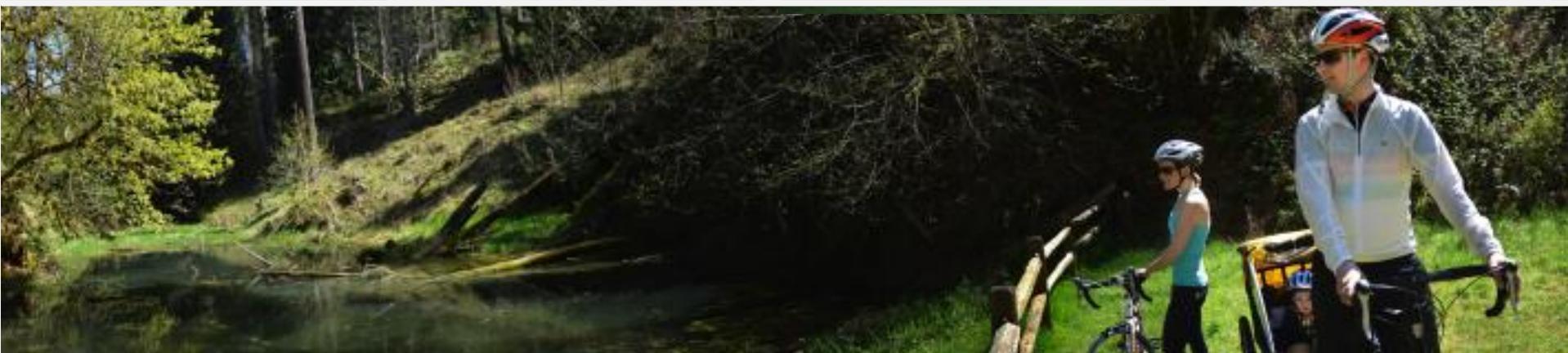
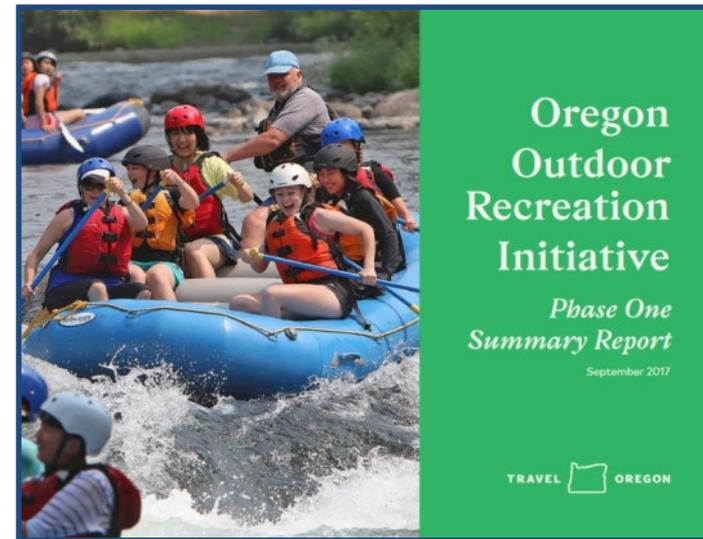
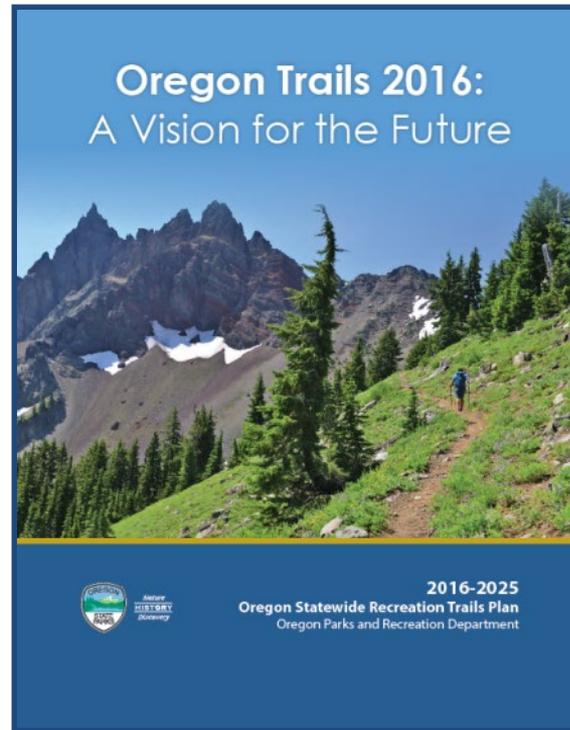
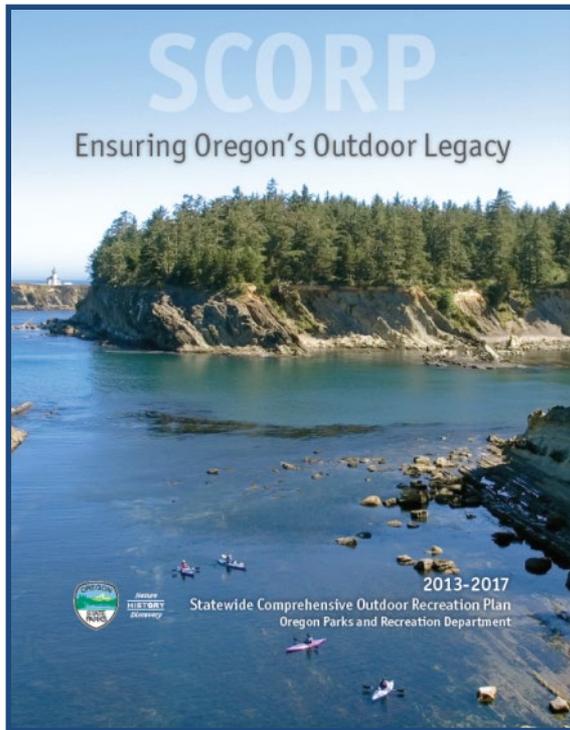


# Health Benefits and Funding for Close-to-Home Recreational Trails



2019 International Trails Symposium  
April 29, 2019

# Recent Statewide Planning efforts have identified a need for additional non-motorized trail funding in Oregon.



STATEWIDE COMPREHENSIVE OUTDOOR RECREATION PLAN

# Planning Recommendations

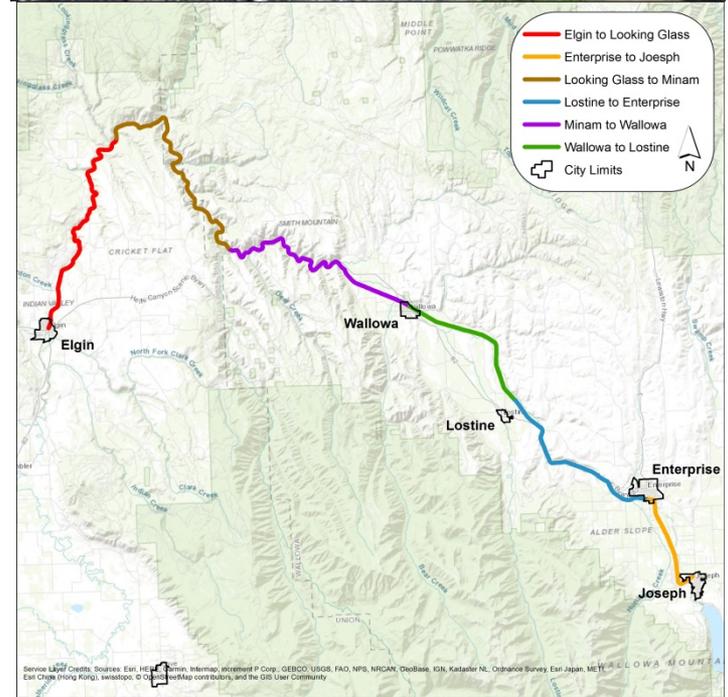
1. Connecting trails into larger trail systems
2. Need for improved trail maintenance & major rehab
3. Recognize and strengthen park and recreation's role in increasing physical activity in Oregon
4. Support the development and ongoing maintenance of priority Signature Trail systems



# Signature Trails

***Goal: To develop world-class trails to increase access to treasured landscapes for Oregonians and to support Oregon's growing population and growing outdoor recreation economy.***

***Example: Joseph Branch Rail Trail. A 63-mile shortline railroad connecting Elgin to Joseph, OR.***



# 2019-2023 SCORP Planning Components

## **An Oregon resident outdoor recreation survey: (Conducted by OPRD with technical assistance from Kreg Lindberg - OSU)**

- Oregonians of Spanish/ Hispanic/ Latino descent
- Oregonians of Asian descent (including South Asian and East/ Southeast Asian)
- Oregon's families with children
- Aging – Young (ages 60-74)
- Aging – Middle (ages 75-84)
- Low-income Oregonians (annual household income <\$25k)
- Oregon's urban, suburban, and rural populations.

### **Outdoor Recreation in Oregon**



A Study Conducted by:

