

A New Environmental Direction
for the
Papio-Missouri River Natural Resources District:
A WHITE PAPER

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Table of Contents

Title.....	3
Abstract.....	3
Introduction.....	3
Background.....	4
An Historic Perspective: Past Accomplishments, Future Potential.....	5
Evaluating our Environmental Profile.....	7
The List.....	8
Headquarters & Buildings.....	9
Office Procedures & Staff.....	11
Political.....	13
Public Cost-Share & Utility Outreach.....	14
Information and Education.....	16
Policy.....	17
Implementation, Budget and Timeline.....	20
Summary and Conclusion.....	21
Appendix.....	22
A. Correspondence from Chairperson Jim Thompson.....	22
B. The Ethanol Quandary.....	24
Acknowledgments.....	25

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ABSTRACT

The Papio-Missouri River Natural Resources District (District) was directed to investigate methods of reducing our environmental impact on the planet. It was understood that this directive was to be open-ended and ongoing. A district-wide operational review was launched; resulting in recommendations for new initiatives, policies and projects as well as an array of cost cutting, waste reducing and energy-efficient measures for immediate implementation. These recommendations are arranged into six broad categories: *Headquarters & Buildings; Office Procedures & Staff; Political; Public Cost-Share & Utility Outreach; Information and Education; and Policy.* They range from the use of wind and solar resources to improved vehicle scheduling and attention to recycling. Implementation suggestions, a proposed budget and timeline are discussed.

Introduction

In a correspondence of 12 April 2007 (Appendix A), Board Chairperson Jim Thompson issued a challenge to the Papio-Missouri River Natural Resources District General Manager that the District address its environmental impact and policies in light of both contemporary knowledge and the District's public role in resource management. The ultimate goal is a new and responsible environmental mission for the District.

Chairperson Thompson directed that this process begin by a review of our own operations, policies and practices, utilizing a staff review team comprised of "those with a unique concern for the long term effect of our existence, and the willingness to participate in addition to their regular duties."

This is the challenge to the District, *and* its opportunity.

Background

Since the establishment of Natural Resources Districts over thirty-five years ago, the Papio-Missouri River Natural Resources District has focused on addressing a variety of environmental issues resulting from soil erosion, ground and surface water pollution, flooding fears, habitat loss and others. Programs and projects have been developed over the years to tackle these concerns.

There remains, however, a significant environmental need in District operations—that the District address its own impact on the planet. To paraphrase Chairperson Thompson’s goal, we should be endeavoring...

...TO MINIMIZE THE CONSUMPTION OF NON-RENEWABLE RESOURCES,
REDUCE OUR CONTRIBUTION TO THE OVERALL WASTE STREAM, AND
UTILIZE ALTERNATIVE, RENEWABLE SOURCES OF ENERGY
WHEREVER PRACTICAL.

Furthermore, this was to be accomplished without diminishing the financial resources currently committed to our historic concerns of flood control, habitat restoration, soil conservation and other authorities.

To some degree, this environmental mission is already an element of District activities. That the District has been a good steward of our natural resources is evidenced by our existing programs and projects. Over its lifetime, the District has developed informal procedures regarding recycling and utilizing post-consumer materials on projects and in the office.

Currently, the District budgets approximately \$2.4 million annually on programs to control soil erosion, i.e. Urban Drainage Way, Urban Conservation, and Rural Conservation Assistance for terraces, waterways and other structures. Cost-share projects for Missouri River habitat restoration add an additional \$500,000 to the budget. We also participate in and support annual pesticide and hazardous waste container drop-off programs and tire recycling projects to keep these from fouling our creeks, streams, groundwater and landfills.

This NRD also owns and administers four rural water systems that provide a dependable source of potable water to areas that would otherwise lack this resource.

The District conducts or participates in a wide variety of environmental education programs and presentations. We help coordinate or sponsor environmental activities throughout the District’s six-county reach and further enhance our influence through publications, brochures and pamphlets.

All of these existing programs, projects, publications and activities require significant staff time and effort to play an effective role in the District’s existing environmental mandates. For this we *do* deserve a pat on the back.

The challenge presented by Chairperson Thompson, however, is to use these past successes as a jumping-off point for an expanded vision, and to explore the huge diversity of forms and possibilities — both active and passive — that could further its reality. Conservation, recycling,

wise purchasing, modified vehicle usage, topical I&E programs and District projects, policy changes, and cooperation with other entities to achieve this goal are but a few of these forms.

On 24 May 2007, an ad hoc committee of District staff formally assembled to initiate a response to Chairperson Thompson's challenge. This brainstorming session, and the subsequent internal e-mail and telephone communications over the months of investigations, resulted in valuable input from throughout the District as well as from various outside environmental experts.

Guiding the development of this report were the Green Building Council's *LEED for Existing Buildings* (LEED-EB) Version 2; publications from the Rocky Mountain Institute (RMI), the Nebraska Energy Office (NEO), the Nebraska Department of Environmental Quality (NDEQ), the Environmental Protection Agency, the Argonne National Laboratory, and the National Renewable Energy Laboratory; and several germane websites, articles, and documentaries. The combined experience and common sense of the committee were crucial in driving this process.

It became clear from the onset — and the nearly one hundred specific suggestions from the initial brainstorming session alone — that there is wealth of ideas for 'greening' the District.

The task then became one of managing this wealth, the challenge to "get our hands around" the input — to filter, refine and assess each idea's value toward accomplishing the stated goal.

This White Paper presents the results of this endeavor: a collection of suggestions and ideas for this District to consider formalizing into policy or developing as programs. It is presented with the hope of stimulating a new kind of thinking and even greater possibilities. The approach of this paper is that of a shopping list: if something appeals, take it to the checkout. It might be something worth a deeper look, whether as initially presented or with modifications. This is an ongoing process. As it matures, so will the knowledge and technology available, and subsequent recommendations will reflect those changes.

The input gathered has been arranged into broad categories to provide organization of the concepts. Some categories will overlap. They are flexible and may be adjusted as time and needs dictate. They are presented in a later section for discussion and contemplation, in a simple list format.

