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River parkways are an essential tool for improving public health and can help reduce obesity, diabetes, and other related illnesses.

There is no medicine or treatment that works as well to reduce the negative effects of obesity and related illnesses as physical activity, such as walking, running, and bicycling. River parkways, particularly in urban areas, are nearly irresistible because they provide the proper infrastructure and an attractive setting for

engaging in physical activity. River parkways can benefit physical, mental, community, and environmental health, as well as the overall economic well-being of the population at large.

Transforming and improving the areas around waterways can help reverse decades of poor urban planning decisions which have led to communities that have been inadvertently constructed to limit health opportunities and exacerbate many physical and mental health problems. Conditions in many of the environments we have designed and constructed work to limit physical activity and increase vulnerability to stress, anxiety, depression and aggressive behaviors.

River parkways that include trails are smart public investments. Every \$1 invested in trails for physical activity leads to nearly \$3 in direct medical benefits and health-care savings. Promoting healthier lifestyles not only improves our quality of life, but offers a way to help drive down health care costs and preempt a host of preventable diseases.

Through a more thoughtful approach, and by maximizing the benefits of our rivers and other waterways, we can accelerate an increasingly more health-conscious era of urban planning, and transform communities into healthier environments – a move that makes human, economic, and practical sense.





## WHAT IS AN URBAN RIVER PARKWAY?

Urban river parkways are a combination of trails and park spaces in populated areas along rivers and other bodies of water that connect parks and other recreation spaces with residential and commercial centers.

California is endowed with hundreds of rivers and streams, many of which run through the heart of some of the state's largest cities including Los Angeles, San Jose, San Diego, Sacramento, Santa Ana, Fresno, Modesto, Stockton, Bakersfield and others. Repurposing those waterways, and creating usable greenspace and parkways provide a host of physical, mental and community benefits and are an opportunity for a smart investment in California's future.

These parks provide access to California's rivers, regenerate the river's role as an important artery in the lifeblood of a community, and provide accessible places that promote physical activity and the resulting health benefits.

Smart development of urban river parkways can help ensure everyone in this state, regardless of socioeconomic status, has an opportunity to enjoy outdoor spaces and live a healthier lifestyle. Developing these parkways also helps beautify and improve our cities, retaining and enhancing an important natural component of what are now urban habitats.

The American River Parkway, for example, runs through the heart of Sacramento attracting 8 million visitor days per year and generating an estimated \$364 million in economic benefits annually for the local Sacramento economy, according to the County of Sacramento. The Parkway's 23-mile long bike trail provides a very accessible way for families to exercise and commuters to bicycle between their homes, schools, and workplaces.

## PHYSICAL ACTIVITY AND PUBLIC HEALTH BENEFITS

The Centers for Disease Control and Prevention (CDC) reports that less than half of all adults in California are as active as they should be, meaning they do not meet the minimum recommended 2.5 hours of aerobic physical activity per week. In addition, 22% of adults report that they do not participate in any leisure-time physical activity.

The lack of physical activity is directly connected to our state's chronic obesity rates. As of 2012, 25% of all adults in California were considered obese, leading to higher rates of heart disease, stroke, Type 2 Diabetes, hypertension, and some cancers.

Despite California's great outdoors and parks, just 58% of residents in the state live within half a mile of a park. The problem is particularly acute in many of the poorest urban areas of the state, many of which lack adequate park space and are cut off from nature. For example, in Los Angeles County, children of color living in poverty with the worst access to parks and the highest levels of obesity disproportionately live along the lower 20 miles of the LA River.

Urban river parkways can significantly advance public health and wellness by providing attractive places for residents to recreate and embrace active lifestyles. Trails and pathways along rivers facilitate active recreation and commuting including walking, bicycling, jogging, sports, and other forms of exercise.

Accordingly, they counter sedentary behaviors and factors linked to obesity, diabetes, loss of muscle mass, and other life-threatening chronic conditions. Other health benefits include weight management, increased life span, decreased risk of cardiovascular disease, better management of hypertension, improved mood and mental health, strengthening of bones, and a lower likelihood of cancers such as breast and colon cancer.



## CHILDREN'S HEALTH

Childhood obesity has more than doubled in children and tripled in adolescents in the past 30 years – currently, 15% of adolescents are considered obese in California. Overweight and physically unfit children have a higher risk of lung diseases, diabetes, asthma, emotional distress, and cancers and are 80% more likely to be severely obese as adults. Lack of physical activity is a significant cause of the alarming increases in diabetes in children.

The U.S. Department of Health and Human Services states that the lack of green space is a major cause of childhood obesity. Parks and open spaces provide children with opportunities to play and exercise. Studies have shown that children who live near green areas and have access to play outdoors have a lower Body-Mass Index (BMI) compared to children without such access. According to the CDC, youths in neighborhoods with access to playgrounds and recreational facilities are more active and are less likely to be overweight.

Other studies have shown that spending time outdoors – including taking a walk by a body of water – reduces the symptoms of Attention Deficit and Hyperactivity Disorder (ADHD). Having an opportunity to play in nature on a regular basis helps children develop better interpersonal relationships, reduce depression and aggressive behaviors, and enhance intelligence and creativity.

Water and other attractive open spaces promote active communities. Swimming, kayaking and other water-based activities can be made possible where they had not been previously available through the thoughtful development of our urban waterways.

