April 23-26, 2018
Main Street Landing
1 Main Street, Burlington, VT 05401

Scott Crawford, PLA, ASLA, LEED AP
Principal – Landscape Architect
Director of Parks and Recreation Studio
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Agenda > Healthy Parks

• Parks and Recreation...**you**
  – Recreation
  – Environmental
  – Facilities Management
  – Administration/Finance
  – Design/Engineering
  – Health

• Waves of Innovation...**parks**

• Trends and Tools...**future**
Nikolai Kondratiev (1892 – 1938)
- Russian Economist
- *Kondratiev Long Waves* (K-Waves)
Kondratiev Long Waves (K-Waves)

1st Wave (1770-1830)
- Iron
- Water Power
- Mechanization
- Textiles
- Commerce

2nd Wave (1830-1870)
- Steam Power
- Railroad
- Steel
- Cotton

3rd Wave (1877-1920)
- Steel, Electricity, Heavy Engineering

4th Wave (1920-1975)
- Oil, Automobiles, Mass Production

5th Wave (1971-20??)
- Information, Technology
- Whole System Design
- Biomimicry
- Green Chemistry
- Industrial Ecology
- Green Nanotech
- Robotics
- Artificial Intelligence
- Nanotech
- Radical Resources
- Productivity
- Genomics

6th Wave (20??-)
- Sustainable Energy
- Renewable Energy
- Radical Resource Productivity
- Digital Networks
- Software Information Technology
- Biotechnology
Innovation > Kondratiev Long Waves (K-Waves)

The stock exchange and the last five waves of innovation
Rolling 10-year yield on the S&P 500 since 1814 till March 2009 (in %, p.a.)

1st Kondratieff 1780-1830
Steam engine

2nd Kondratieff 1830-1880
Railway, steel

3rd Kondratieff 1880-1930
Electrification, chemicals

4th Kondratieff 1930-1970
Automobiles, petrochemicals

5th Kondratieff 1970-2010
Information technology, communications technology

6th Kondratieff 2010-20XX

Panic of 1837 1837-1843

Long Depression 1873-1879

Great Depression 1929-1939

1st & 2nd Oil crisis 1974-1980

Financial Crisis 2007-2009

Rolling 10-year yield on the S&P 500

Source: Datastream; Illustration: Allianz Global Investors Capital Market Analysis
Innovation > Seasons of K-Waves

Expansion | Boom | Recession | Depression

Spring | Summer | Autumn | Winter
Innovation > Generations of K-Waves

Expansion: Heroes
Boom: Artists
Recession: Prophets
Depression: Nomads
Innovation > Kondratiev Long Waves (K-Waves)

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6th Kondratieff 2010-20XX

Source: Datastream; Illustration: Allianz Global Investors Capital Market Analysis
What do K-Waves have to do with Creating Healthy Parks?

1. All K-Waves netted unintended consequences.

2. All K-Waves followed by profound innovations in parks.

3. What will be innovations in parks for next K-Wave?

…and how will you lead us there?
Innovation > K-Waves…and Parks

1849...U.S. Department of Interior is established

Mission:
Protecting America's Great Outdoors and Powering Our Future.

The U.S. Department of the Interior protects America's natural resources and heritage, honors our cultures and tribal communities, and supplies the energy to power our future.

Bureau of Indian Affairs
Bureau of Indian Education
Bureau of Land Management
Bureau of Ocean Energy Management

Bureau of Reclamation
Bureau of Safety and Environmental Enforcement
National Park Service

Office of Surface Mining Reclamation and Enforcement
U.S. Fish and Wildlife Service
U.S. Geological Survey
1857...New York Legislature enacts law creating Central Park

“America’s first park”

Frederick Law Olmsted
Central Park, New York
Innovation > K-Waves...and Parks

2nd to 3rd Wave

1st Wave
Industrial 1770-1830
- Iron
- Water Power
- Mechanization
- Textiles
- Commerce

2nd Wave
Steam & Railroad 1830-1870
- Steam Power
- Railroad
- Steel
- Cotton

3rd Wave
Steel, Electricity, Heavy Engineering 1877-1920
- Electricity
- Chemicals
- Internal Combustion Engines

4th Wave
Oil, Automobiles, Mass Production 1920-1975
- Electronics
- Aviation
- Space
- Petro-chemicals

5th Wave
Information, Technology 1971-20??
- Digital Networks
- Software
- Information Technology
- Biotechnology

