

DUNE ACRES, INDIANA — A GENERATIONAL VISION FOR LAND CONSERVATION AND STEWARDSHIP

The Town of Dune Acres is situated along the southern shore of Lake Michigan and surrounded by the Indiana Dunes National Park. The town was incorporated one hundred years ago, in 1923. Even before its founding, “Mineral Springs,” as the area was known at the time, was a destination for scientists and nature enthusiasts. The most notable was University of Chicago professor Henry Chandler Cowles, whose namesake “bog” is the most famous natural area in Dune Acres. Cowles Bog is credited as “... the core nucleus for the creation of a national park in the Indiana Dunes.”

Dune Acres’ founding fathers almost certainly did not recognize the ecological significance of their newly-acquired land. In 1990, a National Park Service report documented an astounding 700 plant species in Dune Acres. The report asked: “Where else in the north temperate United States can such immense conservatism exist across so small an area? This 1400 tract represents a world-class natural area.”

From its earliest days, Dune Acres grew in harmony with its natural environment. Roads were laid in a winding pattern to compliment the natural topography. Homes were thoughtfully sited. Prime parcels were set aside for parkland, a requirement embedded in the town zoning code. By the mid-twentieth century, there was a growing concern for land conservation and preserving the town’s natural surroundings—an awareness and sense of civic responsibility that was perpetuated through the decades and continues to this day.

- Around 1950, town residents raised \$51,500 to purchase 198 acres of pristine land slated for undesirable development. The land was donated to Dune Acres and continues to be part of the town’s valued park holdings.
- In the 1960s, 698 acres within Dune Acres’ borders was incorporated into the Indiana Dunes National Lakeshore (now Indiana Dunes National Park), including all land zoned for commercial and industrial use. This cemented Dune Acres future, enabling the town to focus on modest residential development and natural area preservation.
- In the 1970s, Dune Acres resident, Lois Howes, “discovered” a little-known natural area on the town’s border. John Bacone, at the time head of Indiana Division of Nature Preserves, characterized it as “... the best prairie in the state.” Today, this unique place is affectionately known as Lois Howes Prairie.
- In the 1980s, town resident Barbara Plampin was hired by the National Park Service to relocate rare plants based on historical records. Barbara, an amateur botanist, is credited with rediscovering countless rare species and is considered among the leading authorities on the flora of the Indiana Dunes.
- In the 2000s, Dune Acres led a multi-agency effort to restore twenty-five acres of town park adjacent to Cowles Bog. This was the first of many large initiatives undertaken to restore natural areas within the town’s borders.
- In the last ten years, Dune Acres has compiled an impressive track record of land preservation and stewardship, including an ambitious restoration of the town’s geographic and social center, the eleven-acre Clubhouse Dune.

This brief history is provided to illustrate that Dune Acres and its residents have long-recognized the value of undeveloped natural areas and the importance of preserving the town’s native flora and fauna. It confirms that sustainable conservation is built on incremental and consistent action. And it underscores that, at its best, land conservation is held as a core municipal value, broad in scope, unending in duration, woven into the fabric of a community, and handed down from generation to generation. In Dune Acres, these values have been codified into the town’s zoning charter, its comprehensive plan:

“[This comprehensive plan] outlines what we value as community and our commitment to actively protect those values for future generations. The community’s primary goal is to preserve its nationally significant natural environment and to uphold its high standards of community open space...the rich environmental quality which attracted its original developers and residents, and which continues to attract its residents today, must be vigorously preserved and enhanced.”

For the purposes of this nomination, four representative environmental efforts are highlighted. Each was undertaken in the past three years. Together they demonstrate Dune Acres’ comprehensive approach to safeguarding the mosaic of habitats within its borders and preserving the town’s wonderfully-unique “park within a park.”

