PLACE
Planning Active Community Environments
A Guide for Planners on How to Create Community Environments that Promote and Foster Health

by James van Hemert
The Rocky Mountain Land Use Institute
&
Leanne Jeffers
Regional Institute for Health & Environmental Leadership
Introductions
Thank You Sponsors!
Introductions
Overview

• Packets
• Nametags
• Books
• Resource Table
• Facility
• Meals
• Agenda
Overview

• Historical Relationship between American City Planning and Public Health
• Relationship Between the Built Environment and Public Health
• Systems Approach to Addressing Solutions
• Modern Points of Convergence
• Integrating Sustainable Principles for Active Communities
• APA’s Five Points of Strategic Intervention
Overview

- Communication and Engaging Public Health
- Exercise: Designing a Healthy and Active Community Plan
- Bringing it Home
Relationship Between the Built Environment & Public Health
“Environmental factors influence 85 out of the 102 categories of diseases and injuries listed in The World Health Report.”
Relationship Between the Built Environment & Public Health

Key Issues:

- Inactivity/Obesity
- Injuries/Fatality
- Air Quality
- Water Quality/Quantity
- Stress/Mental Health
- Social Capital
- Health Disparities
- Healthy Food Choices
- Climate
- Crime
- ...and more
The Lay of the Land

- U.S. population is growing at about 1% per year
  - Colorado grew 30% between 1990-2000

[Images showing various percentages: 50%, 20%, 30%]
The Lay of the Land

- The rate at which land is being consumed for urban use is twice the population growth rate.


Northern Metro Denver – Rock Creek
The Lay of the Land

Southern Metro Denver – Highlands Ranch

The Lay of the Land

Since 1980

85% 50%
The Lay of the Land

- In the past 20 years, vehicle miles traveled (VMT) has almost doubled and continues to increase faster than our population growth.

- American households now have more vehicles than drivers.
The Lay of the Land

U.S. Highway Vehicle Miles Traveled
The Lay of the Land

- Americans spend, on average, an hour per day in the car.
- The 2000 census revealed that 3 out of 4 workers drive to work alone.
- Each single family household generates approximately ten vehicle trips per day.
The Lay of the Land

Increased levels of ozone pollution

<table>
<thead>
<tr>
<th>Ozone Levels (EPA Standard is 80)</th>
<th>Top 10 MOST Sprawling Metros</th>
<th>Top 10 LEAST Sprawling Metros</th>
</tr>
</thead>
<tbody>
<tr>
<td>97.6 ppb</td>
<td>69.9 ppb</td>
<td></td>
</tr>
</tbody>
</table>
The Lay of the Land

We drive for distances we could walk or bike.

Image: http://www.bikemandan.com/blog/wp-content/uploads/2008/05/walking_dog_with_car1.jpg
## The Lay of the Land

<table>
<thead>
<tr>
<th>Walk or Bike to School</th>
<th>1969</th>
<th>1999/2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk or bike if live &lt;1 mile from school</td>
<td>48%</td>
<td>&lt;15% walk 1% bike</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Walk or Bike to School</th>
<th>1969</th>
<th>1999/2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk or bike if live &lt;1 mile from school</td>
<td>90%</td>
<td>31%</td>
</tr>
</tbody>
</table>
THERE IS TOO MUCH TRAFFIC FOR BILLY TO WALK TO SCHOOL; SO WE DRIVE HIM.
The Lay of the Land
The Link to Health

- Injury/Death
- Physical Activity, Obesity & Diabetes
- Air Quality & Asthma
- Clean Drinking Water & Waterborne Diseases
- Stress/Mental Health
# 10 Leading Causes of Death by Age Group, United States – 2004

<table>
<thead>
<tr>
<th>Rank</th>
<th>Age Groups</th>
<th>&lt;1</th>
<th>1-4</th>
<th>5-9</th>
<th>10-14</th>
<th>15-24</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>65+</th>
<th>Total</th>
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<tbody>
<tr>
<td>1</td>
<td>Congenital Anomalies</td>
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<td>Maternal Pregnancy</td>
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<td></td>
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<td>Placenta Cord Membranes</td>
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<td>827</td>
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<td>Neonatal Hemorrhage</td>
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<td>616</td>
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<td>Circulatory System</td>
<td>593</td>
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*Source: National Vital Statistics System, National Center for Health Statistics, CDC.*