6th Wave
Cleantech, Nanotech 20??-
- Sustainability
- Renewable Energy
- Radical Resource Productivity
- Whole System Design
- Biomimicry
- Green Chemistry
- Industrial Ecology
- Green Nanotech
- Robotics
- Artificial Intelligence
- Green Chemistry
- Nanotech
- Radical Resources
- Productivity Genomics
1901-09...President Roosevelt creates U.S. Forest Service

...and establishes
150 national forests
51 federal bird reserves
4 national game preserves
5 national parks
18 national monuments
1916...President Wilson creates National Park Service
1964...Leopold Report issued (officially Wildlife Management in National Parks)

1960s – 1970s
- massive spending appropriations for parks
- expanding national park system
- major environmental protection laws
- regulatory controls on activities in park
- ...unified management of visitors and ecosystems
- specific legislation to protect threatened ecosystems of national parks

A. Starker Leopold
Zoologist, Conservationist
1990s... Public funding for parks soars

% change in annual spending by local governments

Source: U.S. Census Bureau. State and Local Government Finances.
Innovation > K-Waves...and Parks

5th to 6th Wave

1st Wave
Industrial 1770-1830
- Iron
- Water Power
- Mechanization
- Textiles
- Commerce

2nd Wave
Steam & Railroad 1830-1870
- Steam Power
- Railroad
- Steel
- Cotton

3rd Wave
Steel, Electricity, Heavy Engineering 1877-1920
- Electricity
- Chemicals
- Internal Combustion Engines

4th Wave
Oil, Automobiles, Mass Production 1920-1975
- Electronics
- Aviation
- Space
- Petro-chemicals

5th Wave
- Digital Networks
- Software Information Technology
- Biotechnology

6th Wave
Cleantech, Nanotech 20??-.....
- Sustainability
- Renewable Energy
- Radical Resource Productivity
- Whole System Design
- Biomimicry
- Green Chemistry
- Industrial Ecology
- Green Nanotech
- Robotics
- Artificial Intelligence
- Green Chemistry
- Nanotech
- Radical Resources
- Productivity Genomics

...
What will be (are) innovations in parks for next K-Wave

Whole Health

... with data and technology to get us there
$887 BILLION IN CONSUMER SPENDING ANNUALLY

7.6 MILLION AMERICAN JOBS

$65.3 BILLION IN FEDERAL TAX REVENUE

$59.2 BILLION IN STATE AND LOCAL TAX REVENUE

THE OUTDOOR RECREATION ECONOMY GENERATES:
## Trends and Tools > Creating Healthy Parks

### Job Comparison, by Industry

2. Computing Technology Industry Association (CompTIA)

<table>
<thead>
<tr>
<th>Industry</th>
<th>Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real Estate, Rentals and Leasing</td>
<td>2.1</td>
</tr>
<tr>
<td>Education</td>
<td>3.5</td>
</tr>
<tr>
<td>Transportation and Warehousing</td>
<td>4.8</td>
</tr>
<tr>
<td>Food and Beverage Service</td>
<td>4.7</td>
</tr>
<tr>
<td>Finance and Insurance</td>
<td>6.0</td>
</tr>
<tr>
<td>Construction</td>
<td>6.4</td>
</tr>
<tr>
<td>Computer Technology</td>
<td>6.7</td>
</tr>
<tr>
<td>Outdoor Recreation</td>
<td>7.6</td>
</tr>
</tbody>
</table>

*Note: The numbers represent the number of jobs in each industry.*
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A Powerful Economic Sector

ANNUAL CONSUMER SPENDING\(^1\)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Annual Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>$27B</td>
<td>Education</td>
</tr>
<tr>
<td>$304B</td>
<td>Gasoline and Fuels</td>
</tr>
<tr>
<td>$313B</td>
<td>Household Utilities</td>
</tr>
<tr>
<td>$465B</td>
<td>Motor Vehicles and Parts</td>
</tr>
<tr>
<td>$466B</td>
<td>Pharmaceutical</td>
</tr>
<tr>
<td>$881B</td>
<td>Outdoor Recreation</td>
</tr>
<tr>
<td>$911B</td>
<td>Financial Services and Insurance</td>
</tr>
<tr>
<td>$921B</td>
<td>Outpatient Health Care</td>
</tr>
<tr>
<td>$931B</td>
<td>Hospital Care</td>
</tr>
<tr>
<td>$964B</td>
<td>Healthy Parks</td>
</tr>
</tbody>
</table>

\(^1\) Bureau of Economic Analysis, Personal Consumption Expenditures by Type of Product
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A Powerful Economic Sector

