

Urban Night Sky Place Application
for
Stacy Park | Olivette, Missouri
September 24, 2021

Submitted by
Olivette Parks and Recreation Department

Beverly Tucker Knight, Director
btuckerknight@olivettemo.com



Olivette

Parks & Recreation

Creating Community through People, Parks & Programs

Table of Contents	page
IDA Member Nomination Letter	3
Letters of Support	4
Administrative Letter	5
Community Members Letters of Support	6
Evidence of Eligibility	16
Description of Stacy Park and Maps of the Park	16
Nighttime Site Photography	18
Night Viewing	24
Public Access Policy	24
Signage Identifying Managing Agency	24
Lighting Management Plan	26
Sky Quality Measurement Survey	27
Lighting Inventory	30
Commitment to Quality Outdoor Lighting	32
First Three Pages of Park Maintenance & Operations Manual	34
Education and Public Outreach	42
Signage	51
Submission of Annual Reports	51



August 13, 2021

Board of Directors
International Dark-Sky Association
5049 E. Broadway Blvd, #105
Tucson, AZ 85711

Dear IDA Board of Directors,

On behalf of the Missouri Chapter of the International Dark-Sky Association, I am pleased to provide this letter of support for the *Urban Night Sky Place Designation* (“UNSP”) of Stacy Park located in the City of Olivette, Missouri. The City of Olivette is part of a network of more than 80 municipalities located in the St. Louis metropolitan area and can serve as an inspirational example for other cities in St. Louis and across Missouri to protect the night sky.

IDA Missouri has provided direct support to the City of Olivette in this application, including volunteer time and expertise, sky quality meter resources, and using our community connections to build support from organizations like the St. Louis Astronomical Society, the St. Louis Audubon Society, the Missouri Sierra Club, and the Missouri Master Naturalist.

IDA Missouri is committed to expanding the UNSP program statewide. IDA Missouri has recruited nearly 50 volunteers from across Missouri to participate in a four hour “train-the-trainer” workshop delivered by light pollution experts serving on IDA Missouri’s board. The typical participant is already experienced in nature, birds, or astronomy, and will learn how to support municipal parks in their communities with programs on the benefits of protecting the night sky. Participants will be encouraged to work with their municipal leaders in their community to apply for UNSP certification. Stacy Park will be one of the first beneficiaries of this “train-the-trainer” program with a volunteer from the Missouri Master Naturalist agreeing to help Stacy Park with public programs.

IDA Missouri looks forward to making Stacy Park the first official IDSP designation in the State of Missouri and using the approval of this application as a foundation to grow the IDSP in Missouri.

Sincerely,

Don Ficken, Chapter Chair
Missouri Chapter of the International-Dark Sky Association
idamissouri@darksky.org

December 8, 2020
Board of Directors
International Dark-Sky Association
3224 N. First Ave.
Tucson, AZ 85719

Re: Petition for Stacy Park Urban Night Sky Place Designation

Dear IDA Board Members:

As a member of IDA in good standing it is my pleasure to nominate Stacy Park in Olivette, Missouri as an Urban Night Sky Place. Stacy Park sits on 35 acres in Olivette, which has a population of about 8,000. The City of Olivette is an inner western suburb of Saint Louis, and has a desire to promote and educate about dark skies.

Stacy Park has a mix of facilities, which includes a large reservoir, recreation fields, restored prairie, trails and playgrounds. It is surrounded by a range of light pollution sources:

- Commercial greenhouses adjacent to the park to the west and northwest
- The primary Saint Louis airport approximately 4 miles to the north
- A large office and retail center a few miles to the southeast

Olivette is approximately 10 miles west of downtown St. Louis. Stacy Park is one of the darkest areas of the inner suburbs. There are trees around much of the park that mitigates light bleeding in from neighboring residential areas. Importantly, there was only one artificial light in the entire park that the City removed in 2021 after starting their dark sky initiative.

Prior to the Pandemic, the City offered annual night sky activities in Stacy Park for the general public. The open fields in the central part of the park are ideal for such activities and expanded activities are in development for resident and local groups to conduct park events that take advantage of the dark urban sky. Designation as an Urban Night Sky Place will accelerate this process and create awareness in the community.

The Olivette Parks Director, residents and park volunteers are excited to see this project come to fruition. I heartily offer my support and the support of Missouri IDA.

Thank you,

-s-

Dan Duffy
IDA Missouri
258 Bonnie Court
Ellisville, Missouri 63011
danduffy@charter.net



City of Olivette Parks & Recreation Department
9723 Grandview Drive, Olivette, MO 63132
T: 314.991.1249 E: opr@olivettemo.com
OlivetteParksandRec.com

January 18, 2021

Board of Directors
International Dark Sky Association
3225 N. First Ave.
Tucson, AZ 85719

Dear Board Members:


On behalf of Olivette Parks and Recreation, with support from the Mayor and City Council, I am pleased to support the Urban Night Sky Place designation for Stacy Park. Stacy Park is a 35-acre park managed and maintained by the City of Olivette. It is a highly visited park with open fields in the center, walking trails, a woodland hiking trail, and a native tall grass prairie restoration.

The City hosts an annual family overnight in Stacy Park to introduce families to camping. The overnight includes campers making own star charts, summer sky orientation, and a night hike. We have partnered with the Challenger Learning Center-St. Louis (part of the Challenger Center for Space Science Education) for three years with night sky events at another City park, and look forward to expanding those programs to Stacy Park. We also look forward to creating new stargazing and special night sky events.

Olivette Parks and Recreation is strongly committed to actively promoting and modeling appropriate lighting design and use. For example, we are in the process of building a new community center in another Olivette park and we are committed to minimal outdoor lighting and if lighting is required for safety or other reasons it will be IDA compliant. Also, we are working closely with the Missouri Chapter of IDA to promote community awareness and we are tentatively planning a night sky event in the spring, pending COVID-19 restrictions.

The citizens of Olivette are very excited to have Stacy Park recognized as an Urban Night Sky Place. After certification, an article will be run in the City newsletter and a sign will be posted notifying the public of the designation. Hopefully, the designation will encourage other nearby communities to implement measures as noted on your website to reduce light pollution.

Sincerely,



Beverly Tucker Knight
Director of Parks and Recreation

Jim Person
9345 Llewellyn Lane
St Louis MO 63132
January 22, 2021

Board of Directors
International Dark Sky Association
3225 N First Ave
Tucson AZ 85719

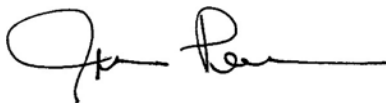
Dear Board Members:

On behalf of the Olivette Parks and Recreation Commission I am pleased to support the Urban Night Sky Place certification application for Stacy Park. Stacy is a very active park and fortunately no longer has lights within the park boundaries. The designation will enhance our ability to attract attention to night time events focusing on the night sky as well as educating park users on the issues related to excessive artificial light in our community. As part of the educational effort, it is my hope that we can continue to build our programs to protect the ecosystems of the park and surrounding areas by increasing awareness of the International Dark Sky Association's mission,

The Parks Commission unanimously endorsed the application and I am pleased the Olivette City Council has, based on our recommendation, done as well.

We look forward to our future collaboration with the International Dark Sky Association as well as the Missouri Dark Sky chapter.

Sincerely,

A handwritten signature in black ink, appearing to read "Jim Person". The signature is fluid and cursive, with a long horizontal line extending to the right.

Jim Person
Chair, Olivette Parks and Recreation Commission

St. Louis County Council

Kelli Dunaway
St. Louis County Council, 2nd District



314 / 615-5437
E-mail: kdunaway@stlouisco.com

COUNTY GOVERNMENT CENTER
LAWRENCE K. ROOS ADMINISTRATION BUILDING
41 S. CENTRAL AVENUE
CLAYTON, MISSOURI 63105

August 16, 2021

International Dark Sky Association
5049 E. Broadway Blvd. #105
Tucson, AZ 85711

Re: Stacy Park
Olivette Parks & Recreation
Olivette, MO

Dear Sir/Madam:

It has recently come to my attention that Olivette Parks and Recreation is applying for Urban Night Sky Place certification for Stacy Park from your association. My office understands the importance of protecting the night sky and how light pollution affects humans, it also affects the natural world around us.

I am honored to give my full support of Olivette Parks and Recreation applying for this designation and I hope you will do the honor of naming Stacy Park the first Dark Sky certified place/park in Missouri, as well as the first in the entire Midwest!

If my office can be of further assistance, please do not hesitate to call.

Sincerely,

A handwritten signature in blue ink that reads "Kelli Dunaway".

