

Impact of a Sustainable Active Transportation System on a Community

5th Mid-America Trails & Greenways Conference
October 3, 2011 Fort Wayne, Indiana

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Monday, October 3, 2011
1:30 PM , Fort Wayne, Indiana

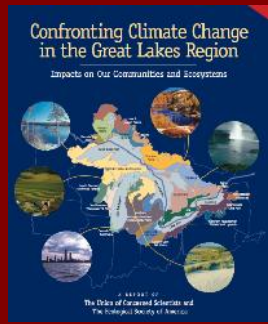
Norman Cox, LLA, ASLA
The Greenway Collaborative, Inc.
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Nancy Krupiarz, Executive Director
Michigan Trails and Greenways Alliance

 THE GREENWAY COLLABORATIVE, INC.  Michigan Trails and Greenways Alliance

Number One Environmental Issue

- What is the biggest environmental issue that your community, state, country and world is facing today?
 - Global Warming
- Do you really think your community can do much to prevent it?
 - Probably Not **Wrong!**



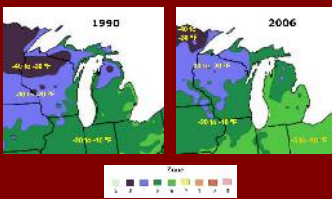
Confronting Climate Change in the Great Lakes Region
Impacts on Our Communities and Ecosystems

Edited by:
The Office of Great Lakes Science and
The Indiana Society of America

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Global Warming is Happening Now

- Most places in the great lakes have changed at least one hardiness zone in the recent past
- Frost-free growing season extended by over a week
- Earlier dates for last spring frost
- The climate is changing so fast there is real concern that the plants will not be able to migrate north fast enough



1990 2006

Zone

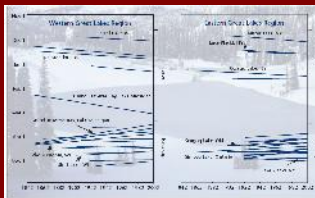


Zone Change

The Greenway Collaborative, Inc. 2006 National Arbor Day Foundation

Global Warming is Happening Now

- Records over the past 80 years consistency show the duration of ice cover on inland lakes
- Leads to greater evaporation from open water during the winter
- And shorter ice fishing seasons

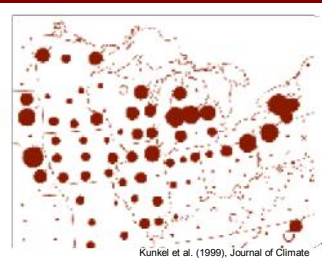


Year	Western Great Lakes (Michigan)	Eastern Great Lakes (Ontario)	Western Great Lakes (Minnesota)	Eastern Great Lakes (Wisconsin)
1920	180	180	180	180
1930	175	175	175	175
1940	170	170	170	170
1950	165	165	165	165
1960	160	160	160	160
1970	155	155	155	155
1980	150	150	150	150
1990	145	145	145	145
2000	140	140	140	140
2010	135	135	135	135

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Global Warming is Happening Now

- Heavy precipitation events becoming more common (rain and snow)
- These events often overwhelm municipal sewage treatment systems and stormwater systems
- The 1970 - 1999 were the regions' wettest in the 20th century
- Increase in urbanization has intensified the problem



Kunkel et al. (1999), Journal of Climate


Frequency Increase

- 100%
- 50%
- 0%

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Global Warming – What to Expect

- Extreme weather
- Heavier downpours and snowfall
- Dryer summers with extreme heat
- Wetter winters and springs
- Combination of:
 - hotter summers with less rain fall
 - less ice cover on the lakes in the winter
 - perception coming in extreme events
- Results in less ground water recharge



Migrating Climate: Changing Summers in the Region

More water at the wrong time
Less water when it's needed

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Solutions to Global Warming

- Drive Less
 - Each gallon of gas releases 25 pounds of heat-trapping carbon dioxide (Co2)
- Improve stormwater management and ground water recharge capacities
 - Use every opportunity to recharge ground water
- Plant more trees
 - Create more pleasant microclimates
 - Help trees adapt to climate change




