



Benefiting Youth and the Natural Environment

Integration of Biophilic Design in a Youth Center



Problem

- Urbanization
 - 90% spent indoors ¹
 - 55% live in urban areas ²
- Loss of connection to nature ³
 - Impacts children's health and development ⁴
 - “Nature deficit disorder” ⁵
 - Increase health issues ⁵
- Natural environmental issues
 - Loss of biodiversity ⁵
 - Poor air quality ⁵
 - Poor water quality ⁵

¹ Kellert, S. R., & Calabrese, E. F. (2015). *The Practice of Biophilic Design—A Simplified Framework*. Biophilic-Design. <https://www.biophilic-design.com>

² Ritchie, H., & Roser, M. (2018). Urbanization. *Our World in Data*. <https://ourworldindata.org/urbanization>

³ Weinstein, N., Balmford, A., DeHaan, C. R., Gladwell, V., Bradbury, R. B., & Amano, T. (2015). Seeing Community for the Trees:

The Links among Contact with Natural Environments, Community Cohesion, and Crime. *BioScience*, 65(12), 1141–1153.

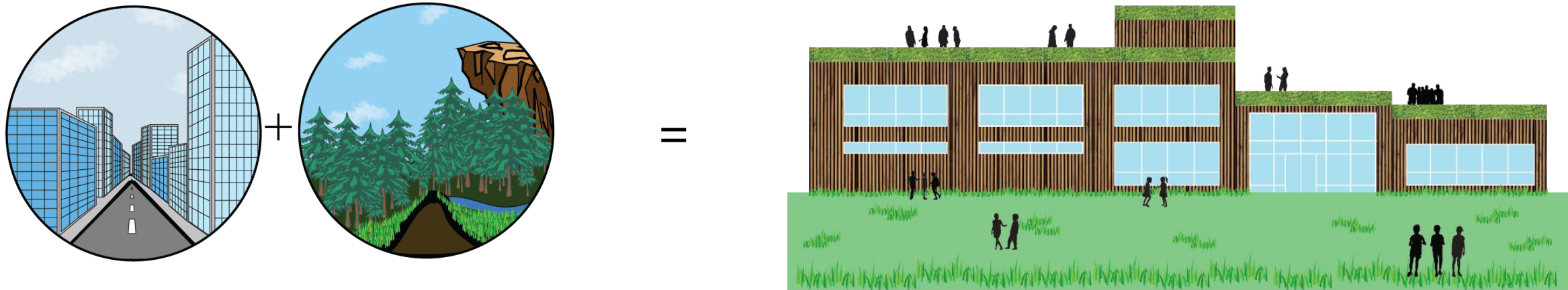
<https://doi.org/10.1093/biosci/biv151>

⁴ Horwitz-Bennett, B. (2020). *Natural Materials in Biophilic Design*. <http://books.google.com/books?id=TE5TAAAAMAAJ>

⁵ Brown, J. D., & Fink, H. S. (2022). Planning for Biophilic Cities. *PAS Reports*, 602, 1–114.

Response

A combination of:
Biophilic design and Youth centers



Project Goals

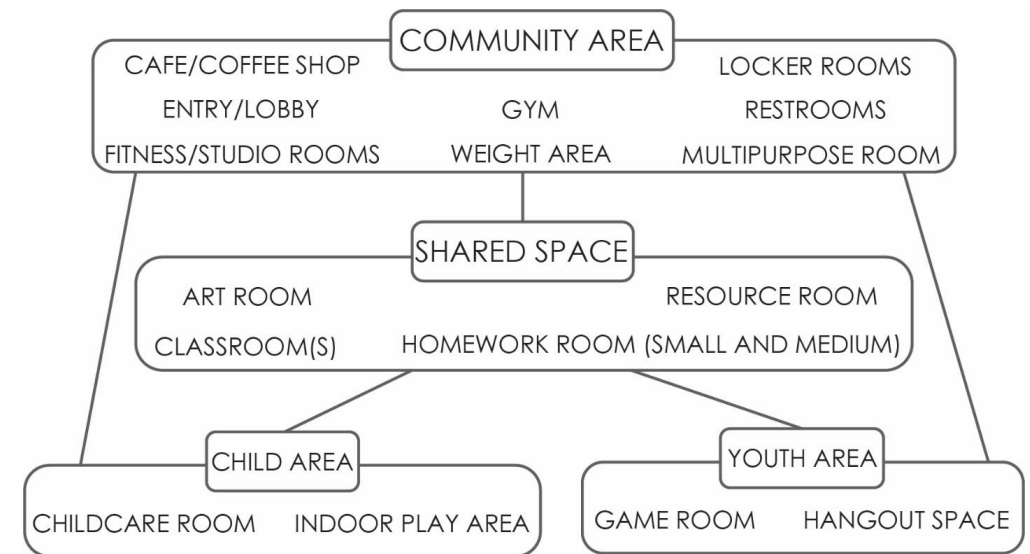
- 1 - Respond to Urbanization
 - 1.1 Effects on humans
 - 1.2 Effects on the natural environment
- 2 - Form a connection between children and nature