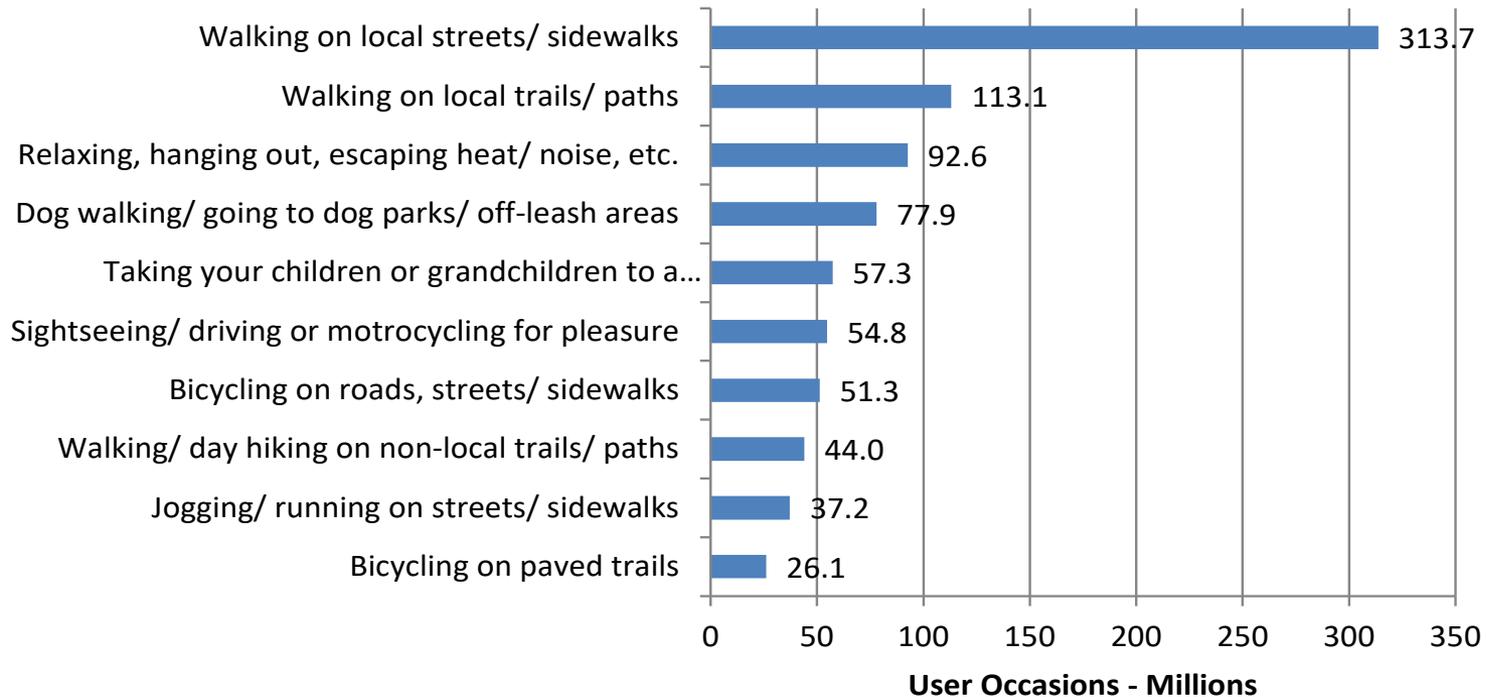


Oregon Parks and Recreation Department



**STATEWIDE COMPREHENSIVE OUTDOOR RECREATION PLAN**

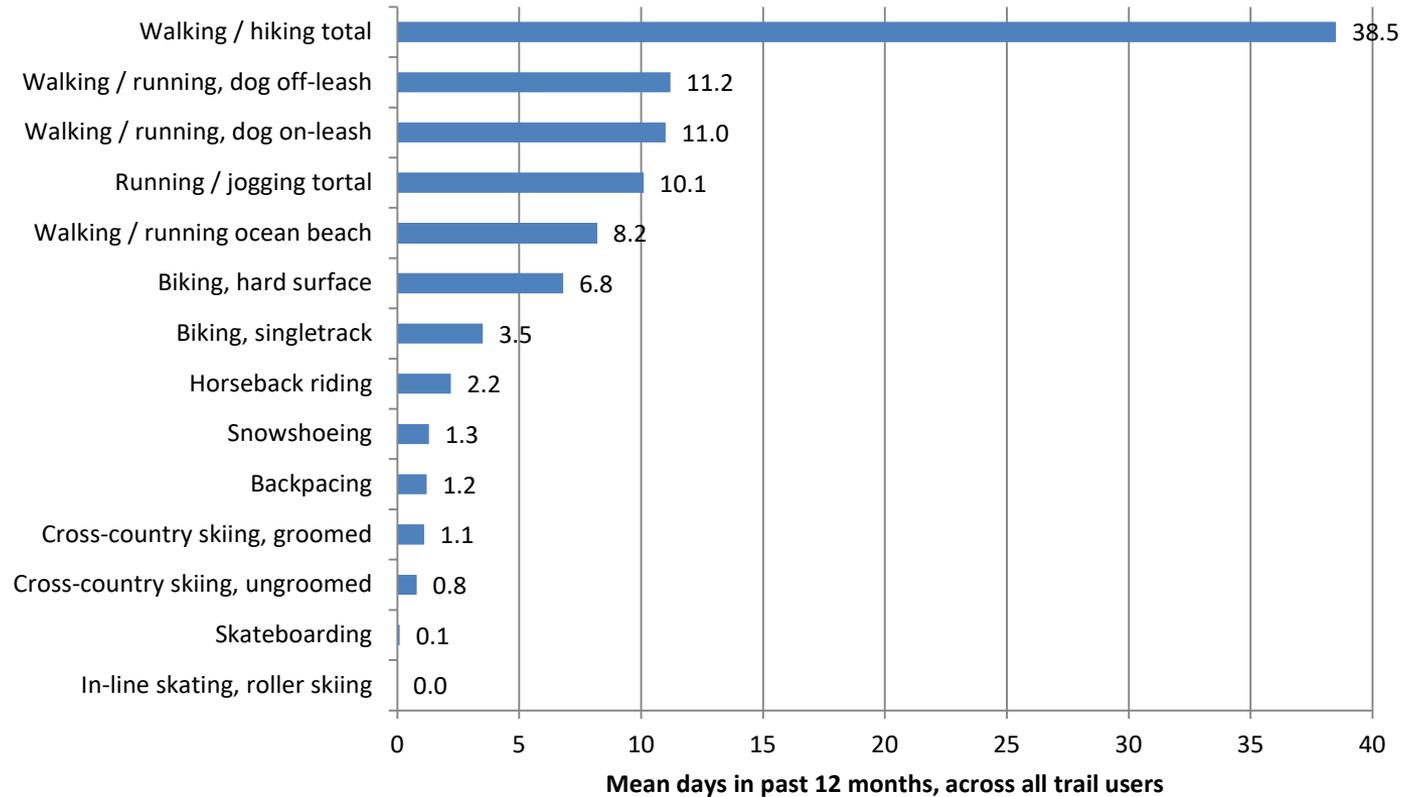
# Top ten activities for Oregon residents, 2017, user occasions



- The top outdoor recreation activities based on total user occasions for Oregonians in 2017 were dominated by a number of linear activities.



# Non-motorized trail participation by activity, 2015, frequency by activity



- Trails plan survey breakdown of relative non-motorized trail participation by activity type.



# In Your Community Actions, How Would Actions Effect Physical Activity, Oregon General Population, Mean for 3-Point Likert (1=no effect, 2=lead to small increase, 3=lead to large increase), Oregon Demographic Group

Actions	Demographic Group											
	General Population	Latino	Asian	Families with Children	Urban	Suburban	Rural	Low Income	Young Old	Middle Old	Male	Female
Walking trails or paths	<b>2.21</b>	<b>2.36</b>	<b>2.30</b>	<b>2.30</b>	<b>2.23</b>	<b>2.25</b>	<b>2.10</b>	<b>2.21</b>	<b>2.09</b>	<b>1.76</b>	<b>2.14</b>	<b>2.29</b>
More parks closer to where I live	<b>1.96</b>	<b>2.25</b>	<b>2.14</b>	<b>2.13</b>	<b>2.01</b>	<b>1.99</b>	<b>1.82</b>	<b>2.03</b>	<b>1.76</b>	1.50	<b>1.91</b>	<b>2.01</b>
Improved walking routes to parks	<b>1.93</b>	<b>2.20</b>	<b>2.07</b>	2.05	1.94	<b>1.98</b>	<b>1.77</b>	<b>1.95</b>	<b>1.77</b>	1.49	1.87	<b>1.99</b>
Bicycle trails or paths	1.90	2.00	1.92	<b>2.07</b>	<b>1.95</b>	1.94	1.73	1.87	1.65	1.29	<b>1.93</b>	1.87
Fitness classes (e.g., yoga, tai chi, pilates, zumba, cross-fit, water exercise)	1.72	1.99	1.78	1.78	1.76	1.74	1.63	1.77	1.62	1.37	1.55	1.89
Outdoor exercise equipment (e.g., elliptical trainer, stationary bike, rower)	1.60	1.97	1.81	1.76	1.62	1.64	1.48	1.68	1.39	1.21	1.53	1.66
Functional strength training (training the body for the activities performed in daily life)	1.56	1.90	1.69	1.59	1.58	1.58	1.47	1.69	1.50	1.39	1.52	1.60
Community gardens (where you can grow vegetables)	1.53	1.86	1.66	1.61	1.60	1.53	1.43	1.81	1.35	1.24	1.45	1.60
Adult sports leagues	1.49	1.75	1.58	1.66	1.50	1.51	1.43	1.52	1.24	1.12	1.49	1.48
Organized walks	1.48	1.80	1.64	1.53	1.48	1.49	1.46	1.65	1.42	1.34	1.37	1.59
Classes tailored to specific health concerns (e.g., heart disease, arthritis, diabetes or falls)	1.46	1.71	1.60	1.43	1.47	1.46	1.45	1.73	1.56	<b>1.56</b>	1.39	1.53
Adult dance classes	1.45	1.75	1.59	1.49	1.50	1.45	1.40	1.60	1.35	1.22	1.33	1.57
Provide accessibility for people with disabilities	1.40	1.71	1.50	1.39	1.43	1.38	1.43	1.85	1.44	1.48	1.37	1.44
Separate areas in parks for older adults to be with others their age	1.36	1.58	1.50	1.31	1.36	1.35	1.37	1.57	1.45	1.40	1.32	1.39
Senior activity centers	1.35	1.51	1.48	1.27	1.34	1.34	1.36	1.61	1.52	<b>1.59</b>	1.32	1.37
Provide seniors-only park areas	1.27	1.46	1.46	1.22	1.29	1.27	1.25	1.52	1.39	1.38	1.25	1.29

# Statewide SCORP Priorities

## Resident Outdoor Recreation Survey Results:

Close-To-Home Priorities	Dispersed-Area Priorities
Dirt/ other soft surface walking trails & paths	Dirt/ other soft surface walking trails & paths
More restrooms	Nature & wildlife viewing areas
Children's playgrounds & play areas made of natural materials (logs, water, sand, boulders, hills, trees)	More restrooms
Nature & wildlife viewing areas	Public access sites to waterways
Public access sites to waterways	More places & benches to observe nature & others



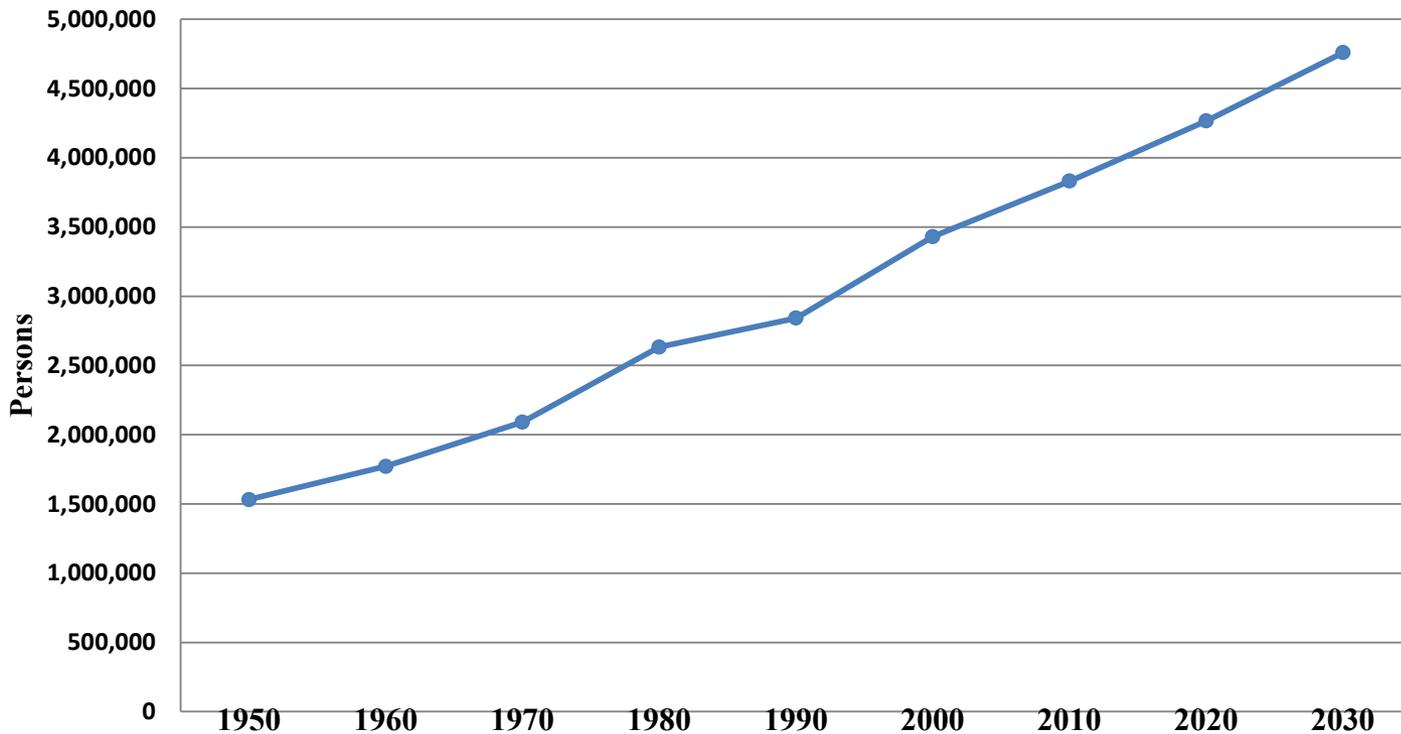
# Statewide SCORP Priorities

## Recreation Provider Survey Results:

Close-To-Home Priorities	Dispersed-Area Priorities
Community trail systems	Restrooms
Restrooms	RV/ trailer campgrounds & facilities
Children's playgrounds & play areas built with manufactured structures	Day-use hiking trails
Picnic areas & shelters for small visitor groups	Connecting trails into larger trail systems
Trails connected to public lands	Interpretive displays
Picnicking/ day-use facilities	