And find another hobby besides ice fishing

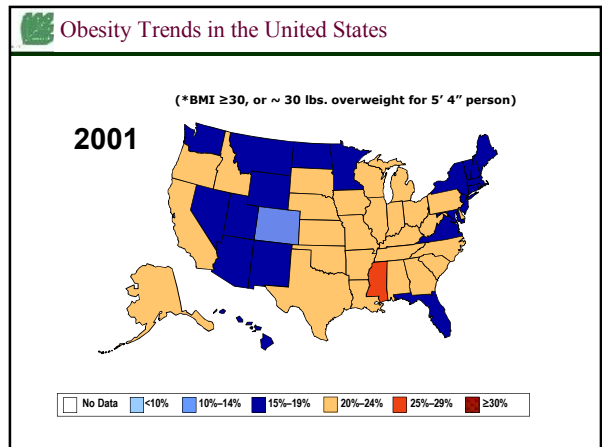
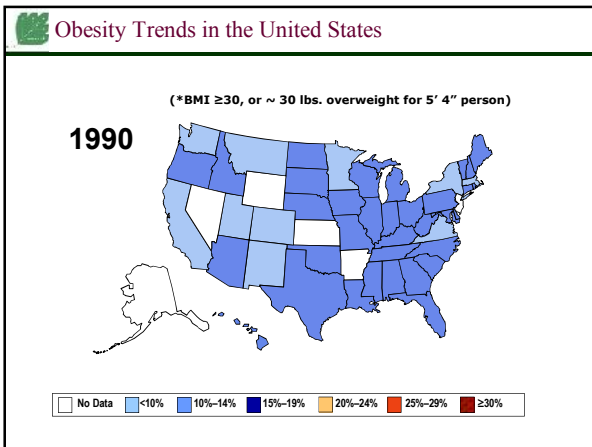
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The Number One Public Health Issue?

- What is the biggest (and we mean biggest) public health issue your community, state and country is facing today?
 - The Obesity Epidemic
- Beyond going on a diet, is there much that you can do about it?
 - Probably Not **Wrong!**



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Consequences of Obesity Epidemic

- 1/3 of all coronary heart disease deaths in the US could have been prevented through activity
- Strong relationship between walkability and bikeability and residents' overall physical health
- Walking and biking help prevent obesity, diabetes, high blood pressure and certain cancers

Adult Obesity Rates and Childhood Obesity Rates

ADULT OBESITY RATES | CHILDHOOD OBESITY RATES




2010

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Cost of the Obesity Epidemic

- In 2002, about 62% of Michigan's adults were either overweight or obese
- Physical inactivity in Michigan adults cost almost \$8.9 billion in 2002 or \$1,175 for each adult resident
- If 1 in 20 sedentary adults become physically active, a cost avoidance of approximately \$675 million per year over the next four years can be realized




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Solutions to the Obesity Epidemic

- Create places where walking and bicycling are attractive choices for daily trips
- Provide many active recreation options
- Culture change – we grow and shrink with the company we keep




And stop eating so much junk food

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The Number One Economic Issue?



- What is the most challenging economic issue your city, county, state and region is facing?
 - Not enough jobs
- Do you really think your community can do much to attract jobs these days?
 - Probably Not **Wrong!**



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The Economic Model is Changing


- Michigan lost 400,000 manufacturing jobs between 2000 and 2010
 - 860,400 jobs overall
- Those jobs are not coming back
 - Migration to other countries with lower manufacturing costs
 - Increase in automation requires fewer workers

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Reality of Economic Competition

- The idea of a local or state economy is quickly (if not already) obsolete
- We need to think of regional economies
- We are competing with everywhere in the world
- Our key competitors are the BRIC nations
 - Brazil
 - Russia
 - India
 - China



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The New Economy

- Business success comes from ability to incorporate knowledge, technology, creativity and innovation into products and service
- Talented, well-educated people choose location first, then look for a job
- Providing a high quality of life is the key to attracting and retaining talented, well-educated people




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Creating Job Growth

- MSU's Land Policy Institute's Growth Study Found that some segments of the population are better than others when it comes to attracting economic development
 - Educated youth
 - High energy immigrants
 - Educated senior citizens
 - Entrepreneurs




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The Importance of Place

What do these job creators want?

