A. Description of the Proposed Project:
Bloomington (MN) Public Schools District (BPSD) has submitted construction and building proposals for the alteration, improvement, and expansion of existing outdoor sports facilities and adjacent sites located at Thomas Jefferson High School 4001 West 102nd Street, Bloomington, MN 55437 (PL20300158) and John F. Kennedy High School, 9701 Nicollet Avenue, Bloomington, MN 55420 (PL202300157). [The project construction and building plans described here will henceforth be referred to as "the stadiums project" in this petition.]

Both of the proposed sports stadiums are located within City of Bloomington R1 zoned residential areas.

The stadiums project is intended to replace the use of Bloomington Stadium (alternately and formerly known as Lincoln Stadium, 9000 Penn Ave S, Bloomington, MN 55341), which served as the home field for Jefferson and Kennedy High Schools for many decades. Under the currently proposed stadiums project plans (presented to the Bloomington Planning Commission on November 2, 2023), Jefferson and Kennedy would each receive their own updated stadium on campus. The stadiums would both include bright outdoor lighting, scoreboards, and sound systems for hosting night games and events, concessions services and press box buildings, and expanded seating capacity to 2,500 seats at each location. The November 2 planning meeting also included plans for leasing out the facilities at both locations to outside entities.

The proposed stadiums project is intended to replace the use of Bloomington Stadium, alternately and formerly known as Lincoln Stadium, 9000 Penn Avenue S, Bloomington, MN 55341, which has served as the home athletics field for both Jefferson High School and Kennedy High School for many decades. Under the current stadium project plans (as presented to the Bloomington Planning Commission on November 2, 2023), Jefferson and Kennedy would each receive their own updated and expanded on-campus stadium. Each stadium would feature outdoor lighting, illuminated scoreboards, and sound systems for hosting both daytime and night games and events, along with new concessions facilities, press box buildings, and expanded seating capacity of 2,500 at each location. The November 2 Planning Commission meeting also included plans for leasing out the facilities at both locations to outside entities.

The following scope of work is listed for each location of the stadiums project:
(see appendix: Plans - Items 1–4)

- Building construction and structural modifications for concessions services, with additional structures for home and visitor grandstand seating and a press box
- Outdoor lighting system (for nighttime events) and lighted signage installation
- Sound system and scoreboard installation
- Utility connections
- Ticketing plaza
- American with Disabilities Act (ADA) compliant routes and parking stalls
- Turf replacement

B. Proposed by:
The stadiums project is being proposed by the Bloomington Public School District #271, 1350 West 106th Street, Bloomington, MN 55431, in partnership with Wold Architects & Engineers, 332 Minnesota Street, Suite W2000, Saint Paul, MN 55101. (Bloomington Public School District #271 and Wold Architects & Engineers are henceforth referred to as "the Applicants" in this petition.) The Applicants' representative is listed on the project development application as: Timothy Rybak, Director of Operations, Independent School District No. 271.

C. Petitioners representative:
Douglas Herzog
P.O. Box 386195
Bloomington, MN 55438

D. Brief description of the potential environmental effects which may result from the project:

A grass-roots alliance of concerned Bloomington residents from the Jefferson and Kennedy High School areas and their local allies have raised serious environmental concerns for each of the proposed stadium expansions as well as the collective impact of having two sports stadiums located within approximately three miles of each other. To our understanding, no Environmental Assessment Worksheet (EAW) has been conducted for either stadium site nor for assessing the overall environmental impact of constructing and operating two 2,500-seat sports stadiums within residential areas and near public parks, nature preserves, and other protected and sensitive natural areas.

Both proposed stadium sites flank the Nine Mile Creek Conservation Corridor and will potentially affect many smaller adjacent wetlands and natural habitats, such as those located at Oxboro Lake Park, Heritage Hills Park, and Ancel Glen Playfield and pond. The combined-impact area is also within 1.5 miles of the Lower Minnesota River Valley, a watershed district, and the Audubon Minnesota Important Bird Area (IBA) designated as such for providing essential habitat for breeding, wintering, and/or migrating bird species.

Representatives of this citizen alliance have provided public testimony on various environmental concerns at both the November 2, 2023 and November 30, 2023 Bloomington City Planning Commission meetings reviewing the final site plans for both the Jefferson and Kennedy stadium proposals [see appendix: "Stadiums Project Items 1-4"]. To date, we have received no follow-up communications or responses from the Applicants regarding the environmental questions and concerns we've raised during these public meetings except for a computer-modeled stadium noise report authored by a contracted firm.

With no environmental impact engagement or research from the Applicants or mitigation requirements yet directed from the Bloomington City Planning Commission or other

governmental authority, the representatives of this citizens alliance are petitioning for a full and complete environmental review by the City of Bloomington on the stadium projects for the seven principle reasons listed below. Research and supporting documentation from reputable sources, including peer-reviewed journals, are provided within this petition document. Item numbers are used throughout each section for identification purposes. An appendix of materials at the end of the petition contains full versions of all cited sources.

1. **Aspects of the project that call for mandatory EAW and review by the responsible RGU (City of Bloomington).**

2. **Noise pollution exceeding State of Minnesota statutory limits and City of Bloomington sound ordinances for a residential area.**

3. **Light pollution, glare, and light trespass from excessive, misdirected, or obtrusive artificial outdoor light.**

4. **Negative impacts on humans, insects, and local wildlife, including endangered, threatened, or species of special concern.**

5. **Negative impacts on migratory birds using the areas directly within, adjacent to or around the proposed stadium sites as stopover grounds for hunting or refueling, nesting and breeding, or for seeking shelter.**

6. **Increasing air pollution levels on the school campuses and in the surrounding residential neighborhoods from parking and idling of increased event traffic (due to expanded stadium capacity).**

7. **Water pollution and negative impacts from added runoff on the adjacent wetland habitats and absorbed into local watersheds.**

1. Aspects of the project that call for mandatory EAW and review by the responsible RGU (City of Bloomington).

I.

We believe the stadiums project proposed by the Applicants qualifies as a "phased action" under Subp. 60. Phased action, which states:
"Phased action" means two or more projects to be undertaken by the same proposer that a RGU determines:

A. will have environmental effects on the same geographic area; and
B. are substantially certain to be undertaken sequentially over a limited period of time.

The stadiums project qualifies as a "phased action" for the following reasons:

A. The environmental effects will be made on each R1 neighborhood where the stadium projects are proposed as well as over the 3-square-mile area between the two projects. When events are held at both locations, traffic congestion, light and noise pollution will radiate their impact into the broader area, specifically sending light and noise from both the east and west stadium locations outward and toward one another, compounding when there are larger events held concurrently at both sites on the same evening.

Sections 2-7 of this petition, summarized briefly below, will provide robust evidence of environmental impacts on each stadium site as well as the same combined geographic area:

- Noise pollution exceeding State of Minnesota statutory limits and City of Bloomington sound ordinances for a residential area.
- Light pollution, glare, and light trespass from excessive, misdirected, or obtrusive artificial outdoor light.
- Negative impacts on humans, insects, and local wildlife, including endangered, threatened, or species of special concern.
- Negative impacts on migratory birds using the areas directly within, adjacent to or around the proposed stadium sites as stopover grounds for hunting or refueling, nesting and breeding, or for seeking shelter.
- Air pollution in the surrounding residential neighborhoods from increased event traffic (due to expanded stadium capacity).
- Water pollution and negative impacts from added runoff on the adjacent wetland habitats and absorbed into local watersheds.

B. The stadiums are to be developed during the same time period to ensure both schools have locations to hold their events. The plans for each stadium use nearly identical projected budgets, resources, and timelines for proposal, development, and launch. The original goal was to submit final site plans for both stadiums in September 2023 and achieve approval by November 2023 for building during the 2024 season and launch during the 2024-2025 school year.

As a phased action, the stadiums project thus qualifies for mandatory review under the Minnesota Rules' Mandatory EAW categories (4410.4300, subpart 1 Threshold Test), which states, "Multiple projects and multiple stages of a single project that are connected actions or phased actions must be considered in total when comparing the project or projects to the thresholds of this part and part 4410.4400."

II.

The stadiums project also qualifies as "connected actions" under Subp. 9c. Connected actions, *which states:*
Two projects are "connected actions" if a responsible governmental unit determines they are related in any of the following ways:
A. one project would directly induce the other;
B. one project is a prerequisite for the other and the prerequisite project is not justified by itself; or
C. neither project is justified by itself.

The stadiums projects qualify as "connected actions" due to their history, relation to one another, and the following reasons A–E below for qualifying as such:

A. The stadiums project was initially commissioned by BPS #271 for Wold Architects to create plans for site improvements on a single stadium to be located at Bloomington Stadium (a.k.a. Lincoln Field) at 9000 Penn Ave S. The project and its budget were subsequently split into two sites located at Jefferson and Kennedy High Schools, but neither site proposal can proceed to the approval and construction phase alone without dependence on a secondary site to use (such as Bloomington Stadium, which is not intended to be rehabilitated for continued use as of communication with the Applicants on April 30, 2024).

B. Similarly, City Planning Commission rulings, approvals and recommendations also cannot be made independently because similarities overlapping in plans, scope, materials, and timelines reflexively impact both site locations. For example, one stadium's inability

to comply with city noise ordinance levels at nearby residential property lines directly impacts the same ruling for the other, so much so that the Veneklasen sound report (see appendix: Noise - item 8) groups both locations together within the same report results despite the separate locations.

C. Plans for the two stadiums have continued to be presented together or in tandem for every Bloomington City Planning Commission application and meeting since the Applicants' submittal on September 6, 2023. The projects are not presented on separate dates or at separate City Planning Meetings because the ruling, continuance, approval and passage decisions for one site cannot occur without reflexively affecting and impacting the other.

D. While the two stadiums were submitted under separate project numbers to the City Planning Commission, they always appear on the agenda together because any discussions and decisions for one carry over and impact the other. Additionally, at City Planning Commission meetings and public hearings on the matter, both members of the public and the City Planning Commission have spoken about and referenced the project as "the Bloomington Stadiums Project" due to their similarities, matching scope of work, concurrent timelines, and nearly identical impact issues on the R1 neighborhoods in which they are proposed. Examples of the stadiums project being regularly referred to in tandem, include "items one and two on the agenda" as in the City Planning Commission meeting on November 2, 2023, and furthermore as identical projects in references such as City Planning Commission Chair Paige Rohman stated (1:02:23) "We do have two applications tonight that are exceedingly similar." and "I can appreciate that they are overlapping." (Full video available here.)

   Additional reference may be made to Report1b_Stadium Noise Study_Bloomington High School Stadiums.pdf (See appendix: Noise - item 7), which was submitted in response to the noise ordinance compliance issues for both stadiums, and uses a document title and repeated references throughout that couple the stadium site plans together and detail results as if they are one project and a single issue to be solved together.

   a. "Veneklasen Associates, Inc. (Veneklasen) has completed our review of the Bloomington High School Stadiums – Kennedy and Thomas Jefferson High Schools project located in Bloomington, Minnesota. This report predicts noise levels due to typical high school stadium noise sources (loudspeakers, crowd noise, and

marching band) to nearby neighboring residences. This report represents the results of our findings."

b. In two instances, project files have been misplaced between the two stadium projects. Planning application files for the Kennedy stadium site located within the Planning Application Status portal under PL202300157 were incomplete and missing, but can be located within the Jefferson Planning Application Status portal PL202300158. Similarly, Jefferson planning application files were misplaced under the Kennedy Planning Application Status portal. Property owners within 500 feet of each proposed stadium site did not have a complete set of files as required by State Statute or City Code that notice be given to surrounding property owners prior to consideration of certain applications.

    i. Landscaping plans were missing for Jefferson High School in the public information file, but they were located by this citizen alliance within and attached to the Kennedy project's landscaping files. https://permits.bloomingtonmn.gov/prodportal/Planning/Status?planningId=3054

    ii. Final site proposal files sent to Kennedy High School-area residents were incomplete and missing important Civil Engineering information (2023-09_20 ISD 271 High School Stadiums Civil.pdf), and the public was not notified of all project details as such. Aspects of the Kennedy project's civil file were hidden within the Jefferson's public information file. https://permits.bloomingtonmn.gov/prodportal/Planning/Status?planningId=3055

E. The projects are prerequisites for one another to exist due to necessary equity between the schools and because the Applicants have omitted the shared use of Bloomington Stadium, where both teams previously hosted their games and events.

F. Neither project is justified by itself due to necessary equity between the schools, lack of a shared, central field location for hosting both schools' events, and neither site could be granted passage and approval for a stadium without the other also receiving the same ruling or it would be deemed an inequity between the schools and cause public backlash.

Similarly, Kennedy teams could not travel and host school events at the Jefferson site, and Jefferson teams cannot host their events at the Kennedy site due to rivalries between the schools, access and transportation issues for the students, and general inequity and public backlash.

As "connected actions," the stadiums project thus qualifies for mandatory review under the Minnesota Rules' Mandatory EAW categories (4410.4300, subpart 1 Threshold Test), which states, "Multiple projects and multiple stages of a single project that are connected actions or phased actions must be considered in total when comparing the project or projects to the thresholds of this part and part 4410.4400."

III.

Each stadium has potential to cause significant negative impacts on the environment at their chosen sites. These negative effects are further compounded by the close proximity of the two sites (under three square miles), which has potential to cause:

1. Noise and light pollution from the stadiums' events exceeding limits of the MPCA and Bloomington City code.

2. Detrimental effects of the intensified overlap of traffic congestion as well as water, air, light, and noise pollution impacts on the protected Moir/Central Park and Nine Mile Creek, a Metro DNR Conservation Corridor, due to the stadiums' proposed locations flanking the corridor's east and west sides.

3. Negative impacts in the direct and surrounding areas on dusk-emergent species as well as endangered, threatened and protected species, and the migratory birds using the Audubon-designated Important Bird Area in the Lower Minnesota River Valley, less than 1.5 miles away from both stadium locations.

Additionally, in 4410.1100 Subp. 6., the rules point to "decision criteria" (4410.1700), which is meant to be considered in the decision process in determining the potential for significant environmental effects, including cumulative potential effects. So it is still a requirement to consider potential cumulative effects, and it is the RGUs responsibility to consider that information in their decision.

Subp. 7. Criteria. In deciding whether a project has the potential for significant environmental effects, the following factors shall be considered:

A. type, extent, and reversibility of environmental effects;
B. cumulative potential effects. The RGU shall consider the following factors: whether the cumulative potential effect is significant; whether the contribution from the project is significant when viewed in connection with other contributions to the cumulative potential effect; the degree to which the project complies with approved mitigation measures specifically designed to address the cumulative potential effect; and the efforts of the proposer to minimize the contributions from the project;

Due to the compounding effects of amplified light and noise from each stadium, the air quality impacts from the influx of traffic congestion and engines idling, and the stadiums' locations near protected natural areas and adjacent wetland habitats, the stadiums project thus demonstrates the potential for significant environmental effects. Further evidence of these negative impacts is provided, supported, and detailed throughout the remainder of this petition document in the environmental impact points 2–7.

As stated in 4410.1100 Subp. 6. EAW decision.

The RGU shall order the preparation of an EAW if the evidence presented by the petitioners, proposers, and other persons or otherwise known to the RGU demonstrates that, because of the nature or location of the proposed project, the project may have the potential for significant environmental effects. The RGU shall deny the petition if the evidence presented fails to demonstrate the project may have the potential for significant environmental effects. In considering the evidence, the RGU must take into account the factors listed in part 4410.1700, subpart 7. The RGU shall maintain, either as a separate document or contained within the records of the RGU, a record, including specific findings of fact, of its decision on the need for an EAW.

