

Davis County
Indoor Riding Arena
at the
Utah State University
Botanical Center
Proposal

Master Plan Concept

The key concept of the master plan is the creation of multiple identifiable focal points on the Botanical Center site. This multi-centric approach maximizes site utilization by providing clusters of facilities and natural elements for distinct uses in different areas.

Key drivers of the master plan concept include:

- the creation of three identifiable campus quads with distinct areas of emphasis: 1) events, 2) education and 3) youth education and recreation
- protection of the east-west viewshed through the site, to maximize views to the Wasatch Mountains and the Great Salt Lake
- multiple gateways that provide access to the site, and a Visitor's Center that serves as an intuitive front door
- gardens distributed throughout the east sector, creating a green ribbon at the edges of the Events and Education Quads
- reinforcement of the site's rural character by maximizing open space
- building placement that frames the campus quads and complements natural site features
- parking that is minimal but sufficient for needs, placed to minimize visibility
- a dry wash concept running from east to west through the site, with an integral trail and plantings that educate about native vegetation

PLAN ELEMENTS

- 1 Events Quad
- 2 Education Quad
- 3 Kaysville Education Center & Addition
- 4 ICLT
- 5 Amphitheater
- 6 Restroom/Maintenance Facility
- 7 Arboretum
- 8 Education Pavilion
- 9 Visitor Center
- 10 Terrace Garden
- 11 Dry Wash
- 12 Events Quad Parking Area
- 13 Youth Quad
- 14 Barn
- 15 Guest House
- 16 Ropes Course
- 17 Children's Garden
- 18 Central Maintenance Facility
- 19 Wetland Discovery Point
- 20 Garden View Pavilion
- 21 Utah House & Expansion
- 22 Kayak & Canoe Access
- 23 Interpretive Sign
- 24 Paved Multi-use Path
- 25 Welcome Sign
- 26 Education Garden



The northwest sector of the Botanical Center will focus on youth activities and facilities.
Major plan elements are described below.

06 - Restroom & Maintenance Facility. A 200 GSF building with visitor restrooms and maintenance shed space will be located near the Barn and north of the new Children's Garden. The restrooms will serve patrons visiting this area, and the maintenance portion will store gardening tools and maintenance materials to support this sector.

13 - Youth Quad. The open field at the north edge will host large youth-oriented events such as Baby Animal Days, Farm Field Days, and Boy Scout, 4-H and FFA gatherings, camps and field trip groups.

14 - Barn. The barn is anticipated to be around 15,000 GSF, with rest rooms and a substantial amount of storage space for 4-H and other groups that use the Youth Quad. The building may have informal learning space. The Barn will be a back-up venue when outdoor events have inclement weather. The existing parking area that serves Wetland Discovery Point will be expanded to serve the Barn, Youth Quad and Children's Garden.

15 - Guest House. An 8,000 GSF guest house is planned at the north boundary of the Botanical Center. It will provide accommodations for around 50 people in bunkhouse-style rooms and will have limited food preparation and serving facilities. The Guest House is anticipated to be used primarily for youth groups and youth-oriented activities. It will be accessed by a road-base access way extending from the barn, and will have limited adjacent parking for accessibility and service. North of the Guest House, screening vegetation will provide visual privacy for Guest House visitors and residences to the north.

16 - Ropes Course. The northwest corner of the site will contain a ropes course, to be used in conjunction with youth activities occurring in this sector. Fencing will control access to the course.

17 - Children's Garden. A Children's Garden will be developed south of the Youth Quad, near parking and visitor restrooms, for patron convenience. The Children's Garden and adjacent areas will incorporate creative ideas to engage and interest

children in gardening and the natural environment. Consideration should be given to incorporating a natural-scape play area for children in this area, with adjacent seating for adults that has clear visibility to the play area.