Kelli Dunaway
Councilwoman, District 2
St. Louis County Council



January 23, 2021

23 Ramsgate Drive
Olivette, MO 63132

Board of Directors
International Dark-Sky Association
3224 N. First Ave.
Tucson, AZ 85719

Dear IDA Board Members,

RE: Petition for the Stacy Park Urban Night Sky Place Designation

I write to support the Stacy Park, Olivette, MO application for an Urban Night Sky Place designation. I recognize the importance of reducing the amount of light through my membership in Olivette in Bloom, a community organization dedicated to beautifying Stacy Park as well as other areas in the city. The volunteers plant and maintain native bushes and flowers to encourage butterflies and other insects. We have offered public education through lectures, signage, and a new program to recognize Gardens of Merit within our community.

In addition, I coordinate an annual Environmental School, sponsored by National Garden Clubs, to educate adults (members of garden clubs and the public) about the ecology of plants and wildlife and respect for nature. I am concerned by the decline of birds who use our flyway and insects. Doug Tallamy (Nature's Best Hope and Bringing Nature Home) writes about lighting and insect behavior. Restoring the diurnal patterns for plants and wildlife will make Stacy Park a habitat refuge.

I personally look forward to the opportunity to using Stacy Park to view the night sky. Our neighborhoods use bright lighting to the detriment of wildlife and viewing events, such as, lunar eclipses and meteor showers. This is a wonderful opportunity to teach adults and children about respect for our natural world on land and in the sky.

Sincerely,

Gloria Whyte
President, Olivette in Bloom
Co-Chair, Environmental School (National Garden Clubs)
Director, Garden Clubs of St. Louis County



13128 Cozyhill Drive
St. Louis, MO 6312
Tax-exempt nonprofit 501(c)3
Federal ID: 43-1439598

August 11, 2021

To: Board of Directors
International Dark-Sky Association
5049 E. Broadway Blvd, #105
Tucson, AZ 85711

From: James R. Small
RE: Stacy Park Urban Night Sky Place Designation

Dear IDA Board of Directors,

On behalf of the St. Louis Astronomical Society, I am pleased to submit this letter of support for the *Urban Night Sky Place Designation* of Stacy Park located in the City of Olivette, Missouri. Olivette, Missouri is located within the metropolitan St. Louis area supported by our organization.

Founded in 1936, the St. Louis Astronomical Society (“SLAS”) is the largest amateur astronomy society in the St. Louis area. SLAS has over 200 members and a rich history of partnering with schools, libraries, municipal parks, and other organizations to deliver programs about astronomy and the importance of preserving our night sky. Since 2007, SLAS members has logged over 11,000 hours of volunteer time providing outreach to the community.

SLAS works closely with the Missouri Chapter of the International Dark-Sky Association to support its efforts to preserve Missouri’s dark skies. Several members of SLAS serve on IDA Missouri’s Board of Directors. SLAS has hosted talks by IDA Missouri about the science of light pollution, partnered with IDA Missouri and the Gateway Arch National Park to deliver programs to the public about Globe at Night and preserving the night sky, featured articles in its monthly newsletter about IDA Missouri’s initiatives, and donated cash to help IDA Missouri host an exhibit at a Missouri state-wide conference of cities.

SLAS is excited to see the UNSP Designation for Stacy Park move forward and we hope the success of this application will encourage other cities in the metro St. Louis area to apply for dark sky designations and adopt dark sky friendly ordinances.

Sincerely,

James R. Small
President
St. Louis Astronomical Society
president@slasonline.org



205 Brotherton Lane
St. Louis, MO 63135

Ph. (314) 621-6205
Fax (314) 524-3764
www.clcstlouis.org

August 17, 2021

To: Board of Directors International Dark-Sky Association
5049 E. Broadway Blvd, #105
Tucson, AZ 85711

From: Erin Tyree
Program Manager
Challenger Learning Center-St. Louis

Dear IDA Board Members,

I am writing to vouch for the commitment that Olivette, Missouri's Parks and Recreation Department has made to dark sky education. For the two years preceding the pandemic, the Olivette team reached out to the Challenger Learning Center-St. Louis to provide programming for their Perseids meteorshower watch party. The Challenger Learning Center-St. Louis provides space-focused STEM programming throughout the region. I was excited about the opportunity to partner with Olivette for multiple reasons: First, as an informal space science educator, I relish all opportunities to share the wonders of the night sky with our community, and family groups can be especially valuable because multi-generational buy-in makes it more likely that children will actually get to explore the night sky. Second, as a resident of an urban area bordering Olivette, I was excited to learn that there would be an accessible place to watch the meteor shower. (I told all my friends about it, and made my husband come so that we could watch the shower, too!)

The first year, we helped families to make planispheres, and taught them the mythology and star-hopping relevant to Perseus and his vain mother-in-law, Cassiopeia. The second year, I brought our portable digital planetarium, so families could be surrounded by a (virtual) night sky and learn more about the Perseids. Notably, these were paid programs; Olivette was willing to "put their money where their mouth is" when it came to creating the most high-quality, engaging experience possible for their community.

When I learned Olivette was pursuing Urban Night Sky designation for Stacy Park, my enthusiasm was once again two-fold: As an educator, I am excited that more astronomical experiences will be accessible closer to the urban center. As a community member, I am excited that such experiences will be so accessible to *me* and my friends and family. The low level of effort it takes to drive to an easy-to-find local park with ample parking and clean facilities is just what we need to "hook" families into looking up into a sky that is so frequently washed out by streetlights and billboards, but that *can* show amazing wonders.

Sincerely,

Erin Tyree - Program Manager, Challenger Learning Center-St. Louis - erin@clcstlouis.org

August 16, 2021

Board of Directors International Dark-Sky Association
5049 E. Broadway Blvd, #105
Tucson, AZ 85711

Dear IDA Board Members,

I join our Vice President of Conservation for St. Louis Audubon Society, Jean Favara, in submitting this letter of support for the Urban Night Sky Place Designation for Stacy Park in Olivette, Missouri.

Jean's letter of August 15th gives good background and context for St. Louis Audubon's support for this designation. I echo her points and reiterate the importance of our partnership with Lights Out Heartland and the Missouri Chapter of the International Dark-Sky Association.

Designating Stacy Park as an Urban Night Sky will go a long way in helping us raise awareness about the harmful impact of light pollution while providing people in our region a chance to experience the beauty and wonder of the night sky.

The St. Louis Audubon Society strongly supports the request to approve the UNSP Designation for Stacy Park.

Sincerely,



Dennis Martin
President, St. Louis Audubon Society
presidentstlaudubon@gmail.com

PO Box 220227
St. Louis, MO
63122-0227
www.stlouisaudubon.org



ST. LOUIS AUDUBON
SOCIETY
PO Box 220227
St. Louis, Missouri
631220227
www.stlouisaudubon.org

August 15, 2021

To: Board of Directors International Dark-Sky Association
5049 E. Broadway Blvd, #105
Tucson, AZ 85711

From: Jean P. Favara
Vice President of Conservation
St. Louis Audubon Society

RE: Stacy Park Urban Night Sky Place Designation

Dear IDA Board Members,

As Vice President of Conservation for St. Louis Audubon Society, I am pleased to submit this letter of support for the Urban Night Sky Place Designation for Stacy Park in Olivette, Missouri.

St. Louis Audubon Society, founded in 1915, is a local chapter of National Audubon Society. St. Louis Audubon Society has over three thousand members in the St. Louis metropolitan region that includes portions of eleven counties in Missouri and Illinois. Our primary mission is to create community connections to nature through education and conservation. Our education and conservation efforts focus on birds, their habitats, and how protecting them also ensures a healthy environment that allows both wildlife and humans to thrive.

St. Louis sits underneath the Mississippi Flyway, a major migration pathway in the United States that over 60% of songbirds (325+ species) use to move north and south to breeding or wintering habitats every year. Scientists from Cornell Lab of Ornithology recently ranked St. Louis as the fifth most dangerous city to migrating birds in the spring, and the sixth most dangerous in the fall (Horton, et. al, 2019). Many birds migrate at night relying on the night sky for navigation cues during their flight. Bright lights and sky glow can cause them to become exhausted and confused sometimes leading to collisions and death.

St. Louis Audubon Society, through our partnership with Lights Out Heartland, and the Missouri Chapter of the International Dark-Sky Association (Dark-Sky Missouri), is working to reduce the light pollution in the St. Louis region to provide birds safe passage. The designation of Stacy Park as an Urban Night Sky Place is a key step in the process of raising awareness in the metropolitan region of the dangers of light pollution to birds and humans and provides an important example of community action that addresses this issue.

St. Louis Audubon Society urges the International Dark-Sky Association to approve the UNSP Designation for Stacy Park. We look forward to continuing our collaboration with Lights Out Heartland and Dark-Sky Missouri to support projects and actions that lead to both protecting birds in our region and allow visitors to view the beautiful night skies over Stacy Park.

Sincerely,
Jean Favara
Vice President of Conservation
St. Louis Audubon Society
Jpouf1@swbell.net

Our mission is to create a community connection to nature through education and conservation.

