

whks

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FEASIBILITY STUDY OF CSAH 28 AND BEAVER LAKE PARK IMPROVEMENTS

Prepared for:
Steele County, MN Highway Department
Steele County, MN Park & Recreation Department

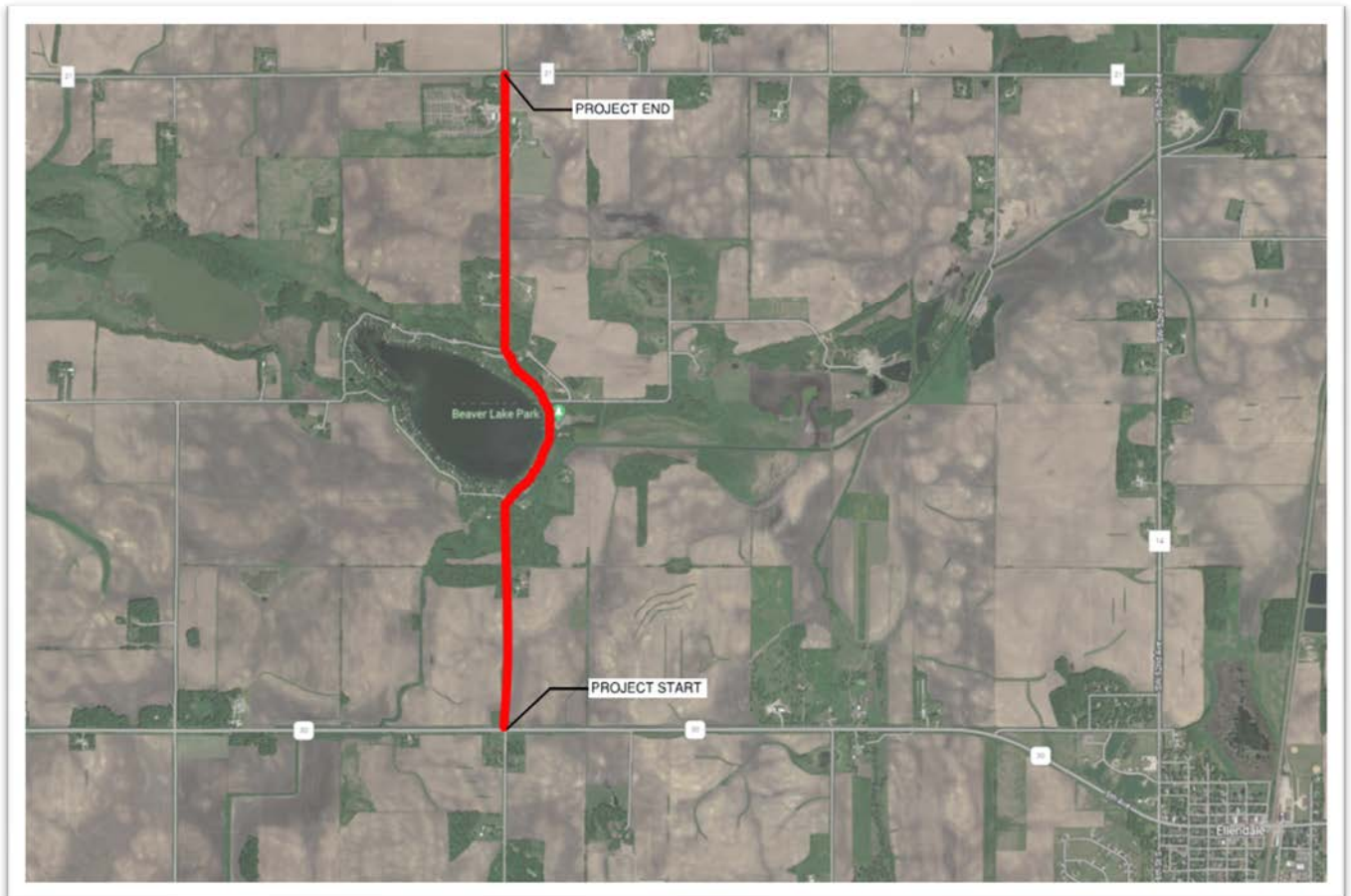


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Project Location

County State Aid Highway 28 (CSAH 28) is located approximately 2 miles west of the City of Ellendale, MN. Proposed pavement improvements begin at the Trunk Highway 30 (TH 30) intersection and continue to the CSAH 21 intersection, approximately 2.1 miles in length. Proposed improvements to Beaver Lake Park occur at the properties adjacent to Beaver Lake and include roadway improvements from the intersection of South Beaver Lake Road to the intersection of North Beaver Lake Road/SW 136th Street.



Map of CSAH 28 and Beaver Lake

Project Need

Existing Roadway Pavement

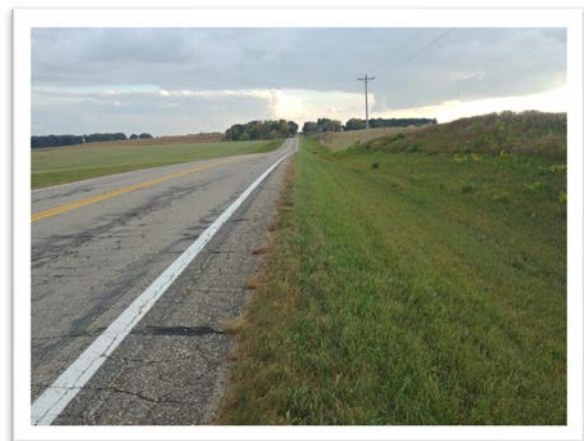
This 2.1-mile portion of CSAH 28 is classified as a Minor Collector. The most recent traffic count was taken by MnDOT in 2019 and recorded an Annual Average Daily Traffic (AADT) volume of 350 vehicles per day (vpd). CSAH 28 has significant seasonal and weekend traffic fluctuations due to park and beach visitors, in addition to seasonal residents travelling to lake homes around Beaver Lake. Traffic counts taken by Steele County have recorded volumes as high as 660 vpd.

The existing posted speed limit of CSAH 28 is 30 miles per hour (mph) in the area along Beaver Lake, extending from the intersection of South Beaver Lake Road to the intersection of North Beaver Lake Road. The speed limit along the remaining tangential portions of CSAH 28 is not posted, but vertical curves along the existing roadway profile have design speeds ranging from 40 mph to 50 mph.

The existing roadway section along CSAH 28 contains 11' paved driving lanes, a 2' granular shoulder, and a 1:3 graded in-slope in each direction. The existing shoulder width and in-slope grade do not meet the current MnDOT State Aid Minimum Design Standards for Rural and Suburban; New or Reconstruction Projects. A wider shoulder runs parallel to CSAH 28 along the park area but offers limited access for pedestrians to walk along the road to access the park and lake, resulting in numerous pedestrian safety concerns voiced by the public. There is also a very steep and tree-lined in-slope running adjacent to Beaver Lake along the north portion of the lake, with no current safety barrier installations. There is no significant recorded crash history along this portion of the road, but there have been numerous complaints from the public involving vehicles running off the road that go unreported.

There is a bridge structure (Bridge #89080) along this portion of CSAH 28 that is structurally deficient and is scheduled to be replaced as part of a separate project. The bridge is located outside of the Beaver Lake Park improvement area addressed in this report and would not be part of the proposed roadway realignment.

The pavement along the CSAH 28 corridor was originally paved in 1960, then overlayed in 1976. Since the latest overlay, the pavement is currently at its end of useful life and in need of reconstruction. The existing pavement is showing several signs of deterioration, including transverse, longitudinal, and alligator cracking, and rutting. The frequency and severity of deterioration reduces driver comfort and if left untreated, could lead to vehicle damage and impact driver safety.



CSAH 28 – Existing Pavement Deterioration

Existing Park Facilities

Beaver Lake Park is a 17.3-acre park bisected by CSAH 28. On the east side of the highway, the park has an unlined asphalt surface parking lot with approximately 120 spaces, a concessionaire/bathhouse building that receives limited use, portable restrooms, a small playground, a medium-sized picnic shelter, and a sand volleyball court. The existing park amenities were originally installed in the late 90's, meaning they are over 20 years old and considered at their end of useful life. The concessionaire building has an approximate useful life of 40 years, with renovations needed around 20 years, meaning the structure at Beaver Lake Park is due for renovation maintenance at a minimum. East of the parking lot, informal and unpaved trails wind through a field and wooded hillside. The groomed park area is turf and has many mature ash trees that will likely succumb to emerald ash borer over the next decade.



Existing Picnic Shelter



Existing Playground Equipment

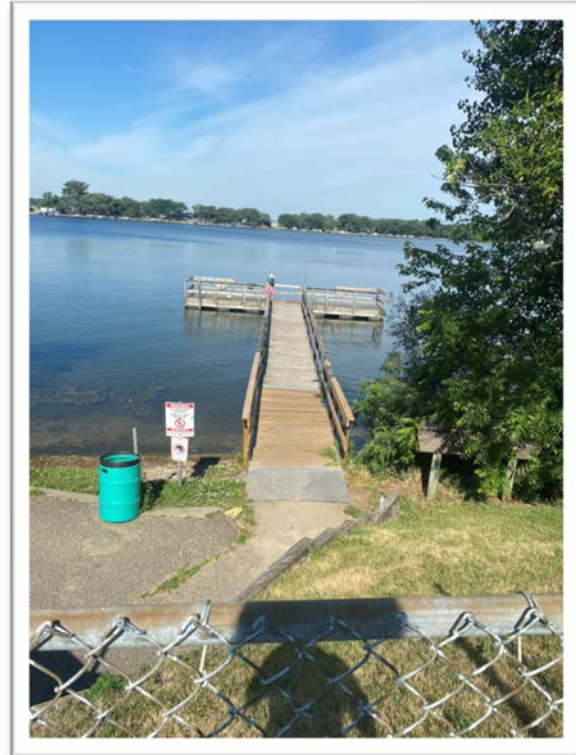


Existing Concessionaire

A narrow culvert functions as a trail underpass beneath CSAH 28, allowing safe passage between the park on the east side of the highway and the narrow strip of beach and fishing pier on the west side of the highway, along the shore of Beaver Lake. The structure is a very confined space with no lighting installed, creating a dark and unappealing crossing. The underpass does not currently meet State Aid Design Standards for an Americans with Disabilities Act (ADA) compliant underpass.



