

# Measuring the Economic Benefits of Parks

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The logo for The Trust for Public Land, featuring a green square background with the text "THE TRUST FOR PUBLIC LAND" in white, stacked vertically.

THE  
TRUST  
FOR  
PUBLIC  
LAND

# Outline

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- Introduction to The Trust for Public Land
- Local economic benefits
  - Category overview
  - Data requirements
  - Example calculation with results
- Conclusions

# The Trust for Public Land: How we do it

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## FUND

Help enact measures for public funding

## PLAN

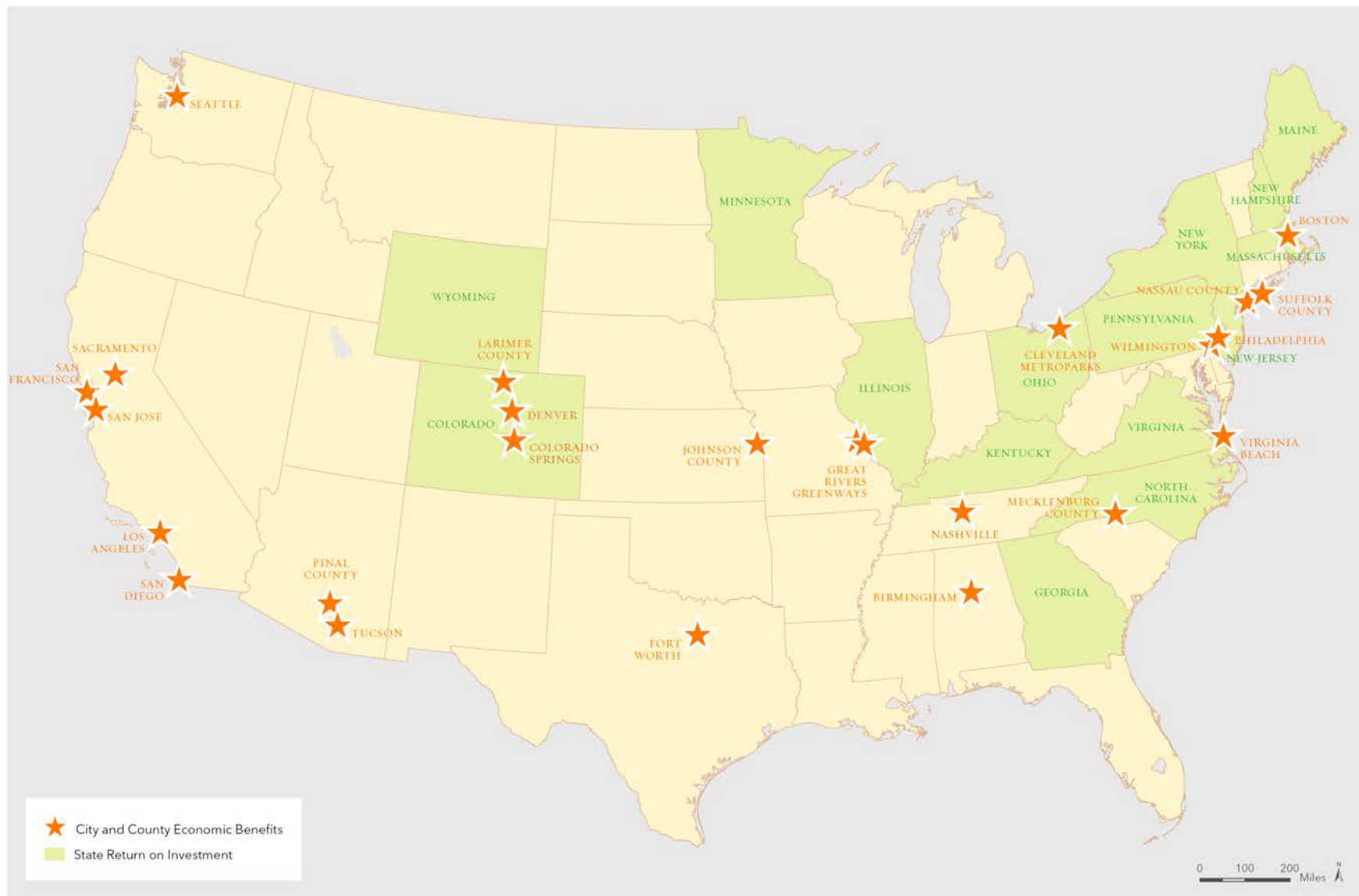
Identify the most important land for conservation