Project objectives

- A place for children K-12
- Improving the natural environment
- Use of biophilic design features

A place for children to go

- After school, weekend, summer
- Close to school
- Home-like feeling ¹
- Sense of independence ¹
- Foster creativity ¹
- Promote physical activity and mental stimulation
 - Fitness areas ¹
 - Art ¹
 - Educational ¹
- Flexible spaces ²
- Unstructured activity areas ¹
 - Socializing
 - Playing



¹ Mion, E. (2017, March 23). *Youth Centers* | WBDG - Whole Building Design Guide [Whole Building Design Guide]. <https://www.wbdg.org/building-types/community-services/youth-centers>

² Green, K., & Acenas, I. (2020). *YOUTH CENTER TOOLKIT: CREATING RESOURCES FOR SAFE SPACES, YOUTH CENTERS, AND AFTER-SCHOOL PROGRAMS*. YouthPower2: Learning and Evaluation. <https://www.youthpower.org/resources/youth-center-toolkit-creating-resources-safe-spaces-youth-centers-and-after-school-programs>

Improving the Natural Environment

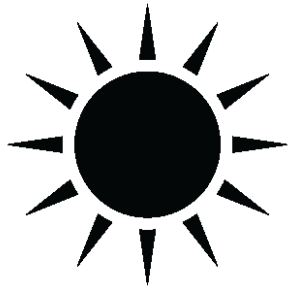
- Increasing biodiversity
 - Improving air quality
 - Improving water quality
- Using natural materials
 - Reduced embodied carbon
 - Renewable
- Using natural ventilation
 - Reduced energy
 - Fresh air