Existing Pedestrian Tunnel



Existing Fishing Pier

A 6' asphalt trail spans the length of the beach and is shored up in places by a wooden retaining wall. The park's boat launch is located south of the beach. Beaver Lake's outlet is located about midway along the shoreline's narrow beach. The culvert often gets silted in by wave action, which has the potential to raise the lake's water level. A culvert takes the water beneath CSAH 28 to a drainage ditch that flows east into a unnamed stream and Jurisdiction Ditch 2, a tributary to the Straight River.



Existing Beach Trail



Existing Outlet

The boat launch at Beaver Lake Park does not have a connected adjacent parking lot, resulting in inconvenient queueing practices during peak use. To launch, boaters must put their boat in the water, drive north on CSAH 28 and park their truck and trailer in the park's surface lot, then walk 800+ feet back to their boat. People will often walk along the highway shoulder rather than using the trail underpass. This practice has the potential for pedestrian-vehicular conflict, especially when multiple boaters are trying to exit the lake while trucks and trailers queue along the highway's shoulder, waiting their turn to pick up their boat.

The current configuration of the boat launch requires drivers to back their vehicle and trailer from the highway down into the lake. The boat launch is also located along a tight horizontal curve and steep hill. The combination of these two factors creates a restricted line of sight for higher speed drivers traveling along CSAH 28 and creates a higher risk for vehicle collisions.

The pavement at the boat launch is severely deteriorated and in need of repair.



Existing Boat Launch and Dock

Proposed Concept Alternatives

Three different park and roadway layouts were explored as alternatives to the existing site conditions to determine public appetite for realignment of CSAH 28 and desire for additional park amenities as part of the potential road realignment. As discussed on Page 4 of the report, the existing pavement along the entire corridor has reached the end of its useful life and would need to be improved regardless of what is done to the Beaver Lake Park area. This provides an opportunity to upgrade and improve the park while minimizing additional road costs.

Alternative 1B – Use the Existing Roadway Geometry of CSAH 28

The first alternative considered involves utilizing the existing alignment of CSAH 28 to minimize Right of Way (ROW) acquisition and impacts to adjacent property owners. A minor alignment shift to the east accommodates a 10' wide trail adjacent to the roadway on the lakeshore side.

This concept expands the existing parking lot, striping it to accommodate 75 spaces for cars and 13 spaces for truck/trailers. The roadway is graded to provide clearance for construction of a 41 ft. x 38 ft. Continuous Concrete Span (CCS) bridge to provide a direct access for pedestrians to access the beach, fishing pier, and boat launch. The underpass also allows for safe, grade-separated pedestrian access between the park amenities and parking lot on the east side of CSAH 28 and the boat launch, narrow stretch of beach, and relocated fishing pier on the west side. Adjoining the boat launch and parking lot eliminates many of the truck/pedestrian conflicts that are currently experienced by the separated configuration.

Existing Park amenities are preserved in Alternative 1B until the end of their useful life, at which point they will be replaced with similar components. Replacements for the ash trees should be planted as soon as possible to maximize growth before the mature trees must be removed. A new “sunset overlook” with views across Beaver Lake replaces the vacated boat launch on the south side of the park. No changes are proposed to the lake outlet.

A display of Alternative 1B and a 3D model of the bridge are in Appendix A.

Alternative 2A – Modest Realignment of CSAH 28

A second alternative involves shifting a smaller portion of CSAH 28 to the east into a hay field, creating space to construct a dedicated 13-stall boat trailer parking lot adjacent to a new boat launch, which is relocated slightly north of its existing location. This alignment would require acquisition of a portion of the hay field. The hay field is also delineated as a wetland, which may require the purchase of wetland banking credits to offset its redevelopment. A 10' wide bituminous trail would be constructed running adjacent to CSAH 28 from the intersection of South Beaver Lake Road to the intersection of North Beaver Lake Road. The trail would break away from CSAH 28 where the road diverges from the lake shoreline and winds through the park.

The existing north parking lot could be restriped to accommodate up to 120 vehicles and the current entry drive is moved slightly north. A new 10 ft. x 10 ft. Reinforced Concrete Box (RCB) Culvert structure would be installed to provide a pedestrian underpass. The new underpass would maintain a safe, grade-separated crossing for visitors between the existing park amenities on the east side of CSAH 28 and the expanded beach and picnic grounds on the west side.

Existing Park amenities are preserved in Alternative 2A until the end of their useful life, at which point they will be replaced with similar components. Replacements for the ash trees should be planted as soon as possible to maximize their growth before the mature trees must be removed. A new picnic shelter and small beach area are proposed along the new boat trailer parking lot. The lake outlet is proposed to be daylighted west of CSAH 28 with a lake elevation control structure. A natural buffer

planting and stormwater feature will be constructed between the outlet and the new parking lot. A small bridge over the outlet will maintain trail access across the channel.

A display of Alternative 2A is in Appendix A.

Alternative 2B – Major Realignment of CSAH 28

Alternative 2B is a major realignment of CSAH 28 to the east, allowing all the park amenities to be located on one side of CSAH 28, except for the existing north parking lot. This alignment requires acquisition of the hay field to the east of the park, which is a delineated wetland and may require wetland banking credits to offset its development. A 10' wide bituminous trail would be constructed running adjacent to CSAH 28 from the intersection of South Beaver Lake Road to the intersection of North Beaver Lake Road. The trail would break away from CSAH 28 where the road diverges from the lake shoreline and winds through the park.

Acquisition of the entire hay field provides space to build an improved boat launch with 13 spaces of adjacent truck and trailer parking, and a parking lot with 70 spaces for park users that does not require an underpass to reach the beach or park amenities. The existing parking lot to the north is reduced in size due to the road realignment but can be reconfigured to provide more than 70 spaces for overflow parking. A dry hydrant is included in this concept as requested by the Ellendale Fire Department to improve fire control.

The fishing pier is moved slightly north from its existing location. A new picnic shelter and expanded beach are proposed adjacent to the new south parking lot. The lake's outlet is proposed to be daylighted west of CSAH 28 with a lake elevation control structure. A natural buffer planting and stormwater feature will be constructed between the outlet and the new parking lot. A small bridge over the outlet will maintain trail access across the channel..

The CSAH 28 realignment preserves all existing park features except for the volleyball court. The playground, picnic shelter, and concessionaire can remain in place until the end of their useful life, or whenever funds are allocated for their replacement. New amenities could include the following:

- Park pavilion structure (including picnicking, showers, and restrooms)
- Larger playground and equipment
- Volleyball court
- Basketball half court
- 4 Pickleball courts
- Expanded beach
- 180 ft. x 100 ft. open field for additional activities

Two displays of Alternative 2B are in Appendix A. The first display shows Phase 1 of the project, leaving the existing park amenities to the north intact while the roadway is re-aligned. The second display shows Phase 2 of the project, where all the new park amenities have been added or replaced.

Roadway Alternatives Outside of Beaver Lake Park

Two alternatives were explored for improving the remaining CSAH 28 roadway outside of the Beaver Lake Park area.

The first alternative involved using a Full Depth Reclamation (FDR) process. The existing pavement is crushed up and blended with existing aggregate base, then re-used as a base for new pavement, and a new layer of bituminous is paved over the reclaimed base. This alternative would utilize the existing roadway alignment and cross section to meet MnDOT State Aid Reconditioning Design Standards but would not meet current MnDOT State Aid New Construction/Reconstruction Design Standards.

It should be noted that the Reconditioning option would require additional staging. State Aid requirements for a Reconditioning project will only allow changes to the horizontal and vertical alignment for up to 20% of the total project length. The realignment of the Beaver Lake Park area would exceed the 20% rule and require the entire Corridor to meet New Construction/Reconstruction Design Standards. The project could be separated into two smaller projects in order to keep the Beaver Lake Area as a Reconstruct project while allowing the area outside Beaver Lake to remain a Reconditioning Project, where the two projects are staged to be constructed in different years.

The second alternative would involve removing the existing pavement and constructing a new bituminous pavement along the existing roadway alignment. The roadway cross section would be modified to include wider shoulders and a flatter grading slope to meet MnDOT State Aid New Construction/ Reconstruction Design Standards.

Permits and Acquisitions

Permits

The project is anticipated to require the following permits:

- **Army Corps of Engineers Section 404 Permit** due to construction work adjacent to Beaver Lake, and construction work affecting identified wetlands
- **Minnesota DNR Public Waters Work Permit** due to construction work adjacent to Beaver Lake, and construction work affecting identified wetlands
- **Wetland Conservation Act Permit** due to construction work in Minnesota wetlands that are not identified as public waters.
- **MPCA NPDES Construction Stormwater Permit** for construction work disturbing 1 or more acres of soil.
- **MnDOT Limited Use Permit** for paving and grading construction work within state right of way at the intersection of TH 30

Additional permits may be identified during the design process.

Acquisitions

The project is anticipated to require the following acquisitions:

- **Fee Acquisition** will be needed for Alternatives 2A and 2B to purchase land from the adjacent property to the south of the park. This will be necessary to relocate CSAH 28 and accommodate additional space for proposed park amenities.
- **Temporary Easement** will be needed for Alternatives 1B, 2A, and 2B for grading impacts to adjacent property owners to the north and south of the park to accommodate the proposed roadway cross section.
- **Wetland Credits** will need to be purchased for Alternatives 2A and 2B due to impacts to existing wetlands to the south of the park.

Proposed Alternative Cost Estimates

Costs for the project were separated into two categories: the cost of roadway and park improvements along Beaver Lake, and the cost of rural pavement improvements along the remainder of the corridor. each alternative is shown in Figure 1 and Figure 2 below.