January 22, 2021

To IDA Board Members:

I am writing in support of certifying Stacy Park in Olivette as an Urban Night Sky Place to further our citizens efforts to be observers of the night sky, spread community concern for our environment as relates to light pollution and its effects on sky observing in addition to bird migration patterns. Stacy Park is an ideal setting for observation of the night sky due to it being a large open space with relatively clear views of much of the horizon, and yet in the midst of a large urban area. I have taken my 8" Dobsonian telescope to the park on multiple occasions to observe the night sky, inviting friends and family members to join me to see what I can see with my telescope. I hope you will vote to certify Stacy Park as an Urban Night Sky Place.

Sincerely,

Gerald Axelbaum, Retired Teacher
5 Green Oaks Drive
Olivette, MO 63132

April 1, 2021
Board of Directors
International Dark-Sky Association
3224 N. First Ave.
Tucson, AZ 85719

Re: Petition for Stacy Park Urban Night Sky Place Designation

Dear IDA Board Members:

While not a resident of Olivette, I live less than two miles down the street from Stacy Park. With that in mind, I whole-heartedly support the designation of Stacy Park as an
As a resident of Olivette for 30 years, I wish to express my support for the designation of Stacy Park Urban Night Sky.

While not one of the larger municipalities within St. Louis County, Olivette has been a leader for years in promoting Stacy Park as a natural area, friendly to walkers, and highlighted by its use of Missouri native plantings and wildflowers; as well as the continual effort to eliminate bush honeysuckle and other non-native invasives. The Urban Night Sky designation would be well deserved.

As a member of several conservation groups, I ask you to follow through with this designation.

Sincerely,

Michael Meredith
526 Sarah Ln., #31
Creve Coeur, MO 63141

Missouri Master Naturalists – Great Rivers Chapter
Open Space Council of St. Louis Community Service Alliance Site Ambassador
St. Louis Audubon Society – Board Member and Secretary
St. Louis County Parks and Recreation Advisory Committee member

The following letter was received from an Olivette resident:

February 26, 2021

Board of Directors
International Dark-Sky Association
3224 N. First Ave.
Tucson, AZ 85719

Re: Petition for Stacy Park Urban Night Sky Place Designation

Dear IDA Board Members:

As a resident of Olivette for 30 years, I wish to express my support for the designation of Stacy Park as and Urban Night Sky. Over the years, the City of Olivette has done numerous things to encourage use of Stacy Park as a natural area for the community, including upkeep of a walking path around the perimeter, creation and maintenance of a wildflower prairie area, creation of a walking path through the wooded portion of the Park and continuous work on elimination of honeysuckle and other invasive species. Designation as an Urban Night Sky fits well with the priorities of the City and the community.

As someone whose vacations nearly always include wilderness camping, I would personally appreciate having an area within our suburb that is relatively free of light at night and conducive to seeing more of the night sky.

Sincerely,



Meg Hefner
715 N Price Rd
Olivette MO 63132

Evidence of Eligibility

Description and Maps of Stacy Park

Olivette, Missouri is a suburb in St. Louis County and is approximately 10 miles west of St. Louis City and 7 miles south of the St. Louis airport. Established in 1926, Stacy Park is one of five parks in Olivette and is located at 9705 Old Bonhomme Road, Olivette, Missouri 63132. The Stacy Park Water Reservoir is located adjacent to Stacy Park because it is one of the highest points in St. Louis County at 712 ft. (214 m.). The reservoir holds 100 million gallons of water that is used by St. Louis City residents. Therefore, Stacy Park is officially owned by St. Louis City but all management, maintenance and activities in the park are controlled by the City of Olivette. Stacy Park is 35 acres and is bounded by Olive Boulevard (county highway 340) on the north, Old Bonhomme Road on the east, Warson Road on the west and partially by Bonhomme Estates Drive on the south. There is a parking lot at the main entrance and one pavilion in the park. The GPS coordinates are 38.6692186° latitude and -90.3948° longitude. Figure 1 is a map of the park and Figure 2 is a satellite view.

Stacy Park is very popular with Olivette residents and residents of nearby cities. It contains soccer fields and two baseball diamonds that are used by the city's youth sports program. There is a .75-mile blacktop walking path around the park and a recently added wood chip nature trail through the wooded area in the southern part of the park. Directly to the west of the reservoir is a natural prairie.