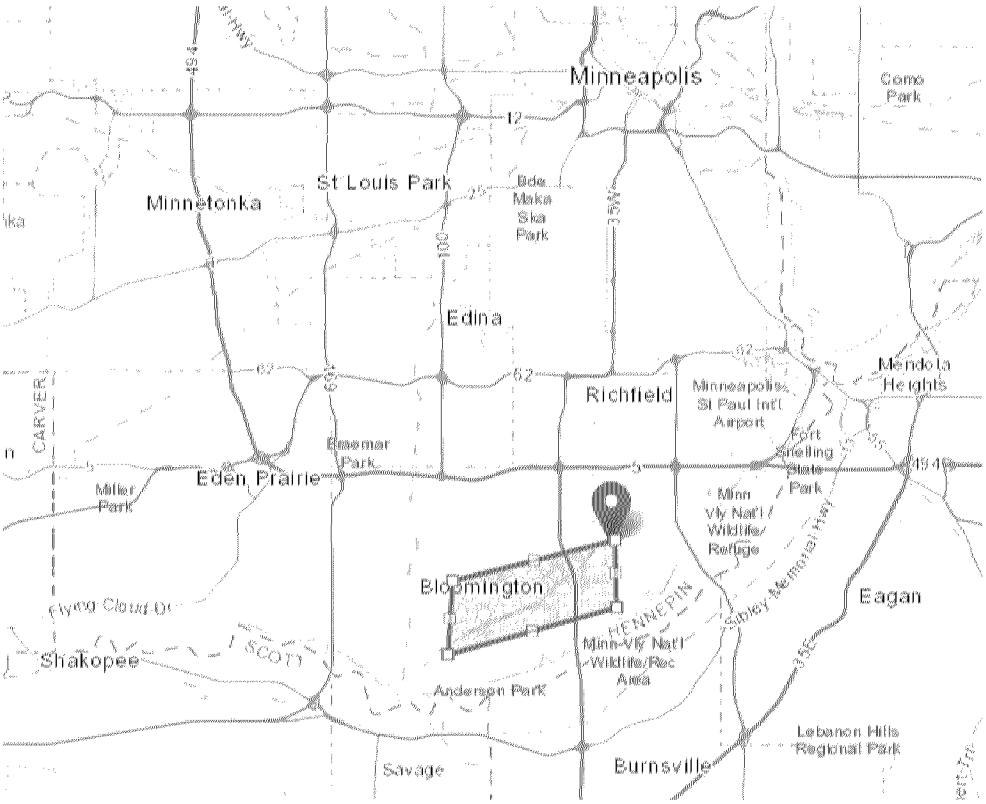
IV.

Additionally, the stadiums project as a phased action and/or as connected actions (as detailed above in points I and II) are expected to accommodate a combined 5,000 spectators with an approximate additional 100 staff and volunteers working on site during the events. On some evenings, events may be held concurrently at both stadiums, and the close proximity of the locations will multiply the effects of traffic congestion, lights, and noise on the impacted 5-square-mile surrounding area and the 3-square-mile area between the two locations (see map of the combined-impact area below) as well as within 1.5 miles of the Lower Minnesota River Valley, a watershed district and Minnesota Audubon Important Bird Area (IBA).

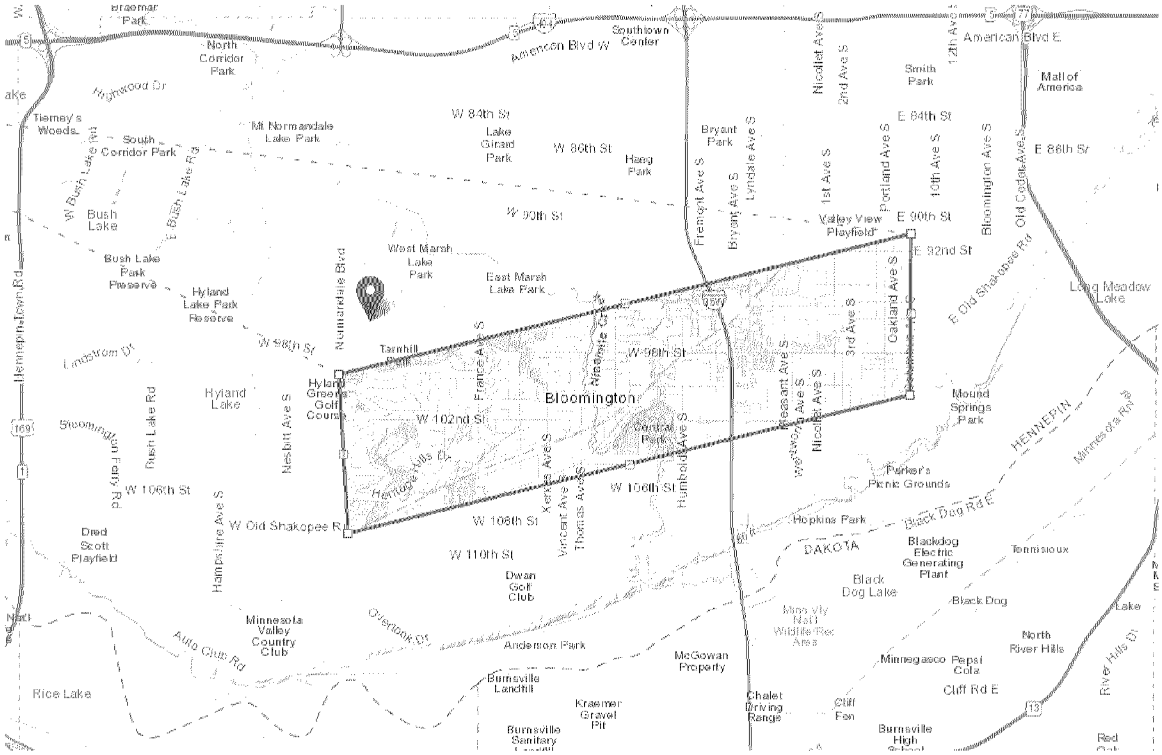
Under Subp. 34. Sports or entertainment facilities., it states the following and thus requires an EAW be conducted by the City of Bloomington as RGU:

> *Subpart 1. Threshold test. An EAW must be prepared for projects that meet or exceed the threshold of any of subparts 2 to 37, unless the project meets or exceeds any thresholds of part 4410.4400, in which case an EIS must be prepared.*
>
> *Subp. 34. For construction of a new sports or entertainment facility designed for or expected to accommodate a peak attendance of 5,000 or more persons, or the expansion of an existing sports or entertainment facility by this amount, the local governmental unit is the RGU.*

Map of the estimated combined-impact area of approximately 5 sq miles located 1.5 miles north of the Lower Minnesota River Valley.



A closer look at the surrounding 5-square-mile combined-impact area.


North Corridor Park
Southtown Center
American Blvd W
American Blvd E
Smith Park
Mall of America
W 84th St
E 84th St
Lake Girard Park
W 86th St
E 86th St
Haeg Park
Bryant Park
Mt Normandale Lake Park
South Corridor Park
Bush Lake
W 90th St
E 90th St
Valley View Playfield
E 92nd St
West Marsh Lake Park
East Marsh Lake Park
Bush Lake Park Preserve
Hyland Lake Park Reserve
W 98th St
Tarnhill Park
Hyland Lake
Bloomington
W 102nd St
Central Park
Mound Springs Park
HENNEPIN
W 106th St
W Old Shakopee Rd
W 108th St
W 110th St
Hopkins Park
DAKOTA
Black Dog Lake
Dwan Golf Club
Minnesota Valley Country Club
Anderson Park
McGowan Property
Burnsville Landfill
Kraemer Gravel Pit
Chalet Driving Range
Cliff Fen
Cliff Rd E
North River Hills
Rice Lake
Normandale Blvd
France Ave S
Nicollet Ave S
Lyndale Ave S
Portland Ave S
Oakland Ave S
Hennepin Town Rd
Auto Club Rd
Overlook Dr
Heritage Hills Dr

2. Noise pollution exceeding State of Minnesota statutory limits and City of Bloomington sound ordinances for a residential area.

The Applicant cannot definitely prove they meet the city and state noise levels required for site approval. The Applicants' representatives have testified to that point on repeated instances at Bloomington City Planning Commission public hearings.

- Paul Aplokowski, associate of Wold Architects (member and representative of the Applicants team), testified that the city began its initial discussion with Wold Architects in February 2022 with "a strong desire to have the stadiums at the schools, but the stadiums could not comply with sound ordinances," and that they were told the project could subvert the code through pursuing a variance from the MPCA or a noise exception permit granted by the City of Bloomington. When Wold Architects was continually asked for proof by City Planning Commission contacts during the application process, Aplikowski stated that only some activities and some sports would ever comply with the MPCA and Bloomington City code, but the stadium plans as designed would not comply without a large sound barrier wall built surrounding the location.

- From the November 2, 2023, City Planning Commission public hearing: (39:08) Aplikowski during questions from the Commission stated, "We made it clear that we did not believe that a stadium could comply with your sound ordinances at that time. We were giving some indication that there was possibility of getting a variance and there was some latitude for how you interpret those [ordinances] or the ability to get around that, and so we went down that road."

- Aplikowski further stated, "We felt like we were being clear that we did not think that the stadiums could comply with the city ordinances and continued to suggest that we needed some kind of a variance."

- Aplikowski in response to further questioning, "the more we look into it, the more it's clear that some of the activities at the stadium certainly don't comply with the ordinance."

- Aplikowski during questioning on sound amplification, "And we could engineer the sound system, probably, we believe mostly, to comply. The crowd might comply with the L50 and the L10 depending on how successful the teams are, but for sure the marching band would not comply. One instrument can produce 110 decibels and there's no way that that could dissipate to 60 decibels by the

time it gets to the property line. So, we were approaching this with the belief that we needed a variance and couldn't show that it complied, and staff continue to ask us how it was going to comply,

- When Commissioner McGovern asked about a Jefferson High School tradition of playing a drum circle after the games (which would be after 10pm in most cases), Aplikowski stated (47:01): "I'll let the district decide one way or another, but this does go back to my statement I made before. I don't think it's possible to comply with your sound ordinance with the activities that happen at these stadiums. Essentially, what your ordinance is suggesting, I would say the only way to build it within compliance of your ordinance would be to build sound walls around it or something like that, like you see on a freeway, to actually contain the sound because, the fact is, a drum is — one drum itself is going to exceed the ordinance. And if that happens for more than 6 minutes an hour, we're out of compliance with your ordinance."

- The report submitted on April 3, 2024, by the Applicants and conducted by Veneklasen Associates, Inc. (See appendix: Noise - item 7) does not appear to prove the stadiums project will be compliant with state requirements and city ordinances.

  - The report uses a computer model to estimate the direct sound levels at residential property lines, which is sound that travels directly from the source to a point in space and uses hemispherical spreading of sound to illustrate its estimated decibel levels at the residential property lines. At the stadium sites, and as a general rule, sound does not carry off into the distance without impact. Structures surrounding the schools must be taken into consideration for their reflexivity impact. The Veneklasen report does not appear to take into account sound reflection from nearby structures and buildings (of which there are many) at both stadium sites. When sound is reflected off a surface, the reflected sound compounds with the existing direct sound and increases the decibel level by 3. (See appendix: Noise - item 11) This reflective sound effect would mean that estimated sound levels provided in the Veneklasen report near buildings and residences appear to be inaccurate and misleading as listed, and in many cases, must be increased by 3 decibels.

  - In figure 2 - Thomas Jefferson HS L10 below in the Veneklasen report the decibel level listed near Johnson Ave and Heritage Hills Dr with an estimated level of 64dBA L10 appears to be inaccurate, and with sound reflection from the residence, it should likely be estimated instead at 67dBA and exceeds the MPCA code for L10 daytime noise pollution levels at the property line.
    (See appendix: Noise - item 11)

4.1 Thomas Jefferson High School

Figure 2 - Thomas Jefferson HS L10

- In figure 4 - Kennedy HS L10 in the Veneklasen report, the decibel level listed near the residence on 3rd Ave S is estimated as 58dBA L10. This number is inaccurate and misleading, and with sound reflection from the residence, it should likely be increased by 3 dBA and estimated instead at 61dBA, which exceeds the MPCA code for L10 daytime noise pollution levels at the property line.

(See appendix: Noise - item 1)

Figure 4 - Kennedy HS L10

- The disclaimers in the Veneklasen report also limit its value on which it can be used as a decision-making piece of evidence.
    - *5.0 Summary: It is important to note that this is based on current known conditions and typical operating noise levels. Fluctuations beyond those noise levels used in Section 3.0 could cause deviations from predicted property line noise levels. (See appendix: Noise - item 7)*

- During the November 2, 2023, public hearing by the Bloomington City Planning Commission, Aplikowski stated during his testimony that even one marching band instrument would exceed the permitted daytime levels at the residential property lines. He can be specifically quoted as saying, "One instrument can produce 110 decibels, and there's no way that that could dissipate to 60 decibels by the time it gets to the property line." Veneklasen's study uses only the projected speaker system volume of 88–95 decibels maximum during its modeling, cited as "noise from loudspeakers," in its efforts to prove compliance.
  - *4.0 Noise Prediction: In completing these acoustic models, Veneklasen notes that noise from loudspeakers generally dominates the property line noise levels. (See appendix: Noise - item 7)*

  The document does not show predictions using L10 or L50 decibel levels that correspond with marching bands and crowd noise.
  - *Research shows the typical marching band produces 100 dB of sound. Most people can safely tolerate just 15 minutes of sound at that level of loudness. A drumline averages 102 dB, which is safe for less than 10 minutes. (See appendix: Noise - item 9)*
  - *Common Noise Levels (DBA) on the website for International Noise Awareness Day (See appendix: Noise - item 10): 117dba Football Game Stadium, 120dba Band Concert*

- Also during the November 2, 2023, meeting, Paul Aplikowski stated on behalf of the Applicants that they could not create the study environment necessary to conduct a proper noise study.
  - Similar to Veneklasen's report, a computer-modeled study was presented to the City Planning Commission during the November 2 meeting, which used the "Inverse Square Method" to calculate how sound dissipates as it travels over distance. The study still did not prove compliance at the residential property lines, and it was deemed additionally insufficient, and it did not take into account the actual locations, measurements of specific sounds at the stadiums, crowd size, sound reflection from structures, and the stadiums' surrounding landscapes and their impacts on the acoustics. (See appendix: Plans - items 3–6)
  - Senior Planner Mike Centinario stated during the meeting, "Probably one of the more complicated elements to the review relates to the noise." Centinario continued, "The applicant did work on the noise, and we don't have a formal study done by an engineer. They did some work based on a calculation on how sound dissipates over a distance, and what they found is if we just view loudspeakers going in every direction over a distance, there actually is a code compliance issue that we have to work out." Centinario further stated, "This is an issue that has not been

resolved yet. We cannot confirm that there is compliance in terms of noise, and that could have an impact on neighborhoods. We have a standard we have to ensure."

- Paul Aplikowski stated similar findings, "I will say that we've been trying to comply with the request for a sound study, so the disconnect that I think happened between our team and the city staff was that they continued to ask us for proof that it complied with the ordinance, we of course did not think that was possible, but we went through the motions and in fact produced a report that showed it didn't comply, and showed that to the staff."