An Historic Perspective: Past Accomplishments, Future Potential

The Nebraska Natural Resources District system, which includes the Papio-Missouri River NRD, has an exceedingly wide range of legislated authorities. Our influence is seen throughout the state, and our scope extends well beyond our boundaries. We have benefited from this influence on the national level as well.

In the past, this NRD has tackled seemingly impossible tasks. One example is our contribution to restoring sections of the channelized Missouri River to a more natural state. "It is too big a job for an NRD"; "It is not our problem"; "The river system should be a federal concern and we have too much to deal with already" — such were the discouraging sentiments tossed our way. But *nothing* was being done on the federal level and the Missouri River flowing along this NRD's border was seen as a place to avoid.

Ignoring the problem did not make it go away. In the 1990s, American Rivers, Inc., a national lobbying and activist organization based in Washington DC, designated the Missouri River “the most endangered river system in the nation.” They referred specifically to the river reach from Sioux City to the confluence of the Mississippi. The river system, through decades of abuse, had become a drainage ditch.

It may surprise some to learn that this NRD was instrumental in obtaining the initial \$51.9 million in Federal Corps of Engineers’ mitigation funding for the Missouri River. This was accomplished in the late 1980s and early 1990s after our coordinating a challenging sequence of nine four-state meetings, held in our headquarters’ building over a period of 18 months. Numerous individuals, entities, congressional representatives from both parties and others participated. Cooperation towards a defined goal was the key, and federal funding was secured.

Additional mitigation and other Federal COE funding, amounting to tens of millions of dollars *annually* have subsequently been achieved. The COE alone has received \$85 million in FY 2007 for Missouri River recovery, as well as additional funding for their other habitat restoration cost-share programs. Over the years, the District itself has contributed approximately \$500,000 annually towards accomplishing this Missouri River ecosystem restoration success. The Boyer Chute, Nathan’s Lake, Hidden Lake and Great Marsh, California Bend and the ongoing Lower Decatur Bend are significant examples of these projects.

By awakening the conscience of this state, and then the country, the District received millions of dollars in Nebraska Environmental Trust Fund grants, federal fine monies and other funding for Missouri River restoration work. Our most recent partnership is with the Natural Resources Conservation Service (NRCS) on the country’s first Wetland Reserve Enhancement Program. The NRCS has committed tens of millions of dollars *specifically* for Missouri River habitat restoration. Due to these recent federal funding allocations, further District construction funding needs for Missouri River restoration projects are undoubtedly winding down.

This was a brief synopsis of an undertaking once deemed impossible, one that the Papio-Missouri River NRD instead converted into a major, continuing success story. While its restoration is an ongoing mission, we have virtually assured the country that the once magnificent Missouri River system is well on its way to renewed health and recovery.

Beyond the dramatically visible results along the wild Missouri have been other far-reaching effects along the entire Omaha riverfront. Literally hundreds of millions of investment dollars have been spent to bring people “back to the river.” The community attitude that held the river suspect, dirty and dangerous is unfolding into an awareness of its true nature as a beautiful, vibrant and powerful environmental resource — one to be appreciated, respected and enjoyed. The snowball effect from this NRD’s initial efforts of nearly two decades ago will ripple for decades into the future.

This summary is simply an example of what this NRD can accomplish when it takes the lead with determination and focus. By identifying a problem, taking local action, and utilizing programs, projects *and example*, it can become a leader in guiding the region’s future.

There are many examples of our accomplishments, whether they pertain to soil erosion, flood prevention or other authorities, but it serves little purpose to expand upon them here. Chairperson Thompson’s new challenge looks to our future, and to our playing a meaningful role in its health. He stipulates that this search be ongoing, limitless in its horizons and broad in its

scope, to achieve the goal of lightening our impact and providing leadership on a broader scale by example. Let us take this challenge to heart.

Evaluating our Environmental Profile

There is no doubt that we are a consumer nation, and this District is no exception. We use power to heat, cool and light our buildings. We demand water for drinking, cleaning, waste removal, and lawn irrigation. Our always-accessible vehicles require fossil fuels and chemicals, and we buy and discard immense amounts of disposable goods such as paper products, cleaning materials and office supplies.

Assessing our resource consumption, District-wide, is simplistic but revealing. Our environmental footprint is formidable. Electricity used per year just for the headquarters building averages 469,200 kwh at a cost over \$27,000 at today's rates. Our annual use of natural gas and water presently average 11,437 therms and 677,419 gallons, at a cost of \$10,700 and \$1,191, respectively. This \$37,700 yearly cost for non-renewable resources is no small amount, nor does it include the impact to air and water quality in the performance of the District's 'business as usual'.

The cost of fuel and oil to operate District vehicles and equipment has steadily increased from \$73,000 in 2004 to \$140,000 in 2006. This 92% *cost increase* (46% per year) to maintain our fleet of vehicles is largely a factor of increased fuel costs. (A small percent may reflect a slight increase in miles driven.)

This District's vehicle operation costs (*not* including acquisitions or repairs), if not curtailed, will undoubtedly increase. It should be noted that the largest rise in gas prices in the history of this country, those of this calendar year, are *not* reflected in these figures.

In Nebraska, there is no identifiable entity making a coordinated effort to address the goals set forth in this paper. Certainly, there are federal and state agencies, individual cities, and NGOs that singly support conservation efforts and expanded use of renewable energy. Some have admirable conservation programs or incentives. But few have clear direction, established directives, funding sources or the authority of an NRD, required to have a genuine impact beyond a limited reach or scale.

The NRD's present goal of decreasing its environmental impact and the achieved goal and ongoing work of restoring the Missouri River ecosystem are uncannily similar. Both are complex and demanding undertakings and both are powerfully positive with potentially far-ranging repercussions. These are challenges well worth undertaking.

There are additional environmental issues that this NRD can and should address. If more mundane, our fiscal responsibility to our taxpayers is equally significant. It alone demands that we take the lead in developing internal policies and programs to conserve our existing energy resources and pursue more efficient, renewable alternatives.

The current climate has seen numerous large, private, distinctly for-profit companies such as Wal-Mart, the Bank of America, Whole Foods, Toyota and others adopt a conservation approach to successfully curb expenses and increase revenues. Should the District do any less?