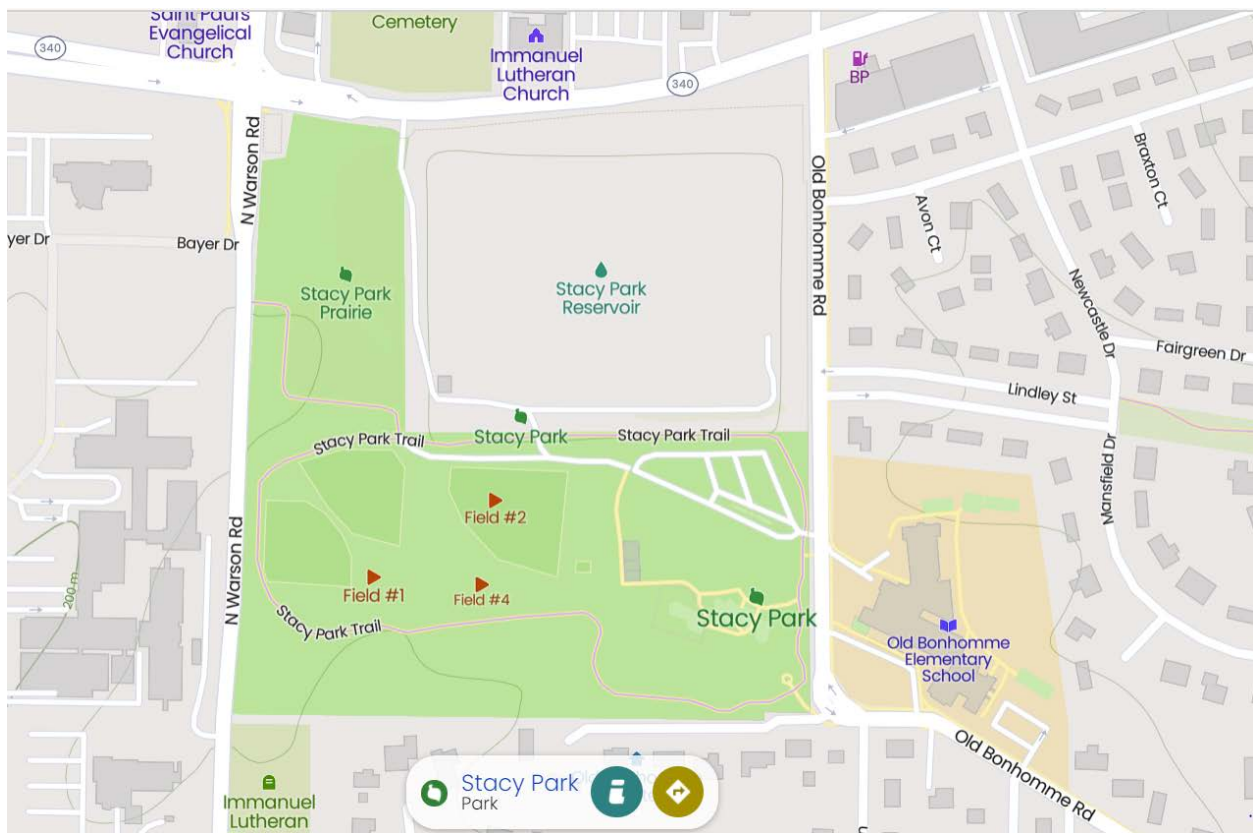


Figure 1 - Map of Stacy Park

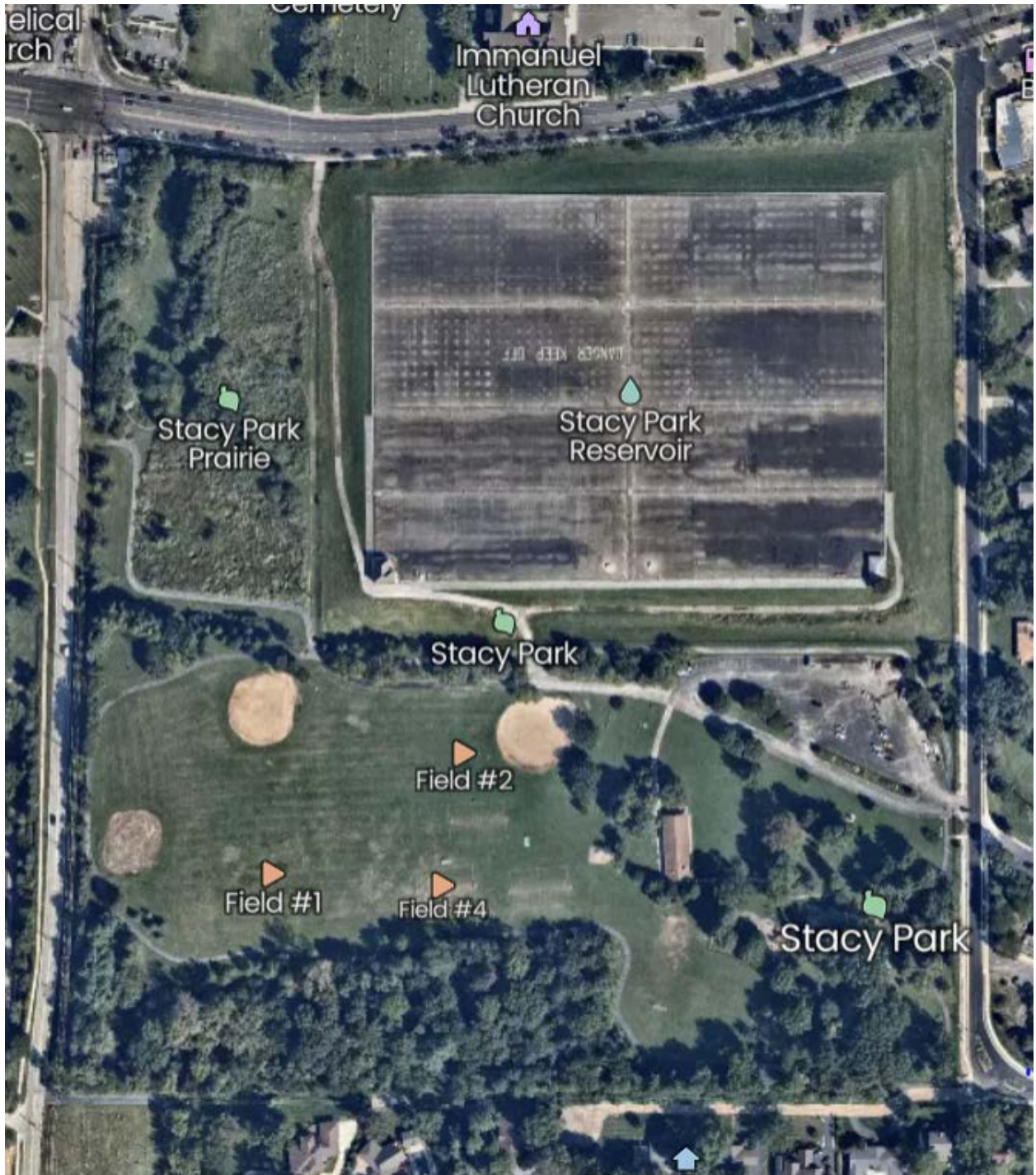


Figure 2 - Satellite View of Stacy Park

Nighttime Site Photography

Nighttime site photographs were taken to identify neighboring sources of light entering the park. Being in an urban area, almost all the light pollution comes from sky glow outside the park. However, there is minimal light trespass entering the east edge of park due to two streetlights, both of which are required for safety. One light is at a three-way stop, which is also a crosswalk for the elementary school that is located across the street from the park. The other streetlight is at the southeast corner of the park where Old Bonhomme Road makes a sharp turn to the east and where many accidents have occurred. Figure 3 shows the extent of light trespass from the light at the crosswalk and 3-way stop. The fence on the right is along the park boundary. Figure 4 shows the light trespass into the park from the light at the sharp curve in the road. The fence on the left is along the park boundary. Both streetlights are located outside the park, on the easement of Old Bonhomme Road and face downward over the road. Both streetlights are required for safety purposes.

The other figures show sky glow from buildings and streetlights. Figure 5 shows the northside of the park. The sky glow is mainly from across the street where the Danforth Center is located which has large green houses with 24 hour lights. The small building on the right side of the photograph is the pump house on top of the reservoir. It only has interior lights that do not project outside the building. Figure 6 shows the skyline of the westside of the park. This sky glow is mainly coming from a large Bayer campus that has green houses lit 24 hours. To mitigate sky glow, there are large trees along the park boundary on all four sides. In addition, light coming from Olive Boulevard is mitigated by the physical barrier of the reservoir, which is much higher elevation than the park.

The southwest side of the park has minimal sky glow and is the darkest area of the park due to a wooded area and a small adjacent cemetery, see Figure 7 for the skyline view. Figure 8 is the skyline at the southeast section of the park. Lights from houses across the street on Bonhomme Estates Drive can be in the figure but there is not light trespass.

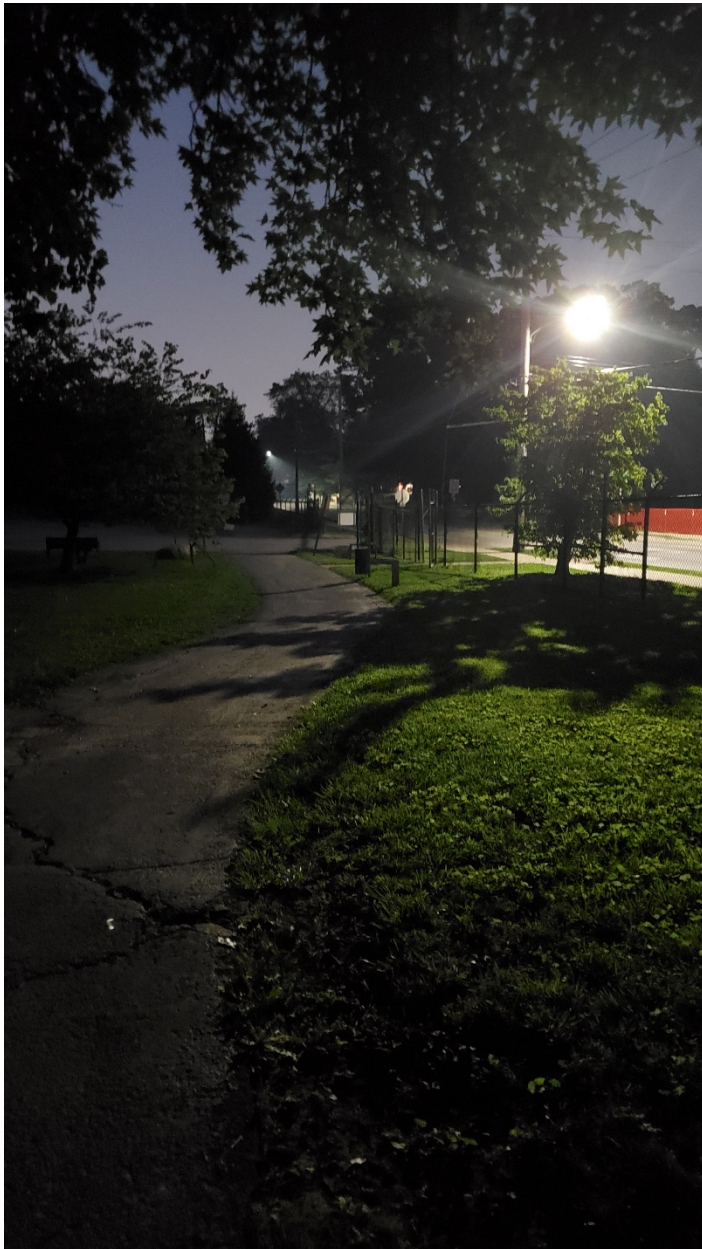


Figure 3 – Streetlight at Crosswalk



Figure 4 – Streetlight at Sharp Curve in Road



Figure 5 – Skyline Facing North



Figure 6 - Skyline Facing West



Figure 7 – Skyline Facing Southwest



Figure 8 – Skyline Facing Southeast

Night Viewing

Night viewing activities take place in the center of the park, between ballfields 4 and 2, see Figure 1, Map of Stacy Park. This is a flat area where telescopes can easily be set-up and it is away from tall trees so a large part of the sky can be seen. Sky glow from the surrounding community is mitigated by tall trees along the boundary of the park on all sides. Also, sky glow coming from across Olive Boulevard is mitigated by the reservoir, which is at a much higher elevation than the park. To further mitigate sky glow, additional trees have been planted early this year along the west and south boundaries of the park.

Public Access Policy

The Park gates are open 24 hours/day with one weekend per month designated for stargazing activities to encourage night sky viewing.

Signage Identifying Managing Agency

There is a sign at the park entrance denoting the managing agency, “Olivette” and “Welcome to Stacy Park”. See Figure 9.



Figure 9 – Sign Indicating Stacy Park is an Olivette Park

Lighting Management Plan for Olivette City Parks

Below is the Lighting Management Plan that has been adopted by Olivette Parks and Recreation for all Olivette Parks.

Objective: To establish the International Dark Sky Association lighting standards and meet and maintain the requirements for an Urban Night Sky Place in all Olivette Parks.