- The 95dBA maximum sound level used in the Veneklasen report hinges on the attentive monitoring and manual activation of a digital signal processor (DSP) to keep sound pressure levels at the center of the bleachers at 95dBA (See appendix: Noise - item 8). Without proper, continuous monitoring and activation by staff or volunteers, this maximum sound level for the loudspeaker system cannot be guaranteed during events. The DSP is operated using a touch panel to enforce the limitations of the loudspeaker. It provides "a clear interface for the operator to see how much of the volume control is being used" to keep the sound system from exceeding the 95 dBA to comply with noise regulations. The operation and management for this audio system functionality is dependent upon the operator, who may fail to correctly use or lack the time and ability during events to employ the DSP due to circumstances, such as:
  - Lack of knowledge and training on how to use the DSP interface for students or volunteers.
  - Distractions in the environment and additional duties required of them at the event (such as announcements and reporting during games, excitement during major plays, traffic in and out of the sound booth area, etc.) to consistently operate the DSP when necessary.
  - Frequent fluctuations of decibel or sound pressure levels for different types of audio played or using the loudspeakers in a game or event environment, such as the differences between audio levels in music and spoken announcements.

- The Applicants stated on November 2 at the public hearing, they were looking for research on how other stadiums have acquired a variance or other exception as a means to subvert the existing code rather than to find a way to mitigate noise or otherwise solve the noise issue in order to comply with city and state code. These statements imply the Applicants may not have compliance as a priority over approval of their project.

- If approved to go forth as planned, the noise levels emitted from the stadiums at both locations could qualify under state statutes as a nuisance condition and may be guilty of a misdemeanor offense. The League of Minnesota Cities Information memo dated April

1, 2015, advised cities that: “State statutes provide that a person is guilty of maintaining a public nuisance (a misdemeanor offense) when he or she by affirmative action or upon failure to act does any of the following (see appendix: Noise - item 12):

1. Maintains or permits a condition which unreasonably annoys, injures or endangers the safety, health, morals, comfort or repose of any considerable number of members of the public.
2. Interferes with, obstructs, or renders dangerous for passage of any public highway right-of-way, or waters used by the public.
3. Is guilty of any other act or omission declared by law to be a public nuisance and for which no sentence is specifically provided.

Both the person in control of the real property where a public nuisance is maintained as well as property owners who rent property with the knowledge of nuisance conditions may be guilty of a misdemeanor.”

MINNESOTA STATUTE 561.01 NUISANCE; ACTION.

Anything which is injurious to health, or indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, is a nuisance. An action may be brought by any person whose property is injuriously affected or whose personal enjoyment is lessened by the nuisance, and by the judgment the nuisance may be enjoined or abated, as well as damages recovered.

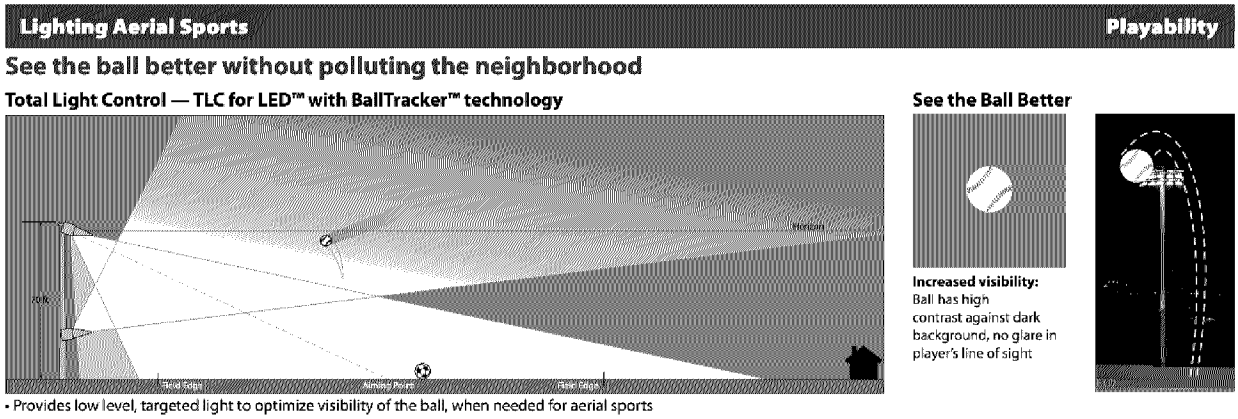
History: (9580) RL s 4446

3. Light pollution, glare, and light trespass from excessive, misdirected, or obtrusive artificial outdoor light.

- Globally, light pollution has increased by at least 49% over 25 years. (see appendix: Light- Item 5) In the Nov. 2, 2023, meeting, Senior Planner Centinario presented the site proposal's lighting plans (see appendix: Light - Items 1–2) and as he reviewed, made comments that as a partial Dark-Sky City, the City of Bloomington does not allow fixtures to be uplit. After the uplit fixtures in the plans were identified as an issue, the Applicants said these fixtures would be removed and revised plans submitted, however, revised plans have not been submitted that document that change. Those modifications should be confirmed and documented as changed with the uplit fixtures removed from the lighting plans as part of the final site plans application and as part of the environmental review.

  Below are images featuring the uplit fixture for ball tracking and its corresponding identifier (TLC-BT-575) still on the Revised Lighting Plans from the file Jefferson and Kennedy project folders labeled "Lighting Study - Revised" and submitted April 3, 2024.

  (see appendix: Light - item 10)



(see appendix: Light - Items 1–2)

Single Luminaire Amperage Draw Chart							
Driver Specifications (.90 min power factor)	**Line Amperage Per Luminaire (max draw)**						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-BT-575	3.3	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-1200	6.9	6.5	6.0	5.2	4.2	3.8	3.0
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-LED-900	5.2	4.9	4.5	3.9	3.1	2.9	2.3
TLC-RGBW	4.5	4.3	3.8	3.3	2.7	1.9	1.9

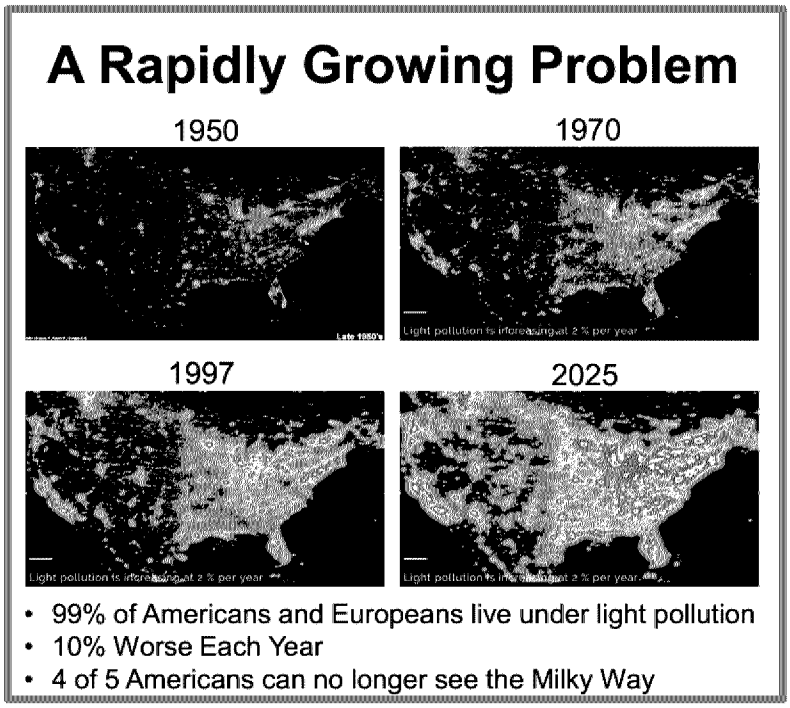
- The International Dark-Sky Association (IDA), a body that recognises and accredits dark-sky areas worldwide.

  Sports lighting applications have a high potential for light pollution due to the brighter than normal lighting equipment required for playing sports. Sports lighting luminaires are often cited as nuisance lighting, as they can be excessively glaring and can be seen from great distances away from the playing field. (see appendix: Light - Item 4)

  According to DarkSky's "Outdoor Sports Lighting Guidelines," which certifies DarkSky-Friendly neighborhood sports stadium lighting:

  - "Light pollution should be mitigated from the start in collaboration with all stakeholders, including neighbors, sustainability experts, and environmental experts."
  - All stakeholders should be included throughout the design, development, construction, and certification process, and they should be given a real voice and the ability to drive change.
  - Shielding, color temperature, lighting curfew, light trespass, and total lumens should all be considered in the lighting design. (see appendix: Light- Item 4):

  To our knowledge, and after repeated questioning on environmental issues during City Planning Commission public hearings, no neighbors or environmental experts have been consulted for the stadiums project as of May 5, 2024, by the Applicants for the stadiums project.



- Light pollution is getting 10% worse each year. Bloomington has made noteworthy progress as a partial dark-sky city, and it has a responsibility to continue that progress due to its proximity to the Lower Minnesota River Valley, a critical habitat for crepuscular and dusk-emergent species, nocturnal species, and evening migrations of birds along this major flyway and its stopover grounds.

    - Ruskin Hartley, Executive Director of the International Dark-Sky Association, said: "Over the past 25 years, the transition to solid-state LED lighting has been accompanied by rapid increases in light pollution globally. "Without concerted action to reverse this trend, the impact on the natural environment will accelerate, further exacerbating the biodiversity crisis, wasting energy, and meaning a whole generation will grow up in perpetual twilight."

      Many studies have now shown that light pollution, from streetlights and other sources, can have major impacts on the natural environment. (see appendix: Light - Item 12).

    - The Convention on the Conservation of Migratory Species of Wild Animals detailed a proposal of new guidelines to address light pollution, "Natural darkness is important for conservation and should be protected by good quality lighting design and management. Limiting the amount of time and using low intensity lighting with a dimmable function is recommended. In addition, if kept close to the

ground, light with reduced or filtered ultra-violet wavelengths is less likely to disturb wildlife.

If an important wildlife habitat is located within 20 km of a project requiring artificial light, impacts assessments will help continuously improve light management. Monitoring and auditing after the construction will mitigate the risks. (see appendix: Light - Item 8)

- The most immediate symptom of light pollution is the phenomenon of "skyglow." It brightens the night sky near cities where large installations of outdoor lighting exist, such as that of the stadiums project, especially when both stadiums are fully lit during concurrent events. Awareness of and protection against skyglow is a priority for city, state, and national governments that recognize the problem for its threats against astronomical facilities, ecologically sensitive habitats, wildlife, and responsible energy practices. (see appendix: Light - Item 11)
    - Skyglow is problematic because it competes with the faint light of astronomical objects in the night sky. It lowers the contrast between those objects and the background sky, making it difficult to observe them.
    - A slow but steady rise in skyglow in much of the world leads to gradually degraded visibility of the natural night sky and a transformation of outdoor spaces. Such a situation, changing slowly over decades, may go unnoticed due to a psychological effect known as a "shifting baseline."
    - Cloudy conditions tend to make skyglow more intense in urban and suburban areas. This is because overcast nights can increase the intensity of light reflected back down to ground level by up to ten times.
    - When clouds cover the sky in the winter months, light reflected from both snow and clouds "amplifies" skyglow. The result can raise the night sky brightness by over 3500 times compared to overcast conditions with no artificial light. (see appendix: Light - Item 11)

- Lighting study documents for both school locations (see appendix: Light - Items 1–2) provided by the Applicants do not measure current levels of light trespass and glare from existing fixtures on the school grounds or on residential property lines. Without proper study of existing light levels, there is no way for the Applicants to anticipate the actual amount of direct light (light trespass) and indirect light (light dome) that may be excessive and/or compounded by existing fixtures around campus parking lots and buildings, many of which stay on all night long for safety and security. Similarly, there will be no way for residential property owners to compare and define potential increases in light trespass and exposure from the new lighting fixtures once installed at the stadiums without that initial study information provided and reassessed after the field lights installation.

Additionally, the lighting models submitted do not show estimated or anticipated light levels along adjacent residential property lines to outline potential areas of impact. A simple effort from the applicants to extend the lighting models to show data and levels of nearby existing fixtures, noting areas of crossover with stadium lights (direct and indirect lighting) would provide due diligence for the entire lighted area in consideration of light trespass on residential properties.

- During the November 2, 2023, meeting, Senior Planner Mike Centinario said,"Maximum light trespass levels, must ensure but don't anticipate an issue but can't confirm."

- Commissioner Curry asked Centinario about how much back and forth time they have spent on lighting and noise issues. Centinario replied, "We have had 2–3 iterations since the initial application." He continued to explain that noise and lighting were the biggest concerns for the Applicants approval.

If this testimony is true, the Applicants should be required to do more testing beyond computer-modeling predictions after installation to confirm and ensure the computer models are accurate.

4. Negative impacts on humans, insects, and local wildlife, including endangered, threatened, or species of special concern.

- According to the U.S. Fish & Wildlife Service's IPaC Information for Planning and Consultation database (https://ipac.ecosphere.fws.gov/), there are many endangered, threatened, or species of special concern located within the 5 square miles covered by the stadiums project impact. And with many other, smaller native habitats and sensitive and/or protected contiguous natural areas within just 2 miles of each side, there is a wealth of study information that proves the importance of not only mitigating, but reducing negative impacts on these habitats, by limiting noise exposure and direct light (light trespass) and indirect light (light dome) or "skyglow," which can radiate and extend for miles into the surrounding area and aerial habitats.

- Though not pristine, these delicate urban residential habitat areas cannot be underestimated for their environmental and psychological value; however, both stadium projects add up to an overall negative environmental impact being introduced into these neighborhoods that have never yet been exposed to this increased magnitude of light and amplified noise. The stadiums project should be thoroughly environmentally assessed to ensure noise, light, habitat encroachment, water or air pollution will not cause further detriment or decline to many of the species listed below that likely inhabit the impact areas and are already known to be threatened and/or endangered.

    - From DarkSky International's State of the Science 2023: (see appendix: Light - item 11)
        - "ALAN exposure impacts almost every species studied by scientists. It interferes with their biology and changes how they interact with the environment. This harms ecosystems and can make plants and animals less resilient in the face of environmental change."
        - Scientists have studied at least 160 species for effects due to ALAN exposure. They have observed harms at levels from individual plants and animals all the way up to entire populations.
        - Researchers also find that light exposure often occurs alongside noise caused by human activity. The combination of artificial light and acoustic noise can further harm some species.
        - Yet biological impacts of artificial light sources are still mainly referenced to human vision. Our understanding of the im- pact of artificial light on species beyond our own is therefore hindered by the convention of measuring light in reference to human vision. Scientists stress the need to

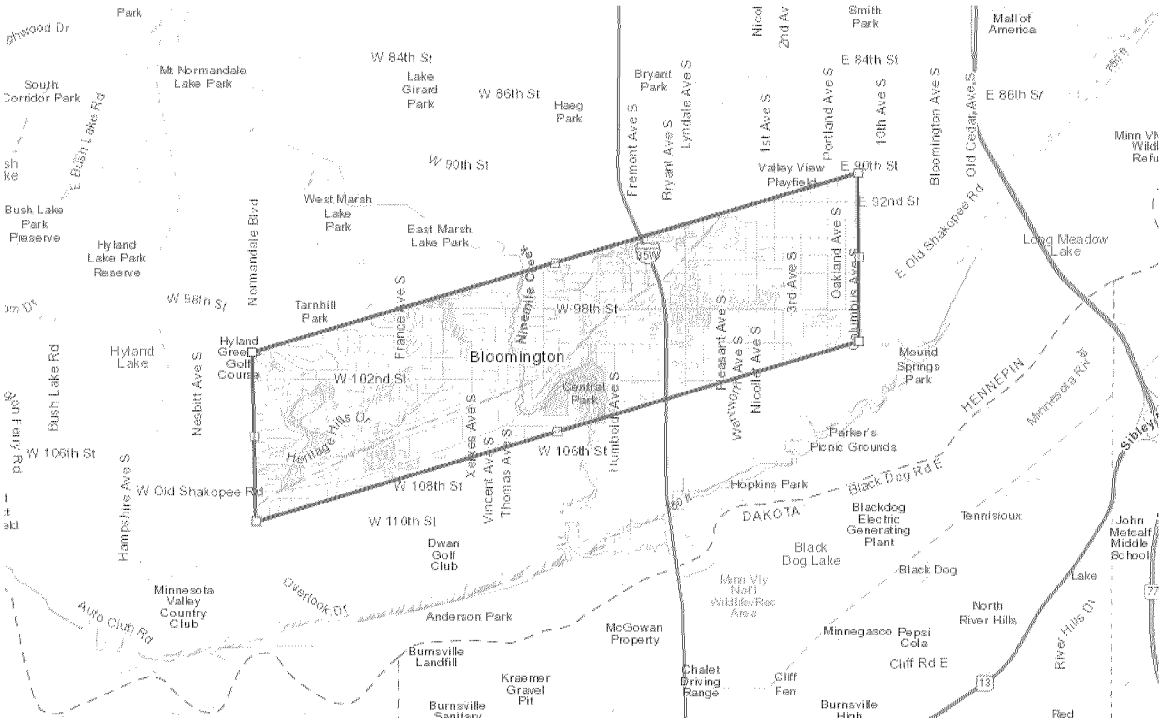
take into account the different visual systems of animals in comparison to humans.