## PROTECT

Acquire and protect land

## CREATE

Create innovative parks



# Economic Benefits Studies in Cities, Counties, and States (2008-2015)

# Local Economic Benefits

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Photo: Eric Swanson

## Benefit categories

1. Enhanced property value
2. Reduced stormwater runoff
3. Air pollution removal by vegetation
4. Tourism
5. Recreational use by residents
6. Improved health of area residents
7. Economic development
8. Community cohesion



# 1. Enhanced Property Value

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Photo: Marin City Community Services District

- The market values of properties located near a park or trail are frequently higher than those of comparable properties located elsewhere.
- An increase in property values generally results in increased property tax revenues.

# 1. Enhanced Property Value



- Preserving open space generally increases neighboring home values, but the values vary.
- The magnitude of the impact has been shown to be up to 20% for parks and 14% for trails.
  - We use 5%
- Impact has been measured up to 2,000 feet from a park or trail
  - We use 500 feet



# 1. Enhanced Property Value

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Photo: Rich Reid

## Data requirements:

- GIS layers
  - City boundary
  - Parks and trails
  - All residential parcels
    - Market value
    - Assessed value
    - Property tax



# 1. Enhanced Property Value Studies

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- Great Rivers Greenway, St. Louis Region, Missouri
- San Jose, California
- Johnson County Parks & Recreation District, Kansas
- San Francisco, California
- Fort Worth, Lake Worth, and Lakeside, Texas
- Cleveland Metroparks, Ohio
- Larimer County, Colorado
- **Pinal County, Arizona**
- Seattle, Washington
- Virginia Beach, Virginia
- Long Island, New York
- Mecklenburg County, North Carolina
- Denver, Colorado
- Wilmington, Delaware
- San Diego, California
- Washington, D.C.
- Sacramento, California
- Philadelphia, Pennsylvania
- Boston, Massachusetts

# 1. Enhanced Property Value

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## Pinal County, Arizona

Market value of homes within 500 feet of parks	\$3.8 billion
Assumed average park premium	5%
Additional market value	\$190 million
Additional annual property tax revenue due to parks	\$2.72 million