18 - Central Maintenance Facility. This facility will store bulk materials used in the care and maintenance of the Botanical Center, such as soil, gravel and bark mulch. Configured as side-by-side bins with open tops and fronts it will be built into the western berm. It will require a hose-bibb for cleaning gardening tools and materials. Large trucks deliver the bulk materials. The area immediately east of the bins will be designed to allow truck access with ample turnaround space. Landscaping between the maintenance area and the Children's Garden to the north should be designed for visual separation between these two areas.

19 - Wetland Discovery Point. Wetland Discovery Point is an existing, highly sustainable facility that is used heavily for education. No major changes are required, but minor improvements are desired, such as creating teaching breakout areas and enhancing acoustic absorption in the primary open space. The existing access way and parking in this area will be augmented to support the new venues and activities for the northwest sector. A recently constructed pavilion will serve as an outdoor classroom for youth and school field trips and education.

22 - Kayak & Canoe Access. Large concrete steps at pond edges will provide convenient water access for canoes and kayaks, and places to wade in the water or sit and enjoy the wetlands environment. These elements will help prevent erosion of pond banks. Four access points are planned, one in each pond. One should be planned for wheelchair accessibility, most likely in the vicinity of the 9/11 Memorial.

23 - Boardwalk/Interpretive Signs. Areas adjacent to the ponds that may be submerged in water should receive boardwalks to enhance their accessibility. Interpretive signs can be incorporated that educate visitors about the wetlands ecology.



Northwest Section

NORTHWEST SECTOR PLAN ELEMENTS 04



Youth Activities and Facilities

- 06: Restrooms
- 13: Youth Quad – Open Space
- 14: Barn
- 15: Guest House
- 16: Ropes Course
- 17: Children's Garden
- 19: Wetland Discovery Pavilion
- 22: Kayak and Canoe Dock
- 23: Boardwalk



Proposed Location

Youth Activities and Facilities

- 06: Restrooms
- 13: Youth quad – open space
- 14: Barn (Indoor Arena)
- 15: Guest house
- 16: Ropes course
- 17: Children’s garden
- 19: Wetland discovery pavilion
- 22: Kayak and canoe dock
- 23: Boardwalk
- 24: Parking
- 25: Outdoor riding arena
- 26: Corrals
- 27: Trailer/truck parking