Biophilic design

5 Main Biophilic Elements



Vegetation



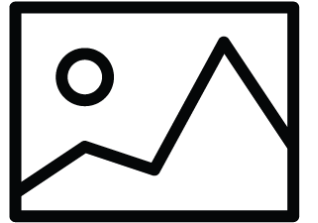
Daylight &
Views



Natural
Materials



Colors
found in
Nature



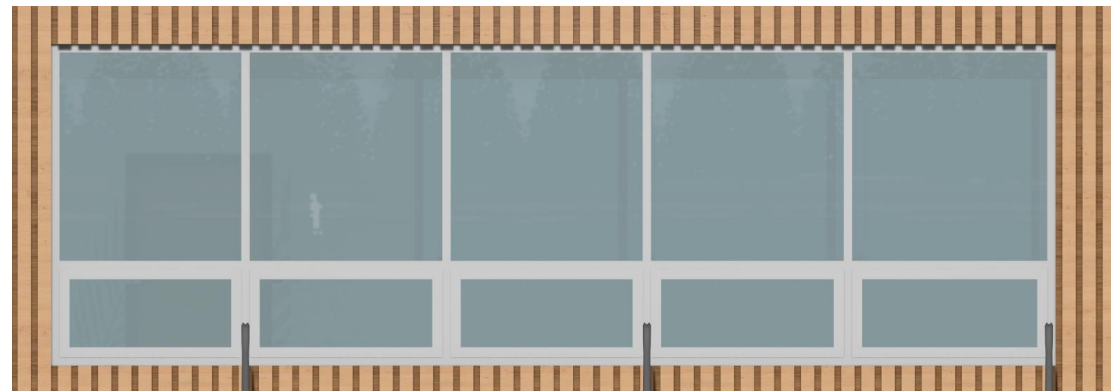
Images of
Nature

2 Secondary Biophilic Elements

Natural Ventilation and Refuge

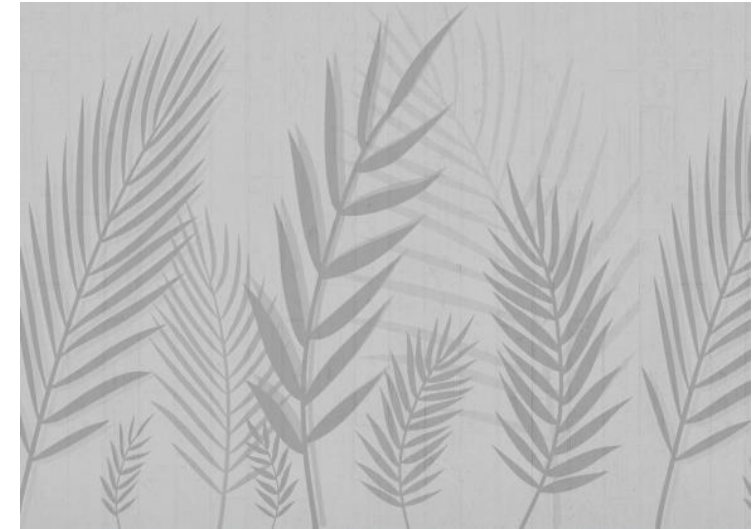
Biophilic Design

- Vegetation 🌿
 - Connects indoor and outdoor
 - Improves air quality
- Daylight & Views ☀️
 - Natural heating
 - Visual connection to nature
 - Development in kids