## Oregon Historic and Projected Population Change (1950-2030)



- **Trail funding need is compounded by continuing population growth.**

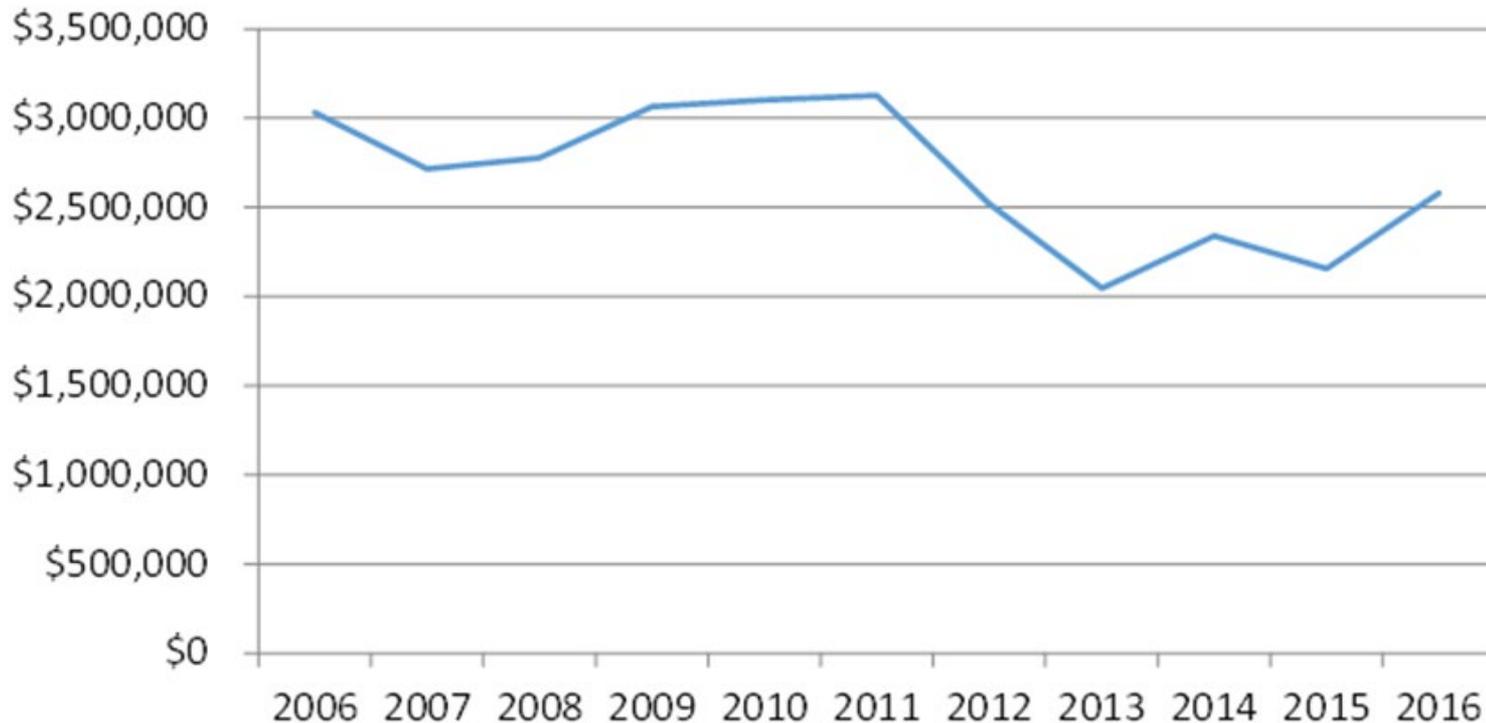


# USFS recreational trail maintenance by Fiscal Year, 2011-2016, Oregon

Fiscal Year	Total Trail Miles	Trail Miles Maintained	% of Total Trail Miles Maintained	Trail Miles Improved	% of Total Trail Miles Improved	Total Trail Miles Meeting Standard	% Trail Miles Meeting Standard
2011	10,896	4,057	37.2%	55.4	0.5%	1,928	17.7%
2012	11,395	4,398	38.6%	123.6	1.1%	1,593	14.0%
2014	11,089	4,323	39.0%	21.0	0.2%	1,891	17.1%
2015	10,334	4,919	47.6%	31.1	0.3%	1,836	17.8%
2016	11,320	5,301	46.8%	82.9	0.7%	2,789	24.6%

- In FY 2016 the USFS provides about 11,300 miles of recreational trails in Oregon.
- In FY 2016 approximately a quarter of these trail miles met current agency maintenance standards.

# USFS recreational trails budget by Fiscal Year, 2011-2016, Oregon



- **The FY 2016 annual trails budget of \$2.6 million was less than the \$3.1 million budget peak in FY 2011.**



# Estimated USFS recreational trail maintenance needs Fiscal Year 2016, Oregon

<b>Funding Category</b>	<b>Amount</b>
Deferred Maintenance	\$19,377,580
Annual Maintenance	\$4,150,456
Capital Improvements	\$12,618,432
Operations	\$1,475,220
<b>Total</b>	<b>\$37,621,688</b>

- Since the majority of USFS recreational trails in Oregon do not meet current maintenance standards, annual maintenance budgets fail to cover annual maintenance expenses, and deferred maintenance costs are approximately 7 ½ times the annual trail maintenance budget, the long-term sustainability of the Oregon USFS recreational trail system is on questionable footing.

# SCORP Advisory Subcommittee Recommendations:

- 1. Funding need for non-motorized trail development and major rehabilitation within Urban Growth Boundaries.**
- 2. Funding need for non-motorized trail ongoing maintenance and major rehabilitation in dispersed settings.**
- 3. Funding need for Signature Trail development and maintenance.**



# Nine Chapter Components:

- 1. Identifying the primary benefits of a new non-motorized trails fund for the state.**
- 2. Identifying the existing sources of funding for non-motorized trails.**
- 3. Identifying a total annual dollar estimate for the current level of need.**
- 4. Recommending a total annual dollar amount needed for a proposed dedicated non-motorized trails fund.**



# Nine Chapter Components:

5. Describing the objectives of a non-motorized trails fund.
6. Identifying the types of non-motorized projects to be funded and specific organizations/ agencies that would qualify for funding.
7. Identifying example funding sources.
8. Describing options for administering a new non-motorized trails fund.
9. Identifying implementation actions for moving forward with establishing a dedicated non-motorized trails fund for Oregon.



# **Oregon Outdoor Recreation Metrics: Health, Physical Activity, and Value**

## Part A

# Health Benefits Estimates for Oregonians from Their Outdoor Recreation Participation in Oregon

Oregon Outdoor Recreation Metrics: Health, Physical Activity, and Value

2019-2023 Oregon Statewide Comprehensive Outdoor Recreation Plan Supporting Documentation

**Randall S. Rosenberger & Tara Dunn**

# SCORP Activities Included

CDC recommended physical activity levels for health benefits:

- MET (metabolic equivalent task) = energy expended relative to a resting metabolic rate (MET = 1)
- 150 weekly minutes of moderately-intense activity (3.0-5.9 METs); or / or a mix of
- 75 weekly minutes of vigorously-intense activity ( $\geq 6.0$  METS); or
- MET < 1.5 considered 'sedentary'
- **30 SCORP activities** with MET  $\geq 3.0$



# Energy Expenditures

**503 billion kcal / year**

= 144 million pounds of body fat = 29.5 Olympic swimming pools)

Top three activities:

**Walking on local streets / sidewalks = 118 billion kcal**

**Walking on local trails / paths = 57 billion kcal**

**Jogging / running on streets / sidewalks = 42 billion kcal**

Total kcal = MET \* Annual Median Hours \* Mean Body Weight (kg) \* Annual User Occasions

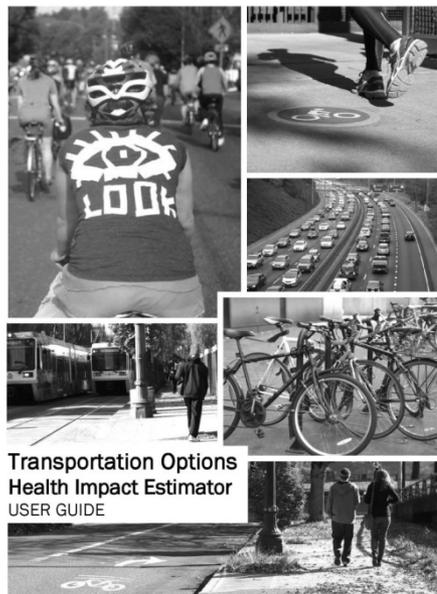
– Data sources: Ainsworth Compendium; 2017 SCORP Statewide Survey

# Health Benefits Estimation



## ITHIM: Integrated Transport & Health Impact Modeling

Neil Maizlish, PhD, MPH, Epidemiologist  
Berkeley, California ([neil3971@comcast.net](mailto:neil3971@comcast.net))



Transportation Options  
Health Impact Estimator  
USER GUIDE

A Tool for Estimating the Health Benefits from Outdoor Recreation in Oregon

by  
Tara Dunn

A THESIS

submitted to

Oregon State University

Honors College

in partial fulfillment of  
the requirements for the  
degree of

Honors Baccalaureate of Science in Natural Resources  
(Honors Associate)

Presented May 21, 2018  
Commencement June 2018

Oregon HIA Program  
June 2015  
[www.healthoregon.org/hia](http://www.healthoregon.org/hia)

# ITHIM Health Pathways, Diseases, and Injuries

## ■ Physical Activity

- Ischemic Heart Disease
- Hypertensive Heart Disease
- Stroke
- Diabetes
- Dementia (Alzheimer's Disease)
- Depression
- Colon Cancer
- Breast cancer



# Health Benefits

**\$1.42 billion year in Cost of Illness Savings**

Top three activities:

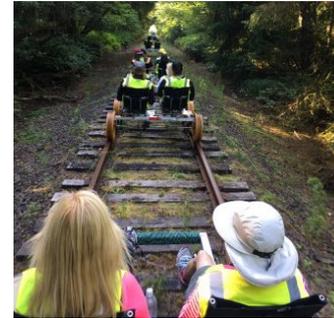
**Walking on local streets / sidewalks = \$630 million**

**Jogging / running on streets / sidewalks = \$146 million**

**Walking on local trails / paths = \$126 million**

17% of the estimated \$8.1 billion spent on chronic illnesses, or 4% of total health care expenditures in Oregon

# Conceptual Model



"What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?"