DUNE ACRES, INDIANA — A GENERATIONAL VISION FOR LAND CONSERVATION AND STEWARDSHIP

Criteria 1 - Project Description(s)

Restoration of Town Park A and Town Park S and Creation of Wildlife Habitat and Hiking Corridor

Town Park A and Town Park S comprise eleven acres of dunes including both uplands and wetlands. Prior to restoration, these parcels were an impenetrable thicket of invasive species. Burning bush (*Euonymus alata*), in particular, had migrated from nearby residential landscaping to completely colonize Town Park A. Town Park S affords dramatic views of Lake Michigan, but was made practically inaccessible by a tangle of Asian bittersweet (*Celastrus orbiculatus*), an invasive vine now banned from sale in Indiana.

The town was motivated to undertake the restoration of these two prime parcels because of their natural-area value, central location, high-visibility, and proximity to the town center.

With match-funding from the Lake Michigan Coastal Program, the town executed a restoration plan in two phases, beginning in 2020. An ecological restoration contractor was hired to selectively thin trees, clear and remove brush, and apply herbicide to kill invasive species. A prescribed burn was conducted to reduce accumulated debris and encourage native species to grow. A previously inaccessible property easement was identified and cleared, connecting the two parks, creating a wildlife habitat corridor and social path for those seeking an off-road hiking experience.

Today, walkers can amble from Dune Acres' town center to Town Park S while enjoying native flora along the way. Majestic oaks form a shady canopy for shadblow, dogwood, and Sassafras. The ground is carpeted with fragrant wintergreen, Trillium, and blueberries. Adventurous hikers are rewarded with sweeping views of Lake Michigan.

This project has improved the natural communities found on the site, including several types of sand savanna which are classified as state-significant and imperiled globally. The improved areas provide high-quality habitat for characteristic dunes flora and fauna, including some that are state-listed. The initiative has opened new space for passive recreation and eliminated potential pathways for invasive plant species to spread into the nearby Indiana Dunes National Park. It has also inspired residents to take similar actions to steward their own properties.

Reclamation of Athletic Field

In the early 1950s, a two-acre meadow near the center of town was devoted to recreational activities. For seventy years, the field was mowed regularly. However, site conditions and the town's limited budget precluded grading or other "improvement."

In 2019-2020, seasonal flooding forced the temporary cessation of mowing. During this time, an informal environmental assessment revealed a rich array of native species that had survived decades of suppression. A ban on mowing was imposed and annual fire was reintroduced to the plot. With minimal intervention, Dune Acres allowed nature to reclaim this unique spot. Plants that grew in the field prior to the 1950s reappeared. One, the hairy fimbry (*Fimbristylis puberula*), which was thought to be extinct in Indiana. Another, the federally-listed Hall's bulrush (*Schoenoplectiella hallii*), reemerged. This peculiar, flood-dependent sedge is among the rarest plants in Indiana and is a candidate for federal listing.

Today, the "soccer meadow" is home to a diverse range of native plant species blooming from April through November. Dragonflies and butterflies frequent the meadow. Bluebirds and woodpeckers flutter about while raptors soar overhead. Snakes, salamanders, and frogs enjoy the moist cool areas, while a small native lizard, the six-lined racerunner, frolics in the hottest and driest portions of the meadow. The state-endangered Blanding's turtle has been spotted here, while eastern box and painted turtles are occasional visitors.

The initial motivation to allow nature to reclaim the Dune Acres athletic field was accidental. But once its ecological value was identified, the town seized the opportunity to take action to help speed its recovery. From a broader perspective, the project was made possible by a culture of conservation and desire to view civic matters through the lens of "how can we make Dune Acres a better, more beautiful, and environmentally-sustainable place."

The reclamation has added a true gem to the town's park holdings—a sand prairie, parts of which are classified as imperiled in Indiana—and restored prime habitat for the insects and animals that rely on it for their survival.