In its pursuit of more noble causes, this District should be fully using its authorities to lead and direct our constituents in environmental responsibility. At the least, we can model conservation's

real-life viability and make conscious the consequences of inaction. If successful in these outcomes alone, we will have made a real difference.

The Papio-Missouri River NRD should:

- Direct with *programs*
- Direct with *projects*
- Direct with *information*, and most importantly
- **Direct by example.**

We have the authority and the obligations it confers. We *can* make an impact — significant and far-reaching, even national in scope. To paraphrase Thomas L. Friedman, *NY Times* columnist in his article of 15 April 2007, “The Power of Green”:

Going green is not about cutting back. It is investing in a whole new industry to make America the global leader. Green has to become part of America's DNA.

THE LIST*

Below is an initial collection of concepts, suggestions and ideas to consider and develop as feasible tools toward achieving this new goal. It is a comprehensive inventory of ideas collected during this initial phase, applicable to each NRD facility or project location throughout the District's six-county reach. The list is open-ended, welcoming further additions with the refinement of both the District's direction and environmental technology.

Most items below address specific environmental needs observed throughout the District. Others are proactive and focus on prevention. Both approaches are part of the solution. Some suggestions are extensions of existing programs, some part of future programs or projects, many at little or no cost to the District and easily implemented. There are also items listed requiring further research beyond this White Paper. If they are of interest, they will be developed and refined. A brief explanation accompanies items as needed. Discussion of implementation follows this section.

The ad hoc committee initially planned to prioritize items in each section, but later decided this should be a Board determination. The committee suggests, however, that decisions not rely solely on a “cost verses payback” approach. This is a new paradigm, and some ideas with little immediate or indeterminate payback have potentially huge long-term benefits. The real test for readers is to create a list of their own thoughts, possibilities, programs and projects that could be added to this initial register of items.

As indicated earlier, this list is divided into six general categories: **Headquarters & Buildings; Office Procedures and Staff; Political; Public Cost-Share and Utility Outreach; Information and Education; and Policy.** Items appropriate for multiple categories are listed in each.

It is hoped that the ideas herein will stimulate discussion, and result in the development of a cohesive, relevant, exciting and timely plan for the District's future.

* Ethanol discussion can be found in Appendix B

Headquarters and Buildings

1) Purchasing

- a) Buy strictly recycled/recyclable products where possible.
- b) Adopt a 'cradle to grave' philosophy reflecting cascade of effects on the environment, esp. for cleaning and maintenance supplies.
- c) Specify minimum or no packaging.
- d) Restrict purchasing to single department for all supplies, standardizing environmentally appropriate purchases, most cost-effective methods (i.e. volume discounts, which also may allow specific vendor requests.) See *Office Procedure and Staff* section.

2) Lighting

- a) Install light shafts (Sun Tunnel® /skylights) where feasible (store rooms, stairwells, etc.)
- b) Replace incandescent lights with energy-efficient LED, CFL or other suitable bulbs.
- c) Install automatic, motion detector lights for infrequently or irregularly used areas to include bathrooms, storage areas, stairways, shop, etc.
- d) Turn off all lights when not in use: shop, restrooms, storage, stairwells, etc. Assign person to make quick 'hourly' rounds.

3) Restrooms

- a) Install water-efficient faucet-head aerators.
- b) Install motion detector faucets.
- c) Replace conventional toilets with water-efficient, low flow and/or dual-flush units.
- d) Discontinue use of automatic toilet bowl sanitizers.
- e) Recycle grey water (from rain barrels, wash water, etc.) for toilet flushing
- f) Install composting toilets in outbuildings and at demonstration areas.
- g) Remove automatic room sprayer sanitizers.
- h) Install hand dryers.

4) Landscape / Grounds / Project Sites

- a) *Xerophytic* (drought resistant) plantings at entrance to building, boulevard drive to minimize irrigation and maintenance. Include buffalo / other native grass and forb species, rain garden, solar pumps, rain barrel/water features, etc. The new riverfront National Park Service building is an excellent example of this system approach.
- b) **Pesticides:** Minimize or eliminate use around building for insect/weed control. See *Policy* section.
- c) **Mowing:** Minimize areas mowed at all NRD sites as well as limiting levee mowing to berms only. See *Policy* section.
- d) **Irrigation:** Minimize overall and use non-potable grey water from lake or rain barrels.
- e) **Entrance:** Seal main entrance vestibule inner door as an airlock.
- f) **Rain Garden:** Install a functional system at main entrance parking areas to filter runoff or as demo project at Hwy 370 entrance.

- g) **Eco-trails:** Investigate and use a mix of a variety of recycled plastic, metal and other materials as aggregate with cement if appropriate on our trails, parking lots, etc. as was completed in South Sioux City.
 - h) **Concrete**
 - i) Utilize porous, water-pervious concrete on parking areas, trails and roads. Provide public demonstration area at Hwy 370 entrance. See *Policy* section.
 - ii) Include maximum fly ash allowable in NRD projects. Cement production requires considerable energy, and replacement with fly ash is good use of resources. The Bank of America in NYC uses 55% concrete and 45% fly ash. See *Policy* section.
 - i) **Chalco development:** Prohibit further non-environmental development at the Chalco site, i.e. roads, trails, etc. See *Policy* section.
 - j) **Demonstration site:** Create public, environmental demonstration area at Chalco for rain gardens, porous concrete, asphalt trail sections, plantings, composting, etc. See *Information and Education* section.
 - k) **Greenhouse:** Build on-site for demonstrations and growing plant stock for NRD use or give away.
- 5) **Energy Conservation (see Lighting)**
- a) **Office Equipment:** Turn off computers when not in use, not sleep/screen saver mode.
 - b) **Pop machine:** Install timer for shut-off after hours.
 - c) **Coffeemaker:** Make thermos available for coffee and hot water in break and board rooms to eliminate warmer being on all day. (Coffee tastes better, too).
- 6) **Disposables and Recycling**
- a) **Dishes:** Eliminate disposable, plastic, Styrofoam or paper products. Utilize washable ones for break area and boardrooms.
 - b) **Can crusher:** Purchase for areas as needed, i.e. shop, break rooms, etc.
- 7) **Building**
- a) **Windows**
 - i) Replace with Low "E" glass (low emission coating to suppress radiant heat flow).
 - ii) Add awnings, trellises, shade trees or film to shade south side of building during summer.
 - b) **Pressure test:** Conduct a 'blower door' pressure test on all buildings to determine areas of infiltration/leakage.
 - c) **Energy audit:** Hire professional audit for LEED certification direction to include all HVAC systems and options. Internal staff and OPPD energy audits should be considered a foundation to build upon.
 - d) **Infrared test:** Conduct infrared thermo scan on all buildings in winter to determine areas of heat leakage and poor insulation.
 - e) **Repairs:** Use only mildew resistant materials; provide drainage, insulation and ventilation in basement areas.
 - f) **Insulate** ceiling and basement to maximum possible. The best use of energy is no use.