- Vibrant downtowns
- Green infrastructure
- Pedestrian and bicycle linkages
- Transit
- Diversity of housing options
- Recreation amenities such a water, hunting and fishing
- Creative entrepreneurial environment




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Solution to Creating More Jobs

- Create the places that job creators want to live
- Change the brand of the great lakes region from rust belt to green belt
- We have a lot to work with
 - Rail-trails & Greenways
 - Rivers & Water Trails
 - Vibrant Cities
 - Attractive places to raise a family
 - World class universities



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The Top Three Issues Facing Communities Today

- Environmental
 - Global Warming
- Community Health
 - Obesity Epidemic
- Economic
 - Loss of Jobs



The top three issues facing great lakes communities today have something in common,
a solution.

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The Common Solutions

- Walkable, bikeable and transit friendly communities
- Green places
- Active recreation options
- Vibrant downtowns
- A culture shift and a new identity





We have the foundation to establish the great lakes/mid-America region as the ideal place to live healthy lives, create jobs and play while addressing head on the challenges of the new century

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So What Does the Solution Look Like

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Anatomy of an Sustainable Active Transportation System

- A network for bicycling and walking that is attractive to a wide spectrum of the population
- A culture that embraces active transportation, where biking to work is perfectly normal
- An infrastructure that uses every opportunity to address environmental challenges




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Enhance Bicycle & Pedestrian Corridors

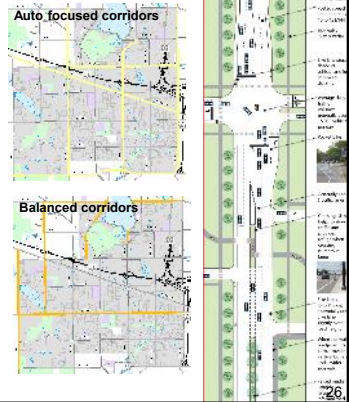
- Emphasis placed on the needs of the non-motorized users
 - Numerous mid-block crossings
 - Mini-roundabouts
 - Bike lanes
- Designed such that motorists will naturally drive 30 to 35 MPH
- Establish comfortable roads to walk or bike along



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Humanize Other Road Corridors

- Recognize that some roads in the City need to carry large volumes of motor vehicle traffic
- Even for these roads provide non-motorized users commuting to work or shopping the ability to safely move along or across the roadway



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Establish Neighborhood Connectors

- Provide connections to key destinations using local roads and connecting pathways
- Provide wayfinding improvements to help people navigate what can be confusing routes
- Make improvements to the routes to make them more bicycle and pedestrian friendly



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Make it Easier to Cross the Street

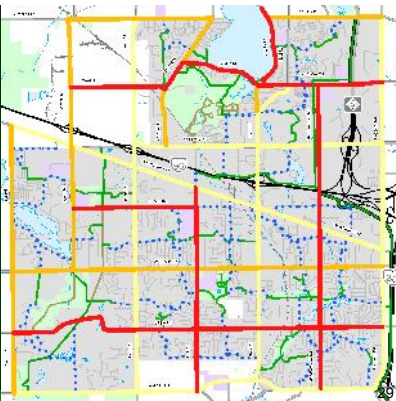
- A key aspect of neighborhood connectors is making mid-block crossing improvements where they intersect primary roads



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Non-Motorized Network

- Improvements to the primary road system
 - Identify and enhance bicycle and pedestrian focused corridors
- Network of neighborhood connectors and off-road trails



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From Bike Route to Neighborhood Greenway

- Start with a typical local roadway



Evolution of a neighborhood connector

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From Bike Route to Neighborhood Greenway

- Mark Bike Routes
 - Include destinations and distances
- Put in basic pedestrian facilities



Evolution of a neighborhood connector

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From Bike Route to Neighborhood Greenway

- Add traffic calming
 - Mini-roundabouts
 - Curb extensions
 - Medians




Evolution of a neighborhood connector

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From Bike Route to Neighborhood Greenway

- Add sustainable street elements
 - Permeable pavements
 - Rain gardens in the curb extensions





Evolution of a neighborhood connector

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What if We are Wrong – What Are We Left With?