Beaver Lake Area

	ALTERNATE 1B	ALTERNATE 2A	ALTERNATE 2B
PHASE 1			
BASE ROADWAY COST	\$1,180,000	\$1,230,000	\$1,470,000
BASE BRIDGE COST	\$1,330,000	\$250,000	-
BASE PARK COST	\$1,200,000	\$1,130,000	\$1,670,000
TOTAL BASE COST	\$3,710,000	\$2,610,000	\$3,140,000
POTENTIAL FUTURE PHASE(S)			
REPLACE EXISTING PARK AMENITIES COST	\$1,410,000	\$1,410,000	-
NEW PARK AMENITIES COST	\$110,000	\$450,000	\$2,910,000
TOTAL FUTURE PHASE(S) COST	\$1,520,000	\$1,860,000	\$2,910,000
GRAND TOTAL COST	\$5,230,000	\$4,470,000	\$6,050,000

ANNUAL PARK OPERATION AND MAINTANENCE COST	\$5,000	\$10,000	\$12,000
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Figure 1: Cost Estimate for Roadway and Park Improvments along the Beaver Lake Area

Area Outside Beaver Lake

	FULL DEPTH RECLAMATION ALTERNATE	RECONSTRUCT ALTERNATE
TOTAL ROADWAY COST	\$1,350,000	\$2,460,000

Figure 2: Cost Estimate for Pavement Improvments outside the Beaver Lake Area

A detailed breakdown of cost estimates for each alternative is in Appendix B.

Engagement and Input

Multiple meetings were held with the public and residents of Beaver Lake to display the proposed alternatives and gain feedback on each layout:

In person Public Meeting #1

The first Public Meeting took place on September 9, 2021, at the NRHEG Elementary School in Ellendale. The meeting aimed to better understand how residents and visitors currently use the various park amenities, the boat launch and the lake, and what improvements they would like to see. The meeting was attended by 15 members of the public. Comments were mainly centered around the desire to add additional facilities for activities at the park, the dangers of pedestrian travel along CSAH 28 by the lake, the desire to have a trail running along CSAH 28 from North Beaver Lake Rd. to South Beaver Lake Rd., and the difficulties of using the existing boat launch. A complete list of attendees and meeting minutes is in Appendix C.

In person Public Meeting #2

A second Public Meeting took place on February 25, 2022, at the Ellendale Community Center in Ellendale. Comments from the first meeting were discussed and incorporated into the 3 proposed alternatives to the park layout. Displays for the 3 layouts were presented to attendees and staff recorded the comments that the public had for each display, in addition to which layout attendees preferred the most. Most of the comments and support were for Alternative 2B. A complete list of comments is in Appendix C.

A social pinpoint website was also set up for the duration between both Public Meetings and provided the public with the opportunity to post comments in real-time during the conceptual development process. A log of comments is in Appendix C.



Discussion with the public during the September and February meetings

Recommended Alternative

Alternatives were compared based on the conceptual cost of construction, benefit and utilization provided to the public, and feedback received from the Public Information Meetings. A Decision Matrix with the three alternatives was also compiled to visually compare the benefits and costs of each option. The Decision Matrix is in Appendix D.

Roadway costs were similar for all three alternatives, with Alternative 2B having the highest cost due to the longest roadway length. Alternative 1B had a high bridge cost due to the 41'x 38' CSS bridge structure to provide boat launch access underneath CSAH 28 while Alternative 2A had a much lower bridge cost since pedestrian only access could be achieved using a 10' x 10' RCB. Alternative 2B had no structure cost. Alternative 2A and 2B had similar base park costs, while Alternative 1B had the lowest base park cost since minimal site work was needed to re-align the roadway. The overall base construction cost was highest for Alternative 1B, while Alternatives 2A and 2B had similar costs (with Alternative 2A having the lowest cost). Alternatives 1B and 2A had the same added park cost to replace the existing park amenities, while Alternative 2B had a higher added park cost to accommodate the extra park amenities. Alternative 2A had the lowest grand total cost, while Alternative 2B had the highest grand total cost.

Construction of park amenities could be phased in all three alternatives. When roadway construction begins, the park can be phased to only construct the park items necessary for the parking lot, boat launch and pedestrian trail access to function after the roadway has been reconstructed. The existing park amenities like the concessionaire, picnic structure, playground, etc. could be maintained in their existing locations and replaced at a future date. The additional amenities shown in each alternative could also be added at any time after roadway construction has been completed, and independent of the replacement of existing amenities. This phasing approach would lower the front end construction cost of the park, allow additional time to secure funding grants or additional funding sources for park amenities, and keep park amenities open to the public between phases.

Alternative 2B provides the most benefit and utilization to the public with the addition of new park facilities, the orientation of parking access, and the pavement quality of CSAH 28. Alternative 1B provides the least utility with the lack of new park facilities, but improves access to the lake and quality of the pavement along CSAH 28.

Response from the public was mainly positive for Alternative 2B due to new park facilities added to Beaver Lake Park and the ease of accessing the facilities without crossing CSAH 28. Alternatives 2B and 2A would require ROW acquisition from the current landowner, who has been receptive of the acquisition needed for both alternatives.

Alternative 2B was identified as the preferred option because it provides the most utility and benefit to the public relative to the proposed costs. The new park amenities could be added after the roadway reconstruction, as funding becomes available. Alternative 2B also provides the safest layout for users to access park facilities both on land and water without needing to cross CSAH 28.

The Full Depth Reclamation alternative was the recommended pavement improvements outside of the Beaver Lake area because it has a lower cost and less construction impacts while still providing a quality pavement section. The Reconditioning Design Standards eliminated the need to widen the shoulders of CSAH 28 and eliminated the grading impacts to meet State Aid Reconstruction Design Standards. The section of CSAH 28 outside of Beaver Lake has a low traffic volume (350 vpd in 2019) and a limited history of vehicle crashes, which does not support an immediate need for the safety benefits provided from widened shoulders and flattened grading. The additional funds that would be needed to reconstruct a low volume and low crash history road could instead be spent on higher priority projects in the County.

Grant and Funding Opportunities

Roadway Funding

State Aid Funds

State Aid Funding is used by counties and cities for reconstruction, construction, and maintenance projects on designated state aid routes. Funds can be spent on a wide variety of roadway and structural items. The amount of funding available each year varies and is determined using a distribution formula that is established by statutes and the respective county and city screening boards.

Local Road Improvement Program (LRIP)

LRIP provides funding to local agencies for construction, reconstruction, and reconditioning projects with regional significance. Funding is split between the TH Corridor Projects Account, Local Road Account for Routes of Regional Significance, and the Rural Road Safety Account. Items eligible for funding include any reasonable elements of roadway construction, and includes many landscaping, fencing, lighting, and other aesthetic items.

State Park Road Account (SPRA)

SPRA provides funding for construction, reconstruction, and improvement of CSAH, county roads, city streets, and town roads that provide access to public lakes, rivers, state parks, state campgrounds, and other outdoor recreation units. Both construction and right of way work is eligible for funding, including wetland mitigation, if included as part of the construction contract.

Federal Funds – Transportation Alternatives Program (TAP)

TAP funds include projects that were formerly eligible as transportation enhancements, Scenic Byways, Safe Routes to School, Recreational Trails, Historic Bridges, and other non-traditional transportation projects.

Multimodal Projects Discretionary Grants (MPDG) – Rural Surface Transportation Grant

The MPDG Rural Surface Transportation Grant is part of the Infrastructure Investments and Jobs Act (IIJA). Funds are used to improve and expand transportation infrastructure in rural areas to increase connectivity, improve safety, generate economic growth, and improve quality of life.

Local Option Sales Tax

The County has approximately \$2,000,000 in funds available from an additional local sales tax that could be used for additional funding. This funding source should be considered as a last resort, and other grant and/or funding opportunities should be explored before using this source.

Park Funding

Legacy Funding

Commonly known as the Legacy Grants, this program assists with acquisition, restoration, development and engagement in regionally significant parks and trails, as designated by GMRPTC. There is no minimum or maximum request amount; a local match is not required but encouraged. This grant program is funded through the Clean Water, Land, and Legacy Amendment. Legacy Grant applications are accepted on a rolling basis.

DNR Grant – Federal Recreation Trail Program

To encourage the maintenance and development of motorized, non-motorized, and diversified trails. This grant is due in late February and funds become available in October.

- \$2,500 minimum - \$150,000 maximum

DNR Grant – Outdoor Recreation Grant Program

The MN DNR Outdoor Recreation Grant is intended to fund projects that increase and enhance outdoor recreation facilities in local and community parks throughout the state. All projects must align with the State Outdoor Recreation Plan (SCORP). Example projects include internal park trails and trail amenities. This grant is typically available annually, with an application deadline of March 31st.