8) **Utilities and Appliances**

- a) Replace existing low-efficiency units with **Energy Star-rated**.
- b) **Water heaters**
 - i) Replace with “on-demand” heaters rather than tanks.
 - ii) Add solar heaters or solar pre-heaters.
- c) **Heating/cooling:** Install set-back thermostats.
- d) **Wind generators:** Install systems where feasible for electricity. Initiate study of best alternatives.
- e) **Solar panels:** Install photovoltaic (PV) systems where feasible for electricity. Initiate study of best alternatives.
- f) **Geothermal heat pump:** Install systems where feasible for heating/cooling.
- g) **Solar water heaters:** Install heliostat mirrors or solar collectors where feasible for water and building heating.
- h) **Install smaller hot water tanks**, i.e. 10 to 15-gallon size.

9) **Water**

- a) **Rain barrels:** Install and use for irrigation, toilet flushing and demonstration.
- b) **Drinking water:**
 - a. turn off chiller at water fountains.
 - b. Provide in-house reverse osmosis, carbon filtered water in break area and boardrooms.
 - c. Discontinue purchasing bottled water in plastic containers. It takes nearly 7 times the amount of water to manufacture the bottle than is contained within the bottle to drink.

10) **Rent:** Equipment and vehicles as needed rather than purchasing.

11) **Cleaning supplies:** Use non-toxic and biodegradable substances.

12) **Tree chipping:** Provide Christmas tree chipping site and service as a carbon sequestration alternative. Prohibit burning of trees at all project sites. See *Policy* section.

13)

14)

Office Procedures and Staff

- 1) **Work week:** Schedule a compressed, four-day work week where feasible. This will eliminate 20% of driving, fuel consumption and emissions. Office utility use will also be reduced. See *Policy* section.
- 2) **Office hours:** Support scheduling of ‘flex hours,’ allowing off-peak travel (not rush hour) and reduce travel times, emissions and fuel use due to traffic idling and congestion.
- 3) **Telecommute:** Make this a mandatory monthly/weekly requirement, as do some federal offices. NRDs can now perform virtually all office functions remotely. Fully utilizing this capability will result in reduced travel, fuel consumption and emissions, and *will prepare staff to maintain office functions in the event of emergencies* as is currently practiced at federal agencies. See *Policy* section.

- 4) **Information and Technology:** Fully utilize capabilities for remote access and office functionality.
- 5) **Carpools:** Assist, encourage and/or provide incentives for employees. Nationwide, 80 % of people drive alone to work; at the NRD, over 90% do so.
- 6) **Meetings**
 - a) Eliminate monthly meeting requirement for field staff. Utilize conference call or internet conferencing to replace travel from Blair, Walthill or South Sioux City.
 - b) Utilize computer conferencing with all possible meetings of District offices.
- 7) **Recycle:**
 - a) Expand District practices to recycle everything possible, i.e. batteries, all plastic and metal, ink cartridges, glass, etc. See Policy section.
 - b) Assist in creating markets for products not currently recycled (Styrofoam, all plastics, glass, etc.).
 - c) Purchase recycled/refurbished items wherever possible, i.e. furnishings, storage, etc. See *Policy* section.
 - d) Print or copy only on recycled paper.
- 8) **Purchasing:** Utilize central procurement (a single entity) for all purchases, standardizing environmentally appropriate purchases, obtaining volume discounts and achieving minimum packaging requests. See *Policy* and *Headquarters and Buildings* sections.
- 9) **Print:**
 - a) Use only soy or other 'natural,' non-polluting ink.
 - b) Use maximum % of post-consumer waste recycled paper.
- 10) **Reports / Communications**
 - a) Eliminate redundant progress reports for both time and paper savings.
 - b) Create and utilize **NRD intranet** for more efficient and timely information sharing, project status reports and updates, calendars, etc.
- 11) **Personnel**
 - a) Create position of environmental overseer to coordinate retrofitting of facilities and oversee continued operations and enhancement of energy initiatives (policies and programs) adopted by the District.
 - b) Add full-time position to administer new I & E programs. See *Information and Education* section.
 - c) Hire summer maintenance staff from environmental/natural resource majors (or equivalent). These have limited areas of potential employment (Nebraska Game and Parks Commission and NRD), and increase District efficiency and public goodwill. They are knowledgeable and quick to train, and more responsive to the public regarding local environmental issues and site conditions. See *Policy* section.
- 12) **Vehicles**
 - a) Eliminate all idling when not in traffic.

- b) Install regulators or governors to restrict vehicle speeds to 65 mph for significant fuel use reduction. The DOE states that every 5 mph over 65mph represents a 7 percent increase in fuel use.
- c) See *Policy* section for more vehicle discussion.

13) **Affiliations**

- a) Become sponsoring/support member of *WasteCap Nebraska* for continual evaluation and updates and for waste stream evaluation training, etc. Consider establishing an Omaha chapter.
- b) Join and encourage membership in ICLEI (International Council for Local Environmental Initiatives), committed to sustainable development for local governments (<http://www.iclei.org>). See *Public Cost-Share and Utility Outreach* section.
- c) **Nebraska Energy Office:** Actively pursue and support compatible programs and projects.