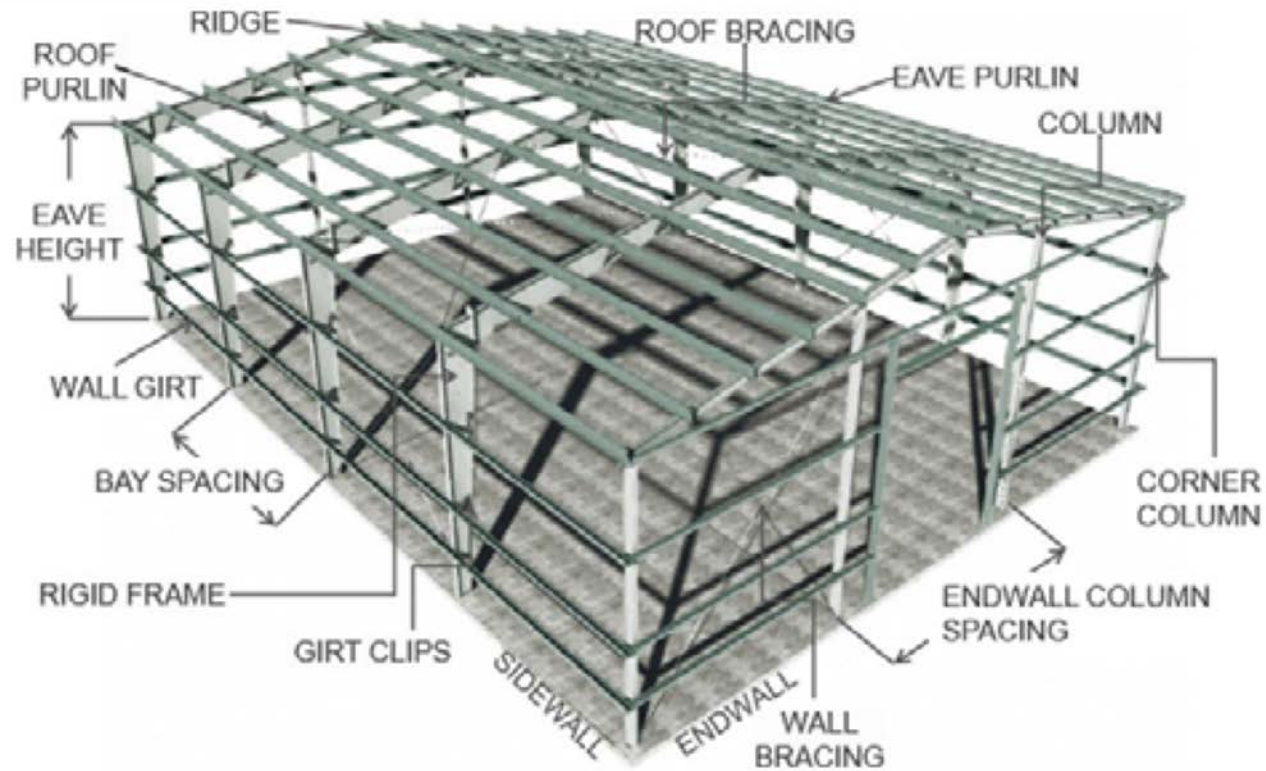
Location Details

- Parking Lot
 - 50 new stalls
 - 40 existing
 - 90 total
- Truck/trailer parking
 - Road base/gravel
 - Approx. 20,000 sq. ft.
 - Room for up to fifty 20' trailers
- Restrooms needs in arena:
 - Men's: 4 urinals, 4 toilets, 4 wash basins
 - Women's: 8 toilets, 4 washbasins
- One outdoor teaching pavilion (existing)
- Outdoor riding arena (200' X 100')
- Gate at entrance (existing)