Reason: Light pollution is harmful to the environment, wildlife, and our health. In the St. Louis metro area light pollution is especially detrimental to birds and insects. St. Louis is in the primary bird migration path and is one of the most dangerous cities for birds due to light pollution. This Lighting Management Plan will help reduce light pollution in the area and make our parks eco-friendly for insects and nocturnal creatures. Also, people living near the parks will not be exposed to light trespass.

General Guidelines

- Lighting required by law or any entity having higher legal jurisdiction is exempt from the requirements of this management plan.
- Use outdoor lighting only when needed
- Use only the appropriate amount of light when and where needed.
- Determine the appropriate light fixture to be used with the goal of maximizing energy efficiency and minimizing impacts to nocturnal ecology.
- When appropriate, install timers and dimmer switches. If security lighting is necessary, use motion sensors.
- Turn off lights when not in use

Outdoor Lighting Requirements

- Determine if lighting is needed for a given area and at what times the appropriate lighting is necessary.
- All lights shall be fully shielded (shine down) as defined in ordinance 428.61 as a light fixture that allows no emission above a horizontal plane through the fixture.
- Lighting of less than 500 lumens may be unshielded only if necessary for historical preservation.
- Lighting must be chosen to minimize the short-wavelength light emitted into the nighttime environment and must meet one of the following requirements which can be found in manufacturer data sheets.
 - The correlated color temperature (CCT) must not exceed 3000K
 - Lighting must not emit more than 25% of its total spectral power at wavelengths < 500 nanometers
 - The scotopic-to-photopic ratio (S/P) of allowed lighting must not exceed 1.3
 - International Dark Sky (IDA) certified fixture
- Lighting controlled with motion-activated switches limiting the duration of illumination to less than five minutes after activation is exempt from other requirements in this section.
- Illumination of signs is prohibited from one hour after sunset to one hour before sunrise unless strictly required for wayfinding. If signs are required, displays must be single-color on a black background and luminance after sunset may not exceed 100 candelas per square meter.

Regulation of Visitor Activities

- Search lights are not allowed in the park.
- Light painting or light drawing is not allowed in the park. Light painting is regarded as any photographic technique that involves an external light source while taking a long exposure photograph.
- Car lights, except police cars, shall be turned off while vehicle is parked.
- If flashlights are needed, they shall be pointed down at the ground.

Sky Quality Measurement Survey

A baseline survey was performed using a hand-held Unihedron Sky Quality Meter, product SQM-L, to establish conditions prior to achieving UNSP designation. Figure 10 shows the approximate locations of where the measurements were taken in the park. Figure 11 shows the values of the measurements taken. When the park is designated as an Urban Night Sky Place, sky brightness measurements will continue to be taken quarterly by a volunteer from the Olivette Parks Committee.

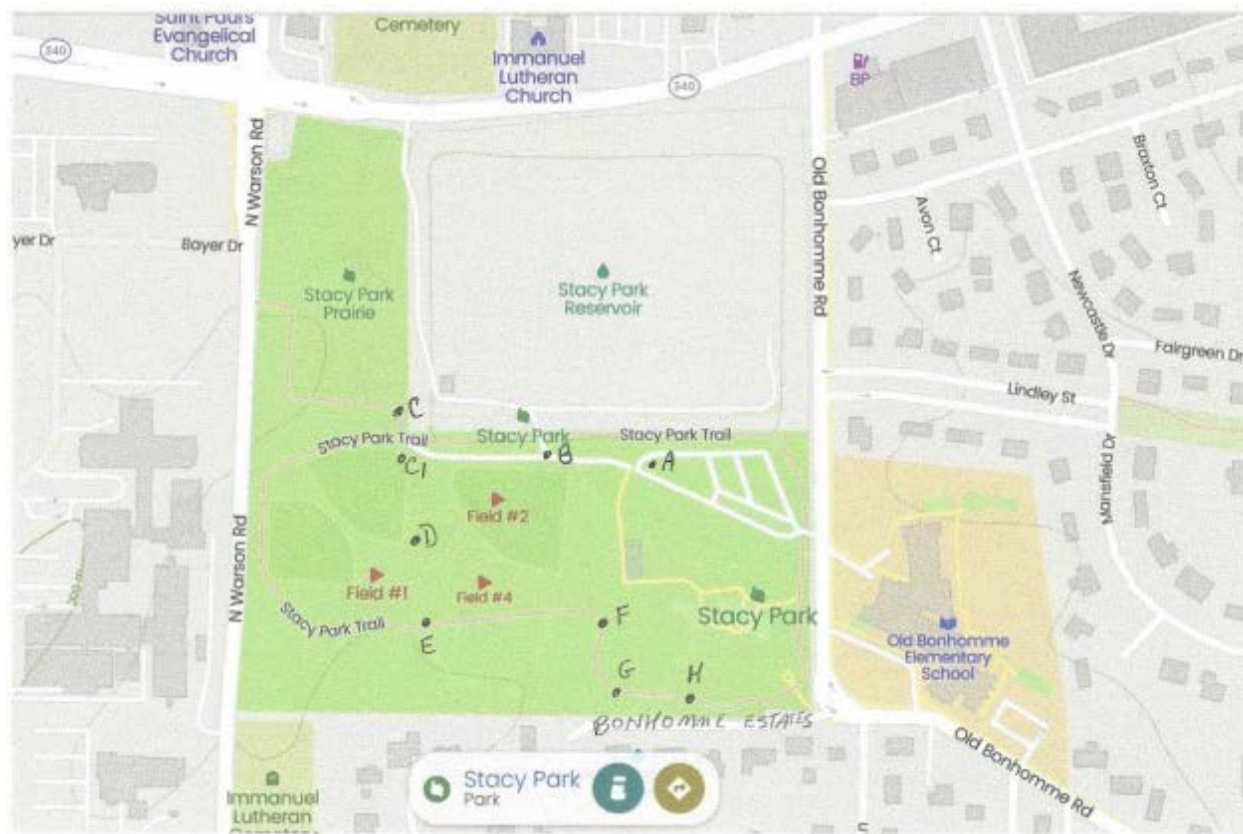


Figure 10 – Locations of Sky Quality Measurements

Date	Sunset	Location	Approx. Time	Reading 1	Reading 2	Reading 3	Average
10/13/2020	18:25 Daylight Sav.	A	20:05	18.04	18.08	18.1	18.07333333
		B	20:08	18.05	18.08	18	18.04333333
		C	20:10	18	18.02	17.99	18.00333333
		D	20:15	18.01	18.14	18	18.05
		E	20:17	18.11	18.13	18.11	18.11666667
		F	20:18	18.42	18.47	18.36	18.41666667
		G	20:20	18.25			
		H	20:21	18.12			
10/16/2020	18:18 Daylight Sav	A	19:55	18.05	18.02	18	18.02333333
		B		18.07	18	18.04	18.03666667
		C		18.07	18	18.04	18.03666667
		D		18.09	18.02	18.06	18.05666667
		E		18.06	18.06	18.04	18.05333333
		F		18.28	18.22	18.33	18.27666667
		G		18.17	18.22	18.26	18.21666667
		H	20:17	18.25	18.29	18.27	18.27
11/3/2020	17:00 Stand. Time	A	18:35	18	18.02	18.03	18.01666667
		C		17.97	17.96	17.97	17.96666667
		C1		17.92	17.94	17.95	17.93666667
		D		17.94	17.91	17.98	17.94333333
		E		17.94	17.94	17.95	17.94333333
		F		18.01	18.04	18.12	18.05666667
		G		18.1	18.08	18.14	18.10666667
		H		18.01	18.05	18.05	18.03666667
11/6/2020	16:56	A	18:30	17.9	17.87	17.94	17.90333333
		C		17.87	17.87	17.85	17.86333333
		C1		17.84	17.78	17.81	17.81
		D		17.84	17.81	17.83	17.82666667
		E		17.9	17.89	17.89	17.89333333
		F		17.87	18.02	17.96	17.95
		H		17.94	17.94	17.94	17.94

Figure 11 – Sky Quality Measurements Taken at Stacy Park

12/1/2020	16:43	A	18:15	17.86	17.86	17.92	17.88
		B		17.83	17.85	17.87	17.85
		C		17.76	17.75	17.76	17.75666667
		D		17.74	17.74	17.76	17.74666667
		E		17.78	17.76	17.73	17.75666667
		F		17.8	17.78	17.79	17.79
		H		17.79	17.79	17.79	17.79
12/10/2020	16:40	A	18:22	17.92	17.97	17.94	17.94333333
		C		17.87	17.89	17.91	17.89
		D		17.87	17.89	17.86	17.87333333
		E		17.81	17.86	17.87	17.84666667
		F		17.89	17.92	17.93	17.91333333
		G		17.98	17.97	18.02	17.99
		H		17.93	17.89	17.93	17.91666667
3/16/2021	18:10	A	19:50	17.98	17.85	18.05	17.96
		B		18	17.97	18.05	18.00666667
		C		17.86	17.9	17.84	17.86666667
		D		17.95	17.93	18.02	17.96666667
		E		18	17.87	17.93	17.93333333
		F		17.98	18.03	18.01	18.00666667
		G		18.1	18.15	18.12	18.12333333
		H		18.15	18.13	18.16	18.14666667

Figure 11 – Sky Quality Measurements Taken at Stacy Park, cont.