DUNE ACRES, INDIANA — A GENERATIONAL VISION FOR LAND CONSERVATION AND STEWARDSHIP

Creation of Ecological Cost Share Program

Each year, a significant portion of Dune Acres' annual environmental budget is devoted to controlling invasive plant species on its public parkland. Over time, it became clear that addressing town-owned property alone was insufficient. A broader, public/private effort would be necessary to create lasting results.

In 2019, Dune Acres was motivated to introduce an ecological cost-share program to "...encourage the ecological stewardship of privately-owned property." The novel program is funded through municipal appropriations. Town residents can apply for a limited number of matching grants for the removal of invasive species or the planting of native trees.

Dune Acres has allocated \$16,500 to the program, benefiting thirty-five property owners who have matched the award at least dollar-for-dollar. Residents eagerly anticipate the program's opening each year and the limited grants are generally awarded within hours. Many property owners have far-exceeded the match requirements, thus extending the efficacy of the program. The town's commitment to the program has converted reticent homeowners into active and educated stewards.

Invasive Plant Species Prohibition

Through the town's education efforts, many residents have learned to recognize invasive plants common to the Dunes. Garlic mustard and Asian bittersweet are examples of problematic species that are banned for sale in Indiana. But there are other problematic plants still for sale at garden centers and nurseries. To prevent potentially-dangerous species from threatening natural areas in Dune Acres, the town was motivated to formally regulate their distribution within its borders.

In 2021 the Dune Acres town council amended the town code to prohibit the introduction of invasive plants species. The regulation does not require that invasive species already existing on a site be removed—though the town urges property owners do so—but it prohibits new plants from being planted, transplanted, divided, or intentionally propagated.

The town code references a list of prohibited species maintained by the Indiana Invasive Species Council. The IISC was established by the Indiana legislature to "enhance the ability of government agencies to detect, prevent, monitor, and manage new and long established invasions, as well as increase public awareness about invasive species."

Neither does the ordinance impose penalties. However, it does empower town officials to take action to remove introduced invasive species if it becomes necessary. The regulation is appreciated by many homeowners who have been frustrated by the encroachment of invasive species from neighboring properties. It has even inspired those with preexisting invasive plants on their property (currently exempt from the ordinance) to take action to remove them.

By their nature, invasive plant species do not respect property boundaries. By regulating their introduction, Dune Acres is helping to protect its natural landscape as well as that of the surrounding national park.

Dark-Sky Lighting Initiative

In 2022, Dune Acres was motivated to regulate outdoor lighting in order to prevent light pollution and to preserve the town's heritage of natural beauty and dark nighttime skies.

After extensive research and public input, a town-established work-group recommended measures that aligned with the spirit of the "dark sky" designation established by the International Dark Sky Association.

The town council resolved to bring its municipal buildings into compliance with Dark Sky guidelines. Planning for the redesign of lighting and landscaping at the town's main entrance has already commenced. By ordinance, new outdoor lighting installations are required to comply with Dark Sky guidelines. And, a five-year window has been established for residential outdoor lighting to be replaced or modified. During this transition period, the town will continue its education efforts and members of the lighting committee will be available for informal consulting, upon request.

Regulating outdoor lighting will have far-reaching effects within Dune Acres and on the surrounding areas. Light glare is a safety issue for motorists and the pedestrians with whom they share the roadway. The measures will help conserve energy by ensuring lights are positioned and focused only where they are needed. And, in the park-like setting of Dune Acres, these measures will reduce negative impacts on animals, insects, and plants that rely on the natural cycle of daylight and darkness for reproduction, nourishment, sleep, and protection from predators.

DUNE ACRES, INDIANA — A GENERATIONAL VISION FOR LAND CONSERVATION AND STEWARDSHIP

Criteria 2: Innovation, Environmental Stewardship, and Partnerships

What makes the project innovative and/or sustainable?

Conservation in Dune Acres is unique, innovative, and sustainable because of robust community support and continuity across generations. The town has been successful because the values of land preservation and stewardship are closely-held and inherited by those who choose to live in Dune Acres. There have been challenges along the way—those who disagree with the emphasis on environmentalism or wish to see open spaces developed for other uses. However, there is broad recognition that high-quality natural areas define the town and should be preserved at any cost.