Indoor Arena Detail



Clear Span – Column Free Building



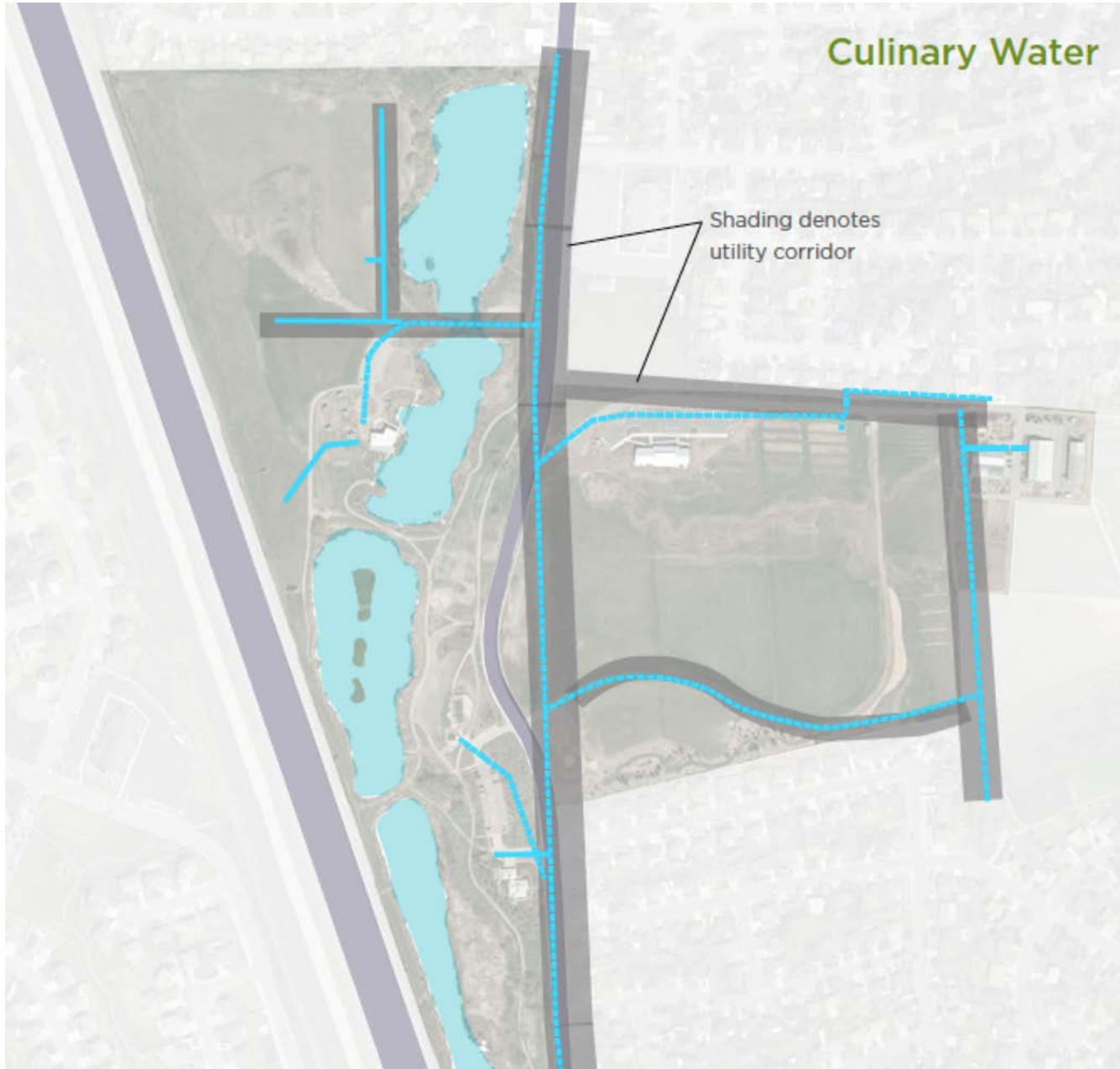
Dimensions 250 X 150 ft.

Materials Costs

- Specs:
 - Building dimensions 150'0" x 250'0" x 18'0" with a 1/12 roof slope
 - Complete roof and wall cladding
 - Complete structural steel package
 - All hardware and materials needed to erect
 - (2) 12'0" x 14'0" framed openings
 - (4) 3'0" x 7'0" lock out steel walk doors
 - Full cover trim package (rake, eave, corner, framed openings)
 - Delivery to job site
 - Stamped and sealed structural plans above grade
- **Total materials cost = \$348,765.00**