- Researchers have further called for ecology considerations in outdoor lighting design and a "dark infrastructure" to preserve species diversity.

- The compounding effects of artificial light at night and anthropogenic noise occurring together, as they would in a stadium setting, warrant environmental review and employing mitigation strategies to ensure the safety and health of the species inhabiting the areas in, around, adjacent to and within the combined-impact area.
  - Although threats like light and noise pollution are often studied in isolation, they can interact with one another to produce synergistic effects. The repetition, combination, and interaction of even seemingly minor threats can substantially increase the extinction risk of wildlife populations (Kimmel et al. 2022), demonstrating that these effects must not be overlooked. (see appendix: Birds - Item 3)
  - Artificial light at night (ALAN) and anthropogenic noise are two environmental stressors associated with urbanization, transport and industry, and are well known to influence biological processes ranging from individual physiology, reproduction and survival, to large scale processes occurring across whole ecosystems.
  - Both noise and light can mask important signals and cues, distract animals from challenging cognitive tasks, or lead to misidentification of sensory pollutants as relevant natural signals or cues (Dominoni D.M. et al., 2020). (see appendix: Animals - item 5)
  - We found strong evidence to indicate that noise is inequitably distributed in redlined urban communities across the United States, and that inequitable noise may drive complex biological responses across diverse urban wildlife, reinforcing the interrelatedness of socioecological outcomes. These findings lay a foundation for future research that advances relationships between acoustic and urban ecology through centring equity and challenging systems of oppression in wildlife studies.
  - Hundreds of studies since 1990 have documented responses in terrestrial and aquatic taxa to noise, with effects becoming more severe as noise levels increase from ~40 dB to over 100 dB21. These impacts include changes in animal com- munication, movement, foraging behaviours, distributions, commu- nity structure and predator–prey interactions. Noise exposure can also lead to adverse physiological effects on reproduction and stress21,28,29, which in turn affects individual fitness, energy budgets, predation risk and vital sound cues. (see appendix: Noise - Item 13)

- Noise levels as low as 23 dB can affect wildlife, and the cumulative effects of noise intensify with increasing noise levels. More than 95% of studies (encompassing multiple taxonomic groups) observed a biological response at 90 dB, a noise level commonly observed in redlined communities. Similar results were found in a previous review21. The consistent evidence sug- gests that as noise levels increase, the biological impacts on wildlife become more widespread. Consequently, increased noise levels in redlined neighbourhoods may lead to substantially greater biologi- cal effects as more species respond with a broader range of shifts at such levels. (see appendix: Noise - Item 13)

Using the IPaC database mapping tool to outline approximately 5 square miles, we wanted to see what species are potentially living adjacent to, within or throughout the combined-impact area of the stadiums project and activities in this location.
(Map tool: 5 sq miles via https://ipac.ecosphere.fws.gov)



IPaC determined the following species are potentially affected by activities in the stadiums project combined-impact area outlined above. An environmental review of the area must be conducted to confirm presence of any of these species noted by the IPaC reporting system:

Endangered species

Listed species and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries).

Mammals

Northern Long-eared Bat (Myotis septentrionalis)
Status: Wherever found, Endangered
The project area contains roosting and foraging habitat suitable for the northern long-eared bat (NLEB). The USFWS indicates that acoustic sampling has positively identified the species to be present in the project area.

Tricolored Bat (Perimyotis subflavus)
Status: Wherever found, Proposed Endangered

Bats are currently reported in sightings across from Jefferson and Kennedy stadium site locations in residential properties that would be impacted by the light and noise from stadium events.

- While light pollution can't be blamed for the entirety of wildlife behavioural change, Stephanie Holt, a bat expert at the UK's Natural History Museum, believes it may be a "tipping point". She notes that some of the most important impacts of lighting on invertebrates are still largely unknown. "[A]s the cornerstone of all of our ecosystems, we should be targeting research and conservation in that direction," she says. (see appendix: Light - Item 5)

- Elsewhere in the world, strides are being taken to protect wildlife at night. In the Netherlands, LED street light schemes in towns and cities are supporting rare bats species.

  From Signify: "So as not to disturb the nocturnal feeding and nighttime activity of the bats, a special light recipe was developed that involved extensive research by Signify, the University of Wageningen and NGO's active in this field of conservation. The lights emit a red color and use a wavelength that doesn't interfere with a bat's internal compass. Normal street lights can affect a bat's flight and overall night time behavior as well as their insect prey which tend to congregate around the lights. (see appendix: Animals - item 6)

- From BBC's article,"The Race to Reclaim the Dark" (see appendix: Light - Item 5)
  - The presence of ALAN disrupts natural light intensity, its timing and color characteristics (110). It increases total light intensity relative to natural levels and tends to shift the spectrum of ambient light away from its natural condition and toward shorter wavelengths to which many impact nocturnal species are especially sensitive.

Birds

Bald & Golden Eagles

Bald eagles are frequently viewed in Nine Mile Creek and along 102nd Street and near Ancel Glen Playfield. The project site includes habitat suitable for bald eagles with known active and alternate bald eagle nest trees in the individual and combined project areas. Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

- Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles". (see appendix: Birds- Item 9)

- From IPaC map: There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity. Eagle sensitivity to humans and other sources of disturbance varies among these 5 phases, with eagles being most sensitive to disturbance during the egg laying and incubation and late nestling phases.
  Bald Eagle - Breeds Dec 1 to Aug 31 (see appendix: Birds - Item 10)

Whooping Crane (Grus americana)

Status: Experimental population, nonessential: A population that has been established within its historical range under section 10(j) of the ESA to aid recovery of the species. The Service has determined a non-essential population is not necessary for the continued existence of the species. For the purposes of consultation, non-essential experimental populations are treated as threatened species on National Wildlife Refuge and National Park land (require consultation under 7(a)(2) of the ESA) and as a proposed species on private land (no section 7(a)(2) requirements, but Federal agencies must not jeopardize their existence (section 7(a)(4))).

(See section 5 of this petition document for impact on migratory birds.)

- Negative impacts of combined sound and light pollution on local bird species (as well as migratory as evidenced in concern number 5 below) are also important for environmental review as they may impact their breeding and nesting behaviors in the adjacent natural habitats of the Ancel Glen Playfield pond and Heritage Hills Park near Jefferson High School.
  - From BBC's article,"The Race to Reclaim the Dark) (see appendix: Lighting - item 5) In Cumbria, UK – an area with excellent nighttime sky quality – ecologists charted the effects of varying levels of light pollution by tracking the singing behaviour of robins. Over a three-month period, samples of birdsong were taken in paired sites consisting of one light and

one dark site. The study's findings indicated that artificial lighting, especially uncontrolled or unshielded lighting fixtures, caused earlier singing and calling in robins and other songbird species. Both song repertoire and UV light are used by animals for mate selection and if mating strategies are changed by light levels, females run the risk of choosing lesser fit males.

Clams
Higgins Eye (pearlymussel)
Status: Wherever found, Endangered

Insects
Monarch Butterfly (Danaus plexippus)
Status: Wherever found, Candidate

Rusty Patched Bumble Bee (Bombus affinis)
Status: Wherever found, Endangered
Suitable habitat and occurrences for the rusty patched bumble bee (RPBB) are known to exist in the project area.

Artificial light at night, declining air quality due to increases in traffic idling and congestion, noise, and other potential impacts of the stadiums project may be detrimental to insects, which are already in rapid decline around the world. Environmental review of the stadiums project individual locations and combined-impact area should be conducted to confirm the presence of Monarch Butterflies and Rusty Patched Bumble Bees with a mitigation plan to reduce or remove possibility of detrimental impact on these endangered and closely watched insect species.

- From BBC's article,"The Race to Reclaim the Dark": *Habitat loss, pesticide use, invasive species and climate change are all key drivers, but research has also suggested that artificial light is another, often overlooked, factor of the insect apocalypse, affecting aspects of insect development, foraging reproduction and even predation.* (see appendix: Light - item 5)

- The consequences of sub-lethal levels of ambient air pollution are underestimated for insects, and traffic congestion's impact on air and water quality in the stadium locations as well as the impacts of other pollutants could negatively impact the Rusty Patched Bumble Bee's olfactory senses, which it uses for locating abandoned dens to create a nest.

It's also possible that the accumulation of particulate matter on sensory receptors located on insect antennae may have detrimental effects to their function. For example, in a recent study, the density of particulate matter on the antennae of houseflies (Musca domestica) collected from an urban environment increases with the severity of air pollution. Even a brief exposure to particulate matter pollution compromises olfactory perception of reproductive and food odours in both male and female houseflies. (see appendix: Animals - item 2)

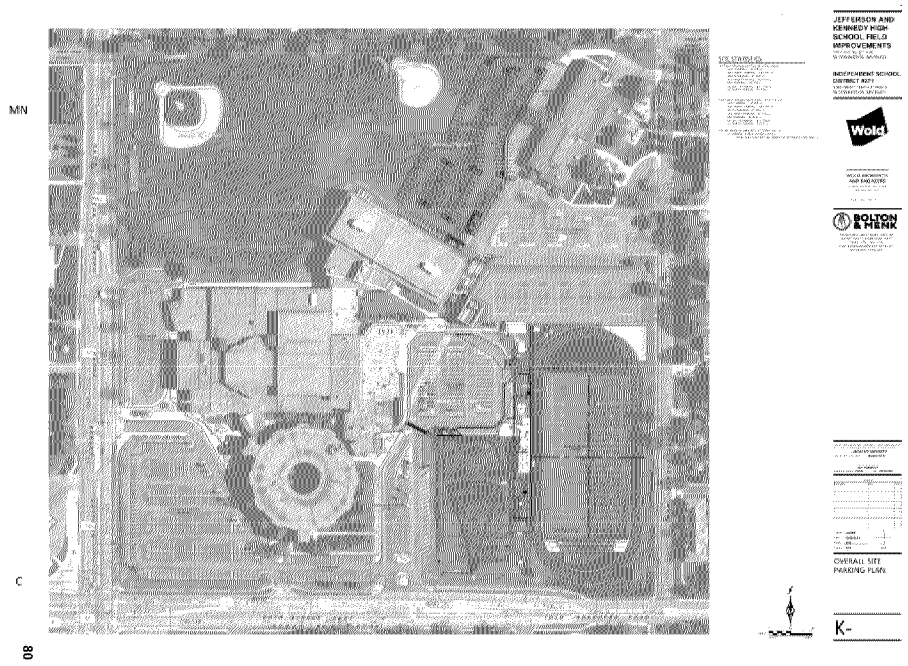
- The stadiums lighting may specifically impact the ability for caterpillars to feed, creating further detriment to monarch butterflies. In a study of street lighting's impacts on insects, findings showed that lit sites strongly reduced moth caterpillar abundance compared with unlit sites (47% reduction in hedgerows and 33% reduction in grass margins) and affected caterpillar development. A separate experiment in habitats with no history of lighting revealed that ALAN disrupted the feeding behavior of nocturnal caterpillars. Negative impacts were more pronounced under white light-emitting diode (LED) street lights compared to conventional yellow sodium lamps. This indicates that ALAN and the ongoing shift toward white LEDs (i.e., narrow- to broad-spectrum lighting) will have substantial consequences for insect populations and ecosystem processes. (see appendix: Animals - item 3)

- "Contrary to popular belief, the installation of 'broad white' LED streetlights, whilst potentially providing some energy savings, has increased light pollution and also the impacts on organisms such as moths. [...] Such pollution is likely to have played a role in the massive declines of insect populations. (see appendix: Light - item 12)

- Insect populations are the tether for ecosystems everywhere, and an example of an ecosystem service that is critical to human wellbeing is the pollination of food crops by insects. "Many of these insects are only active at night. Some species seem to pollinate only under conditions of dim, natural light, such as moonlight. [....] and in at least some cases, light color may disrupt nocturnal pollination." (see appendix: Light - item 11) It's imperative that we do our due diligence to mitigate the impacts of artificial light at night on these important pollinator species as part of the stadiums project's environmental impact review.

Fireflies (Coleoptera lampyridae): Additional sensitive insect population within the stadium projects area

An additional concern is the loss of green space around the stadium sites that Rusty Patched Bumble Bees and Monarch Butterflies need for foraging food. This is especially concerning at Kennedy High School, where one of its last-remaining green spaces is a proposed parking lot location to be paved over for up to 193 stalls to accommodate the increase in spectators at the stadium's events. (see appendix: Plans - item 5)



With insect populations on the decline, sightings of fireflies around urban and suburban areas are also reducing. Neighbors at both locations have witnessed fireflies in gardens on their residential properties at Kennedy and in Heritage Hills Park on the Jefferson side, and these are considered to be rare sightings. Bloomington should prioritize preservation of this important species for more than its beauty and the spectacle they provide for area children — they are an important means of controlling the mosquito population by feeding on their larva.

- "The magical nocturnal spectacle of dancing fireflies could become a rare sight in the future. Light pollution is being cited as a leading threat to fireflies and other insects. In addition, declines in insect populations directly affect animals that feed on them." (see appendix: Light - item 8)

- Fireflies have been important to the advancements of medical research. They excrete a light-emitting biological compound called luciferase, which was harnessed by researchers and used "to visualize HIV transmission, improve the detection of blood clots, and better understand diseases like Parkinson's. In addition, it is widely used in kits that test for bacteria contamination in milk,

meats, and other products; any microbes present will light up." (see appendix: Animals - Item 4)

- Light pollution harms night migrants in other ways. A 2020 review of 150 studies concluded, "Artificial light at night—in combination with habitat loss, chemical pollution, invasive species, and climate change—is driving insect declines." (see appendix: Birds - item 7)

- "Habitat degradation, loss, and fragmentation are considered the largest threats to most declining insect species worldwide and may well be the largest threats to fireflies in the United States and Canada. Commercial and residential development, water pollution, and groundwater pumping are some of the key drivers of this loss and degradation. In general, most firefly species depend on moist habitats, including wetlands, streams, and damp fields." (see appendix: Animals - Item 4)

- "All sources of artificial light at night, ALAN for short, have potential to drive declines in firefly populations." (see appendix: Animals - Item 4)

- "While long-term monitoring studies of fireflies are sparse, a growing number of anecdotal reports, backed by expert opinion, suggest that fireflies are indeed declining."(see appendix: Animals - Item 4)

Kennedy students face the loss of more than an acre of live playing fields for stadium parking. Bloomington Public School District might rather consider supplementing the initiatives and efforts of their Green Club, Jefferson's Earth Corps Club, and neighbors, by adding trees, robust pollinator gardens, and green spaces, to its landscaping plans. Little by little we can rebuild contiguous habitat for fireflies, and also for the isolated populations of the Federally endangered Rusty Patched Bumble Bee that remain in this area.