- Natural Materials 🌀
 - Wood



Biophilic Design

- Colors found in nature 🎨
 - Browns
 - Greens
 - Blues
- Images of nature 🖼️
 - Leaf imprint on wall
 - Beehive light fixture
 - Pinecone light fixture



Biophilic Design

- Natural ventilation
 - Operable windows
- Refuge
 - Adds level of comfort to users
 - Plants between seats
 - High backs on seats
 - Low ceilings



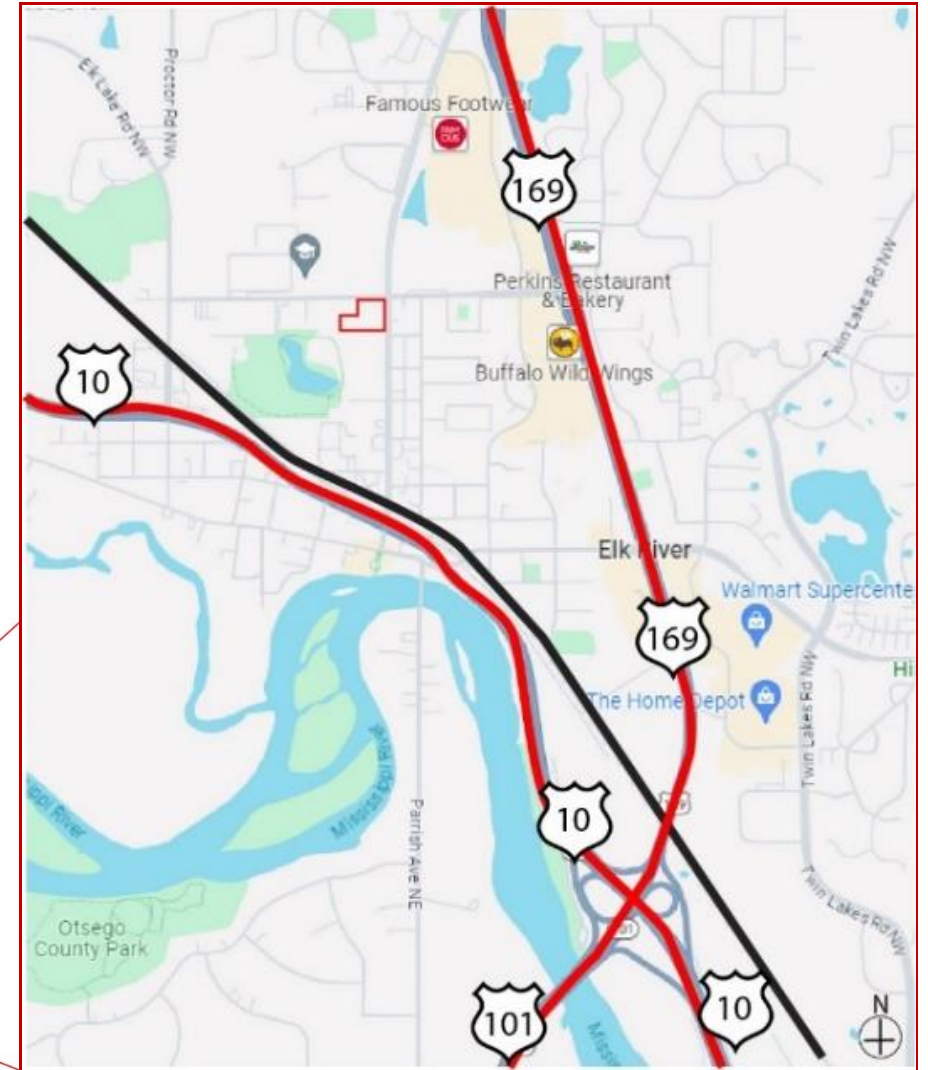
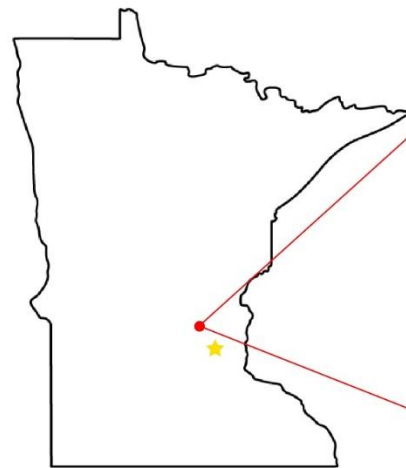
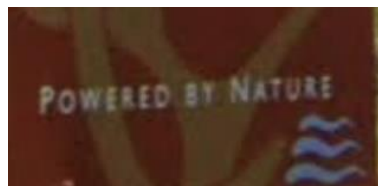
The Building