## Environment

- New trail system



## Behavior

- Increased walking / biking on trails



## Exposure

- Reduces relative risks of diseases



## Health Outcome

- Decrease in health care expenditures



# ITHIM Health Measures

- Disability Adjusted Life Years (DALYs)
  - ✓ Years Living with Disability + Years of Life Lost
  - ✓ Expresses deaths and illness for different diseases/injuries on a common scale
- Costs

## DALY

Disability Adjusted Life Year is a measure of overall disease burden, expressed as the cumulative number of years lost due to ill-health, disability or early death

$$= \text{YLD} + \text{YLL}$$

Years Lived with Disability + Years of Life Lost

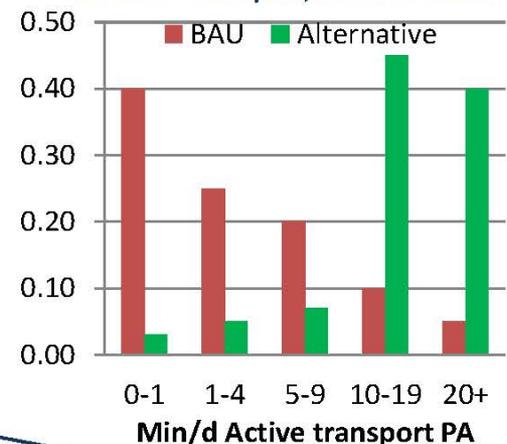


# Physical Activity: Simplified Example of How ITHIM Works

- Physical Activity (PA) and Ischemic Heart Disease

PA Level (min/d)	Disease Rate (x 10 <sup>-3</sup> )	RR	Exposure Distribution	
			BAU	Alternative
0-1	15*	1.00	0.40	0.03
1-4	9	0.60	0.25	0.05
5-9	7	0.47	0.20	0.07
10-19	4	0.27	0.10	0.45
20+	2	0.13	0.05	0.40
Approximate min/d/person PA			5	20
Exposure-weighted disease rate <sup>†</sup> x 10 <sup>-3</sup>			10.15	3.99
Exposure-weighted RR <sup>#</sup>			0.677	0.266

Population Proportions of Daily Minutes of Active Transport, BAU and Scenario



\* Reference rate for denominator of RR

† BAU (15\*0.4 + 9\*0.25 + 7\*0.2 ...) Alt:(15\*0.03 + 9\*0.05 + 7\*0.07...)

# BAU (1.0\*0.4 + 0.6\*0.25 + 0.47\*0.2...) Alt:(1.0\*0.03 + 0.6\*0.05 + 0.47\*0.07...)

$$PAF = \frac{\int_{x_{min}}^{x_{max}} RR(x)P(x)dx - \int_{x_{min}}^{x_{max}} RR(x)Q(x)dx}{\int_{x_{min}}^{x_{max}} RR(x)P(x)dx}$$

- Existing burden of heart disease = 31,854 DALYs

$$PAF = \frac{0.677_{baseline} - 0.266_{alternative}}{0.677_{baseline}} = \frac{10.15_{baseline} - 3.99_{alternative}}{10.15_{baseline}} = 0.607$$

- In ITHIM context, sign of PAF is negative

- $\Delta$  BD = BD × PAF = 31,854 DALYs × -0.607 = -19,332 DALYs

- Burden of Disease reduced (-19,332 DALYs)

- In practice, RRs come from a meta-analysis of the scientific literature

# Recreation Calibration Worksheet

Weekly minutes spent participating in each activity (Median Participant)														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Weekly minutes spent participating in each activity (Median Participant)													
2		Walking on local streets or sidewalks	Walking on local trails or paths	day hiking on non-local trails or path	Long-distance hiking (back packing)	Jogging or running on streets or sidewalks	Jogging or running on trails or paths		Bicycling on unpaved trails	Bicycling on paved trails	Bicycling on roads, streets or sidewalks	All-terrain vehicle riding (3 & 4 wheel ATVs,	Class III – Off-road motorcycli ng	Riding UTVs or side-by-side ATVs (non-
4	METS	3.5	3.5	3.5	7.0	7	7	3.8	5.8	3.5	3.5	4.0	4.0	4.
5		Minutes of Moderate Activity/W eek	Minutes of Moderate Activity/W eek	Minutes of Moderate Activity/W eek	Minutes of Vigorous Activity/W eek	Minutes of Vigorous Activity/W eek	Minutes of Vigorous Activity/W eek	Minutes of Moderate Activity/W eek	Minutes of Moderate Activity/W eek	Minutes of Moderate Activity/W eek	Minutes of Moderate Activity/W eek	Minutes of Moderate Activity/W eek	Minutes of Moderate Activity/W eek	Minutes of Moderate Activity/W eek
6	Rural	100.6849	34.52055	27.61644	27.61644	46.0274	23.0137	46.0274	23.0137	23.0137	34.52055	25.31507	46.0274	48.3287
7	Urban	161.6712	35.67123	24.16438	24.16438	57.53425	28.76712	9.205479	23.0137	23.0137	43.15068	20.71233	43.72603	16.1095
8														
9														
10	Lookup Matrix for % Participating													
11		Walking on local streets or sidewalks	Walking on local trails or paths	Walking / day hiking on non-local trails or	Long-distance hiking (back packing)	Jogging or running on streets or sidewalks	Jogging or running on trails or paths		Bicycling on unpaved trails	Bicycling on paved trails	Bicycling on roads, streets or sidewalks	Class I – All-terrain vehicle riding (3 & 4 wheel	Class III – Off-road motorcycli ng	Class IV – Riding UTVs or side-by-side ATVs
13	Rural	0.773	0.68	0.519	0.105	0.16	0.116	0.083	0.126	0.193	0.262	0.166	0.046	0.08
14	Urban	0.8495	0.7545	0.559	0.1435	0.3	0.242	0.0275	0.1565	0.3365	0.424	0.0615	0.03	0.026
<span>Cover sheet</span> <span>Instructions OR version</span> <span>Recreation Worksheet</span> <span>Outputs</span> <b>Recreation Calibration</b> <span>Inputs TO</span> <span>Health summary</span> <span>County Pops</span>														

# OR Estimator Inputs / Outputs

	A	B	C	D	E	F	G
1	<b>Inputs</b>				<b>Annual physical activity benefit per 30920 participants</b>		
2	Instructions: Fill in yellow cells on this worksheet (blue cells will be automatically filled)				More in depth outputs can be found on the Outputs page		
3	County (select)	Small Rural			Deaths	-2.838346183	
4	County Type	Rural			YLL	-18.17	
5	Current % of Total Population Participating	77%			YLD	-16.38	
6	County Population	40,000.00			DALYs	-34.55	
7	Current # Users	30,920.00			Value	<b>-\$1,555,341.28</b>	
8	Activity (select)	Walking on local streets or sidewalks					
9	MET Values For Activity	3.5					
10	Minutes of Moderate Activity/Week	100.6849315					
11	Desired Weekly Participation (weekly minutes per participant)	150					
12							

# OR Estimator Outputs

## Recreation Health Impact Estimator

### Outputs Page

#### Annual physical activity benefit per 30920 participants

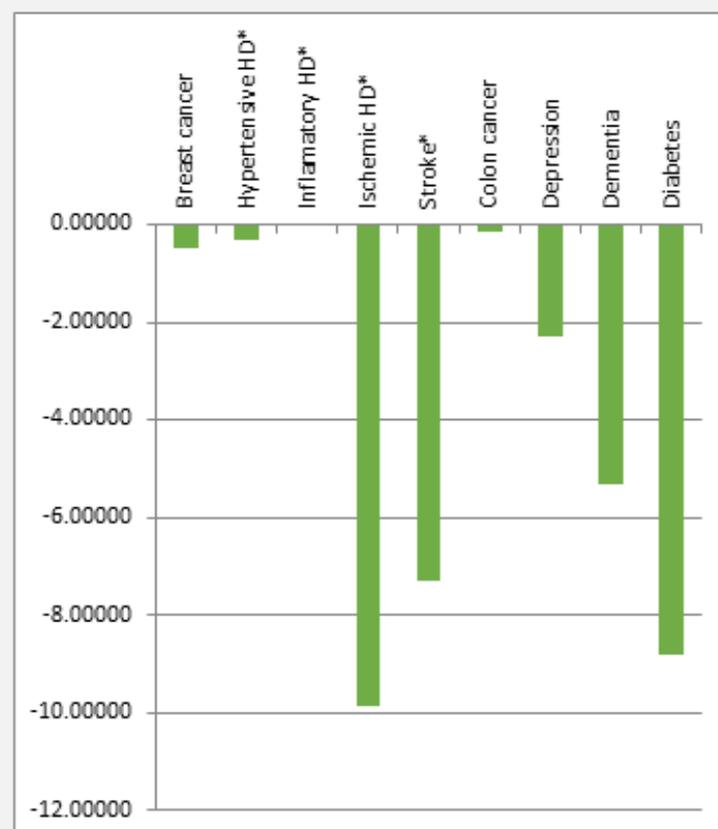
	YLL	YLD	DALYs (YLL+YLD)	Value	Deaths
Physical Activity	-18.17	-16.38	-34.55	-\$1,555,341.28	-2.8383

#### Health Outcomes by Disease

	YLL	YLD	DALYs (YLL+YLD)	Value	Deaths
Breast cancer	-0.36700	-0.13704	-0.50404	-\$64,948.74	0
Hypertensive HD*	-0.25359	-0.05753	-0.31112	-\$520,947.81	0
Inflammatory HD*	0.00000	0.00000	0.00000		0
Ischemic HD*	-7.99766	-1.87671	-9.87437		-1
Stroke*	-3.82166	-3.46318	-7.28484	-\$127,064.61	-1
Colon cancer	-0.13373	-0.02152	-0.15525	-\$18,552.85	0
Depression	-0.01318	-2.28350	-2.29667	-\$76,889.91	0
Dementia	-2.32781	-2.99158	-5.31939	-\$265,186.38	-1
Diabetes	-3.25357	-5.55067	-8.80424	-\$481,750.98	0
<b>TOTAL</b>	<b>-18.16820</b>	<b>-16.38172</b>	<b>-34.54992</b>	<b>-\$1,555,341.28</b>	<b>-3</b>

\*Cardiovascular diseases

DALYs



**Table 1. Energy Expenditures and Cost of Illness Savings from 2017 Outdoor Recreation Activity Participation in Oregon (2018 USD)**