- "Researchers agree that protecting, restoring, and enhancing firefly habitat is one of the best ways to conserve their populations." (see appendix: Animals - Item 4)

- Provide for fireflies in your yard, park, or natural area with: (see appendix: Animals - Item 4)
    - Clean sources of water or moisture so larvae and their prey do not desiccate.
    - Protection from pesticides, especially insecticides.
    - Undisturbed ground for burrowing larvae and flightless adult females.
    - Native vegetation of varying heights
    - Dark nights for dusk- and night-active species that use bioluminescent light signals to communicate and mate

HUMANS:

We are not immune from the impacts of the stadiums project either. Excessive noise, air pollution, water pollutants and contaminants, and exposure to artificial light at night (ALAN) are all proven to contribute to negative health outcomes for people.

From DarkSky International's State of the Science 2023: (see appendix: Lighting - item 11)

- Scientific evidence establishes a link between ALAN exposure and adverse human health consequences. These include disruptions in chemical signaling in the body, certain kinds of changes at the genetic level, and shifts in sleep/wake cycles set by natural light sources. These effects may contribute to the incidence of certain chronic diseases in some people. These conclusions are largely drawn from controlled studies of exposures to indoor lighting, suggesting caution in interpreting the influence of outdoor lighting on health. [...] The growth of outdoor lighting may be encouraging the spread of communicable diseases (293). It may also create conditions for new and devastating diseases, such as COVID-19, to emerge

- Poor social outcomes may follow from the application of outdoor light. Considerations include equity, health outcomes, mobility barriers, and community cohesion, which may in part be the legacy of racist policies and practices in historical times.
  The only comprehensive study to date on this topic looked at the social aspects of lighting in the U.S. only. Researchers found that Americans of Asian, Hispanic and Black descent tend to live in brighter neighborhoods. In these areas, skyglow is about twice as high as in predominantly white neighborhoods. They further note that lower socioeconomic status is also associated with higher nighttime light exposures. These conditions can add to other social and environmental stressors such as poverty and exposure to air and water pollution, affecting quality of life. (see appendix: Humans - Item 2).

From BBC's article,"The Race to Reclaim the Dark" (see appendix: Lighting - item 5): Research has shown that exposure to ALAN may cause negative health effects. Our circadian rhythm is at the root of this, acting as part of the body's internal clock, which is necessary for functions such as our sleep-wake cycle. This is mediated by melatonin, often referred to as the sleep hormone. One 2018 study of older adults found that increasing levels of outdoor nocturnal lighting increased their self-administration of hypnotic drugs.

- Light of any kind can suppress the secretion of melatonin, but blue light at night does so more harmfully. "The biological clock is more sensitive to blue light than longer wavelength light, or warmer colours," says Derk-Jan Dijk, professor of sleep and physiology at the University of Surrey. In recent years, the blue light content of 'artificial' light has increased, he notes. Exposure to light during the day is not detrimental, but ALAN can have adverse consequences. A 2017 study found a correlation between exposure to light at night and depressive symptoms. A chronic lack of sleep can even influence how cells form and function. New evidence has linked exposure to too much

light at night to coronary heart disease, diabetes and certain cancers, especially breast, lung, colorectal and prostate cancers.

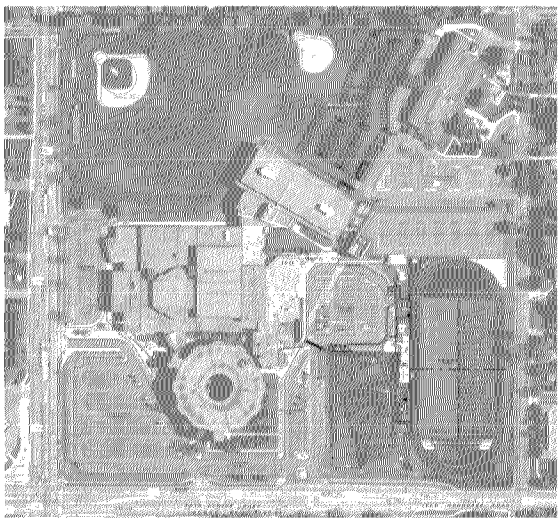
In a message from Superintendent Eric Melbye in "School Pages for Spring 2023-24," the Superintendent stated, "BPS enrollment is trending downward. An aging community, limited housing turnover or limited land for development, school choice and open enrollment are among the factors contributing to the decline."

- A 2017 study "Bedroom Light Exposure at Night and the Incidence of Depressive Symptoms: A Longitudinal Study of the HEIJO-KYO Cohort" looking at whether light exposure at night was related to depressive symptoms in elderly populations, the study found:
  The present study identified LAN exposure in home settings as an independent risk factor for depressive symptoms in an elderly general population. Maintaining darkness in the bedroom at night might be a novel and viable option to prevent depression. Interventional studies reducing LAN exposure are warranted. (see appendix: Humans - item 1)

Kennedy High does not have the capacity for additional density on its property. Parking needed to offset the proposed stadium increase will adversely and unnecessarily affect the school community and neighbors.

- Green space is proposed for paved over on the north side of the school in a proposal to more than double parking on the north side of the Kennedy Campus. This additional 193 parking spaces will be tucked between the Kennedy Activity center (gym), the Pond Day Care Center and residential backyards of homes on Maplewood. (see appendix: Plans - Item 5)

(Proposed parking area on north side)



- The pocketed location of the parking may require additional appropriate air filtration for auto exhaust at the student Activity Center, the Day care center, and for residents. There may also be an unfortunate microclimate in this area where temperature will increase from heat island effect, and noise will be amplified from the added adjacent hard surfaces.

- There is an additional psychological and aesthetic burden for students and residents as they lose more of their natural green spaces. Natural turf absorbs heat, noise, and is aesthetic buffer helping to soften the hard edges of the architecture. Perhaps two-thirds of the Kennedy campus has artificial and impervious surfaces.

- Reduced access to green spaces compounds the issues related to increased pollutant exposure, as green spaces play a vital role in ecosystem services, such as air pollution removal, carbon sequestration and heat island reduction (see appendix: Noise - Item 13)

- No robust landscape mitigation has been proposed to mitigate light trespass and skyglow in the area, nor to balance the large loss of campus greenspace to the architecture, hardscape, and artificial turf. If a microforest or other landscaping greenspaces were employed, roots can absorb toxins in the soil as well as carbon dioxide and other emissions from the busy and fast-moving Old Shakopee Road, which boasts 17,000 cars on average daily and another 5,000 on the adjacent Nicollet Ave. — not including the 400% increase in occupancy.

5. Negative impacts on migratory birds using the areas directly within, adjacent to or around the proposed stadium sites as stopover grounds for hunting or refueling, nesting and breeding, or for seeking shelter.

There are several natural areas in and around the stadium sites which provide the ideal environment for migratory birds, including the Audubon-designated Lower Minnesota River Valley Important Bird Area (IBA) (see map below).

Certain birds found in this IBA are protected under The Migratory Birds Treaty Act of 1918. and The Bald and Golden Eagle Protection Act of 1940.

- Local bird sightings collected by Minnesota eBird, a collaborative project managed by the Minnesota Ornithologists' Union, aggregates bird sightings reported in these natural areas. This database lists different species identified by local birders in the area, which would be most immediately impacted by the stadiums project:

  Ancel Glen Playfield / Olson Middle School / Olson Elementary School green spaces
  These playfield areas include large, flat green spaces and a small baseball diamond. There is a large pond on the corner of Johnson Ave and 102nd St with a nature school

area and low ropes course, including bench seating, overlooking the pond, which is one block north of the Jefferson High School proposed stadium site.

1. Great Horned Owl
2. Adolescent Bald Eagle
3. Bald Eagle
4. Common Merganser
5. Cooper's Hawk
6. Barred Owl
7. Wood Duck
8. Mallard
9. Geese

Adolescent Bald Eagle - Photo taken on Nov.19, 2023 at pond by neighbor.

Heritage Hills Park

This park consists of two large ponds boasting Monarch Butterflies, fireflies, painted turtles, snapping turtles, muskrats, coyotes, deer, foxes, and more biodiversity. It is located directly across Johnson Ave from the Jefferson High School proposed stadium site, behind Olson Elementary and Middle Schools and below a hilltop parking lot with 481 parking stalls proposed for use during stadium events that may impact this natural area and should be studied.

Heritage Hills Park Reported Bird Sightings from eBird

Canada Goose	Least Flycatcher	Eastern Bluebird
Egret	Empidonax sp.	Swainson's Thrush
Great Blue Heron	Eastern Phoebe	Hermit Thrush
Green Heron	Great Crested Flycatcher	American Robin
Trumpeter Swan	Eastern Kingbird	Cedar Waxwing
Wood Duck	Yellow-throated Vireo	House Sparrow
Blue-winged Teal	Blue-headed Vireo	House Finch
American Wigeon	Red-eyed Vireo	American Goldfinch

Mallard	Blue Jay	Chipping Sparrow
Ring-necked Duck	American Crow	Field Sparrow
Bufflehead	Black-capped Chickadee	Fox Sparrow
Hooded Merganser	Tree Swallow	Dark-eyed Junco
Common Merganser	Northern Rough-winged Swallow	White-throated Sparrow
Ruddy Duck	Barn Swallow	Song Sparrow
Pied-billed Grebe	Ruby-crowned Kinglet	Lincoln's Sparrow
Horned Grebe	Golden-crowned	Baltimore Oriole
Rock Pigeon	KingletWhite-breasted Nuthatch	Red-winged Blackbird
Mourning Dove	Red-breasted Nuthatch	Brown-headed Cowbird
Chimney Swift	Brown Creeper	Rusty Blackbird
Ruby-throated Hummingbird	Blue-gray Gnatcatcher	Common Grackle
Solitary Sandpiper	House Wren	Ovenbird
Ring-billed Gull	Winter Wren	Northern Waterthrush
Double-crested Cormorant	Marsh Wren	Golden-winged Warbler
Green Heron	European Starling	Black-and-white Warbler
Great Egret	Gray Catbird	Tennessee Warbler
Great Blue Heron	Belted Kingfisher	Orange-crowned Warbler
Turkey Vulture	Yellow-bellied Sapsuck	Nashville Warbler
Osprey	Red-bellied Woodpecker	Mourning Warbler
Sharp-shinned Hawk	Downy Woodpecker	Common Yellowthroat
Cooper's Hawk	Hairy Woodpecker	American Redstart
Accipiter sp	Pileated Woodpecker	Magnolia Warbler
Bald Eagle	Northern Flicker	Blackburnian Warbler
Broad-winged Hawk	Eastern Wood-Pewee	Yellow Warbler
Red-tailed Hawk	Yellow-bellied Flycatcher	Chestnut-sided Warbler
Great Horned Owl	Rose-breasted Grosbeak	Palm Warbler
Kingfishers	Indigo Bunting	Yellow-rumped Warbler
Scarlet Tanager		Canada Warbler
Northern Cardinal		Wilson's Warbler

Moir Park / Central Park / Nine Mile Creek
An urban recreation area, Moir/Central Park amenities include baseball/softball field, picnicking shelter area, restrooms, trails, disc golf course, and a volleyball court. In 2023, Bloomington approved a sales tax to fund community improvements, including the Moir/Central Park and Nine Mile Creek Corridor Renewal project. Additional improvements are to be made for stream, bankside, woodland, and wetland restoration, invasive species prevention, trails, ADA accessibility improvements, new outdoor gathering space with restrooms, new playground, and park shelter building at Moir Park, and possible boardwalk to the Minnesota River.

Nine Mile Creek Reported Bird Sightings from eBird

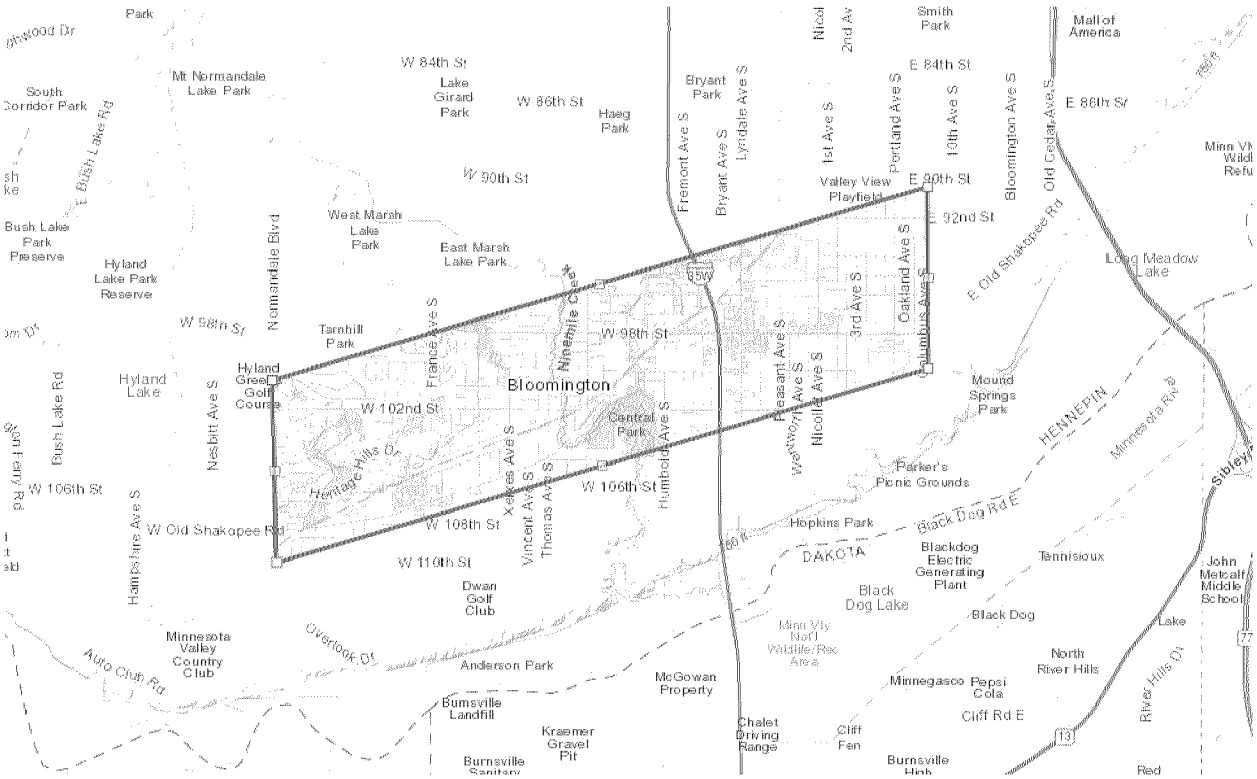
Cackling Goose	Larus sp.	Yellow-bellied Sapsucker