*Produced by: Office of Statistics and Programming, National Center for Injury Prevention and Control, CDC.*
### 10 Leading Causes of Injury Death by Age Group

**Highlighting Unintentional Injury Deaths, United States – 2004**

<table>
<thead>
<tr>
<th>Rank</th>
<th>&lt;1</th>
<th>1-4</th>
<th>5-9</th>
<th>10-14</th>
<th>15-24</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>65+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Unintentional MV Traffic 139</td>
<td>Unintentional Drowning 430</td>
<td>Unintentional Fire/burn 169</td>
<td>Suicide Suffocation 204</td>
<td>Homicide Firearm 4,127</td>
<td>Unintentional Poisoning 3,641</td>
<td>Unintentional Poisoning 6,444</td>
<td>Unintentional Poisoning 6,033</td>
<td>Suicide Firearm 2,328</td>
<td><strong>Motor Vehicle Traffic 7,175</strong></td>
<td>Unintentional Poisoning 20,950</td>
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<tr>
<td>3</td>
<td>Homicide Unspecified 133</td>
<td>Unintentional Fire/burn 228</td>
<td>Unintentional Drowning 131</td>
<td>Homicide Firearm 2,255</td>
<td>Homicide Firearm 3,503</td>
<td>Suicide Firearm 2,688</td>
<td>Suicide Firearm 3,349</td>
<td>Suicide Firearm 1,577</td>
<td>Unintentional Unspecified 4,686</td>
<td>Unintentional Fall 18,807</td>
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<td>4</td>
<td>Homicide Other Spec., Classifiable 101</td>
<td>Unintentional Drowning 138</td>
<td>Suicide Firearm 2,104</td>
<td>Suicide Firearm 2,283</td>
<td>Homicide Firearm 1,895</td>
<td>Suicide Poisoning 1,737</td>
<td><strong>Unintentional Poisoning 1,303</strong></td>
<td>Suicide Firearm 3,756</td>
<td>Suicide Firearm 16,750</td>
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<tr>
<td>5</td>
<td>Unintentional Drowning 62</td>
<td>Unintentional Suffocation 125</td>
<td>Unintentional Suffocation 45</td>
<td>Suicide Suffocation 1,516</td>
<td>Suicide Suffocation 1,592</td>
<td>Suicide Suffocation 1,667</td>
<td>Suicide Suffocation 1,231</td>
<td>Suicide Poisoning 801</td>
<td>Unintentional Suffocation 3,369</td>
<td><strong>Homicide Firearm 11,624</strong></td>
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<tr>
<td>6</td>
<td>Undetermined Suffocation 58</td>
<td>Unintentional Pedestrian, Other 113</td>
<td>Unintentional Other Land Transport 37</td>
<td>Suicide Poisoning 817</td>
<td>Suicide Poisoning 1,546</td>
<td>Unintentional Drowning 574</td>
<td>Suicide Poisoning 1,154</td>
<td>Suicide Suffocation 576</td>
<td>Suicide Suffocation 7,336</td>
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<td></td>
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<tr>
<td>7</td>
<td>Homicide Suffocation 42</td>
<td>Homicide Other Spec., Classifiable 89</td>
<td>Unintentional Suffocation 68</td>
<td>Homicide Cut/pierce 394</td>
<td>Undetermined Poisoning 662</td>
<td>Undetermined Poisoning 1,116</td>
<td>Homicide Firearm 1,062</td>
<td><strong>Homicide Firearm 488</strong></td>
<td>Unintentional Fire/burn 1,125</td>
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<tr>
<td>8</td>
<td>Unintentional Fire/burn 23</td>
<td>Unintentional Fall 47</td>
<td>Unintentional Struck by or Against 21</td>
<td>Suicide Firearm 59</td>
<td>Suicide Poisoning 383</td>
<td>Homicide Cut/pierce 479</td>
<td>Unintentional Fall 659</td>
<td>Undetermined Poisoning 1,019</td>
<td><strong>Unintentional Poisoning 443</strong></td>
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<tr>
<td>9</td>
<td>Undetermined Unspecified 24</td>
<td>Unintentional Natural/Environmental 39</td>
<td>Homicide Unspecified 20</td>
<td>Unintentional Poisoning 47</td>
<td>Undetermined Poisoning 329</td>
<td>Unintentional Drowning 385</td>
<td><strong>Homicide Firearm 504</strong></td>
<td>Unintentional Fire/burn 427</td>
<td>Suicide Suffocation 544</td>
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<tr>
<td>10</td>
<td>Unintentional Fall 23</td>
<td>Homicide Firearm 36</td>
<td><strong>Four Tied 13</strong></td>
<td>Unintentional Firearm 35</td>
<td>Unintentional Other Land Transport 284</td>
<td><strong>Unintentional Fall 320</strong></td>
<td>Unintentional Drowning 435</td>
<td><strong>Unintentional Suffocation 468</strong></td>
<td>Adverse Effects 403</td>
<td><strong>Suicide Poisoning 521</strong></td>
<td><strong>Undetermined Poisoning 3,455</strong></td>
</tr>
</tbody>
</table>