## 2. Reduced Stormwater Runoff

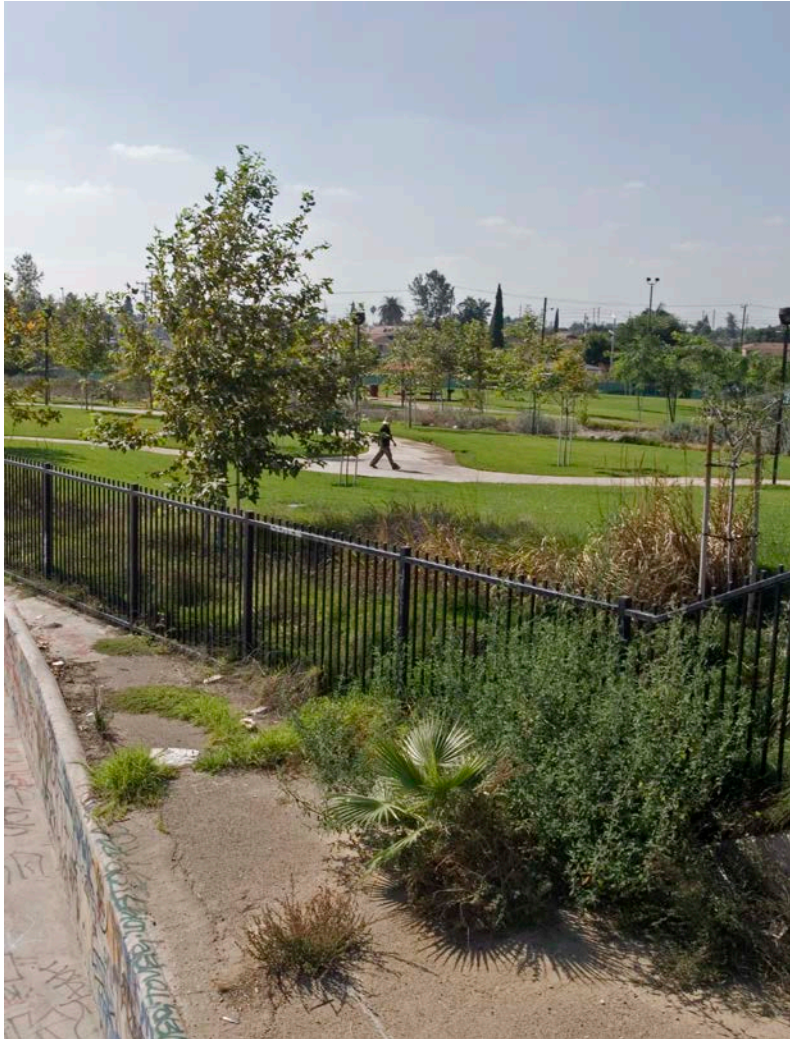
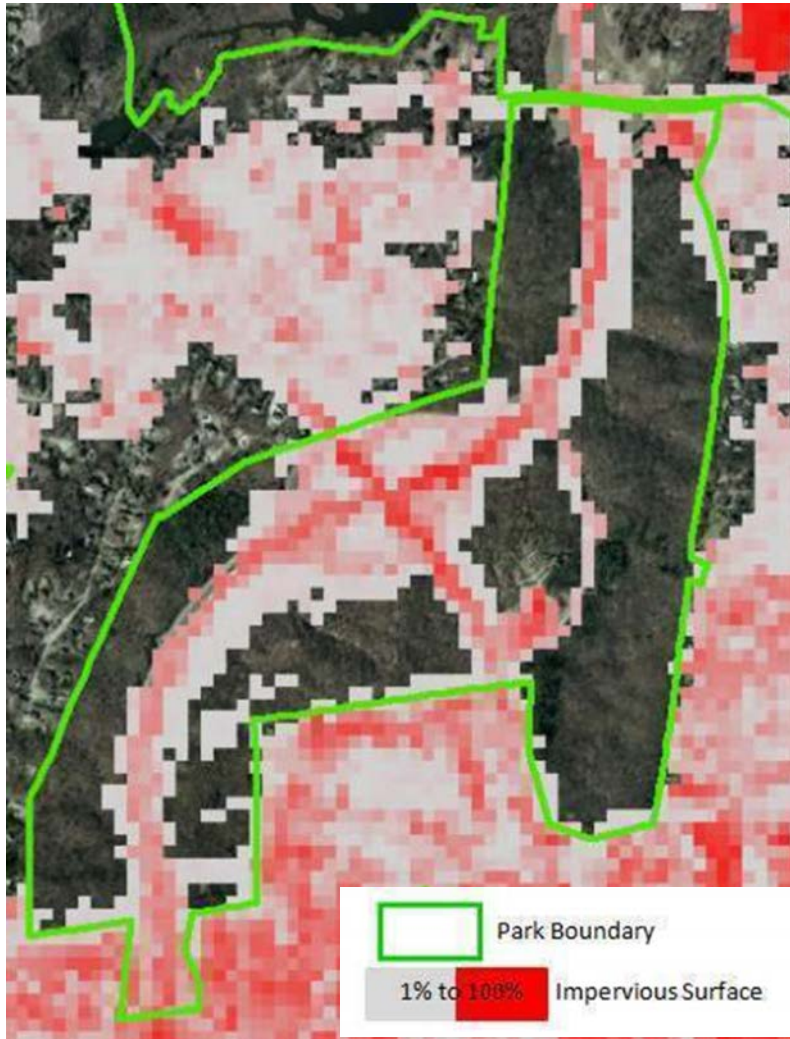


Photo: Rich Reid

- Parks and trails can reduce the costs of stormwater management by capturing precipitation and/or slowing its runoff.
  - University of California, Davis model calculates the volume of water retained by parks and trails.
    - Not publicly available
  - Estimate the cost of treating that volume of water.

