Based on the analysis of the community, the diagrammatic plan focuses from the Highway 169 Intersection to its connections with Coleraine and Bovey. Community amenities are connected to strengthen and enhance the existing recreational networks of water, green space, and trails.

Design Opportunities

- **Creating a “Greenway” to Connect the Communities**
  
  A greenway is created by connecting the existing green spaces between Coleraine and Bovey. Plantings and trails in the corridor between Coleraine and Bovey strengthen the greenway and provide a strong visual connection between the two communities. Like two arms extending from the core, the greenway branches off into the downtowns of each community providing inviting entries. This greenway could also extend to a future recreation area north of Bovey’s downtown on beautiful Canisteo Pit Lake.

- **Enhancing Wetlands to Improve Water Quality**
  
  Wetlands and a watercourse cover a large portion of the area between Bovey and Coleraine. Planting these amenities with native plants would provide water cleansing and sediment filtration that protects the water quality of Trout Lake and enhances the appearance of this area. A planted watercourse strengthens the visual connection between Canisteo Lake and Trout Lake. There is a possibility, depending on the final decisions based on the hydrologic study of the rising levels of Canisteo Pit Lake, that water from the Canisteo Lake could be made to flow overland or be pumped into this wetland channel reinforcing a connection between the two communities.

- **Making Trail Connections to Enhance School Access and Recreational Opportunities**
  
  Currently both Coleraine and Bovey have trails, but they are fragments, not a trail system because some crucial connections are missing. Greening the corridors from the Mesabi Trail into Coleraine improves the connection to Longyear Park. Upgrading the existing Canisteo Trail with a continuous paved trail and plantings strengthens the connection between Longyear Park and Cotton Park. A new trail would connect to the Mesabi Trail and Keystone Trail. New trails connect Bovey to Cotton Park and its beach. A new spur trail connects the Keystone Trail to Coleraine.

  These connected trails provide access for students from both communities to the grade school and high school in Coleraine and the middle school in Bovey. A new spur trail sited on Gayley Avenue could use the existing highway overpass, but it is a much less direct route.

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**Creating New Spaces**

The proposed Mesabi Trail head at the foot of downtown connects the trail to Bovey’s local businesses. Its plaza provides a space for special public events such as Farmers’ Day, art and craft fairs, and weekly events such as a farmers’ market. The promontory overlooking the Canisteo Pit Lake north of Bovey provides views of the lake and space for a recreational area.
Conceptual Diagram

From the site analysis and diagrammatic plan it became apparent that the design focus was in the area from Trout Lake to the new Highway 169 intersection extending to 2nd Street up to the edge of the Bovey’s downtown. The three different design areas studied (boundaries are shown on the Diagrammatic Plan) are:

- Cotton Park
- Highway 169 intersection
- 2nd Avenue to Downtown Bovey

A greenway as the main connector with arms extending into the downtowns of both communities drove the design work. This diagram shows three potential trails forming the greenway: the overpass path, the bike/pedestrian path, and the ATV/snowmobile spur trail. Key places are created at the end of the Bovey main street and at the Trout Lake/Cotton Park entrance.
**Design**

**Cotton Park**

The Cotton Park Design Addressed:
- Reviving Cotton Park as a special place on the Iron Range,
- Using historic precedent to renew the park’s identity,
- Making the park a focal place for Bovey/ Coleraine community life,
- Improving access into downtown Coleraine,
- Upgrading the beach,
- Addressing the future of the beach house,
- Providing places for picnicking,
- Siting the playground away from the lake’s shoreline,
- Creating a clear pedestrian circulation system that promotes safe movement through the site,
- Providing safe, unimpeded egress for the fire trucks and adequate parking for firemen,
- Maintaining storage for fire department,
- Providing water access for fire trucks,
- Improving the lake’s water quality through shoreline restoration with a goal of a 30 foot shoreline buffer,
- Providing visual access to Trout Lake from the highway,
- Accommodating MNDOT’s storm water infrastructure system,
- Providing a boat launch that is separated from pedestrian traffic,
- Making a parking lot for fishermen’s cars and trailers, and
- Providing parking for beach users.

**Design**

The form of the Cotton Park Trail is inspired by the historic Longyear Park plan. Like the original park paths, the trail responds to the form of the landscape with flowing, undulating curves.

Shoreline restoration that was partially implemented by the DNR in the summer 2006 is extended to make an optimal 30-foot shoreline buffer.

A half-circle shape expands the beach area. It is framed by shoreline plantings and a beach patio picnic area/event space with tables, chairs, and umbrellas.

A renovated beach house could more adequately serve the needs of swimmers and picnickers and revive this place as a gathering place for special events.

Beach parking located up the hill is connected to the beach by a path. Its rain garden promotes stormwater infiltration preventing stormwater runoff from eroding the hillside and running directly onto the beach and into the lake.

