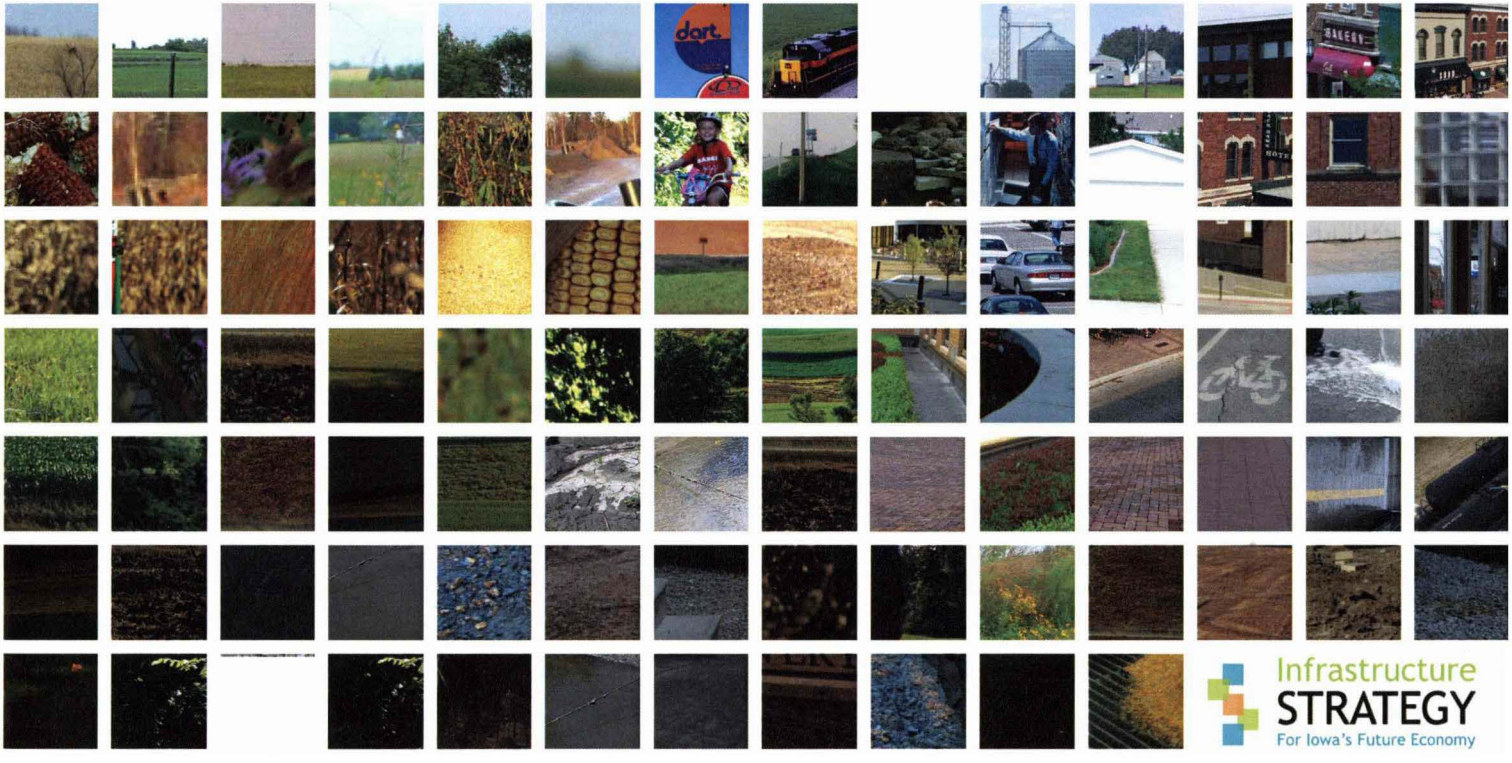
CHOOSE YOUR OWN INFRASTRUCTURE ADVENTURE

DRAFT

THE RIGHT INFRASTRUCTURE FOR A STRONG ECONOMY



Infrastructure
STRATEGY
For Iowa's Future Economy

Iowa's infrastructure is facing a crisis, today, placing the state's future economy at risk. The time has come to intervene and set infrastructure on an affordable, sustainable course. Iowa has some hard choices to make. There is no time to waste.