14)

15)

Political

- 1) **Legislation:** Develop a comprehensive package of state environmental bills with our state senators and lobbyist to include:
 - a) tax incentives
 - b) cost-share programs
 - c) rebates and loans
 - d) minimum vehicle mileage standards for new vehicles sold in Nebraska
 - e) minimum environmental building code requirements...for use of alternative, renewable energy sources and materials.
- 2) **Washington DC lobbyist:** Direct lobbyists to work with congressional representatives and environmental organizations to:
 - a) re-establish meaningful CAFE (Corporate Average Fuel Economy) standards for the U.S.
 - b) provide better incentives for individuals and companies to utilize solar, wind and other renewable energy sources that would benefit Nebraska.
- 3) **Collaborate** with *Nebraska Natural Resources Commission* and *the Nebraska Association of Resources Districts* to develop policy that focuses on renewable energy sources and waste stream reduction with penalties and incentives.
- 4) **“25 x’25” Goal:** Challenge Governor Heineman’s endorsed goal (and national initiative) of 25% of our energy being derived from renewable sources by year 2025. This District should strive for a minimum “50 x’15” goal (50% reduction in non-renewable energy consumption by year 2015). Extend this challenge to other NRDs, public entities and corporations.
- 5) **Net Metering:** Actively direct our lobbyists to assist in passage of legislation allowing state net metering (selling back locally produced energy) for solar, wind and other renewable power sources.

- 6) **Current programs:** Expand our currently established environmental programs, i.e. well abandonment, recycling, river/habitat restoration, etc. See *Information and Education* section.
- 7)
- 8)
- 9)

Public Cost-Share & Utility Outreach

- 1) **KOB:** Provide drop-off site(s) for *Keep Omaha Beautiful* cleanups: cell phones, glass, paint, chemicals, etc.
- 2) **MAT**
 - a) Develop mass transit route(s) to Chalco and surroundings. Encourage use of mini-bus or alternatives with several inter-city pick up points.
 - b) Encourage MAT to convert busses to alternative, renewable and/or cleaner burning fuels.
- 3) **OPPD**
 - a) Encourage creation of additional incentives for conserving energy and disincentives for those using more i.e.: off peak use rates.
 - b) Develop cooperative relationship with their newly created 'Sustainable Energy & Environmental Stewardship' division.
- 4) **MUD:** Encourage creation of incentives for water conservation and disincentives for water waste.
- 5) **City/County**
 - a) Develop incentives for high-efficiency vehicles, (i.e. free parking for hybrid, high-MPG, and EV- electric vehicles), carpooling, etc.
 - b) Encourage hybrids and alternative-fuel vehicles in fleets.
 - c) Encourage planning departments to support mass transit options, condensed-area development, minimum alternate energy sources (solar, geothermal, etc.), Energy Star appliances, etc.
 - d) Join and encourage membership in ICLEI (International Council for Local Environmental Initiatives), an association committed to 'sustainable development' for local governments (<http://www.iclei.org/>). See *Office Procedures and Staff* section.
 - e) Encourage minimum mowing of parks and right of ways; minimum watering and maximum use of native and drought-tolerant grasses, forbs, trees and shrubs.
 - f) Support resumption of glass recycling in curbside trash pick-up.
- 6) **NDEQ:** Work and assist lead remediation educators via grants/programs.
- 7) **Developers, Planners and Architects:** Encourage and provide incentives, certification training and awards for green development.
- 8) **Tree planting:** Provide individual grants and revitalize the *Branching Out* and *Celebrate Trees* programs.

9) **Cost-Share**

- a) For push or electric mower purchases. Gasoline mowers are one of the worst polluters and least efficient engines.
- b) Consider added cost-share incentives for solar, wind or other renewable energy, energy conserving, or Energy Star items.
- c) Expand rural water hook-ups to reduce number of private wells and provide better control of groundwater point source pollution.

10) **Asphalt Dealers/Contractors:** Provide incentives to use crushed glass mix (glasphalt) or shredded tires/rubber.

11) **Under the Sink** (Omaha's household hazardous waste collection/recycling facility): Make accessible to residents of entire District. Assist with the development of a northern sister facility and add web link to their site (www.underthesink.org) from the NRD's.

12) **Recycling**

- a) Cooperate with the RC&Ds on personnel and funding assistance to support and expand their programs.
- b) Assist the City in expanding number of permanent drop-off sites for recyclables.
- c) Sponsor paint/materials swaps.
- d) Join and collaborate with Nebraska State Recycling Association (NSRA), Metropolitan Area Recycling Council (MARC), and similar such organizations.

13) **County Extension Services:** Assist in expanding their environmental / conservation programs and materials throughout the District.

14) **Nebraska Energy Office:** Assist to expand all aspects of their operations to include their *Certified Nebraska Green Builder* certification program.

15) **Slow Food:** Promote and provide incentives for locally grown products, especially organic, through truck gardens, farmers markets, grocery stores, etc. Most of the food we consume travels an average of 1200 miles.

16) **Awards**

- a) Develop an urban conservation awards program similar to our existing awards for rural area conservation farms. Focus on xerophytic (drought-tolerant) landscaping, natural/biological pest control (insects, weeds, small mammals), minimal water use, etc.
- b) Encourage green developers to design low impact, long-range environmentally friendly and -responsible sites. See *Information and Education* section.
- c) Present annual award to District staff person as appropriate.

17) **Goat herders:** Hire to naturally control leafy spurge and other weeds in waterways and difficult terrain, using goats and without pesticides - proving successful elsewhere in the U.S.

- 18) **Papio Creek Watershed:** Create a special watershed project to focus on this area. Develop programs and increase incentives and/or cost-share funds to control runoff and improve resource management.
- 19)
- 20)