How have creative or unique partnerships been developed?

The municipality believes partnerships are vital to its successful conservation efforts. It cooperates regularly with government agencies, organizations, contractors, and residents to facilitate its ongoing work.

The park restoration projects were undertaken with the cooperation of the Lake Michigan Coastal Program, which is administered by the Indiana Department of Natural Resources (IDNR) and funded by the National Oceanic and Atmospheric Administration (NOAA). The Nature Conservancy (TNC) was an additional partner in the town's initial habitat restoration centered on the Cowles Bog viewshed. The IDNR's regional ecologist has provided oversight and professional assistance in determining site-specific best practices. The town has also partnered with qualified ecological restoration contractors to complete the described work.

The reclamation of the athletic field was inspired by the astute observations of Nathanael Pilla of Midwest Biological Survey who recognized the “weeds” growing in the meadow were something more significant. The impetus to allow nature to take its course was furthered with input from IDNR personnel who surveyed the rare plants in the meadow. Agencies involved in monitoring the former athletic field include the IDNR, National Park Service, National Geologic Survey, and United States Fish & Wildlife Service.

The ecological cost share program relies on the interest and cooperation of Dune Acres residents. Much of the stewardship has been done by EcoRealm Consulting, a firm with deep experience working in the Indiana Dunes.

The Dark Sky lighting initiative was inspired by the International Dark Sky Association, whose guidelines were tailored to fit the Dune Acres community by the resident-led Lighting Committee.

How have the partnerships resulted in constructive solutions to environmental challenges?

Creative partnerships enable Dune Acres to augment its capabilities related to land conservation and stewardship. For example, a cooperative agreement with the National Park Service allows the agency to include several hundred acres of town property in its prescribed burns—something the town could never afford to do on its own. This cooperation enhances the natural areas in Dune Acres and also protects the town from potentially-dangerous wildfires.

Personnel from the IDNR, National Park Service, and US Fish & Wildlife Service regularly visit Dune Acres for various purposes. These are some of the finest personnel in their respective fields and access to their expertise provides an invaluable advantage to the town.

From a funding perspective, the work undertaken by Dune Acres is well beyond the scope of its municipal budget. The town's financial partnership with programs like the Lake Michigan Coastal Program have expedited projects that might have taken decades to otherwise complete. The town's community foundation—Dune Acres Civic Improvement Foundation (DACIF)—has also been a generous supporter of land conservation in the town.

How has the project increased the organization's capacity to advance environmental stewardship?

Because environmental stewardship crosses public/private boundaries, the described work models “best practices” for town residents. It inspires like-minded action and fosters a spirit of civic cooperation. The town's incremental approach has proven to be very sustainable, enabling slow but steady progress across the years and decades.

More specifically, the restoration work supported by funding through the Lake Michigan Coastal Program, has enabled Dune Acres to far-exceed the appropriation for environmental conservation in its annual budget.

DUNE ACRES, INDIANA — A GENERATIONAL VISION FOR LAND CONSERVATION AND STEWARDSHIP

Describe any new processes, equipment, or procedures developed specifically for this project.

The equipment and procedures used for these projects are widely embraced for ecological restoration, tailored to the site and conditions. The manual work of brush-clearing and herbicide application are slow and difficult, but the use of mechanized equipment or more “efficient” processes are precluded because of the fragile nature of the dunes.

The environmental cost share program is novel and, to our knowledge, has not been emulated elsewhere in Indiana. The dark sky initiative is also a creative application of technology to the cause of environmental conservation. The idea is gaining increasing attention around the world, but only one other community in Indiana, our neighbor Beverly Shores, is known to have officially adopted such measures.

Discuss any operational, product, or maintenance improvements as a result of the project.