We can't afford to maintain, repair, or improve the infrastructure we have now. We don't always have ways to pay for new infrastructure. Sometimes we build new infrastructure we don't really need, and sometimes we don't build new infrastructure that we do need.

But remember this...

Iowans are rightfully proud of their state as an agriculture, business, and education leader. People are loyal, take care of one another, work to do the right thing, and want to be sure the future is bright for their grandchildren. These are Iowa values.

Time is marching on, however. Iowa is facing new challenges in maintaining those values. Nowhere is this more evident than in the state's infrastructure. Buildings and other structures, energy, natural resources, telecommunications, and transportation are the foundation of our state and make possible the economic strength on which Iowans build their lives and their work.

For years, Iowa's infrastructure has been shortchanged in repair, maintenance, improvements, and new development. Add to that the destruction from the tornadoes, storms, and floods of the spring and summer of 2008 and the national economic crisis later in the year and the result in a more formidable challenge to Iowa's infrastructure.

Now it is time for Iowans to tackle the challenges head-on. Since August 2009, Iowa Department of Economic Development has directed an effort focused on making sure Iowa's future economy is strong and resilient to support our families, jobs, and communities of the future. More than 125 Iowans from all parts of the state with all types of experience came together to research, discuss, and deliberate on how Iowa's infrastructure will be the foundation of our future.

By May 2010, these Iowans, with input and ideas from the public and other stakeholders, came up with a couple of dozen recommendations. Now what happens? Part of that answer may be up to you.

The *Infrastructure Plan for Iowa's Future Economy: A Strategic Direction* is a comprehensive strategic planning document providing detail of the problems Iowa faces, discussion of each sector, and a set of recommendations to assure Iowa has an economy to compete with the rest of the world. See the full plan at www.iowalifechanging.com.

WHAT IS INFRASTRUCTURE?

Infrastructure may not be the hot topic of social gatherings in your neighborhood, but it is very important to every Iowan's daily life and future. Most of the time, we dismiss thoughts of infrastructure because it's hard to think about, or we don't think it's very interesting. It seems big, it might involve digging and building, and it's probably somebody else's worry. Not really. It's often our infrastructure, and our future that's at stake.

The infrastructure we are including in planning are buildings and other structures, energy, natural resources, telecommunications, and transportation. These sectors truly are the foundation of our state, are intertwined with one another, and make economic activity possible.

Buildings and other structures are those parts of our communities and economy such as houses, apartments and condominiums, business offices, shopping malls, factories, community centers, schools and universities, government buildings, and much more. Storm sewers, sanitary sewers, drinking water systems, natural gas, electric, and other utilities may be considered part of buildings and other structures, but these also have clear overlap with other sectors such as natural resources and energy.

The energy sector is rapidly changing, so much so that it is difficult to get a handle on where Iowa should focus its infrastructure. We have a strong reliance, still, on coal and natural gas for our energy. But, Iowa is growing in our production and use of wind and other renewable sources. This means that energy infrastructure must be flexible and able to quickly develop in the directions that hold the most promise. This sector requires a vast amount of planning – and small, careful investments – for the "what ifs" in the sector.

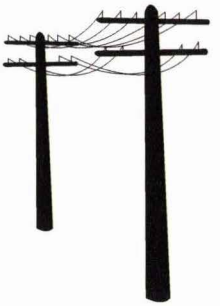
Natural resources are at the heart of Iowa's economy. We need fertile soil, clean air, and clean water in order to engage in productive economic activity. These may be agricultural, recreational, industrial, or other types of activities tied to our economy. Also included in natural resources is making sure that we are not inhibiting living and non-living things that work together and are interdependent – existing ecosystems. Natural resources also concerns how Iowans interact with the outdoors and those areas of the state – our parks and trails – that have been set aside for outdoor recreation.