ANNUAL CONSUMER SPENDING¹

$887,000,000,000

$2,361,000,000,000

Behavioral, Social & Environmental Conditions 65%

Genetics 25%

Health Care 10%

Source: J Health Affairs, 2002

¹ Bureau of Economic Analysis, Personal Consumption Expenditures by Type of Product
Scenario 4 Highlights:
Public health agencies, partners, and local health improvement initiatives coalesced via technology and social media into a national web of community health enhancing networks. These networks helped communities exchange their innovations and best practices, and leverage the expertise of public health agencies and others. The nation also strived to come to terms with its racial and socioeconomic histories, and supported real changes and legislation to create a more equitable society. This value shift to equity was accelerated by another major recession and the ongoing transformation of the economy, including significant digitization of jobs. New community economic models helped households sustain themselves and improve health and wellbeing. As chief health strategists, public health agencies shed many functions, and facilitated these movements to improved health.
**Vision:**
Healthy people, healthy places

**Mission:**
Partnering to promote whole health of community, economy, and environment

**Objectives:**
Policy consultation, research, planning and design
Health Determinants

Health can be affected by a wide range of factors.

The motivation to maintain healthy lifestyles go beyond a person’s genetic make-up and self-discipline.

It includes societal, environmental and economic aspects, and more....

Source: J Health Affairs, 2002
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**Health Determinants**

- 65% Behavioral, Social & Environmental Conditions
- 25% Genetics
- 10% Health Care

Source: Health Affairs, 2002
Seven Pathways to Whole Health

- **Natural**: Water, vegetation, air, soils, plants & wildlife
- **Built**: What we have built – from infrastructure, building to icons
- **Human**: Happiness, well-being, access to work learning & play
- **Cultural**: Link to human history, cultural heritage, arts and the way we interact
- **Social**: “Social glue”—how we come together to form community & connections
- **Political**: Access to power and policy
- **Economic**: Financial Resources
Creating Healthy Parks
Trends and Tools > Creating Healthy Parks

...sharing our health story and learning from others.
<table>
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<th>Built</th>
<th>Human</th>
<th>Cultural</th>
<th>Social</th>
<th>Political</th>
<th>Economic</th>
</tr>
</thead>
</table>

### Creating Healthy Parks

#### Strategic Planning
Healthy People Healthy Places Advisory Committee members participated on the Governors Green Ribbon Committee.

#### Planning
Healthy People Healthy Places Advisory Committee members participated during the development of the project Vision phase.

#### Design
Healthy People Healthy Places Advisory Committee members participated throughout the master plan process.

---

**Healthy Places, Healthy People**

Places provide many benefits for those who use them. The quality of public health benefits from using them, both for health benefits that are directly linked to improvements in health outcomes, and for public health benefits that are indirectly linked to improvements in health outcomes, are often not measured. We need to continue to develop and support for the health benefits of public health that our parks and other public places provide.

**Healthy Living**

How do we promote public health through the Iowa Green Ribbon Program? At all levels, addressing chronic health and benefits:

- Promote elements:
  - Physical health components
  - Mental health components
  - Social support components
  - Economic factors
  - Environmental factors
  - Policies and procedures

**Making It Happen**

Costs and phasing suggestions.
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Five Strategic Goals

A parks and trails landscape provides critical connections. Our public health and economic vitality depend on our ability to bring together urban and rural, agriculture and industry, people and nature. Consequently, the five strategic directions outlined here work as a fully integrated system. We achieve great spaces and experiences, community and cultural vitality, healthy parks and people — through a strongly-connected system built to last and well-supported not just for today, but for the future.
Creating Healthy Parks
Healthy Parks

Protecting open space, connecting people to nature, and engaging communities in conservation practices.
Healthy Parks

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WALNUT CREEK WATERSHED

About the Watershed

- 53,000 acres (62 square miles)
- 9 communities
- 2 counties

Vision

Engaged residents working across political/property boundaries to create and sustain a healthy watershed.

Mission

Through collaboration, education and research, implement science-based policies and practices for:
1) Flood mitigation
2) Water quality improvements
3) Natural resources protection and
4) Improved recreation while maintaining economic health.