DNR Grant – Public Water Access Sites – Partnership Program

The Partnership Program provides financial assistance to projects that involve the development or improvement of public carry-in and trailer boat access sites, and is eligible for counties, cities, townships, and recognized tribal lands. The amount of funds available fluctuates annually depending on available budget, staffing resources, project scope, and number of requests

Schedule

Work Task	Estimated Start Date
Board provides direction on project	Summer 2022
Staff pursue funding and ROW	Fall 2022
Design	Spring 2023
Construction	Spring 2024

Appendix A: Alternative Layouts

A.1: Alternative 1B (Use the Existing Roadway Geometry of CSAH 28) Layout



A.2: Alternative 2A (Modest Realignment of CSAH 28) Layout



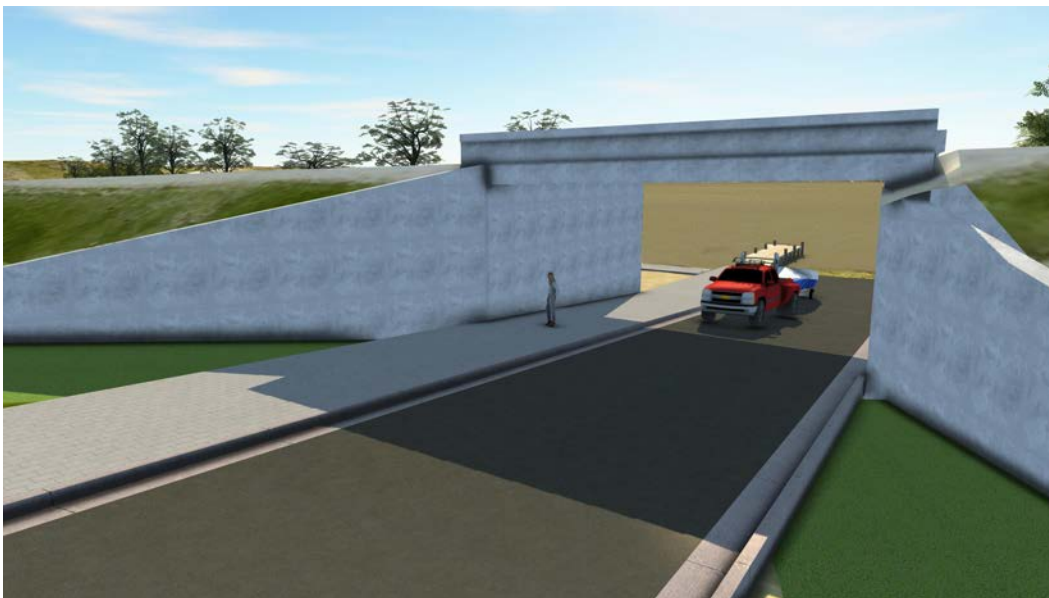
A.3: Alternative 2B (Major Realignment of CSAH 28) Base Construction Layout



A.4: Alternative 2B (Major Realignment of CSAH 28) New Park Amenities Layout



A.5: Alternative 1B (Use the Existing Roadway Geometry of CSAH 28) 41' x 38' Continuous Concrete Span Bridge Model



Appendix B: Cost Estimates

B.1: Alternative 1B (Use the Existing Roadway Geometry of CSAH 28) Roadway Cost Estimate

Item No	Description	Unit	Total Quantity	Unit Price	Total Item Cost
Base Roadway					
Base Roadway Items					
2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	8100	\$7.00	\$56,700.00
2106.507	EXCAVATION - COMMON	CU YD	2000	\$10.00	\$20,000.00
2106.507	SELECT GRANULAR EMBANKMENT (CV)	CU YD	9900	\$20.00	\$198,000.00
2106.507	COMMON EMBANKMENT (CV)	CU YD	1,500	\$7.00	\$10,500.00
2118.509	AGGREGATE SURFACING CLASS 2	TON	530	\$20.00	\$10,600.00
2211.507	AGGREGATE BASE (CV) CLASS 5	CU YD	4600	\$40.00	\$184,000.00
2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (2,C)	TON	1900	\$90.00	\$171,000.00
2521.518	3" BITUMINOUS WALK	SQ FT	29700	\$3.00	\$89,100.00
2531.504	8" CONCRETE DRIVEWAY PAVEMENT	SQ YD	260	\$100.00	\$26,000.00
Base Roadway Items Subtotal Cost					
Rounded to nearest \$10,000					\$770,000.00
Base Roadway Contingency Cost					
Estimated at 20% Base Roadway Items Subtotal Cost					\$154,000.00
Base Roadway Mobilization Cost					
Estimated at 10% Base Roadway Items Subtotal Cost					\$77,000.00
Base Roadway Traffic Control Cost					
Estimated at 5% Base Roadway Items Subtotal Cost					\$38,500.00
Base Roadway Engineering and Design Cost					
Estimated at 18% Base Roadway Items Subtotal Cost					\$138,600.00
Base Roadway Wetland Mitigation Impacts Cost					
		ACRE	0	\$51,000.00	\$0.00
Base Roadway Right of Way Cost					
		ACRE	0.2	\$25,000.00	\$5,000.00
Base Roadway Cost					
Rounded to nearest \$10,000					\$1,180,000.00

Note: Values are based on 2022 Engineer's Opinion of Probable Cost and are subject to change.

Alternative 1B (Use the Existing Roadway Geometry of CSAH 28) Roadway Cost Estimate Continued

Item No	Description	Unit	Total Quantity	Unit Price	Total Item Cost
Base Bridge					
Base Bridge Items (1)					
	41' x 38' CONTINUOUS CONCRETE SLAB BRIDGE	LS	1		\$900,000.00
Base Bridge Contingency Cost					
	Estimated at 20% Base Bridge Items Cost				\$180,000.00
Base Bridge Mobilization Cost					
	Estimated at 10% Base Bridge Items Cost				\$90,000.00
Base Bridge Engineering and Design					
	Estimated at 18% Base Bridge Items Cost				\$162,000.00
Base Bridge Cost					
	Rounded to nearest \$10,000				\$1,330,000.00

Note: Values are based on 2022 Engineer's Opinion of Probable Cost and are subject to change.

(1) Cost assumes a Continuous Concrete Slab Bridge with deep abutments.

The possibility of utilizing MSE Walls as an alternative may be explored during design.

B.2 Alternative 1B (Use the Existing Roadway Geometry of CSAH 28) Park Cost Estimate

Item No	Description	Unit	Total Quantity	Unit Price	Total Item Cost
Base Park					
Base Park Reconfigured Parking Lot & Boat Launch					
	Main Parking Lot Surfacing	SF	18650	\$6.00	\$111,900.00
	B612 Curb & Gutter	LF	3120	\$50.00	\$156,000.00
	Parking stormwater allowance	LS	1	\$96,000.00	\$96,000.00
	Parking lot striping /signing	LS	1	\$6,000.00	\$6,000.00
	Trash Enclosure	LS	1	\$27,000.00	\$27,000.00
	Concrete pad for dumpster	SF	360	\$10.00	\$3,600.00
	Aquatic Invasive Species check station	LS	1	\$15,000.00	\$15,000.00
Base Park Paths					
	10 ft bitumious trail	LF	1540	\$60.00	\$92,400.00
	Concrete paths/plazas	SF	6905	\$8.00	\$55,240.00
Base Park General Park Amenities					
	Trail Lighting	EA	12	\$4,000.00	\$48,000.00
	Bike Loops	EA	12	\$300.00	\$3,600.00
	Bench	EA	12	\$3,000.00	\$36,000.00
	Picnic tables	EA	10	\$2,000.00	\$20,000.00
	Trash receptacle	EA	8	\$800.00	\$6,400.00
	Park sign	EA	2	\$10,000.00	\$20,000.00
Base Park Pier					
	Fishing Pier Relocation/Repair	EA	1	\$25,000.00	\$25,000.00
Base Park Landscaping					
	Beach Areas	LS	1	\$65,000.00	\$65,000.00
	Deciduous tree - 2" caliper	EA	72	\$400.00	\$28,800.00
	Planting Beds	SF	1900	\$15.00	\$28,500.00
Base Park Items Subtotal Cost					
	Rounded to nearest \$10,000				\$840,000.00
Base Park Contingency Cost					
	Estimated at 15% Base Park Items Subtotal Cost				\$126,000.00
Base Park Mobilization Cost					
	Estimated at 10% Base Park Items Subtotal Cost				\$84,000.00
Base Park Engineering and Design Cost					
	Estimated at 18% Base Park Items Subtotal Cost				\$151,200.00
Base Park Cost					
	Rounded to nearest \$10,000				\$1,200,000.00

Note: Values are based on 2022 Engineer's Opinion of Probable Cost and are subject to change.

Alternative 1B (Use the Existing Roadway Geometry of CSAH 28) Park Cost Estimate Continued

Item No	Description	Unit	Total Quantity	Unit Price	Total Item Cost
Replace Existing Park Amenities					
Building Costs					
	CONCESSIONAIRE WITH RESTROOMS AND SHOWERS (1,150 SF)	EA	1	\$724,500.00	\$724,500.00
	30 PERSON OPEN-AIR SHELTER	EA	1	\$450,000.00	\$450,000.00
	TOTAL BUILDING ESTIMATE (INCLUDES CONTINGENCY/OTHER COSTS)				\$1,174,500.00
Play Area					
	Updated Playground	LS	1	\$130,000.00	\$130,000.00
	Playground drainage	LS	1	\$1,000.00	\$1,000.00
	Playground surfacing - engineered wood	SY	360	\$35.00	\$12,600.00
	Concrete container	LF	233	\$30.00	\$6,990.00
	Perimeter walks	SF	1500	\$8.00	\$12,000.00
Replace Existing Park Amenities Items Subtotal Cost					
	Rounded to nearest \$10,000				\$1,340,000.00
Replace Existing Park Amenities Contingency Cost					
	Estimated at 15% Replace Existing Park Amenities Items Subtotal Cost minus Total Building Estimate				\$24,825.00
Replace Existing Park Amenities Mobilization Cost					
	Estimated at 10% Replace Existing Park Amenities Items Subtotal Cost minus Total Building Estimate				\$16,550.00
Replace Existing Park Amenities Engineering and Design Cost					
	Estimated at 18% Replace Existing Park Amenities Items Subtotal Cost minus Total Building Estimate				\$29,790.00
Replace Existing Park Amenities Cost					
	Rounded to nearest \$10,000				\$1,410,000.00

New Park Amenities					
New Park Amenities General Park Amenities					
	Sunset Overlook	EA	1	\$75,000.00	\$75,000.00
New Park Amenities Contingency Cost					
	Estimated at 15% New Park Amenities General Park Amenities Cost				\$11,250.00
New Park Amenities Mobilization Cost					
	Estimated at 10% New Park Amenities General Park Amenities Cost				\$7,500.00
New Park Amenities Engineering and Design Cost					
	Estimated at 18% New Park Amenities General Park Amenities Cost				\$13,500.00
New Park Amenities Cost					
	Rounded to nearest \$10,000				\$110,000.00

Park Operation and Maintenance					
Park Operation and Maintenance Cost					
	Annual Operation and Maintenance	LS	1	\$5,000.00	\$5,000.00

Note: Values are based on 2022 Engineer's Opinion of Probable Cost and are subject to change.