Dune Acres has fine-tuned its operational and maintenance regimens over time. These projects have brought attention to several new ideas. First, preventing the spread of invasive species through quick action is vitally important. Early intervention may cost hundreds of dollars. Left to proliferate, intervention might cost many thousands or prove to be impossible. Second, active intervention is not always necessary. In the case of the athletic field, non-intervention proved to be successful. Third, outreach and education are vitally important to any conservation endeavor. With strong and focused leadership, public/private cooperation can amplify any gains the town could make on its own.

Criteria 3 – Measurable Environmental, Economic, and Social Benefits

Describe the significant environmental, economic, and social benefits achieved as a result of the project.

Restoration of Town Park A and Town Park S and Creation of Habitat and Hiking Corridor

Restoration work in town parks A and S has reduced tree canopy cover of 30-40%, from near total coverage to roughly 65% coverage, which is more in line with historic densities. The reduction of invasive species coverage was 80-90%, measured at 36 months. Total removed biomass was not calculated, but generally accepted estimates suggest the total biomass removed from the project site is considerable, perhaps between 10 and 100 tons per acre.

The project improved roughly 11 acres of sand savanna, classified as state-significant and globally imperiled. The parks have been transformed into high-quality habitat for more than 100 plant species plus an undocumented number of insect and animal species. And, the parks are now open for passive recreational uses, like hiking, birdwatching, and photography.

Reclamation of Dune Acres Athletic Field

The reclamation of the Dune Acres athletic field resulted in the restoration of roughly two acres of sand prairie and the creation of two acres high-quality and rare habitat. The sand prairie natural community is classified as state significant and globally rare. The wet-mesic portion of the prairie is classified as critically-imperiled globally. The benefits of the reclamation extend beyond the borders of the athletic field, positively impacting water quality and wildlife habitat on roughly five acres of remnant sand savanna (state-significant, globally-imperiled) which border the property.

Creation of Ecological Cost Share Program

The ecological cost share program has supported work on thirty-five properties which has removed invasive species and improved habitat for insects, animals, and plants on roughly fifty acres. Town grant and resident grant-match have resulted in roughly 1000 hours of stewardship while excess match has accounted for perhaps an additional 800 hours.

Invasive Plant Species Prohibition & Dark Sky Initiative

The plant species prohibition works in a proactive manner to prevent adverse impacts before they happen. For this reason, there is no data on direct benefits. This is expected and the town views it as a positive metric. The dark sky initiative was introduced in late 2022 and data is not yet available.

DUNE ACRES, INDIANA — A GENERATIONAL VISION FOR LAND CONSERVATION AND STEWARDSHIP

Criteria 4 – Superior Practices

Describe how the project incorporated practices that achieved an environmental benefit beyond the standard.

Dune Acres innovates from a cultural perspective. Its success in land conservation and stewardship is built on traditional practices: hard work, persistence, and a shared devotion its dunes. The town has been shaped by its rich, natural environment and most inhabitants develop a deep civic responsibility for stewardship that is unique in Indiana.

One aspect that sets Dune Acres apart from other cities and towns is the outsized role that volunteerism plays in the community. It is a practice that is deeply embedded in the Dune Acres tradition. For one hundred years, the town council and department commissioners have served without compensation of any sort. Most residents are quick to lend a hand whenever and wherever needed—clearing a fallen tree from the road, picking up trash, planting beach grass to secure an eroded dune. The famous “town cleanups,” are relished events in Dune Acres, a chance to reconnect with friends and neighbors while pulling invasive species, installing native plants, and otherwise tidying-up the town.

Describe how the project achieved an environmental benefit by exceeding regulatory requirements.

The activities described here have been undertaken voluntarily.

Explain how the project, approach, and/or technology is superior to similar projects.

