Cheong Gye Cheon Restoration Project
- a revolution in Seoul -

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Content

1. Introduction
   • Seoul and Cheong Gye Cheon
2. Cheong Gye Cheon 2002
3. The Restoration Project
   • Background
   • Outline
   • Challenges
   • Progress
5. Final Remarks

I. Introduction
   - Seoul and Cheong Gye Cheon

Seoul & Cheong-Gye Cheon

Area: 600 km²
Population: 10 million

Old map of Seoul
Problem: sanitation

Solution: covering

Covering work (1958~1977)

Cheonggye Highway (1967~1971)

Highway in 1990s
II. Cheong Gye Cheon 2002

- Cheong Gye Cheon Area
  - Building: over 6,000
  - over 100,000 small shops
  - Nation’s biggest commercial area

- Declining old CBD
  - CBD redevelopment stopped where the Cheonggye Expressway started
  - Population and employment reduced
    - Population: 40,000
    - Employment: 80,000 in 10 years
  - Business headquarters moved to Gangnam (new sub-center)
  - Industries in CBD lost competitiveness

- Safety problem
  - Over all “C”, partially “D” or “E”
  - Only small cars were allowed from 1997
  - Maintenance cost soared: JPN ¥5,000,000,000 (’94~’99)

III. The Restoration Project
  - Background
    - Outline
    - Challenges
    - Progress
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Site location

- Total length: 5.84 km
  - Restoration of upper reaches of CGC on a long term basis
  - Divided into 3 sections to reduce the construction schedule

- Section 1 (L=2.04 km)
- Section 2 (L=2.1 km)
- Section 3 (L=1.7 km)

Demolition

- Covered structure and highway: 5.4 km
  - Waste (concrete+asphalt): 872,400 ton (96% recycled)

River design

- Design Criteria
  - Secure the stream capacity for 200 years frequency rainfall (118 mm/hr)
- Access to Water:
  - Install sidewalks along the lower level of the bank
Flow Section

- Basic design
  - Secure flood capacity for 200 years frequency rainfall
  - Introduce lower terrace to enhance easy access to water

Water supply

- Water supply plan
  - Water from the Han river: 120,000 ton/day
  - Underground water from subway stations: 22,000 ton/day

  Waterway plan
  - Depth: average 40 cm
  - Flow velocity: 0.24 m/sec
  - Measures to prevent water loss

  Water quality: better than the 2nd grade
  - BOD: 3 mg/l or less
  - SS: 25 mg/l or less
  - DO: 5 mg/l or less
  - Total N: 10 mg/l or less
  - Total P: 1 mg/l or less

Pipe line system

- Total length of pipe line: 20.7km

Sewer system

- Design Criteria
  - Combined sewer system for rainfall and wastewater
  - Capacity: 3 times of estimated wastewater

Bridge design

- Number of bridges: 22
- Design Criteria
  - Minimize flow resistance
  - Harmony with surrounding area
  - Artistic landmark
- International concept design competition

Flooded in Aug 3, 2003
for intensity of 60mm/h, upstream near Cheong-Gye Plaza