## 2. Reduced Stormwater Runoff



### Data requirements:

- GIS layers
  - Parks and trails
  - Impervious surface
  - Land cover
- Cost of treatment per cubic foot



## 2. Reduced Stormwater Runoff Studies

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- San Jose, California
- **Johnson County Parks & Recreation District, Kansas**
- San Francisco, California
- Cleveland Metroparks, Ohio
- Seattle, Washington
- Virginia Beach, Virginia
- Long Island, New York
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## 2. Reduced Stormwater Runoff

### Johnson County Parks and Recreation District, Kansas

Acres of parks with pervious soil	16,200 acres	94%
Typical rainfall	34 inches	2.12 billion cubic feet
Runoff with parks	1.82 inches	113 million cubic feet
Runoff without parks	5.12 inches	319 million cubic feet
Runoff reduction from parks	3.30 inches	206 million cubic feet
Runoff reduction rate	-	64%
Cost of treating stormwater (\$ per cubic foot)	-	\$0.04
<b>Total savings from parks</b>	-	<b>\$8,940,000</b>

# 3. Air Pollution Removal by Vegetation

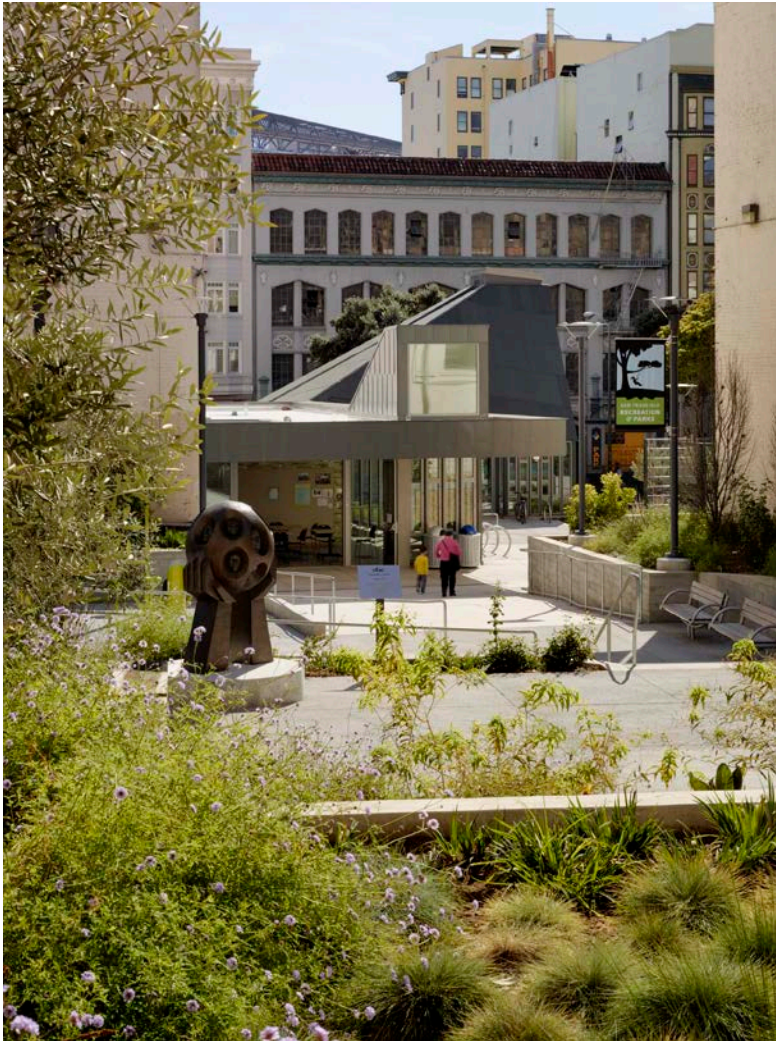


Photo: Matthew Millman

- Vegetation in parks and along trails improves air quality by removing air pollutants, including:
  - Carbon monoxide, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide
- Estimate the cost savings of pollutants not entering the atmosphere using the U.S. Forest Service models of pollution removal for urban trees.
  - Not publicly available