- Capacity to handle even rare extreme stormwater events
 - Less property damage
 - Less pollution / health risks
- Walkable and bikeable community
 - A safe way for poor people and kids to get around
- Nice places to live
 - The kids may stay a little longer when they visit



Failure never looked so good!

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The Impact of an Active Transportation System on Your Community

Mid-America Trails and Greenways Conference
October 2-5, 2011



Nancy Krupiarz
Executive Director
Michigan Trails and Greenways Alliance

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Traditional Transportation Planning

- Traditional functional classification
 - Expressways
 - Major/Minor Arterials
 - Collectors
 - Local Streets
- Focused on moving cars and trucks
- Similar to Act 51 funding maps (major & minor streets)

Illustration: LSL Planning, Inc.

Transportation Systems Thinking

- Multi-modal network
- Primary network for each user (not all cyclists have same needs)
- Not every street will accommodate each user equally
- Plan a system with a good "quality of service" for all users

Illustration: LSL Planning, Inc.

Complete Streets & Related Concepts

- Sustainable transportation
- Livable streets
- Green streets
- Walkable communities
- Healthy communities
- Active communities
- Active transportation
- Context Sensitive Solutions
- Safe Routes to School
- Traffic calming
- Smart Growth

All contribute to improved safety, healthy choices, and a greener lifestyle

Photo: www.jedbeimages.org/Peter Speer

Context Sensitive Solutions

Street Design may vary to complement character of area

- Traffic volume/speed
- Land uses
- Building height and setback
- Distances to destinations
- Physical environment

Illustration: Duany Plater-Zyberk and Company

Paved shoulders, bike route signs

www.googleimages.com

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Sidewalks on both sides



<http://www.pedbikeimages.org/browse.cfm>

Bike lanes and bike parking



<http://www.pedbikeimages.org/browse.cfm>

Shared-use paths, trails



<http://www.pedbikeimages.org/browse.cfm>

Minimized crosswalk distances through curb extensions



www.flickr.com

Clear pavement markings



www.googleimages.com

Pedestrian signals, signage



<http://www.pedbikeimages.org/browse.cfm>

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So Why Now?

Photo: The Greenway Collaborative, Inc.

There has been a concerted move towards Complete Streets in the USA since the early 1990's

- There is a collective recognition that the system we have now does not fully meet our current needs
- Mobility for aging and low income populations
- Enhanced air quality
- Sustainable communities
- Economic challenges

Benefits: Cleaner Environment

- May reduce greenhouse gas emissions: fewer and shorter car trips
- Reduce carbon footprint as people choose to walk or bike
 - 1 gallon of gas=19.4 lb CO₂
 - 1 VMT=1 lb CO₂
- Reduce oil dependence
- 2006 studies show that the more walkable a community, the lower the vehicle emissions

...one pound of carbon gas is enough to fill an exercise ball...

Photo: lifesacker.com

Benefits: Increased Safety

- Slower traffic speeds reduce crash severity
- Pedestrian signals at proper locations can reduce pedestrian crashes
- Four to Three Lane Conversions (Road Diet)
 - 29-34% crash reduction
 - 68% injury reduction
- Multi-modal design
 - 90% decrease in pedestrian fatalities
 - 75% decrease in bike fatalities

Source: Killing Speed and Saving Lives, UK Dept. of Transportation, London, England 1994.

... installing pedestrian and bicycle facilities can reduce the risk of crashes by 28%.
-National Complete Streets

Benefits: Improved Public Health

- Active Communities = longer lifespan for residents
 - Reduces obesity
 - Reduces heart disease
 - Reduces diabetes
- Increase in physical activity reduces stress
- Businesses that provide walk/bike opportunities for employees during the workday report a ~30% reduction in sick-leave absenteeism, health care use, and worker's comp and disability claims
- Reduction in healthcare costs and insurance premiums

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Benefits: Livable Places/Econ Dev





Photo: The Greenway Collaborative, Inc.