Canada Goose	Caspian Tern	Red-headed Woodpecker
Trumpeter Swan	Forster's Tern	Red-bellied Woodpecker
Tundra Swan	Common Tern	Downy Woodpecker
Trumpeter/Tundra Swan	Double-crested Cormorant	Hairy Woodpecker
Wood Duck	American White Pelican	Downy/Hairy Woodpecker
Blue-winged Teal	Black-crowned Night Heron	Pileated Woodpecker
Northern Shoveler	Green Heron	Northern Flicker.
Gadwall	Great Egret	American Kestrel
American Wigeon	Great Blue Heron	Merlin
Mallard	Turkey Vulture	Peregrine Falcon
American Black Duck	Osprey	small falcon sp.
Northern Pintail	Northern Harrier	Olive-sided Flycatcher
Green-winged Teal	Sharp-shinned Hawk	Eastern Wood-Pewee
Ring-necked Duck	Cooper's Hawk	Yellow-bellied Flycatcher
Lesser Scaup	Sharp-shinned/Cooper's	Alder Flycatcher
Greater/Lesser Scaup	Hawk	Willow Flycatcher
Bufflehead	American Goshawk	Least Flycatcher
Common Goldeneye	Accipiter sp.	Empidonax sp
Hooded Merganser	Bald Eagle	Eastern Phoebe
Common Merganser	Red-shouldered Hawk	Great Crested Flycatcher
Wild Turkey	Broad-winged Hawk	Eastern Kingbird
Ring-necked Pheasant	Red-tailed Hawk	new world flycatcher sp.
Pied-billed Grebe	Rough-legged Hawk	Yellow-throated Vireo
Rock Pigeon	Buteo sp.	Blue-headed Vireo
Mourning Dove	Great Horned Owl	Philadelphia Vireo
Black-billed Cuckoo	Barred Owl	Warbling Vireo
Chimney Swift	Belted Kingfisher	Red-eyed Vireo
Ruby-throated Hummingbird	Semipalmated Sandpiper	vireo sp.
Sora	Franklin's Gull	Northern Shrike
American Coot	Ring-billed Gull	Blue Jay
Sandhill Crane	Herring Gull	American Crow
Killdeer	Chipping Sparrow	Black-capped Chickadee
Short-billed/Long-billed	American Tree Sparrow	Tufted Titmouse
Dowitcher	Fox Sparrow	Horned Lark
American Woodcock	Dark-eyed Junco	Bank Swallow
Wilson's Snipe	White-crowned Sparrow	Tree Swallow
Spotted Sandpiper	White-throated Sparrow	Northern Rough-winged
Solitary Sandpiper	Song Sparrow	Swallow
Lesser Yellowlegs	Lincoln's Sparrow	Barn Swallow
Greater Yellowlegs	Swamp Sparrow	Cliff Swallow
Lesser/Greater Yellowlegs	Eastern Towhee	swallow sp.
White-rumped Sandpiper	new world sparrow sp.	Ruby-crowned Kinglet
Eastern Bluebird	Yellow-headed Blackbird	Golden-crowned Kinglet
Veery	Eastern Meadowlark	White-breasted Nuthatch
Gray-cheeked Thrush	Baltimore Oriole	Red-breasted Nuthatch
Swainson's Thrush	Cape May Warbler	Brown Creeper
Hermit Thrush	Northern Parula	Blue-gray Gnatcatcher
Catharus sp.	Magnolia Warbler	House Wren

Wood Thrush American Robin Cedar Waxwing House Sparrow House Finch Purple Finch House/Purple Finch Common Redpoll Pine Siskin American Goldfinch Red-winged Blackbird Brown-headed Cowbird Rusty Blackbird Common Grackle Ovenbird Hooded Warbler	Bay-breasted Warbler Blackburnian Warbler Yellow Warbler Chestnut-sided Warbler Blackpoll Warbler Bay-breasted/Blackpoll Warbler Black-throated Blue Warbler Palm Warbler Pine Warbler Tennessee Warbler Orange-crowned Warbler Nashville Warbler Mourning Warbler Common Yellowthroat American Redstart	Winter Wren Marsh Wren Carolina Wren European Starling Gray Catbird Brown Thrasher Yellow-rumped Warbler Black-throated Green Warbler Louisiana Waterthrush Northern Waterthrush Golden-winged Warbler Blue-winged Warbler Black-and-white Warbler Prothonotary Warbler

The IPaC mapping tool aggregates sightings and reports of migratory birds using the outlined areas as stopover, nesting and breeding, hunting, or refueling grounds with callouts for any protected, threatened, or endangered species in the area. The map below shows wetlands and natural habitats adjacent to each stadium location as well as the combined-impact area between the two stadium locations that includes the Nine Mile Creek Corridor (image: 5 square miles mapped on https://ipac.ecosphere.fws.gov).

IPaC recommendation: “Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".” (see appendix: Birds- item 9)



The birds listed below appear on the USFWS Birds of Conservation Concern (BCC) list and warrant special attention because of their presence in the stadiums project locations. (see appendix: Birds- item 11)

American Golden-plover	Breeds elsewhere
Bald Eagle	Breeds Dec 1 to Aug 31 (Federally protected (16 U.S.C. 668-668d)
Black Tern	Breeds May 15 to Aug 20
Black-billed Cuckoo	Breeds May 15 to Oct 10
Bobolink	Breeds May 20 to July 31
Canada Warbler	Breeds May 20 to Aug 10
Cerulean Warbler	Breeds April 22 to July 20
Chimney Swift	Breeds Mar 15 to Aug 25
Eastern Whip-poor-will	Breeds May 1 to Aug 20
Golden Eagle	Breeds elsewhere (Federally protected (16 U.S.C. 668-668d)
Golden-winged Warbler	Breeds May 1 to July 20
Grasshopper Sparrow	Breeds June 1 to Aug 20
Henslow's Sparrow	Breeds May 1 to Aug 31
Lesser Yellowlegs	Breeds elsewhere
Pectoral Sandpiper	Breeds elsewhere
Red-headed Woodpecker	Breeds May 10 to Sept 10
Rusty Blackbird	Breeds elsewhere
Wood Thrush	Breeds May 10 to Aug 31

- The natural areas adjacent to both stadium sites are used by migratory birds as stopover grounds. A majority of birds migrate at night, using the night sky to help them navigate. During the day, they rest and refuel, relying on green space, water and other necessary natural resources. (see appendix:Light - item 7). Light pollution in the form of light trespass and sky glow as well as the aerial spreading of stadium noise will negatively impact migration behaviors, hunting, refueling, nesting and breeding, or shelter-seeking of migratory birds.

  The expansion of anthropogenic noise and night lighting across our planet is of increasing conservation concern. (see appendix: Birds- item 5) In a recent study of 142 bird species, responses to both of these sensory pollutants were linked to the functional traits and habitat affiliations of species. For example, overall nest success was negatively correlated with noise among birds in closed environments. More points from this article exemplify why the stadiums project should undergo an environmental review for its impacts on migratory birds along an IBA.
    - "Light pollution causes birds to begin nesting up to a month earlier than normal in open environments such as grasslands and wetlands, and 18 days earlier in forested environments. The consequence could be a mismatch in timing -- hungry chicks may hatch before their food is available."
    - "Noise pollution delayed nesting for birds whose songs are at a lower frequency and thus more difficult to hear through low-frequency human noise."
    - "Additionally, increased light-gathering ability of species' eyes was associated with stronger advancements in reproductive timing in response to light exposure, potentially creating phenological mismatches."
    - "These findings demonstrate that anthropogenic noise and light can substantially affect breeding bird phenology and fitness, and underscore the need to consider sensory pollutants alongside traditional dimensions of the environment that typically inform biodiversity conservation."

  The breeding timing of nearly all of the BCC-listed species above overlaps with the Spring–Fall timeline for many of the sports that would be practicing or playing night games at the Jefferson and Kennedy stadiums, thereby potentially causing negative reproductive impact due to the deterrents of lights, noise, traffic, and pollutants.

  In an experiment called "The Phantom Road," the effects of traffic noise on distributions of birds was studied.

  > "Although our results demonstrate that traffic noise can severely affect bird abundances, other effects of roads will probably add to or multiply the effects of noise. Negative effects of roads are also likely to be driven by different aspects of roads depending on the taxon examined, and therefore taxa other than birds may be less affected by noise. Furthermore, migrating birds might strongly avoid noise because of their inherent mobility—they can easily avoid a noisy site, given there are other suitable, quieter areas nearby. Therefore, territorial breeding birds or less mobile taxa may be less willing or able to avoid noisy areas. However, our results demonstrate that noise alone is enough to cause some birds to avoid a

site—suggesting that road noise might be, in some instances, the main driver of the effects of roads on animals. (see appendix: Birds- item 1)

The stadiums project may further decrease stopover options for migratory birds seeking to avoid increased noise from loudspeaker systems, spectators, marching bands, and heavy traffic congestion. Adjacent to the two stadiums are smaller greenspaces, wetlands, and parks that birds using the Lower Minnesota River Valley migratory flyway frequent as stopover grounds for hunting, refueling, nesting and breeding, or shelter-seeking.

- "Populations of migratory birds are in decline for myriad reasons including loss and degradation of migratory stopover habitat [21,23]. In fact, migration might be the most dangerous time of a migratory bird's annual cycle." (see appendix: Birds- item 1)
- Overall, 72% of population-level studies reported a decrease in wildlife abundance or occurrence, whereas 93% of studies of vocalization noted changes in vocal behaviour. Urban species, especially birds, heavily rely on acoustic communication for attracting mates, territory defence and signalling dangers. However, urban noise often masks these vital signals, particularly at lower frequencies, which led to various adjustments in vocal behaviour such as shifting song frequencies, increasing vocal amplitudes or altering the timing or complexity of vocalizations. Noise exposure can also be perceived as a direct threat, which along with acoustical masking and distraction from other environmental stimuli, has been shown to increase physiological stress and alter foraging, vigilance, and reproductive behaviour across all ontological stages. These adjustments in behaviour and physiology are likely to have considerable long-term fitness consequences that can scale up to the population-level. (see appendix: Noise - Item 13)

- The stadiums project uses artificial light at night (ALAN) for both sites with 90-foot poles hung with multi-light fixtures up to 1500 lumens. While these lights are downshielded, effects and impacts of light pollution, light trespass, and skyglow on the area may disrupt the aerial habitat for many birds during the Spring–Fall migration months, and further mitigation efforts must be made to ensure minimal-to-no ALAN exposure along their migration paths and at nearby stopover grounds.

  Scientists and ornithologists now consider airspace to be a part of a bird's habitat (similarly to terrestrial and aquatic environments for other species). Development and pollution in the airspace likely negatively impacts birds along their migration flyways due to human contributions of light, noise, and air pollution as well as structural dangers like buildings and glass. Airspace must be taken into consideration in and around the stadium locations, especially during spring and fall evenings, which are the heaviest periods of migration during the year.

  - Migratory bird populations and survival are affected by conditions experienced during migration. While many studies and conservation and management efforts focus on terrestrial stoppage and staging areas, the aerial environment through which migrants move also is subjected to anthropogenic impacts with potential consequences to migratory movement and survival. (see appendix: Birds - item

14).

- According to a Spring 2021 article in Audubon magazine, "Hundreds of thousands of birds representing hundreds of species have passed through what is now Minneapolis-Saint Paul, drawn to the rich habitat along the Mississippi River. But while the region has long been a key stopover site, now it's a deadly one. Like so many urban areas set in ancient flyways, these cities are beacons that lure all too many migrants to their ends." (see appendix:Birds- item 8)

- An environmental impact report would consider negative effects before artificial light sources are installed. (see appendix: Light- item 8)

Migration dangers from light and noise pollution and their detrimental impact on the survival, reproduction, and fitness of birds all warrant prioritizing mitigation efforts at the stadium locations:

- Last year a study of 13 buildings in downtown Minneapolis found that bird-building collisions increase with greater amounts of artificial light. Most of the casualties—nocturnal migrants, including White-throated Sparrows, Soras, Ovenbirds, Nashville Warblers, and Virginia Rails, drawn and disoriented by the lights—died the next morning, when they mistook reflections of vegetation in glass facades for the real thing.

  "It's sad to think they were traveling hundreds or thousands of miles and that incredible journey was cut short by a largely avoidable problem," says lead author Sirena Lao, of Oklahoma State University. (see appendix: Birds- item 8)

- Up to a billion birds are thought to die from building collisions each year in the U.S., and bright lights play a hand in this. Light pollution can also impact bird migration patterns, leading them to miss optimal climate conditions for foraging and nesting. (see appendix:Light - item 5)

- According to "The Growing Effects of Light Pollution on Migratory Birds" by Amy Fraenkel, Artificial light at night can also impact the timing of migration and other seasonal behaviours because it can disrupt biological clocks. For example, birds may misinterpret artificial light at night as a longer period of daylight. Birds which are exposed to light pollution at their overwintering sites may head off on migration earlier than species which are not exposed to artificial light. (see appendix: Birds - item 6),

- Birds are also known to become disorientated from lights, resulting in higher bird mortality due to collisions with artificial structures such as buildings. "Migratory shorebirds may be exposed to increased predation where lighting makes them visible. They may also abandon preferable roosting sites to avoid lights." (see appendix: Light- item 8)

- From BBC's article,"The Race to Reclaim the Dark":One of the greatest victims is the bird population. Migrating birds can be attracted to lights when flying at lower altitudes, and may become disoriented and end up circling in an illuminated area.

"This unnatural light-induced behaviour can mean they end up depleting their energy reserves and puts them at risk of exhaustion, predation, and lethal collision," says Barbieri.

- In a multi-year study of light pollution effects on birds conducted near the 9/11 Tribute site, (see appendix: Light- item 6) results showed that "birds gathered in greater densities, flew repeatedly in circles and vocalized loudly when the memorial's powerful beams were illuminated."
  "Wherever we can turn lights off at night, we should be doing it," said Andrew Farnsworth, an ornithologist with Cornell University and an author of the study, which claims to be the first to quantify bird responses to urban nighttime light.

- The "Phantom Road Study" shows how anthropogenic noise can reduce stopover habitat and cause detrimental harm to migrating birds.
  - Broadcasting highway traffic noise from speakers at an autumn stopover site caused a reduction in bird abundance, and several species avoided this "phantom road" entirely.
  - Noise pollution can mask acoustic cues that birds use to detect predators or prey, hindering their ability to escape or find food.
  - In noisy environments birds may increase vigilance to reduce predation risk, leaving less time for foraging. Consequently, migrating birds that remain at noisy stopover sites may suffer lower body condition.
  - Noise pollution may also interfere with information that migrants use to assess habitat during both flight and stopover periods. Migrating birds may use anthropogenic noise to decide where and when to stop over: Cabrera-Cruz et al. (2019) found that birds increase flight altitude when migrating over urban areas and hypothesized that noise pollution can deter them from landing. Migrants in flight can use social information from other birds, including acoustic cues, when deciding where to land (Chernetsov 2006, Mukhin et al. 2008, Németh and Moore 2014). Migrants also use social learning to assess the location of food resources, competitors, and predators at unfamiliar stopover sites (Németh and Moore 2007, Deakin et al. 2021, Aikens et al. 2022). Consequently, noise pollution that masks acoustic cues from avian communities, prey, or predators may reduce birds' ability to quickly and safely refuel, affecting their condition and migration timing, and ultimately their fitness. (see appendix: Birds- item 3)

Additional conservation issues stated by Audubon for this particular IBA include:(see appendix: BIRDS - item 12)

- Power lines are found throughout the river corridor. Many woodlands and savannas are being altered and eliminated as land use changes from agricultural to urban land uses such as housing, commercial and industrial development. Drainage and stormwater impacts are significant in both the developed and rapidly developing parts of this site. Comprehensive stormwater management and working with local communities is the most effective tool for addressing this issue.

- Ongoing increases in water usage threaten a wide range of groundwater-dependant plant and animal communities. Especially sensitive are calcareous fens and associated cold water streams which are important habitats for numerous avian species.