# 3. Air Pollution Removal by Vegetation



Data requirements:

- GIS layers
  - Parks and trails
  - Tree cover canopy



### 3. Air Pollution Removal Value Studies

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- San Jose, California
- Johnson County Parks & Recreation District, Kansas
- San Francisco, California
- **Cleveland Metroparks, Ohio**
- Seattle, Washington
- Virginia Beach, Virginia
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### 3. Air Pollution Removal by Vegetation

#### Cleveland Metroparks, Ohio

Pollutant Type	Tons Removed	Dollars Saved per Ton Removed	Pollutant Removal Value
Carbon monoxide	39.4	\$1,530	\$60,400
Nitrogen dioxide	227	\$10,800	\$2,460,000
Ozone	571	\$10,800	\$6,170,000
Particulate matter	720	\$7,210	\$5,190,000
Sulfur dioxide	215	\$2,640	\$570,000
<b>Total</b>	<b>1,770</b>	<b>-</b>	<b>\$14,400,000</b>

## 4. Tourism

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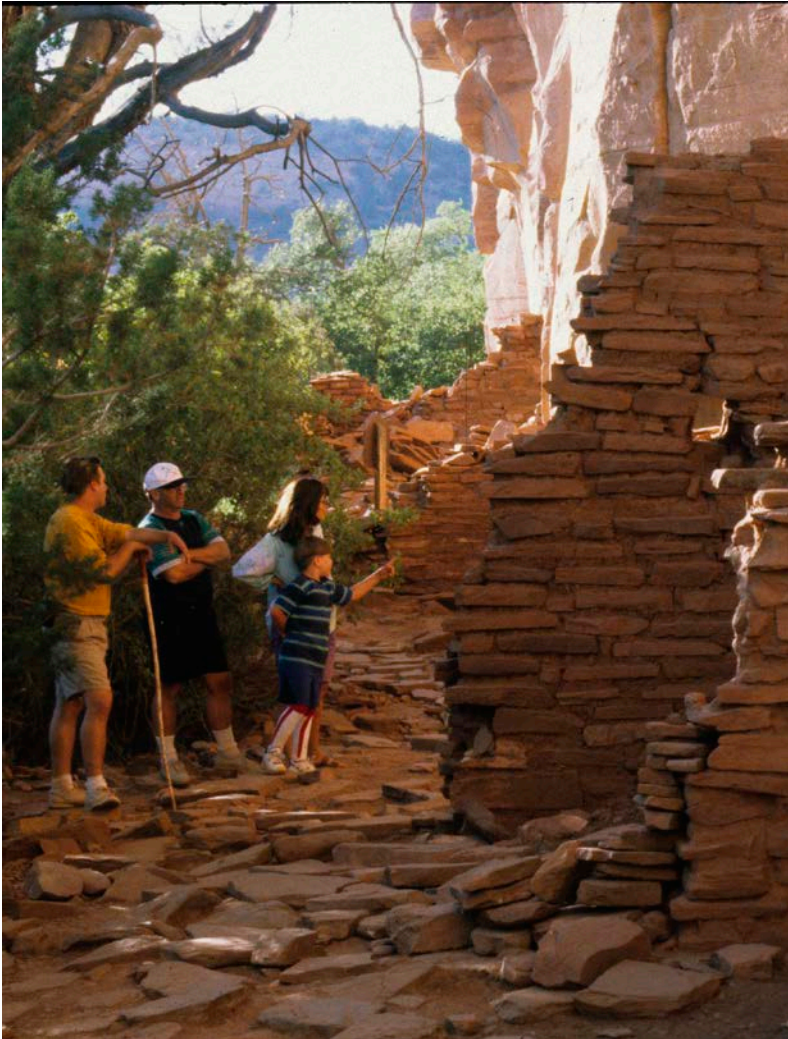


Photo: Dominic Oldershaw

- Parks, trails, and recreational facilities attract non-residents to the area.
- These visitors spend money in local communities.