Activity	Total Participants (million)	% Population Participating	User Occasions, Total Annual (million)	Energy Expended, Total Annual kCal (billion)	Energy Expended, Annual / Participant, kCal	Energy Expended, Per User Occasion, kCal	COI Savings, Total Annual (\$million)	COI Savings, Annual / Participant	COI Savings, Per User Occasion
<b>Non-motorized Trail Activities</b>									
Walking on local streets / sidewalks	2.716	83.2	312.726	117.893	43,406	377	\$385.405 - \$629.991	\$164.60 - \$231.95	\$1.43 - \$2.01
Walking on local trails / paths	2.416	74.0	113.083	57.497	23,801	508	\$71.602 - \$125.860	\$34.38 - \$52.10	\$0.73 - \$1.11
Walking / day hiking on non-local trails / paths	1.786	54.7	44.035	31.913	17,872	725	\$33.240 - \$45.556	\$21.59 - \$25.51	\$0.88 - \$1.03
Long-distance hiking (back packing)	0.431	13.2	4.915	15.992	37,111	3,254	\$5.670 - \$36.096	\$15.26 - \$83.77	\$1.34 - \$7.34
Jogging / running on streets / sidewalks	0.875	26.8	37.224	41.938	47,936	1,127	\$32.574 - \$145.605	\$43.19 - \$166.43	\$1.02 - \$3.91
Jogging / running on trails / paths	0.692	21.2	17.284	22.598	32,653	1,307	\$10.430 - \$64.721	\$17.48 - \$93.52	\$0.70 - \$3.74
Bicycling on unpaved trails	0.486	14.9	11.403	16.412	33,740	1,439	\$8.079 - \$26.983	\$19.27 - \$55.47	\$0.82 - \$2.37
Bicycling on paved trails	0.983	30.1	26.105	17.762	18,076	680	\$15.422 - \$15.840	\$15.69 - \$18.70	\$0.59 - \$0.70
Bicycling on roads, streets / sidewalks	1.254	38.4	51.251	32.086	25,596	626	\$47.311 - \$78.109	\$43.78 - \$62.31	\$1.07 - \$1.52
				<b>TOTAL OREGON kCAL (billion)</b>	<b>502.622</b>		<b>TOTAL OREGON COI SAVINGS (\$millions)</b>	<b>\$735.271 - \$1,415.872</b>	

## **Part B**

# **Total Net Economic Value from Residents' Outdoor Recreation Participation in Oregon**

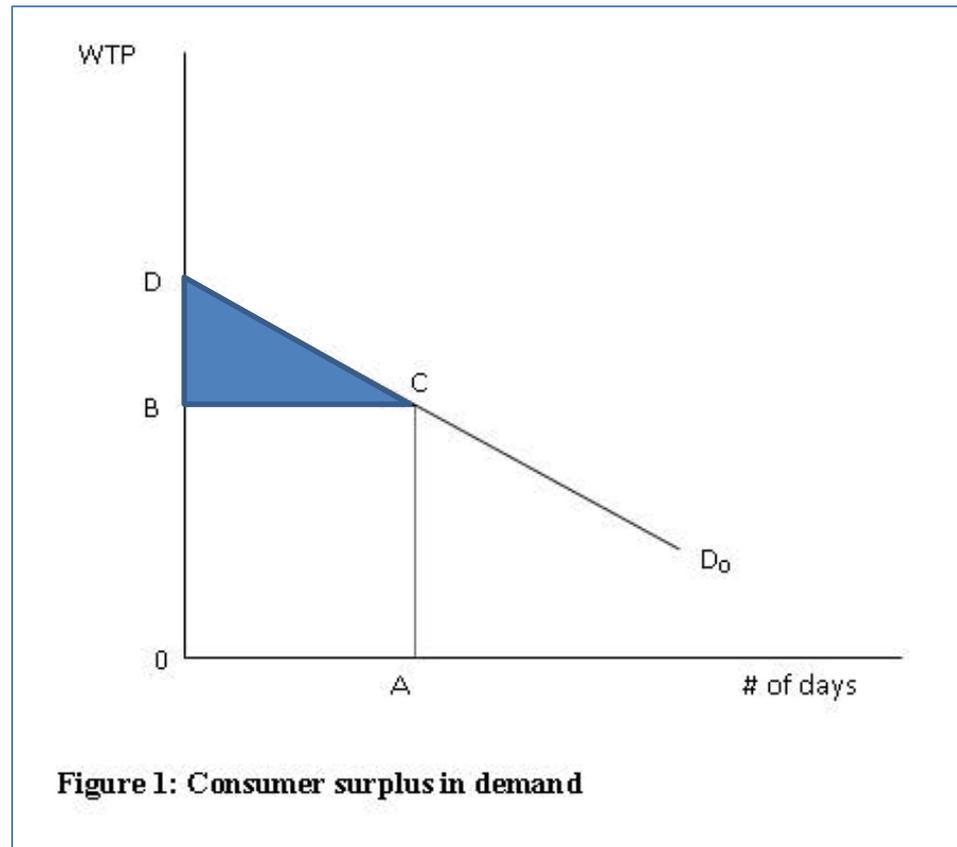
Oregon Outdoor Recreation Metrics: Health, Physical Activity, and Value

2019-2023 Oregon Statewide Comprehensive Outdoor Recreation Plan Supporting Documentation

**Randall S. Rosenberger**

# Total Net Economic Value

- Total value net of the costs of participation
  - Net Economic Value = Net Benefits = Net Willingness to Pay = Consumer Surplus



# Methods

Total Net Economic Value = \$/person/activity day \*  
#user occasions

- \$/person/activity day
  - Meta-regression analysis benefit transfer function
  - Developed using Recreation Use Values Database
  - Predicts \$/person/activity day for PNW region
- User occasions
  - 2017 SCORP Statewide Survey

# Recreation Use Values Database

- U.S. and Canada
- 1958-2015
- 421 documents
- 3,192 estimates of value
- 132 fields coded
- 42 recreation activity categories

## Benefit Transfer of Outdoor Recreation Use Values

RANDALL S. ROSENBERGER AND JOHN B. LOOMIS



*A Technical Document Supporting the Forest Service Strategic Plan (2000 Revision)*

U.S. DEPARTMENT OF AGRICULTURE FOREST SERVICE

USDA  
United States Department of Agriculture

## Recreation Economic Values for Estimating Outdoor Recreation Economic Benefits From the National Forest System

Randall S. Rosenberger, Eric M. White, Jeffrey D. Kline, and Claire Cvitanovich



U.S. FOREST SERVICE

Pacific Northwest Research Station

General Technical Report PNW-GTR-957

August 2017

recvaluation.forestry.oregonstate.edu

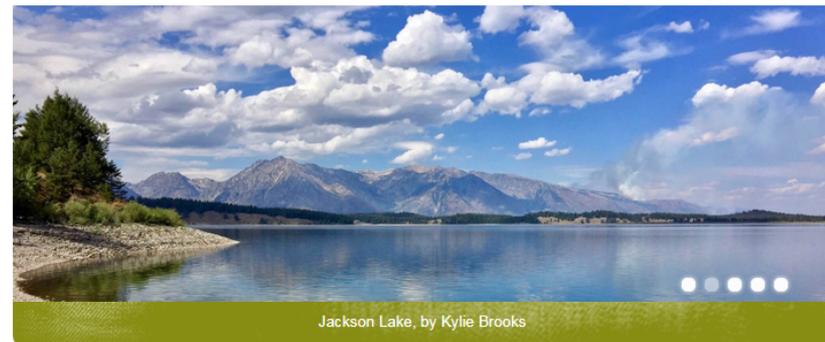
Google Maps Kayaking and Canoe Imported From IE OSU Homepage | College Rosenberger, Rand G



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## Recreation Use Values Database



Jackson Lake, by Kylie Brooks

Welcome to the 2016 updated Recreation Use Values Database (RUVD) for North America. What you will find here are links to the database, bibliography, and background information. If you have questions, comments and/or suggestions about the RUVD, would like assistance in using it for benefit transfer, or would like to submit documentation on North American studies not in it, please contact Dr. Randall Rosenberger ([R.Rosenberger@oregonstate.edu](mailto:R.Rosenberger@oregonstate.edu)).

We also are interested in how you apply benefit transfer for recreation valuation, so please submit documentation about your applications.

# Meta-Regression Models

Primary Research Study  $a$

Behavioral Measure  
(e.g., trips)

$$Y_a = \alpha_a + \sum_j \beta_{aj} x_{aj} + \varepsilon_a$$

$$WTP_{ak} = \beta_{ak} / \beta_{a5r}$$

Multiple studies

Policy, site, population

Methods

MRM

$$\begin{bmatrix} WTP_{1k} \\ WTP_{2k} \\ \dots \\ WTP_{Ak} \end{bmatrix} = \delta_k + \sum_m \gamma_{mk} \begin{bmatrix} z_{1mk} \\ z_{2mk} \\ \dots \\ z_{Amk} \end{bmatrix} + \sum_s \mu_{sk} \begin{bmatrix} w_{1sk} \\ w_{2sk} \\ \dots \\ w_{Ask} \end{bmatrix} + \varepsilon_k$$

# Benefit Transfer Meta-Regression Models

Benefit Function

$$W\hat{T}P_k = \hat{\delta}_k + \sum_m \hat{\gamma}_{mk} z_{mk} + \sum_s \hat{\mu}_{sk} \bar{w}_{sk}$$

Policy Site Data

$z$

Means or  
Selected Values

Predicted Welfare (Value) Estimate

**Table 1. User occasions, activity days, and total net economic value.**

SCORP Activity	RUVD Activity	2017 SCORP User Occasions (million)	Activity Days per User Occasion	2017 Activity Days (million)	MRA RUVD Value / Person / Activity Day (\$; 2018 USD)	Total Net Economic Value (\$million; 2018 USD)
<b>Non-motorized Trail Activities</b>						
Walking on local streets / sidewalks	Walking	312.726	0.993	310.586	\$14.47	\$4,493.226
Walking on local trails / paths	Walking	113.083	0.998	112.843	\$14.47	\$1,632.495
Walking / day hiking on non-local trails / paths	Hiking	44.035	1	44.035	\$87.66	\$3,860.354
Long-distance hiking (backpacking)	Backpacking	4.915	2.080	10.222	\$23.33	\$238.470
Jogging / running on streets / sidewalks	Jogging / running	37.224	1	37.224	\$69.29	\$2,579.240
Jogging / running on trails / paths	Jogging / running	17.284	1	17.284	\$69.29	\$1,197.586
Horseback riding	General other recreation	2.626	1	2.626	\$72.00	\$189.074
Bicycling on unpaved trails	Mountain biking	11.403	1	11.403	\$131.03	\$1,494.086
Bicycling on paved trails	Leisure biking	26.105	1	26.105	\$58.14	\$1,517.812
Bicycling on roads / streets / sidewalks	Leisure biking	51.251	0.996	51.061	\$58.14	\$2,968.863
<b>Sub-total - Non-motorized Trail Activities</b>		<b>620.651</b>	<b>---</b>	<b>623.390</b>	<b>---</b>	<b>\$20,171.206</b>
<b>Motorized Activities</b>						
Class I – All-terrain vehicle riding (3 & 4 wheel ATVs, straddle seat and handle bars)	Off-road vehicle driving	5.746	1	5.746	\$50.38	\$289.475
Class II – Off-road 4-wheel driving (jeeps / pick-ups / dune buggies / SUVs)	Off-road vehicle driving	8.895	1	8.895	\$50.38	\$448.157
Class III – Off-road motorecycling	Off-road vehicle driving	2.038	1	2.038	\$50.38	\$102.672

# Total Net Economic Value

SCORP Activity	Total Net Economic Value
Non-motorized Trail Activities	\$20.2 billion
Outdoor Leisure / Sporting Activities	\$11.8 billion
Nature Study Activities	\$10.8 billion
Non-motorized Water-based and Beach Activities	\$3.8 billion
Hunting and Fishing Activities	\$3.5 billion
Vehicle-based Camping Activities	\$1.8 billion
Motorized Activities	\$1.4 billion
Non-motorized Snow Activities	\$0.9 billion

**\$54.2 billion**

Figure 3. SCORP activity categories by total net economic value

Direct economic impacts from outdoor recreation spending in Oregon: \$12 billion - \$16 billion

SCORP Activity	Total Net Economic Value
Walking on local streets / sidewalks	\$4.5 billion
Walking / day hiking on non-local trails / paths	\$3.9 billion
Other nature / wildlife / forest / wildflower observation	\$3.5 billion
Sightseeing / driving or motorcycling for pleasure	\$3.1 billion
Relaxing / hanging out / escaping heat / noise, etc.	\$3.0 billion
Bicycling on roads / streets / sidewalks	\$3.0 billion
Jogging / running on streets / sidewalks	\$2.6 billion
Bird watching	\$2.4 billion
Fishing	\$2.2 billion
Beach activities - ocean	\$2.0 billion

Figure 2. Top ten SCORP activities by total net economic value

# Trails Funding Needs & Sources

# Determining a total dollar estimate for the current level of need.

## **Within UGB Data Collection:**

- Planned need for non-motorized trails and trail facilities.
- Major rehabilitation of non-motorized trails and trail facilities.