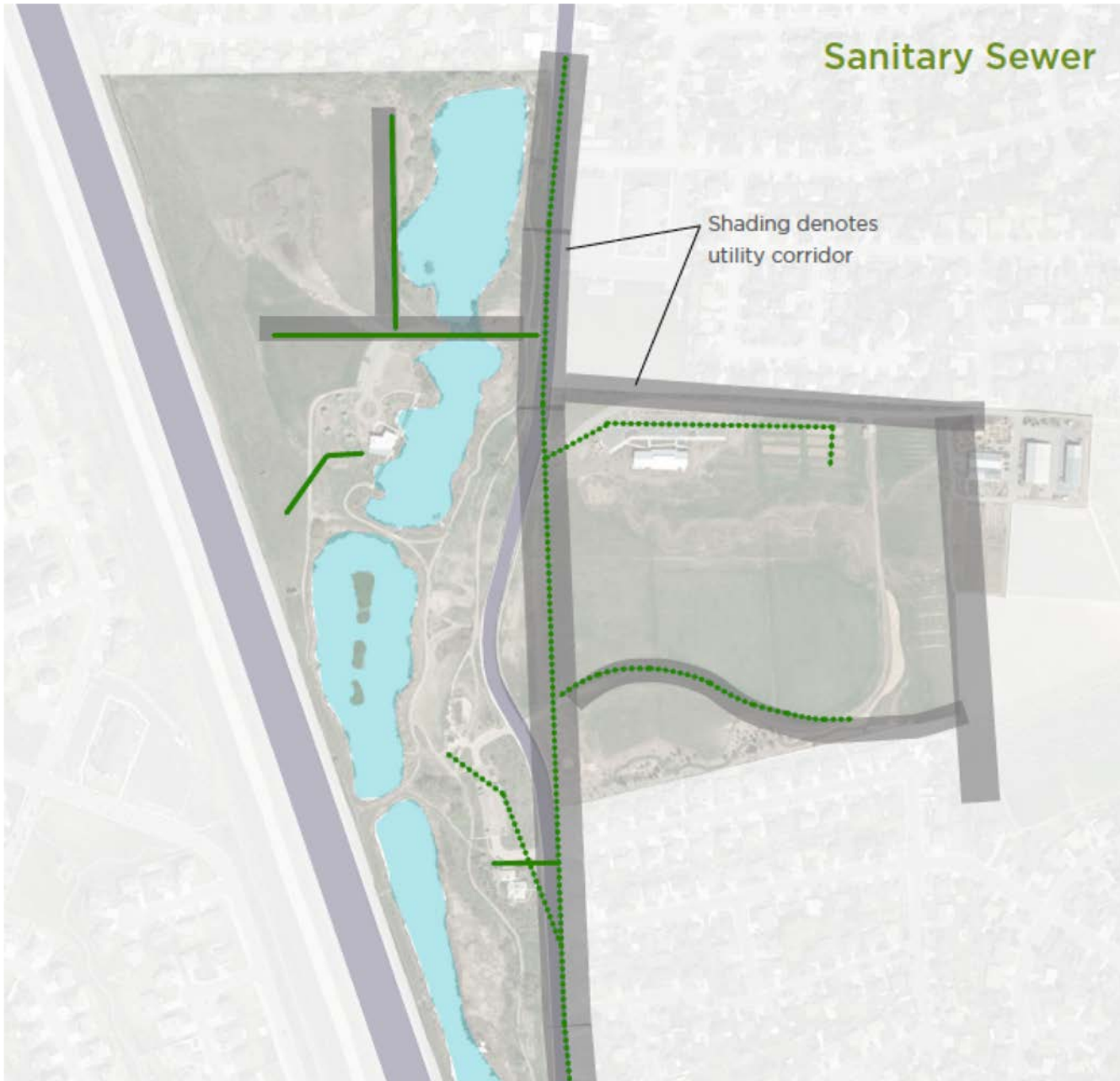
Construction Costs

- Specs
 - No electrical/MEP included
 - General Conditions for Contractor \$20K/Month x 3 = \$60,000
 - Earthwork: \$2.5/SF x 37,500 sf = \$93,750
 - Footing & Foundation Concrete: \$ 7/SF x 37,500 sf = \$262,500
 - Steel Erection: \$ 8/SF x 37,500 sf = \$ 300,000
- Subtotal = \$ 656,250
- GC Fee: \$ 45,000
- **Total: \$ 701,250** (37,500 sf = \$18.70/sf)



Culinary Water

1. Already stubbed to within 100 ft of location
2. Supply bathrooms and drinking fountains
3. 2" meter
3. Cost:
 - Impact Fee = \$4,737
 - Connection = \$1,000
 - Plumbing = \$35,000
4. Total Cost: \$40,737