*Four causes are: Unintentional Firearm, Unintentional Natural/Environmental, Unintentional Other Transport, and Unintentional Unspecified.*

**Source:** National Vital Statistics System, National Center for Health Statistics, CDC.

**Produced by:** Office of Statistics and Programming, National Center for Injury Prevention and Control, CDC.
### Five leading causes of death by age, Colorado residents, 2001-2003 total deaths

<table>
<thead>
<tr>
<th>Rank</th>
<th>Age &lt; 1</th>
<th>Age 1-4</th>
<th>Age 5-9</th>
<th>Age 10-14</th>
<th>Age 15-24</th>
<th>Age 25-44</th>
<th>Age 45-54</th>
<th>Age 55-64</th>
<th>Age 65+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Congenital anomalies N=243</td>
<td>Unintentional injuries N=72</td>
<td>Unintentional injuries N=90</td>
<td>Unintentional injuries N=144</td>
<td>Unintentional injuries N=60</td>
<td>Unintentional injuries N=90</td>
<td>Malignant neoplasms N=1,885</td>
<td>Malignant neoplasms N=3,011</td>
<td>Heart disease N=15,579</td>
<td>Heart disease N=19,887</td>
</tr>
<tr>
<td>2</td>
<td>Sudden infant death N=217</td>
<td>Homicide N=22</td>
<td>Malignant neoplasms N=21</td>
<td>Suicide N=27</td>
<td>Suicide N=278</td>
<td>Suicide N=259</td>
<td>Malignant neoplasms N=427</td>
<td>Heart disease N=1,122</td>
<td>Heart disease N=1,840</td>
<td>Malignant neoplasms N=13,931</td>
</tr>
<tr>
<td>3</td>
<td>SIDS N=131</td>
<td>Congenital anomalies N=22</td>
<td>Homicide N=8</td>
<td>Malignant neoplasms N=28</td>
<td>Homicide N=196</td>
<td>Malignant neoplasms N=133</td>
<td>Suicide N=490</td>
<td>Unintentional injuries N=795</td>
<td>Chronic lower respiratory disease N=922</td>
<td>Chronic lower respiratory disease N=6,501</td>
</tr>
<tr>
<td>4</td>
<td>Maternal pregnancy complications N=83</td>
<td>Influenza and pneumonia N=21</td>
<td>Heart disease N=7</td>
<td>Homicide N=10</td>
<td>Malignant neoplasms N=67</td>
<td>Homicide N=126</td>
<td>Heart disease N=402</td>
<td>Suicide N=468</td>
<td>Unintentional injuries N=423</td>
<td>Chronic lower respiratory disease N=4,302</td>
</tr>
<tr>
<td>5</td>
<td>Pneumonia and meningitis N=11</td>
<td>Malignant neoplasms N=11</td>
<td>Congenital anomalies N=3</td>
<td>Malignant neoplasms N=16</td>
<td>Heart disease N=42</td>
<td>Heart disease N=197</td>
<td>Liver disease N=216</td>
<td>Liver disease N=457</td>
<td>Cerebrovascular disease N=326</td>
<td>Alzheimer's disease N=7,681</td>
</tr>
</tbody>
</table>

The homicide category also includes legal intervention.