## **Outside UGB Data Collection:**

- Maintenance backlog for non-motorized trails and trail facilities.
- Major rehabilitation of non-motorized trails and trail facilities.



# Need For Non-motorized Trail Funding

## **Within UGB Data Collection:**

- Of the 300 providers contacted, 110 completed and returned forms.
- The 110 completions include the majority of providers with recreation departments and staff across the state.



# Close-to-home trail development need data collection

<b>Non-motorized Trail Corridor Facilities</b>		
Asphalt Trail	Linear miles (rounded to nearest 1/10th mile)	Trail width in feet
Concrete Trail	Linear miles (rounded to nearest 1/10th mile)	Trail width in feet
Natural/ Native Surface Trail (dirt, gravel, or rock)	Linear miles (rounded to nearest 1/10th mile)	Trail width in feet
<b>Non-motorized Trail Corridor Support Facilities</b>		
Boardwalk- Wood	Linear miles (rounded to nearest 1/10th mile)	Width in feet
Boardwalk- Fiberglass	Linear miles (rounded to nearest 1/10th mile)	Width in feet
Boardwalk- Composite	Linear miles (rounded to nearest 1/10th mile)	Width in feet
Trail Bridge- Steel	Length in feet	Width in feet
Trail Bridge- Wood	Length in feet	Width in feet
Trail Bridge- Fiberglass	Length in feet	Width in feet
Trail Bridge- Concrete	Length in feet	Width in feet
Culvert (minimum 18" diameter)	Length in feet	Diameter in inches
Restroom building	Type -Vault	Number of stalls
Restroom building	Type- Flush	Number of stalls
Asphalt parking	Number of spaces	
Concrete parking	Number of spaces	
Gravel parking	Number of spaces	
Asphalt trailhead access road	Linear miles (rounded to nearest 1/10th mile)	
Concrete trailhead access road	Linear miles (rounded to nearest 1/10th mile)	
Gravel trailhead access road	Linear miles (rounded to nearest 1/10th mile)	
<b>Non-motorized Trail Corridor Land/ Easement Purchase</b>		
Land purchase: Total land purchase need for all planned trail development projects in trail miles.		
Land purchase trail miles (rounded to nearest 1/10 mile)		
Easement purchase: Total easement purchase need for all planned trail development projects in trail miles.		
Easement purchase trail miles (rounded to nearest 1/10 mile)		
Estimate of land and easement purchase costs (at estimated current market value) for the land and easement purchase need reported above.		

# Close-to-home trail major rehabilitation need data collection

<b>Non-motorized Trail Corridor Facilities</b>		
Asphalt Trail	Linear miles (rounded to nearest 1/10th mile)	Trail width in feet
Concrete Trail	Linear miles (rounded to nearest 1/10th mile)	Trail width in feet
Natural/ Native Surface Trail (dirt, gravel, or rock)	Linear miles (rounded to nearest 1/10th mile)	Trail width in feet
<b>Non-motorized Trail Corridor Support Facilities</b>		
Boardwalk- Wood	Linear miles (rounded to nearest 1/10th mile)	Width in feet
Boardwalk- Fiberglass	Linear miles (rounded to nearest 1/10th mile)	Width in feet
Boardwalk- Composite	Linear miles (rounded to nearest 1/10th mile)	Width in feet
Trail Bridge- Steel	Length in feet	Width in feet
Trail Bridge- Wood	Length in feet	Width in feet
Trail Bridge- Fiberglass	Length in feet	Width in feet
Trail Bridge- Concrete	Length in feet	Width in feet
Culvert (minimum 18" diameter)	Length in feet	Diameter in inches
Restroom building	Type -Vault	Number of stalls
Restroom building	Type- Flush	Number of stalls
Asphalt parking	Number of spaces	
Concrete parking	Number of spaces	
Gravel parking	Number of spaces	
Asphalt trailhead access road	Linear miles (rounded to nearest 1/10th mile)	
Concrete trailhead access road	Linear miles (rounded to nearest 1/10th mile)	
Gravel trailhead access road	Linear miles (rounded to nearest 1/10th mile)	

# Data collection materials – Planned Need Reporting Forms

## SCORP Non-Motorized Trail Planned Need Reporting Form

<b>Contact Information</b>	<b>Provider Name:</b> Bend Park and Recreation District
	<b>Reporters name:</b> Laura Underhill
	<b>Phone:</b> 541-706-6155
	<b>Email:</b> laurau@bendparksandrec.org

Non-Motorized Trail Corridor Facility		
Facility Type	Length Measure (linear miles - round to nearest 1/10 mile)	Width Measure (actual trail width in feet)
Asphalt Trail	2.2	10'
Concrete Trail	1.32972	10'
Natural/Native Surface Trail	69.77	varies

Non-Motorized Trail Corridor Support Facility				
Facility Type	Number (planned/needed)	Length Measure (in miles - round to nearest 1/10 mile)	Width Measure (in feet)	Material Type
Board Walk				Choose an item.
Board Walk				Choose an item.
Board Walk				Choose an item.
Board Walk				Choose an item.

Non-Motorized Trail Corridor Support Facility				
Facility Type	Number (planned/needed)	Length Measure (in feet)	Width Measure (in feet)	Material Type
Trail Bridge	1	300	12	Steel
Trail Bridge	1	85	10	Steel
Trail Bridge	1	160	10	Steel
Trail Bridge				Choose an item.

## Non-Motorized Trail Planned Need Reporting Form (cont.)

Non-Motorized Trail Corridor Support Facility			
Facility Type	Number (planned/needed)	Length Measure (in feet)	Diameter Measure (in inches)
Culvert (minimum 18" diameter)	0		
Culvert (minimum 18" diameter)			
Culvert (minimum 18" diameter)			
Culvert (minimum 18" diameter)			

Non-Motorized Trail Corridor Support Facility	
Facility Type	Number (planned/needed)
Gravel Parking (parking spaces)	6 planned - 20 spaces
Asphalt Parking (parking spaces)	1 planned - 20 spaces
Choose an item.	

Non-Motorized Trail Corridor Facility			
Facility Type	Number of Buildings (planned/needed)	Type	Number of Stalls
Restroom Building	0	Choose an item.	
Restroom Building		Choose an item.	
Restroom Building		Choose an item.	
Restroom Building		Choose an item.	

## Non-Motorized Trail Planned Need Reporting Form (cont.)

Non-motorized Trail Corridor Land/Easement Purchase	
Estimate current land acquisition/ easement cost (at current market value) for planned/ needed non-motorized trail development.	
	Miles (round to nearest 1/10 mile)
<b>Land Purchase</b> - Report your agency's total land purchase need for all planned trail development in trail miles. Do not include land you already own.	7
<b>Easement Purchase</b> - Report your agency's total easement purchase need for all planned trail development projects in trail miles. Do not include easements you already own.	70
<b>Estimated Cost</b> - Estimate land and easement purchase costs (at estimated current market value) for the land and easement purchase need reported above.	
<b>Total cost of all Land and Easement Purchase Needs:</b>	\$854,400
This total cost estimate is based on (place an X in the box next to all that apply)	
<input type="checkbox"/>	Recent trail corridor acquisition costs
<input type="checkbox"/>	County assessor estimates
<input type="checkbox"/>	Appraisal
<input checked="" type="checkbox"/>	Educated guess - based on trail price values and the fact we use extraction rather than purchase for development.
Finally, if additional grant funding was available for non-motorized trail development projects in Oregon, would your agency/ organization apply for such funding in the next 10 years (assuming no match required)? Please mark an X in either the yes or no box below:	
<input checked="" type="checkbox"/>	Yes, our agency/ organization would apply for such grant funding.
<input type="checkbox"/>	No, our agency/ organization would not apply for such grant funding.

When completed, email this document to Terry Bergerson: terry.bergerson@oregon.gov



# Data collection materials – Major Rehabilitation Reporting Forms

## SCORP Non-Motorized Trail Major Rehabilitation Reporting Form

<b>Contact Information</b>	<b>Provider Name:</b> Bend Park and Recreation District
	<b>Reporters Name:</b> Jeff Amaral
	<b>Phone:</b> 541-706-6202
	<b>Email:</b> JeffA@bendparksandrec.org

Facility Type	Length Measure (linear miles needing major rehab - round to nearest 1/10 mile)	Width Measure (actual trail width in feet)
Asphalt Trail	.3	6
Asphalt Trail	1.7	15
Natural/Native Surface Trail	.5	4

Facility Type	Number (needing major rehab)	Length Measure (in miles - round to nearest 1/10 mile)	Width Measure (in feet)	Material Type
Board Walk	1	.1	4	Wood
Board Walk				Choose an item
Board Walk				Choose an item
Board Walk				Choose an item

Facility Type	Number (needing major rehab)	Length Measure (in feet)	Width Measure (in feet)	Material Type
Trail Bridges	1	15	4	Wood
Trail Bridges	1	20	4	Wood
Trail Bridges				Choose an item
Trail Bridges				Choose an item

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## SCORP Non-Motorized Trail Major Rehabilitation Reporting Form (cont.)

Facility Type	Number (needing major rehab)	Length Measure (in feet)	Diameter Measure (in inches)
Culvert (minimum 18" diameter)			
Culvert (minimum 18" diameter)			
Culvert (minimum 18" diameter)			
Culvert (minimum 18" diameter)			

Facility Type	Number (needing major rehab)
Asphalt Parking (parking spaces)	3
Choose an item	

Facility Type	Number of Buildings (needing major rehab)	Type	Number of Stalls
Restroom Building		Choose an item	
Restroom Building		Choose an item	
Restroom Building		Choose an item	
Restroom Building		Choose an item	

Finally, if additional grant funding was available for non-motorized trail major rehabilitation projects in Oregon, would your agency/ organization apply for such funding in the next 10 years (assuming no match required)? Please mark an X in either the yes or no box below.

<input checked="" type="checkbox"/>	Yes, our agency/ organization would apply for such grant funding
<input type="checkbox"/>	No, our agency/ organization would not apply for such grant funding

When completed, email this document to Terry Bergerson: terry.bergerson@oregon.gov

# Need For Non-motorized Trail Funding

## Dispersed-Setting Data Collection:

- Of the 44 providers contacted, 7 Counties, 3 Federal Agencies, and 2 State Agencies completed and returned forms.
- Trail systems reported by respondents include the majority of dispersed-setting non-motorized trails in the state.