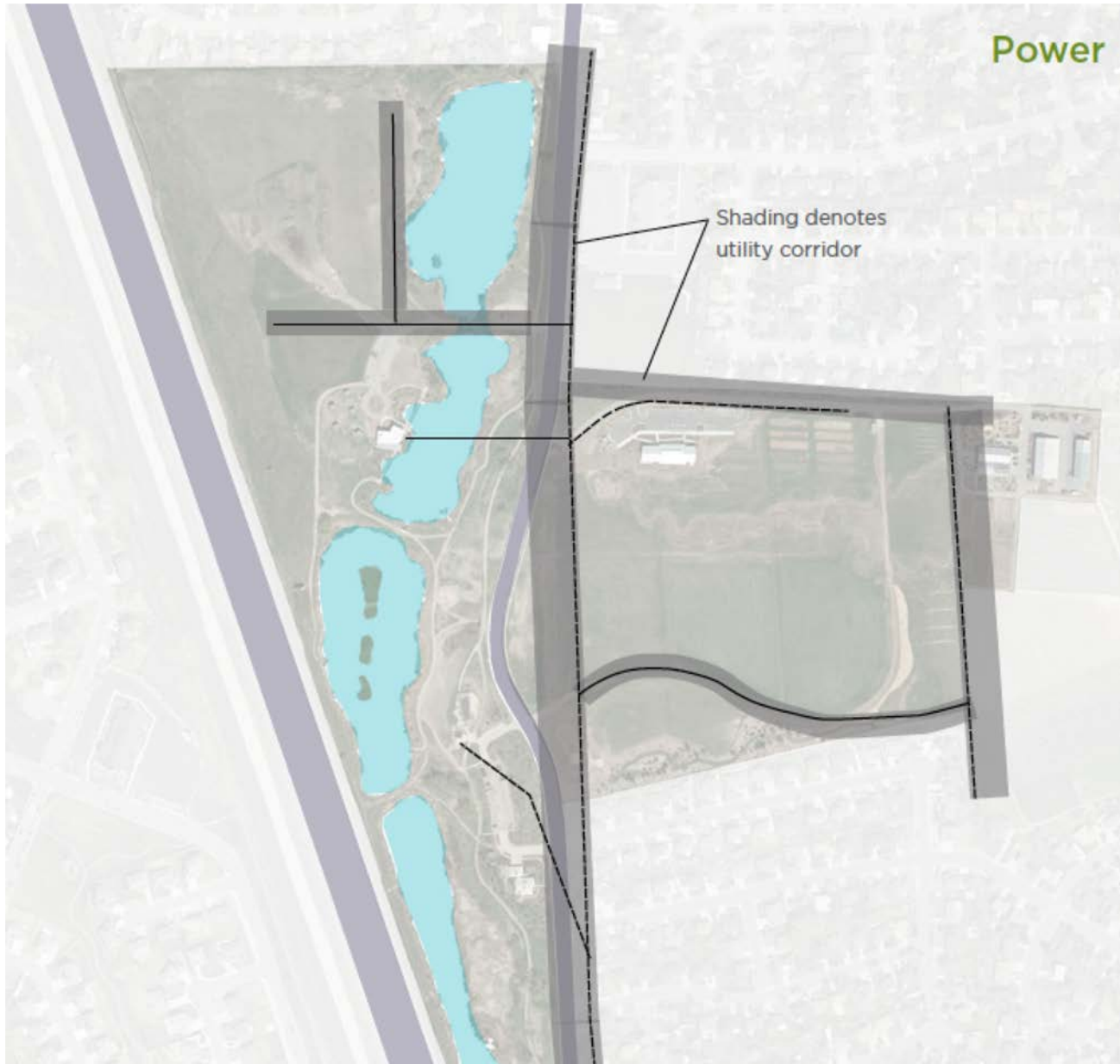


Sanitary Sewer

Sanitary Sewer

1. Already stubbed to within 100 ft of location
2. Requires pumping station to move sewage uphill
3. Cost:
 - Impact Fee = \$1,700
 - Pumping Station = 20,000
 - Line Extension = \$93,750
4. Total Cost = \$115,450