In most municipalities, environmental conservation plays a supporting role to other activities such as economic development. It plays a leading role in Dune Acres. In the 1960s, when the federal government acquired much of the non-residential land in Dune Acres for its new park, it cemented the town’s future as a bedroom community. This allowed the town to focus on its greatest asset, its natural surroundings, while other communities were left to juggle competing interests—commercial, industrial, preservation. The town’s environment-first approach is not necessarily superior to others, but it is quite different. And it is what makes Dune Acres one of the greatest small towns anywhere.

One practice that is extremely rare in other municipalities is the use of prescribed fire. Throughout history, the dunes have been shaped by wildfire. To emulate its natural effects, without its dangerous implications, *prescribed* fire is used to maintain the fire-adapted ecosystems that exist here. Working with National Park Service, Dune Acres has been able to bring fire back to the land. Currently, more than 80% of the parkland in Dune Acres is burned every several years.

The town also believes the ecological cost share program and dark sky initiative are novel approaches that should be adopted more widely.

Criteria 5 – Commitment and Leadership

Describe how the project demonstrates the organization's commitment to sustainability and leadership ...

These projects are a representative sampling of those undertaken in Dune Acres in recent years. It is not an exhaustive list, but taken together, they do underscore the town’s deep civic commitment to sustainability.

The projects also demonstrate that when led by example, citizens generally are eager to contribute to a shared effort—whether it be removing invasive species, planting natives, or turning out their lights at night. This leadership is put into practice through education and open communication.

The cost share program demonstrates that putting municipal “skin in the game” resonates with many residents. Even reticent property owners have been impressed by the civic commitment to this program and have eagerly participated.

The first phase of the dark-sky initiative was a commitment by the town to bring municipal lighting into proper compliance. This strong leadership action encouraged buy-in among residents. And while the program is in its infancy, the feedback has been positive and the town expects most property owners to comply during the five-year transition period.

Describe written policies or management practices that demonstrate continued commitment and leadership ...

Dune Acres has very few written policies with regard to protecting the environment. Of course, park land is dedicated as such and formally protected from development. Other initiatives, such as the cost share program and dark sky initiative, are codified as part of town code. It has been the experience of the town that citizens resist coercion and welcome participation. Dune Acres is a desirable place to live not because the town has forced residents to abide the environmental line, but because it has created a culture where residents wish to be part of a great tradition. In practice, this is why the town has been able to perpetuate its successful conservation efforts over generations.

DUNE ACRES, INDIANA — A GENERATIONAL VISION FOR LAND CONSERVATION AND STEWARDSHIP

Describe employee engagement, education, or training aspects of the program/project.

Because of the presence of the nearby state and national parks, there is a vibrant community of top-notch experts on the town's doorstep. Assistance with plant identification, stewardship techniques, and other practices is just an email away. As noted above, most work in Dune Acres is volunteer. Many volunteers have learned the skills of the conservation trade by participating in activities in Dune Acres, as well as the surrounding parks and preserves.

Describe any technical assistance provided or received and its effect on the project.

Not only is technical assistance available, it is eagerly shared. IDNR Regional Ecologist, Derek Nimetz, was kind enough to review plans and specifications for the restoration of the town parks. Derek also visited the athletic field along with his colleagues to survey the rare plants found there and provide advice on how to best preserve the habitat. Noel Pavlovic from the U.S. Geologic Survey, has offered advice on savanna restoration and other concerns related to ecology. Dr. Dan Mason, senior botanist with the National Park Service is always willing to lend advice, especially with regard to wetland ecology. Nathanael Pilla, the expert botanist who discovered hairy fimbry in the athletic field, informally consults and has led field trips to teach Dune Acres residents about the flora in their town parks.

Is the project self-sustaining and ongoing?

Land conservation and stewardship are ongoing in Dune Acres, as they must be to protect what has been accomplished. Notably, no modern conservation effort is completely self-sustaining. The forces that maintained the landscape centuries ago—fire, flood, wind and water erosion—have been suppressed for practical reasons. Invasive species that were non-existent prior to European settlement are now ubiquitous. When undertaking a conservation initiative, it is the town's intention to create resiliency within the landscape. But periodic attention and intervention is necessary to ensure the environmental investments and gains are perpetuated.