River parkways can also link parks and other parts of our communities together through a network of trails that can be used for recreation and commuting – both of which promote more physical activity.

## MENTAL HEALTH

The rates of depression and other mental illnesses are increasing, and are sometimes exacerbated by the ways our communities are built. Urban river parkways provide environments that promote not just physical, but mental well-being.

Many mental health issues can be improved with regular physical exercise, helping to alleviate stress, depression and anxiety. It can also improve mood, self-esteem and mental capability.

Access to greenspace is key, and the presence of water can increase the benefits associated with regular exercise. Walking through a park as opposed to an urban neighborhood increases attention-maintaining ability. Spending time in nature has also been shown to provide psychological restoration, stress reduction and overall calming effects.

Urban river parkways provide an opportunity to integrate these health benefits into the urban experience, offering a much-needed respite from the stress and pressures of everyday urban life.

## ENVIRONMENTAL HEALTH

Developing river parkways also has environmental health benefits. Natural surfaces such as soil and gravel capture rainfall and prevent it from gathering as urban run-off. Urban river parkways act as natural stormwater cleansing systems, helping to reduce the risk of illnesses associated with coming into contact with polluted water on a flooded urban street or at the beach. Many of these parks have also been integrated with wastewater treatment and water capturing facilities, allowing communities to retrieve water when it is needed to meet local water supply needs. These parkways also promote walking and biking, giving residents an alternative to their cars and potentially helping reduce harmful air pollution and greenhouse gas emissions. Urban areas tend to be hotter than suburban and rural areas, but increased vegetation, natural surfaces, and water features can help reflect sunlight and cool down the surrounding air.

# BUILDING HEALTHY NEIGHBORHOODS

Research shows that thoughtful planning and smart land use that incorporates outlets for the public to gather and recreate can reduce heart disease, diabetes and obesity and support a healthier, happier life.

In 2008, California adopted SB 375, which requires regions to plan and develop communities that put a premium on smart growth. Urban river parkways can be a key component of that regional planning, ensuring that public health is a factor in making these key planning decisions.

These parkways can be a centerpiece of those efforts, helping to ensure parts of the “built environment” are being developed to promote physical activity including walking and bicycling, and improving the attractiveness of urban areas.

Local governments have an important role to play in this type of community development. Land use decisions help determine what kinds of businesses move in and how public property is used. Smart growth and wise planning makes a big impact on neighborhood health.

## A PRESCRIPTION FOR A SUCCESSFUL PARK

Park design – the features and layout of the space – influences the level and type of park usage. There are a number of features that make an area attractive and usable for physical activity, and they range from the type of walking surfaces to the presence of trees on a street. Trails have a very strong relationship with park use for physical activity. Other common park features reported to facilitate physical activity include adjacent sidewalks, trash cans, benches, multiple entrances, clear signage, landscaping, bicycle racks, parking, and historical or educational features.

Proximity, amenities, aesthetics and proper maintenance are all important parts of park design that encourage public use. Trails that connect “nowhere to nowhere” are far less likely to be used than trails built close to where people live. Proximity to other locations that many people frequently visit – like grocery stores, schools and places of work – also help ensure the park will be used. Being closer to residential areas increases the likelihood of urban trails being used, and increases the probability the green space is used for physical recreation.

People must also feel safe in these environments to ensure the parks are utilized in the way they were intended. Proper lighting, policing, signage, land designations, and upkeep of parkways can collectively improve perceived safety and help to lessen intent of crime.

River parkway trails can also increase safety for bicyclists and pedestrians by separating the trails from vehicular traffic thereby reducing opportunities for walkers and bicyclists to be involved in accidents with automobiles.

Many urban rivers and streams have historically been redirected into underground pipes and sewage systems. But a current trend in park construction known as “daylighting” un-roofs these urban streams and rivers and brings them back to life.

Previously inaccessible and degraded areas with water features are being restored around the world, from South Korea to Denver, Colorado. Former sewer plants and landfills are being transformed into restored wildlife habitats that provide water-quality regulation, storm drainage and an open space for exercise and recreation. And degraded former industrial and commercial lands are being converted to park space along the Los Angeles and San Gabriel Rivers and other waterways.

## FUNDING

With the passage of Proposition 84 (2006), Californians set aside funding to invest in urban river parkway projects. It created a statewide grant program that funded dozens of urban river park projects throughout the state. Those funds are now depleted and new funding is needed to continue state investment for river parkway projects.

California continues to grow. Our population is expected to reach 50 million before 2050. As our cities and other communities prepare to absorb this massive growth, it will be increasingly important to invest in river parkways and other facilities that encourage physical activity.

## CONCLUSION

Urban river parkways can significantly advance public health and wellness by providing attractive places for residents to recreate and embrace more active lifestyles. By establishing and improving river parkways, communities can help assure a healthier future for today’s families and future generations.

Full Report: You can read the complete “Urban River Parkways – An Essential Tool for Public Health” report at <http://bit.ly/1s5AwzC>.

## ABOUT THE AUTHOR

Richard J Jackson is a pediatrician, a graduate of UCSF medical school, and is former State Public Health Officer for California. For nine years he served the United States as the Director of the National Center for Environmental Health at the U.S. Centers for Disease Control and Prevention. He is now Chair of Environmental Health Sciences at UCLA and Director of the Center for Occupational and Environmental Health for Southern California. He is a member of the Institute of Medicine of the National Academy of Sciences.

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