- Typology
 - Youth Center
- Users
 - Primary: school-age children
 - Secondary: Community members



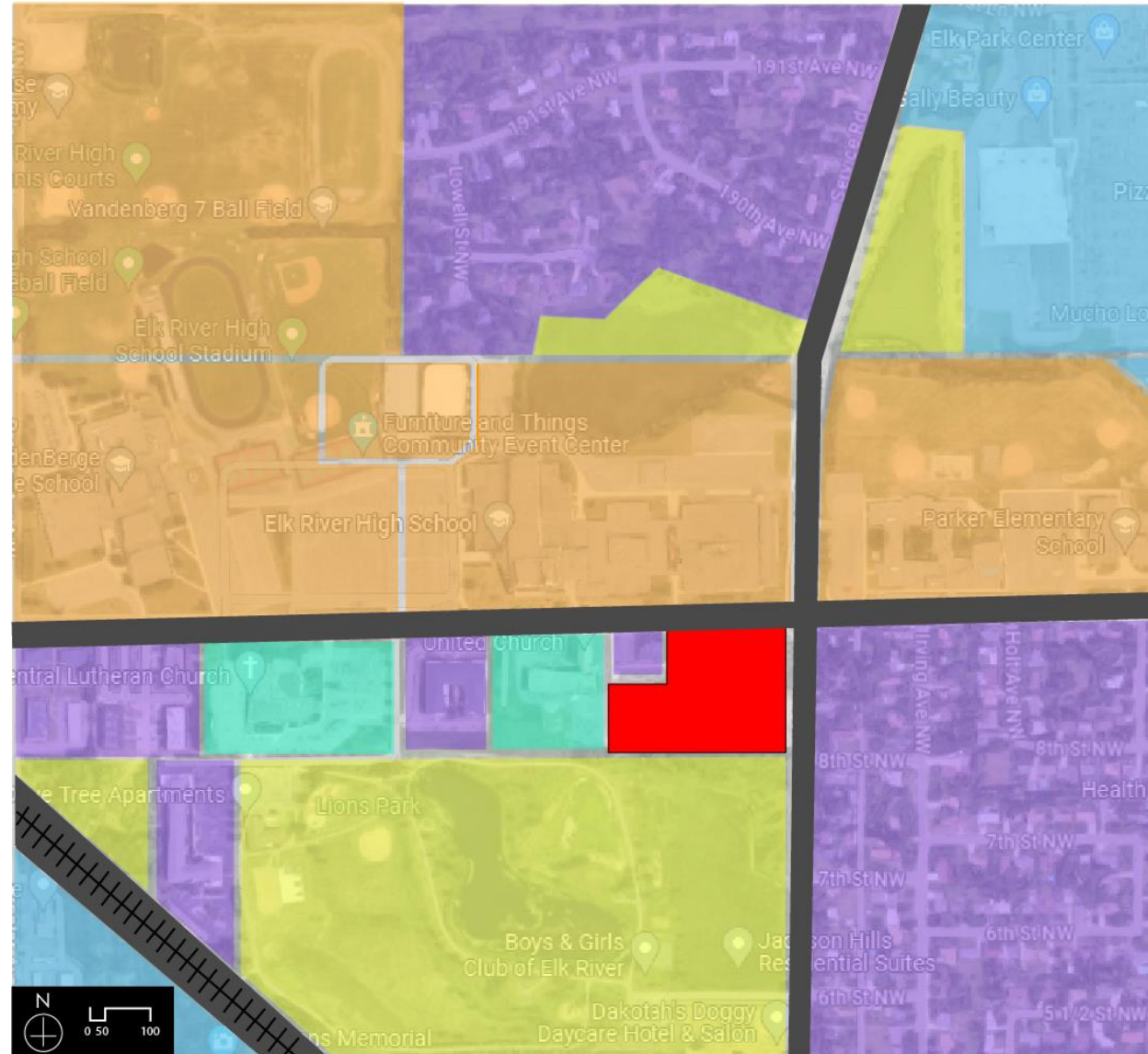
The Site – City

- Elk River, Minnesota