- Catalyst for new and re-development
- More attractive and inviting streets
- Contributes to placemaking
- Attracting and retaining residents and business
- Leads to a stronger local economy
- Streets contribute to a community's defining character

"Houses with above-average levels of walkability command a premium of about \$4,000 to \$34,000 over houses with just average levels of walkability."
CEOs for Cities, 2009

Benefits: Mobility Access/Equity/Choice

Photos: Dan Burden

- Meets the needs of various users of different abilities
 - Children
 - Seniors
 - People with disabilities
- Provides a choice for mobility 20% of Americans have a disability that limits their daily activities
- Complete Streets creates access for the differently-abled and equity for low-income populations, and choice for all

Benefits: Quality of Life



Photo: Holly Madala

- Reduced traffic congestion = less time in vehicle + reduced stress levels
- Increase in physical activity reduces stress, increases productivity
- Live longer - joining and participating in one group cuts your odds of dying next year in half
- More social interaction

Consequences of Past Practice

Roads are engineered for high motor vehicle volumes and speeds

- Severe crashes/fatalities
- Signals timed for cars
- Congestion
- Auto emissions
- Discourages bicycling, walking, and transit use = rise in obesity rates
- Low income populations lack access to jobs and fresh food






Photo: Jake Bolino/Central Michigan Univ.

What do seniors fear most?
A. Death 50%
B. Giving up car keys 50%
Source: AARP

Health Consequences

- 1/3 of all coronary heart disease deaths in US could have been prevented through activity
- Strong relationship between walkability and bikeability and residents' overall physical health
- Walking and biking help prevent obesity, diabetes, high blood pressure, and certain cancers...mostly preventable diseases
- Poor exercise habits of employees cost employers additional healthcare costs

Photos: Dan Burden

Environmental Consequences

- Since 1980, Vehicle Miles Traveled (VMT) has increased 3 times faster than population
- Vehicles create 30% of Michigan's ozone-forming pollutants
- Between 1960 and 2001, Michigan's CO2 emissions from fossil fuels increased by 46%— primarily as a result of oil combustion for transportation

Year	Commute miles/person
1945	5
1965	13
1985	20
2005	27




Photo: unimadchick.com

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Mobility/Access/Choice Consequences


- At least 1/3 of Americans don't drive
- 55% of Americans would rather drive less and walk more
- 28% of trips in metro areas are short (1 mile or less) yet 65% by car

Who doesn't drive?

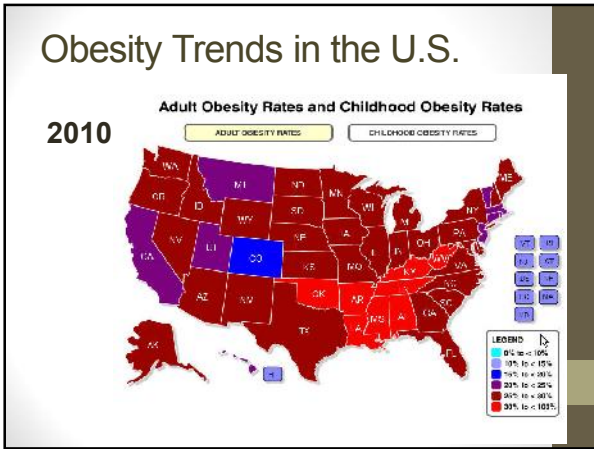
- By necessity
 - Seniors
 - Persons with disabilities
 - Children
 - Those lacking means to afford a car
- By choice
 - Many reasons – health, environment, enjoyment and costs

Quality of Life Consequences

- Every ten minutes of commuting reduces all forms of social capital by 10%
- Americans spend 100+ hours a year commuting to work, more than the average two weeks of vacation time (80 hours)
- Suburban mothers spend 17 full days a year behind the wheel, more than the average parent spends dressing, bathing, and feeding a child



Photos: The Greenway Collaborative, Inc.