B.3 Alternative 2A (Modest Realignment of CSAH 28) Roadway Cost Estimate

Item No	Description	Unit	Total Quantity	Unit Price	Total Item Cost
Base Roadway					
Base Roadway Items					
2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	8100	\$7.00	\$56,700.00
2106.507	EXCAVATION - COMMON	CU YD	2100	\$10.00	\$21,000.00
2106.507	SELECT GRANULAR EMBANKMENT (CV)	CU YD	8700	\$20.00	\$174,000.00
2106.507	COMMON EMBANKMENT (CV)	CU YD	3,900	\$7.00	\$27,300.00
2118.509	AGGREGATE SURFACING CLASS 2	TON	620	\$20.00	\$12,400.00
2211.507	AGGREGATE BASE (CV) CLASS 5	CU YD	3300	\$40.00	\$132,000.00
2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (2,C)	TON	2000	\$90.00	\$180,000.00
2521.518	3" BITUMINOUS WALK	SQ FT	15500	\$3.00	\$46,500.00
2531.504	8" CONCRETE DRIVEWAY PAVEMENT	SQ YD	260	\$100.00	\$26,000.00
Base Roadway Items Subtotal Cost					
Rounded to nearest \$10,000					\$680,000.00
Base Roadway Contingency Cost					
Estimated at 20% Base Roadway Items Subtotal Cost					\$136,000.00
Base Roadway Mobilization Cost					
Estimated at 10% Base Roadway Items Subtotal Cost					\$68,000.00
Base Roadway Traffic Control Cost					
Estimated at 5% Base Roadway Items Subtotal Cost					\$34,000.00
Base Roadway Engineering and Design Cost					
Estimated at 18% Base Roadway Items Subtotal Cost					\$122,400.00
Base Roadway Wetland Mitigation Impacts Cost					
		ACRE	2.5	\$51,000.00	\$127,500.00
Base Roadway Right of Way Cost					
		ACRE	2.5	\$25,000.00	\$62,500.00
Base Roadway Cost					
Rounded to nearest \$10,000					\$1,230,000.00

Note: Values are based on 2022 Engineer's Opinion of Probable Cost and are subject to change.

Alternative 2A (Modest Realignment of CSAH 28) Roadway Cost Estimate Continued

Item No	Description	Unit	Total Quantity	Unit Price	Total Item Cost
Base Bridge					
Base Bridge Items					
2412.502	10X10 PRECAST CONCRETE BOX CULVERT END SECTION	EACH	2	\$25,000.00	\$50,000.00
2412.503	10X10 PRECAST CONCRETE BOX CULVERT	LIN FT	92	\$1,300.00	\$119,600.00
2451.507	FINE AGGREGATE BEDDING	CU YD	100	\$45.00	\$4,500.00
Base Bridge Items Subtotal Cost					
Rounded to nearest \$10,000					\$170,000.00
Base Bridge Contingency Cost					
Estimated at 20% Base Bridge Items Cost					\$34,000.00
Base Bridge Mobilization Cost					
Estimated at 10% Base Bridge Items Cost					\$17,000.00
Base Bridge Engineering and Design					
Estimated at 18% Base Bridge Items Cost					\$30,600.00
Base Bridge Cost					
Rounded to nearest \$10,000					\$250,000.00

Note: Values are based on 2022 Engineer's Opinion of Probable Cost and are subject to change.

B.4 Alternative 2A (Modest Realignment of CSAH 28) Park Cost Estimate

Item No	Description	Unit	Total Quantity	Unit Price	Total Item Cost
Base Park					
South Parking Lot & Boat Launch					
	Main Parking Lot Surfacing	SF	32619	\$6.00	\$195,714.00
	B612 Curb & Gutter	LF	1167	\$50.00	\$58,350.00
	Parking stormwater allowance	LS	1	\$48,925.00	\$48,925.00
	Parking lot striping /signing	LS	1	\$6,000.00	\$6,000.00
	Trash Enclosure	LS	1	\$27,000.00	\$27,000.00
	Concrete pad for dumpster	SF	360	\$10.00	\$3,600.00
	Concrete median near boat launch	SF	685	\$8.00	\$5,480.00
	Aquatic Invasive Species check station	LS	1	\$15,000.00	\$15,000.00
Paths					
	10 ft bitumious trail	LF	1170	\$60.00	\$70,200.00
	Concrete paths/plazas	SF	1225	\$8.00	\$9,800.00
	Bridge over outlet channel	LS	1	\$40,000.00	\$40,000.00
General Park Amenities					
	Trail Lighting	EA	12	\$4,000.00	\$48,000.00
	Bike Loops	EA	12	\$300.00	\$3,600.00
	Bench	EA	12	\$3,000.00	\$36,000.00
	Picnic tables	EA	10	\$2,000.00	\$20,000.00
	Trash receptacle	EA	8	\$800.00	\$6,400.00
	Park sign	EA	2	\$10,000.00	\$20,000.00
Landscaping					
	Beach Areas	LS	1	\$46,000.00	\$46,000.00
	Deciduous tree - 2" caliper	EA	84	\$400.00	\$33,600.00
North Parking Lot					
	Reconfigure remaining asphalt	LS	1	\$6,000.00	\$6,000.00
	Stormwater	SF	5000	\$15.00	\$75,000.00
	Turf restoration	SF	3000	\$1.00	\$3,000.00
	Concrete Path Connection	SF	975	\$8.00	\$7,800.00
Base Park Items Subtotal Cost					
	Rounded to nearest \$10,000				\$790,000.00
Base Park Contingency Cost					
	Estimated at 15% Base Park Items Subtotal Cost				\$118,500.00
Base Park Mobilization Cost					
	Estimated at 10% Base Park Items Subtotal Cost				\$79,000.00
Base Park Engineering and Design Cost					
	Estimated at 18% Base Park Items Subtotal Cost				\$142,200.00
Base Park Cost					
	Rounded to nearest \$10,000				\$1,130,000.00

Note: Values are based on 2022 Engineer's Opinion of Probable Cost and are subject to change.

Alternative 2A (Modest Realignment of CSAH 28) Park Cost Estimate Continued

Item No	Description	Unit	Total Quantity	Unit Price	Total Item Cost
Replace Existing Park Amenities					
Building Costs					
	CONCESSIONAIRE WITH RESTROOMS AND SHOWERS (1,150 SF)	EA	1	\$724,500.00	\$724,500.00
	30 PERSON OPEN-AIR SHELTER	EA	1	\$450,000.00	\$450,000.00
	TOTAL BUILDING ESTIMATE (INCLUDES CONTINGENCY/OTHER COSTS)				\$1,174,500.00
Play Area					
	Updated Playground	LS	1	\$130,000.00	\$130,000.00
	Playground drainage	LS	1	\$1,000.00	\$1,000.00
	Playground surfacing - engineered wood	SY	360	\$12,600.00	\$12,600.00
	Concrete container	LF	233	\$30.00	\$6,990.00
	Perimeter walks	SF	1500	\$8.00	\$12,000.00
Replace Existing Park Amenities Items Subtotal Cost					
	Rounded to nearest \$10,000				\$1,340,000.00
Replace Existing Park Amenities Contingency Cost					
	Estimated at 15% Replace Existing Park Amenities Items Subtotal Cost minus Total Building Estimate				\$24,825.00
Replace Existing Park Amenities Mobilization Cost					
	Estimated at 10% Replace Existing Park Amenities Items Subtotal Cost minus Total Building Estimate				\$16,550.00
Replace Existing Park Amenities Engineering and Design Cost					
	Estimated at 18% Replace Existing Park Amenities Items Subtotal Cost minus Total Building Estimate				\$29,790.00
Replace Existing Park Amenities Cost					
	Rounded to nearest \$10,000				\$1,410,000.00
New Park Amenities					
Building Costs					
	30 PERSON OPEN-AIR SHELTER	EA	1	\$450,000.00	\$450,000.00
	TOTAL BUILDING ESTIMATE (INCLUDES CONTINGENCY/OTHER COSTS)				\$450,000.00
New Park Amenities Cost					
	Rounded to nearest \$10,000				\$450,000.00
Park Operation and Maintenance					
Park Operation and Maintenance Cost					
	Annual Operation and Maintenance	LS	1	\$10,000.00	\$10,000.00

Note: Values are based on 2022 Engineer's Opinion of Probable Cost and are subject to change.

B.5 Alternative 2B (Major Realignment of CSAH 28) Roadway Cost Estimate

Item No	Description	Unit	Total Quantity	Unit Price	Total Item Cost
Base Roadway					
Base Roadway Items					
2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	8100	\$7.00	\$56,700.00
2106.507	EXCAVATION - COMMON	CU YD	2500	\$10.00	\$25,000.00
2106.507	SELECT GRANULAR EMBANKMENT (CV)	CU YD	9200	\$20.00	\$184,000.00
2106.507	COMMON EMBANKMENT (CV)	CU YD	4,600	\$7.00	\$32,200.00
2118.509	AGGREGATE SURFACING CLASS 2	TON	680	\$20.00	\$13,600.00
2211.507	AGGREGATE BASE (CV) CLASS 5	CU YD	3400	\$40.00	\$136,000.00
2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (2,C)	TON	2100	\$90.00	\$189,000.00
2521.518	3" BITUMINOUS WALK	SQ FT	15600	\$3.00	\$46,800.00
2531.504	8" CONCRETE DRIVEWAY PAVEMENT	SQ YD	260	\$100.00	\$26,000.00
Base Roadway Items Subtotal Cost					
Rounded to nearest \$10,000					\$710,000.00
Base Roadway Contingency Cost					
Estimated at 20% Base Roadway Items Subtotal Cost					\$142,000.00
Base Roadway Mobilization Cost					
Estimated at 10% Base Roadway Items Subtotal Cost					\$71,000.00
Base Roadway Traffic Control Cost					
Estimated at 5% Base Roadway Items Subtotal Cost					\$35,500.00
Base Roadway Engineering and Design Cost					
Estimated at 18% Base Roadway Items Subtotal Cost					\$127,800.00
Base Roadway Wetland Mitigation Impacts Cost					
		ACRE	5	\$51,000.00	\$255,000.00
Base Roadway Right of Way Cost					
		ACRE	5	\$25,000.00	\$125,000.00
Base Roadway Cost					
Rounded to nearest \$10,000					\$1,470,000.00

Note: Values are based on 2022 Engineer's Opinion of Probable Cost and are subject to change.