 - 50 miles North of the Twin Cities
- Population
 - Total: 26,000
 - School-age: 8,500

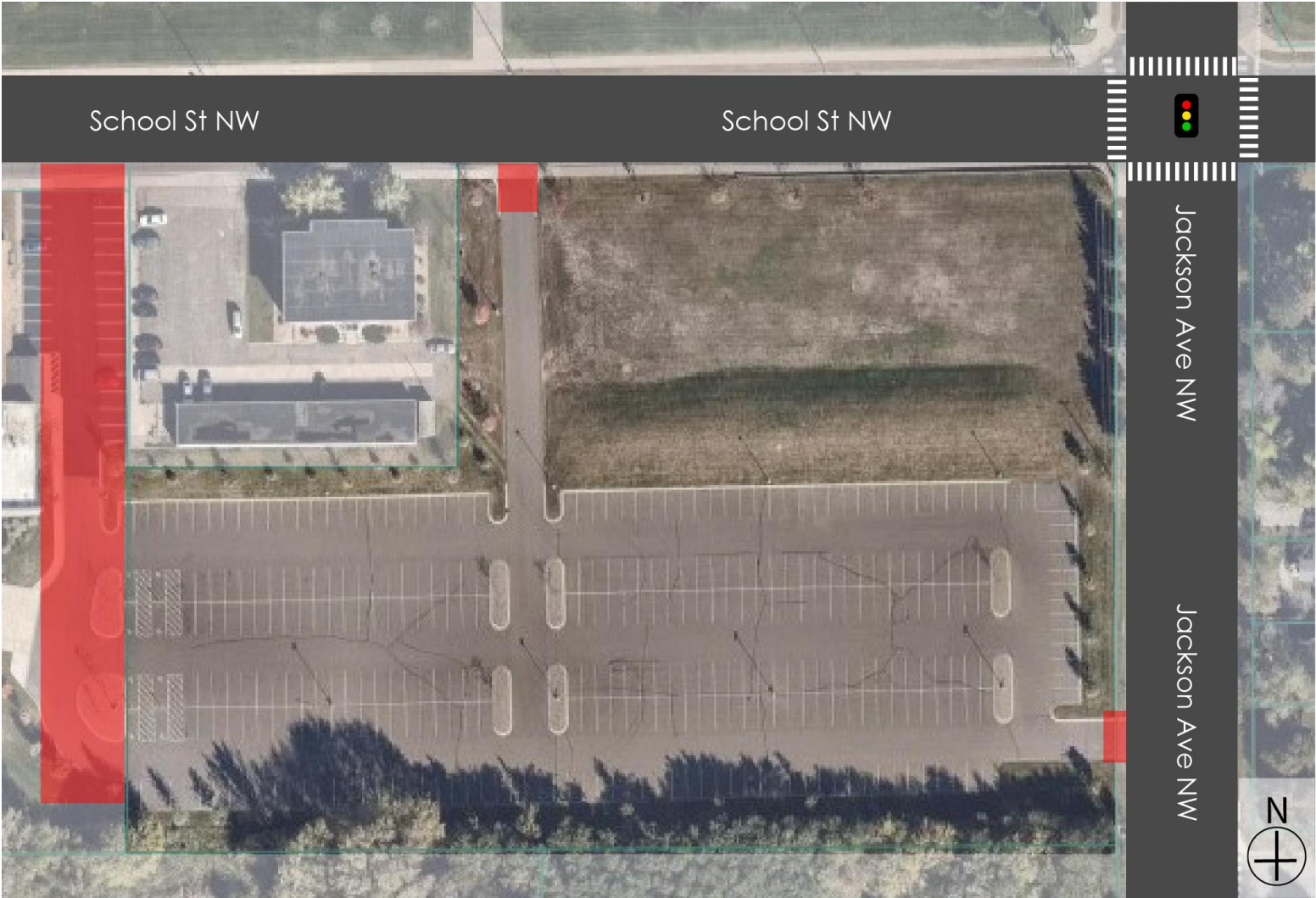
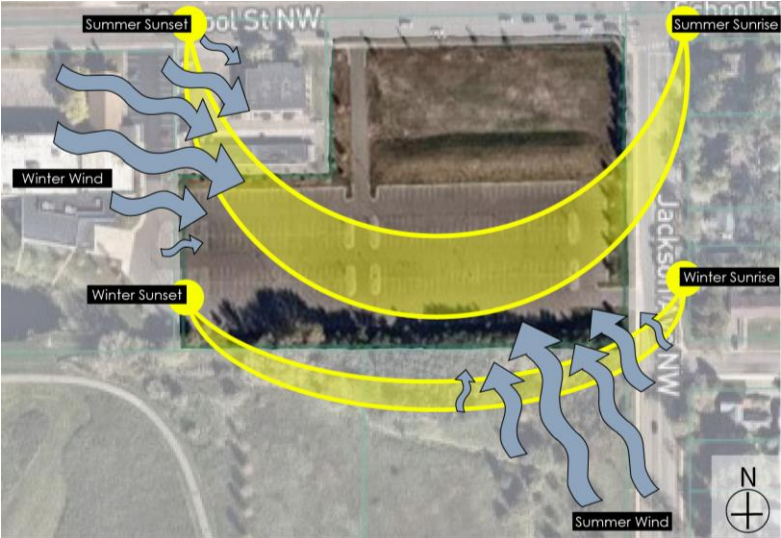