Telecommunications infrastructure is often invisible to Iowans as we use it, but we have become highly and increasingly dependent on this infrastructure.

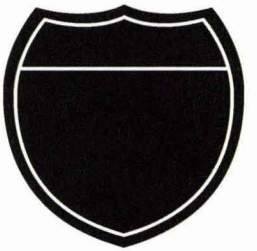
The common telephone handset at home or at work is but a tiny part of today's telecommunications. Telecommunications infrastructure is required to transport information of any type quickly and reliably, making access to reliable and affordable connectivity a fundamental need. This means that transactions such as buying groceries with a debit card, filling a prescription at a pharmacy, accessing the Internet from a computer or a mobile device, a truck delivering parts to a hardware store, and a grandparent wearing a portable heart monitor at home are all dependent on that connectivity. All segments of our economy are demanding greater connectivity for their success.

Transportation is the sector that typically comes to mind when an infrastructure conversation starts. Even transportation includes more than the average person imagines, spanning public roadways (which includes highways, roads, streets, and bridges), public transit, freight rail, passenger rail, aviation, navigable rivers, and trails. It seems to be fairly simple to understand on the surface, though it soon becomes complicated when the discussion turns to who is responsible for what, and how it's paid for.

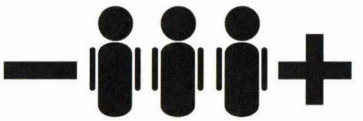
Iowa's leaders and residents want the state to grow and prosper in the future, making Iowa a place where people enjoy living and working; have quality of life; and enjoy options for recreation, health, and education. It takes a strong economy to attract and retain people, industry, business, and cultural amenities. Infrastructure makes a bright future possible, but it must be the right infrastructure. Each infrastructure sector has strengths and existing challenges, as well as new challenges to meet emerging needs and changing demands of future generations.



Electricity consumption is growing at 2.1% per year, placing Iowa **30th** in growth of electricity consumption.



From CY 2004 to 2008, highway construction costs in Iowa increased **67%**.

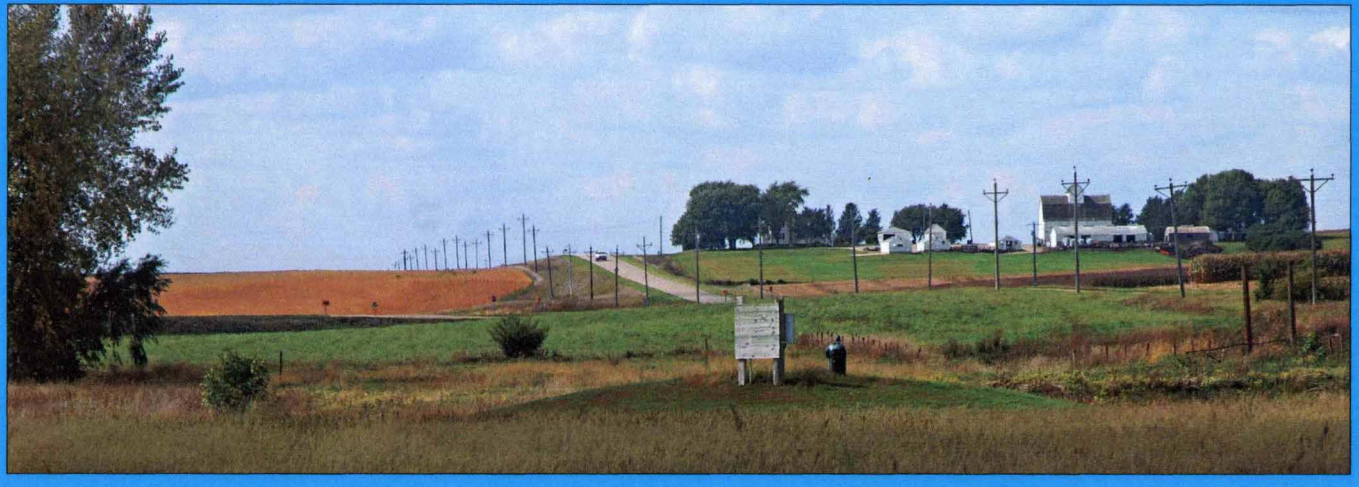


In the last decade, **719** of **950** Iowa municipalities lost population.