To collect additional data, a stationary Unihedron Sky Quality Meter (SQM), model SQM LU-DL-R1, capacity 1048576 rec., was installed on Oct 23, 2020 as part of the Missouri Sky Quality Meter Program, see Figure 12 for the installed meter. The SQM is located near location A in Figure 10. Data is downloaded weekly and transmitted to Truman State University in Kirksville where it is analyzed by faculty and students.



Figure 12 – Stationary Sky Quality Meter

Lighting Inventory

There are no lights in Stacy Park, therefore there are no lights to inventory. There was one functioning light in the park located outside the restrooms. To comply with the UNSP requirements, the light and wiring was removed, and steel plates now cover the openings in the wall, shown in Figure 13. Figure 14 shows the remains of a light that has also been removed along with all the wiring. This light had been disconnected for many years and was in severe disrepair but now has also been removed.



Figure 13 – Location of Removed Light in Stacy Park



Figure 14 – Removed Light and Wiring

Olivette's Commitment to Quality Outdoor Lighting

Olivette Parks and Recreation recognizes dark skies as important for animals, insects, plants, and the health of humans. As allowed by Section 240.020 of the City of Olivette Rules and Regulations, excerpt below, the Park and Recreation Director is authorized and has committed to installing lights that meet the guidelines of the International Dark Sky Association as evidenced in the Park Maintenance and Operations Manual, Section Eleven, Exterior Lighting Fixtures. The first three pages of the Park Maintenance and Operations Manual with the Park and Recreation Director signature is on pages 34 – 36 of this document and Section Eleven, Parks and Recreation Standard Operating Procedure (SOP), Exterior Lighting Fixtures, is shown in Figure 15.

City of Olivette, MO | Government Code Section 240.020 Rules and Regulations.

[Ord. No. 2448 §1, 2-8-2011; Ord. No. 2620, 10-24-2017]C. The Park and Recreation Director may adopt additional rules as may be appropriate for park, community center, and community room operations.

Also, the Park Rules, Policies and Procedures, see Figure 16, include additional requirements for lights in the parks. Note item 17 and 18 state no light painting photography is allowed in any city park and car headlights are to be turned off when not actively driving, respectively. Item 19 states that bands, PA or DJs cannot use lights unless approved by the Parks and Recreation Director and item 2 under Special Permits only allows lighting if stated on the permit issued by the Parks and Recreation Director. In addition, a memorandum has been issued by the Parks and Recreation Director to include adhering to IDA best practices in the Parks Master Vision Plan when it is scheduled to be updated in 2023, see Figure 17.



Olivette Parks & Recreation
Department

**PARK MAINTENANCE &
OPERATIONS MANUAL**

Standard Operating Procedures

Updated July 2021



Park Maintenance & Operation Manual

Table of Contents

Section One

- Introduction and Mission
- City of Olivette Park Map
- Parks Master | Vision Plan Summary

Section Two

- Park Maintenance Schedule
- Personal Protective Equipment

Section Three

- Park Operations Building Layout
- Equipment & Tool Inventory and Annual Care SOP
- Small Engine Care SOP

Section Four

- Turf Maintenance SOP
- Athletic Field Maintenance SOP
- Hiking Trail Maintenance SOP

Section Five

- Horticulture Maintenance Basics
- Tree and Shrub Pruning Basics
- Tree, Shrub & Perennial Planting SOP
- Herbicide Use Policy
- Invasive Species Removal SOP
- Prairie Maintenance SOP
- Tall Grass Prairie Prescribed Burn SOP

Section Six

- Playground and Equipment Inspection
- Dog Pot Circuit SOP
- Annual Fibar Renewal SOP

Section Seven

- Vector Control Procedures
- Pesticide Use Protocols
- Herbicide & Pesticide Storage SOP
- Paint and Solvent Storage SOP

Section Eight

- Storm Clean Up Procedure
- Winter Storm Advance Preparation

Section Nine

- Special Event Support SOP

Section Ten

- Building and Facility Maintenance Overview
- Restroom Cleaning SOP
- Winterizing Restrooms and Drinking Fountains SOP

Section Eleven

- Minor Electrical Repair SOP
- Minor Plumbing Repair SOP
- Interior Electrical Repair SOP
- Exterior Lighting Fixture SOP

Appendix

- Purchasing Procedures
- Approved Vendor List
- Emergency Procedures
- Individual Park Schematic Designs
- Tips for Working with Volunteers

SECTION ONE

INTRODUCTION

The City of Olivette believes parks make life better for residents, business owners, and visitors. We take great pride in maintaining our parks, trails and open spaces for users to enjoy the outdoors both actively and passively. Improving the health of our park forests, prairies, woodlands, savannahs and riparian habitats is of utmost importance to staff and residents. Increasing the biodiversity of plants, animals and insects is a top priority. Providing engaging play equipment, clean and pleasant restrooms, diverse pathways and trails, and areas of natural beauty are all key components of our park network.

This manual provides a road map for us to fully implement our Park Master | Vision Plan and adhere to our mission. It is a living document, meaning that it will need ongoing revisions and updates. Your input was vital in its creation. It is important to stay current with best practices and industry standards and your voice remains vital to the process.

Thank you for your dedication and input in achieving our goals. We are lucky to have you on our team!

Sincerely,



Beverly Tucker Knight
Parks & Recreation Director

MISSION

Create community through people, parks & programs

VISION

Strive to enrich community members through active participation in life-long learning, health & wellness, community involvement and recreational activities.

GOALS

1. Provide clean and safe parks, open spaces and recreational facilities.
2. Offer quality programs for residents regardless of age, income, abilities and cultural background.
3. Engage residents in planning for current and future interests and needs.



OPRD Parks Division SOP Binder; Section 11

EXTERIOR LIGHTING FIXTURES

Procedure

1. Any missing or burned-out light bulbs are to be replaced within two business days, unless weather prohibits safe replacement.
2. Park staff are to replace restroom and security lights in compliance with City policy listed below.
3. When light bulb is broken but base is still in place, the circuit breaker will be turned off prior to removing.
4. Any light fixtures that require access by ladder or bucket truck for servicing is a two-person job. Do not use a ladder or bucket truck on solo.
5. Check light after any work to ensure it is correctly directed downward, and not casting any light into motorist eyes, neighboring homes, or above into the sky.
6. When light bulbs are replaced, make the appropriate notation on the supply inventory sheet. If additional bulbs are needed, use an authorized supply vendor.
7. Contract vendors may be used to repair light fixtures that require work beyond bulb or fixture replacement. Notify Director before calling contract electrician.

Department Lighting Policy

1. Any exterior light fixture replaced must meet IDA specifications and carry the approved sticker and/or statement
2. Exterior light bulbs must be rated at or below 3000 Kelvins
3. Security lights must be motion sensor and not remain on.
4. All Park light fixtures must be directed down, shielded, no brighter than necessary, and only light the desired area.
5. No new exterior lights will be installed in a City park without approval by the Director

City On-Account Vendors

1. Home Depot; Page Ave
2. Starbeam; Baur Blvd
3. Crescent Electric Supply; Forest Park Ave

Contract Electricians

Bates Electric 1.636.242.6334
Michael Whittaker 1.314.540.4587



Sticker to look for on packaging

Figure 15 - OPRD Parks Division SOP

PARK RULES, POLICIES & PROCEDURES

1. Reservation permits for pavilions and athletic fields are available for usage from **9:00 am-2:00 pm; 3:00 pm until Dusk; or 9:00 am until Dusk**, seven days per week, during the following dates:
 - Stacy Park Year-Round
 - Irv Zeid & Villa Parks April 15th through November 1st
2. Reservation permits are issued on a first-come, first-serve basis up to one year in advance.
3. Olivette residents must show proof of residency to receive the resident rate; an unpaid utility bill or similar items may be used to verify.
4. Reservation permits are required to reserve all athletic fields (Warson & Stacy Parks) and pavilions (Irv Zeid, Stacy & Villa Parks). The Indian Meadows Park pavilion is not reservable.
5. Those not having reservation permits must relinquish those facilities outlined in the permit to the permit holder.
6. The reservation permit is issued only for the time(s) and date(s) outlined on the permit.
7. The City of Olivette reserves the right to modify or revoke reservation permit due to unforeseen circumstances.
8. The proposed activity/use must not reasonably interfere with or detract from the public's enjoyment of the park.
9. The proposed activity or use will not entail unusual, extraordinary, or burdensome expense or police operation and/or anticipate violence, crime, or disorderly conduct.
10. Person(s) representing companies, groups or organizations signing reservation permits will be held liable.
11. Pavilions and recreation areas must be clean and free of trash and debris. *[Olivette Municipal Code, Section 240.020]*
12. Golf practicing within the park area is prohibited. *[Olivette Municipal Code, Section 240.020]*
13. **No motor vehicles are permitted to operate in any park area except in designated parking areas.**
14. Dogs are to be leashed and under control at all times while in the park. *[Olivette Municipal Code, Section 240.020]*
15. All fires must be contained to the BBQ pits only, and all coals shall be put completely out. Do not throw coals in the trash containers. *[Olivette Municipal Code, Section 240.020]*
16. All lights and fans at Stacy Park pavilion are operated on timers.
17. No light painting photography is allowed in any City park.
18. Car headlights are to be turned off when not actively driving.
19. Bands, PA's and/or DJs or any loud noise, music or lighting is not permitted, unless approved by Director of Parks & Recreation.