# Dispersed-setting deferred maintenance and major rehabilitation need data collection

Non-motorized Trail Corridor Facilities			Condition Assessment		
Asphalt/Concrete Trail	Linear miles (rounded to nearest 1/10th mile)	Trail width in feet	% well maintained	% not maintained	% in need of major rehab
Compacted Gravel Trail	Linear miles (rounded to nearest 1/10th mile)	Trail width in feet	% well maintained	% not maintained	% in need of major rehab
Native Soil Trail	Linear miles (rounded to nearest 1/10th mile)	Trail width in feet	% well maintained	% not maintained	% in need of major rehab
Non-motorized Trail Corridor Support Facilities			Condition Assessment		
Boardwalk- Wood	Linear miles (rounded to nearest 1/10th mile)	Width in feet	% well maintained	% not maintained	% in need of major rehab
Boardwalk- Fiberglass	Linear miles (rounded to nearest 1/10th mile)	Width in feet	% well maintained	% not maintained	% in need of major rehab
Boardwalk- Composite	Linear miles (rounded to nearest 1/10th mile)	Width in feet	% well maintained	% not maintained	% in need of major rehab
Trail Bridge- Steel	Length in feet	Width in feet	% well maintained	% not maintained	% in need of major rehab
Trail Bridge- Wood	Length in feet	Width in feet	% well maintained	% not maintained	% in need of major rehab
Trail Bridge- Fiberglass	Length in feet	Width in feet	% well maintained	% not maintained	% in need of major rehab
Trail Bridge- Concrete	Length in feet	Width in feet	% well maintained	% not maintained	% in need of major rehab
Culvert (minimum 18" diameter)	Length in feet	Diameter in inches	% well maintained	% not maintained	% in need of major rehab
Restroom building	Type -Vault	Number of stalls	% well maintained	% not maintained	% in need of major rehab
Restroom building	Type- Flush	Number of stalls	% well maintained	% not maintained	% in need of major rehab
Asphalt parking	Number of spaces	Number of stalls	% well maintained	% not maintained	% in need of major rehab
Concrete parking	Number of spaces	Number of stalls	% well maintained	% not maintained	% in need of major rehab
Gravel parking	Number of spaces	Number of stalls	% well maintained	% not maintained	% in need of major rehab
Asphalt trailhead access road	Linear miles (rounded to nearest 1/10th mile)	Number of stalls	% well maintained	% not maintained	% in need of major rehab
Concrete trailhead access road	Linear miles (rounded to nearest 1/10th mile)	Number of stalls	% well maintained	% not maintained	% in need of major rehab
Gravel trailhead access road	Linear miles (rounded to nearest 1/10th mile)	Number of stalls	% well maintained	% not maintained	% in need of major rehab

# Converting reported facilities to dollars



TRAIL DEVELOPMENT COST GUIDE FOR OREGON PARKS AND RECREATION DEPARTMENTS SCORP PROJECT  
ESTIMATE OF PROBABLE COST

1st Edition (Q4 - 2018)  
Cost provided by DCW Cost Management

Item	Length	Width	Direct Construction Cost	Construction Cost incl. Mark ups	Total w. Design, Permitting, Etc.	Notes
			<b>40.0%</b>		<b>34.6%</b>	
<b>Trail Network - New Construction</b>						
	Length (Mile)	Width (LF)				
1 Asphalt trail (mile)	1.00	5	145,884.44	204,238.22	\$ 274,904.65	
2 Concrete trail (mile)	1.00	5	277,884.44	389,038.22	\$ 523,645.45	
3 Gravel trail (mile)	1.00	5	74,311.11	104,035.56	\$ 140,031.86	
4 Native surface trail (mile)	1.00	5	34,320.00	48,048.00	\$ 64,672.61	
<b>Subtotal Trail system</b>					<b>\$ 1,003,254.56</b>	
<b>Boardwalk - New Construction</b>						
	Length (LF)	Width (LF)				
1 Concrete structure	1	5	444.98	622.97	\$ 838.52	
1 Metal structure	1	5	444.98	622.97	\$ 838.52	
2 Timber structure	1	5	239.98	335.97	\$ 452.22	
3 Synthetic structure	1	5	209.98	293.97	\$ 395.69	
<b>Subtotal Boardwalk</b>					<b>\$ 1,686</b>	
<b>Trail Bridge - New Construction</b>						
	Length (LF)	Width (LF)				
1 Concrete structure	1	12	2,573.96	3,603.54	\$ 4,850.36	
1 Metal structure	1	12	2,433.96	3,407.54	\$ 4,586.55	
2 Timber structure	1	12	1,931.96	2,704.74	\$ 3,640.58	
3 Fiberglass structure	1	12	1,789.96	2,505.94	\$ 3,372.99	
<b>Subtotal Trail Bridge</b>					<b>\$ 11,600</b>	
<b>Culvert - New Construction</b>						
	Length (LF)					
1 Culvert - 18" dia. or less	1		56.94	79.72	\$ 107.31	
2 Culvert - 24" dia. or less	1		70.49	98.68	\$ 132.83	
3 Culvert - 36" dia. or less	1		109.52	153.33	\$ 206.38	
4 Culvert - 48" dia. or less	1		151.15	211.61	\$ 284.82	
<b>Subtotal Culvert</b>					<b>\$ 107</b>	
<b>Parking Lot - New Construction</b>						
	Length (LF)	Width (LF)				
1 Asphalt or # of stalls (9'x18')	9 1	18	1,640.04 1,640.04	2,296.06 2,296.06	\$ 3,090.49 \$ 3,090.49	
2 Concrete or # of stalls (9'x18')	9 1	18	2,992.74 2,992.74	4,189.84 4,189.84	\$ 5,639.52 \$ 5,639.52	
3 Gravel or # of stalls (9'x18')	9 1	18	674.70 674.70	944.58 944.58	\$ 1,271.40 \$ 1,271.40	
<b>Subtotal Parking Lot</b>					<b>\$ 18,731</b>	

# Total non-motorized trail need estimates, 2018

<b>Trail Need Category</b>	<b>Estimated Need</b>	<b>% of Total Need</b>
Close-To-Home Trail Development	\$502,800,000	78%
Close-To-Home Trail Major Rehabilitation	\$60,900,000	10%
Dispersed-Setting Trail Major Rehabilitation	\$62,000,000	10%
Dispersed-Setting Trail Deferred Maintenance	\$14,700,000	2%
<b>Total</b>	<b>\$640,400,000</b>	



# Close-to-home non-motorized trail need cost estimates, 2018

<b>Development Category</b>	<b>Estimated Development Cost</b>
Trail corridor	\$309,800,000
Land & easement acquisition	\$89,000,000
Bridges	\$42,800,000
Boardwalks	\$36,500,000
Access roads	\$8,800,000
Restrooms	\$8,600,000
Parking	\$6,400,000
Culverts	\$900,000
<b>Total</b>	<b>\$502,800,000</b>

<b>Rehabilitation Category</b>	<b>Estimated Rehabilitation Cost</b>
Trail corridor	\$46,100,000
Boardwalks	\$5,800,000
Bridges	\$3,500,000
Restrooms	\$2,500,000
Access roads	\$1,600,000
Parking	\$1,000,000
Culverts	\$400,000
<b>Total</b>	<b>\$60,900,000</b>



# Close-to-home non-motorized trail corridor need cost estimates by surface type, 2018

Trail Corridor Development-Surface Type	Estimated Miles	Estimated Development Cost
Asphalt	353	\$203,800,000
Concrete	79	\$87,200,000
Natural/ Native Surface	260	\$18,800,000
<b>Total</b>	<b>692</b>	<b>\$309,800,000</b>

Trail Corridor Rehab-Surface Type	Estimated Miles	Estimated Rehab Cost
Asphalt	82	\$31,700,000
Concrete	8	\$7,000,000
Natural/ Native Surface	95	\$7,400,000
<b>Total</b>	<b>185</b>	<b>\$46,100,000</b>



# Dispersed-setting non-motorized trail need cost estimates, 2018

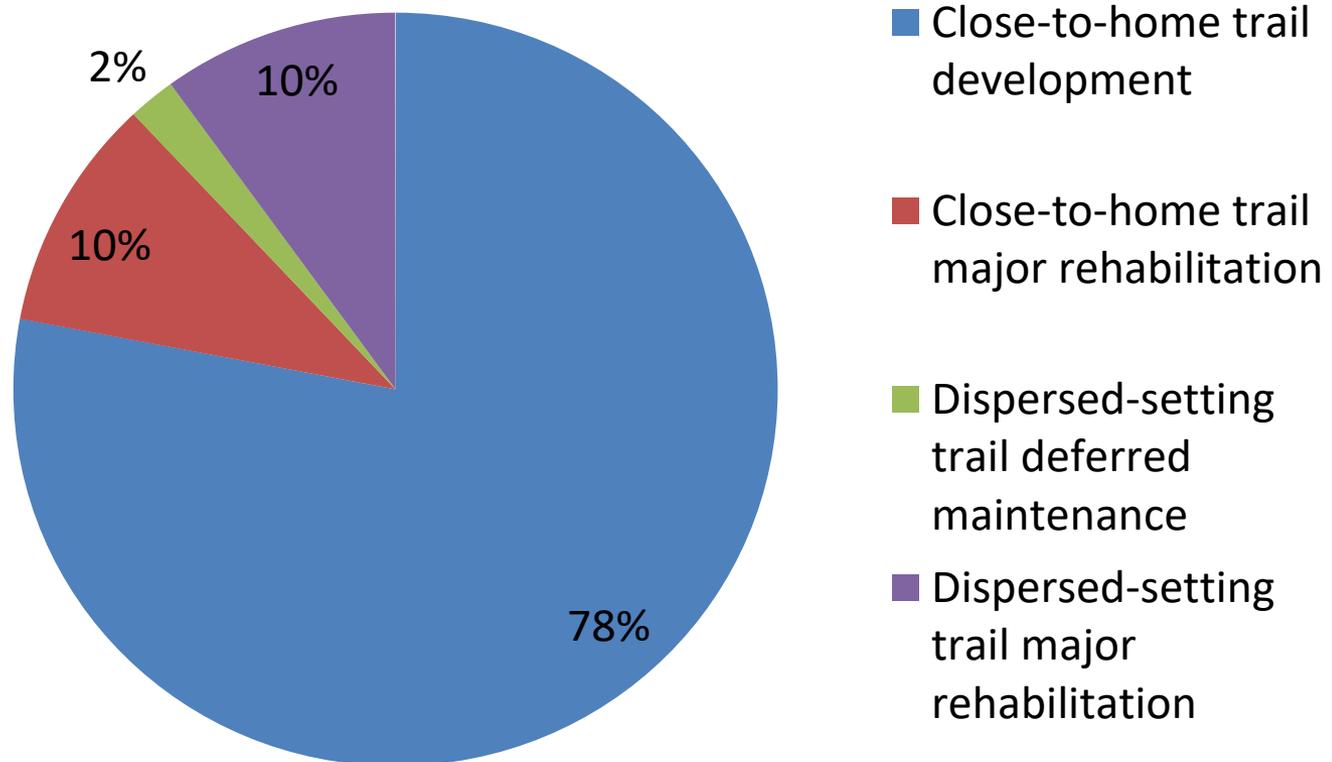
Maintenance Category	Estimated Deferred Maintenance Cost
Trail corridor	\$8,300,000
Access roads	\$3,400,000
Parking	\$1,200,000
Restrooms	\$1,100,000
Bridges	\$400,000
Boardwalks	\$300,000
Culverts	\$30,000
<b>Total</b>	<b>\$14,730,000</b>