Information and Education

- 1) **Environmental Library:** Acquire pertinent and timely environmental materials (cds, dvds, videos, books, slides) and offer for public checkout on-line or at the office. On-site viewing.
- 2) **PSAs:** Collaborate with extension service, wildlife or environmental organizations to develop a series of public service announcements about topics such as fertilizer and pesticide usage and runoff, native (urban and rural) wildlife themes, and other topics specific to neighboring communities and of public interest.
- 3) **Friday Environmental Workshops:** Develop and conduct for employees and public on environmental issues and activities.
- 4) **Public Education:** Provide tours, walks, field presentations and exhibits at HQ/Chalco.
- 5) **Publications:** Provide e-mail publication notices, and opt-out option for NRD mailings. Convert newsletter to monthly e-mail option.
- 6) **Plastics Bags:** Discontinue use at all NRD functions. Provide re-usable cloth or paper bags.
- 7) **Door Hanger Campaign:** Utilize with adjacent NRD communities to educate on lake impact by surrounding lawn treatments, recreational activities, runoff, etc.
- 8) **Kiosks:** Provide interpretive kiosks at picnic areas that discuss area ecology and environmental issues, 'Things you can do right now.'
- 9) **Green Hearts INC® Institute for Nature in Childhood:** Support Omaha-based program to infuse early childhood learning with direct, independent nature experience. National research finds that development of environmental stewardship requires the ethic begin in early childhood. See *Policy* section.
- 10) **Nebraska Dept. of Education:** Support, encourage and expand work with schools and teachers via grants, workshops and programs to get children outside. See 9) above.
- 11) **Board Input:** Provide forums, such as facilitated brainstorming sessions, workshops, strategic planning seminars, etc., for the Board of Directors to share and explore views on environmental direction.
- 12) **Funding NGOs:** Establish annual funding support plans for environmentally focused NGOs or non-profit organizations' events, programs, and projects. Examples are Arbor Day, Earth Day, Izaak Walton League, Audubon, etc. Consider some of the smaller, more focused groups, esp. locally based ones whose work is solely within this state.
- 13) **Demonstration Site:** Create public, environmental demonstration areas at Chalco for rain gardens, porous concrete, glasphalt, plantings, composting, etc. See *Headquarters and Building* section.

- 14) **Staff:** Add full-time Information and Education position to help develop and administer new programs. See *Office Procedures and Staff* section.
- 15) **Current programs:** Expand current environmental programs/projects, i.e. well abandonment, recycling, river/habitat restoration, etc. See *Office Procedures and Staff* section.
- 16) **Lake Clean-up:** Initiate local buy-in, such as “Friends of Chalco,” for lake patrol, clean-up and environmental education training for users of the site.
- 17) **Conferences:** Partner with local environmental groups to organize and sponsor a major, national environmental conference.
- 18) **Speakers:** Partner with local environmental organizations to sponsor national / international presenters on various topical environmental issues.
- 19) **Awards**
 - a) Develop urban conservation awards program similar to existing awards for rural area conservation farms. Honor xerophytic landscaping design, natural pest control (insects, weeds, small mammals), minimal water use, etc.
 - b) Reward green developers to encourage low impact, environmentally- friendly development. See *Public Utility and Outreach* section.
- 20) **Planting lists:** Work with Arbor Day Foundation, county extension services, local nurseries and others to provide information, listings and supply of trees and drought-tolerant plants for home landscaping.
- 21) **Geocaching:** Develop as environmental education tool at Chalco. For example, use coordinates to direct people to specific areas, plants and structures at Chalco to learn about diverse environmental issues, local species or native plants.
- 22)
- 23)

Policy

An examination of current District policy revealed less than expected that directly or adequately addresses the goals of this initiative. An overall examination of policy is recommended before the end of this calendar year, focused on suggestions presented here. Some might best be adopted as internal, unofficial administrative protocol. Many may, in time, become official board policy. All were considered sufficiently significant to be included.

- 1) **Construction (Concrete)**
 - a) Specify porous concrete in District bid proposals for parking areas, trails and roads wherever possible for maximum water infiltration. Provide a demonstration area at Hwy 370 entrance. See *Headquarters and Buildings* section.
 - b) Include maximum fly ash allowable in NRD projects. Cement production requires considerable energy. Replacement with fly ash is good resource use. The Bank of America, NYC uses 55% concrete, 45% fly ash. (See *Headquarters and Buildings* section.)
- 2) **Carry-in Carry-out:** Initiate this as policy for Chalco and other NRD sites.
- 3) **Events:** Require event stagers to provide portable toilets (Porta-Potty) and clean-up facilities rather than keeping HQ building open for a single-purpose, infrequent activity.

- 4) **Development:** Prohibit further non-environmental development at the Chalco site, i.e. roads, trails, etc. Mandate all further development at Chalco be environmentally sound and informed. See *Headquarters and Buildings* section.
- 5) **Seasonal Staff:** Hire summer maintenance staff from pool of environmental / natural resources students, who have limited work opportunities (NG&PC or NRD). They are more skilled, are more quickly trained, and can more knowledgeably interact with the public on environmental issues. See *Office Procedures and Staff* section.
- 6) **Vehicles:** Update all District vehicle policies to include:
 - a) Replacement policy requiring purchase of most efficient vehicle *for the primary purpose*, rather than based on low bid, mpg or fuel type.
 - b) Requirement that all vehicles remain at NRD overnight excepting special circumstances. This will dramatically reduce NRD fuel use and reduce emissions, especially from SUVs and 4-wheel-drive fleet vehicles. All vehicles will be available at NRD when needed, rather than unavailable when personnel are sick, on leave or absent. This practice will allow vehicle fleet reductions, see below.
 - c) Reduce number of vehicles in NRD fleet by at least three. This can be accomplished with b) above.
 - d) Purchase cars rather than trucks. Establish a “primary purpose profile” to guide purchase of smallest, greenest and most efficient vehicle for primary use.
 - e) Lease or rent, rather than overbuying for an occasional need. Large, multi-passenger vehicles (6+ people) are rarely needed at the NRD but are routinely purchased.
 - f) Utilize best fleet vehicle for the job at hand: i.e. use of a small, fuel-efficient vehicle for errands rather than a 4-wheel drive, V- 8 truck.
 - g) Eliminate the use of NRD vehicles to go to lunch except when in the field or on a job site.
 - h) Modify oil change frequency from every 3,000 miles to current mfg. recommendations. They now suggest every 6,000 - 7,500 miles.
- 7) **Recycling:** Revisit and redraft policy to include all recycling as discussed in *Office Procedures and Staff* section.
- 8) **Work Week:** Schedule a compressed, four-day work week where feasible, eliminating 20% of driving and leading to an immediate reduction in fuel consumption and emissions. Office energy consumption will see equivalent reduction. See *Office Procedures and Staff* section.
- 9) **Telecommute:** Enhance current capacity to perform all office functions remotely. Mandate monthly or weekly requirement, as do some federal offices. This will result in reduced driving, fuel consumption and emissions, *and will prepare everyone to maintain office functions in the event of emergencies*. See *Office Procedures and Staff* section.
- 10) **Purchasing:** Make all procurement and purchases through a single entity for office supplies, O&M, maintenance, etc., standardizing best environmentally-appropriate purchases, discounts, and vendor responsiveness to special requests, such as minimum packaging. See *Office Procedures and Staff* section.
- 11) **LEED-Certification:** Require that all facilities utilizing NRD funding for construction be LEED (Leadership in Energy and Environmental Design) certified. This U.S. Green Building Council design criteria sets an environmental benchmark.