Figure 16 - Park Rules, Policies and Procedures

20. Entertainment/Amusement equipment such as rides, dunking booths, game booths, beer booths, food booths, moonwalks, tents etc. are not permitted without purchasing a Special Event Permit.
21. Any equipment such as portable BBQ pits and large marquee tents also require purchase of a Special Event.
22. No glass containers or bottles are permitted in the park. *[Olivette Municipal Code, Section 240.020]*
23. Use by any individual, corporation, or organization who wishes of a City facility for league use (practice/games/tournaments etc.) requires a Special Event Permit and, must have a One (1) Million dollar general liability policy naming the City of Olivette as an additional insured. A current "Certificate of Insurance" document must be on file with the office prior to permit being issued.
24. All reservation permits are given for the sole use of the permittee; permits are not transferable and cannot be sublet or given to any other individual, corporation, or organization.
25. **There are no refunds on reservation permits. Fees may be applied to another date if requested 30 days before initial date.**

SPECIAL USE PERMITS

1. The following uses are allowed in any park only on receipt of a special use permit issued by the Director:
 - a. Bands, supplemental lighting, public address systems, disc jockeys, or similar forms of entertainment or communication;
 - b. Entertainment, amusement, or festival equipment or features such as rides, dunking booths, game booths, beer booths, food booths, moonwalks, tents etc.;
 - c. Portable barbeque pits or personal equipment that affixes to any park grounds or structure; and
 - d. Other uses having potentially adverse impacts (lighting, litter, noise, crowds, etc.) on park facilities, other park users, or adjacent streets or neighbors.
 - e. Inflatables will only be permitted for Stacy Park and require a County of St Louis inspection.
2. The Director may impose such requirements or restrictions on the issuance or enforcement of Special Use Permits as are reasonably necessary to prevent, mitigate, or ameliorate adverse impacts likely to result from Special Use Permit activities. The political (or other) viewpoint or nature of a person or group shall not be considered in issuing or enforcing Special Use Permits.

Updated September 2021

Figure 16 Park Rules, Policies and Procedures, cont.

DEPARTMENT MEMORANDUM

DATE: 17 August 2021
TO: Board of Directors; International Dark-Sky Association
FROM: Beverly Tucker Knight, Parks and Recreation Director
RE: Parks Master Vision Plan Update in 2023

In 2018, the City of Olivette adopted a comprehensive 10-year Master Vision Plan for its five parks and open spaces. The Five Key Principles of the Plan are:

1. **Connectivity:** We will use parks to connect people and places.
2. **Innovation:** We will consider new approaches to effectively manage our parks.
3. **Partnership:** We will collaborate with the community to plan and sustain our parks.
4. **Sustainability:** We will preserve natural resources and promote health and well-being.
5. **Financial Responsibility:** We will develop strategies that match resources available.

The residents of Olivette played an integral role in creating the Parks Master Vision Plan through public meetings, focus groups, large group activities and both in person and digital surveys. Residents again voiced approval in June 2021 by passing a \$16.2M bond measure by 79% to fund implementing the Plan.

In keeping with the Plan, the Parks & Recreation Department's top priorities include improving the ecological health of all parks and open space. This includes eliminating invasive species, restoring native habitats and increasing biodiversity. Staff has created, and continues to add to, recreational and educational programs that support these priorities. Creating opportunities for residents to view the night sky and increasing darkness for native birds and insects are key components. When the Master Vision Plan has its five year update in 2023, the specific language of placing high value on protecting and celebrating the night sky will be added, and adhering to IDA best practices will be emphasized.

Figure 17 – Memorandum on Park Master Plan Update

Therefore, all new municipal facilities, including the new Parks Community Center, in an area to the north of Stacy Park, are adhering to both the letter and spirit of the exterior lighting ordinances. Current building bid documents specify, at the insistence of Park staff, that exterior lighting (3000K) be fully shielded and have the International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA). The specified lights are Lithonia Lighting DSX LED P4 3000K, which according to company literature is IDA FSA.

Olivette Parks and Recreation meets or exceeds the city building ordinances related to exterior lighting. A city ordinance enacted in March 2012 prohibits any exterior light fixture which is not fully shielded (defined in ordinance 428.61 as a light fixture which allows no emission above a horizontal plane through the fixture. Further, ordinance 428.620 – lighting design standards mandates that all luminaries of 1,800 or more lumens shall be fully shielded and any under 1,800 lumens shall be installed behind a translucent cover.

Olivette has been proactive in reducing both upward and spill-over light for the last decade. The City Council fully supports this application, voting unanimously at the January 12, 2021 Council Meeting for the Parks and Recreation to apply for Urban Night Sky Place designation, see excerpt from the Council Meeting minutes below.

Item #12 — Urban Dark Sky Certification Application Stacy Park

Parks and Recreation Director Beverly Tucker Knight addressed the Council stating the Missouri Chapter of the International Dark-Sky Association (IDA) is an agency working to reduce light pollution across all of Missouri. IDA works to preserve and protect the nighttime environment and the heritage of dark skies through environmentally responsible outdoor lights. The Missouri IDA provides educational resources, workshops, and works with partner agencies like the National Audubon Society, NASA, and Truman State University.

One program being offered by the IDA is certifying locations with good quality night skies. Recognizing that light usage in urban and suburban communities has benefits, the IDA works to educate about proper light fixture and LED selection. There is also a certification category specifically for urban locations. Guidelines from IDA for light fixture and LED selection are being used by the Parks and Recreation Department now and will continue with all new lighting in the parks and Department facilities. Following approval by the Parks and Recreation Commission and the City Council, an application for this program would be submitted to IDA.

Council Member Waldman made a motion to approve the Urban Dark Sky Certification application for Stacy Park. Motion seconded by Council Member Carl.

POLL OF THE COUNCIL:

<i>Council Member Weil</i>	<i>Absent</i>
<i>Council Member Carl</i>	<i>Yea</i>
<i>Council Member Waldman</i>	<i>Yea</i>
<i>Chairman Pro-tem Clark</i>	<i>Yea</i>
<i>Mayor Springer</i>	<i>Yea</i>
<i>Motion passed.</i>	

Education and Public Outreach

Commitment to education and public outreach is demonstrated by the events below.

Education and outreach events held 2018 – July 2021

July 2018 - Family Campout in Stacy Park. Campout activities included summer sky orientation, a night hike and campers making their own star charts. Approximately 40 people attended.

July 2018 – Youth Summer Camp. Science activities included a specific unit on the effects of light pollution on bird migration.

August 2018 - Meteor Viewing Party. Challenger Learning Center – St. Louis set-up the Center's portable planetarium and taught attendees how to make star charts. Event was attended by approximately 50 people of all ages. Figure 18 shows the Mobile Planetarium and Figure 19 shows the Mobile Planetarium set-up in the park. Figures 20 and 21 show people making star charts ahead of a meteor viewing.

January – May 2018 and October – December, second Saturday of each month – Volunteer Work Days for Weed Warriors. Each work session begins with an explanation of the importance of native plants and protecting insects, which includes a discussion on light pollution.

July 2019 - Family Campout in Stacy Park by park staff.

July 2019 – Youth Summer Camp by park staff

August 2019 - Meteor Viewing Party, by park staff partnering with Challenger Learning Center – St. Louis.

January – May 2019 and October – December, second Saturday of each month – Volunteer Work Day for Weed Warriors and Olivette in Bloom

May 2020 – IDA pamphlets available in City Hall and the Community Center.

July 2020 - Family Campout in Stacy Park. Canceled due to Covid

July 2020 – Youth Summer Camp held by park staff

August 2020 - Meteor Viewing Party. Canceled due to Covid

October 2020 – Local amateur astronomer, Gerald Axelbaum, set-up telescope in Stacy Park and allowed people to look at the night sky.