- BPS #271 and the City of Bloomington would be wise to consider the efforts and public reception for two recent stadiums in the Twin Cities area — Allianz Field, which is bird-friendly, and US Bank Stadium, which did not employ recommended bird-safety measures.
    - Allianz Field isn't receiving any public funding and thus isn't subject to Minnesota's code, which went into effect in 2012. But it's going above and beyond the rules anyway. "They didn't need an organization or regulations telling them to make a bird-friendly stadium," Rebeccah Sanders, vice president of the Great Lakes and Upper Mississippi Flyway for Audubon. "They recognize the importance of Minneapolis along the flyway, and they did it on their own."
    - The Vikings didn't seem to care if the decision resulted in a PR fumble. Which it did. Headlines in national and international news outlets have since called the Vikings' glistening new home a "death trap for birds."
      (see appendix: Birds- item 7)

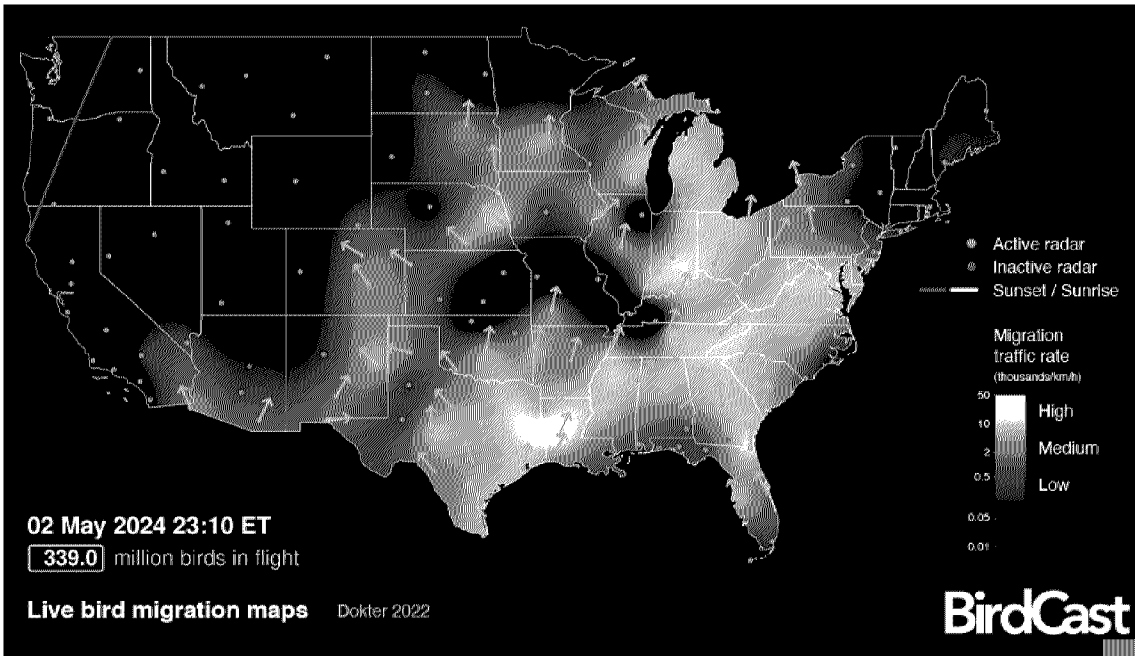
DarkSky recommendations and guidelines such as these proposed by The Convention on the Conservation of Migratory Species of Wild Animals should be employed in the stadiums design prior to installation in order to prevent potential impacts of artificial light on migratory species,

Imagine a spring event night at the Bloomington and Kennedy stadiums. BirdCast, real-time analysis of nocturnal bird migrations, predicted 339 million birds would be in the air. Compared with an overlaid map of light pollution, the gauntlet of light attraction or light avoidance for those birds becomes clear.

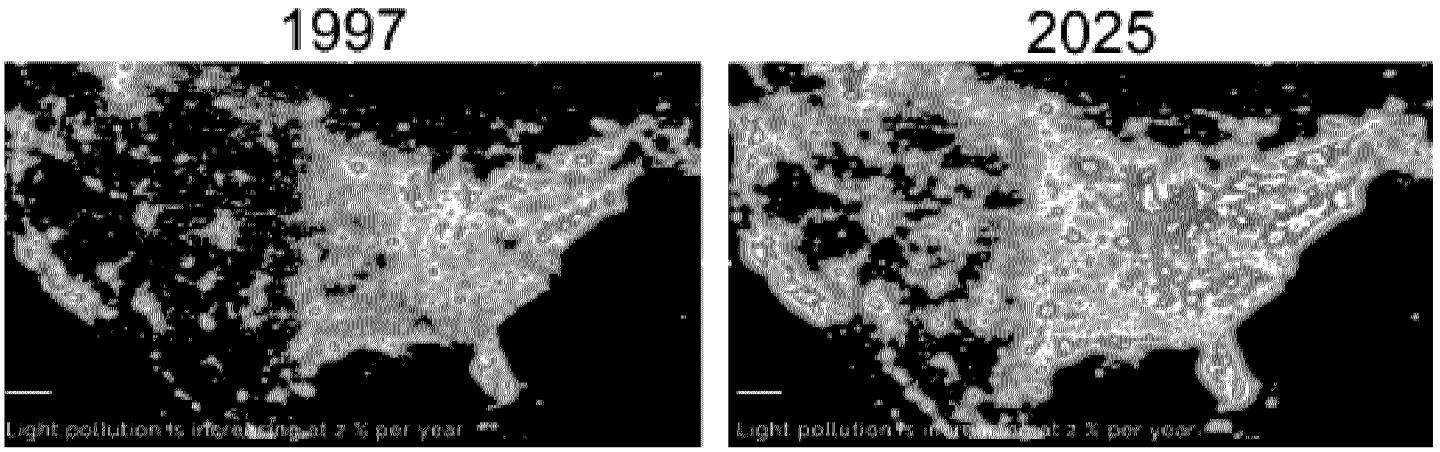
> "Suddenly the whole system of evolving to move at night is under potentially extreme pressure,"and, "pressure that birds would not experience otherwise, and it is creating chaos."(see appendix: Light- item 8)

Using the BirdCast - Live bird migration map, we were able to look at the most recent flight paths for May 2, 2024, to determine the current migration traffic near the stadiums project area just two miles from the Lower Minnesota River Valley IBA.

The screenshot below is the real-time analysis map and shows intensities of actual nocturnal bird migration shortly after 10pm CT. Imagine this is when the final stadium attendees are filing out and the lights are finally getting turned off. Suddenly disoriented, migratory birdslured by the stadium lights would now be left circling the area confusedly trying to engage their ability to see the Earth's north-south magnetic fields. Additionally, noise and traffic in the areas adjacent to each stadium cause additional stress. (see appendix: Birds - item 13)



Here is the increased light pollution in the United States as mapped and provided in materials by DarkSky International



(See appendix: Light - item 3)

Based on the similarities between the migration map above and this continued expansion of light pollution, every effort should be made to mitigate light pollution at the Jefferson and Kennedy stadium locations and to further Bloomington's progress toward DarkSky-friendly practices. Additional recommendations can be incorporated, such as those of the Audubon's "Lights Out" Program (see appendix: Light- item 7).

- Scientists at the Cornell Lab of Ornithology have published research highlighting artificial light at night as a contributing factor to bird-building collisions. They've ranked metropolitan areas where, due to a combination of light pollution and geography, birds are at the greatest risk of becoming attracted to and disoriented by lights and crashing

into buildings. The research was published in the journal Frontiers in Ecology and the Environment and combines satellite data showing light pollution levels with weather radar measuring bird migration density. (see appendix: Birds- item 4)

MOST DANGEROUS CITIES FOR BIRDS:

SPRING MIGRATION

1. Chicago
2. Houston
3. Dallas
4. Los Angeles
5. St. Louis
6. Minneapolis

FALL MIGRATION

1. Chicago
2. Houston
3. Dallas
4. New York
5. St. Louis
6. Kansas City
7. Minneapolis

6. Increasing air pollution levels on the school campuses and in the surrounding residential neighborhoods from parking and idling of increased event traffic (due to expanded stadium capacity).

Air pollution from traffic idling and accelerating in repeated events with a five-fold increase in the amount of traffic will have an aggregating effect over time on the health and quality of life of the people who live next to these stadiums.

- "Women living less than 100 m from a busy road also had a significantly decreased lung function and COPD was 1.79 times more likely (95% CI 1.06–3.02) than for those living farther away. [...] Several studies have suggested that lung function decline and respiratory diseases are associated with proximity to roads with heavy traffic, traffic density or exposure to traffic-related air pollution." (see index: Air - Item 3)

- "Nearly 8,000 U.S. public schools lie within 500 feet of highways, truck routes and other roads with significant traffic, according to a joint investigation by the Center for Public Integrity and **Reveal** from The Center for Investigative Reporting. That's about one in every 11 public schools, serving roughly 4.4 million students and spread across every state in the nation." (see appendix: Air - Item 2)

- From the American Lung Association: (see appendix: Air - item 4)
    - Children face special risks from air pollution because their airways are small and still developing, and because they breathe more rapidly and inhale more air relative to their size than do adults.
    - Older adults are at increased risk of harm from air pollution for several reasons. Even in healthy people, the aging process gradually reduces the lungs' breathing ability, which can then easily be made worse by exposure to air pollution. [...] And older adults are more likely to be living with one or more chronic illnesses, such as lung and heart disease, which may be made worse by exposure to unhealthy air.
    - People who live or work near sources of pollution breathe more polluted air over longer periods of time than others, and in general, the greater the exposure, the greater the risk of harm. Low-wealth communities and communities of color are most likely to bear the brunt of proximity to busy roadways, transit depots, industrial facilities, power plants, oil and gas operations and other hazardous pollutant.

Urban microclimates surround the stadiums and homes. Windows will need to be closed against idling engines and prevailing winds, which can linger in urban micro climate areas is a real problem.

- The impact varies, because each situation is unique. The number, type, and age of vehicles passing by, whether they're moving at a constant speed or braking and accelerating, whether the wind frequently or rarely blows from the road to the school — each of these factors makes a difference. A congested local road could be worse than a highway. The problem affects all sorts of kids, but it is more pronounced in predominantly minority or low-income schools, driven largely by where public school students live. (see appendix: Air - Item 2)
- From "Artificial Light at Night: State of the Science 2023" by DarkSky International: Skyglow is also sensitive to very small particles in the air, and it can be increased by air pollution. ALAN itself may also interact or interfere with the chemistry of gasses in the lower atmosphere, potentially contributing to degraded air quality. (see appendix: Lighting - item 11)

Air quality from excessive traffic is already a concern at the Kennedy High School location.

- Kennedy High School is surrounded by roadways on 3 sides. The most demanding of attention is the Old Shakopee Road (OSR) corridor where air quality is already a major concern. Air pollution from OSR is high from excessive speeds and a daily average traffic volume of 17,000 cars, buses, trucks, and 9 ton commercial vehicles. (see appendix: Air - Item 1)

Evaluate any impacts of traffic-related air pollution exposure at each school and mitigate the effects using the EPA's "Best Practices for Reducing Near-Road Pollution Exposure at Schools." (see appendix: Air - item 5)

- Road-side solid and vegetation barriers
- For vegetative barriers, use mature, dense greenery (conifers preferred) and locate the barrier downwind and close to the roadway.
- Choose species that do not change by season (e.g., conifers) and that are appropriate for the region and site.
- Vegetation should be properly maintained to ensure vegetative health and to prevent gaps from forming.
- Trees and plants along roadways can reduce particle and some gaseous pollutant concentrations by acting as a physical barrier between roadways and schools

Furthermore, air quality can be improved when road safety is redesigned with lower speeds, reduced idling, and providing safe bicycle lanes. Traffic calming with roundabouts or a four-to-three conversion with bike lanes, would begin to address these issues. "Applying these designs throughout the city and region would be a huge improvement for pedestrians and bikers. That, in turn, would make our communities safer, healthier and less dependent on cars." (see appendix: Air - Item 6)

7. Water Pollution: Potential Negative Impacts from increased surface runoff onto the adjacent wetland habitats, local watersheds, groundwater, and Bloomington's aquifers

The stadiums project may impact local wetland areas and streams, and it may cause further detriment to existing impaired waters near the Jefferson and Kennedy locations.

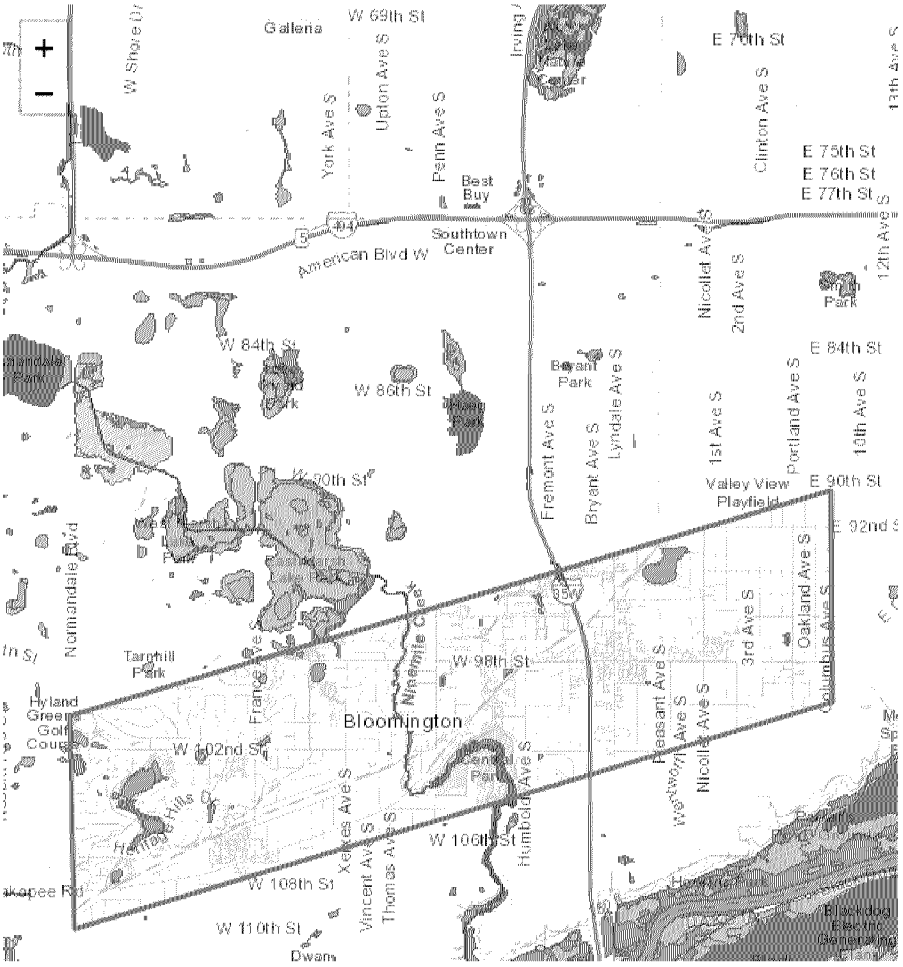
This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND
- PEM1A
- PEM1C
- PEM1Ax
- PEM1F
- PEM1Cx

FRESHWATER FORESTED/SHRUB WETLAND
- PFO1A
- PSS3Dg

FRESHWATER POND
- PUBH
- PUBHx
- PABH
- PUBFx

RIVERINE
- R2UBH
- R5UBH
- R4SBC

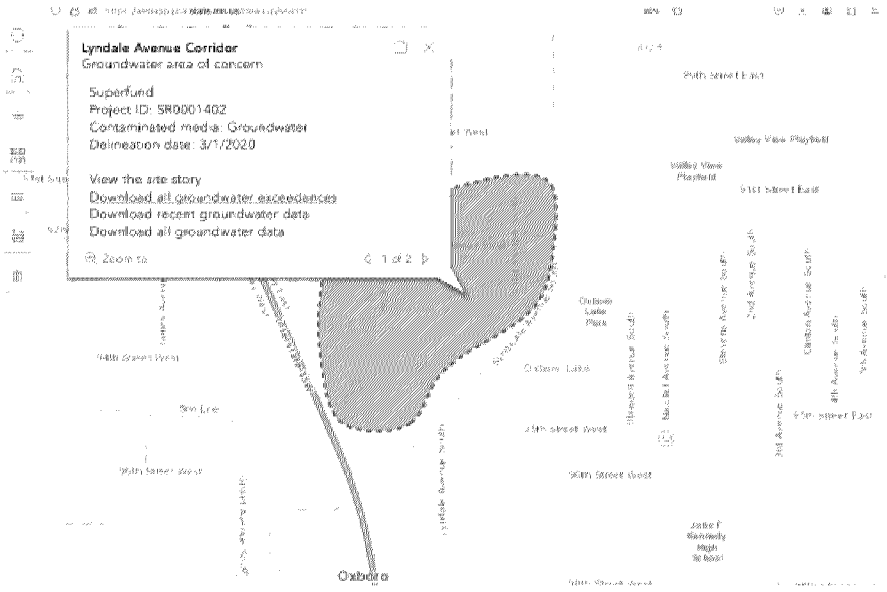


At Jefferson, these are the Heritage Hills Park, Ancel Glen Playfield pond, Winchester Pond, Canterbury Pond, and the small pond on the corner of Heritage Hills Drive and Johnson Ave S.