The Site – Surrounding Area

- Site
- Residential
- Educational
5 schools
- Religious
- Green Space
- Commercial



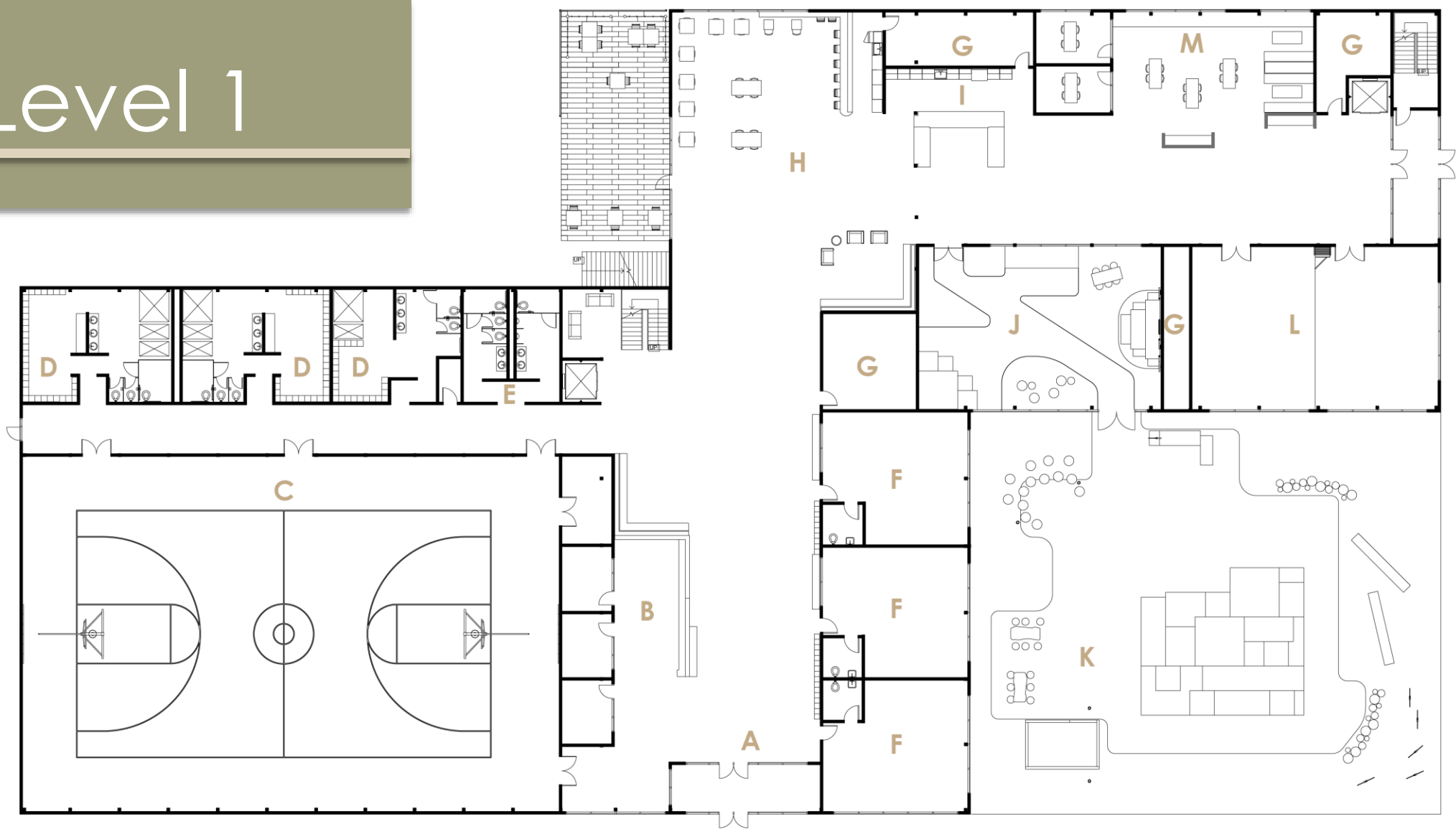
The Site - Analysis



Site Plan



Level 1



Level 1 Floor Plan



A - Main Entrance
B - Admin Area

C - Gym
D - Locker Room

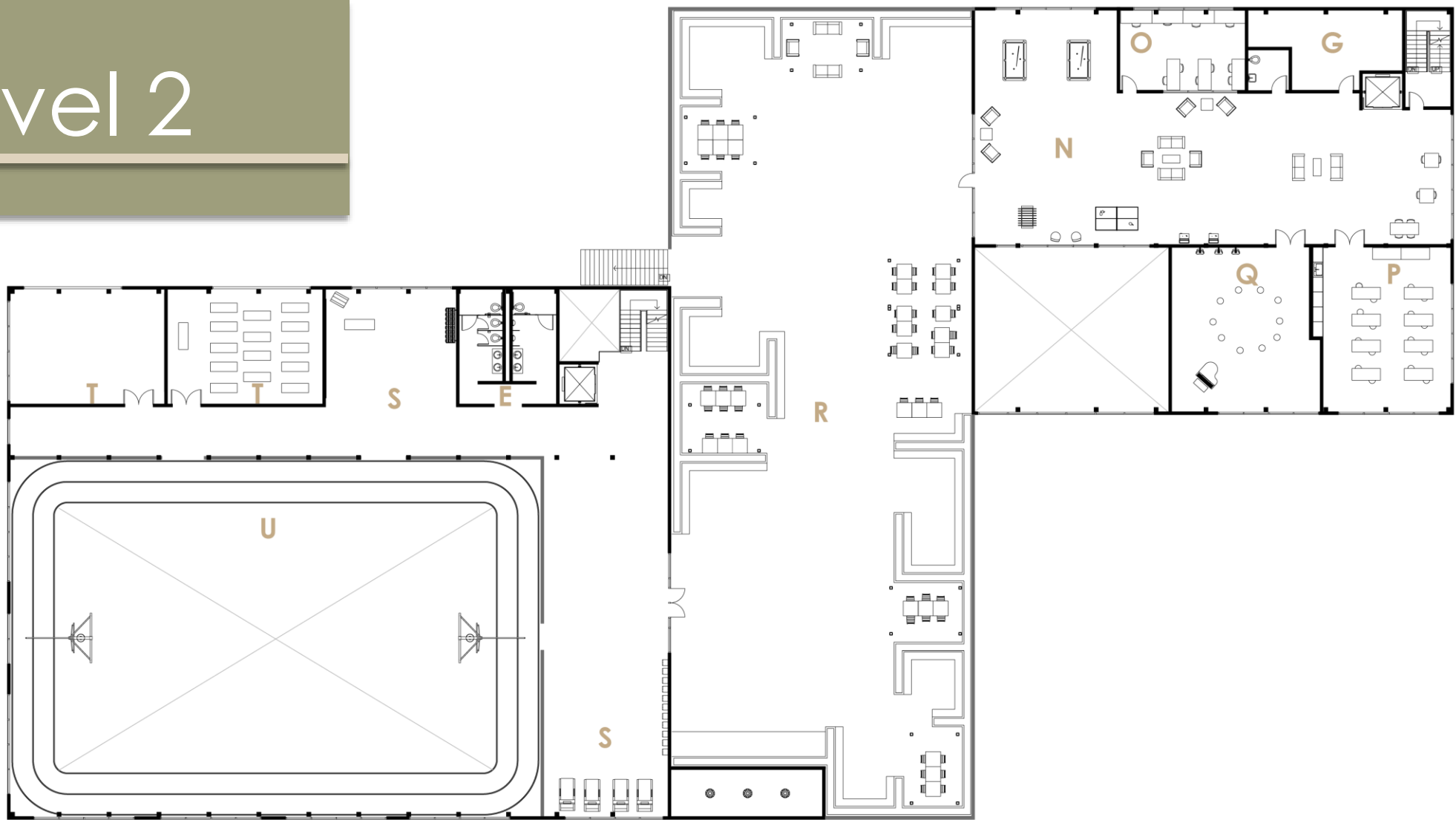
E - Restroom
F - Childcare Room

G - Storage
H - Juice Bar

I - Kitchen
J - Indoor Playground

K - Outdoor Playground
L - Multi-purpose Room
M - Study Area

Level 2



Level 2 Floor Plan



E - Restroom
G - Storage

N - Teen Hangout Area
O - Computer Lab

P - Art Room
Q - Music Room

R - Rooftop Patio
S - Fitness Area

T - Fitness Room
U - Walking Track

Entryway



Juice Bar



Kitchen



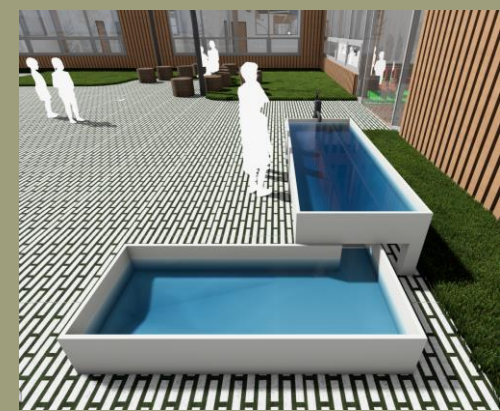
Study area



Indoor playground



Outdoor playground



Upper patio



Teen hangout



Gym



Exercise Areas



Butterfly garden



Elk River Community Corner



ELK RIVER COMMUNITY CORNER



Elk River Community Corner is a place that aims to connect the natural environment with the community, focusing on growing a relationship with K-12 children. The site is located across the road from four schools, making it an ideal location for children and youth to go after school, on the weekends, and in the summer. To provide this connection with nature the project uses biophilic

design elements to enhance the lives of the community and the natural environment that surrounds the building. These elements allow children and youth to be immersed in nature-inspired surroundings that can improve their well-being while developing an appreciation for the natural world. This project additionally uses sustainable design practices, including:

solar panels, green roof, a water collection system, permeable pavers, and natural ventilation, in order to further minimize the effects on the surrounding environment. Along with the areas shown below, the building includes an outdoor exercise area, roof butterfly flower garden, a vegetable garden, and a green house, to allow for year-round fruits and vegetables.

Biophilic Design Elements:

- Vegetation
- Daylight and views to nature
- Natural Materials
- Images of nature
- Colors of nature



Outdoor playground



Indoor playground



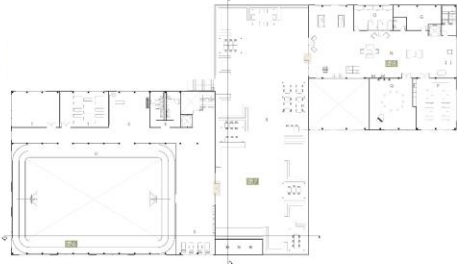
Study Area



Juice Bar and Kitchen



Level 1 Floor Plan



Level 2 Floor Plan



Main Entrance



Gym and Walking Track



Rooftop Patio



Rooftop Exercise Area



Thank You!

Questions and Comments

Works Cited

- Brown, J. D., & Fink, H. S. (2022). Planning for Biophilic Cities. *PAS Reports*, 602, 1–114.
- Green, K., & Acenas, I. (2020). *YOUTH CENTER TOOLKIT: CREATING RESOURCES FOR SAFE SPACES, YOUTH CENTERS, AND AFTER-SCHOOL PROGRAMS*. YouthPower2: Learning and Evaluation. <https://www.youthpower.org/resources/youth-center-toolkit-creating-resources-safe-spaces-youth-centers-and-after-school-programs>
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- U.S. Census Bureau. (n.d.). *U.S. Census Bureau QuickFacts: Elk River city, Minnesota*. Retrieved November 19, 2023, from <https://www.census.gov/quickfacts/fact/table/elkrivercityminnesota/INC110221>
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