THE FORK IN THE ROAD

Collectively, Iowans have some important choices to make about the future. The economy can't grow and prosper without the foundation of infrastructure suitable for the times and the purposes. There will be costs associated with that infrastructure. Those who worked to develop the infrastructure plan focused on the economy of the future believe it will actually cost more in lost opportunity and lost economic activity if Iowa does not invest wisely in the necessary infrastructure to assure prosperity and a globally-competitive economy.

In addition, the five sectors that are the subject of this strategic planning process intersect and interact with one another intentionally and unintentionally. Many times the integration benefits multiple sectors, and increased multi-sector benefits need to be actively sought in future infrastructure initiatives. At other times, sectors intersect in ways that highlight divergent interests, and those, too, need to be identified and addressed. While that might complicate some infrastructure decisions, it often brings greater benefit. Overall, in planning strategically for the economy of the future, integration of infrastructure sectors is a fundamental expectation, should be intentionally developed, and solutions found to challenges. The theories and projections may be harder to sort out than a couple of examples of what might be real Iowan's experiences.



AUTUMN HARVEST

It is a crisp, fall day following a day of rainy weather. Fortunately, the fields are dry enough to be able to resume the corn harvest. The farm owner is operating the combine and monitoring the yields using the computerized system that he will later send to his office computer and match up with previously-gathered GIS data on seed variety, moisture, and soil quality.

As the combine fills with the wet corn, the cobs and stalks are re-deposited on the ground. The farm owner rides along, periodically touching base with the trucker and other harvest help on their cell phones. He begins to think that he should spend some time during the winter running the numbers to see whether he should invest in equipment to gather the corn stover to be sold as biomass to the ethanol plant 35 miles away from the home place. It would be great to support that new plant after such tough financial times. It's built near the source of raw materials, and he thinks it will help agriculture and the neighboring communities survive in the long run. He bumps across the harvested rows toward the semi parked in the end rows near the driveway. This should be the last dump of the bin before the trailer is full and can head to town. It's been a bumper crop this year, and his storage bins at home are already full. Natural gas prices were up this year, but because it was a pretty dry year he only had to dry the corn down 3.5 percent to store it. Now that his bins are full, the rest of the crop will be taken to the elevator in town just 12 miles away.

It's too bad the gravel road is still so soft from the rains last week, and now from yesterday. The ruts haven't had a chance to dry out and get smoothed over. The farmer figures he'll be hearing the Board of Supervisors complain about the costs of the

Iowa now has **more** wireless phone numbers than traditional phone lines.

Approximately **98%** of Iowa's 36 million acres is privately owned, leaving **2%** for public use

maintainer again, but, after all, having good farm-to-market roads is part of being an Iowan.

Meanwhile, the semi driver arrives at the elevator in town and pulls into line. These folks have been running this facility for two decades now, and they've done a pretty good job of maintaining the infrastructure, but it's always been a challenge to store grain when yields are high. They're already piling corn on the ground. Inside, the farmers are talking about how long they think it will be until grain cars available to haul corn. It shouldn't be too many days, they thought, and know they are fortunate to have built the elevator so close to the busy rail line, making it reasonably easy to get those cars to ship grain to market before it sits on the ground too long.

The semi driver weighs, unloads, and weighs tare before heading back to the farm to do it all over again.

The farm owner is hoping for a good week of weather with no equipment breakdowns so he can take Friday night off to go the Homecoming game at the local high school where his grandson plays center on the football team. He's a good kid, and so are his sisters and the cousins. He stops to think about how these days he thinks about them a lot, and knows that it's true what they always say, even though it sounds corny. It is all about the children, and their children – his grandchildren.