## 4. Tourism



Photo: Don J. Usner

### Data requirements:

- Total visitor spending
- Proportion of visitors that come primarily for parks and trails



## 4. Tourism Value Studies

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- San Jose, California
- Johnson County Parks & Recreation District, Kansas
- San Francisco, California
- Cleveland Metroparks, Ohio
- Larimer County, Colorado
- Pinal County, Arizona
- Seattle, Washington
- Virginia Beach, Virginia
- Long Island, New York
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- Sacramento, California
- **San Diego, California**
- Philadelphia, Pennsylvania
- Boston, Massachusetts

## 4. Tourism

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### San Diego, California

	Overnight	Day	Total
Total visitors	16,100,000	11,900,000	<b>27,900,000</b>
Park visitors (20%)	3,210,000	2,370,000	<b>5,580,000</b>
Visited because of parks (26%)	835,000	522,000	<b>1,360,000</b>
Spending per day	\$107	\$48	-
Spending because of parks	\$89,300,000	\$25,100,000	<b>\$114,000,000</b>
Additional taxes (7.5% average)	\$6,700,000	\$1,880,000	<b>\$8,580,000</b>

## 5. Recreational Use by Residents

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Photo: Kevin Brown

- Value gained by residents from visiting the parks and trails and engaging in activities.
- Estimate using
  - Oregon State University's Recreation Use Values Database  
<http://recvaluation.forestry.oregonstate.edu/>
  - Market rates
- Supported by the U.S. Army Corps of Engineer's Unit Day Value method

<http://planning.usace.army.mil/toolbox/library/EGMs/EGM16-03.pdf>

# 5. Recreational Use by Residents

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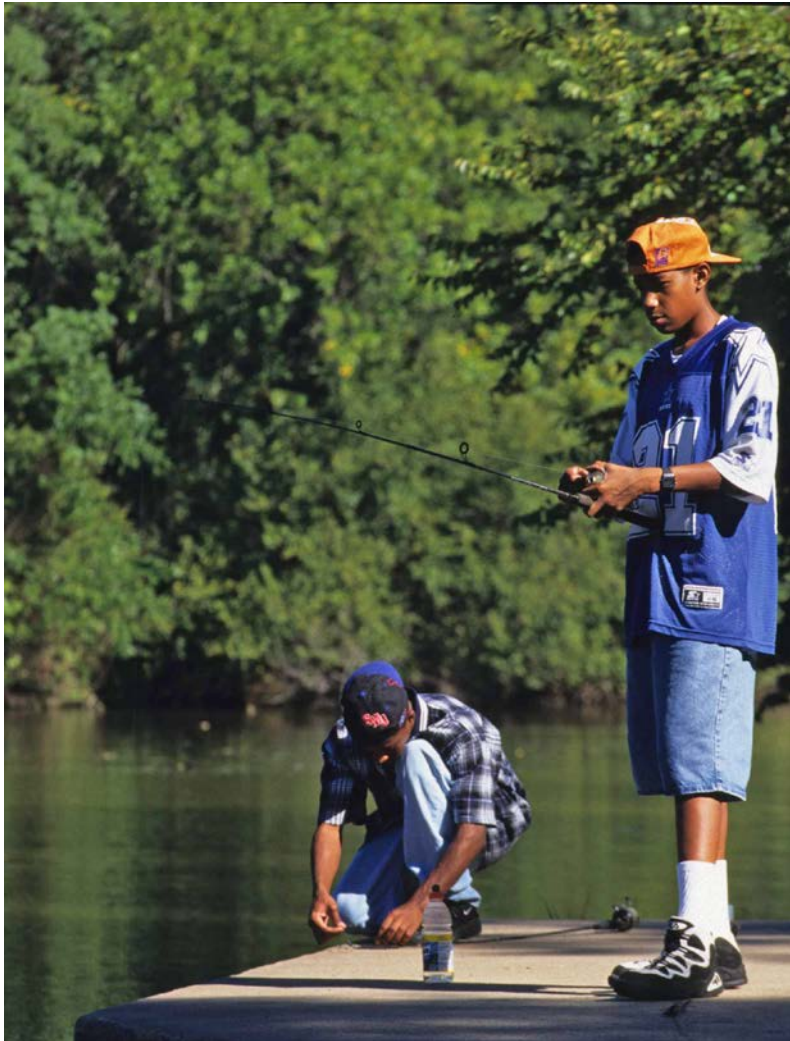