- 12) **Paper:** Promote a paperless office, including faxes, agendas, memos, etc. for all possible instances. Establish an intranet (in-house-only website) for faster, paper-free project and staff updates and timely posting of information.
- 13) **Levee Maintenance:** Limit mowing to berm only. Plant with low growing, minimum-maintenance grasses and forbs. See *Headquarters and Building* section.
- 14) **Trees:** Plant maximum allowable or feasible on all NRD projects. Prohibit burning of trees at all project sites. See *Headquarters and Buildings* section.
- 15) **Lights:** Keep all lights, computers and machines off when not in use, especially in shop, restrooms, storage, stairwells, etc. Assign individual(s) to make scheduled rounds for compliance. See *Headquarters and Buildings* section.
- 16) **Green Hearts INC® Institute for Nature in Childhood:** Support Omaha-based program to infuse early childhood learning with direct, independent nature experience. National research finds that development of environmental stewardship requires the ethic begin in early childhood. See *Information & Education* section.
- 17) **Meetings:** Move Board of Directors and subcommittee meetings to daytime hours when facility is open, rather than opening building for single purpose, for savings on utilities and staff hours, greater efficiency.
- 18)
- 19)
- 20)

Implementation, Budget and Timeline

The final step in achieving goals is implementation. Some low-cost or cost-free suggestions may be implemented immediately. More ambitious items will take time to develop and initiate.

The funding and timeline table below is considered by this committee to be realistic and adequate for completion of all construction, installation or program development/initiation listed.

MAJOR FUNDING CATEGORIES AND GENERAL COST ESTIMATES

<u>FISCAL YEAR</u>	<u>HQ&BLDG*</u>	<u>OFFICE/STAFF**</u>	<u>POLITICAL***</u>	<u>OUTREACH¹</u>	<u>I&E²</u>	<u>POLICY³</u>	<u>TOTALS</u>
1	\$ 55,000	\$45,000	\$5,000	\$5,000	\$60,000	\$2,500	\$172,500
2	\$250,000	\$75,000	\$7,500	\$50,000	\$150,000	\$1,500	\$534,000
3	\$150,000	\$75,000	\$10,000	\$75,000	\$200,000	\$500	\$510,500
4	\$150,000	\$75,000	\$7,500	\$75,000	\$200,000	\$500	\$508,000
5	\$ 75,000	\$75,000	\$5,000	\$100,000	\$200,000	\$500	\$455,500
TOTALS	\$680,000	\$345,000	\$35,000	\$305,000	\$810,000	\$5,500	\$2,180,500

*Design and engineering studies comprise the majority of FY1 funding, and are required to determine alternatives, costs and payback estimates for solar, wind and geothermal retrofitting. Subsequent year HQ costs are for system installations.

**FY1 costs include an additional full-time position to coordinate long-term environmental goals and implementation of recommendations.

***Principal costs are for additional meetings/work assignments for legal and legislative responsibilities.

¹FY1 funding to establish and publicize new programs. Subsequent costs are primarily for cost-share with the general public as programs are developed and come on-line.

²FY1 funding to create full-time position and to establish and publicize new programs. Subsequent costs are for conference support, speakers, printing and development of PSAs, etc.

³Funding is primarily for additional legal costs to assist in development of new policies.

Once construction and/or installations are complete, a reduction in annual funding should follow rapidly. Initial expenditures do not take into consideration the *measurable savings in operational costs* over future years. The sooner the suggestions are in place the sooner these savings will be realized.

The annual budget totals for the next five years will average less than \$500,000/year. After installation of systems, it is believed that *Outreach* and *Information and Education* will incur most of the funding needs.

Included under *Headquarters and Building* are studies required to refine costs, locations and designs for the more extensive systems or suggestions. These will take further time to complete, as will details for *I & E* and *Outreach*. We hope to include them in the FY2009 budget if implementation is approved.

The District's involvement with the Missouri River Corridor Project is winding down. (See **An Historic Perspective: Past Accomplishments, Future Potential.**) It is appropriate to shift portions of tax dollars formerly used for Missouri River Corridor restoration to a now more critical environmental project such as this one. It is considered to be an effective and important use of funds, achievable without increasing the existing District budget.

SUMMARY AND CONCLUSION

Making a significant change in any institution's standard operating procedure is difficult. It can take a leap of faith.

Chairperson Thompson's new vision and expanded mission for the District — to lessen our own environmental impact and to lead by doing so — does not so much require a leap of faith as a willing change in direction, a widened perspective, and a new model of how we conduct business as a Natural Resources District. For most of us, such fundamental changes are challenging. Faith in ourselves is undoubtedly required.

This White Paper attempts to smooth the path by presenting dozens of projects, programs and initiatives, as well as simple solutions to ongoing concerns. All are achievable within a reasonable time frame and at a reasonable cost, and without diminishing necessary, existing programs. More details in the coming months will fine tune potential projects for inclusion in the District's 2009 budget.

What can we lose by embracing these ideas and moving forward?

At worst, we establish good will and visibility, develop great public relations, provide valuable information and lessen our impact on the environment.

At best, we shift mindsets and expand understanding, starting within our NRD. From here, it *ripples outward* by our example and our efforts. We've seen before how we can lead such a charge. We can be in the forefront in re-creating this country into one less dependent on (and less demanding of) non-renewable resources, a country more aware of its impact on others, and a nation that truly understands the inherent ethic and value of the land and its resources. It all starts at our own front door.

