



# LANDSCAPE PERFORMANCE SERIES

## **Cheonggyecheon Stream Restoration Project – Seoul, South Korea Methodology for Landscape Performance Benefits**

### **Environmental**

- ***Provides flood protection for up to a 200-year flood event and can sustain a flow rate of 118mm/hr.***

Flood protection (Hwang, 2004)  
Flow rate (Park, 2007)

- ***Increased overall biodiversity by 639% between the pre-restoration work in 2003 and the end of 2008 with the number of plant species increasing from 62 to 308, fish species from 4 to 25, bird species from 6 to 36, aquatic invertebrate species from 5 to 53, insect species from 15 to 192, mammals from 2 to 4, and amphibians from 4 to 8.***

Species increases (Revkin, A. 2009. and Kim, Koh & Kwon. 2009)

- ***Reduces the urban heat island effect with temperatures along the stream 3.3° to 5.9°C cooler than on a parallel road 4-7 blocks away. This results from the removal of the paved expressway, the cooling effect of the stream, increased vegetation, reduction in auto trips, and a 2.2-7.8% increase in wind speeds moving through the corridor.***

Car numbers, temperatures and wind speeds (Kim, Koh & Kwon, 2009)  
Decreasing ambient temperatures (SDI, 2006, as cited in Kang and Cervero, 2009)

- ***Reduced small-particle air pollution by 35% from 74 to 48 micrograms per cubic meter. Before the restoration, residents of the area were more than twice as likely to suffer from respiratory disease as those in other parts of the city.***

Air pollution reduction (Revkin, A. 2009)  
Respiratory Disease (Yang, 2004)

### **Social**

- ***Contributed to 15.1% increase in bus ridership and 3.3% in subway ridership in Seoul between 2003 and the end of 2008.***

(Kim, Koh & Kwon, 2009)

- ***Attracts an average of 64,000 visitors daily. Of those, 1,408 are foreign tourists who contribute up to 2.1 billion won (\$1.9 million USD) in visitor spending to the Seoul economy.***

Tourism numbers (Kim, Koh & Kwon. 2009)  
“One foreign tourist spends as much as 1.5 million won” (SMG, 2011)

1.5 million won X 1,408 foreign tourists daily ≈  
2.1 billion won X 0.0009 USD/won ≈ \$1.9 million USD daily

## **Economic**

- ***Increased the price of land by 30-50% for properties within 50 meters of the restoration project. This is double the rate of property increases in other areas of Seoul.***

Land prices (Kim, Koh & Kwon. 2009. pg 32.)

- ***Increased number of businesses by 3.5% in Cheonggyecheon area during 2002-2003, which was double the rate of business growth in downtown Seoul; increased the number of working people in the Cheonggyecheon area by 0.8%, versus a decrease in downtown Seoul of 2.6%.***

Business information (Kim, Koh & Kwon. 2009. Pg 32)

## **Cost Comparison Methodology**

- ***Had the Cheonggyecheon Expressway remained, it would have required 100 billion won (\$90 million USD) and 3 years of repairs to secure the safety of the aging structure. While these costs would be approximately 289 billion won (\$260 million USD) less than the cost of the Cheonggyecheon Stream Restoration, the restoration has served as a catalyst for an estimated 22 trillion won (\$1.98 billion USD) worth of capital investment in Cheonggyecheon-area redevelopment that would not have otherwise been invested.***

Cost of required repairs (Hwang, 2004 and Park, K. D., 2007)  
Re-development capital (Hwang, 2007)

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