Photo: Eric Swanson

## Data requirements:

- Statistically-representative telephone survey of residents
  - Number of visits
  - Activities engaged in
- Park and recreation activity counts



# 5. Recreational Use Value Studies

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- San Jose, California
- Johnson County Parks & Recreation District, Kansas
- San Francisco, California
- **Fort Worth, Lake Worth, and Lakeside, Texas**
- Cleveland Metroparks, Ohio
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## 5. Recreational Use by Residents

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### Fort Worth, Lake Worth, and Lakeside, Texas

Activity	Visits	Average value per visit	Value
General park use	6,000,000	\$2.48	\$14,900,000
Special uses	230,000	\$5.22	\$1,200,000
<b>Total</b>	<b>6,230,000</b>	<b>\$2.58</b>	<b>\$16,100,000</b>

## 6. Improved Health of Area Residents

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Photo: Annie Bang

- When people have access to trails and parks they exercise more. Exercise reduces illness in people of all ages.
  - Estimate the medical cost savings based on CDC guidelines.
  - Annual health care cost savings for adults who exercise regularly: \$1,180 - \$2,360

## 6. Improved Health of Area Residents

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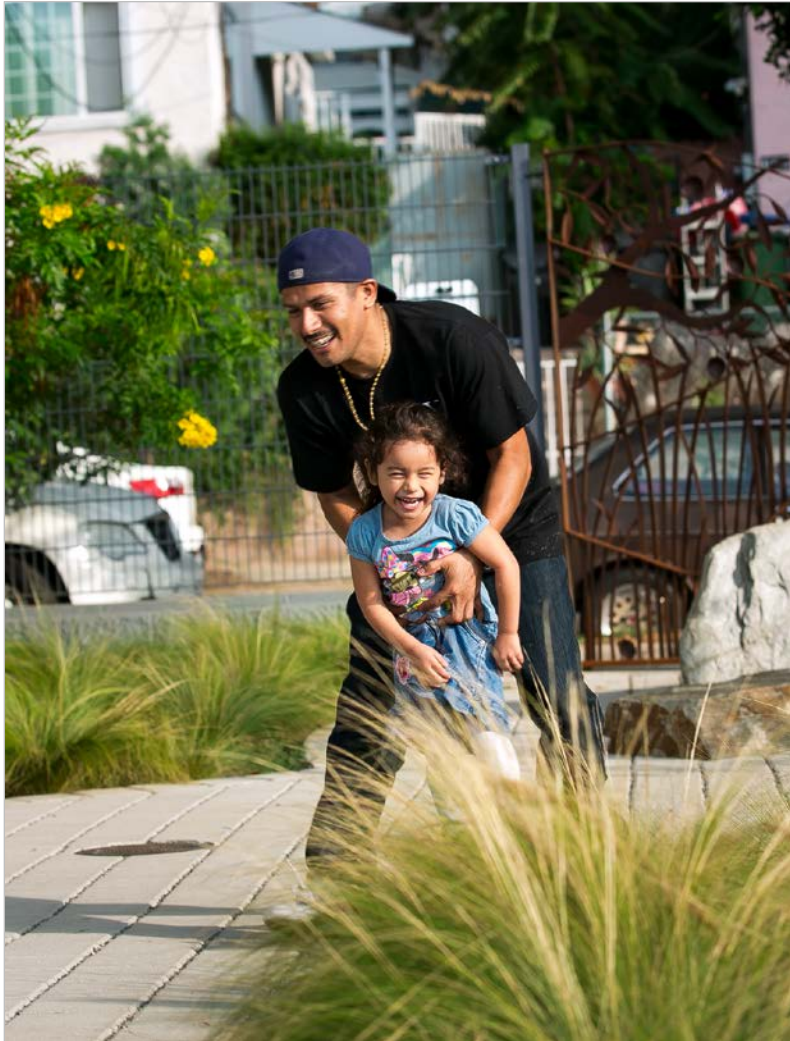