Beyond The Physical Roadway





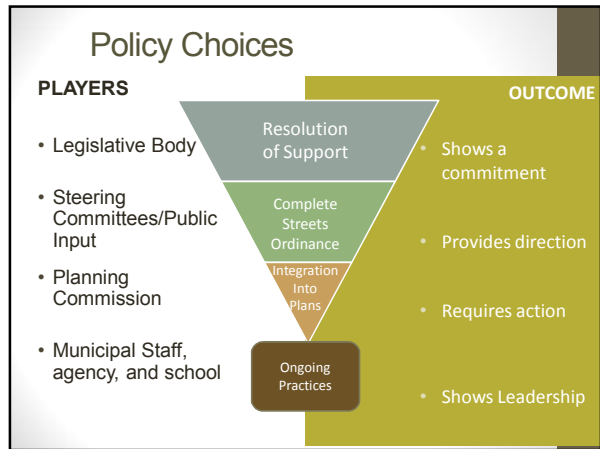
Photo: The Greenway Collaborative, Inc.

- Complete Streets go beyond physical design and infrastructure
- It is about creating culture and policies that provide safe and efficient transportation choices
- Like any cultural shift, this will not happen overnight

Complete Streets is a cultural change and a shift in our understanding of the value of streets beyond moving vehicles to ensure mobility, access, and choice for all.

Impact of Policy Change

<p>Projects or Events (e.g., 1 bike lane project or a Bike to Work Day)</p> <ul style="list-style-type: none"> • 1 time • Unique • Individual • Non-Sustaining 	<p>Policy change (e.g., nonmotorized planning process, ordinance changes)</p> <ul style="list-style-type: none"> • Ongoing • Change at the top • Integrated into business as usual <p>Policy work takes more effort, but it means "More Bang for the Buck"</p>
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Policy Alternatives: A Resolution Shows Support


- Adopted by the Legislative Body
- May become Purpose Section of ordinance
- Outline:
 1. Identify the Issue
 2. Refer to Statistics and Studies
 3. Define the Solution
 4. Discuss local support
 5. State the Desired Outcome



Policy Alternatives: An Ordinance

Outline:

1. Purpose
2. Definitions
3. Requirements
4. Applicability & Exceptions
5. Prioritization
6. Evaluation
7. Administration



Add Complete Streets to Your Plans

- Metropolitan Planning Organization (MPO)
- Comprehensive Plans
- Transportation Plans
- Non-motorized Plans
- Corridor Plans
- Subarea Plans
- Neighborhood Plans
- Safe Routes to School
- Transit Plans
- Downtown Development Authority (DDA) Plans



Moving Forward

1 Beginner	2 Practicing	3 Modest	4 Advanced	5 Leader
<ul style="list-style-type: none"> Holding seminars for officials Soliciting public input Building support 	<ul style="list-style-type: none"> Developing a vision Adopting policies and resolutions Plans modified or underway 	<ul style="list-style-type: none"> Policy in place Adopting ordinance Adopting new design standards Re-designing key projects 	<ul style="list-style-type: none"> Ordinance & design standards in place Money allocated Actively retrofitting projects 	<ul style="list-style-type: none"> Represents the model community Presenting seminars on success Implementing in all projects

Where do you want to be?

How to Proceed?

Begin by Discussing key issues in your community:

- Support in existing policies
- Current barriers to success
- Potential champions
- Desired approach: top down or grassroots?
- Required action(s)
- What Policy Documents are needed to show support?
 - Resolution?
 - Ordinance?
 - Plan?
 - Ongoing Practices?

RANGE OF POLICY TYPES:

General.....Specific

Multiple Pages.....Single Paragraph

Statement of Support.....Regulation

Self-imposing.....Prescriptive

Lessons Learned

DO:

- Emphasize benefits (supply documented & reputable facts)
- Build broad support (promote as adding choices for all users)
- Emphasize law and funding (supports local policies)
- Be reasonable (enact realistic and achievable policy)
- Stay committed (results will occur over the long term!)

DON'T:

- Make this a competitive issue (i.e. pedestrians v. bikes v. cars)
- Punish auto use (incentivize other modes instead)
- Go solo (broader support will garner better results)

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Questions or Comments

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