October 2020 – Presentation given to the Parks Committee on Light Pollution by Park Director using IDA presentation.

January – May 2020 and October – December, second Saturday of each month – Volunteer Work Days coordinated by Olivette Parks.

May 2021 – Public educational presentation given by Beverly Tucker-Knight, Parks Director, on light pollution using the IDA PowerPoint.

July 2021 – Youth Summer Camp held by Park staff that includes science unit on light pollution and the detrimental effects, especially during bird migration.

July 2021 - Family Campout in Stacy Park. Canceled due to Covid.



Figure 18 – Mobile Planetarium



Figure 19 – Mobile Planetarium at Olivette Family Event



Figure 20 – Making Star Charts Ahead of Meteor Viewing



Figure 21 – Instruction on Making Star Charts

List of future scheduled events promoting Dark Sky initiatives

Olivette Parks and Recreation has scheduled the following events for 2021/2022 and is taking advantage of community partnerships provided by IDA Missouri such as Missouri Master Naturalists, St. Louis Audubon Society, and St. Louis Astronomical Society to offer programs on preserving the night sky and detrimental effects of light pollution on wildlife and the environment.

September 10, 2021 - Annual Party in the Park at Stacy Park. As part of the exhibitors, IDA Missouri will have a table on light pollution and the Audubon Society will have a table focused on Lights Out Heartland.

October 9, 2021 and continuing the second Saturday of every month – Volunteer work sessions to remove invasive plants and plant native plants by the groups Weed Warriors and Olivette in Bloom.

General light pollution, specifically how it effects insects, will be addressed at the start of each work session.

October 23, 2021 – A Missouri Naturalist that has been trained by Missouri IDA on light pollution will give a presentation in Stacy Park on light pollution and the detrimental effects on birds, insects, and wildlife. The program will also include a reference to Lights Out Heartland which is a partnership between IDA Missouri and the St. Louis Audubon Society to help prevent bird deaths due to light pollution during peak migration periods. St. Louis is the fifth most dangerous city for migrating birds during the spring and the sixth most dangerous city during fall migration.

December 2021 – The article below has been submitted for publication in the December Olivette newsletter.

The Night Sky at Stacy Park

Light pollution and its effects may not be part of your everyday conversation. But, light-pollution is a real issue. It refers to artificial light shining into the night sky and it is one of the many ways humanity is altering the natural environment on a global scale with significant environmental consequences. Scientific evidence suggests that artificial light at night has negative and potentially deadly effects on many creatures including amphibians, birds, mammals, insects and even plants.

An important part of solving the problem of light pollution is understanding its magnitude and a great way to do this is to measure the brightness of the night sky. As part of this effort, a Sky Brightness Measurement program was started by the Missouri Chapter of International Dark Sky Association (IDA) partnering with Truman State University in Kirksville. Olivette Parks and Recreation participates in this program and a sky quality meter was placed in Stacy Park to collect sky brightness levels at 5-minute intervals. The data is sent to students at Truman State University for analysis. The Stacy Park meter is one of over a dozen sky quality meters placed around the state. Data collected by these meters will be used to develop programs to reduce light pollution. Funding for the purchase of the meters was provided by the NASA-Missouri Space Grant Consortium.

To further help our environment and increase awareness of the detrimental effects of light pollution, an application is proposed for Stacy Park to become certified as an Urban Night Sky Place. Stacy Park would be the first application for an Urban Night Sky Place in Missouri and Olivette hopes to be first to display the IDA logo in official publications and promotions. Also, Olivette Parks and Recreation may identify IDA as a partner and when certified, IDA will list Stacy Park on their website. Ultimately, the goal is to certify all five of the Olivette Parks as Urban Night Sky Places.

For more information about light pollution and the ongoing efforts to reduce it, check-out International Dark Sky at www.darkskymissouri.org or www.darksky.org



Volunteer Stephanie Todd stands next to the Sky Meter posted at Stacy Park



Close-up of the Sky Meter

May 2022 – In support of Lights Out Heartland, an article will be published in the Olivette newsletter informing citizens of the hazards of light pollution to migrating birds and requesting people/businesses turn-off exterior lights during May and September.

July 2022 – Several summer camps will be held for ages 5 – 13 and will include activities related to Dark Sky initiatives. IDA Missouri will help with activities involving seeing the night sky and light pollution.

Upon achieving Urban Dark Sky Certification - An article will be published in the Olivette Newsletter explaining that Stacy Park is certified as an Urban Night Sky Place. The article will include information on light pollution and the IDA website as well the IDA Missouri Chapter website to go to for more information. The Olivette Newsletter is published monthly and is mailed to all citizens. It can also be found online.

Social Media

Olivette also has a strong social media presence on Facebook, Instagram, Twitter and NextDoor. Information on IDA, the Dark Sky Initiative and public programs will all be cross promoted. Olivette Parks and Recreation posts on social media on Lights Out Heartland (bird migration and turning off lights during specific times) along with night sky activities are shown in Figure 22.

Social Media Samples

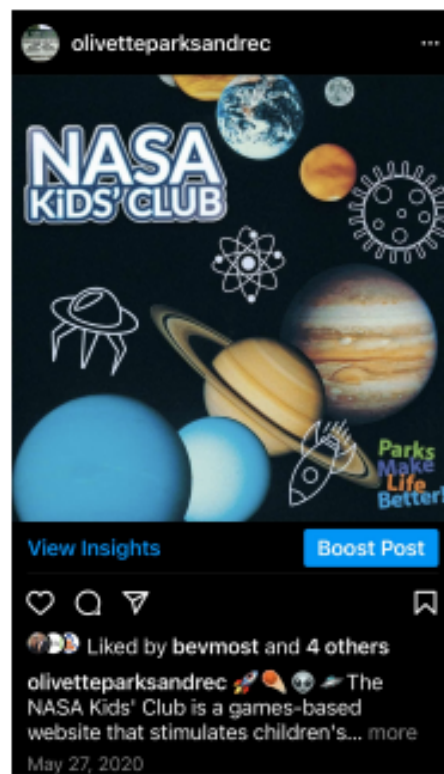
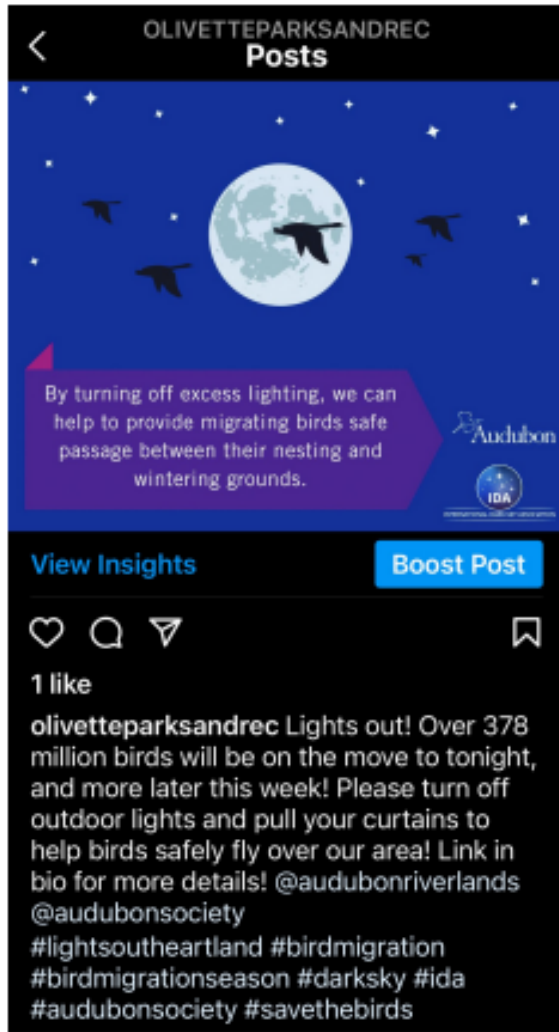


Figure 22 – Social Media Examples

Signage

When Stacy Park achieves Urban Night Sky Place accreditation a sign will be placed near the main entrance to the park informing visitors of the Dark Sky status. A picture of the sign will be taken and sent to IDA for their records along with a description of the location.

Annual Reports

To retain certification, an annual report will be submitted to IDA before October 1 of each year summarizing the activities in the previous year. The report will include community dark sky education and any lighting projects and sky brightness measurements taken during the year. Sky brightness measurements will be taken quarterly by a volunteer from the Olivette Parks Committee.

The City of Olivette has worked closely the Missouri Chapter of the International Dark-Sky Association to submit this application and has received considerable support from the Missouri Chapter as outlined in their letters of support. There are no other IDA Chapters or IDA certified IDSP's within 100 km of the City of Olivette.