Autumn Harvest Choices

The farmer who owns this land has reached a "fork in the road" where he needs to decide which direction to head. Now you are the farmer faced with choices about not just your farm, even though it appears so, but about the infrastructure and economy of the future. What would you choose?

1. The farmer can choose to begin selling the corn stover as biomass. He would earn additional revenue and be supporting the local economy via the ethanol plant. On the other hand, he would need to spend money on equipment and would be removing the cornstalks from the field that have always provided nutrients back into the soil and provided cover to prevent erosion over the winter. What would you do and why?
2. This small business relies on gasoline, diesel fuel, and natural gas, though is interested in supporting ethanol production. Would you change your reliance on fossil fuels and how would you make any change?
3. How would you use connectivity to improve your operation if you were this business owner?
4. The farmer knows that the heavy farm equipment and trucks are damaging the roads. What, if anything, would you do about this impact?
5. The local elevator takes good care of farmers' needs on the average day. During booming harvests the capacity of the elevator storage is not enough and immediate transportation of grain is not available. What would you do, strategically, for the long term, to address the gap in vertical infrastructure (elevator storage) and/or the shortage of rail cars?

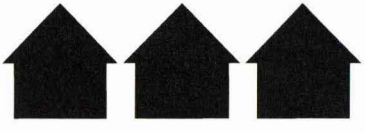
METRO LIVING

Her parents were worried, but she wasn't. They live in a small town and would worry no matter what she decided to do. She wanted to live where it was easy, near fun things to do, and have a upscale place, even though she was on a pretty tight budget. She picked a retrofitted warehouse as her new home, and she loves it.

In one of her university courses she learned about the life cycle of cities and the trends to move farther and farther away from the "old parts" of a city. "Infill development" may be the term for her new neighborhood, but to her it is just a great place to live. Before she decided to move into this area of the city she did a bit of research.

To support business as usual today, Iowa's energy needs would be **31%** higher in the year 2025.

To meet freight rail needs of Iowa's system would require an annual increase in funding of **$19 million** over the next 20 years.



A 2007 study indicated that **29%** of Iowa's housing units were built in 1939 or earlier.

It seems a few of the city's "movers and shakers" decided they couldn't let the city's central district fall into disrepair and end up with blocks of empty, unused space. They talked up the idea and gradually built up enough interest to have some serious talks and get some people involved with the know-how and resources to make it happen. She learned it wasn't an easy process and they didn't always agree, but they stuck together and worked it out, keeping their vision as their guide.

Oh, and there were problems. Sewers in older parts of the city are always a challenge. Zoning and building codes had to be followed. All that red tape. But it sounds as if the businesses and the governments wanted it to work, so it did.

And it was worth it for her and for the city. Among other things, the warehouse was renovated with apartments that would fit all types and ages of people – young, older and retired, those with disabilities, even families. And pets, lots of pets. Utility bills are low because of the good windows and how the place was designed. The neighborhood was planned to include a system so everyone has free high-speed connectivity – and it is fast and reliable – no matter where anyone lives or works.

After years of driving nine miles to get to work, it's sure a treat to walk just four blocks to her job as a graphic designer for one of the firms in town. Maybe that's why she likes the downtown mixed-use development – it's creative and interesting and makes the most of the landscape and surroundings. They have even put in some public art. There are trails and a park within six blocks, and it's a great place to ride her bike. They even did some landscaping using the natural flow of the land and using some kind of "permeable pavement" so the water doesn't just run off and pollute and flood the creek. She can walk anywhere easily and safely. Coffee shops are great gathering places and are always full of people studying, working, or just updating their Facebook pages. The public library is near the park, and the success of the new development helped the city decide to keep the library downtown. There's a grocery store, drug store, and restaurants and bars as part of the neighborhood.