Costs in red are estimates



Power

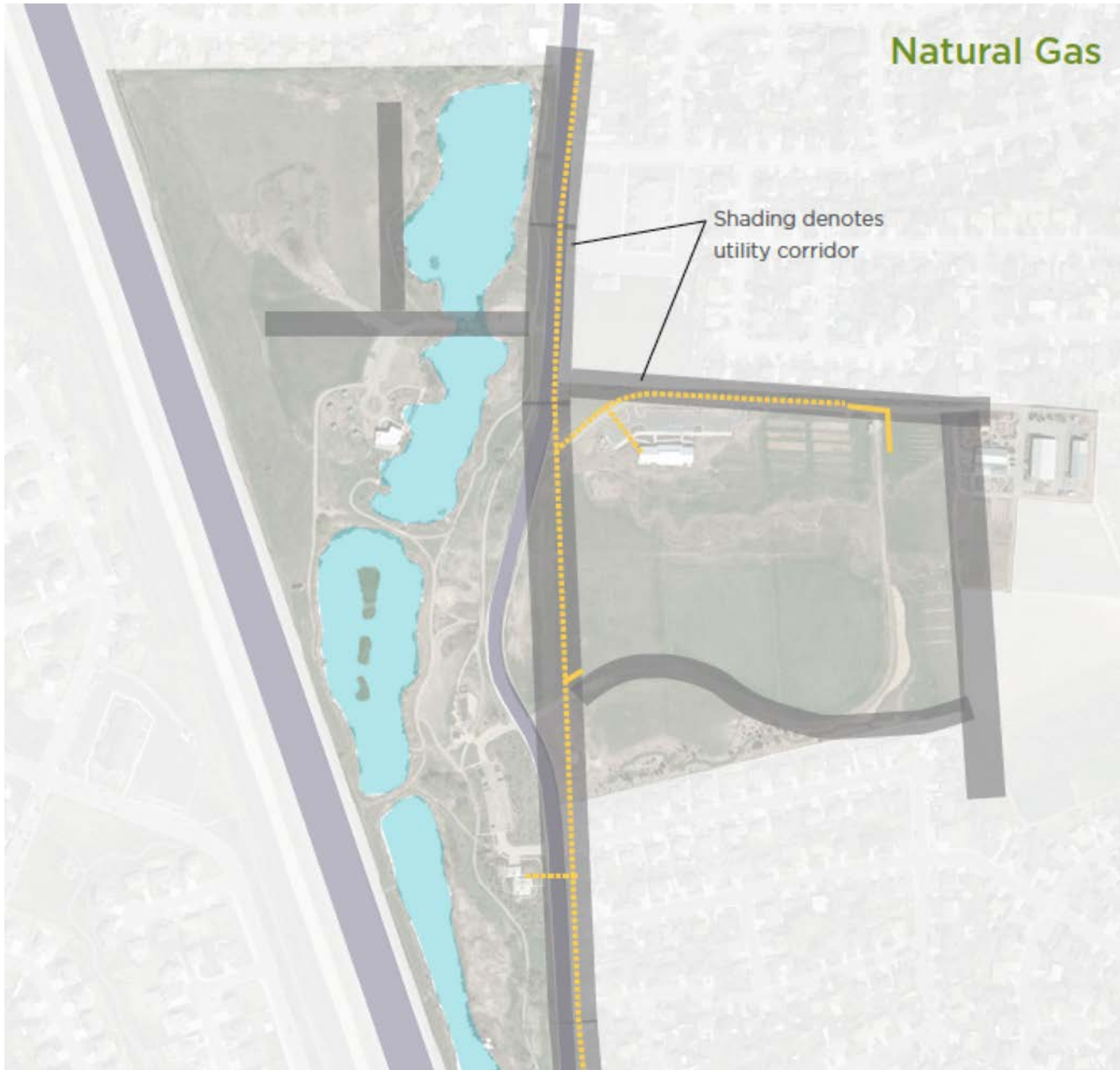
1. New connection more than 750 ft., under road, between ponds
2. Building needs:
 1. New 400 amp CT an, meter base, panelboard
 2. Trenching, conduit and wire
 3. 50 new High Bay LED light fixtures
 4. 3- phase power and starters for 4- big exhaust fans
 5. 4- Outside Wall Pack LED lights
 6. 10- GFI outlets around the arena
 7. Power for the rest rooms