The Link to Health

COLORADO

www.cdphe.state.co.us/pp/injepi/InjuryinColorado/injuryincolorado.html.
The Link to Health

How the Built Environment is Linked to Injury and Death

- Traffic accidents and fatalities can be attributed in part to:
  - Traffic Volume
  - Vehicle Speed
  - Street Environment
The Link to Health

Greater risk of fatal accidents

- Average annual traffic death rate is 50% higher in the top ten most sprawling metro areas than in the ten least sprawling metro areas.


Images: http://www.car-accidents.com/
The Link to Health

Unintentional Injury? Motor Vehicle Traffic? ...but I thought the number one cause of death was heart disease?

Causes of death in 2000:

- 18.1% Tobacco
- 16.6% Poor Diet and Physical Inactivity

“...smoking remains the leading cause of mortality. However, poor diet and physical inactivity may soon overtake tobacco as the leading cause of death.”

- Mokad et al. 2004

PHYSICAL ACTIVITY – NATIONALLY

- More than 25% of adults are sedentary
- 33% of high school students do not engage in vigorous physical activity
  - A little over 15% attend physical education classes daily.
- 1 in 4 children 9-14 participate in NO free-time physical activity outside of school hours.
The Link to Health

PHYSICAL ACTIVITY – COLORADO

Approximately 82% of Coloradans participate in some form of leisure time physical activity (Rosenblatt, 2002)

In 2003 Colorado met the Healthy People 2010 Objectives 22-2 and 22-3 for 30 percent of adults to have either moderate or vigorous physical activity (COPAN State Plan 2010, 2004)
The Link to Health

...But don’t lose sight of other health issues and the national and state trends.
The Link to Health

OVERWEIGHT & OBESITY

For adults, overweight and obesity ranges are determined by a number called the “body mass index” (BMI).

- **Body Mass Index (BMI):** A measure of an adult’s weight in relation to his or her height

- **Overweight:** BMI 25 - 29.9

- **Obese:** BMI 30+
The Link to Health

- Two-thirds of adults are either overweight or obese.
- Childhood obesity rates have tripled since 1980 (6.5% to 16.3%)
Obesity Trends* Among U.S. Adults
BRFSS, 1985
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 1986
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 1987
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 1988
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 1989
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 1990
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 1991

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 1992
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 1993
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 1994
(*BMI ≥30, or ~30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 1995
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 1996
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Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults

BRFSS, 1997

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Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 2000
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 2001

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 2002

(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 2003
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 2004
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 2005
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 2006
(*BMI ≥30, or ~ 30 lbs. overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
BRFSS, 2007
(*BMI ≥30, or ~30 lbs. overweight for 5’4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
(*BMI ≥30, or about 30 lbs. overweight for 5’4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among Colorado Adults
BRFSS, 1996-2007
(*BMI ≥ 30, or ~ 30 lbs overweight for 5’4” woman)

Source: Colorado Behavioral Risk Factor Surveillance System, Health Statistics Section, CDPHE
The Link to Health

How the Built Environment is Linked to Physical Activity and Obesity
The Link to Health
The Link to Health

More of

Source:

Source:
upload.wikimedia.org/wikipedia/commons/6/6e/Childhood_Obesity.JPG
The Link to Health

More of

Image courtesy of Dan Burden

www.trulyfreestock.com/display-photo.php?pid=460
The Link to Health

www.nolimitspersonalfitness.com/weight_loss

= More of
The Link to Health
The Link to Health

- The health care and medication costs associated with obesity exceed the costs associated with smoking.
- More than a quarter of the nation’s health care costs are related to obesity and physical inactivity.
- Direct medical costs of obesity are estimated to be more than $61 billion annually in the U.S.
The Link to Health

- Overweight and obesity are significantly associated with diabetes, high blood pressure, high cholesterol, asthma, arthritis, and poor health status.