B.6 Alternative 2B (Major Realignment of CSAH 28) Park Cost Estimate

Item No	Description	Unit	Total Quantity	Unit Price	Total Item Cost
Base Park					
Base Park South Parking Lot					
	Main Parking Lot Surfacing	SF	65900	\$6.00	\$395,400.00
	B612 Curb & Gutter	LF	2345	\$50.00	\$117,250.00
	Parking stormwater allowance	LS	1	\$160,000.00	\$160,000.00
	Parking lot striping /signing	LS	1	\$6,000.00	\$6,000.00
	Trash Enclosure	LS	1	\$27,000.00	\$27,000.00
	Concrete pad for dumpster	SF	360	\$10.00	\$3,600.00
	Concrete median near boat launch	SF	685	\$8.00	\$5,480.00
	Aquatic Invasive Species check station	LS	1	\$15,000.00	\$15,000.00
Base Park Paths					
	10 ft bitumious trail	LF	845	\$60.00	\$50,700.00
	Bridge over outlet channel	LS	1	\$40,000.00	\$40,000.00
Base Park General Park Amenities					
	Trail Lighting	EA	12	\$4,000.00	\$48,000.00
	Bike Loops	EA	12	\$300.00	\$3,600.00
	Bench	EA	4	\$3,000.00	\$12,000.00
	Picnic tables	EA	2	\$2,000.00	\$4,000.00
	Trash receptacle	EA	1	\$800.00	\$800.00
	Park sign	EA	2	\$10,000.00	\$20,000.00
Base Park Pier					
	Fishing Pier Relocation/Repair	EA	1	\$25,000.00	\$25,000.00
Base Park Landscaping					
	Beach Areas	LS	1	\$50,000.00	\$50,000.00
	Deciduous tree - 2" caliper	EA	66	\$400.00	\$26,400.00
	Evergreen tree - 6ft ht	EA	11	\$300.00	\$3,300.00
	Turf establishment / seeding	SF	40000	\$0.75	\$30,000.00
	Native Restoration Areas (shoreline / outlet areas)	SY	1790	\$8.00	\$14,320.00
	Restoration Establishment Maintenance	YEAR	3	\$2,000.00	\$6,000.00
Base Park North Parking Lot					
	Reconfigure remaining asphalt	LS	1	\$6,000.00	\$6,000.00
	Stormwater	SF	5000	\$15.00	\$75,000.00
	Turf restoration	SF	3000	\$1.00	\$3,000.00
	Concrete Path Connection	SF	100	\$8.00	\$800.00
	RRFB Crosswalk	LS	1	\$25,000.00	\$25,000.00
Base Park Items Subtotal Cost					
	Rounded to nearest \$10,000				\$1,170,000.00
Base Park Contingency Cost					
	Estimated at 15% Base Park Items Subtotal Cost				\$175,500.00
Base Park Mobilization Cost					
	Estimated at 10% Base Park Items Subtotal Cost				\$117,000.00
Base Park Engineering and Design Cost					
	Estimated at 18% Base Park Items Subtotal Cost				\$210,600.00
Base Park Cost					
	Rounded to nearest \$10,000				\$1,670,000.00

Note: Values are based on 2022 Engineer's Opinion of Probable Cost and are subject to change.

Alternative 2B (Major Realignment of CSAH 28) Park Cost Estimate Continued

Item No	Description	Unit	Total Quantity	Unit Price	Total Item Cost
New Park Amenities					
New Park Amenities Building Costs					
	PICNIC PAVILION WITH RESTROOMS AND SHOWERS (2150 SF)	EA	1	\$1,354,500.00	\$1,354,500.00
	30 PERSON OPEN-AIR SHELTER	EA	1	\$450,000.00	\$450,000.00
	TOTAL BUILDING ESTIMATE (INCLUDES CONTINGENCY/OTHER COSTS)				\$1,804,500.00
New Park Amenities Paths					
	Concrete paths/plazas	SF	1545	\$8.00	\$12,360.00
New Park Amenities General Park Amenities					
	Bench	EA	8	\$3,000.00	\$24,000.00
	Picnic tables	EA	18	\$2,000.00	\$36,000.00
	Trash receptacle	EA	7	\$800.00	\$5,600.00
New Park Amenities Play Area					
	Updated Playground	LS	1	\$200,000.00	\$200,000.00
	Playground drainage	LS	1	\$1,500.00	\$1,500.00
	Playground surfacing - engineered wood	SY	585	\$35.00	\$20,475.00
	Concrete container	LF	295	\$30.00	\$8,850.00
	Perimeter walks	SF	3325	\$8.00	\$26,600.00
New Park Amenities Fields and Courts					
	Sand Volleyball Court	LS	1	\$7,500.00	\$7,500.00
	Pickleball Court(s)	LS	1	\$200,000.00	\$200,000.00
	Pickleball Lighting	LS	1	\$80,000.00	\$80,000.00
	Flex Field Space	SF	18000	\$1.00	\$18,000.00
New Park Amenities Landscaping					
	Beach Areas	LS	1	\$50,000.00	\$50,000.00
	Deciduous tree - 2" caliper	EA	50	\$400.00	\$20,000.00
	Evergreen tree - 6ft ht	EA	6	\$300.00	\$1,800.00
	Turf establishment / seeding	SF	40000	\$0.75	\$30,000.00
	Planting Beds	SF	1650	\$15.00	\$24,750.00
	Native Restoration Areas (shoreline / outlet areas)	SY	450	\$8.00	\$3,600.00
New Park Amenities Items Subtotal Cost					
	Rounded to nearest \$10,000				\$2,580,000.00
New Park Amenities Contingency Cost					
	Estimated at 15% New Park Amenities Items Subtotal Cost minus Total Building Estimate				\$116,325.00
New Park Amenities Mobilization Cost					
	Estimated at 10% New Park Amenities Items Subtotal Cost minus Total Building Estimate				\$77,550.00
New Park Amenities Engineering and Design Cost					
	Estimated at 18% New Park Amenities Items Subtotal Cost minus Total Building Estimate				\$139,590.00
New Park Amenities Cost					
	Rounded to nearest \$10,000				\$2,910,000.00
Park Operation and Maintenance					
Park Operation and Maintenance Cost					
	Annual Operation and Maintenance	LS	1	\$12,000.00	\$12,000.00

Note: Values are based on 2022 Engineer's Opinion of Probable Cost and are subject to change.

B.7 FDR Paving Alternative (Outside Beaver Lake) Cost Estimate

Item No	Description	Unit	Total Quantity	Unit Price	Total Item Cost
Roadway					
Roadway Items					
2118.509	AGGREGATE SURFACING CLASS 2	TON	840	\$20.00	\$16,800.00
2215.504	FULL DEPTH RECLAMATION	SQ YD	6900	\$70.00	\$483,000.00
2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (2,C)	TON	4200	\$90.00	\$378,000.00
Roadway Items Subtotal Cost					
Rounded to nearest \$10,000					\$880,000.00
Roadway Contingency Cost					
Estimated at 20% Base Roadway Items Subtotal Cost					\$176,000.00
Roadway Mobilization Cost					
Estimated at 10% Base Roadway Items Subtotal Cost					\$88,000.00
Roadway Traffic Control Cost					
Estimated at 5% Base Roadway Items Subtotal Cost					\$44,000.00
Roadway Engineering and Design Cost					
Estimated at 18% Base Roadway Items Subtotal Cost					\$158,400.00
Total Roadway Cost					
Rounded to nearest \$10,000					\$1,350,000.00

Note: Values are based on 2022 Engineer's Opinion of Probable Cost and are subject to change.

B.8 Reconstruction Paving Alternative (Outside Beaver Lake) Cost Estimate

Item No	Description	Unit	Total Quantity	Unit Price	Total Item Cost
Roadway					
Roadway Items					
2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	19400	\$7.00	\$135,800.00
2106.507	EXCAVATION - COMMON	CU YD	34700	\$10.00	\$347,000.00
2106.507	SELECT GRANULAR EMBANKMENT (CV)	CU YD	19600	\$20.00	\$392,000.00
2106.507	COMMON EMBANKMENT (CV)	CU YD	7,900	\$7.00	\$55,300.00
2118.509	AGGREGATE SURFACING CLASS 2	TON	1500	\$20.00	\$30,000.00
2211.507	AGGREGATE BASE (CV) CLASS 5	CU YD	6900	\$40.00	\$276,000.00
2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (2,C)	TON	4200	\$90.00	\$378,000.00
Roadway Items Subtotal Cost					
Rounded to nearest \$10,000					\$1,610,000.00
Roadway Contingency Cost					
Estimated at 20% Base Roadway Items Subtotal Cost					\$322,000.00
Roadway Mobilization Cost					
Estimated at 10% Base Roadway Items Subtotal Cost					\$161,000.00
Roadway Traffic Control Cost					
Estimated at 5% Base Roadway Items Subtotal Cost					\$80,500.00
Roadway Engineering and Design Cost					
Estimated at 18% Base Roadway Items Subtotal Cost					\$289,800.00
Total Roadway Cost					
Rounded to nearest \$10,000					\$2,460,000.00

Note: Values are based on 2022 Engineer's Opinion of Probable Cost and are subject to change.