For example, for safety reasons, we cannot allow wildfires to clear the brush and thin the trees. But we can use prescribed fire in a safe manner that emulates the historic, natural process. By allowing the former athletic field to flood periodically, we encourage the seed germination and growth of plant species that are dependent on such conditions, while at the same time retarding the growth of flood-sensitive species that might colonize the area.

The town's efforts to regulate the introduction of invasive species and to maintain its heritage of dark nighttime skies will be self-sustaining because they are codified as part of the town code.

Criteria 6 – Transferability

Indicate whether the project lends itself to replication by other organizations or individuals.

Many of the initiatives outlined here can be emulated on a smaller or larger scale. Individual property owners can learn from the town's experience and know-how; larger towns or cities can use the same practices in their own municipalities.

Indicate whether any project activities or results are currently being shared with others.

The town regularly shares its experiences with residents to encourage best-practices in ecological restoration and inspire the public/private cooperation that is vital to long term success. It also shares information about specific projects with grant-making agencies. For example, the Lake Michigan Coast Program publishes project synopses and other information that is available to the public.

Explain how the project serves as a model for other successful projects.

The environmental achievements of Dune Acres should serve as a prototype for larger municipalities. Leadership and education are critically important—leadership to provide a vision and roadmap; education to enable stakeholders to understand the importance of such endeavors. In the future, workers will not be tethered to a place because of its proximity to their “work.” They will live where they choose, not where they must. The most successful towns and cities will be those who create a sense of place that elevates land conservation, stewardship, and the role of nature in the community.

DUNE ACRES, INDIANA — A GENERATIONAL VISION FOR LAND CONSERVATION AND STEWARDSHIP

Criteria 7 – Funding

Provide a breakdown of the town's financial commitment to the project beyond grants or outside sources.

Dune Acres appropriates roughly \$12,000 for environmental expenditures each year. This represents about 3.5% of the town's total annual budget and covers the cost of herbicide, tools, and outside expenses for general land stewardship.

Grant matching funds are accounted for separately and are sourced from the general town maintenance budget and earmarked donations. The town-match associated with the two park restoration projects totaled \$60,000. The cost share program is separately funded each year. \$4000 was appropriated the first year of the program and \$2500 has been allotted for each subsequent year. The town's commitment to the dark sky initiative is estimated to cost about \$26,000. This includes bringing existing municipal lighting into compliance as well as associated landscaping and signage. The town also expends indirect personnel costs each year related to land conservation and stewardship.

Provide information about creative financing techniques or how additional funds were leveraged.

Outside sources have enabled Dune Acres to undertake or expedite work that might have been otherwise impossible. The Lake Michigan Coastal Program has provided Dune Acres a total of \$50,000 in grant funding for the restoration of Town Park A and Town Park S. Donations from residents, earmarked for environmental causes, have totaled \$4427 over three years. In-kind contributions from the National Park Service, including the removal of invasive species on town-owned land and prescribed burning is not measured, but would likely have cost the town more than \$100,000, if funded independently. The in-kind contribution of labor volunteered by Dune Acres residents is incalculable, as noted above.

Discuss the cost and economic benefits of the program.

The cost to restore Town Parks A & S totaled roughly \$60,000. The reclamation of the Dune Acres athletic field did not have any associated direct costs. The ecological cost-share program has cost \$16,500 to date. The municipal commitment to the dark sky initiative will cost about \$26,000.

The positive economic impact of these programs is not a priority, but there are tangential benefits. Over the long term, the town anticipates savings on energy costs as well as stewardship, and regular maintenance, such as mowing. These pale in comparison to the priceless value of protecting the precious natural resources in Dune Acres.

Criteria 8 – Supporting Documentation

For photos and supporting documentation, please visit: <https://specialvegetation.com/dune-acres>