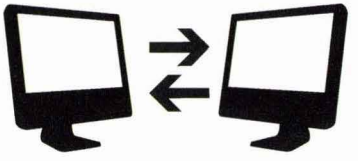
Someday, if she gets married and decides to have a couple of kids, she wonders if this would still be a good place to live. Time will tell, but right now she thinks so. There are parks, there's a school nearby, and most of all, the neighborhood seems to look ahead, not back. There's a pride in the accomplishments and a commitment to continue improvements. She wonders why there aren't more neighborhoods built where organizers have thought ahead and planned like this.

Metro Living Choices

This young woman is living with the benefits of choices that others made. When faced with the "fork in the road" of letting the central city deteriorate or making infrastructure investments to ensure a strong future economic center, they chose the latter. Now it is eight years later, and the young woman wants to move back to be near her family in the town of 12,500 people. As she moves to her hometown she wants to take action to start some of the same kinds of exciting changes that she learned about in her city neighborhood. You are this young woman. What choices would you make?

1. You know the town doesn't have what it takes to keep young people there or attract many like yourself to return. How would you decide what needs to happen to make it work?
2. If you were famous and rich, you could probably make these changes based on your reputation alone. But you aren't. What kind of support do you look for, and from whom?
3. What do you do when the 50-year resident of the town who has been on the city council for 32 years decides he doesn't like your ideas?
4. What impacts do each of the five sectors (buildings, energy, natural resources, telecommunications, and transportation) have on your ideas, and what impacts do the sectors have on one another?
5. How will you pay for your revitalization project?

Increased organic matter helps the soil act like a **sponge** allowing it to absorb and retain more water.



US ranks 15th among nations for average download speeds and Iowa ranks **35th** among states.

Iowa produces the **largest** amount of ethanol of any state (**1/4** of the nation's ethanol supply)

TIME TO ACT

The recommendations included in the *Infrastructure Plan for Iowa's Future Economy: A Strategic Direction* are not for the timid. Viewing five major infrastructure sectors as critical parts of a whole allows Iowa's private, nonprofit, and public sectors to benefit from their interdependence and create a more resilient infrastructure – and economy. It requires that Iowans shift from business as usual to a new pattern of integration in planning, decision making, funding, and implementation.

There can be no turning back without settling for less than the present conditions in our infrastructure and our economy. Maybe not immediately, but Iowa's economy may soon falter and fall farther behind without swift and certain steps to reverse the direction.

What is needed now is for the public, private businesses, educators and academics, interest groups, community organizations, trade associations, business and community leaders, and, of course, governments across the state to recognize that this opportunity is about them. Together or separately, they need to learn more about what is needed and possible, to ask questions, and to keep the goals of the future economy as their guide. Once Iowans understand the very real and imminent problems with our most basic infrastructure, they will coalesce in an Iowa determination to move forward.

Then they will be ready to transform Iowa's economy through a new approach to infrastructure investment. This means making sure the interdependency of infrastructure is optimized and that planning includes all those with an interest, regardless of any stakeholder's "position."

Action will create a collective, statewide living vision for Iowa's future economy. Participating in transforming our infrastructure through deciding to and persisting in working together with others will be required. Embracing change and taking on risk will be among the compromises that lead to Iowa's affordable and sustainable infrastructure.

It will not be easy, and it will take some time. But what are the options? Iowa will choose to look forward rather than backward.

Infrastructure Plan for Iowa's Future Economy: A Strategic Direction. See it at www.iowalifechanging.com

THE WORK THUS FAR

Ten months of work have gone into study, deliberation, and planning to reach this stage. Much information has been gathered and many ideas considered. An early set of recommendations has been developed and affirmed. More than 200 people have been involved in this work thus far through five Sector Committees, a Task Force, and public and stakeholder participation in six public forums. Representatives of the public sector, issue and trade interests, academic institutions, and government at all levels participated in the Sector Committees and Task Force. Members of the Infrastructure Planning Task Force, which developed the *Infrastructure Plan for Iowa's Future Economy: A Strategic Direction* are listed here. For more information, contact Thom Hart at IDED at (515) 725-3019 or thom.hart@iowalifechanging.com.