4. Cost:

Impact = \$5,047

Wiring, panels, etc. = \$58,400

4. Total Cost = \$63,447



Natural Gas

Natural Gas

1. Only required if used to heat water or building
2. Supply gas to heaters and hot water supply
3. Radiant tube heaters (250 feet)
4. Cost:

Run new line = *\$10,000

Connection = *\$2,500

Installation = \$15,000

Heaters = *\$16,000

4. Total Cost: \$43,500

* Estimates based on web sites and Dominion Energy

Indoor Arena Construction Costs*

	Units	Price per unit	
Materials	One clear span indoor arena		\$348,765
Construction	37,500 sq. ft.	\$18.70/sq. ft.	\$701,250
Electrical	37,500 sq. ft.	\$1.50/sq. ft. + other costs	\$63,447
Natural Gas			\$43,500
Bathrooms	20 stalls	\$2,385	\$47,700
Plumbing	4 exterior spigots, 2 interior, bathroom		\$40,737
Water connection 8", fire hydrant	750 feet		\$20,000
Sewer ~	750 Linear foot	\$125 + other	\$115,450
Bleachers	4 - 5 row, 33' (392 seats)	\$7,692 per	\$30,768
Drainage/Excavation			\$20,000
Misc. costs			\$50,000
TOTAL			A15 \$1,481,617

~ Estimations based on averages in county or city

* Estimates based on pricing as of 7-1-2019

Construction Assumptions

- Davis County will donate arena soil and help move it to USUBC
- Davis County will donate panels from fairground
- Utah State University Botanical Center will donate land for construction
- Utah State University will make the indoor arena available for public use

Operation and Maintenance

Activity	Frequency	Unit Cost	Annual Costs
Power	Monthly	\$. 0803/kWh	\$4,500
Water and Sewage	Monthly		\$20,000
General maintenance	Monthly	\$15/hour	\$5,000
Natural Gas	Monthly	\$5.77/1,000 cu. ft.	\$25,000
Grooming soil	Twice per week	\$25.00	\$2,600
Reservations and management	20 hrs/week	\$15/hour	\$15,600
Total			\$72,700

Grooming = Labor + diesel + equipment

Maintenance Assumptions

- Utah State University will manage the indoor arena
- Davis County will support the maintenance with in-kind facilities help i.e. plumbing, electrical, etc.
- Utah State University will look at ways to reduce maintenance costs

Possible Revenue

Event	Revenue per event	Monthly	Annual
Mountain Shooting	\$150	\$650	\$7,800
Barrel Racing	\$300	\$300	\$3,600
Team Roping	\$300	\$300	\$3,600
Dog shows/events	\$600		\$2,400
Open horse shows	\$600		\$2,400
4-H shows	\$250		\$1,250
Other 4-H events	\$150	\$150	\$1,800
Weddings/families/etc.	\$600	\$600	\$7,200
Total			\$30,050

Rentals = \$75.00/hour or \$600.00/day

Based on current rental estimates from Davis County and other indoor arenas

Revenue vs. O and M costs

Item	Source	Monthly	Annual
Revenue	Rentals		\$30,050
O and M			\$72,700
Net			- \$42,650

Savings Ideas

- Sky lights for lighting
- Kaysville City to waive or help offset power, water and sewer costs (\$24,500)
- Shared tractor and equipment with the USU agricultural experiment station (\$500)