Rehabilitation Category	Estimated Rehabilitation Cost
Access roads	\$28,900,000
Trail corridor	\$18,600,000
Parking	\$6,300,000
Restrooms	\$5,800,000
Boardwalks	\$1,400,000
Bridges	\$900,000
Culverts	\$100,000
<b>Total</b>	<b>\$62,000,000</b>



# Recommend a total dollar amount needed for a proposed dedicated non-motorized trails fund.

Funding need: \$640,400,000



# Annual non-motorized trail annual funding allocation for two planning scenarios, Oregon

<b>Trail Need Category</b>	<b>Scenario #1 20 year timeframe</b>	<b>Scenario #2 30 year timeframe</b>
	<b>Annual funding allocation</b>	
Close-To-Home Trail Development	\$20.1 million	\$13.4 million
Close-To-Home Trail Major Rehabilitation	\$2.4 million	\$1.6 million
Dispersed-Setting Trail Deferred Maintenance	\$0.6 million	\$0.4 million
Dispersed-Setting Trail Major Rehabilitation	\$2.5 million	\$1.7 million
Signature Trail Development and Maintenance	\$9.4 million	\$7.9 million
<b>Total Annual Allocation</b>	<b>\$35 million</b>	<b>\$25 million</b>
<b>Total Scenario Allocation</b>	<b>\$700 million</b>	<b>\$750 million</b>

**This analysis identifies a funding need of \$50 - \$70 million a biennium**

# Describing the objectives of a non-motorized trails fund for the state.

1. Expand the state's outstanding non-motorized trail infrastructure to meet the needs of a growing population.
2. Provide high-quality non-motorized trail experiences that meet the demands of Oregonians.
3. Increase non-motorized trail connectivity to better use the state's existing non-motorized trail infrastructure and provide more trail opportunities.
4. Strengthen the individual health of Oregonians by enabling them to engage in daily physical activity on non-motorized trails.



5. Strengthen Oregon community health by enabling residents to engage in a range of highly valued non-motorized trail activities.
6. Strengthen the economic health of local economies by providing high-quality non-motorized trail opportunities for non-local residents and out-of-state tourists.
- 7 Support the development and maintenance of priority signature trail systems\* in the state.

\*Examples of signature trails include the Salmonberry Trail, Oregon Coast Trail, Joseph Branch Rail Trail, and trails with Scenic or Regional Trail designation.



# Identifying examples of funding sources.

1. State cell phone tax
2. E-cigarettes
3. State lodging tax
4. State rental car tax
5. Sugary drink excise tax
6. Employee payroll tax
7. Gas tax revenues for roads not maintained by ODOT
8. Lottery bond



# State Cell Phone Tax

OPRD estimates that a 75 cent per month increase in the month cell phone tax would generate an additional **\$42.3 to \$43.9 million in annual revenue** for non-motorized trails.

Monthly tax increase	New tax rate	Funding (\$)*
\$0.10	2.0%	\$5.8 to \$5.9 million
\$0.25	2.4%	\$14.5 to \$14.6 million
\$0.75	3.6%	\$42.3 to \$43.9 million
\$1.50	5.4%	\$81.3 to \$87.8 million
\$2.25	7.2%	\$116.9 to \$131.8 million

Based on average monthly bill of \$41.50.

\*Additional revenue is calculated by subtracting revenue raised by the current \$0.75 tax from the total tax revenue at the new tax rate.



# State Lodging Tax

OPRD estimates that a 1% - 2% increase in the tax rate would generate an additional **\$20.7 to \$42.4 million in annual revenue** for non-motorized trails.

Tax rate increase	New tax rate	Funding (\$)*
0.1%	1.9%	\$2.1 million
0.5%	2.3%	\$10.5 to \$10.6 million
1.0%	2.8%	\$20.7 to \$21.2 million
2.0%	3.8%	\$40.6 to \$42.4 million
3.0%	4.8%	\$59.6 to \$63.6 million
4.0%	5.8%	\$77.7 to \$84.7 million

\* Additional revenue is calculated by subtracting 1.8% of the tax base (current tax rate) from the total tax revenue at the new tax rate.



# State Sugary Drink Excise Tax

OPRD estimates that a tax rate of \$0.01 per ounce of sugary drink could raise approximately **\$49.7 to \$124.3 million in annual revenue** for non-motorized trails.

<b>Tax Rate (\$/oz)</b>	<b>Potential Revenue (Annual)</b>
\$ 0.01	\$49.7 to \$124.3 million
\$ 0.015	\$74.6 to \$186.4 million
Based on Oregon populaton of 4,142,776	



# Employee Payroll Tax

OPRD estimates that a payroll tax could generate approximately **\$24.5 million in annual revenue** for non-motorized trails (based on a .03% of employee payroll tax). This equates to less than 30 cents per week for the average Oregon worker.

Payroll tax rate for trails	Fiscal Year Forecasted Tax Collections					How much payroll is required to raise \$1 in tax? (\$)
	2019	2020	2021	2022	2023	
0.01%	8.2	9.5	10.3	10.8	11.3	10,000.00
0.015%	12.2	14.2	15.4	16.2	17.0	6,666.67
0.02%	16.3	19.0	20.6	21.6	22.7	5,000.00
0.025%	20.4	23.7	25.7	27.0	28.3	4,000.00
0.03%	24.5	28.5	30.9	32.4	34.0	3,333.33
0.035%	28.6	33.2	36.0	37.8	39.7	2,857.14
0.04%	32.7	38.0	41.2	43.2	45.3	2,500.00
0.045%	36.7	42.7	46.3	48.6	51.0	2,222.22
0.05%	40.8	47.5	51.4	54.0	56.7	2,000.00

Forecast values are shown in \$millions



# Options For Administering A Fund

- OPRD administration
- Create a semi-independent board or agency
- Establish an Oregon recreational trails investment trust fund
- Establish an independent nonprofit organization



# Identifying implementation actions for moving forward with establishing a dedicated non-motorized trails fund for Oregon

- Identify other funding options
- Evaluate fiscal & economic implications
- Look at implementation requirements
- Examine social acceptability
- Examine the degree of association with intended use
- Compare benefits of each fund against implementation challenges
- Identify if a statute (proposed bill) or constitutional amendment (initiative) is the preferred method

# Technical and Policy Review

- Assemble a coordinating body with necessary skills & resources to complete the draft legislation.
- The Office of Outdoor Recreation is a likely candidate for spearheading such an effort.
- Create a coordination structure necessary for a successful advocacy effort.



# Planning Cost & Timeline

Product	Timeline	Cost
Oregon Outdoor Recreation Survey	16 months	\$65,000
Technical support (\$10,000)		
Printing & mailing (\$45,000)		
Qualtrics (\$7,000)		
Data entry (3,000)		
Oregon Outdoor Recreation Metrics (OSU)	12 months	\$50,000
Trail funding need data collection	7 months	Staff
Trail development & maintenance cost estimator	4 months	\$5,000
Tax alternative revenue estimates	3 months	Staff
<b>Total</b>		<b>\$120,000</b>



# Why is SCORP a good plan for funding strategy?



KATE BROWN  
Governor

March 29, 2019

Mr. Stanley J. Austin  
Regional Director, Pacific West Region  
National Park Service  
333 Bush Street, Suite 500  
San Francisco, CA 94104-2828

Dear Mr. Austin:

The state of Oregon is pleased to submit the 2019–2023 Oregon Statewide Comprehensive Outdoor Recreation Plan (SCORP) to the National Park Service (NPS). The document constitutes Oregon's basic five-year policy plan for outdoor recreation. With the successful completion of this plan, the state of Oregon will maintain its eligibility to participate in the Land and Water Conservation Fund (LWCF).

The plan was prepared to be in compliance with Chapter 2 of the Federal LWCF Grants Manual so there were many opportunities for public input during the planning effort. A substantial investment was made to conduct a statewide survey of Oregon residents regarding their outdoor recreation participation in Oregon, as well as their opinions about park and recreation management. A total of 3,550 randomly selected Oregonians completed a survey questionnaire. A 23-member SCORP Advisory Committee was established to assist the department with the planning process. Members of the group represented various organizations that included local, state, and federal recreation providers, recreational user groups, and universities. In addition, there was a month-long public review and comment period for recreation providers and the general public to provide additional input on the draft plan.

This plan closely examines the effects of an aging population, an increasingly diverse population, lack of youth engagement in outdoor recreation, underserved low-income populations, and increasing levels of physical inactivity within these populations. A series of carefully-designed research projects provide outdoor recreation managers with usable information and recommendations to guide federal, state, and local units of government, as well as the private sector in making policy decisions addressing these key changes. The plan will assist parks and recreation providers to better describe the benefits resulting from recreation projects and programs aimed at developing and fostering broader constituencies and wider community support throughout the state. It will also assist communities and other jurisdictions in their local park and recreation planning efforts.

Finally, the state of Oregon would like to thank the NPS and the Pacific West Region Office for the financial and technical support provided during the SCORP planning process. We also look forward to the opportunity to work with NPS staff in the administration of the LWCF program in the state of Oregon in years to come.

Sincerely,

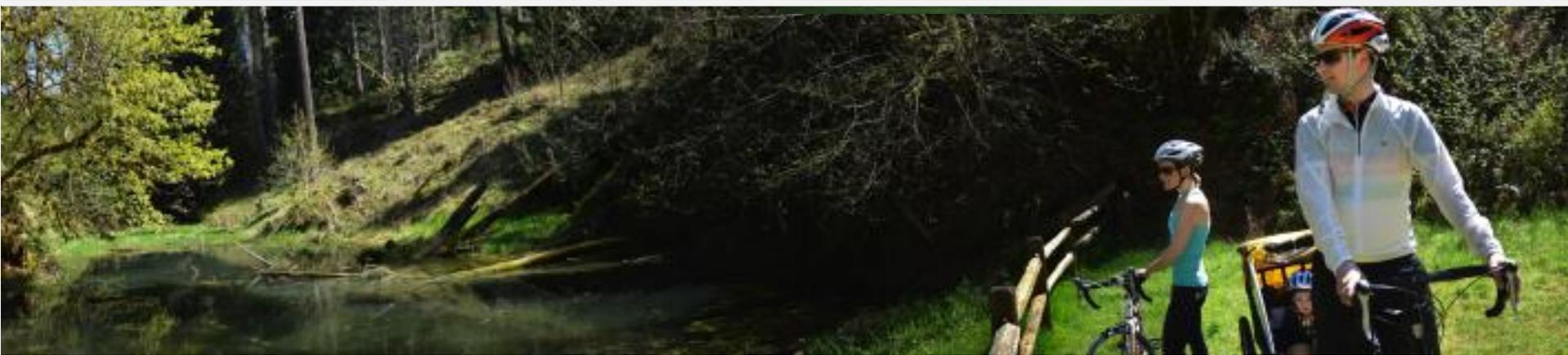
  
Kate Brown

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# Health Benefits and Funding for Close-to-Home Recreational Trails



2019 International Trails Symposium  
April 29, 2019