The new playground area is located a safe and convenient distance away from the parking lot and the beach. Pine plantings clearly define the space and separate it from the utility area and the fire hall.

A new storage facility and an expanded parking area are recommended for the fire hall.

A plaza surrounded by a birch grove provides the fire hall with park and lake access separate from the general public.

A new entry plaza/event space with a fountain welcomes visitors to Cotton Park and Trout Lake. The street’s straight alignment provides visual access to the lake from the highway intersection drawing people in off the highway to the park.

Because Trout Lake is a popular fishing lake, the boat launch is an important feature of Cotton Park. It draws in approximately 20-30 cars with boat trailers daily during the fishing season. This is also the site of the Fireman’s Fisherama, a hugely popular event. Eighteen parking spaces with angled parking, a double-loaded ramp, and one-way circulation around the perimeter of the lot are provided. This design moves the ditch east to within 15 feet of the property line. The rest of the MNDOT storm water engineering alignment stays as planned, but the plantings are changed. Native plants are used instead of turf grass to help improve the water quality of stormwater runoff to Trout Lake and the wetlands.

The entry into downtown Coleraine is enhanced. A new streetscape with planted boulevards and designated crosswalks at all street corners welcome visitors to downtown on Roosevelt Avenue. The use of plantings similar to those used in the greenway promotes a visual connection between the greenway and the downtown.
Highway 169 Intersection

The 169 Intersection design addressed:

- Providing a safe crossing at the Highway 169/2ndStreet intersection for adult pedestrians and the many children going to school or to the beach,
- Creating a safe crossing for cyclists from the communities to reach the Mesabi Trail, Cotton Park, and the schools,
- Making a safe crossing for all terrain vehicles and snowmobiles that has a direct access to the gas station at Hollywood Bait,
- Creating a clear sightline to Trout Lake from the highway and 2nd Street,
- Locating signs for both Bovey and Coleraine,
- Creating overflow trailer parking for the Trout Lake boat launch,
- Working within MNDOT’s road and stormwater design,
- Working within the constraint of the lift station’s location, and
- Working within the constraint of the future Troumbly Development plans.

Design

The greenway tree and boulevard plantings are sited on both sides of the intersection. Three tree species are used to promote bio-diversity in the area. To promote sustainability no ash, elm, white birch, sugar maple or red maples should be planted in the greenway.

The new highway-planting scheme differs with the greenway-planting scheme to differentiate the greenway from the highway. Its identity as a pedestrian realm is strengthened both visually and experientially. Unlike the MNDOT planting plan, native plants that can withstand fluctuation of water levels are planted in the wetland areas, waterways, and retention basins. Plantings similar to those used in the greenway strengthen and enhance the connection to the greenway.

Plantings surrounding the lift station provide screening and help to mitigate odor. Plantings around the planned MNDOT retention basins create a barrier to make it safer and keep unwanted snowmobile and ATV traffic out.

Overflow trailer parking for Trout Lake boat launch is accommodated on the state land on the southeast side of the intersection.

There are two options for pedestrian and bicyclist crossings at the intersection. The options could work independently of each other or in conjunction with one another. A separate crossing option is provided for ATV and snowmobile traffic. The opportunities and constraints for each option are listed below:

**Overpass opportunities:**
- An overpass over the highway just west of the intersection with 2nd Street would provide both communities with the safest crossing for pedestrians and bicyclists and no traffic light would be needed,
- Provide views of the lake and the wetlands,
- Make use of an existing bench along the hill which is wide enough to accommodate a trail,
- Require that a new landform be created on the south side of the highway to receive end of the overpass and bring the pedestrian down to the park level, and
- Create landforms on each side of the overpass that provide a frame and a gateway to each of the two communities.

**Overpass Constraints:**
- Creating an overpass on the west side of the intersection requires that some of the overpass be sited on Troumbly property.
- Grading would cut the trail into the hill,
- The trail be engineered to match the grade of the Troumbly development access road, and
- A landform requiring substantial fill be built south of the highway.

**15’ Crosswalk Opportunities:**
- Pedestrian triggered traffic light is an option for use by pedestrians, bicyclists, ATV users, and snowmobilers that helps slow highway traffic and draw visitors into Bovey and Coleraine.

**15’ Crosswalk Constraints:**
- Paying for the traffic lights for this intersection is a challenge. MNDOT will install the infrastructure for the lights, but will not pay for the lights themselves.

**ATV/Snowmobile Crossing Opportunities:**
- Provide a well-marked crossing for ATV and snowmobile users,
- Provide a direct link between the Keystone Trail and the Hollywood Gas Station in Coleraine,
- Separate ATVs and snowmobiles from pedestrians and bicyclists, and
- Minimize the need for acquiring private land because it would be sited primarily on public land owned by Bovey and MNDOT.