Philosophically, reducing waste and increasing efficiency is a no-brainer. Technologically, it is affordable, and the cost savings are proven. To address the very real concern expressed by Director Thompson — the challenge to rise to leadership by addressing our own environmental behavior, the real need to lessen our impact, and the opportunity to model for others the viability of good stewardship — we need to act, and we need to act now.

APPENDIX

A. Correspondence from P-MRNRD Chairperson Jim Thompson to General Manager John Winkler, 12 April 2007.

Date: April 12, 2007

To: John Winkler, General Manager

From: Chairperson, PMRNRD

Subj: Environmental Study

1. April brings us into the thought of Earth Day and its deeper meaning, established decades ago, concerning care for our planet and working to improve our direct relationship to our natural resources. As our name explicitly states, natural resources is what we are all about. Consequently, I am directing you to have an environmental review of our own operations, policies, and practices.

2. The intent of this review is to create a "white paper" using our own staff, with appropriate input from necessary external sources. Other than staff time, it is anticipated that no costs will be incurred with this review. Membership of this review team should be inclusive of those who show a unique concern for the long term effect of our existence and the willingness to participate in addition to their regular duties.

3. At a minimum, the following items should be included in the review. Foremost, keep in mind that this list is certainly not all inclusive. I anticipate a process of thinking "outside the box", "pushing the envelope" or whatever other catch phrase that can be applied to seriously establish what this NRD can do become a greater friend of the environment.

- + Conduct an energy audit of all NRD buildings. This should not be limited to merely what type of light bulbs we use. Weather stripping, temperature settings, and other elements that can contribute to conservation should be reviewed.
- + Review the possibility of utilizing solar power for our energy needs.
- + Review the possibility of utilizing wind power for our energy needs.
- + Ascertain the most efficient use of our motor vehicles. For example, are trips to different places consolidated to the greatest degree, are large equipment items left running or idling during periods of non-use, etc.
- + Expanding our Recycling (Section 17.33) to specifically mandate recycling of all appropriate items. This should not only include the obvious such as paper, cans, plastic, but look at other opportunities like scrap metal, fluorescent bulbs, lubricating oils, etc.

+ Expand our Procurement Policy (15.0) to specifically include the purchasing of various products such as copy paper, sanitation products, and any other products to assure these contain a certain percentage of recycled and/or post-consumer waste. This can also include products that are biodegradable and specifically state that ethanol will be used in our motor fleet.

+ Review our contracts to include clauses that would prohibit the burning of trees and mandate that these be chipped and/or left for natural decay. This should be included in any subcontracts as well.

+ The inception of cost-sharing with individuals and/or groups for their efforts in taking positive steps for environmental action.

4. The objective of this in-house review is to establish official policies on different aspects of caring for our environment. Also, it is my goal to set standards for others to follow that will result in becoming a greater friend of the environment. Conservation of our natural resources is the ultimate outcome of this team approach. Again, I need to emphasize that there are no limits to what can be studied.

5. This review is to be accomplished within 90 days.

Jim Thompson

B. The Ethanol Quandary.

A conspicuous omission from the preceding document is mention of or recommendation for the use of ethanol. This is a highly charged and changing field and requires further discussion. The topic's complexity and political profile placed it beyond the scope of the recommendations in this initial presentation. Much has yet to be learned.

Ethanol production from corn presents numerous problems that elude economic quantification:

- **Feeding vehicles vs. people:** an ethical dilemma, as higher corn prices for alcohol production dominoes into increased costs for basic food staples,
- **“Robbing Peter to pay Paul:”** corn producers and ethanol plant owners may benefit from subsidies or farm programs to the detriment of the cattle, pork, poultry, or alternative industries,
- **High water requirement** in a time/region of existing and increasing water crises,
- **Increased pollution** from runoff of nitrogen and pesticides in surface and groundwater supplies,
- **Increased ozone levels** from the burning of ethanol, with same cancer risk as fossil fuels, creates a *greater* public health risk than gasoline.¹ Unburned U.S. emissions may create a worldwide source of acetaldehyde. According to a recent study, “E85 ozone-related health effects significantly exceeded those due to cancer [related to gasoline use].”
- **Conflicting information regarding the economics of the energy inputs** along the ethanol production stream

and one of the most difficult natural resource concerns:

- **Extensive loss of wildlife habitat (and wildlife population disruption)** when land previously fallow or in CRP or similar conservation programs is converted to corn production.

This intrinsic loss of habitat, a key element and legislated responsibility of Natural Resources Districts, is a fundamental issue that eludes definition by a dollar value. It is believed by some experts that *if all CRP lands were utilized in corn production, they would still be inadequate to meet stated federal ethanol goals.*

There is no doubt about short-term economic benefits for corn producers, but the longer-term effects may be grave or at best unknown. Where water resources, air quality and wild lands are involved, “longer-term” may not be a distant reference.

At best, the use of ethanol *may* be an interim, temporary alternative to our over-consumption of fossil energy. Pragmatically, it may simply provide us a false sense of independence from foreign oil, and inadvertently encourage us to continue our long habit of heedless consumption.

Of even greater concern is the likelihood that the current race toward intensive ethanol production may entrap us in an unfeasible technology as securely as has the use of fossil fuels. As we have seen, such momentum and its resulting infrastructure are brutally hard to reverse — both economically and culturally. Should science confirm the production and burning of ethanol as unsustainable or damaging, and when true alternatives arise, we may be unable to redirect from a deeply entrenched system.

Information regarding cellulosic ethanol made from switch grass, tree chips, etc. is too preliminary to assess.

¹Jacobson, Mark Z. (Department of Civil and Environmental Engineering, Stanford University). **Effects of Ethanol (E85) Versus Gasoline Vehicles on Cancer and Mortality in the United States.** Stanford, California: *In Review*. August 30, 2006.

ACKNOWLEDGEMENTS

A sincere "*Thank You*" is extended to everyone who contributed to this White Paper, especially the agencies, organizations, individuals, consultants, editors, and in particular the NRD staff, who *do* have a sincere concern for the environment.

Chairperson Thompson and the entire Pappio-Missouri River Natural Resources District Board of Directors are to be commended. It is a rare opportunity that the individuals who work within an organization are requested or invited to contribute towards improving the organization, and to participate in forging a new direction — in this case, a step towards making this planet a richer and healthier place for all of us to live.