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Iowa ranks **2nd** in wind energy production (existing capacity) and **10th** in actual capacity.

Iowa's airports support **1.4 million** aircraft operations and **2.5 million** boardings annually.

RECOMMENDATIONS

The Infrastructure Planning Task Force developed five overarching recommendations and adopted the body of recommendations developed by the five Sector Committees. When implemented, these will set Iowa on the course to a strong future economy with a critical foundation of affordable and sustainable infrastructure. This section includes a condensed version of the 26 recommendations contained in the full document, *Infrastructure Plan for Iowa's Future Economy: A Strategic Direction*. For the complete plan, visit www.iowalifechanging.com.

Infrastructure Planning Task Force Recommendations

1. Develop and complete immediate actions to activate the work begun in this planning initiative in recognition of the crisis faced by Iowa's future infrastructure.
2. Implement all of the recommendations of each Infrastructure Sector Committee, with consideration for economies of scale and interdependency of the five sectors: Buildings and Vertical Infrastructure, Energy, Natural Resources, Telecommunications, and Transportation.
3. Establish a statewide planning mechanism to ensure ongoing local and state level, private, nonprofit, academic, public, and citizen involvement in coordinated, integrated infrastructure planning.
4. Implement criteria for infrastructure funding based on smart planning and economic growth principles.
5. Engage the public in developing a vision for Iowa's future that includes an understanding of infrastructure requirements to achieve the vision.

Buildings and Vertical Infrastructure Sector Recommendations

1. Establish a framework and principles to guide infrastructure planning, investments, and oversight.
2. Provide information and technical support for stakeholders on the elements of sustainable infrastructure.
3. Ensure that funding and regulatory structures support infrastructure priorities.
4. Encourage evidence-based decisions using data that can be analyzed regionally.

Energy Sector Recommendations

1. Provide public and stakeholder education and information about how Iowa can meet energy goals.
2. The private and public sectors need to work together to create appropriate development and funding in the changing energy sector, keeping in mind the value of current diverse communities and natural resources.
3. Identify opportunities for energy efficiency across sectors, establishing Iowa as a leader in best practices.

Natural Resources Sector Recommendations

1. Increase organic carbon levels in soil.
2. Manage watersheds and water resources to sustain quality and quantity of water necessary to meet community, business and ecological uses.
3. Manage watersheds and floodplains to reduce the impacts of flooding.
4. Implement practices to ensure Iowa's air will meet new federal public health and welfare standards.
5. Require that the impact on ecosystems be determined and considered in infrastructure planning and development.
6. Create opportunities to increase the use, enjoyment, and appreciation of Iowa's natural and cultural heritage.

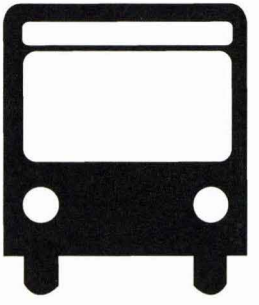
There are **541** impaired bodies of water in Iowa that do not meet the state's clean water stna

Telecommunications Sector Recommendations

1. Create a common, unified backbone that supports the public interest, is a public-private partnership that includes mutual benefits, and is built by consortiums.
2. Establish state policy that represents the public interest, pursues and advocates the mission/vision for telecommunications, and establishes financial plans to implement the policy.

Transportation Sector Recommendations

1. Assess the current transportation system and shortfalls, and develop affordable methods to prioritize, improve, and achieve accessible transportation for people, goods, and services.
2. Determine transportation infrastructure funding levels and mechanisms to adequately support the priorities established for the sector.
3. Engage and educate stakeholders, users, and citizens regarding transportation infrastructure funding and financing mechanisms, sustainable project priorities, investment decision-making, and policies and procedures.



Iowa has 35 public transit systems that provide over **25 million** rides annually.

IOWA life | changing

Iowa Department of Economic Development (IDED) provided the support and project direction for this initiative. www.iowalifechanging.com

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