the railway was built, the abandoned railroad site was actually situated at the outskirts of Gwangju City. The growth of the city skipped over the area, which has now become a part of city center. The railroad of 10.8km in length, crossing the city center of Gwangju has resulted in severe road traffic congestion, traffic noise and urban underdevelopment. It became a serious obstacle to check the balanced growth of Gwangju City. That was why GCG and local residents asked Korea National Railroad (KNR) to move the railway into the outskirts of Gwangju City during the last 28 years. The final decision was made by KNR in 1990. A great concern of Gwangju City was what to use the abandoned railway. The initial plan of the city government on the abandoned rail-line was to build light-rail transit along the railway. Local residents and citizen groups have demonstrated against light-rail transit plan along the railway. Gwangju City Government made a final decision on planning a greenway along the abandoned railway. Greenway development policy became a significant aspect of city planning in Korea.

The Urban Planning Department of GCG commissioned a consulting company to produce a report on Gwangju Greenway Master Plan in August 2000. The Greenway Development Committee confirmed a tentative master plan on July 2001. The planning and design of greenways can make a major contribution to environmental quality and its enjoyment by the public. All along the abandoned railroad throughout the Gwangju city,

the multi-purpose greenway can change lives and communities. A greenway project encounters when this project is proposed. Greenway is a public work project that has to go through a public approval process. The length of this process and the quality of the debate over a greenway development depends on a great many factors, including the level of community support, the involvement of government agency and the presence of an individual of an activist or enthusiastic group. It is identified that key components to successful Gwangju Greenway Planning are composed of quality greenway planning, creating and strengthening coalition, development of feasibility study, funding, collaboration with government agencies, publicity, and cooperation with elected officials and maintenance / monitoring / management. Finally, this study will constitute an important step towards the study of a greenway planning and policy in Korea.

References

- Choi, Dongho, The Need for Building Greenways from a Green Transport Perspective, Gwangju City Environments Research Report, 2001. The Institute for Environmental Protection in Gwangju (IEPG), Korea. (In Korean).
- David Banister (edit.) Transport and Urban Development, London: E&FN Spon, 1995
- Gwangju Biennale, Gwangju Biennale 2002 Pause: Project 4 Connection, Publisher Gwangju Biennale Press, Korea, July 2002
- Gwangju City Government (GCG), Gwangju Urban Master Plan, 1995 (in Korean).
- GCG, Light of Gwangju: Comprehensive Long-Term Development Plan, 1998. (in Korean).
- GCG, Gwangju Mid-term Transportation Improvement Plan, 1999 (in Korean).
- GCG, Gwangju Greenway Master Plan, February 2002. (In Korean)
- Jeong, Bonghyun, Dongho Shin and Dongho Choi, Integration of Land-Use and Transport Planning Policies: Review and Applicability for the Seoul Metropolitan Region, Journal of the Korean Regional Development Association, Vol. 12, No. 3, The Korean Regional Development Association, December 2000
- Jeong, Bonghyun, Development of Integrated Transport Planning Policies for Sustainable Urban Structure in Gwangju, Journal of the Korean Regional Development Association, Vol. 13, No. 1, The Korean Regional Development Association, March 2001

- Karen-Lee Ryan and Judle A. Winterish (edit.), *Secrets of Successful Rail-Trails: An Acquisition and Organizing Manual for Converting Rails to Trails*, Rails-To-Trails Conservancy, 2000, USA.
- Lee, Sangjun, *Necessities and Benefits of Greenways*, Gwangju City Environments Research Report, 2001. IEPEG, Korea. (In Korean)
- Norman D. Cox and Coy Vaughn, *Southeast Livingston Greenways: Plan and Summary Report*, The Greenway Collaborative, Inc. and Livingstone County Planning, November 2000
- Rails-To-Trails Conservancy (RTC), *Rail-Trails and Community Sentiment: A Study of Opposition To Rail-Trails and Strategies for Success*, 2000, USA.
- RTC, *Rail-Trails and Liability: A Primer on Trail-Related Liability Issues & Risk Management Techniques*, September 2000, USA.
- RTC, *Rail with Trails: Design, Management, and Operating Characteristics of 61 Trails along Active Rail Lines*, November 2000, USA
- Shapins Associates, *Innovative Non-motorized Trails Projects & Ideas*, Colorado State Trails Committee, USA, August 2000.
- Shin, Iksun, *Values of Greenways from Urban Ecology and Landscape Standpoints*, Gwangju City Environments Research Report, 2001. The Institute for Environmental Protection in Gwangju (IEPG), Korea. (In Korean)
- Song, Insung, *Approaches to Build Greenways through Citizen Participation*, Gwangju City Environments Research Report, 2001. The Institute for Environmental Protection in Gwangju (IEPG), Korea. (In Korean)
- The Greenway Collaborative, Inc., *Red Cedar Greenway Master Plan*, Michigan State University and City of East Lansing, Final Draft, May 2002.
- Tom Turner, *Greenway Planning, Design and Management*, [Http://http://www.lih.gre.ac.uk/plan/greenways.htm/Greenway Planning](http://www.lih.gre.ac.uk/plan/greenways.htm/Greenway%20Planning), 2002.
- The Government of the Republic of Korea (TGRK), *Urban Planning Act*, 2002
- TGRK, *Urban Development Act*, 2002
- TGRK, *Urban Park Act*, 2002.
- TGRK, *Urban Traffic Readjustment Promotion Act*, 2002
- TGRK, *Local Finance Act*, 2002