**ATV/Snowmobile Crossing Constraints:**
- Some private land will need to be acquired east of 2nd Street, and
- In order to accommodate the existing ditch, the trail would need to be 15 to 20 feet from the road.
2nd Avenue to Bovey

The 2nd Avenue Design addressed:

- Making connections to the Mesabi Trail and Keystone Trail,
- Creating an economically viable RV Park expansion plan,
- Enhancing and making the wetlands sustainable,
- Expanding the existing playground and providing safe access to it,
- Exploring possible uses for land on corner of 2nd Avenue and 1st Street, and
- Working within the constraints posed by future Troumbly Development plans.

Design

The greenway continues up 2nd Avenue to Bovey’s downtown along the old Highway 169 corridor. This section of 2nd Avenue is eligible for turnback funds. The street narrows slightly to allow for a trail and boulevard plantings, which create an arrival into Bovey and calm traffic.

The overpass trail is graded at a 5 percent slope to cross a pedestrian bridge over the wetland to meet the Mesabi/Keystone combined trail and the roadside pedestrian/bicycle path. The roadside pedestrian/bike path continues into Bovey. Greenway plantings define this route and wetland corridor.

An ATV/snowmobile spur trail to Coleraine branches off from the Keystone Trail. The development of private land may necessitate changing the alignments of both the AVT/snowmobile trail and the Mesabi Trail. Connecting these trails is important in order to create a trail network for the two communities and the surrounding region.

The existing Bovey-owned RV Park is not designed for maximum capacity making it economically unviable. Bovey owns the land to the north and east of the park. The park is expanded and re-designed using this public land. The existing RV entry drive and the building are preserved. One-way circulation with angled parking maximizes the number of campsites while still retaining a buffer zone between each trailer for privacy. Each site has a grill or fire-pit, a picnic table, and room for a tent. Walking trails connect the campsites to the main RV park building and the nearby public park. The site is forested to provide a buffer between the RV Park and Bovey’s neighborhoods.

The RV Park expansion reorganizes the existing park. The basketball court is retained in its current location, but the playground is moved and framed by plantings. Bocce ball and shuffleboard courts are added across from the existing basketball court. A formal entry into the park is created and parking is added. The existing wetland is enhanced with native plants, an interpretive boardwalk plaza, and a hiking trail to become the main feature of the park.

The corner of 2nd Avenue and 1st Street is shown as a site for a store or a restaurant that has a plaza fronting the pedestrian/bike path and greenway.

The Troumbly Development plans are not shown on this design because they were not completed at the time of this publication. The only part of this design that is potentially on this private property is the ATV/snowmobile spur trail, which could also be sited in the turn-back right-of-way.
Cotton Park Perspective

This plaza provides a formal entry into Cotton Park and serves as a place for casual gathering and special community events. Visitors are welcomed with a framed view of Trout Lake. A fountain becomes the focal point of the plaza, reinforcing the connection to the greenway and its watersource.
The Greenway Perspective

This drawing shows a view of the greenway on 2nd Avenue between Bovey and Coleraine near the junction of Mesabi and Keystone trails. 2nd Street narrows slightly to allow for boulevard plantings and a trail. The plantings provide a sense of enclosure while still allowing views of the topography that defines this area. Besides the plantings, lights and decorative pavers define the greenway and its pedestrian/bicycle trail.
DESIGN

Highway 169 Sections

The section drawings compare the MNDOT highway designs with the modifications proposed by this design study. The section was cut on the north-south axis through the pedestrian crosswalk proposed design option and then cut in the same location for the existing conditions and MNDOT’s plans for Highway 169.

The existing highway has four through lanes with a planted median. There is no crosswalk or traffic light. The intersection has a very open feel.

The MNDOT design widens the road by adding left and right turn lanes. An eight-foot wide crosswalk is proposed with no traffic light. Drainage has been altered so the wetland area, that will capture storm water, will overflow into a ditch to the south. The wetland plants have been replaced with turf grass. The widening of the road, in a place that already feels very open, makes this design feel quite stark.

This study’s proposed design option had a goal of providing the safest crossing for pedestrians as possible. A 12-foot crosswalk provides room for both pedestrians and bicyclists on the trail.

A pedestrian-triggered traffic light would be part of the crosswalk option.

The overpass, the safest option for pedestrians and bicyclists, would ramp up the existing hillside at a five percent slope or less. A landform would be created on the south side of the highway allowing the overpass path to ramp down at a gradual rate to the entry of Cotton Park/Trout Lake area. These two planted landforms frame the space serving as a ‘gateway’ at this important intersection that creates a dramatic entry into the two communities. Prairie plant species in the median require less maintenance and promote sustainability. The existing wetland species are maintained and enhanced by more native plantings.