Map of Jefferson-area wetland habitats:

At Kennedy site, it is the Oxboro Lake and Superfund site for the Lyndale Avenue Corridor. These waters would benefit from a baseline study to collect the necessary data to ensure any negative impacts are tracked, reported, and quickly addressed with mitigation efforts.

- Potential impact issues include:
- Construction disturbances and erosion
- Sediment runoff
- Increased surface water runoff from added paved areas for parking
- Greater pollutant loadings to runoff from increased traffic congestion/parking numbers



The Jefferson and Kennedy site locations are within three miles of each other and flank the east and west sides of Moir Park/Nine Mile Creek Corridor. They are also both within 1.5 miles of the Lower Minnesota River Valley, a watershed district. And if the stadiums project is approved, their proximity and combined impact should be reviewed for full assessment of the potential environmental impacts on these sensitive wetlands.

- From a local sales tax request information sheet distributed by the City of Bloomington (see appendix: Water - item 1): "Natural areas are the underpinning of Bloomington's park system. The 2022 Natural Resources Prioritization and Management Strategies for Bloomington Parks ranked Moir/Central Park and Nine Mile Creek as the highest priority for restoration."
- The Lower Minnesota River Valley is a protected area under restoration by the MPCA. From the MPCA Water Restoration and Protection Strategy (WRAPS) report July 2019 (see appendix: Water - item 3):

  In the Lower Minnesota Watershed, 117 sections of streams and 103 lakes in the watershed showed elevated levels of nitrogen and phosphorus and persistent problems with excess sediment, bacteria, and other contaminants.

  • *84% of streams did not meet standards for supporting fish and other aquatic life*

  • *95% of streams had bacterial contamination above health-based limits*

  • *55% of lakes had nutrient levels that exceeded standards*

Because Kennedy High School is part of the Nine Mile Creek Watershed District and sits above and within the City of Bloomington's Drinking Water Supply Management Area, mitigating runoff and reducing pollutants should be high priorities within the stadiums project to ensure all necessary precautions are in place.

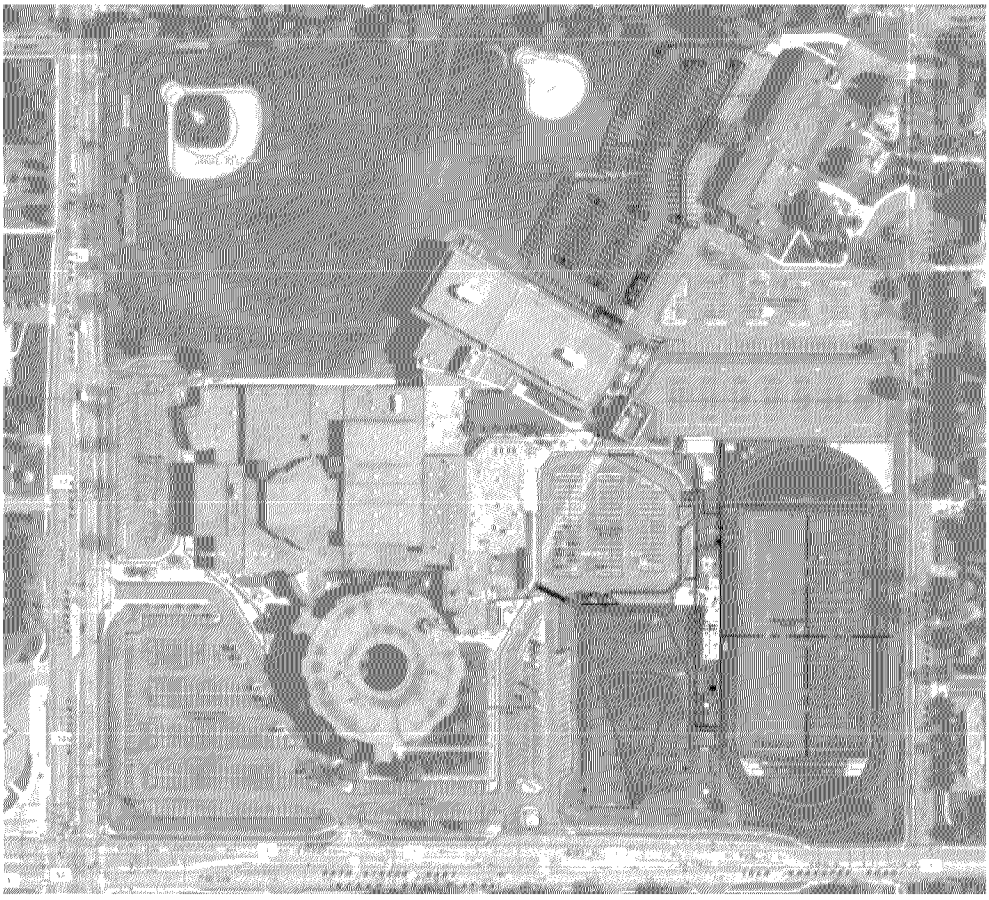
- The Lyndale Avenue Corridor Groundwater contamination site of concern, a Superfund Site, lies adjacent to Oxboro Lake. (see appendix: Water - Item 5)
- Oxboro Lake receives the runoff from Kennedy High School and is one of the few locations remaining east of the I-35W corridor that provides flood storage and sediment capture from stormwater runoff before it is conveyed into Nine Mile Creek. Its maintenance has been identified as a high-priority project.
- At least one MPCA groundwater monitoring station at Oxboro Lake records high levels of toxins.

Architectural plans for the proposed stadium at Kennedy High School indicate an additional 193-space parking lot on the northern side of the campus. According to the plans, additional parking is necessary to meet code requirements for the proposed five-fold increase in stadium capacity, from a current 500 seats to a proposed 2,500 seats. The proof of parking plan below shows the new parking lot (west of the Pond Center) to be comparable to the size of a football field.(see appendix: Plans - Items 5)

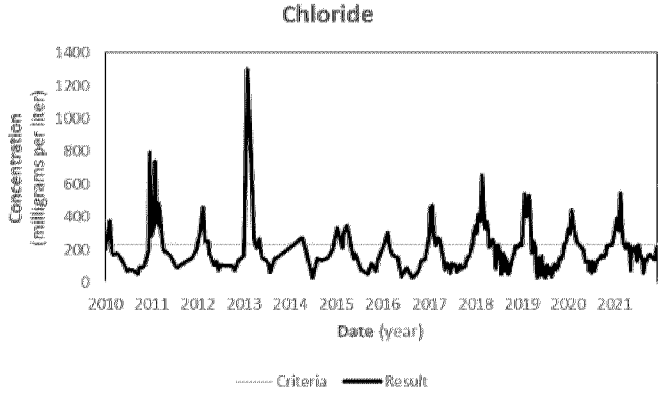
Increased surface water runoff, some loss of recharge area, and changes to local drainage patterns are concerns at the Kennedy High School location due to these proposed parking plans Stormwater drains are located just across the street at Oxboro Lake.

- Roughly 2/3 of the Kennedy campus is covered in impermeable surfaces. The proposed 193-space parking area overlays a natural grass field. Removing permeable surfaces will reduce the area of natural turf that helps to filter water drainage from the school into Oxboro Lake and beyond.

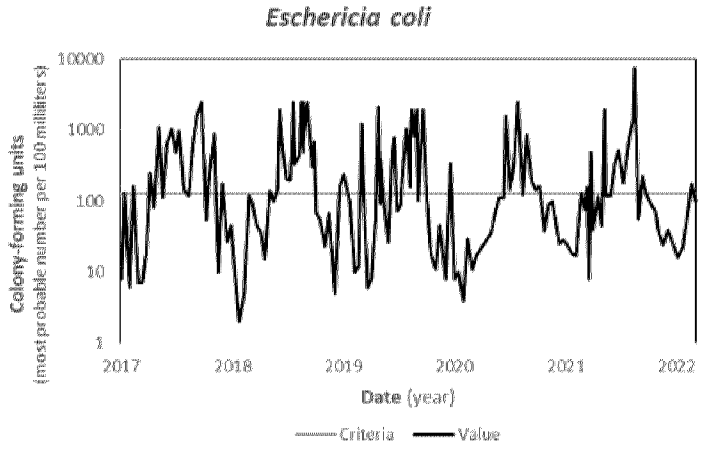
- By replacing a natural turf field, this new parking lot may increase contaminates, such as chloride, in surface water runoff into the shallow Oxboro Lake and downstream into Nine Mile Creek, which already shows impaired readings of Chloride, and levels of E. coli that exceed the allowance for recreation and human health." Nine Mile Creek ultimately flows into the Minnesota River, and both are stat-listed impaired waters, with the Minnesota River additionally a federally designated "impaired waterway."



- According to the Lower Minnesota River Watershed, "Nine Mile Creek has the second highest concentration of chloride in the Minnesota River basin streams monitored by MCES, which reflects the densely developed, urban nature of the watershed (MCES, 2014b). A Total Maximum Daily Load study for Nine Mile Creek chloride levels was approved in 2010, and it estimated that a 62% reduction in chloride was required to eliminate the impairment (MCES, 2021). (See appendix: Water - item 4)



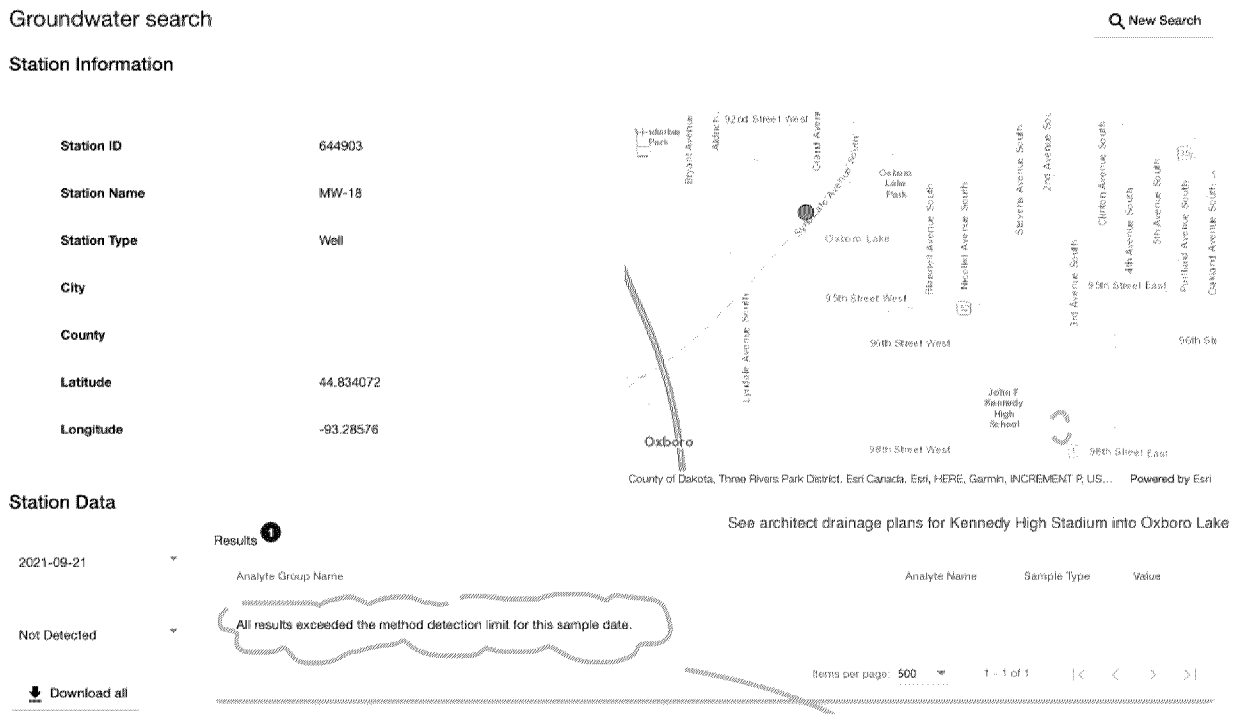
- The graph shows the Nine Mile Creek chloride concentrations since 2010. Although the large spikes observed in earlier years are more subdued now, concentrations continue to exceed the 230 mg/L criteria. Peak concentrations usually occur in the winter."
- "Nine Mile Creek often has levels of E. coli that exceed the allowance for recreation and human health." (See appendix: Water - item 4)



- Downstream readings at and along Nine mile creek, including the N1 Watershed monitoring point, should be studied while considering if another acre of parking lot surface water contaminants and suspended solids is healthy for The already imperiled Nine Mile Creek Watershed. These levels should be mitigated for the neighborhood and those downstream.

    - "Nine Mile Creek is impaired for aquatic life by elevated chloride concentrations (MPCA, 2022). Its designation of impairment is also based on benthic macroinvertebrate bioassessments and fish bioassessments. Our expectation is that these impairments will be addressed by 2028 (MPCA, 2022). Only a small portion of the Nine Mile Creek watershed (near the mouth of the creek) is in the Lower Minnesota Watershed District (LMRWD)."

Oxboro Lake is smaller and shallower than other city lakes and suffers from sedimentation buildup from runoff. Prior to adding more hardscape, it seems wise to ascertain levels of nutrients and other contaminants with rigorous historic and real time assessments of current water quality, including from the numerous groundwater monitoring wells near Oxboro Park. For example Groundwater well BW-17 southwest of Oxboro Lake already records levels exceeding standards. (image source: MPCA groundwater search Bloomington well MW-18).



- Landscaping plans have not been provided with designs and efforts to mitigate the impacts of additional parking on local wetland habitats adjacent to the Kennedy school properties. Common landscaping mitigation efforts would provide more green spaces and beautify the campuses while removing pollutants and silt from direction into stormwater drains. Efforts and designs should include options such as these suggestions provided by the Green Economy Post (see appendix: Water - item 2):
    - Bioretention techniques to catch and treat parking lot runoff, including sandy, compost-rich soil mix topped with a layer of mulch and dense vegetative cover
    - Creation of a pond 6–8 inches deep with an overflow outlet to drain the water and should be covering 5% of the entire paved surface to be effective.
    - Perimeter bioswales, which are depressions along the perimeter designed to remove silt and pollution from surface runoff water and distribute the water away from some locations toward a larger collection system and minimize flooding.
    - Rain gardens, swales, and designed wetlands to receive excess runoff that bioswales cannot support.

- Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.