Appendix C: Public Engagement

C.1 September 9, 2021 Public Information Meeting Attendance

Steele County CSAH 28 + Beaver Lake Park

Sign in Sheet: September 9th, 2021 Public Information Meeting

Name/Organization	Email
Daniel Misgen	dmisgen@yahoo.com
JanaLee Sponberg	twotrot@gmail.com
Paul E Hanson	paulpaulahanson@yahoo.com
Barry Braaten	babraaten@frontiernet.net
Ed Jensen	
Patrick A Hern	pahernp@gmail.com
Brenda Misgen	b.misgen@misgen.com
Renee Lundberg Olson	Reneeolson4@yahoo.com
Jean Berg	Jmberg0125@gmail.com
Audry Leberg	PO 98 Ellendale 56026
Dale and Patty Lundberg	Dlundberg1953@gmail.com
Ed Nelson	612-418-4375
Lee Waage	lwaage@gmail.com
Karla Christopherson	Karlac0905@gmail.com
Jodie (Lee) Tvedt	Jodie191a@gmail.com

C.2 September 9, 2021 Public Information Meeting Notes

Steele County CSAH 28 + Beaver Lake Park

Comments: September 9th, 2021 Public Information Meeting

** = Comment/sentiment repeated*

Lake

- “The cleanest lake around” 30-40 average permanent ice houses and pop ups in the winter
 - o Ice fishing 90% non-local
- 21ft ski boats (5-6) on the lake. Some visitors here every weekend
 - o Rochester
 - o Albert Lea
- Fishing/paddling and residents out in morning and evening. Social lake with visitors the rest of the day
- Wave action in center of the lake is high (3ft) when many boats are out. More waves on north shore than south
- 28ft average May depth

Park

- Decorative fencing
- Path for golf carts between north and south
- Community Center bandshell
- Gravel trucks are a long-term issue
- Reclaim parking for park users- 100% use of lot
- More pickleball and formal courts with fences/nets*
- Kids sled onto the road
- Where are snowmobile trails?

Road

- Lots of folks walk 3 miles around lake this is the most unsafe stretch. Walking trail with lighting and amenities, need walking path*
- Mail boxes and street signs get taken out. Bushes too.
- Boat landing/fishing connection along lakes for peds is tricky with speeding oncoming traffic, people use road shoulder not beach path/tunnel DANGEROUS *
 - o Keep tunnel, safer for families
- \$1M Trail along west side 23 w/ barrier

Beach

- Want areas of sun along beach, move road back to have more beach
- Lifeguards on weekends would make sense (afternoon/evening)
- 150 people at the beach at a time in the summer

Boat Launch

- People park along Ed’s hayfield across from the launch when busy. Busy days 25 boats in lake
- Put boat parking next to launch
- Boat inspection @ the most 2-3 boats in line up
- Concerns about how some can’t back trailer

STEELE COUNTY CSAH 28 + BEAVER LAKE PARK

SIGN IN SHEET

Email

jel.wagar@state.ma.us
reneeolson4@yahoo.com
matt.durand@cdausa.com

FEBRUARY 24TH, 2022 OPEN HOUSE

C.4 February 25, 2022 Meeting Notes

Steele County CSAH 28 + Beaver Lake Park

February 24th, 2022 Open House Response

Concept 1B

- Few comments
- Like the sunset overlook
- Comment to add a dry hydrant to the lake to help with fire control for local homes
- Comment that lake is rocky where the boat launch is shown

Concept 2A

- Few comments
- Support for boat launch in this location
- Desire for continuous beach frontage

Concept 2B (preferred)

- Most comments
- Most support
- Like launch in this location (maximize width to accommodate two boats if possible)
- Desire for continuous beach frontage
- Move fishing pier to north side of beach (nearer to current location)
- Support for pickleball
- Some desire for basketball
- Like the open play field
- Move picnic shelter to volleyball and move vball east
 - Replace shelter with bball then?
 - Or rotate field N/S?
- Keep overflow parking open for maximum flexibility
- Make sure to maintain snowmobile trail
- Adjust multi-use trail connection through boat trailer parking to shorten crossing distance (using internal island)

Miscellaneous comments

- Question about whether gravel trucks can be rerouted north?
- Trail extension to the east?
- Do we want design of main parking lot to support trailer navigation through car lot, or to enforce separation?
- Do we want side by sides and golf carts on the multi-use trail, or do we want to accommodate them on the road shoulder? Bollards at bridge that crosses daylighted outlet to prevent them?

C.5 Social Pinpoint Site Responses

Created on	Threads	GeoSurvey Step	Comment
2/16/2022 8:40	I Like This-1	Concept 2b	Looks sweet, cant wait.
2/18/2022 8:58	This Concerns Me-01	Concept 2b	I appreciate moving the fishing pier but I don't think there are any fish in this location. You might want to consult to find a better place for fishing, unless it is just a recreational pier.
2/18/2022 9:00	Ideas and Suggestions-1	Concept 2b	Is vending or any type of retail being considered? Would the county ever lease out the building to a private business for a coffee shop, lake toy rentals, or something?
2/18/2022 9:36	This Concerns Me-02	concept 1b	This looks like it would be congested a lot with traffic. It also does not seem like an easy way to back your trailer into the lake as you will have to back up a long way.
2/18/2022 9:38	This Concerns Me-03	concept 1b	Too many trees prevent people from getting sunshine at the beach. Or can they be located far back from the beach area?
2/18/2022 9:39	This Concerns Me-04	concept 1b	I would prefer an expanded sand beach area. It is too small now.
2/18/2022 9:39	Ideas and Suggestions-2	concept 1b	This options seems to favor fishing and boating over the park and swimmers.
2/18/2022 9:41	I Like This-2	concept 1b	I assume there is a large walking/golf cart/biking lane on this side of the road? I like this idea for pedestrian safety. Is lighting being added?
2/18/2022 9:43	This Concerns Me-05	concept 2a	I think putting parking here is using valuable park space. Can it pushed farther east, rather than by the water?
2/18/2022 9:46	This Concerns Me-06	concept 2a	There is a need to accommodate pedestrian traffic between the north side and south side residents. We must walk/bike/golf cart on the blacktop now to get to the other side of the lake and it is not safe.
2/18/2022 9:47	Ideas and Suggestions-3	concept 2a	Are you thinking of adding electrical outlets for charging stations and other items that need electricity? What about free public wifi?
2/18/2022 9:49	Ideas and Suggestions-4	Concept 2b	Can the walkway path start at South Beaver Lake Road and end at North Beaver Lake Road? This current one seems too short and doesn't address the whole problem of safety from driveway to driveway.
2/18/2022 9:50	Ideas and Suggestions-5	Concept 2b	This is obviously the most investment. It is by far the best plan in my opinion and will serve safety and recreation, as well as wildlife and water preservation.
2/18/2022 9:52	Ideas and Suggestions-6	Concept 2b	What about adding a dock to tie your boat to park it while using the beach?
2/20/2022 15:14	This Concerns Me-07	concept 2a	This area is private property. Why would you put a walking trail here and take away someone's lakefront property just so a few people can walk around the lake during the summertime?
2/24/2022 5:13	I Like This-3	Concept 2b	Also, how could the public walk around the lake when the cabin roads have signs that say "private drive"?
2/24/2022 5:13	I Like This-3	Concept 2b	So much safer than the present launch. Existing launch requires pulling into the street ... and hoping that no one is coming around the corner.
2/24/2022 5:18	Ideas and Suggestions-7	Concept 2b	It would be safer and more convenient to move the picnic shelter and restrooms to the volleyball court location, then shift the volleyball court to the East. Families that come to the beach will spend a lot of time in the water, so parents will want to be able to see their children if parents are in the picnic area. Also, this gets it farther from the road for safety. It also puts it closer to the parking lot, which makes carrying coolers easier.
2/24/2022 5:18	I Like This-4	Concept 2b	So fun!
2/24/2022 5:23	This Concerns Me-08	Concept 2b	Swimmers and anglers don't mix well. Putting the pier between the swimming areas dramatically reduces the useable play area. Also, children playing will scare away the fish. Finally, the fishing is better in the present location because the water is deeper and more isolated. I've never seen fishing boats trying to fish in the proposed location, but boats anchor near the present pier all the time.
2/24/2022 5:28	This Concerns Me-09	concept 1b	While I appreciate the beauty of this divider, it will make it harder to maneuver with a trailer, especially when multiple people are trying to launch their boats. In the present lot, it's very handy that it's giant and wide open.
2/24/2022 5:29	This Concerns Me-10	concept 1b	Gets in the way.
2/24/2022 5:30	This Concerns Me-11	concept 1b	Gets in the way
2/24/2022 5:31	This Concerns Me-12	concept 1b	The fishing is better in the present location of the pier.
2/24/2022 5:32	This Concerns Me-13	concept 1b	This is definitely safer than the present launch, but this looks tricky to back such a long distance
2/24/2022 5:36	I Like This-5	Concept 2b	Parking near the beach will make it much more convenient than the present situation
2/24/2022 5:41	Ideas and Suggestions-8	Concept 2b	Could this edge be cut back to allow overflow trailer parking? Certain times of the year there are a lot of trailers, but not as many cars, so it would be handy to be able to pull through this part of the lot once in a while.
2/24/2022 5:47	Ideas and Suggestions-9	concept 2a	We will need signs or rules to manage parking. People parking cars will prefer this area because it's close, but that would get in the way of trailers. I see potential conflict here.
2/24/2022 9:18	I Like This-6	Concept 2b	This is the best one. Don't like the The idea of backing a boat through a tunnel
2/28/2022 11:58	This Concerns Me-14	concept 1b	Boat Launching Tunnel ..BAD IDEA! have you seen people try to launch boats :)
2/28/2022 12:00	This Concerns Me-15	concept 1b	Roadway still to close to beach.
2/28/2022 12:07	I Like This-7	Concept 2b	Agree with Concept 2b with it's objectives to reconstruct CSAH 28 away from the lake, which is better for the environment, safer for pedestrians, which will utilize the park to its full and future potential !
2/28/2022 12:24	I Like This-8	concept 1b	Less Impact to Existing Land.
2/28/2022 12:27	This Concerns Me-16	concept 2a	#NAME?
2/28/2022 12:27	This Concerns Me-17	concept 2a	none of the proposals address the needs of those who walk around the entire length of the lake. Or how does someone walk from either the north or south side of the lake along this busy road safely to get to the park?
2/28/2022 12:29	I Like This-9	concept 2a	Agree with reconstructing CSAH 28 away from the lake...safer for pedestrians!