- Eight of the 10 states with the highest rates of adult diabetes are also in the top 10 states with the highest obesity rates.
Diabetes and Gestational Diabetes Trends Among Adults in the U.S., BRFSS 1990

Diabetes and Gestational Diabetes Trends Among Adults in the U.S., BRFSS 1991-92

Diabetes and Gestational Diabetes Trends Among Adults in the U.S., BRFSS 1993-94

Diabetes and Gestational Diabetes Trends Among Adults in the U.S., BRFSS 1995-96

Diabetes and Gestational Diabetes Trends Among Adults in the U.S., BRFSS 1997-98

Diabetes and Gestational Diabetes Trends Among Adults in the U.S., BRFSS 1999

Diabetes and Gestational Diabetes Trends Among Adults in the U.S., BRFSS 2000

Diabetes and Gestational Diabetes Trends Among Adults in the U.S., BRFSS 2001

The Link to Health

AIR QUALITY, OZONE AND ASTHMA

- Exposure to ozone can trigger asthma
- Between 1980 and 1994, asthma rates rose by 75%
- Atlanta - Olympic Games study:
  - 17.9% decrease in peak ozone concentrations
  - 41.6% drop in asthma emergency medical events
The Link to Health

WATER QUALITY

- Loss of farmlands/forests for development, roads, and parking reduces the ground’s natural filtering capacity
  - increased siltation, runoff of pollutants from impervious surfaces
  - reduced water quality – negatively affects drinking water supplies

- Bacterial, chemical and sediment contamination of water supplies may cause gastrointestinal and other diseases.
The Link to Health

MENTAL HEALTH

- Increased commuting time is linked with physical and stress-related health problems
- Exposure to greenspace
  - Increases sense of community, and cognitive function for children
  - Decreases effects of chronic mental fatigue, which reduces violence and aggressive behavior
- Lack of accessibility = increased isolation for the elderly and people with disabilities
Sprawl does not fully account for Americans’ increasingly sedentary lives, and physical inactivity does not tell the entire story of the national epidemic of being overweight. However, by contributing to physical inactivity and therefore to overweight and associated health problems, sprawl has negative health consequences.

A Systems Approach
A Systems Approach

What is Systems Thinking?
A Systems Approach

Systems thinking is the ability to:

- understand and deal with complexity
- see the whole and the parts and how those parts are interacting to create the current level of performance.

- Everything is connected to everything else. You can never do just one thing.
- There are unintended consequences of our actions throughout the system.

- Roberts
What are some things we know about icebergs?
The Iceberg: The Current Reality

- That which is at (on/above) the surface is superficial, is symptomatic, a function of what is beneath.
- The current reality goes deeper than what is immediately obvious.
- There is always a bigger picture than the one you can see.
- Icebergs are dynamic. They float (are moving targets).
- What you cannot see can sink your ship.
A Systems Approach

Four Levels:

- **EVENTS** “What just happened?”
- **PATTERNS/TRENDS**: “What’s been happening? Have we been here or someplace like this before?”
- **SYSTEM FORCES**: “What are the forces at play contributing to these patterns/ trends? How are these forces interacting?”
- **MENTAL MODELS**: “What is it about our thinking that allows this situation to persist?”
A Systems Approach

- The easy way out usually leads back in. (If you settle for a superficial solution to a deeper problem, the problem will not go away or will come right back.) Fixes at the EVENTS level are usually temporary.

- Small changes can produce big results, but the areas of highest leverage are often the least obvious.
Think Different

"We can't solve problems by using the same kind of thinking we used when we created them."

(Insanity: doing the same thing over and over again and expecting different results.)

Albert Einstein

US (German-born) physicist (1879 - 1955)