Photo: Annie Bang

### Data requirements:

- Statistically representative telephone survey of residents
  - Number of visits
  - Activities engaged in
  - Duration of activity



## 6. Improved Health Value Studies

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- **San Jose, California**
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## 6. Improved Health of Area Residents

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### San Jose, California

Category	Adults 18-64	Adults 65+	Total
Physically active in parks	22,500	1,570	<b>24,000</b>
Average annual medical cost difference active vs inactive	\$1,100	\$2,210	-
Health care benefits	\$24,800,000	\$3,470,000	<b>\$28,300,000</b>

# 7. Economic Development

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Photo: Don J. Usner

- Parks, trails, and recreational facilities make the area an attractive place to live and work.
- Skilled workers are attracted to places with open space, clean air and water, and recreation opportunities.
- Businesses are able to recruit the best workers.

# 7. Economic Development

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Photo: Matthew Millman

## Data requirements:

- Available information on quality of life in the city
  - Awards won
  - Business leader quotes
- GIS ESRI Business Analyst



# 7. Economic Development Value Studies

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- **Great Rivers Greenway, St. Louis Region, Missouri**
- San Jose, California
- Johnson County Parks & Recreation District, Kansas
- Cleveland Metroparks, Ohio
- Larimer County, Colorado

# 7. Economic Development

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## Great Rivers Greenway (City of St. Louis, St. Louis County, and St. Charles County), Missouri

Within 1.5 miles of the greenways	Number	Percent of overall
Population	773,000	46%
Bike related businesses	17	49%
Employees of bike related businesses	123	52%
Sales at bike related businesses	\$21.3 million	53%

## 8. Community Cohesion

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Photo: Terray Sylvester

- Parks are essential to building stronger, safer, and more successful communities.
- Parks offer opportunities for people of all ages to interact, grow, and learn.
- The acts of improving or renewing parks can build social capital.
- Local groups and organizations support parks and programming.

## 8. Community Cohesion

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Photo: City of San Jose, California

### Data requirements:

- Volunteer hours and financial contributions made to “friends of parks” groups, community park organizations, and nonprofits with park purposes
- Value of a volunteer hour assigned by Independent Sector

<https://www.volunteeringinamerica.gov/>



## 8. Community Cohesion Studies

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- San Jose, California
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## 8. Community Cohesion

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San Francisco, California	
Dollars donated	\$54,900,000
Hours of time donated (51 organizations)	442,000
Value of a volunteer hour, 2011	\$26.34
Value of time donated	\$11,700,000
<b>Total</b>	<b>\$66,600,000</b>

# Conclusions

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## **Parks are key economic drivers that contribute millions annually in economic benefits.**

1. Enhanced property value - \$190 million in additional market value
2. Reduced stormwater runoff - \$8.94 million in management cost savings
3. Air pollution removal by vegetation - \$14.4 million in pollutant removal value
4. Tourism - \$114 million in tourist spending
5. Recreational use by residents - \$16.1 million in use value
6. Improved health of area residents - \$28.3 million in medical care cost savings
7. Economic development - \$21.3 million in bike related sales
8. Community cohesion - \$66.6 million in donated time and contributions

# Additional Information

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## **The Trust for Public Land**

[www.tpl.org](http://www.tpl.org)

## **Reports Available:**

[www.tpl.org/conservation-economics](http://www.tpl.org/conservation-economics)

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