CONCEPT COMPARISON MATRIX

	EXISTING ROADWAY ALIGNMENT		REVISED ROADWAY ALIGNMENTS	
Features	Existing (1a)	Option 1b	Option 2a	Option 2b
ROADWAY	Existing alignment. Rural section (no curb & gutter).	Minor alignment shift to the east to accommodate a lake-side trail. Addition of curb and gutter.	Alignment shifts to the east to accommodate a new boat trailer parking lot north of the launch. Maintains rural section.	Alignment shifts significantly to the east to keep the park adjacent to Beaver Lake rather than bisected by the road. Alignment accommodates a new main parking lot connected to the boat launch. Rural section.
TRAIL	6' asphalt along beach with culvert connection under the roadway to the parking lot	10' asphalt adjacent to roadway with spur access to beach. Grade-separated access to parking lot beneath road at new underpass.	10' asphalt separated from roadway through the park. Grade-separated access to north parking lot beneath road at new wider culvert.	10' asphalt along lakeshore through the park with significant separation from the roadway. Access to main parking lot requires no road crossing. Access to overflow parking (existing lot) requires at-grade crossing.
PARKING	Unstriped asphalt east of roadway, roughly 120 spaces. No dedicated boat trailer parking	Existing parking lot expanded and restriped in order to maximize spaces and provide dedicated boat trailer parking. 13 truck and trailer spaces, 2 trailer spaces, 75 car spaces. Access relocated to the north.	Existing parking lot restriped to formalize parking (118 car spaces). Existing entry moved slightly north. Dedicated boat trailer parking provided in new south lot adjacent to new boat launch. 13 truck and trailer spaces.	Existing parking lot reconfigured as overflow parking (71 spaces). Dedicated car & boat trailer parking provided in a new south lot adjacent to new boat launch. 72 car spaces, 13 truck & trailer spaces, and 2 trailer spaces.
BOAT LAUNCH	Over 800' south of the existing parking lot	Relocated just north of current fishing dock location. Directly connected to parking lot via new underpass.	Relocated north of existing location. Directly connected to new parking lot.	Relocated north of existing location. Directly connected to new parking lot. Most space for maneuvering.
BEACH	Long and narrow stretch	Long and narrow stretch	Expanded in existing location and a new, narrow stretch of beach near boat launch at new picnic shelter	Expanded in existing location and a new stretch of beach near boat launch at new picnic shelter
FISHING PIER	Pier on north side of beach connected to parking via pedestrian culvert	Pier relocated slightly south of current location	Same as existing	Pier relocated south of lake outlet, better connected to new parking lot
PICNICKING	Small shelter south of parking lot near playground and volleyball	Same as existing	Maintain existing shelter. New shelter (similar size) proposed adjacent to new boat trailer parking and small beach. Trail accessible.	A new shelter (similar size) is proposed adjacent to new parking lot and new beach. A new, larger (50-75 person) picnic pavilion with restrooms is proposed to replace the old concessions building. Can be phased.
PLAY AREA	Traditional playground features south of concessions building	Same as existing	Same as existing	A new playground with features for multiple age groups is proposed between the beach and the new picnic pavilion. Can be phased.
OTHER RECREATION/ AMENITIES	Sand volleyball court. Concessions building which is not actively used. Porta potties serve as restrooms.	New "Sunset Overlook" with views across Beaver Lake to replace current boat launch with direct trail access. Other recreational amenities the same.	Same as existing	This road alignment provides the most space for recreational features and amenities. Those shown include a relocated volleyball court, new open play field (sized for U8 soccer), and space for up to 4 pickleball courts.
Considerations				
ENVIRONMENTAL IMPACTS	-	Minimal impact	Some Wetland Impacts (resulting from realignment of road and location of boat launch parking within current hayfield)	Most Wetland Impacts (resulting from realignment of road and location of boat launch parking within current hayfield)
TIMING/ PHASING OPTIONS	-	Can be completed in a single phase, or park amenities can be replaced at end of life. Sunset overlook could be installed at a later phase.	Can be completed in a single phase, or park amenities can be replaced at end of life. New picnic shelter and beach could be installed in a later phase.	Cost may be prohibitive of completing all elements in a single phase. Road alignment skirts all existing recreational features (playground, concessions, shelter), except volleyball court, meaning they can be maintained as is and replaced at end of life. New picnic shelter and beach can also be phased.
COST	-	CSAH 28: \$\$\$ Beaver Lake Park: \$	CSAH 28: \$\$ Beaver Lake Park: \$\$	CSAH 28: \$ Beaver Lake Park: \$\$\$

VISUAL RANK Most Feature Improvement / Least Considerations Some Feature Improvement / Some Considerations Least Feature Improvement / Most Considerations

ALTERNATIVE 1B GEOMETRIC LAYOUT

CSAH 28

BEAVER LAKE

SW 138TH ST.

KAAT DR. SW

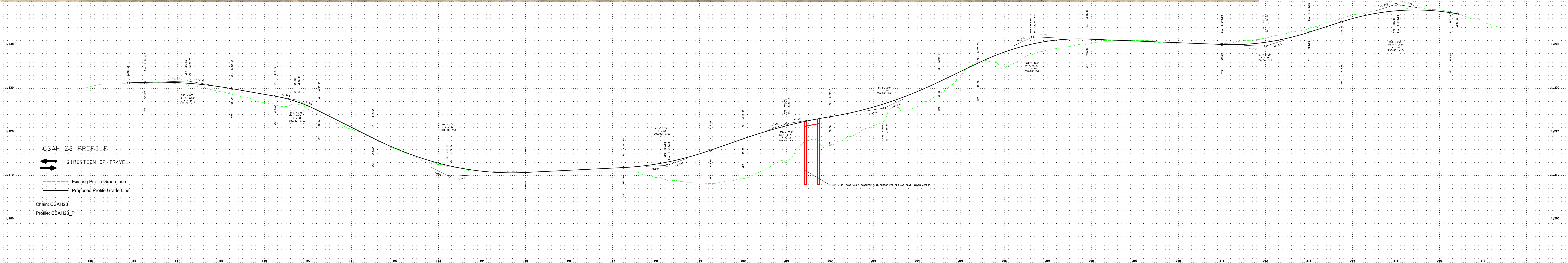
LEGEND

- Roadway Pavement
- Curb and Gutter
- TRAIL
- Paved Entrance
- Granular Surfacing
- Existing Horizontal Alignment
- Limits of Construction
- Existing Parcel line Line

SCALE IN FEET

CSAH 28 PROPOSED TYPICAL SECTIONS
STA. 185+88 - STA. 204+44

STA. 204+44 - STA. 216+39



ALTERNATIVE 2A GEOMETRIC LAYOUT

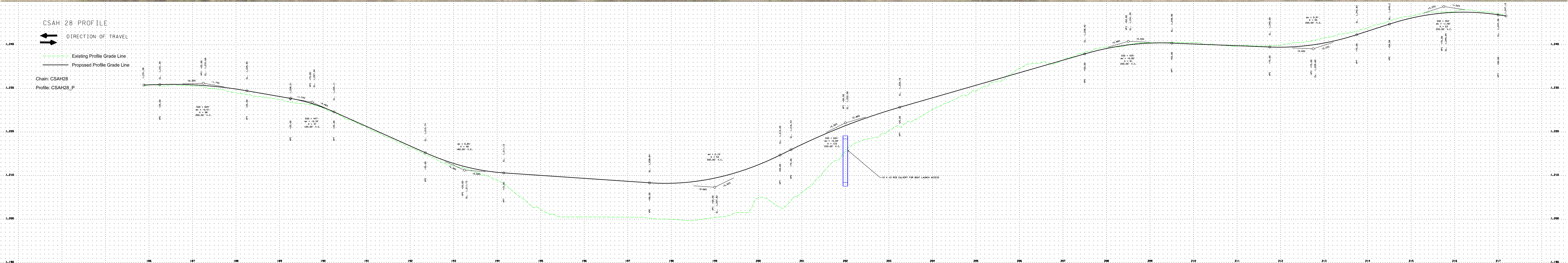
LEGEND

- Yellow: Roadway Pavement
- Blue: Paved Shoulder
- Red: Granular Surfacing
- Black line: Existing Horizontal Alignment
- Dashed red line: Limits of Construction
- Thin black line: Existing Parcel line Line

CSAH 28 PROPOSED TYPICAL SECTIONS
 STA. 185+88 - STA. 192+49
 STA. 209+26 - STA. 217+18

CSAH 28 PROPOSED TYPICAL SECTIONS
 STA. 192+49 - STA. 209+26

Map labels include: BEAVER LAKE, CSAH 28, SW 138TH ST., KAST DR. SW, and various property owners such as THOMPSON/STANLEY/REIDIN G. JENSEN, WISSEN/DANIEL S, and IMAGE COMPANIES LLC.



ALTERNATIVE 2B GEOMETRIC LAYOUT

LEGEND

- Roadway Pavement
- Shoulder
- TRAIL
- Paved Entrance
- Granular Surfacing
- Existing Horizontal Alignment
- Limits of Construction
- Existing Parcel Line Line

CSAH 28 PROPOSED TYPICAL SECTIONS

**STA. 487+40 - STA. 492+52
STA. 509+25 - STA. 520+42**

**STA. 485+70 - STA. 487+40
STA. 492+52 - STA. 509+25**