Case Studies

Rural
- 6.5 square miles
- Storms less than 2.5" make up 98% of Central Iowa's precipitation
- 80% row crop farmland
- 0.1% of the watershed consists of construction sites contributing as much as 25% of the sediment load

Urban
- 4.5 square miles
- Average E. coli bacteria monitored at levels 13x - 39x the state of Iowa's water quality standard

Challenges

Unstable Streams Dominate Watershed:
- 37% streamflow increase (since 1982)
- 57% of all field assessed streams have moderate or severe erosion

Landscape Change:
- Fast-moving Water
- Flood Zones Expanding
- Eroding Streams

ONLY 1% of urban streams are "stable"

Lack of Topsoil Re-spread Increases:
- Small storm run-off: 80%
- Large storm run-off: 30%
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Acknowledgements

Steering Committee
Scott Colomos, Mayor & Greenbelt Steering Committee Chair*  
Eric Klein, City Council*  
Susan Johnson, City Council*  
David Bell, Park Board*  
David Siebert, Clive Chamber*  
Mark Breuer, Planning & Zoning*  
Dennis Henderson, City Manager*  
Ivan Garmone, Clive Community Foundation*  
Jennifer Edler, Green & Sustainable Clive*  
Bethany Wiltson, Greater Des Moines Partnership

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Todd Severs, Leisure Services Director*

Political Focus Group Attendees
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Steve Gaves, West Des Moines Mayor  
Dennis Goldberg, Drake Political Science Professor*

Social – Human Focus Group Attendees
Jeremy Drayg, YMCA Healthy Living Center  
Linda Stuhr, Clive Community Services*  
Cyril Fisher, Education Drives our Great Economy  
Dr. Teghch Shal, Des Moines University*  
Shelley Horse, Dallas County Public Health

Financial – Economic Attendees
Andrew Westmeyer, Meridian Mortgage*  
Susan Dorn, Heart of America Group*  
Greg Edwards, Greater Des Moines Convention & Visitors Bureau  
Wade Den Hertog, Des Moines Community Foundation  
Ryan Carroll, Greater Des Moines Partnership  
Robert Renouf, Heartland Capital*  
Lori James, Urban Land Institute  
im Annexch, Clive Community Foundation*

Built Focus Group Attendees
Todd Ashley, Des Moines MPO Director  
Jeremy Baxter, Polk County Public Works  
Ree Mening, Former Metro-Waste Director  
Jeff McLay, Clive Public Works*  
Gramp Schroll, Clive Community Development*  
Bill Thelen, Clive Parks Division*  
Bill Dales, Clive Planning and Zoning Commission*  
Ethan Standard, Des Moines Area Regional Transit  
William Wilkerson, Polk IS*  
Rob Weissman, Windham & Kim, Waste Reclamation

*Denotes City of Clive resident, business owner or employee.

Cultural Focus Group Attendees
Tom Murphy, West Des Moines School District*  
Chris Murphy, Clive Festival*  
Sally Stix, Bravo G-water Des Moines*  
Lee Auble, Clive Historical Society*  
Jessica Rowe, Greater Des Moines Public Art Foundation  
Cinnamon Room, 515 Brewery*  
Brad Brown, Clive Lions Club*  
Ruth Houston, Living History Farms President  
John Smedley, Clive Public Art Commission /Willa Auto*  
Chris Knipes, Department of Cultural Affairs

Natural Focus Group Attendees
Danette Fife, Walnut Creek Watershed Coalition*  
Jennifer Welch, Polk Soil & Water Conservation District  
Mark Duncan, Polk County Conservation  
Gary Scott, West Des Moines Parks & Recreation  
Jan Werle, Urbandale Parks and Recreation Director  
Matt Jensen, Waukee Parks and Recreation Director  
Jenny Lewis, Des Moines Bike Collective Director

Business Roundtable Attendees
Dave Hammet, Vitta Real Estate Inc  
Theresa Greenfield, Colby Investments*  
Mark Lofland, Swanson Depot*  
Abby Gilroy, Neighborhood Development Corporation  
Rick Krause, CBRE Hammond Commercial  
Tanya Litz, McClaine Engineering*  
Artur Gobalsen, Best Western Hotel Owner*  
Brian Phillips, Terra*  
Ted Corrigan, Des Moines Water Works

Residential Roundtable Attendees
Lee Tuborg, Residential Real Estate Expert  
TedWeaver, Clive City Council*  
Denise Wible, Woodside Homeowner Association*  
Kris Siddall, Hubbell Multi Family Developer  
Jason Ewoldsen, Homeowner Development  
Keith Luthra, Former City of Clive Attorney

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Jeni Hubel, Executive Director, Healthiest State Initiative  
Anja Miltjen, Healthiest State Initiative  
Kim Chapman, Principal Ecotrust, Applied Ecological Services  
Doug Mengert, Project Manager, Applied Ecological Services  
James Stevens, Senior Associate, Consultant
Trends and Tools > Creating Healthy Parks

Iowa City Parks Master Plan and Design Guidelines
Trends and Tools > Creating Healthy Parks
Questions and Discussion
“Healthy Parks”

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